UNITED STATES TARIFF COMMISSION

SUMMARIES OF TRADE AND TARIFF INFORMATION

Prepared in Terms of the Tariff Schedules of the United States (TSUS)

Schedule 6

Metals and Metal Products
(In 11 volumes)

VOLUME 5

Containers, Wire Products, Foil,
Fasteners, and Specified Hardware

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FOREWORD

In an address delivered in Boston on May 18, 1917, Frank W. Taussig, distinguished first chairman of the Tariff Commission, delineated the responsibility of the newly established Commission to operate as a source of objective, factual information on tariffs and trade. He stated that the Commission was already preparing a catalog of tariff information--

> designed to have on hand, in compact and simple form, all available data on the growth, development and location of industries affected by the tariff, on the extent of domestic production, on the extent of imports, on the conditions of competition between domestic and foreign products.

The first such report was issued in 1920. Subsequently three series of summaries of tariff information on commodities were published--in 1921, 1929, and 1948-50. The current series, entitled Summaries of Trade and Tariff Information, presents the information in terms of the tariff items provided for in the eight tariff schedules of the Tariff Schedules of the United States (abbreviated to TSUS in these volumes), which on August 31, 1963, replaced the 16 schedules of the Tariff Act of 1930.

Through its professional staff of commodity specialists, economists, lawyers, statisticians, and accountants, the Commission follows the movement of thousands of articles in international commodity trade, and during the years of its existence, has built up a reservoir of knowledge and understanding, not only with respect to imports but also regarding products and their uses, techniques of manufacturing and processing, commercial practices, and markets. Accordingly, the Commission believes that, when completed, the current series of summaries will be the most comprehensive publication of its kind and will present benchmark information that will serve many interests. This project, although encyclopedic, attempts to conform with Chairman Taussig's admonition to be "exhaustive in inquiry, and at the same time brief and discriminating in statement."

This series is being published in 62 volumes of summaries, each volume to be issued as soon as completed. Although the order of publication may not follow the numerical sequence of the items in the TSUS, all items are to be covered. As far as practicable, each volume reflects the most recent developments affecting U.S. foreign trade in the commodities included.

SUMMARIES OF TRADE AND TARIFF INFORMATION

SCHEDULE 6

Volume 5

C O N T E N T S

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Numerical List of TSUS Items in This Volume

INTRODUCTION

This volume is one of a series of 11 volumes of Summaries of Trade and Tariff Information on metals and metal products. It includes summaries relating to metal containers, wire products, foil, fasteners, and certain hardware provided for in part 3, subparts A, B, C, and D of schedule 6 of the Tariff Schedules of the United States (TSUS). This volume is identified as volume 6:5. 1/

The value of apparent U.S. consumption (U.S. producers' shipments plus imports minus exports) in 1967 of the articles discussed in the 27 summaries in this volume is estimated at about $8.9 billion. This is slightly larger than the value of U.S. producers' shipments of these articles in the same year, estimated at about $8.8 billion, for the value of U.S. imports somewhat exceeded that of exports. In 1967, estimated producers' shipments of metal containers ($3.5 billion) accounted for 40 percent of the total value; those of hardware, such as locks, door closers, hinges, furniture glides, and miscellaneous hardware ($2.1 billion), for 24 percent; those of metal fasteners, such as nails, wood screws, bolts and nuts ($1.9 billion), for 21 percent; those of wire products except fasteners ($0.8 billion), for 9 percent; and those of metal foil, leaf, stamping materials, and flitters ($0.5 billion), for the remaining 6 percent.

The total value of imports of the products covered by this volume amounted to $226 million in 1967--about 8 percent more than in 1966 ($209 million) and 23 percent more than in 1965 ($184 million). The aggregate value of the imports in 1967 accounted for about 2.6 percent of the estimated value of apparent U.S. consumption. The value of imports as used in this volume is generally the foreign market value and therefore excludes U.S. import duties, freight, and transportation insurance; if the ratio of imports to consumption were based on landed, duty-paid value of imports, the ratio would be somewhat larger--estimated at slightly more than 3 percent. The products included in this volume were imported from many countries; however, the four principal sources--Japan, Canada, West Germany, and Belgium-Luxembourg--accounted for about three-fourths of the total value of imports in 1967, Japan alone accounting for about two-fifths of the total.

Of the five major groups of products discussed in this volume, which are identified above, the most important in terms of the foreign value of imports in 1967 was metal fasteners ($107.8 million, representing about 5.6 percent of the value of U.S. consumption). Next

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1/ For this and other summary volumes, the number to the left of the colon designates the TSUS schedule involved and the number to the right of the colon indicates the sequence of the volume in the series for that schedule, as listed on p. ii in this volume for schedule 6. Volumes published heretofore are listed on the inside of the back cover.

largest imports in that year were of wire products other than fasteners ($58.9 million, or about 6.9 percent of consumption), followed by metal foil, leaf, stamping materials, and flitters ($26.6 million, or about 5.2 percent of consumption), hardware ($25.9 million, or about 12.6 percent of consumption), and metal containers ($6.8 million, or about 0.2 percent of consumption).

Based on imports (dutiable and duty-free) in 1967, the average ad valorem equivalent of the many rates applicable at the end of 1967 to the products covered in this volume was about 8 percent. Duty-free imports in 1967 were valued at about $18 million, or about 8 percent of the total; a little more than half of this amount consisted of one item (barbed wire) and the remainder consisted of nine items of Canadian hardware for original motor-vehicle equipment imported free of duty pursuant to the Automotive Products Trade Act of 1965. Of the 144 items in the Tariff Schedules of the United States Annotated (TSUSA-1968) discussed in this volume, 130 were the subject of concessions granted by the United States in the sixth (Kennedy) round of trade negotiations under the General Agreement on Tariffs and Trade (GATT). The great bulk of the concessions amounted to 50-percent reductions in the applicable duties. The rates of duty applicable to the other 14 TSUS items were not affected by the trade conference; however, the products covered by nine of these items had been afforded free entry in 1965, prior to the conclusion of the Kennedy Round negotiations.

The total value of U.S. exports in 1967 of the articles included in this volume is estimated to have been about $164 million, or somewhat less than that of U.S. imports; exports in that year accounted for an estimated 1.9 percent of U.S. producers' total shipments of such articles. Among the major groups of articles considered in this volume, the largest share of the total value of exports was accounted for by metal fasteners (35 percent), followed by hardware (31 percent), metal containers (22 percent), wire products (7 percent), and metal foil, leaf, stamping materials, and flitters (5 percent).

Appendix A to this volume reproduces pertinent segments of the TSUSA-1968 relating to the items covered by this volume. It includes the general headnotes to the TSUS, the headnotes to schedule 6, the headnotes to part 3 and subparts A, B, C, and D, and the individual product descriptions. The interpretive headnotes clarify the relationships between the various tariff items and define many of the terms used in the descriptions. Appendix A also gives the rates of duty applicable to the individual TSUS items, including the staged annual rate modifications that resulted from concessions granted by the United States in the sixth round of trade negotiations under the GATT. Notes

in the appendix also document changes in the legal text of the tariff schedules after these schedules went into effect on August 31, 1963, including changes in the statistical annotations of items. The shaded areas in appendix A cover headnotes and TSUS items not included in the summaries in this volume.

Appendix B to this volume provides data on the value of the U.S. imports in 1967 by TSUS items included in the individual summaries of this volume. The data also show the percentage changes in imports from 1966 and the three principal countries which supplied imports in 1967.

Commodity	TSUS item
Metal pressure containers designed and used for the transport and storage of compressed gases:	
Of stainless steel	640.05
Other	640.10

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is one of the world's largest producers and exporters of metal pressure containers. The United States exports about 6 to 8 percent, by value, of its annual production. U.S. imports are negligible.

Description and uses

This summary covers metal pressure containers designed and used for the transport and storage of compressed gases. These articles are known by such names as cylinders, spherical vessels, and tanks. Cylinders are the most numerous of such articles, and as their name indicates, are cylindrical in shape; ordinarily they are readily portable in the sense that they can be easily moved from one location to another which enables on-the-site delivery of full cylinders and the pick-up of empties. Most pressure containers are made from various grades of carbon steel; some, however, are made of stainless steel. They are generally subject to rigid tolerances and test specifications. Most gas cylinders are produced by the seamless process and are forged from steel billets. Some are made from other metals, principally aluminum. Gas cylinders are used predominantly for oxygen, but they are also used extensively for other gases, such as hydrogen, nitrogen, and argon. Most gas cylinders are of the refillable type and have a use expectancy of 25 to 30 years. Other pressure containers such as tanks may have capacities in excess of 3,000 gallons.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Metal pressure containers designed and used for the transport and storage of compressed gases:			
640.05	Of stainless steel--	15% ad val.	13% ad val.	7.5% ad val.
640.10	Other----------	10% ad val.	9% ad val.	5% ad val.

The tabulation above shows the column 1 rates of duty in effect under the TSUS prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

A charged container of foreign manufacture must not be offered for transportation in domestic traffic unless it has been made in accordance with the applicable Interstate Commerce Commission's specifications and unless the tests required by such specifications were made in this country and proper report rendered; containers of foreign manufacture received from foreign countries for charging with compressed gas, may be charged and shipped for export only (49 CFR 173.302).

When filled containers designed for or capable of reuse are imported, their contents are separately dutiable under various items in schedule 4. Containers for compressed gases, filled or empty, however, when not imported for sale or for sale on approval, may be admitted into the United States without the payment of duty, under bond for their exportation within 1 to 3 years from the date of importation (item 864.45).

U.S. consumption

The value of estimated apparent consumption of metal pressure containers increased steadily from about $78 million in 1958 to $136 million in 1967 (table 1). Practically all of the metal pressure containers used in the United States are manufactured domestically. From 1958 to 1967, the value of U.S. consumption of gas cylinders increased from about $35 million to $65 million.

U.S. producers

About six domestic concerns produce gas cylinders for compressed gases. One producer situated in Pennsylvania accounts for more than half of total domestic production. Several dozen concerns are engaged in manufacturing pressure containers other than gas cylinders.

U.S. production, exports, and imports

Domestic production of metal pressure containers increased in value from an estimated $85 million in 1958 to about $145 million in 1967 (table 1). Production of gas cylinders rose in value from about $40 million in 1958 to about $69 million in 1965 and to an estimated $75 million in 1967. Almost 15 percent of the domestic production of gas cylinders is exported; there is little international trade in the larger pressure containers, however, principally because of their bulk.

During 1958-67, U.S. exports, which have been many times larger than U.S. imports, increased in value from about $7.3 million in 1958 to about $10.4 million in 1965, then declined to $9.4 million in 1967 (table 1), when they went to about 100 countries. In addition, annual U.S. exports of foreign pressure containers have amounted to almost $150,000 in recent years. Canada, the dominant market, accounted for about 30 percent of total U.S. exports of metal pressure containers in 1966 and 1967 (table 2). Venezuela, the United Kingdom, India, Mexico, South Africa, and Australia were other important markets in 1965-67.

Imports have been negligible; they amounted to $50,000 in 1964, $96,000 in 1965, $179,000 in 1966, and $48,000 in 1967 (table 3). Practically all of the imports consisted of metal pressure containers other than of stainless steel (item 640.10). Unit values of imported nonalloyed pressure containers of the types properly classifiable under item 640.10 apparently vary from about $2 to more than $50 each. Imported pressure containers of stainless steel are often valued at more than $1,000 each. Canada has been by far the most important source of imports, supplying more than 60 percent of total imports during 1964-67 (table 3). The Interstate Commerce Commission specifications previously mentioned tend to restrict the volume of U.S. imports.

Table 1.--Metal pressure containers designed and used for the transport and storage of compressed gases: U.S. production, imports for consumption, exports of domestic merchandise, and apparent consumption, 1958 and 1964-67

(In thousands of dollars)

Year	Production	Imports 1/	Exports	Apparent consumption
1958	2/ 85,000	3/	2/ 7,300	2/ 77,800
1964	3/	50	2/ 8,400	3/
1965	2/ 135,000	96	10,380	2/ 124,716
1966	2/	179	9,870	3/
1967	2/ 145,000	48	9,435	2/ 135,613

1/ Data include some pressure containers (aerosol bombs) valued at less than 10 cents each which probably should have been entered under items 640.20 to 640.30, i.e., containers used chiefly in the packing, transporting, or marketing of goods (see summary on metal drums, cans, flasks, and similar containers, in this volume (6:5)).

2/ Estimated.

3/ Not available.

Source: Data on imports for 1964-67 and data on exports for 1965-67, compiled from official statistics of the U.S. Department of Commerce; other data were estimated by the staff of the U.S. Tariff Commission.

Table 2.--Metal pressure containers designed and used for the transport and storage of compressed gases: U.S. exports of domestic merchandise, by principal markets, 1965-67

(In thousands of dollars)

Market	1965	1966	1967
Canada	3,963	3,129	2,762
Venezuela	387	527	584
United Kingdom	366	270	556
India	534	724	511
Mexico	303	428	417
Belgium-Luxembourg	66	56	326
Republic of South Africa	353	315	303
New Zealand	114	213	243
Australia	625	299	236
Trinidad	328	114	197
Dominican Republic	250	63	187
Jamaica	162	174	172
Surinam	121	87	172
South Vietnam	119	548	165
Japan	56	36	164
Chile	103	157	122
Netherlands Antilles	157	194	91
France	104	154	85
Guatemala	185	174	84
Pakistan	205	46	23
Salvador	66	151	21
All other	1,813	2,011	2,014
Total	10,380	9,870	9,435

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Metal pressure containers designed and used for the transport and storage of compressed gases: U.S. imports for consumption, by principal sources, 1964-67 1/

(In thousands of dollars)

Source	1964	1965	1966	1967
Japan	1	12	9	14
Canada	28	61	140	9
United Kingdom	8	2	1	9
Sweden	1	4	5	4
Italy	-	8	11	3
Netherlands	3	3	7	2
Spain	6	-	-	2
All other	3	6	6	5
Total	50	96	179	48

1/ Data include some pressure containers (aerosol bombs) valued at less than 10 cents each which probably should have been entered under items 640.20 to 640.30, i.e., containers used chiefly in the packing, transporting, or marketing of goods (see summary on metal drums, cans, flasks, and related containers in this volume (6:5)).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Drums, flasks, casks, cans, boxes, lift vans, and other containers, all the foregoing of base metal, used chiefly in the packing, transporting, or marketing of goods:	
Of stainless steel	640.20
Of aluminum and having a capacity of not over 5 gallons	640.25
Other	640.30

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is the world's largest producer of metal containers; U.S. exports and imports are very small compared with domestic production.

Description and uses

This summary covers drums, flasks, cans, boxes, lift vans 1/, and other containers of base metal that are chiefly used in the packing, transporting, and marketing of goods. Pressure containers (items 640.05 and 640.10) and collapsible tubes (item 640.40) are discussed in separate summaries in this volume (6:5). The containers included herein are those imported empty and those designed for and capable of reuse, when imported full.

Also included herein are containers equipped with fittings; however, containers with provision made for circulating heating or cooling fluids between the walls, or with mechanical or thermal equipment such as agitators, heating or cooling coils, or electrical elements are included in separate summaries.

1/ The language of the TSUS includes lift vans and other shipping containers particularly adapted for handling and transporting quantities of merchandise by means of mechanical loading and unloading equipment. Although of only recent development, containerization of merchandise is of considerable importance at the present time and growing rapidly. Data, however, concerning such articles are not included in this summary due to a lack of available information; there are no official statistics published by the Department of Commerce and, insofar as known, no dutiable imports of this merchandise.

METAL DRUMS, CANS, FLASKS, AND RELATED CONTAINERS

Metal cans are customarily single-walled containers usually constructed of tinplate or aluminum sheet, or--less frequently--of terneplate, black plate, or waste plate. They are used to package more than 2,500 different products produced by more than 100 separate industries. They are produced in a large variety of types and sizes, such as those used in packing beer, soft drinks, coffee, fruits, vegetables, meats, other food products, paint, varnishes, oil, antifreeze, and other nonfood products. Within the metal can industry, aluminum is replacing tinplate cans in some applications. In addition, cans and containers made from paper and paperboard, plastics, glass, and other materials are competitive with metal cans in packing various products.

Metal barrels, drums, kegs, and pails are single-walled cylindrical containers made mostly from steel sheets or plates. They may be seamless, welded, or riveted. Pails are usually constructed of steel sheet, of 29 gage or heavier, and range between 1 and 12 gallons in capacity; barrels and drums range from 13 to 132 gallons in capacity. About a fourth of the annual production of pails is used in packing paint and about a fifth in packing chemicals. The chemical and oil industries together take more than three-fourths of the annual production of metal barrels and drums.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Drums, flasks, casks, cans, boxes, lift vans, and other containers, all the foregoing of base metal, used chiefly in the packing, transporting, or marketing of goods:			
640.20	Of stainless steel	15% ad val.	13% ad val.	7.5% ad val.
640.25	Of aluminum and having a capacity of not over 5 gallons.	19% ad val.	17% ad val.	9.5% ad val.
640.30	Other	10% ad val.	9% ad val.	5% ad val.

The tabulation above shows the column 1 rates of duty in effect under the TSUS prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

Substantial containers and holders, if products of the United States, or if of foreign production and previously imported and duty thereon paid, or if of a class specified by the Secretary of the Treasury as instruments of international traffic are imported free of duty (item 808.00).

Containers imported with their contents and not suitable for reuse are, in effect, dutiable at the same rate as their contents except that the cost of such containers is deductible from dutiable value if they are products of the United States being returned without having been advanced in value or improved in condition while abroad (see general headnote 6 to the TSUSA-1968). Under section 10.41a, Customs

Regulations (19CFR 10.41a), lift vans, cargo vans, shipping tanks, skids, and pallets, arriving in the United States loaded or empty, in use or to be used in the shipment of merchandise in international traffic, are designated as "instruments of international traffic" within the meaning of section 322(a), Tariff Act of 1930, as amended.

U.S. consumption

During 1958-67 the volume and trend of domestic consumption of the metal containers covered here were similar to those of domestic production, for exports and imports are very small. Total consumption increased from $2.0 billion, in 1958 to $2.8 billion, in 1967 (table 1). 1/ Consumption of metal cans increased unevenly from 4.8 million tons, valued at $1.8 billion, in 1958 to 5.4 million tons, valued at $2.4 billion, in 1967. 2/ U.S. consumption of metal barrels, drums, and pails fluctuated within a narrow range throughout the period, averaging about 820,000 tons a year.

Metal cans.--The increase in the tonnage of metal cans consumed during the past decade is largely attributable to an expanding population and to an increase in the per capita consumption of canned products. Although tinplate cans account for about 97 percent of the annual tonnage consumed, aluminum cans, which were practically nonexistent before 1959, are being consumed in larger quantities each year as their popularity grows for packing beer, beverages, and seafood. Consumption of aluminum cans, which amounted to about 25,000 tons in 1962, increased to 80,000 tons in 1964 and to 170,000 tons in 1967. One can made from tinplate weighs as much as two to three cans made from aluminum.

The magnitude and pattern of the consumption of metal cans by product is ever changing, not only because of competition from other packaging materials, changing consumer demands, new merchandising techniques, and expanding technology, but also because of changes in the size of the fruit and vegetable crops, and other factors. For the selected years indicated, the percentage distribution (based on weight) of all metal cans used, by product packaged, was as follows:

1/ The value of consumption in 1958 represented about 5.5 million tons, that in 1967, about 6.2 million tons.

2/ The metal can industry consumes more than 5 million tons of steel annually, outranking all but the automotive, construction, and machinery industries as a user of steel.

Product	1958	1961	1965	1966
Fruits, vegetables, and juices	32.8	32.4	29.6	28.2
Beer	17.2	16.9	19.0	19.7
Soft drinks	.8	2.2	6.5	8.8
Evaporated and condensed milk and other dairy products	5.0	4.3	3.6	3.5
Coffee	4.4	4.5	3.6	3.3
Meat including poultry	2.9	3.2	2.9	2.9
Fish and seafood	2.6	2.5	2.5	2.4
Lard and shortening	2.3	2.1	1.5	1.4
Other foods including soups and baby foods	10.4	11.0	11.5	11.2
Pet foods	3.6	3.7	4.1	4.1
Pressure packing (valve type)	1.0	1.6	3.1	3.0
Oil	5.7	5.2	2.6	2.6
Paint, varnish, antifreeze, and all other nonfood products	11.3	10.4	9.5	8.9
Total	100.0	100.0	100.0	100.0

Estimated quantities of cans consumed in 1966, by product packaged, were as follows:

Product	Short tons
Fruits, vegetables, and juices	1,462,000
Beer	1,020,000
Soft drinks	458,000
Evaporated and condensed milk and other dairy products	180,000
Coffee	170,000
Meat including poultry	150,000
Fish and seafood	125,000
Lard and shortening	75,000
Other foods including soups and baby foods	580,000
Pet foods	215,000
Pressure packing (valve type)	155,000
Oil	135,000
Paint, varnish, antifreeze, and all other nonfood products	460,000
Total	5,185,000

Almost half of the metal cans consumed each year are used in packing fruits, vegetables, juices, and beer. Since 1958 the quantity of metal cans for soft drinks has increased tenfold --more rapidly than for any other product. About 7.5 billion cans were used for soft drinks in 1967, or nearly three times the number consumed in 1964.

Consumption of aerosol cans has tripled since 1958 as a result of increased use of merchandise in aerosol containers such as hair sprays, shaving creams, various cosmetic products, paints, icings and whipped toppings for desserts, waxes, furniture polish, bug repellants, and insecticides. 1/ The wide acceptance of the use of fiber-foil containers for fruit juices and oil has contributed to the decline in the use of metal cans for these products. Consumption of metal cans for lard and other shortening has declined in recent years because of a developing consumer preference for edible oils, which are generally packaged in glass. Glass containers have largely replaced metal cans for baby foods. A lessening of demand for evaporated and condensed milk has resulted in the decrease in the use of metal containers for these products. Introduction of a key-opening coffee container using less tinplate has resulted in a drop in shipments of metal coffee containers. Although the quantity of metal containers used in packing seafood has remained virtually unchanged, aluminum cans have somewhat supplanted cans of tinplate.

Other containers.--The chemical industry consumes more than half of annual U.S. production of all metal drums; the oil industry consumes about 25 percent of the total; and the paint industry about 6 percent. The paint industry is the principal consumer of pails, followed closely by the chemical and oil industries.

U.S. producers

Metal cans are produced by more than 100 companies operating about 225 plants situated in about 35 States. About 90 companies produce tinplate cans, and 18 companies manufacture aluminum cans. California is the leading producing State, followed by Illinois and New Jersey. A few domestic producers account for the great bulk of production, and most of the major producers manufacture fiber-foil containers, milk cartons, throw-away bottles, and other containers, as well as metal cans. Some producers have plants in foreign countries. In recent years the domestic industry has employed about 55,000 persons.

About 140 establishments employing a total of about 12,000 workers manufacture metal barrels, drums, and pails. The North Central and Northeastern States are the principal producing regions; Illinois,

1/ These containers are ordinarily small, inexpensive throw-away cans with spray nozzles, which cans are particularly adapted for retailing and for the dispensing of the various products in the home or elsewhere where large volume use is not usually required. Such containers are not of the type of the "metal pressure containers designed and used for the transport and storage of compressed gases" as provided for in TSUS items 640.05 and 640.10.

New Jersey, and Ohio are the principal producing States. Although production of barrels, drums, and pails constitutes only a minor portion of the aggregate operations of several large steel concerns, it represents a significant portion of the total business of many smaller firms.

In recent years the metal can industry has experienced changes resulting from the introduction of new materials--plastics that are more rigid or more flexible than ever before, glass that can withstand violent temperature shocks, and special coatings that enhance the utility of containers. The steel industry, aware of the inroads that have been made by fiber foil, plastics, aluminum, and other materials, has invested large sums of money in the development and promotion of lightweight tinplate.

The major can producers are installing black-plate production lines for tinless cans utilizing a cemented lap seam. Thus far tinless cans have been used predominantly as containers for beer and soft drinks. The prices of tinless cans are somewhat lower than those of cans made from tinplate. Coatings of enamel, chrome, aluminum, or other metals may be applied to black-plate cans. Considerable research is also being conducted on drawn and foil cans. (Tinplate foil, i.e., tinplate rolled to about 0.002 inch in thickness, is finding a small but growing use in packaging.)

U.S. production

Domestic production of the metal containers covered herein increased from 5.6 million tons, valued at $2.1 billion, in 1958 to 6.2 million tons, valued at $2.8 billion, in 1967 (table 1). U.S. production of metal cans alone increased from 4.8 million tons, valued at $1.8 billion, in 1958 to 5.4 million tons, valued at $2.4 billion, in 1967; domestic production of metal barrels, drums, and pails fluctuated between about 775,000 tons in 1959 and 850,000 tons in 1964.

The tonnage of metal cans produced increased by about 12 percent from 1958 to 1967 while the value of such production increased by 33 percent during the same period; however, much of the increase in value represents the increase in use of aluminum and lighter weight tinplate rather than increases in prices. The number of metal cans produced domestically increased from about 43 billion in 1958 to 57 billion in 1967. The production of aluminum cans, which has increased at a rapid rate since 1959, amounted to 4 to 5 billion in 1967.

U.S. production of containers made from all materials was valued at $11 billion in 1958 and at $17 billion in 1967. Paper and paperboard containers accounted for more than 50 percent of the total, while metal containers (a somewhat broader category than is covered by

this summary) ranked second in annual sales. Since 1958, metal and paper and paperboard containers have maintained approximately their relative share of the domestic market, while wood, textile, and glass containers declined in importance. Plastics, possessing the advantages of being durables of low relative weight, sealable, transparent, and lower in cost than metals, have made a larger relative gain than any other packaging material.

Within the metal can industry, the volume of production of beer cans exceeds that of cans for any other single product, while the volume of production of cans for soft drinks has been growing at the fastest rate. Production of beer cans, which amounted to 10.9 million in 1964, increased to about 14 million in 1967; production of soft-drink cans increased from 2.8 million in 1964 to about 7.5 million in 1967. The steady growth in the production of aerosol cans is likely to continue. Production of metal barrels, drums, and pails amounted to 827,000 tons in 1966, about the same as the annual average for the period 1958-66.

U.S. exports

Although exports have declined since 1958, they remain several times as large as imports. During 1958-67, exports ranged between 20,700 tons, valued at $16.2 million, in 1967 and 55,300 tons, valued at $26.2 million, in 1959 (table 1). Most of the containers exported are metal cans. Exports of tin cans made from imported tinplate on which drawback of import duties was paid amounted to 10,500 tons, valued at $5.2 million, in 1965, the only year for which such data were compiled. U.S. exports of metal cans account for less than 0.5 percent of U.S. production, primarily because the cans are available locally in many overseas markets. The principal markets for exports have been Mexico and Canada (table 2).

U.S. imports

Imports of the metal containers considered herein increased in value from $1.4 million in 1958 to $5.6 million in 1967 (table 1). Although imports have increased in 7 of the last 9 years, they have been small in relation to exports, production, or consumption. Imports have supplied less than 1 percent of annual U.S. consumption. Because domestic containers are produced by a highly efficient industry geared to mass production, imports have consisted principally of many specialty items. Also imports, like exports, are restricted somewhat because transportation of the bulky metal containers is costly.

Almost 90 percent of the imports in recent years have been classifiable under item 640.30. More than half of all imports enter through

the customs districts of New York City and Buffalo. Canada has been the principal source of imports, accounting for about 40 percent of all imports in the period 1966-67 (table 3). The Netherlands, West Germany, and the United Kingdom have also been important sources of imports.

Table 1.--Metal drums, flasks, casks, cans, boxes, lift vans, and other containers for packing, transporting, or marketing goods: U.S. production, imports for consumption, exports of domestic merchandise, and apparent consumption, 1958-67

Year	Production 1/		Imports	Exports 1/		Apparent consumption 1/
	Quantity	Value		Quantity	Value	
	1,000 short tons	Million dollars	Million dollars	1,000 short tons	Million dollars	Million dollars
1958----	5,560	2,065	1/ 1.4	52.6	24.6	2,042
1959----	5,740	2,170	1/ 2.2	55.3	26.2	2,146
1960----	5,680	2,200	1/ 2.3	50.2	25.0	2,177
1961----	5,830	2,350	1/ 2.2	46.4	22.7	2,330
1962----	5,700	2,385	1/ 2.7	38.0	20.8	2,367
1963----	5,445	2,300	1/ 3.0	30.8	19.2	2,284
1964----	5,665	2,500	4.5	36.5	22.7	2,482
1965----	5,830	2,600	5.3	24.9	17.8	2,587
1966----	6,010	2,650	5.2	30.8	22.7	2,632
1967----	6,210	2,800	5.6	20.7	16.2	2,789

1/ Partly estimated by the staff of the U.S. Tariff Commission.

Source: Based on data published by the U.S. Department of Commerce, except as noted.

Table 2.--Metal drums, flasks, casks, cans, boxes, lift vans, and other containers for packing, transporting, or marketing goods: U.S. exports of domestic merchandise, by principal markets, 1964-67

(In thousands of dollars)

Market	1964 1/	1965	1966	1967
Mexico	3,452	5,065	12,361	5,811
Canada	10,568	6,575	5,758	4,488
Venezuela	1,973	927	875	1,029
United Kingdom	689	441	141	598
Dominican Republic	679	327	380	486
West Germany	900	860	605	388
France	473	306	121	311
Netherlands	690	359	129	293
Ecuador	586	23	14	11
All other	2,690	2,917	2,347	2,780
Total	22,700	17,800	22,731	16,195

1/ Data partly estimated by the staff of the U.S. Tariff Commission from data published by the U.S. Department of Commerce.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 3.--Metal drums, flasks, casks, cans, boxes, lift vans, and other containers for packing, transporting, or marketing goods: U.S. imports for consumption, by principal sources, 1964-67

(In thousands of dollars)

Source	1964	1965	1966	1967
Canada	726	1,274	2,281	2,175
West Germany	581	572	554	635
United Kingdom	422	395	396	581
Italy	250	264	208	390
Spain	451	156	237	277
Netherlands	772	1,349	135	259
Japan	196	178	268	244
Switzerland	238	276	349	188
Mexico	166	144	144	173
France	288	245	161	158
All other	354	432	429	494
Total	4,514	5,285	5,162	5,574

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Metal reservoirs, tanks, vats, and other large containers	640.35

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is one of the world's largest producers of metal reservoirs, tanks, vats, and other large containers which are ordinarily installed as fixtures in industrial plants or elsewhere for storage or manufacturing use. These bulky articles do not lend themselves readily to international trade. Although U.S. exports are small, they are several times larger than U.S. imports.

Description and uses

This summary covers reservoirs, tanks, vats, and other containers of metal which have a capacity of more than 75 gallons and which are ordinarily installed as fixtures in industrial plants or elsewhere for storage or manufacturing use. These articles are used in chemical plants, oil and gas refineries, breweries, dairies, cheese factories, and by other industries. Most of these large containers are fabricated from steel plate, but some are fabricated from other metals. The containers may be lined or unlined. The containers included herein may or may not be equipped with fittings; however, containers with provision made for circulating heating or cooling fluids between the walls, or with mechanical or thermal equipment, heating or cooling coils, or electrical elements, are not covered.

Metal pressure containers designed and used for the transport and storage of compressed gases (items 640.05 and 640.10) and drums, flasks, casks, cans, boxes, lift vans and other containers, of base metal, for packing, transporting or marketing goods (items 640.20-640.30) are covered in separate summaries in this volume (6:5).

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
640.35	Reservoirs, tanks, vats, and other containers of metal which have a capacity of more than 75 gallons and which are ordinarily installed as fixtures in industrial plants or elsewhere for storage or manufacturing use.	13.5% ad val.	12% ad val.	6.5% ad val.

The tabulation above shows the column 1 rate of duty in effect under the TSUS prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

U.S. consumption, production, and foreign trade

Apparent consumption of the articles covered herein has been only slightly less than domestic production. Annual domestic production during the past decade has ranged in value from an estimated $500 million to $550 million.

More than 100 companies, situated principally in the North Central and Middle Atlantic States, produce one or more of the types of containers covered by this summary. These relatively bulky articles are usually marketed within close proximity of the producing plant.

U.S. exports, although small in relation to consumption and

production, have probably been several times larger than imports. The cost of shipping such bulky articles inhibits their shipment except to areas where they can not be economically produced. The value of exports is believed to have averaged about $10 million a year during 1958-67. Canada has been the principal export market.

U.S. imports were small throughout the 1958-67 period (equivalent to far less than 1 percent of domestic production). Imports ranged in value from virtually nothing in 1958 to $1.1 million in 1967. During 1964-66 the value of imports averaged slightly less than $150,000 a year. West Germany, Canada, Japan, and the United Kingdom have accounted for virtually all of the imports. In 1967 West Germany was the source of almost 85 percent of the imports. The average foreign unit value 1/ of the articles imported has ranged from about $200 to several thousand dollars. In 1967 the average unit value of imports from West Germany, the principal source, was $59,000.

1/ Generally the market value in the foreign country; therefore it excludes U.S. import duties, freight, and transportation insurance.

Reservoirs, tanks, vats, and other containers of metal which have a capacity of more than 75 gallons: U.S. imports for consumption, by principal sources, 1964-67

(In thousands of dollars)

Source	1964	1965	1966	1967
West Germany	3	9	30	949
Canada	12	181	47	122
Japan	-	-	39	47
United Kingdom	31	13	18	5
All other	-	2	1/ 47	19
Total	46	205	181	1,142

1/ Includes imports valued at 31 thousand dollars from the Netherlands.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Statistics on domestic consumption, production, and exports are not available; however, it is estimated that during 1958-67 domestic production ranged from $500 million to $550 million. During this period exports probably averaged about $10 million annually.

Commodity	TSUS item
Collapsible tubes of metal	640.40

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. apparent consumption of collapsible metal tubes in 1966 amounted to almost $48 million, of which less than 1 percent was supplied by imports; exports are negligible. The minor foreign trade in these articles is attributable principally to the high cost of transporting the empty tubes.

Description and uses

Collapsible metal tubes are disposable containers of the type commonly used for packaging toothpaste, shaving cream, cosmetics, medicinal preparations, foods, glue, artists' paint and other semi-liquid or pasty products. The tubes are produced on highly automated equipment that transforms small circular slugs of metal or metal alloys into thin-walled cylinders. One end of the tube generally has a narrow neck that is threaded to accommodate a screw type of closure. The closures (caps), principally of molded plastic, are attached before the tubes are filled, since filling takes place from the opposite end. Tube producers generally make the closures, also on highly automated equipment, and label the tubes.

Various metals or alloys, such as tin, tin-coated lead, lead, tin-lead, and aluminum, are used in the production of collapsible tubes, the choice of metal depending on the product to be packaged. Aluminum tubes, the most common since 1949, are generally used for packaging toothpaste, grease, glue, and some food products. When used for medicinal and pharmaceutical preparations, aluminum tubes may require liners to prevent contamination. Tin, because of its relatively high cost, is generally used for smaller tubes for the packaging of medicinal ointments. Lead tubes, the least expensive type, are used for glue and grease, and--when lined--for cosmetics, dentifrices, and a variety of other products as well. For special packaging uses, tin-coated lead and tin-lead alloys are sometimes used, but the production of these types of tubes is small.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
640.40	Collapsible tubes of metal.	12% ad val.	10.5% ad val.	6% ad val.

The tabulation above shows the column 1 rate of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rate shown in the tabulation had remained unchanged under the TSUS from August 31, 1963, through the end of 1967.

U.S. consumption

U.S. production and consumption of collapsible tubes are substantially identical, for imports and exports are negligible. In 1966, U.S. shipments amounted to 8.2 million gross, valued at about $48 million, compared with 8.9 million gross, valued at slightly more than $50 million, in 1965 (table 1). During 1958-66, shipments (measured in terms of value) increased at an average annual rate of 3.3 percent.

U.S. producers and production

The industry is composed of 24 establishments operated by 14 concerns. Twelve of the plants are situated in the northeastern part of the United States, seven in the North Central States, and the remaining five in the Southern and Western States. In 1965, the industry employed about 4,000 persons. The producing firms vary considerably in size; at least one is a division of a full-line producer of packaging products, and another is a division of a pharmaceutical and toiletries producer.

During 1958-66, annual U.S. shipments of tubes ranged from 7.0 million gross to 8.9 million gross (table 1). In this period, from 46.5 to 51 percent of the tubes used in the United States were for packaging toothpaste (table 2). The proportion of use accounted for by medical and pharmaceutical preparations increased during the period, reaching 25.2 percent of total consumption in 1966. Cosmetics accounted for 13.6 percent of consumption in 1965, but the proportion declined to 11.0 percent in 1966, apparently because of competition from plastic tubes. 1/ With the development of the aerosol can, the use of tubes for shaving cream dropped from 4.3 percent of total consumption to less than 1.5 percent between 1958 and 1966. Most of the remainder of the consumption of collapsible tubes was for miscellaneous household and industrial products. Food products accounted for about one-tenth of 1 percent of total consumption throughout the period. In 1964, lead collapsible tubes accounted for 68 percent of the total weight of tubes produced and those made from aluminum for 26 percent (table 3).

U.S. exports and imports

Because of production specifications and the cost and difficulty of shipment (unfilled tubes must be packed and transported in partitioned containers, ready for the filling machines), international trade in collapsible metal tubes is minimal. Exports are negligible, and imports are very small (table 4). In 1964 (the first year for which data are available), Peru was the principal supplier, and in 1965-67 Canada and France accounted for virtually all of the imports.

1/ See the summary on containers and closures of rubber or plastics (items 772.20 and 772.85) in volume 7:7.

Table 1.--Collapsible tubes of metal: U.S. producers' shipments and imports for consumption, 1958-67

Year	Producers' shipments		Imports for consumption	
	Quantity	Value	Quantity	Value
	1,000 gross	1,000 dollars	1,000 gross	1,000 dollars
1958	6,979	37,172	1/	1/
1959	7,986	2/ 42,700	1/	1/
1960	7,829	2/ 42,600	1/	1/
1961	8,093	2/ 42,000	1/	1/
1962	7,527	2/ 41,600	1/	1/
1963	8,309	44,216	1/	1/
1964	8,640	45,702	27	78
1965	8,919	50,418	14	31
1966	8,171	48,000	5	29
1967	3/	3/	4	29

1/ Not available but known to be very small.
2/ Estimated.
3/ Not available.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Exports are negligible.

Table 2.--Collapsible tubes of metal: U.S. producers' shipments, by end-use distribution, 1958 and 1962-66

End use	1958	1962	1963	1964	1965	1966
	Quantity (1,000 gross)					
Medicinal and pharmaceutical	1,414	1,792	1,967	2,099	1,989	2,060
Cosmetics	542	780	1,101	868	1,213	896
Shaving cream	301	142	136	135	117	116
Dentifrices	3,562	3,674	4,043	4,423	4,284	3,803
Food products	4	5	5	4	4	4
Household and industrial	1,155	1,134	1,057	1,111	1,312	1,292
Total	6,977	7,527	8,309	8,640	8,919	8,171
	Percent of total					
Medicinal and pharmaceutical	20.3	23.8	23.7	24.3	22.3	25.2
Cosmetics	7.8	10.3	13.2	10.0	13.6	11.0
Shaving cream	4.3	1.9	1.6	1.6	1.3	1.4
Dentifrices	51.0	48.8	48.7	51.2	48.0	46.5
Food products	.1	.1	.1	1/	.1	.1
Household and industrial	16.5	15.1	12.7	12.9	14.7	15.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Less than 0.5 percent.

Source: Compiled from statistics submitted to the Department of Commerce by the Collapsible Tube Manufacturers' Association.

Table 3.--Collapsible tubes of metal: U.S. producers' shipments, by types of metal, 1958 and 1962-64

(In thousands of pounds)

Type of tube and metal content	1958	1962	1963	1964
Tin	1,194	1,187	1,285	1,353
Tin-coated lead:				
Tin	45	30	27	24
Lead	644	397	363	366
Total	689	427	390	390
Lead	13,777	22,959	28,305	26,217
Tin-lead alloy:				
Tin	22	22	21	15
Lead	538	484	514	401
Total	560	506	535	416
Aluminum	8,196	7,839	9,397	10,146
Total, all metals	24,416	32,918	39,911	38,522

Source: Compiled from statistics furnished to the Department of Commerce by the Collapsible Tube Manufacturers' Association.

Table 4.--Collapsible tubes of metal: U.S. imports for consumption, by sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (gross)			
Canada	78	4,948	4,669	2,464
France	4,849	3,104	520	1,424
Peru	19,698	574	-	-
West Germany	646	2,308	-	-
Denmark	1,423	3,529	-	-
United Kingdom	-	10	-	-
Italy	105	-	-	-
Total	26,799	14,473	5,189	3,888
	Value			
Canada	$446	$20,110	$28,118	$28,507
France	16,283	3,143	1,015	644
Peru	56,424	2,806	-	-
West Germany	2,700	2,574	-	-
Denmark	695	1,828	-	-
United Kingdom	-	615	-	-
Italy	1,532	-	-	-
Total	78,080	31,076	29,133	29,151
	Average unit value (per gross)			
Canada	$5.72	$4.06	$6.02	$11.57
France	3.36	1.01	1.95	.45
Peru	2.86	4.89	-	-
West Germany	4.18	1.12	-	-
Denmark	.49	.52	-	-
United Kingdom	-	61.50	-	-
Italy	14.59	-	-	-
Total	2.91	2.15	5.61	7.50

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Barbed wire	642.02

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States consumes most of the world's production of barbed wire; a quarter to a half of the quantity consumed is imported. U.S. exports of barbed wire are very small in relation to production. U.S. production more than doubled from 1964 to 1966 as the result of Government procurement for military use, but declined in 1967 as Government demand decreased; U.S. production in 1967 amounted to 106,000 short tons.

Description and uses

Barbed wire is a common fencing material customarily consisting of two round wires, called strands or strand wires, which are twisted together and which are wrapped at regular 4 or 5 inch intervals with short pointed pieces of wire serving as barbs. Although barbed wire may be of other metal, it is nearly always made of galvanized steel. It may be made with either two-pointed or four-pointed barbs. It is generally made with wire of 14 to 12½ gage (about 0.08 to 0.0985 inch in diameter); 12½ gage wire is used most frequently. Barbed wire is ordinarily supplied on reels containing one continuous length of 80 rods (one-quarter mile). A reel of 12½-gage barbed wire weighs 80 to 90 pounds.

Barbed wire was developed in the United States to restrict livestock to pasture areas. In addition to use as range or farm fencing material, it is used in both rural and urban areas in conjunction with other types of fencing. During periods of hostilities in which the United States is involved, as in World War II and at present in Viet-Nam, the armed forces use large quantities of barbed wire in the construction of tactical obstacles as well as for fencing purposes. A recently developed product, barbed tape, which has similar uses to barbed wire, is covered in a summary on iron and steel manufactures, not elsewhere enumerated, in volume 6:7. Barbed tape is made of high-carbon steel strip which has been notched or serrated on the edges in such a manner as to form barbs. Most barbed tape is used in military applications.

U.S. tariff treatment

Barbed wire has been duty free since 1913. It was bound duty free in 1948 pursuant to a concession in the General Agreement on Tariffs and Trade.

In 1958 a group of domestic producers applied for an escape-clause investigation regarding imports of barbed wire. 1/ As a result of the investigation, the findings of which were published in August 1960, 2/ the Tariff Commission concluded that barbed wire was not being imported in such increased quantities as to cause or threaten to cause serious injury to the domestic industry, and that the decline in domestic production and sales in the years prior to the investigation was attributable largely to other factors.

U.S. consumption

More than half of the barbed wire for civilian use in the United States is consumed in the region from the Mississippi River to the Rocky Mountains, and more than a third of it is consumed in the southern part of this region.

The total U.S. consumption of barbed wire increased from 151,000 short tons in 1964 to 247,000 tons in 1966; it declined in 1967 to 175,000 tons. The level of consumption is attributable both to an increase in civilian consumption and to a much larger increase in U.S. Government procurement, mostly for military purposes, during 1964-66; Government purchases declined sharply in 1967.

U.S. producers

Barbed wire is produced in about 24 plants, of which six are

1/ The application was initially dismissed by the Commission on jurisdictional grounds that the "escape clause" provision did not apply where it was the historic policy of Congress to admit barbed wire free of import duties for the benefit of the American farmer. On February 4, 1960, the U.S. Court of Appeals for the District of Columbia affirmed a lower court decision to the effect that the escape-clause provision was applicable to barbed wire regardless of the fact that it was duty free in the tariffs acts of 1913, 1922, and 1930, Joseph E. Talbot, et al. v. Atlantic Steel Co. (275 F. 2nd 4).

2/ U.S. Tariff Commission, Barbed Wire, Report on Escape-Clause Investigation, No. 7-86, 1960.

situated in Pennsylvania, four in Illinois, and two each in Alabama and Indiana. The others are widely distributed. The major producers, which own 15 of the 24 plants, are integrated steel companies. Barbed wire is a relatively small source of income for all the producers.

U.S. production and exports

Annual domestic production of barbed wire increased from 79,000 short tons in 1964 to 171,000 short tons in 1966; in 1967 it fell to 106,000 short tons (table 1). Most of the increase is attributable to military procurement. Military procurement from domestic suppliers amounted to 94,000 tons in 1965 and increased to 144,000 tons in 1966. In 1967 such procurement amounted to about 80,000 tons, and it is expected to amount to about 115,000 tons in 1968. Military procurement of barbed tape amounted to about 2,500 tons in 1967 and will probably amount to nearly 4,000 tons in 1968.

Exports of barbed wire are small in relation to domestic production and imports. Annual exports of barbed wire amounted to about 1 percent of annual U.S. production or less during the period 1964-67, ranging from a low of 661 tons, valued at $182,000, to a high of 1,332 tons, valued at $343,000. "Exports" for U.S. military purposes in recent years would probably raise these figures manyfold. 1/ In 1967, principal export markets (other than Viet-Nam) were the Korean Republic, Mexico, Israel, and Canada; exports to the Republic of Korea amounted to more than 40 percent of the total.

U.S. imports

During the period 1964-66, when U.S. consumption was being swollen by military requirements, the ratio of imports to consumption declined from 48 to 31 percent in terms of quantity. In 1967, when military requirements eased, the ratio increased to 40 percent.

Imports amounted to 72,000 tons, valued at $9.2 million ($127 a ton), in 1964, increased to 77,000 tons, valued at $9.8 million ($128 a ton), in 1966, and declined to 69,000 tons, valued at $9.4 million ($135 a ton), in 1967 (table 1). The quantity imported in 1966 included 10,000 tons procured for military purposes; that in 1967 included 984 tons. The principal sources of imports have been Belgium-Luxembourg and West Germany (table 2).

1/ Shipments for the needs of the armed forces beyond the U.S. borders are not recorded in the official export statistics.

Imported barbed wire is generally available in the same sizes of wire and with the same types of barbs as the domestic product. There is a limited foreign market for barbed wire and much of the foreign production is shipped to the United States.

Sales by importers, unlike those by U.S. producers, are generally filled by special order rather than from stocks; for this reason, orders are usually filled more quickly by domestic producers than by importers. Importers' selling prices at ports of entry in 1954-59, as shown in a 1960 report by the Tariff Commission, were 20 to 30 percent lower than the average prices f.o.b. mills for the like articles produced by U.S. concerns. Similar differences were observed in average unit values of imported and domestically produced barbed wire in 1964-66. The ostensible price advantage of the imported article is offset in part, however, by differences both in delivery time and, in some areas, in transportation costs.

Table 1.--Barbed wire: U.S. production, imports for consumption, exports of domestic merchandise, and apparent consumption, 1964-67

(Quantity in short tons; valued in thousands of dollars)

Year	Production	Imports	Exports	Apparent consumption	Ratio (percent) imports to consumption
	Quantity				
1964	79,276	72,432	661	151,048	48
1965	111,668	74,855	1,332	185,191	40
1966	171,056	76,666	1,124	246,598	31
1967	106,231	69,387	752	174,866	40
	Value				
1964	1/	9,191	182	1/	1/
1965	1/	10,119	343	1/	1/
1966	1/	9,825	305	1/	1/
1967	1/	9,392	237	1/	1/

1/ Not available.

Source: Production data compiled from 1967 Annual Statistical Report, American Iron and Steel Institute; all other data compiled from official statistics of the U.S. Department of Commerce.

Table 2.--Barbed wire: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (short tons)			
Belgium-Luxembourg	44,253	41,771	45,205	35,580
West Germany	10,567	16,826	13,788	19,278
Netherlands	6,527	4,057	8,029	6,384
Japan	6,431	5,713	5,456	4,542
All other	4,654	6,488	4,188	3,603
Total	72,432	74,855	76,666	69,387
	Value (1,000 dollars)			
Belgium-Luxembourg	5,746	5,852	5,969	5,071
West Germany	1,325	2,182	1,688	2,493
Netherlands	789	524	1,029	808
Japan	748	742	657	576
All other	583	819	482	444
Total	9,191	10,119	9,825	9,392
	Average unit value (per short ton)			
Belgium-Luxembourg	$130	$140	$132	$143
West Germany	125	130	122	129
Netherlands	121	129	128	127
Japan	116	130	120	127
All other	125	126	115	123
Average	127	135	128	135

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Strands, ropes, cables, and cordage of wire:	
Not covered, fitted, or made into articles	642.06, -.08, -.10, -.12, -.14, -.16
Covered with nonmetallic material	642.18
With fittings or made into articles	642.20
If Canadian article and original motor-vehicle equipment	642.21

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The quantity of annual U.S. production of wire strand, rope, cable, and cordage more than doubled during 1958-67. Concurrently, the quantity of imports increased by about 4 times what it was at the beginning of the period. Consequently, the ratio of imports to consumption increased from 6.6 percent in 1958 to about 15 percent in 1967. Exports have been considerably smaller than imports.

Description and uses

The great bulk of the products considered here are made from steel wire, but they are also made from wire of aluminum, bronze, monel metal, and other metals or alloys. Wire strand is usually made by twisting or "laying" from 3 to 42 or more wires around a central "king" wire or fiber core. Hemp and sisal are commonly used for fiber cores. Strand is used primarily for making wire rope. One of the principal recent uses of strand as such is in the prestressing of concrete structural members using high-strength concrete and high-strength wire. In such construction the strands are held under tension while concrete is poured around them and allowed to harden; as the tension on the strands is released a compressive force is set up within the concrete member, thereby increasing its ability to support loads and resist stresses. Substantial quantities of strand are also used for guying purposes, for highway or walkway safety rail, and for other, usually static applications not requiring much flexibility. Most steel wire strand for use as such is galvanized for protection against rust and corrosion.

Wire rope is customarily made by laying a number of wire strands (most often six) around a central core of fiber, of wire strand, or of an independent wire rope. Standard sizes of rope

range from 3/64 of an inch to 4 inches in diameter; however, 5-inch rope has been made for use on certain earthmoving equipment. Wire rope is constructed in many different ways, the construction generally being dictated by the properties required for the intended end use of the rope. The wires in the strands may or may not all be of the same diameter; the strands in the rope may be laid in the opposite or in the same direction as the wires in the individual strands, or the wires in half the strands may be laid in one direction while those in the other strands are laid in the opposite direction; the rope may be constructed of flattened strands which are roughly triangular in shape, forming a rope with a cross-sectional configuration more nearly circular than that of the more common rope; or the rope may be preformed or nonpreformed. In preformed wire strand or wire rope, the individual wires or strands are formed, before being laid, into the helical shape they will have in the finished strand or rope. Preforming reduces metal fatigue and internal friction between the component wires or strands, thus extending the useful life of the strand or rope.

Wire rope is used primarily for drilling lines; for ropes on earthmoving and materials-handling equipment such as clamshells, shovels, scrapers, cranes, bulldozers, mining machines, hoists, and conveyors; for elevator ropes, logging ropes, winch lines, marine ropes, cargo falls, slings, mooring lines, anchor lines, and towing lines; for reinforcing heavy-duty tires for trucks and buses; and for aircraft control cable. A substantial quantity of wire rope is also used by the fishing industry, particularly for net trawling, and by the automotive industry for clutch, brake, speedometer, and other cable. Some wire rope is used, like strand, for guying purposes and as highway guard rail.

Most wire rope is protected from corrosion by a coating of grease, which is normally applied to the wire as it is being stranded and again to the strands before they are laid into the rope. The grease also limits the amount of wear from internal friction between adjacent wires or strands. Some rope is galvanized, and an increasing amount of rope, particularly that of small diameter, is being sheathed in nylon or plastic. Sheathing, in addition to protecting the rope from corrosion, minimizes wear on the rope due to external friction.

The term "cable" frequently suggests products intended for electrical applications; however, articles such as speedometer cable, brake cable, and aircraft control cable, most of which resemble wire rope, are covered by these tariff provisions. Uninsulated conductors having a flat profile and braided of copper wire are also covered by the TSUS provisions discussed in this summary. This summary includes uninsulated products which are electrical conductors except those provided for in items 688.20 (aluminum cable, steel reinforced) and 688.25 (flexible conductors); see separate summary in volume 6:11.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to imports of strand, rope, cable, and cordage of metal wire are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Strands, ropes, cables, and cordage of wire, whether or not cut to length and whether or not fitted with hooks, swivels, clamps, thimbles, sockets, or other fittings or made up into slings, cargo nets, or similar articles:			
	Not fitted with fittings, not made into articles, not covered with nonmetallic material:			
642.06	Nickel wire strand	14% ad val.	12.5% ad val.	7% ad val.
642.08	Stainless-steel wire strand.	20% ad val.	18% ad val.	10% ad val.
642.10	Other wire strand	15% ad val.	13% ad val.	7.5% ad val.
	Ropes, cables, and cordage (except wire strand):			
642.12	Valued under 13 cents per pound.	1.1¢ per lb.	0.95¢ per lb.	0.5¢ per lb.
	Valued 13 cents or more per pound:			
642.14	Stainless steel	13.5% ad val.	12% ad val.	6.5% ad val.
642.16	Other than stainless steel.	8.5% ad val.	7.5% ad val.	4% ad val.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Strands, ropes, cables, and cordage, etc.--Continued			
642.18	Covered with nonmetallic material but not fitted with fittings or made into articles.	15% ad val.	13% ad val.	7.5% ad val.
642.20	Fitted with fittings or made into articles, whether or not covered with nonmetallic material.	19% ad val.	17% ad val.	9.5% ad val.
642.21	If Canadian article and original motor-vehicle equipment.	Free	1/	1/

1/ Duty-free status not affected by the trade conference.

The tabulation above shows the column 1 rates of duty in effect under the TSUS prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see TSUSA-1968 for the intermediate staged rates).

Imports of the strand, rope, and cable fitted with fittings or made up into articles, as provided for under item 642.21, were dutiable under item 642.20 from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

The prior rates shown in the foregoing tabulation for items 642.06 through 642.20 remained unchanged under the TSUS from August 31, 1963, through the end of 1967. Some of these articles, principally wire rope, have been entered free of duty for U.S. Government use.

The ad valorem equivalent of the rate of 1.1 cents per pound applicable at the end of 1967 to products entered under item 642.12, based on dutiable imports during 1967, was 9.5 percent.

U.S. consumption

Apparent U.S. consumption of strand, rope, and cable amounted to about 562 million pounds in 1958 and to 790 million pounds in 1963, the only years for which virtually complete quantity data were reported by the Department of Commerce. 1/ It is estimated to have amounted to well over a billion pounds in 1966 and in 1967. Judging from incomplete annual data, it is believed that apparent consumption of the products covered by this summary increased in each of the years 1959-67, with the possible exception of 1960, by at least the same average annual rate as during 1958-63. In view of the rapid growth in the use of strand for prestressing concrete construction members, it is likely that consumption of strand in the United States increased at a somewhat greater rate during 1958-67 than the consumption of rope and cable.

Imports have supplied an increasing share of U.S. consumption of strand, rope, and cable of wire. In 1958, imports supplied 6.6 percent of apparent consumption; the share had increased to about 12.1 percent by 1963 and is believed to have increased further, probably to more than 15 percent of consumption by 1967. Imports share to a greater extent in the U.S. market for strand than in that for rope and cable; the ratio of imports to consumption of strand for prestressing concrete is substantially higher than the average. The domestic market for wire rope used in the fishing industry for net trawling, particularly for shrimp, was for a time almost completely dominated by imported rope; however, in very recent years, domestic producers, primarily the independents (that purchase the wire or rod used), have had some success in regaining a share of this market.

U.S. producers

Wire strand, rope, and cable are produced in about 70 establishments, of which many are extremely small in terms of output. The Department of Commerce classifies these establishments in one of three industries--steel works, steel-wire drawing, and miscellaneous wire products. The eight producing units classified in the steel works industry and about a third of the establishments classified in the

1/ These data on consumption are computed on the basis of Department of Commerce reports that do not include domestic shipments of certain nonferrous strand, rope, and cable; consumption of such excluded products, however, is believed to be small.

steel-wire-drawing industry are operated as departments, divisions, or subsidiaries of integrated steel producers. Most of the raw material consumed by these establishments in the production of strand, rope, and cable is furnished by the parent steelmaker. The remaining establishments classified in the steel-wire-drawing industry (about 10) belong to independent producers having wire-drawing facilities; they produce most, if not all, of the wire they consume in the production of the products covered here. These 10 establishments obtain their raw material--wire rods--from domestic as well as foreign sources. The third group of producers, classified in the miscellaneous wire products industry, consists of about 45 establishments of widely varying sizes that produce strand, rope, and cable from purchased imported and domestic wire of the appropriate composition and gage. These concerns are somewhat at a disadvantage in relation to the other producers because, in order to offer a complete variety of wire strand and rope, they must maintain an extensive inventory of wire types and sizes. The products discussed in this summary constitute the main or sole product line of many of the companies comprising this last group of producers and a number of the so-called wire-drawing concerns.

Wire strand, rope, and cable are produced in about 15 States--with four plants or more in each of the States of Pennsylvania, California, Missouri, and New Jersey.

Most of the major producers of strand, rope, and cable maintain inventories of at least the more common items in several geographically scattered warehouses.

U.S. producers' shipments

The data for 1958 and 1963 on producers' shipments of strand, rope, and cable reported by the Department of Commerce and discussed herein, do not include certain nonferrous strand, rope, and cable; however, annual shipments of such excluded products are believed to be comparatively small.

Shipments (including those for export) of the strand, rope, and cable covered in this summary (except as noted above) amounted to about 549 million pounds, valued at $163.4 million, in 1958. In 1963, the next year for which comparable data on both quantity and value were reported, shipments by U.S. producers were 713 million pounds, valued at $189.9 million (see note to table 1). U.S. producers' shipments continued to increase during 1964-66, as evidenced by the increase in the value of annual shipments in those years; shipments in 1966 were valued at $253.1 million. It is estimated that this value represents slightly over 1 billion pounds. Data published for the years since 1963 relating only to shipments of carbon steel products

by concerns classified as steel works or wire-drawing firms show a steady increase in annual shipments from 388 million pounds in 1963 to 611 million pounds in 1966 (table 2). Normally these concerns account for 50 to 60 percent of the total quantity of U.S. shipments of strand, rope, and cable.

During 1958-66, shipments of strand increased by 115 percent, while those of rope increased by 96 percent. In 3 recent years the quantity of shipments of strand by steel works and wire-drawing concerns exceeded shipments of rope. In terms of value, however, shipments of rope far exceed those of strand. The growing use of strand for prestressing concrete, production of which strand amounted to 127 million pounds in 1966, is believed to be the underlying reason for the proportionately larger increase in shipments of strand.

Most companies that produce a comprehensive line of strand, rope, and cable also make spliced products such as bridles and slings. These products, however, rarely exceed 10 to 15 percent of the total value of producers' shipments of the products discussed in this summary.

U.S. exports

Exports of domestically produced strand, rope, and cable have been small compared with producers' total shipments--estimated at less than 5 percent in each of the years 1958-66. Exports of strand, rope, and cable of iron and steel declined steadily from 24.1 million pounds, valued at $7.4 million, in 1958 to 16.6 million pounds, valued at $4.9 million, in 1961 (table 1). Beginning in 1962, annual exports of the iron and steel items generally increased; in 1965 they amounted to 25.6 million pounds, valued at $9.4 million. Exports of copper and copper alloy strand, rope, and cable amounted to 2.2 million pounds, valued at $1.0 million, in 1965, less than 10 percent of the combined exports of steel and copper products. 1/ Much of the recent increase in exports has been made possible by financing arrangements offered to foreign governments by the Agency for International Development.

Wire strand, rope, and cable are exported to more than a hundred foreign countries. Principal U.S. export markets in recent years are shown in table 3. Several of the countries shown have extensive mining ventures in which much U.S. capital has been invested. Mining equipment uses large quantities of wire rope. In addition, much of the rope

1/ Until 1965, data for exports comparable with those for imports were available only for strand, rope, and cable of iron or steel; beginning in 1965 comparable data have been reported also for exports of such products made of copper.

exported to Venezuela is probably used in the oil fields in which U.S. companies have a substantial interest. Exports to Portugal in certain recent years reflect, at least in part, the construction by a U.S. firm of a major suspension bridge in that country.

U.S. imports

Imports for consumption of wire strand, rope, and cable increased from 36.9 million pounds in 1958 to 89.3 million pounds in 1959, owing in part to the labor strike in the U.S. steel industry in the latter year. Imports declined somewhat during 1960 and 1961 but increased significantly in each of the years following; they amounted to 188.9 million pounds, valued at $27.7 million, in 1967 (table 1).

Imports of strand have been increasing much more rapidly in recent years than those of rope. In 1967, imports of strand exceeded those of rope in terms of value as well as in terms of quantity. As indicated with respect to domestic production, the reason for the more rapid increase in imports of strand is the rapidly rising utilization of strand for prestressing concrete. Imports of strand for this purpose amounted to 93 million pounds in 1966 (equivalent to about 75 percent of production by steel works and wire-drawing concerns) and to 113 million pounds in 1967. The 1967 quantity represented about 86 percent of total imports of strand and about 60 percent of aggregate imports of strand, rope, and cable (table 4). Iron and steel wire rope valued at 13 cents or more per pound (642.16) normally comprises a large part of annual imports; in 1967, imports of such rope amounted to about 47 million pounds, valued at $11 million. Annual imports of covered strand and rope and of fabricated articles have been relatively small.

Japan has been the principal source of U.S. imports of wire strand, rope, and cable in recent years (table 5). Imports from that country amounted to 98.9 million pounds, valued at $11.0 million, in 1965 and to 148.7 million pounds, valued at $16.7 million, in 1967. In terms of quantity, imports from Japan in 1967 comprised 79 percent of all imports of the products covered by this summary; in terms of value, however, they comprised but 60 percent. Although imports from Japan consist very largely of the relatively lower priced prestressing strand, that country is also the principal source of imported wire rope. Canada, the United Kingdon, West Germany, Belgium-Luxembourg, and the Netherlands have also been important foreign sources of wire rope in recent years.

Wire strand, rope, and cable imported duty free for U.S. Government use increased steadily from about 2 million pounds in 1958 (5 percent of total imports) to 9 million pounds in 1962 (11 percent of imports). Free imports by or for the Government declined during 1963-65 and in the latter year amounted to about 1.2 million pounds, or about 1 percent of imports in that year. U.S. Government imports again increased in 1966 and 1967; they were 5.5 million pounds in 1967; or about 3 percent of total imports (table 4). Duty-free imports consist very largely of rope; according to informed trade sources possibly as much as three-fourths of annual U.S. Government requirements for wire rope have been procured abroad.

Foreign wire rope, as well as strand, has been reported to be of equal quality to that produced in the United States. Much of the domestically produced strand, rope, and cable is, in fact, made from imported wire rod or imported wire.

Duty-free imports under item 642.21, established as a result of the Automotive Products Trade Act of 1965, have thus far been very small. Only Canadian-made products such as brake and clutch cables, push-pull assemblies, and speedometer cable intended for installation in new automobiles are afforded free entry under this item. Imports of such articles from other sources, imported under item 642.20, consist almost entirely of replacement parts for foreign vehicles already in use in the United States.

Table 1.--Strand, rope, cable, and cordage of wire: U.S. imports for consumption and exports of domestic merchandise, 1958-67

Year	Imports 1/		Exports 2/	
	Quantity	Value	Quantity	Value
	1,000 pounds	1,000 dollars	1,000 pounds	1,000 dollars
1958	36,876	7,934	24,085	7,386
1959	89,291	15,425	20,434	6,213
1960	77,021	12,695	18,801	5,175
1961	70,218	10,597	16,645	4,941
1962	79,158	12,339	19,105	5,332
1963	95,597	13,995	18,453	5,043
1964	104,261	15,319	21,098	6,306
1965	129,798	18,253	27,749	10,418
1966	161,439	23,441	26,347	10,067
1967	188,879	27,742	26,881	9,119

1/ Data shown for 1958-63 are partly estimated.
2/ Data include strand, rope, cable, and cordage of iron and steel only in 1958-64 and of iron, steel, and copper in 1965-67, and are thus not strictly comparable with the data on imports.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Data on shipments by all U.S. producers and on apparent U.S. consumption, available only for the years 1958 and 1963, are shown below:

Item		1958	1963
Producers' shipments:			
Quantity (partly estimated)	1,000 pounds	549,426	713,002
Factory value	1,000 dollars	163,386	189,934
Apparent consumption	1,000 pounds	562,217	790,166
Ratio of quantity of imports to quantity of apparent consumption	percent	6.6	12.1

Table 2.--Strand, rope, and cable of carbon-steel wire: Shipments by U.S. steel works and wire-drawing concerns, by types of products, 1958-66

Year	Strand		Rope and cable		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
	1,000 pounds	1,000 dollars	1,000 pounds	1,000 dollars	1,000 pounds	1,000 dollars
1958	142,590	28,673	155,358	53,998	1/ 297,948	82,671
1959	145,352	27,827	157,328	58,238	302,680	86,065
1960	142,980	26,632	169,458	61,880	312,438	88,512
1961	178,492	31,362	177,458	58,905	355,950	90,267
1962	182,574	31,412	188,960	60,086	371,534	91,498
1963	192,754	32,872	194,908	61,450	1/ 387,662	94,322
1964	232,652	45,031	228,884	81,635	461,536	126,666
1965	242,784	40,767	281,476	96,513	524,260	137,280
1966	305,916	46,021	304,684	102,331	610,600	148,352

1/ Equivalent to about 54 percent of the total quantity of shipments by all U.S. producers as reported in the 1958 and 1963 Census of Manufactures.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Strand, rope, and cable of wire: U.S. exports of domestic merchandise, by principal markets, 1964-67 1/

Market	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Canada	2,947	2,745	2,216	3,742
Venezuela	2,133	2,651	1,739	1,974
Philippine Republic	720	445	580	1,281
Brazil	348	1,383	3,724	4,420
Peru	1,118	1,492	1,702	1,072
Mexico	387	336	708	1,010
Australia	1,792	945	785	486
Pakistan	428	1,538	1,031	886
Nigeria	489	512	839	927
Republic of Korea	141	202	285	474
Libya	565	1,060	378	479
Japan	893	518	1,382	220
Guatemala	94	155	115	664
Arabia	29	282	498	489
All other 2/	3/ 9,014	4/ 13,485	5/ 10,365	8,757
Total	21,098	22,749	26,347	26,881
	Value (1,000 dollars)			
Canada	558	1,094	1,215	1,333
Venezuela	630	938	597	664
Philippine Republic	168	142	131	537
Brazil	105	363	964	535
Peru	303	415	524	357
Mexico	96	132	379	330
Australia	827	321	348	317
Pakistan	121	426	271	269
Nigeria	138	146	252	256
Republic of Korea	43	32	62	218
Libya	176	389	183	178
Japan	391	210	554	167
Guatemala	32	54	37	163
Arabia	11	91	158	160
All other 2/	3/ 2,707	4/ 5,665	5/ 4,392	3,635
Total	6,306	10,418	10,067	9,119

1/ Data for 1964 relate to products of iron and steel only; those for 1965-67 cover copper and copper alloy products as well. Exports of strand, rope, and cable of copper constituted 4 percent of the total quantity of exports in 1967 and 6 percent of the total value.

Footnotes continued on following page.

Footnotes for table 3--Continued

2/ Includes 80 or more countries.

3/ Includes 1,757 thousand pounds, valued at 480 thousand dollars, exported to Portugal and 834 thousand pounds, valued at 223 thousand dollars, exported to Chile.

4/ Includes 4,743 thousand pounds, valued at 2,217 thousand dollars, exported to India; 1,125 thousand pounds, valued at 360 thousand dollars, exported to Chile; and 667 thousand pounds, valued at 267 thousand dollars exported to Portugal.

5/ Includes 870 thousand pounds, valued at 696 thousand dollars, exported to Tunisia; 863 thousand pounds, valued at 219 thousand dollars, exported to Taiwan, and 585 thousand pounds, valued at 216 thousand dollars, exported to Iran.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Strand, rope, cable, and cordage of wire: U.S. imports for consumption, by TSUS items, 1964-67

Abbreviated description and TSUS item	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Strand:				
Nickel (642.06)	-	54	-	140
Stainless steel (642.08)	78	36	29	38
Other (642.10)	60,743	81,115	106,132	131,914
Ropes, cables, and cordage:				
Valued under 13 cents per pound (642.12)	8,966	10,858	10,898	8,738
Valued 13 cents or more per pound:				
Stainless steel (642.14)	144	193	184	429
Other (642.16)	32,837	36,551	43,367	46,512
Covered with textiles, etc. (642.18)	1,145	530	134	494
Fitted or made into articles (642.29)	348	461	693	611
Canadian article and for original motor vehicle equipment (642.21)	1/	1/	2	3
Total 2/	104,261	129,798	161,439	188,879
	Value (1,000 dollars)			
Strand:				
Nickel (642.06)	-	20	-	110
Stainless steel (642.08)	26	27	29	47
Other (642.10)	6,014	8,235	11,473	14,464
Ropes, cables, and cordage:				
Valued under 13 cents per pound (642.12)	1,000	1,237	1,262	1,008
Valued 13 cents or more per pound:				
Stainless steel (642.14)	160	224	238	532
Other (642.16)	7,443	8,104	9,986	11,042
Covered with textiles, etc. (642.18)	448	174	79	239
Fitted or made into articles (642.20)	228	232	372	297
Canadian article and for original motor vehicle equipment (642.21)	1/	1/	2	3
Total 2/	15,319	18,253	23,441	27,742

Footnotes on following page.

Footnotes for table 4--Continued

1/ Included in figure for item 642.20.

2/ Includes the following duty-free imports for U.S. Government use, which consisted primarily of wire rope entered under item 642.16:

Year	Quantity (1,000 pounds)	Value (1,000 dollars)
1964----------	2,576	872
1965----------	1,181	397
1966----------	3,673	447
1967----------	5,454	2,259

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Strand, rope, cable, and cordage of wire: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Japan	71,050	98,914	124,161	148,651
West Germany	9,518	7,474	9,622	11,143
Canada	1,921	1,752	3,015	6,349
United Kingdom	8,962	7,625	9,081	8,101
Belgium-Luxembourg	9,113	7,428	9,200	7,027
Italy	157	1,006	1,639	2,319
Denmark	440	580	753	624
Netherlands	889	1,234	728	1,026
All other	2,211	3,785	3,240	3,639
Total	104,261	129,798	161,439	188,879
	Value (1,000 dollars)			
Japan	7,836	10,982	13,930	16,690
West Germany	1,805	1,570	1,998	2,880
Canada	866	576	1,071	2,838
United Kingdom	1,900	1,711	2,229	2,065
Belgium-Luxembourg	2,067	1,861	2,400	1,670
Italy	37	187	390	432
Denmark	172	204	242	220
Netherlands	165	229	163	213
All other	471	933	1,018	734
Total	15,319	18,253	23,441	27,742

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Cylinder wires; woven wire cloth------	642.25, -.27
Fourdrinier wires----------	642.30

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is the world's largest consumer of Fourdrinier and cylinder wires used in papermaking machines. Imports supply only a small share of U.S. consumption of such wires. Exports are probably nil or negligible.

Description and uses

This summary covers cylinder wires and Fourdrinier wires suitable for use in papermaking machines (whether or not parts of, or fitted or attached to, such machines);it also covers woven wire cloth suitable for the manufacture of cylinder and Fourdrinier wires. Fourdrinier and cylinder wires are finely woven wire screens essential to the operation of papermaking machines (discussed in a summary on pulp and paper machines in volume 6:8). As fibers are deposited on the screen, they interlace to form a moist web of paper fiber of near-uniform consistency.

A Fourdrinier wire is used in Fourdrinier paper machines to make many kinds of paper and paperboard, including fine tissue paper, newsprint, and writing paper; the ends of Fourdrinier screens are welded to form an endless belt which travels around and between rolls of the paper machine. A cylinder wire is used with cylinder paper machines to produce mainly boxboard, toilet tissue, and certain types of coarse papers. The cylinder screen forms a cover around a cylinder that revolves partially submerged in a vat. The range of thicknesses of paper made on a cylinder machine is much greater than that made on a Fourdrinier machine.

Most Fourdrinier and cylinder wires are made of copper-base alloys; commonly, the warp (or lengthwise wire) is of phosphor bronze (92 to 93 percent copper and the remainder tin) and the filling (weft, or crosswise wire) is made of brass (about 80 percent copper and the remainder zinc). In the past several years, other metals (e.g., stainless steel) and metals together with synthetic fibers have come into use for Fourdrinier and cylinder wires. Both types of wire are

made in a variety of mesh counts 1/ and types of weave, the selection of mesh count and type of weave being determined by the type of paper to be produced. Most paper-machine wires have a mesh count of about 60 to 70 meshes per lineal inch; in general, the highest mesh count is used for producing the finest quality paper.

1/ The number of wires in warp or filling (weft) per lineal inch.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows (in percent ad valorem):

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Cylinder wires, suitable for use in papermaking machines, and woven-wire cloth suitable for use in the manufacture of Fourdrinier wires or cylinder wires suitable for use in papermaking machines:			
642.25	Having more than 55 meshes per lineal inch in warp or filling.	50%	45%	25%
642.27	Other	35%	31%	17.5%
642.30	Fourdrinier wires, seamed or not seamed, suitable for use in papermaking machines.	50%	45%	25%

The tabulation above shows the column 1 rates in effect prior to January 1, 1968; those prior rates had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. The tabulation also shows modifications of those rates that resulted from concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final (fifth) stages of the annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

During 1964-67, the imports under item 642.25 and 642.30 included some merchandise entered for exportation after repair, alteration, or processing (see note 1 to table 3); such imports are entered free of duty under bond (see item 864.05 of the TSUSA-1968). Also, the imports under item 642.25 included articles that had been processed

abroad from material of U.S. origin and were returned to the United States for further processing; such imports are dutiable on the basis of the value of the processing outside the United States (see item 806.30 of the TSUSA-1968).

U.S. producers

Fourteen domestic firms currently produce Fourdrinier wires, and some of these also produce cylinder wires. They operate 15 U.S. plants, six in the Northeastern States, six in the East North Central States, and three in the Southern States, in or near papermaking centers. The sale of Fourdrinier and cylinder wires is an important source of income to each of the producers.

U.S. consumption, producers' shipments, and exports

Annual apparent U.S. consumption of Fourdrinier and cylinder wires remained quite constant at about 28 million square feet during 1963-67 (table 1). Domestic producers' shipments, 96 to 97 percent consisting of Fourdrinier wires (see table 2), supplied all but about 1 to 2 percent of U.S. consumption. In 1963, the value of shipments was about $37 million.

Exports of Fourdrinier and cylinder wires are not separately reported. Imports during 1964-67, however, included duty-free entries for further processing under bond and export, as shown in table 3; the products are usually exported within 3 months from the time of entry. Other exports of Fourdrinier and cylinder wires during 1963-67 are estimated to have been nil or negligible.

U.S. imports

Annual U.S. imports of Fourdrinier and cylinder wires, although supplying only a small part of U.S. consumption, increased generally from 1963 to 1967, amounting in the latter year to 502,000 square feet, valued at $411,000 (table 1). These imports represented increases of 79 percent in quantity and 122 percent in value over imports in 1963 (table 3). The larger portion of imports (55 to 77 percent of the total quantity) consisted of Fourdrinier wires; most of the remainder was made up of cylinder wires having more than 55 meshes per lineal inch. The unit value of imports differed by type and by period.

The principal source of imports of Fourdrinier wires during 1963-67 was the United Kingdom; other important sources were West Germany, Canada, and France (table 4). The same countries were the important sources of imports of cylinder wires (table 5).

Table 1.--Fourdrinier and cylinder wires: U.S. producers' shipments, imports for consumption, and apparent consumption, 1963-67

Year	Producers' shipments 1/	Imports		Apparent consumption	Ratio of imports to consumption 2/
		Quantity	Value		
	1,000 square feet	1,000 square feet	1,000 dollars	1,000 square feet	Percent
1963	28,500	280	185	28,780	1.0
1964	28,000	384	319	28,380	1.4
1965	28,200	373	311	28,570	1.3
1966	28,100	559	459	28,660	2.0
1967	27,700	502	411	28,200	1.8

1/ Partly estimated.
2/ Based on quantity.

Source: Producers' shipments, partly estimated by the staff of the U.S. Tariff Commission, on the basis of data from trade sources; imports, official statistics of the U.S. Department of Commerce.

Note.--Exports of Fourdrinier and cylinder wires, not reported separately in official statistics, are believed to have been nil or negligible, except as shown in note 1 to table 3.

Table 2.--Fourdrinier and cylinder wires: U.S. producers' shipments, by types, 1963-67

(In thousands of square feet)

Year	Fourdrinier wires	Cylinder wires	Total
1963	27,400	1,100	28,500
1964	27,000	980	28,000
1965	27,200	990	28,200
1966	27,200	970	28,100
1967	26,900	790	27,700

Source: Partly estimated by the staff of the U.S. Tariff Commission from data supplied by a trade association on the quantities shipped, and estimated percentages of total shipments accounted for by the trade association members.

Note.--The total shipments do not always equal the sum of the parts because of rounding.

Table 3.--Fourdrinier and cylinder wires: Imports for consumption, by types, 1963-67

Type	1963	1964	1965	1966	1967
	Quantity (1,000 square feet)				
Fourdrinier wires 1/	183	216	207	432	361
Cylinder wires:					
Having more than 55 meshes per lineal inch in warp or filling	84	148	97	2/ 115	100
Other	13	20	69	12	41
Total	97	168	166	128	141
Grand total	280	384	373	559	502
	Value (1,000 dollars)				
Fourdrinier wires 1/	121	188	195	354	295
Cylinder wires:					
Having more than 55 meshes per lineal inch in warp or filling	59	108	60	2/ 87	79
Other	5	23	56	18	37
Total	65	131	116	105	116
Grand total	185	319	311	459	411
	Unit value (per square foot)				
Fourdrinier wires	$0.66	$0.87	$0.94	$0.82	$0.80
Cylinder wires:					
Having more than 55 meshes per lineal inch in warp or filling	0.70	0.73	0.62	0.76	0.90
Other	0.45	1.17	0.81	1.44	0.82

1/ Includes duty-free imports for further processing under bond and export, as follows:

	1963	1964	1965	1966	1967
Quantity--1,000 sq. ft.	-	23	50	18	9
Value-----1,000 dollars	-	24	79	22	7

2/ Includes 2 thousand square feet, valued at 3 thousand dollars, imported duty free for further processing under bond and export.

Source: Compiled from official statistics of the U.S. Department of Commerce.

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Table 4.--Fourdrinier wires (item 642.30): Imports for consumption, by principal sources, 1963-67

Source	1963	1964	1965	1966	1967
	Quantity (1,000 square feet)				
United Kingdom	45	91	108	324	252
West Germany	61	29	26	43	86
Canada	26	29	39	25	-
France	32	30	24	20	3
All other	19	37	10	20	20
Total 1/	183	216	207	432	361
	Value (1,000 dollars)				
United Kingdom	33	65	78	249	210
West Germany	39	52	34	38	63
Canada	17	27	56	35	-
France	18	18	18	16	4
All other	14	24	9	16	18
Total 1/	121	188	195	354	295

1/ Totals include articles entered duty free to be processed under bond for exportation, as follows:

	1963	1964	1965	1966	1967
Quantity--1,000 sq. ft.--	-	23	50	18	9
Value-----1,000 dollars--	-	24	79	22	7

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Cylinder wires (items 642.25 and 642.27): Imports for consumption, by principal sources, 1963-67

Source	1963	1964	1965	1966	1967
	Quantity (1,000 square feet)				
United Kingdom	26	19	15	-	-
West Germany	15	85	93	9	45
Canada	18	35	23	118	91
France	30	29	2	1	3
All other	8	-	33	-	2
Total	97	168	166	1/ 128	141
	Value (1,000 dollars)				
United Kingdom	18	13	10	-	-
West Germany	20	75	75	9	21
Canada	11	25	20	95	91
France	15	18	1	2/	2
All other	1	-	10	-	2
Total	65	131	116	1/ 105	116

1/ Includes 2 thousand pounds, valued at 3 thousand dollars, entered duty-free to be processed under bond for exportation.

2/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Galvanized wire fencing of round iron or steel wire 0.075 to 0.2 inch, inclusive, in diameter	642.35
Cloth, gauze, fabric, screen, netting, and fencing, of wire (but not of simple warp and weft construction):	
Woven, coated with metal and having wires under 0.075 inch in maximum cross-sectional dimension	642.45, -.47
Other	642.80, -.82

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption of the wire fencing, netting, and concrete reinforcing fabric covered by this summary, valued at $217 million in 1958 and $227 million in 1963, is estimated to have risen to about $310 million in 1966. Imports during 1958-66 probably accounted for 2 to 4 percent of the annual value of U.S. consumption. U.S. imports have been several times larger than exports.

Description and uses

This summary covers most types of fencing, netting, and concrete reinforcing fabric or mesh of wire. It does not include fence posts or accessory fittings. Insect screening, industrial or hardware cloth, and other woven wire products of simple warp and weft construction are the subject of a separate summary in this volume (6:5).

The principal types of wire fencing materials covered here are those commonly known as farm and field fencing, chain-link fencing, and ornamental garden, lawn, and border fencing. Farm and field fencing is made for general purposes and in a variety of styles for containing or protecting specific livestock, such as cattle, hogs, sheep, turkeys, or chickens; the types differ primarily in the gage of wire used, the spacing of the line (horizontal) and stay (vertical) wires, and in height. The top and bottom line wires are often of a somewhat heavier gage than the intermediate or filler wires. Each stay wire is "knotted" to each line wire. While various kinds of "knots" are used, they are all designed to give the fence a requisite amount of flexibility to enable it to be adjusted to varying slopes of terrain; the knot also lends the fence sufficient resilence to

regain its original configuration after being climbed or crowded by livestock. Farm and field fencing, when installed, is often supplemented by one or more strands of plain (frequently electrified) or barbed wire strung above the top line wire. The bulk of the farm and field fencing used in the United States is composed of galvanized wires from 0.075 inch (approximately 14-1/2 gage) to 0.20 inch (approximately 5-1/2 gage), inclusive, in diameter and is therefore covered by the tariff description of item 642.35; however, some light weight farm and field fencing for chicken enclosures is made in large part of wires finer than 0.075 inch (item 642.45). In addition to its use on farms, farm and field fencing often is used to define highway and railway rights-of-way.

Chain-link fencing is a type of woven fencing commonly used around industrial sites, swimming pools, and recreational facilities, in residential areas, and along highways. An increasing quantity of such fencing is made of galvanized or primed steel wire that has been covered with appropriately colored plastic or vinyl (see separate summary in this volume--6:5--relating to milliners' and other covered wire). Probably the most popular gages of wire used for chain-link fencing are 6, 9, and 11. The heavier wire is commonly used for enclosures for heavy equipment, in zoological parks, and for other applications where severe service might be expected. The medium-weight wire fencing is commonly used for industrial and recreational enclosures, while the lightweight material is somewhat restricted to residential fencing not more than 48 inches in height and other non-critical applications. In addition to being made of galvanized steel wire (principally item 642.35) and plastic covered wire (item 642.35 if galvanized and item 642.80 if not galvanized), chain-link fencing is made of aluminized steel wire (item 642.80) and, more recently, of solid aluminum wire (item 642.82). Like farm fencing, chain-link fencing installations are often supplemented by barbed wire.

Ornamental garden, lawn, and border fencing, as its name implies, is used for enclosing yards and gardens (largely in items 642.35 and 642.80). Such fencing is available in a variety of designs; some is woven and some is partly welded to retain its shape. Fences of the low border type which are often coated with vinyl, plastic, or paint, are normally utilized simply by pressing the ends of the vertical wires into the ground, whereas the high fences are stretched between wooden or steel posts.

Also included in this summary is a variety of woven wire netting, such as poultry netting (principally items 642.45 and 642.47). A common type of such netting is made of 20-gage wire and has a hexagonal-shaped mesh of 1 to 2 inches. Poultry netting may be woven from plain uncoated wire and then galvanized, or it may be woven after the wire has been galvanized. The former process results in a better quality product in that the galvanizing tends to weld and seal the joints of

the netting, making it somewhat stronger and more resistant to corrosion. Poultry netting galvanized after being woven is the more popular despite its somewhat higher price. The galvanized coating on the netting woven after the wire has been galvanized can develop cracks during the weaving process and is subject to wear at the joints of the netting. Poultry netting is used to enclose chicken coops and pens for other small animals. It is also used by the crabbing industry for crab pots. A similar product is used for reinforcing glass panels and panes.

Another major category of products covered in this summary is welded wire fabric or mesh (included principally in item 642.80). This product is made by simply laying the stay or transverse wires at appropriate intervals on top of the line or longitudinal wires and welding each intersection. The finer meshes of fabric--1 by 1 inch, 1 by 2 inches, 2 by 4 inches, and so forth--are frequently galvanized and thus can be used for a variety of applications, such as fencing for animal pens, play pens, and screen guards, as well as reinforcing concrete. Fabric or mesh produced expressly for reinforcing purposes is made in a wide variety of meshes and wire gages, depending on the type of application. The lighter weights of fabric are used for reinforcing stucco siding or small concrete slabs, whereas the heavier weights are used for highway or airfield construction where severe service conditions are expected.

The great bulk of the products discussed in this summary are made from low-carbon steel; frequently, however, the steel contains small amounts of copper intended to increase its resistance to corrosion. Other nonferrous metals can also be used for special applications of fencing, netting, and fabric.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
642.35	Galvanized wire fencing wholly of round iron or steel wire measuring not over 0.20 inch and not under 0.075 inch in diameter, whether or not such wire is covered with plastics.	0.25¢ per lb.	0.2¢ per lb.	0.1¢ per lb.
	Cloth, gauze, fabric, screen, netting, and fencing, not elsewhere enumerated, of wire, not cut to shape:			
	Woven, but not of simple warp and weft construction:			
	Composed wholly or in substantial part of wire under 0.075 inch in diameter:			
642.45	Coated with metal before weaving.	21% ad val.	18.5% ad val.	10.5% ad val.
642.47	Coated with metal after weaving.	25.5% ad val.	22.5% ad val.	12.5% ad val.
	Other (except that of simple warp and weft construction):			
642.80	Of iron or steel-------	19% ad val.	17% ad val.	9.5% ad val.
642.82	Of base metal other than iron or steel.	16% ad val.	14% ad val.	8% ad val.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

Although the prior rates shown in the foregoing tabulation had remained unchanged under the TSUS from August 31, 1963, through the end of 1967, the Tariff Schedules Technical Amendments Act of 1965 (Public Law 89-241) modified slightly the coverage of each of the products provided for under the TSUS items discussed in this summary. The dimensional limitation of "0.075 inch in diameter" now appearing in the description of item 642.35 and in the superior heading to items 642.45 and 642.47 was changed from "0.080 inch in diameter" effective December 7, 1965. Necessarily, these changes also affected the coverage of the residual TSUS items, 642.80 and 642.82.

The ad valorem equivalent of the prior rate of 0.25 cent per pound applicable to products entered under item 642.35 was 3.3 percent, based on dutiable imports in 1967.

For purposes of customs classification, the diameter or other maximum cross-sectional dimension of the wire in the products covered here that is galvanized or otherwise coated with metal is measured exclusive of the metal coating (headnote 1a, part 3, schedule 6 of the TSUSA-1968).

Tariff Commission investigation

An escape-clause investigation relating to fencing materials of the types provided for under item 642.35, instituted upon application of four domestic producers of such products, was dismissed without formal findings on March 13, 1959. The U.S. Tariff Commission found it impracticable to distinguish or separate the operations of the producing organizations involving other products and thus could not treat the domestic production of these products as a separate industry, pursuant to section 7(e) of the Trade Agreements Extension Act of 1951, as amended. The Commission did observe, however, that the information developed during the investigation, which included a public hearing, did not suggest that imports of the articles considered were causing or threatening serious injury to the domestic producers of such products, considered as a group.

U.S. consumption

The value of apparent total U.S. consumption of fencing, netting, and reinforcing fabric in 1963--$227 million--was less than 5 percent larger than that in 1958; these are the only recent years for which reasonably accurate information is available (table 1). Based on information available since 1963, it would appear that consumption in 1964-66 increased at a substantially greater rate; the value of U.S. consumption in 1966 is estimated at about $310 million.

A substantial increase in the value of consumption of chain-link fencing during 1958-63 more than offset an apparent decline in the value of consumption of poultry netting and reinforcing fabric. The higher consumption of chain-link fencing is undoubtedly due to its increased use for industrial enclosures, as a pool and recreational area enclosure, and for defining the right-of-way of portions of the interstate highway system. In the dozen or so years following World War II, annual consumption of woven wire farm fencing declined by more than 60 percent. Since 1958, however, annual consumption of farm fencing has been fairly constant. Annual consumption of reinforcing fabric follows closely the level of construction--buildings as well as highways.

Like imports of most other wire and wire products, imports of fencing, netting, and reinforcing fabric have increased in relation to consumption. Imports supplied 2.7 percent of the aggregate value of consumption of these products in 1958, 3.9 percent in 1963, and about 3.7 percent in 1966. Imports constitute a much larger share of the total quantity of consumption; the ratio of imports to consumption varies widely among specific products. It is very probable that during the 1963-67 period imports of woven wire farm fencing furnished as much as 25 percent of the total tonnage and 15 to 20 percent of the total value of U.S. requirements. On the basis of available Commerce Department data, imports of concrete reinforcing fabric have supplied about 2 percent of the total annual quantity of U.S. consumption in recent years.

U.S. producers

Domestic establishments producing fencing, netting, and reinforcing fabric of the types discussed in this summary are classified by the U.S. Department of Commerce in three industries: steel works and rolling mills, wire-drawing concerns, and wire fabricators. The wire-drawing group of establishments is comprised of many independent wire-drawing concerns that consume purchased wire rod, as well as the separate wire-drawing establishments of the integrated steel producers. Virtually all establishments classified as wire fabricators are non-integrated and manufacture one or more of the products from purchased wire. This latter group, while accounting for almost half of the chain-link fencing produced, accounts for only about one-fifth of the value of annual U.S. production of the other types of fencing, netting, and reinforcing fabric considered here. Whereas several years ago the U.S. steel producers supplied the great bulk of the raw material (wire rods and wire) to the independent wire-drawing concerns and wire fabricators, an increasing and now very substantial proportion of the wire rods and wire consumed by these groups is of foreign origin.

The integrated steel concerns (steel works and rolling mills) produce a greater part of the total annual output of woven wire farm fencing than they do of the other products covered. The decline in the U.S. market for such fencing during the 1950's and the proportionate increase in imports resulted in the abandonment of many weaving machines as well as a decline in the volume of rod and wire produced for farm fencing purposes. It is believed that the basic steel-producing concerns are producing a declining share of the aggregate annual output of the products considered here.

The domestic production of wire fencing, netting, and reinforcing fabric is widespread geographically.

U.S. production

Data compiled and published by the Department of Commerce on production or shipments do not include wire fencing, netting, and reinforcing fabric of other than iron and steel. Although production of aluminum fencing is believed to be increasing, it is very small compared with that of steel fencing, and its exclusion from the data does not distort the trade analysis significantly. According to information from the U.S. Census of Manufactures, domestic producers' shipments of steel wire fencing, netting, and reinforcing fabric were somewhat larger in 1963 (the last year for which census data were compiled) than in 1958 (table 1). The following tabulation shows for each of the major groups of steel wire products covered by this summary the value of shipments in 1958 and 1963 (in thousands of dollars):

	1958	1963
Chain-link fencing fabric 1/	28,000	37,458
Woven and welded wire fencing	34,363	33,294
Woven wire netting (poultry, stucco, etc.)	16,460	13,617
Ornamental lawn and garden wire fencing	5,695	3,452
Concrete reinforcing fabric	97,539	94,172
Other welded wire fabric	19,454	31,191
Total	201,511	213,184

1/ Estimated.

In addition to the values shown above, shipments of products not specifically identified in the official statistics are estimated to have amounted to $11.6 million in 1958 and to $6.3 million in 1963. Shipments of "chain-link fencing fabric" and "other welded wire fabric"

were substantially larger in 1963 than in 1958, while shipments of most of the other products were smaller. The aggregate value of shipments by U.S. producers of the articles noted above is known to have increased at a substantially greater rate during 1964-66 than in 1958-63, and is estimated to have amounted to almost $300 million in 1966.

In 1963 about half of the total quantity of shipments of all products considered here, or 487,000 short tons, consisted of concrete reinforcing fabric. In the same year, shipments of woven and welded fencing, chain-link fencing, and other welded fabrics amounted to 125,000 to 135,000 tons each. Domestic shipments of poultry netting are estimated to have been about 43,000 tons, while ornamental lawn and garden fencing amounted to 11,000 tons.

Fencing, netting, and reinforcing fabric are distributed to users through steel service centers and warehouses and through mail-order houses, farm cooperatives, and retail hardware channels.

Wholesale price indexes published by the U.S. Bureau of Labor Statistics at the end of 1967, indicate that the average wholesale price for woven wire farm and field fencing at that time was about 5 percent higher than the average for 1957-59. On the other hand, similar data indicate that the wholesale prices for welded reinforcing fabric and chain-link fencing at the end of 1967 were 3 percent and 13 percent, respectively, lower than the averages for 1957-59.

U.S. exports

Annual U.S. exports of fencing, netting, and reinforcing fabric have for many years been small compared with U.S. production and imports. During 1958-64, the value of annual exports of all products considered here ranged between $966,000 in 1960 and $1,933,000 in 1958 (see table 1).

In 1964, the last year for which data on exports were reported separately, aggregate exports of wire fencing and netting amounted to 1,701 tons, valued at $594,000. These wire products were exported to 60 foreign countries; by far the largest volume, 376 tons, valued at $75,000, was exported to Mexico. Exports of concrete reinforcing fabric during 1964 totaled 2,931 tons, valued at $831,000. The principal foreign outlets in that year were Iran (taking 539 tons), Canada (361 tons), the Bahamas (301 tons), Nanpo Islands (239 tons), and Saudi Arabia (238 tons).

U.S. imports

The value of imports of the wire fencing, netting, and reinforcing fabric considered here was roughly twice as large in 1959 ($11,603,000) as it was in 1958 ($5,893,000) (table 1). The increase was due, in large measure, to the anticipation and duration of the labor strike in the steel industry during the latter part of 1959. Following a decline in aggregate annual imports in both 1960 and 1961, imports again increased and in 1963 amounted to $8,863,000. Although somewhat lower during the following year, aggregate imports increased further in 1965-67, amounting to about $11,100,000 in each of the years 1966 and 1967.

Imports of wire fencing of the type provided for under item 642.35, which have always been the most important in terms of the value of imports of the products covered, comprised about 70 to 80 percent of imports in each of the years 1964-67 (table 2). In these years imports of this wire fencing increased from 42,790 tons, valued at $6,003,000, in 1964 to 56,373 tons, valued at $8,598,000, in 1967 (table 3). The great bulk of these imports consisted of woven wire farm and field fencing.

Wire netting of the type used for poultry pens (items 642.45 and 642.47) represents from 4 to 6 percent of the annual value of imports of all products discussed in this summary. During 1964-67, the value of annual imports of such wire netting ranged between $405,000 and $521,000 (table 4). Most of the recent imports consisted of netting coated with metal before the weaving process, whereas most domestic production of netting is coated with metal after being woven.

Data on imports of the remaining products covered here (items 642.80 and 642.82), principally concrete reinforcing fabric, are available only from September 1, 1963. Imports of reinforcing fabric and miscellaneous fencing and netting increased from 12,478 tons, valued at $1,665,000, in 1964 to 21,231 tons, valued at $2,711,000 in 1966 but declined substantially in 1967 (table 5). Imports of the nonferrous products under the provisions of item 642.82 have been small but increased during 1965-67, amounting to 432,000 square feet, valued at $56,000, in 1967 (table 6).

The countries of the European Economic Community, particularly Belgium-Luxembourg, and Japan have for many years been the principal sources of U.S. imports of fencing, netting, and reinforcing fabric (tables 3, 4, 5, and 6).

In appearance, physical specifications, and uses, the imported fencing, netting, and fabric covered here, almost without exception, are identical with or very similar to the domestically produced articles. Some state and local governments have attempted to restrict the use of certain of these products in their construction programs because such imports were allegedly having an adverse effect on local employment.

Table 1.--Wire fencing, netting, and reinforcing fabric: U.S. imports for consumption and exports of domestic merchandise, 1958-67

(In thousands of dollars)

Year	Imports 1/	Exports
1958	5,893	1,933
1959	11,603	1,128
1960	8,517	966
1961	7,455	972
1962	8,796	1,103
1963	8,863	1,208
1964	8,153	1,425
1965	9,180	2/
1966	11,107	2/
1967	11,100	2/

1/ Data for 1958-63 are in part estimated.
2/ Not reported separately in official statistics.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Data on the value of shipments by all U.S. producers and apparent U.S. consumption, available only for the years 1958 and 1963, are shown below:

	1958	1963
Producers' shipments-----1,000 dollars-----	213,111	219,484
Apparent consumption----------do----------	217,060	227,155
Ratio of imports to apparent consumption----------Percent-----	2.7	3.9

Table 2.--Wire fencing, netting, and reinforcing fabric: U.S. imports for consumption, by TSUS items, 1964-67

(In thousands of dollars)

TSUS item	Description 1/	1964	1965	1966	1967
642.35	Galvanized wire fencing of round iron or steel wire 0.075 to 0.2 inch, inclusive, in diameter--	6,003	6,115	7,861	8,598
	Netting, fencing, fabric, etc., of wire:				
	Woven (but of other than simple warp and weft construction):				
	Composed of wires under 0.075 inch in maximum cross-sectional dimension and coated with metal--				
642.45	Before weaving------	300	262	332	304
642.47	After weaving-------	168	143	189	144
	Other, whether or not woven 2/:				
642.80	Of iron or steel------	1,665	2,650	2,711	1,998
642.82	Of other than iron or steel----------	17	10	14	56
	Total----------	8,153	9,180	11,107	11,100

1/ For a complete description see the appropriate provisions of the TSUSA-1968 or the tariff treatment section of this summary.

2/ If woven, of other than simple warp and weft construction.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Galvanized wire fencing composed of round iron and steel wires not over 0.20 inch and not under 0.075 inch in diameter (642.35): U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966 1/	1967 1/
	Quantity (short tons)			
Belgium-Luxembourg	36,865	34,225	42,915	43,292
Canada	269	541	879	1,540
West Germany	1,471	1,126	1,578	4,492
Japan	1,657	1,906	2,678	2,784
Netherlands	435	673	1,761	2,371
Italy	1,714	2,473	2,799	1,785
All other	379	185	380	109
Total	42,790	41,129	52,990	56,373
	Value (1,000 dollars)			
Belgium-Luxembourg	5,181	5,074	6,271	6,371
Canada	85	192	369	639
West Germany	218	160	230	633
Japan	211	262	344	366
Netherlands	58	106	250	358
Italy	186	285	327	213
All other	64	36	70	18
Total	6,003	6,115	7,861	8,598

1/ Data shown are not strictly comparable with those for 1964 and 1965 because coverage of item 642.35 was increased somewhat late in 1965.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Woven wire netting composed of wires under 0.075 inch in diameter, coated with metal (642.45 and 642.47): U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966 1/	1967 1/
	Quantity (1,000 square feet)			
West Germany	20,749	21,939	19,394	23,742
Belgium-Luxembourg	23,514	19,404	17,074	13,840
Netherlands	1,974	486	1,121	1,044
United Kingdom	754	929	942	1,476
Japan	197	321	1,997	289
All other	205	-	105	1
Total	47,393	43,079	40,633	40,392
	Value (1,000 dollars)			
West Germany	161	168	247	226
Belgium-Luxembourg	236	199	189	163
Netherlands	49	12	18	25
United Kingdom	12	17	19	20
Japan	8	9	46	13
All other	2	-	2	1
Total	468	405	521	448

1/ Data shown are not strictly comparable with those for 1964 and 1965 because coverage of items 642.45 and 642.47 was decreased somewhat late in 1965.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Concrete reinforcing fabric and miscellaneous fencing and netting of iron or steel (642.80): U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (short tons)			
Belgium-Luxembourg	5,941	8,031	11,184	5,993
Netherlands	434	292	1,461	2,576
Italy	977	6,857	3,296	2,788
Japan	4,165	4,291	1,956	1,159
Canada	271	660	919	837
France	112	65	1,863	174
All other	578	320	552	275
Total	12,478	20,516	21,231	13,802
	Value (1,000 dollars)			
Belgium-Luxembourg	808	1,084	1,420	891
Netherlands	114	115	271	475
Italy	97	687	345	276
Japan	494	582	253	160
Canada	43	98	136	122
France	34	23	216	24
All other	75	61	70	50
Total	1,665	2,650	2,711	1,998

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 6.--Fencing, netting, and mesh of base metal (except iron or steel) not elsewhere enumerated (642.82): U.S. imports for consumption, by sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 square feet)			
West Germany	4	3	3	267
Japan	352	114	48	78
Belgium-Luxembourg	-	-	9	5
Netherlands	-	14	-	60
France	19	12	12	21
Italy	17	-	-	-
Total	392	143	71	1/ 432
	Value (1,000 dollars)			
West Germany	3	2	2	34
Japan	10	5	10	13
Belgium-Luxembourg	-	-	1	3
Netherlands	-	3	-	2
France	2	2/	1	2
Italy	2	-	-	-
Total	17	10	14	1/ 56

1/ Includes imports of 1 thousand square feet, valued at 2 thousand dollars, from Switzerland.

2/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Cloth, gauze, fabric, screen, of wire, in rolls, endless bands, or lengths:	
Not cut to shape, woven (of simple warp and weft construction):	
With meshes not finer than 30 wires per lineal inch in warp or filling	642.50, -.52, -.54, -.56, -.58, -.60
With meshes finer than 30 but not finer than 90	642.62, -.64, -.66, -.68, -.70, -.72
With meshes finer than 90	642.74, -.76, -.78
Cut to shape	642.85, .86, -.87, -.88

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption of the wire cloth and related wire products covered by this summary, probably the world's largest, had an estimated value of $162 million in 1967. During each of the years 1964-67, imports supplied at least 5 percent of the value of total U.S. consumption and a much larger share of the consumption of fine mesh wire cloth. In those same years, U.S. exports were somewhat smaller than imports, in value.

Description and uses

This summary covers cloth, gauze, fabric, and screen, not specially provided for, of wire of base metals, whether in rolls, endless bands, or lengths, whether or not cut to shape.

Wire cloth and similar wire products are made of various metals, including stainless steel, copper, aluminum, carbon steel, brass, bronze, and nickel; for certain space vehicle uses, wire cloth of very fine mesh 1/ has been made of the refractory metals tantalum, columbium, molybdenum, and tungsten. The gages of wire, for tariff purposes, may range up to various maximum cross-sectional dimensions (without any metal coating), including 0.703 inch for steel wire and not over

1/ The term "mesh," as used in the industry, refers to the number of wires per lineal inch, measured in one direction from the center of any wire, or to the number of openings per lineal inch, measured in one direction.

0.375 inch for copper and nickel wire. Mesh counts vary from about one opening per 4 lineal inches in the coarest types up to 1,500 or more openings per lineal inch in the finest types. 1/

The woven wire products considered here are divided into three commercial categories. One is industrial cloth, which includes the intermediate- and fine-mesh cloth and part of the coarse-mesh cloth; it is used mainly in sifting, straining, and filtering various materials, such as chemicals, abrasives, and fuels. Another is insect screening, made entirely of coarse-mesh cloth and used for screens of doors, windows, and enclosures. A third is hardware cloth, also made of coarse-mesh cloth; it is used for coarse screening of industrial materials (e.g., ores), for partitions, and for protective enclosures on machinery and equipment.

This volume (6:5) includes a separate summary on cylinder and Fourdrinier wires (for papermaking machines) and woven-wire cloth suitable for making cylinder and Fourdrinier wires and another on specified netting, fencing, and reinforcing fabric.

1/ As used in this summary, the term "coarse mesh" refers to cloth with not more than 30 wires to the lineal inch in warp or filling; the term "intermediate mesh," to cloth with more than 30 but not more than 90 wires to the lineal inch; and the term "fine mesh," to cloth with more than 90 wires to the lineal inch.

U.S. tariff treatment

The column 1 (or trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Cloth, gauze, fabric, and fencing, all the foregoing not specially provided for, of wire, whether in rolls, in endless bands, or in lengths, and whether or not cut to shape:			
	Not cut to shape, woven (of simple warp and weft construction):			
	With meshes not finer than 30 wires to the lineal inch in warp or filling:			
	Of stainless steel:			
642.50	Valued not over 7.5¢ per sq. ft.	0.75¢ per sq. ft. + 5% ad val.	0.67¢ per sq. ft. + 4.5% ad val.	0.37¢ per sq. ft. + 2.5% ad val.
642.52	Valued over 7.5¢ per sq. ft.	15% ad val.	13% ad val.	7.5% ad val.
	Of copper:			
642.54	Valued not over 7.5¢ per sq. ft.	0.75¢ per sq. ft. + 1.275¢ per lb.	0.67¢ per sq. ft. + 1.1¢ per lb.	0.37¢ per sq. ft. + 0.6¢ per lb.
642.56	Valued over 7.5¢ per sq. ft.	1.275¢ per lb. + 10% ad val.	1.1¢ per lb. + 9% ad val.	0.6¢ per lb. + 5% ad val.
	Other:			
642.58	Valued not over 7.5¢ per sq. ft.	0.75¢ per sq. ft.	0.65¢ per sq. ft.	0.37¢ per sq. ft.
642.60	Valued over 7.5¢ per sq. ft.	10% ad val.	9% ad val.	5% ad val.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Cloth, gauze, fabric, and fencing, etc.--Con.			
	Not cut to shape, woven, etc.--Con.			
	With meshes finer than 30 but not finer than 90 wires to the lineal inch in warp or filling:			
	Of stainless steel:			
642.62	Valued not over 21.25¢ per sq.ft.	2.125¢ per sq. ft. + 5% ad val.	1.9¢ per sq. ft. + 4.5% ad val.	1¢ per sq. + 2.5% ad val.
642.64	Valued over 21.25¢ per sq. ft.	15% ad val.	13% ad val.	7.5% ad val.
	Of copper:			
642.66	Valued not over 21.25¢ per sq. ft.	2.125¢ per sq. ft. + 1.275¢ per lb.	1.9¢ per sq. ft. + 1.1¢ per lb.	1¢ per sq. ft. + 0.6¢ per lb.
642.68	Valued over 21.25¢ per sq. ft.	1.275¢ per lb. + 10% ad val.	1.1¢ per lb. + 9% ad val.	0.6¢ per lb. + 5% ad val.
	Other:			
642.70	Valued not over 21.25¢ per sq. ft.	2.125¢ per sq. ft.	1.9¢ per sq. ft.	1.06¢ per sq. ft.
642.72	Valued over 21.25¢ per sq. ft.	10% ad val.	9% ad val.	5% ad val.
	With meshes finer than 90 wires to the lineal inch in warp or filling:			
642.74	Of stainless steel---	30% ad val.	27% ad val.	15% ad val.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Cloth, gauze, fabric, and fencing, etc.--Con.			
	Not cut to shape, woven, etc.--Con.			
	With meshes finer than 90, etc.--Con.			
642.76	Of copper	1.275¢ per lb. + 25% ad val.	1.1¢ per lb. + 22.5% ad val.	0.6¢ per lb. + 12.5% ad val.
642.78	Other	25% ad val.	22% ad val.	12.5% ad val.
	Cut to shape:			
642.85	Of copper	1.275¢ per lb. + 13.5% ad val.	1.1¢ per lb. + 12% ad val.	0.6¢ per lb. + 6.5% ad val.
642.86	If Canadian article and original motor-vehicle equipment.	Free	1/	1/
642.87	Other	14% ad val.	12.5% ad val.	7% ad val.
642.88	If Canadian article and original motor-vehicle equipment.	Free	1/	1/

1/ Duty-free status not affected by trade conference.

The tabulation above shows the column 1 rates in effect prior to January 1, 1968; those prior rates had remained unchanged under the TSUS from August 31, 1963, through the end of 1967, except for the rates on items 642.86 and 642.88, as noted below. The tabulation also shows modifications of those rates that resulted from concessions granted by the United States in the sixth round of negotiations under the General Agreement on Tariffs and Trade (GATT) held during 1964-67. Only the first and final (fifth) stages of the annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

Imports of the wire articles cut to shape, of copper, as provided for under item 642.86, and of metal other than copper, as

provided for under item 642.88, were dutiable under item 642.85 and item 642.87, respectively, from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

Some of these wire articles imported for U.S. Government use (tables 3 and 5) were entered free of duty (see items 832.00, 833.00, 834.00, and 836.00 of the TSUSA-1968). Also entered duty free were articles to be processed under bond for exportation after repair, alteration, or processing (see item 864.05 of the TSUSA-1968).

On January 24, 1958, upon application of several domestic producers under section 7 of the Trade Agreements Extension Act of 1951, as amended, the Tariff Commission instituted investigation No. 66 to determine whether, as a result in whole or in part of concessions granted under the GATT, fine-mesh wire cloth was being imported in such increased quantities as to cause or threaten serious injury to the domestic producers. That investigation was dismissed, without findings, on July 2, 1958, because the Commission was unable to obtain adequate information, in part owing to a lack of full cooperation by some of the applicants.

The ad valorem equivalents of the specific or compound rates of duty in effect at the end of 1967 for the items covered in this summary, based on dutiable imports in 1967, were as follows:

TSUS item	Percent	TSUS item	Percent
642.50----------	7.0	642.66----------	13.0
642.54----------	17.8	642.68----------	11.0
642.56----------	11.7	642.70----------	16.4
642.58----------	16.2	642.76----------	26.1
642.62----------	16.7	642.85----------	14.0

Apparent U.S. consumption and producers' shipments

The value of apparent U.S. consumption of woven wire cloth and other wire products covered by this summary grew from $110 million in 1964 to $162 million in 1967, or by almost 50 percent (table 1). All but 4 to 5 percent of this consumption was supplied by domestic producers, and the rest by imports. The bulk of total consumption each year consisted of ferrous articles; in 1966, for example, consumption of ferrous articles accounted for an estimated 60 percent of total consumption.

U.S. producers' aggregate annual shipments of the woven wire cloth and other wire products covered by this summary increased substantially from 1964 to 1967; in the latter year they amounted to an estimated $160 million, or 47 percent more than the shipments in 1964 (table 1).

U.S. producers

About 40 or more U.S. firms produce the wire products covered by this summary; more than half of the producing plants of these concerns are situated in the Northeastern States, and the rest are dispersed among the Southern, North Central, and Western States. About 15 firms account for approximately seven-tenths of the total domestic output of the wire products considered here. Only about 12 firms produce the fine-mesh articles; of that number, six firms account for probably more than three-fourths of the total domestic output of such products. Some of the firms are fully integrated: they produce steel, draw wire, weave cloth, and fabricate wire articles, such as filters, strainers, and sieves; others purchase the wire for weaving, particularly those producing cloth from a variety of metals. Several of the firms are subsidiaries of large, diversified companies. For many of the producers considered here, the sale of wire products is an important source of income.

U.S. exports

U.S. exports of the woven wire cloth and other wire products considered in this summary composed only 3 to 5 percent of U.S. producers' total annual shipments of such products during 1964-67. The value of U.S. exports of such wire products increased generally from 1964 to 1967, amounting in the latter year to about $5.5 million, or an increase of 73 percent over 1964 (table 1). 1/ The quantity of exports in 1967 (17.5 million square feet) was larger than that in 1964 by 33 percent and 1966 by 4 percent, but smaller than that in 1965 by 28 percent (table 1). Woven wire articles of ferrous metals made up 64 to 74 percent of the total value of exports each year (table 2); the principal markets for the exports of such articles were Canada, Mexico, Venezuela, and Thailand.

U.S. imports

Imports during 1964-67 accounted for at least 5 percent of the

1/ Data on exports include an undetermined volume of articles not within the scope of this summary, and exports are therefore somewhat overstated.

value of annual U.S. consumption of the woven wire cloth and other wire products covered by this summary (table 1). Total U.S. imports of such cloth and wire products increased from $4.0 million in 1964 to $7.7 million in 1967, or by 90 percent; the quantity of imports grew from 10.7 million square feet in 1964 to 19.0 million square feet in 1966, or by 77 percent, then dropped to 18.2 million square feet in 1967. 1/

Most of the value of annual imports during 1964-67 (84 to 93 percent) consisted of woven wire articles not cut to shape (table 3); however, from 1964 to 1967, the value of imports of articles cut to shape grew more rapidly (307 percent) than did that of articles not cut to shape (73 percent). About four- to five-tenths of the total value of imports each year during 1964-67 was made up of fine-mesh cloth, not cut to shape, principally of stainless steel. Of the total annual quantities imported during 1964-67, on the other hand, articles of coarse mesh, principally other than of stainless steel or copper, made up about four- to five-tenths, and the remainder was about equally divided between fine-mesh and intermediate-mesh articles.

During 1964-67 West Germany was the principal source of the combined imports of all articles considered in this summary; other important sources were Japan, Switzerland, and the Netherlands (tables 4 and 5).

A small portion of the wire cloth and other wire products imported in 1964, 1966, and 1967 consisted of articles entered free of duty for either (a) U.S. Government use or (b) processing under bond for exportation after being repaired, altered, or processed.

1/ The total quantity is understated because comparable quantity data are not reported for some items covered in this summary (see notes 3 and 4 to table 3).

Table 1.--Wire cloth and related wire products: U.S. producers' shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1964-67

Year	U.S. producers' shipments 1/	Imports 2/	Exports 1/	Apparent consumption
	Quantity (1,000 square feet)			
1964	3/	10,726	13,150	3/
1965	3/	16,092	24,142	3/
1966	3/	19,011	16,840	3/
1967	3/	18,200	17,490	3/
	Value (1,000 dollars)			
1964	109,000	4,043	3,169	110,000
1965	119,000	5,956	5,361	120,000
1966	141,000	7,371	4,602	144,000
1967	4/ 160,000	7,690	5,468	162,000

1/ Data are not strictly comparable with those on imports.

2/ Included in 1964, 1966, and 1967 are small amounts entered duty free for (a) U.S. Government use and (b) processing under bond and export. Quantity data do not cover all articles (see notes 3 and 4 to table 3) and are therefore understated.

3/ Not available.

4/ Estimated by the staff of the U.S. Tariff Commission on the basis of data for 1963-66.

Source: Producers' shipments, imports, and exports, compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--The ratio of imports (foreign value) to apparent U.S. consumption (largely factory value of producers' shipments) ranged from 4 to 5 percent; the ratio would be higher, if the values of imports were landed duty-paid values (more nearly comparable with the values of consumption).

Table 2.--Wire cloth and related wire products, of ferrous and nonferrous metals: U.S. exports of domestic merchandise, by principal markets, 1964-67

Type of metal and year	Quantity, total	Value				
		Total	By principal markets			
			Canada	Mexico	Thailand	Venezuela
	1,000 sq. ft.	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
All ferrous articles:						
1964	3,707	2,036	646	204	6	123
1965	14,354	3,559	846	325	36	271
1966	7,489	3,421	1,215	291	3	234
1967	7,734	3,814	1,068	285	46	205
All nonferrous articles:						
1964	9,443	1,133	285	68	194	163
Copper articles:						
1965	895	506	288	38	-	38
1966	948	503	181	73	4	46
1967	1,394	1/1,013	169	27	-	49
Aluminum articles:						
1965	8,893	2/1,296	46	11	176	22
1966	8,402	677	23	12	406	23
1967	8,362	641	24	15	240	23

1/ Includes articles valued at 578 thousand dollars, to India.
2/ Includes articles valued at 816 thousand dollars, to West Germany.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Wire cloth and related wire products: Imports for consumption, by type, 1964-67

Abreviated description and item number	1964	1965	1966	1967
	Quantity (1,000 square feet) 1/			
Not cut to shape, woven:				
Mesh not over 30 per inch:				
Stainless steel (642.50, -.52)--	1,203	1,880	2,083	2,446
Copper (642.54, -.56)----------	420	705	550	671
Other (642.58, -.60)----------	4,062	3,998	5,725	6,407
Total----------	5,685	6,583	8,358	9,524
Mesh over 30 but not over 90 per inch:				
Stainless steel (642.62, -.64)--	621	1,277	1,566	1,738
Copper (642.66, -.68)----------	899	2,284	2,307	1,320
Other (642.70, -.72)----------	972	1,675	1,771	1,522
Total----------	2,493	5,236	5,644	4,580
Mesh over 90 per inch:				
Stainless steel (642.74)--------	1,325	1,859	2,346	2,344
Copper (642.76)----------	794	1,894	1,801	720
Other (642.78)----------	429	520	862	1,032
Total----------	2,548	4,273	5,009	4,096
Cut to shape: 2/				
Copper (642.85) 3/----------	-	-	-	-
Other (642.87) 4/----------	-	-	-	-
Grand total----------	10,726	16,092	19,011	18,200

See footnotes at end of tabulation.

Table 3.--Wire cloth and related wire products: Imports for consumption, by type, 1964-67--Continued

Abreviated description and item number	1964	1965	1966	1967
	Value (1,000 dollars) 1/			
Not cut to shape, woven:				
Mesh not over 30 per inch:				
Stainless steel (642.50, -.52)--	482	772	762	928
Copper (642.54, -.56)----------	114	164	178	199
Other (642.58, -.60)----------	372	390	553	581
Total----------	968	1,326	1,493	1,708
Mesh over 30 but not over 90 per inch:				
Stainless steel (642.62, -.64)--	311	515	610	751
Copper (642.66, -.68)----------	194	421	548	305
Other (642.70, -.72)----------	212	445	405	492
Total----------	717	1,382	1,563	1,548
Mesh over 90 per inch:				
Stainless steel (642.74)--------	1,643	2,092	2,587	2,514
Copper (642.76)----------	216	402	414	221
Other (642.78)----------	202	234	379	489
Total----------	2,061	2,728	3,380	3,224
Cut to shape: 2/				
Copper (642.85)----------	4	6	16	16
Other (642.87)----------	293	514	919	1,194
Total----------	297	520	935	1,210
Grand total----------	4,043	5,956	7,371	7,690

1/ Included in 1964, 1966, and 1967 are small amounts entered duty free for (a) U.S. Government use and (b) processing under bond and export.

2/ Imports under items 642.86 and 642.88 during 1965-67 were nil.

3/ Quantity reported only in pounds; the imports, in thousands of pounds, were as follows: 1964, 3.0; 1965, 3.7; 1966, 5.1; 1967, 6.4.

4/ Quantity not reported.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Wire cloth and related wire products: Imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 square feet) 1/			
West Germany	3,654	4,367	5,174	4,487
Japan	3,680	7,539	9,621	9,010
Switzerland	203	385	604	754
Netherlands	1,416	1,647	1,919	1,732
All other	1,773	2,154	1,693	2,217
Total	10,726	16,092	19,011	18,200
	Value (1,000 dollars)			
West Germany	2,300	2,785	3,541	3,510
Japan	721	1,611	2,062	2,254
Switzerland	322	495	677	864
Netherlands	254	318	372	324
All other	446	747	719	738
Total	4,043	5,956	7,371	7,690

1/ Does not include data for items 642.85 and 642.87 (see notes 3 and 4 of table 3), so that the totals are understated.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Wire cloth and related wire products: Imports for consumption, by type and principal sources, 1964 and 1967

Year, abbreviated description, and item number	Quantity, total 1/	Value			
		Total 1/	By principal sources		
			West Germany	Japan	Switzerland
1964					
	1,000 sq. ft.	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Not cut to shape, woven:					
Mesh not over 30 per inch:					
Stainless steel (642.50, -.52)--	1,203	482	60	365	13
Copper (642.54, -.56)----------	420	114	50	22	-
Other (642.58, -.60)----------	4,062	372	45	131	-
Total----------	5,685	968	156	518	13
Mesh over 30 but not over 90 per inch:					
Stainless steel (642.62, -.64)--	621	311	123	109	46
Copper (642.66, -.68)----------	899	194	102	6	-
Other (642.70, -.72)----------	972	212	95	24	-
Total----------	2,493	717	320	140	46
Mesh over 90 per inch:					
Stainless steel (642.74)--------	1,325	1,643	1,318	28	234
Copper (642.76)----------	794	216	174	5	1
Other (642.78)----------	429	202	123	13	2
Total----------	2,548	2,061	1,615	46	237
Cut to shape: 2/					
Copper (642.85)----------	2/	4	-	-	-
Other (642.87)----------	3/	293	210	19	26
Total----------	4/	297	210	19	26
Grand total----------	10,726	4,043	2,300	723	322

See footnotes at end of table.

Table 5.--Wire cloth and related wire products: Imports for consumption, by type and principal sources, 1964 and 1967--Continued

Year, abbreviated description, and item number	Quantity, total 1/	Value			
		Total 1/	By principal sources		
			West Germany	Japan	Switzerland
1967	1,000 sq. ft.	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Not cut to shape, woven:					
Mesh not over 30 per inch:					
Stainless steel (642.50, -.52)--	2,446	928	44	745	42
Copper (642.54, -.56)----------	671	199	70	116	-
Other (642.58, -.60)----------	6,407	581	76	227	4
Total----------	9,524	1,708	191	1,088	46
Mesh over 30 but not over 90 per inch:					
Stainless steel (642.62, -.64)--	1,738	751	129	462	137
Copper (642.66, -.68)----------	1,320	305	92	187	-
Other (642.70, -.72)----------	1,522	492	271	71	-
Total----------	4,580	1,548	492	721	137
Mesh over 90 per inch:					
Stainless steel (642.74)--------	2,344	2,514	1,454	253	610
Copper (642.76)----------	720	221	101	94	-
Other (642.78)----------	1,032	489	380	43	2
Total----------	4,096	3,224	1,935	390	612
Cut to shape: 5/					
Copper (642.85)----------	6/	16	1	1	-
Other (642.87)----------	3/	1,194	893	55	68
Total----------	4/	1,210	894	56	68
Grand total----------	18,200	7,690	3,512	2,255	863

1/ Included are small amounts entered duty free for (a) U.S. Government use and (b) processing under bond for exportation.
2/ Quantity, reported only in pounds, was 3.0 thousand pounds.
3/ Quantity not reported.
4/ Not available.
5/ Imports under items 642.86 and 642.88 were nil.
6/ Quantity, reported only in pounds, was 6.4 thousand pounds.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Bale ties, of iron or steel:	
Made from wire:	
Single loop ties made of round wire over 0.055 but not over 0.082 inch in diameter and 7.5 or more but not over 10.5 feet in length	642.90
Other	642.91
Made from strip	642.93

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is one of the world's largest producers, consumers, and importers of bale ties. Imports of bale ties made from strip, principally cotton ties, supply from a fourth to a half of the annual quantities consumed in the United States, while imports of wire bale ties are relatively small both in terms of quantities imported and in relation to U.S. consumption.

Description and uses

Bale ties are made from either wire (items 642.90 and 642.91) or strip (item 642.93). They may be manufactured with or without buckles or fastenings and may be painted or coated. Item 642.90 covers single loop ties made of round wire over 0.055 inch but not over 0.082 inch in diameter and 7.5 feet or more but not over 10.5 feet in length. These ties are used principally by farmers for baling hay and other farm products. Item 642.91 covers all other types of wire bale ties.

Bale ties made from strip (item 642.93) consist of ties used in baling cotton and bands used for baling paper, shingles, and other products. Cotton ties are slightly less than 1 inch wide, about 0.04 inch thick and about 11.5 feet in length. Six ties are used on the standard bale of cotton, and usually eight or nine on bales destined for export. While cotton is still in the press, the ties are run around it, threaded through their buckles, and tightened. When pressure on the bale is released, the ties hold the cotton tight.

In this summary all quantities are given in terms of short tons (2,000 pounds).

BALE TIES OF IRON OR STEEL

U.S. tariff treatment

The column 1 (trade agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Bale ties, of iron or steel, with or without buckles or fastenings and whether or not coated with paint or other substance:			
	Made from wire:			
642.90	Single loop ties made of round wire over 0.055 but not over 0.082 inch in diameter and 7.5 or more but not over 10.5 feet in length.	Free	1/	1/
642.91	Other	19% ad val.	17% ad val.	9.5% ad val.
642.93	Made from strip	0.05¢ per lb.	0.04¢ per lb.	0.02¢ per lb.

1/ Duty-free status not affected by trade conference.

The tabulation above shows the column 1 rates of duty in effect under the TSUS prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. The concessions are being put into effect in five annual stages for item 642.91; the rate for item 642.93 is being reduced in three stages--the first stage reduction having become effective on January 1, 1968, the second going into effect on January 1, 1970, and the final reduction on January 1, 1972.

The ad valorem equivalent of the 0.05-cent-per-pound rate of duty applicable to item 642.93, based on dutiable imports during 1967, was less than 1 percent.

U.S. consumption

During 1958-67, annual consumption of all bale ties fluctuated from 55,000 tons in 1967 to 94,000 tons in 1965 (table 1). Of the total consumption of bale ties, that portion made from wire ranged from about 16,000 to 19,000 tons a year and that made from strip (mostly cotton ties) varied from about 41,000 to 75,000 tons a year. A large reduction in consumption of cotton ties occurred in both 1966 and 1967, when the cotton acreage and subsequent production were reduced sharply.

Consumption of bale ties made from wire is nationwide, but consumption of cotton ties is restricted to the cotton-producing States of the South, Southwest, and West and is directly related to the size of the annual cotton crop. A small but undetermined percentage of cotton ties is straightened and reused each year.

U.S. producers

There are two domestic producers of cotton ties and baling bands, one in Alabama and the other in Georgia. Cotton ties represent an important part of the total business of one of the producers but an insignificant share of that of the other.

In 1960, 11 companies with plants situated in 12 States were reported to have an aggregate annual capacity to produce about 120,000 tons of wire bale ties. One semi-integrated company owned more than 50 percent of the total capacity. In recent years annual production of wire bale ties has been only about 15 percent of reported capacity.

U.S. production

During 1958-67 estimated annual U.S. production of bale ties made from both wire and strip ranged from 39,000 tons in 1967 to 66,000 in 1961 (table 1). Production increased in each year from 1958 to 1961, but declined in each of the years thereafter, reflecting in large part the downward trend of annual U.S. cotton production. Production of

wire bale ties and bale ties made from strip, principally cotton ties, during 1958-67 is estimated (in thousands of short tons) as follows:

Year	Wire bale ties	Bale ties and bands made from strip	Total
1958	18	40	58
1959	18	42	60
1960	15	48	63
1961	16	50	66
1962	16	47	63
1963	15	46	61
1964	17	43	60
1965	19	40	59
1966	19	24	43
1967	17	22	39

U.S. exports

During 1958-67, U.S. exports of bale ties, virtually all of which were cotton ties, were insignificant, averaging less than 500 tons a year (table 1). Mexico has been the principal export market.

U.S. imports

U.S. imports of bale ties increased irregularly from 17,000 tons, valued at $2.3 million, in 1958 to 35,000 tons, valued at $4.6 million, in 1965 (table 1). Imports declined to 25,000 tons, valued at $3.3 million, in 1966 and to 16,000 tons, valued at $2.1 million, in 1967, the decline reflecting principally a sharp reduction in the size of the domestic cotton crop. More than 90 percent of the annual imports have been cotton bale ties. The share of the domestic market supplied by imported cotton ties (item 642.93) has ranged from 27 percent in 1961 to 51 percent in 1966.

Belgium-Luxembourg has accounted for almost two-thirds of total imports in recent years (table 2). The United Kingdom and West Germany also have been important sources of imports.

Table 1.--Bale ties of iron or steel, with or without buckles or fastenings and whether or not coated with paint or other substances: U.S. production, imports for consumption, exports of domestic merchandise, and apparent consumption, 1958-67

Year	Production 1/	Imports		Exports 2/		Apparent consumption	Ratio of imports to consumption
		Quantity	Value	Quantity	Value		
	1,000 short tons	1,000 short tons	1,000 dollars	1,000 short tons	1,000 dollars	1,000 short tons	Percent
1958	58	17	2,330	1.1	198	74	23
1959	60	32	4,345	.5	129	92	35
1960	63	24	3,355	.3	72	87	28
1961	66	20	2,587	.3	69	86	23
1962	63	27	3,437	.6	148	89	30
1963	61	28	3,798	.1	41	89	31
1964	60	32	4,287	.4	104	92	35
1965	59	35	4,634	3/	3/	94	37
1966	43	25	3,277	3/	3/	68	37
1967	39	16	2,139	3/	3/	55	29

1/ Partly estimated. Production of wire bale ties as reported by the American Iron and Steel Institute; production of bale ties made from strip (mostly cotton ties) estimated by the staff of the U.S. Tariff Commission on the basis of the annual cotton crop, adjusted for imports and exports of cotton ties.

2/ Includes cotton ties only; exports of other bale ties are believed to be negligible.

3/ Not separately reported in official statistics.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--The ratio of imports to consumption of ties made from strip considered separately (based on quantity) ranged from 27 percent in 1961 to 51 percent in 1966.

Table 2.--Bale ties of iron or steel, with or without buckles or fastenings and whether or not coated with paint or other substance: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (short tons)			
Belgium-Luxembourg	19,973	23,096	16,119	9,850
United Kingdom	8,163	6,640	4,995	2,692
West Germany	3,083	3,599	3,571	2,745
Mexico	699	684	-	83
All other	543	521	332	876
Total	32,461	34,540	25,007	16,246
	Value (1,000 dollars)			
Belgium-Luxembourg	2,590	3,076	2,151	1,283
United Kingdom	1,107	893	669	366
West Germany	391	475	417	353
Mexico	130	118	-	14
All other	69	72	40	123
Total	4,287	4,634	3,277	2,139

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Milliners' and other covered wire, not including electric conductors	642.96, -.97

Note.--For the statutory description see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption of the covered wire discussed in this summary has increased substantially in recent years and is supplied almost entirely from domestic production. Imports and exports are believed to be small in comparison.

Description and uses

Among the most common types of the covered nonconductor wire discussed in this summary are plastic-covered wire, milliners' wire, and florists' wire. Most of the articles covered here are made of round wire of iron or steel although they may be made of flat or shaped wire or of nonferrous metal such as sluminum. The TSUS (headnote 1(ii), part 3B, schedule 6) provides that the items discussed in this summary do not cover insulated electric conductors.

Plastic-covered wire is used largely for fabricating chain-link fencing fabric. Another type is being used in increasing quantities for closing bread and other dry food packages. Although plastic-covered wire is used for other purposes, the volume so used is believed to be comparatively small; however, further uses are being investigated.

The material most often used for covering fence wire is polyvinyl chloride (PVC). The plastic coating is either extruded over galvanized steel wire (item 642.96) or bonded to primed steel wire (item 642.97). The extruded plastic covering is generally thicker than the bonded covering; this does not necessarily indicate that it is any more effective as a protective covering. During the manufacture of chain-link fencing fabric the plastic-coated wire is cut to specified lengths; this, of course, exposes wire ends that are neither galvanized, primed, nor plastic coated. Both industry and Federal standards recognize that the ends of the wire in the fencing fabric will rust; however, since this type of chain-link fencing has been in use, few complaints have been registered by consumers (see separate summary on fencing in this volume--6:5). The plastic coating may be had in a variety of colors, but shades of green have thus far been the most popular. Probably the biggest advantage that plastic-coated wire for fencing has over the more conven-

tional galvanized wire is that it requires considerably less maintenance since it does not require periodic painting to keep it attractive.

Plastic-covered "tie wire" of the type used for closing food packages consists of a comparatively small-diameter steel wire covered with plastic; the plastic lends bulk, and the wire provides strength and ease in fastening. This material is normally supplied in coils to users.

Milliners' wire, often referred to as bonnet wire, is usually made of low- to medium-carbon steel wire, frequently galvanized, and covered with paper or textiles. It is used for hat frames and sometimes for frames in small pocketbooks.

Florists' wire is generally a low-carbon annealed steel wire that has been painted or lacquered, most often green. It is commonly cut to standard lengths of 9, 12, 18, and 24 inches and is used in the floral industry for bundling, stemming, or tying real or artificial flowers or floral displays.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to imports of covered wire other than for electric conductors are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Milliners' wire and other wire covered with textile or other material not wholly of metal:			
642.96	Galvanized wire wholly of round iron or steel wire measuring not over 0.20 inch and not under 0.075 inch in diameter, if covered with plastic.	0.25¢ per lb.	1/	1/
642.97	Other	15% ad val.	13.5% ad val.	8.5% ad val.

1/ Prior rate (0.25 cent per pound) was not affected by trade conference.

The tabulation above shows the column 1 rates of duty effective prior to January 1, 1968, and modifications thereof as a result of a concession granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade.

Although the prior rates shown for both items had remained unchanged under the TSUS from August 31, 1963, through the end of 1967, the Tariff Schedules Technical Amendments Act of 1965 (Public Law 89-241) modified slightly the coverage of the articles provided for under 642.96. The dimensional limitation of "0.075 inch in diameter" appearing in the description of item 642.96 was changed from "0.080 inch in diameter" effective December 7, 1965. For purposes of customs classification, the diameter of the iron or steel wire specified in item 642.96 is measured exclusive of the galvanized coating (see headnote 1a, pt. 3, schedule 6 of the TSUSA-1968). The duty applicable to products provided for in item 642.96 was not affected by the Kennedy Round trade conference.

A concession amounting to a reduction of about 43 percent was granted by the United States on item 642.97; this concession is being put into effect in five annual stages, of which only the first and final stages are shown in the tabulation (see the TSUSA-1968 for the intermediate staged rates).

The average ad valorem equivalent of the rate of duty of 0.25 cent per pound applicable to item 642.96, based on dutiable imports in 1967, was 2.1 percent.

U.S. producers

The many domestic concerns that produce one or more of the covered wires discussed in this summary range in size from small independent concerns that fabricate various wire products from purchased wire to the large wire and wire product departments or subsidiaries of the integrated steelmaking concerns. Many of the producing establishments are semi-integrated to the extent that they draw their own wire from purchased rod. Although the number of producers of plastic-coated wire for chain-link fencing fabric will undoubtedly increase, there are at present only about five such domestic producers. These concerns, two of which produce the bonded type of wire, are also sizable producers of chain-link fencing.

U.S. consumption, production, and exports

Total U.S. consumption and production of the covered wire discussed in this summary, although not reported separately in official statistics, has undoubtedly increased substantially in recent years. The increase

can be attributed almost entirely to the development and widespread acceptance of plastic-coated chain-link fencing and plastic-coated tie wire for food packaging. The value of production of plastic-coated wire for fencing purposes alone in 1967 is estimated at $5 to $10 million. Recent installations of residential chain-link fencing have consisted largely of plastic-coated fabric; however, industrial and highway uses, having a much larger potential volume, are growing.

Consumption and production of florists' wire, although much smaller than consumption and production of wire for fencing, have also probably increased somewhat.

Exports of the products covered here, not segregated in available official statistics, are believed to be small in relation to U.S. production or consumption.

U.S. imports

Data on annual U.S. imports of covered wire are available only for the time since the beginning of 1964. During 1964-67, imports reached a peak in 1965, when they amounted to 3.5 million pounds, valued at $489,000.

Imports in 1967 amounted to 2.6 million pounds, valued at $403,000 (table 1). In terms of quantity, imports of wire of the kind provided for under item 642.96 (plastic-covered, galvanized round wire of iron or steel, 0.075 to 0.20 inch in diameter) have predominated; however, in terms of value, imports of covered wire of the types provided for under item 642.97 were larger except in 1965. Imports of covered wire under item 642.97 consist principally of green enameled (or lacquered) florists' wire in standard lengths.

Belgium-Luxembourg, Japan, West Germany, and Canada were the only sources of imports of plastic-coated galvanized wire (item 642.96) during 1964-67 and were the principal sources of all the covered wire considered here. France and Sweden have been among the principal sources of florists' and other covered wire of the type provided for under item 642.97 (table 2).

Imports of all the covered wire discussed in this summary probably supply less than 5 percent of U.S. consumption; however, imports of florists' wire, taken separately, may account for a somewhat larger share of the total annual U.S. consumption of such wire.

Table 1.--Milliners' and other covered wire (except electrical conductors): U.S. imports for consumption, by kinds, 1964-67

Year	Galvanized iron or steel wire covered with plastic (642.96) 1/	Other (642.97)	Total
	Quantity (1,000 pounds)		
1964	871	729	1,600
1965	2,865	676	3,541
1966	1,212	1,007	2,219
1967	1,409	1,234	2,643
	Value (1,000 dollars)		
1964	107	170	277
1965	361	128	489
1966	165	224	389
1967	170	233	403

1/ Round and measuring not over 0.20 inch and not under 0.080 inch in diameter until Dec. 7, 1965; thereafter not over 0.20 inch and not under 0.075 inch in diameter.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on U.S. consumption, production, or exports are not reported separately in official statistics. U.S. production of plastic-coated wire for fencing purposes has been estimated at $5 to $10 million in 1967 and has been increasing substantially during the last several years. U.S. production of other covered wire is probably much smaller. Exports, like imports, are believed to be small in relation to domestic production.

Table 2.--Milliners' and other covered wire (except electrical conductors): U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Belgium-Luxembourg	257	296	1,145	1,016
Japan	363	546	278	530
West Germany	760	2,526	331	387
Canada	87	89	337	366
France	8	1/	76	270
Sweden	68	1	20	33
All other	57	83	32	41
Total	1,600	3,541	2,219	2,643
	Value (1,000 dollars)			
Belgium-Luxembourg	41	48	163	139
Japan	53	77	58	71
West Germany	94	319	54	71
Canada	21	13	74	56
France	10	1	11	43
Sweden	39	1	11	19
All other	19	30	18	4
Total	277	489	389	403

1/ Less than 500 pounds.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Foil, other than aluminum foil, whether or not cut to shape or backed:	
Copper foil (including covered or decorated)	644.02, -.24, -.36, -.40
Tin foil	644.15
Lead foil	644.17, -.18, -.28
Zinc foil	644.20, -.30
Other	644.22, -.32

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. imports probably supplied 21 to 29 percent of U.S. consumption of copper foil during 1964-67; the consumption of copper foil ranked second only to that of aluminum foil. During the same period, imports supplied less than 2.5 percent of the U.S. consumption of lead foil, and negligible shares of U.S. consumption of other base metal foils. U.S. imports of all base metal foils considered here are substantially larger than exports.

Description and uses

This summary covers foil, not over 0.006 inch in thickness (excluding any coating or backing), whether or not embossed, cut to shape, perforated, etched, coated, printed, colored, or decorated, not backed, of base metal other than aluminum, and backed with paper or equivalent backing, of copper. Foil not backed, of aluminum (item 644.06, among others), and foil backed, of base metal other than copper (items 644.38 and 644.42), are covered in a separate summary in this volume (6:5).

Foil is produced mostly on precision rolling mills, from metal stock in sheet or strip form; an electro-deposition process is also used to produce one type of copper foil, as well as foils made of certain other metals. In the past decade, the improvements in the quality of metal stock, in foil rolling and other technology, have made possible the production of metal foils meeting increasingly exacting specifications for physical properties, finishes, and thicknesses ranging down to the "ultra thin" foil (some of it less than 0.0001 of an inch thick). The variety of metals and alloys used in making foil, as well as the variety of the uses of foil, has grown in recent years.

Copper foil.--Copper foil (items 644.02, 644.24, 644.36, and 644.40), measured by weight, is used chiefly in the manufacture of heat exchangers, principally radiators in automobiles. Copper foil of high purity, backed with various nonmetallic materials, is being used more and more extensively in the production of printed circuits for application in communications equipment, computers, and other articles. Copper foil made by electro-deposition is nonporous; backed with fabric, it is used in installations for protecting sensitive instruments from dampness.

Other base metal foils.--The principal uses of other base metal foils, other than of aluminum, covered by this summary are indicated below.

Tin foil (item 644.15) is used mainly in the manufacture of packaging for pharmaceuticals, because tin is chemically inert. Some tin foil is also used for making electrical condensers and capacitors.

Lead foil (items 644.17, 644.18, and 644.28) is consumed largely in the manufacture of Christmas tree decorations. It is also used for radiation shielding and sound attenuation, and in mechanical packing in plumbing.

Zinc foil (items 644.20 and 644.30) is used primarily in the cartridge type of electrical fuses.

Other foils (items 644.22 and 644.32) include those made of the following metals and alloys:

beryllium	hafnium	praseodymium
cadmium	indium	rhenium
calcium	lanthanum	tantalum
cobalt-base alloy	lutitium	titanium
columbium	magnesium	tungsten
columbium-tellurium	molybdenum	vanadium
columbium-zirconium	nickel	ytterbium
erbium	nickel alloys	zirconium
gadolinium	palladium	

Examples of uses of some of these miscellaneous foils, or products of which such foils are a part, are shown below:

Type of foil	Product or use
Beryllium----------	Electromagnetic and particle radiation detectors.
Cobalt-base alloy--	Protective tape over computer sensing heads.
Titanium----------	Shutter blades in aerial cameras.
Zirconium----------	Camera flash-bulbs; fuses for solid fuel rockets.

Some of the uncommon base metal foils are now being used mainly in research projects covering various fields, including nuclear energy production and aerospace vehicles and equipment.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows (in cents per pound and percent ad valorem):

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Base metal foil, other than of aluminum: 1/			
	Not cut to shape and not backed:			
644.02	Copper	3¢	2.5¢	1.5¢
644.15	Tin	35%	31%	17.5%
	Lead:			
644.17	Valued not over 13-1/3¢ per pound.	1.5¢	1.3¢	0.75¢
644.18	Valued over 13-1/3¢ per pound.	11.25%	10%	5.5%
644.20	Zinc	19%	17%	9.5%
644.22	Other	18%	16%	9%
	Cut to shape, not backed:			
644.24	Copper	1.275¢ + 20%	1.1¢ + 18%	0.6¢ + 10%
644.28	Lead	11.25%	10%	5.5%
644.30	Zinc	19%	17%	9.5%
644.32	Other	18%	16%	9%
	Copper foil, backed, whether or not cut to shape:			
644.36	Covered or decorated with a character, fancy effect, or pattern.	5.25¢ + 8%	4.7¢ + 7%	2.6¢ + 4%
644.40	Other	3.25¢ + 8%	2.9¢ + 7%	1.6¢ + 4%

1/ Not over 0.006 inch in thickness, excluding any coating or backing, whether or not embossed, cut to shape, perforated, etched, coated, printed, colored, decorated, or backed with paper or equivalent backing.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968; those prior rates had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. The tabulation also shows modifications of those rates that resulted from concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade; only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The average ad valorem equivalent of the specific or compound rates of duty in effect on December 31, 1967, based on dutiable imports in 1967, were as follows:

TSUS item	Percent
644.02	5
644.17	1/
644.24	1/
644.36	2/ 19
644.40	2/ 10

1/ Not calculable, since imports have been nil during all recent years.

2/ Based on imports in 1964, all from one country, in only a small volume; the ad valorem equivalent, therefore, may not be representative.

U.S. producers

About 50 or more domestic firms produce the metal foils discussed here. A few of these producers make foil from only one metal and its alloys, but most of them use a variety of metals. All of these firms produce other wrought metal products. About a third of them are very large and diversified concerns. Approximately two-thirds of the foil plants of these companies are in the Middle Atlantic and New England States, and most of the remainder are in the North Central States.

U.S. consumption and production

During 1964-67 about four-fifths of the U.S. industrial consumption of copper foil, almost all of the consumption of lead foil, and probably almost all of the consumption of other base metal foils other than aluminum foil were supplied by domestic production.

Copper foil.--Apparent U.S. consumption of copper and copper-alloy foil (U.S. producers' shipments plus imports minus exports) was about 119 million pounds in 1967, or almost 20 percent larger than in 1964 but almost 20 percent smaller than in 1966 (table 1). However,

these data overstate actual consumption in 1966 and understate it in 1967; producers' shipments and imports in 1966 apparently included some foil earmarked for inventory buildup to offset an expected shortage stemming from a labor-management dispute in the copper industry. Domestic producers' shipments were about 116 million pounds in 1966, or nearly 50 percent larger than in 1964, but dropped to 86 million pounds in 1967. The substantial decrease in producers' shipments in 1967 was caused partly by material shortages that resulted from a labor-management dispute in the copper industry and partly by a decline in activity in the automobile industry, the principal consumer of copper foil.

Other foils.--The consumption and production of each of the other base metal foils covered by this summary, especially of foils from the less common base metals, was much smaller than that of copper foil. U.S. consumption of tin foil is limited both by the comparatively high price of tin and the relatively high rate of import duty on tin foil. Some foils apparently are being used entirely in research projects, probably in very small quantities, although data on the consumption and production of these foils are not available.

U.S. exports

U.S. exports of copper and copper-alloy foil increased from about 432,000 pounds, valued at $714,000, in 1965 to 1.3 million pounds, valued at $1.6 million, in 1967 (table 2). The principal markets during 1965-67 were Japan, the Netherlands, and Canada.

U.S. exports of nickel and nickel-alloy foil rose from about 7,000 pounds, valued at $15,000, in 1965 to 26,000 pounds, valued at $71,000, in 1966, then declined to 11,000 pounds, valued at $26,000, in 1967 (table 3). The principal markets for these exports were West Germany, the United Kingdom, France, and the Netherlands.

It is estimated that annual U.S. exports of the other base metal foils covered by this summary were very small; data on such exports, however, are not separately reported.

U.S. imports

The value of total U.S. imports of base metal foils other than aluminum foil increased from $9.4 million in 1964 to $21.2 million in 1967 (table 1). Nearly all (about 99 percent) of the imports consisted of copper foil, not backed or cut (item 644.02) (table 4). Sweden was the largest source of aggregate imports of base metal foils covered in this summary, supplying 72 percent of the value of total imports in

1964 and 44 percent in 1967 (table 5). Other important sources during those years were Austria, West Germany, and the United Kingdom; imports from 1964 to 1967 increased very rapidly from each of these countries.

Imports of copper foil.--Annual U.S. imports of copper foil supplied 21 to 22 percent of the quantity of U.S. apparent consumption of such foil in 1964-66 and 29 percent in 1967 (table 1). U.S. imports of copper foil in 1967, 34.2 million pounds, valued at $21.0 million, were larger than in 1964 by 55 percent in quantity and 126 percent in value; the greater increase in value probably reflects both an increase in the prices and a rise in the general quality of imported foil. The average value per pound of the imports of copper foil rose from 42 cents in 1964 to 62 cents in 1967.

The imports in 1966 and 1967 consisted mainly of unalloyed copper foil, with the rest made up of copper-alloy foil, the type used primarily to produce automotive radiators, as shown below:

Year	Unalloyed copper foil	Copper-alloy foil	Total
	Quantity (1,000 pounds)		
1966	18,917	13,132	32,049
1967	22,553	11,627	34,180
	Value (1,000 dollars)		
1966	12,359	7,603	19,962
1967	14,333	6,703	21,034

Imports of other base metal foil.--Annual U.S. imports of lead foil (items 644.18 and 644.28) supplied 0.2 to 2.4 percent of the quantity (lead content) of such foil consumed by the domestic industry during 1964-67 (table 1). Annual imports of other base metal foils considered in this summary probably supplied similar small portions of industrial consumption, but official statistics on such consumption are not separately reported.

The value of combined annual imports of base metal foils other than copper foil covered in this summary rose from about $69,000 in 1964 to $194,000 in 1967, or by 177 percent (table 4). Of the total value of such annual imports during 1964-67, from 54 to 82 percent consisted of "other foil" under items 644.22 and 644.32, which provide for foil made of a variety of metals. As indicated in table 5, the average unit value of the imports of other base metal foils differed substantially by tariff classification, by metal, by source, and from year to year. Austria, which supplied only a few types, and West Germany, which supplied almost all types, were the principal sources of imports of these other foils during 1964-67.

Table 1.--Base metal foil, other than aluminum foil: U.S. producers' shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1964-67

Commodity and year	Producers' shipments	Imports		Exports		Apparent consumption
		Quantity	Value	Quantity	Value	
	1,000 pounds	1,000 pounds	1,000 dollars	1,000 pounds	1,000 dollars	1,000 pounds
Copper and copper-alloy foil:						
1964	78,200	21,984	9,327	1/ 400	1/ 700	100,000
1965	94,400	25,227	11,914	432	714	120,000
1966	115,800	32,049	19,962	977	1,376	147,000
1967	86,500	34,180	21,034	1,268	1,609	119,000
Lead and lead-alloy foil:						
1964	2/ 7,935	17	9	3/	3/	4/ 7,952
1965	2/ 9,537	73	22	3/	3/	4/ 9,610
1966	2/ 11,867	215	61	3/	3/	4/12,082
1967	2/ 11,808	288	82	3/	3/	4/12,096
Total: 5/						
1964	6/	6/	9,395	6/	7/	6/
1965	6/	6/	12,088	6/	7/	6/
1966	6/	6/	20,202	6/	7/	6/
1967	6/	6/	21,228	6/	7/	6/

1/ Estimated by the staff of the U.S. Tariff Commission.
2/ Estimated from consumption, imports, and exports; see also note 4.
3/ Estimated to be small in relation to producers' shipments.
4/ Lead content. Almost all lead foil is made of refined soft lead; the rest contains 1 to 2 percent of some other metal. The data for lead foil production and consumption, unlike those for imports, may include some material over 0.006 inch in thickness. 5/ Also includes other base metal foils, except aluminum foil. 6/ Not meaningful, because of the heterogeneity of classes and metals. 7/ Not available.

Source: Producers' shipments of copper and copper-alloy foil, from trade sources; consumption of lead and lead-alloy foil, from official statistics of the U.S. Bureau of Mines; imports and exports, from official statistics of the U.S. Department of Commerce, except as noted.

Note.--The ratios of imports to consumption, based on quantity, were as follows: for copper and copper-alloy foil, 22 percent in 1964, 21 percent in 1965, 22 percent in 1966, and 29 percent in 1967; for lead and lead-alloy foil, less than 1 percent in 1964 and 1965, 1.8 percent in 1966, and 2.4 percent in 1967. For the other base metal foils covered by this summary, data are not available for the computation of similar ratios; however, it is estimated that annual imports have been generally small in relation to consumption.

Table 2.--Copper and copper-alloy foil: 1/ U.S. exports of domestic merchandise, by principal markets, 1965-67

Year	Japan	Canada	Netherlands	All others	Total
	Quantity (1,000 pounds)				
1965	100	42	168	2/ 122	432
1966	488	104	172	213	977
1967	641	53	10	3/ 564	1,268
	Value (1,000 dollars)				
1965	198	79	194	2/ 243	714
1966	714	153	206	303	1,376
1967	815	107	13	3/ 674	1,609

1/ May also include some copper and copper-alloy leaf.

2/ Includes 42 thousand pounds, valued at 101 thousand dollars, to France.

3/ Includes 228 thousand pounds, valued at 203 thousand dollars, to Belgium.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Nickel and nickel-alloy foil: U.S. exports of domestic merchandise, by principal markets, 1965-67

Year	Netherlands	France	United Kingdom	West Germany	All others	Total
	Quantity (1,000 pounds)					
1965	-	3	1	2	1	7
1966	-	1/	9	13	3	26
1967	5	2	1	1	2	11
	Value (1,000 dollars)					
1965	-	6	2	5	2	15
1966	-	1	24	40	6	71
1967	11	5	3	2	5	26

1/ Less than 500 pounds.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Base metal foil, other than aluminum foil: Imports for consumption, by tariff classification and item number, 1964-67

Abbreviated description and TSUS item number 1/	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Not cut or backed:				
Copper (644.02)	21,983	25,227	32,049	34,180
Tin (644.15)	19	-	2/	4
Lead, valued over 13-1/3 cents per pound (644.18)	16	72	215	288
Zinc (644.20)	5	30	2	-
Other (644.22)	2	50	9	8
Cut, but not backed:				
Lead (644.28)	2	1	2/	-
Zinc (644.30)	21	14	-	-
Other (644.32)	2	2/	14	3
Backed, cut or uncut, of copper:				
Covered or decorated (644.36)	1	-	-	-
Other (644.40)	2/	-	-	-
Total 3/	-	-	-	-
	Value (1,000 dollars)			
Not cut or backed:				
Copper (644.02)	9,325	11,914	19,962	21,034
Tin (644.15)	12	-	4/	8
Lead, valued over 13-1/3 cents per pound (644.18)	8	21	57	82
Zinc (644.20)	1	9	1	-
Other (644.22)	38	142	159	95
Cut, but not backed:				
Lead (644.28)	1	1	4	-
Zinc (644.30)	6	1	-	-
Other (644.32)	3	4/	19	9
Backed, cut or uncut, of copper:				
Covered or decorated (644.36)	1	-	-	-
Other (644.40)	4/	-	-	-
Total	9,395	12,088	20,202	21,228

1/ Imports of lead foil, valued not over 13-1/3 cents per pound, not cut or backed (item 644.17) and copper foil, cut but not backed (item 644.24) were nil during 1964-67. 2/ Less than 500 pounds.
3/ Not meaningful because of the heterogeneity of classes and metals.
4/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Base metal foil, other than aluminum foil: Imports for consumption, by tariff classification and principal sources, 1964 and 1967

(Value in thousands of dollars)

Abbreviated description and TSUS item number	Quantity	Value	
		Total	By principal sources
	1,000 pounds		
1964 1/			
Not cut or backed:			
Copper (644.02)	21,983.2	9,325.9	Sweden, 6,791.1.
Tin (644.15)	19.2	11.6	Canada, 11.6.
Lead, valued over 13-1/3 cents per pound (644.18).	15.9	8.3	Netherlands, 5.7; West Germany, 2.6.
Zinc (644.20)	5.0	1.1	West Germany, 0.9.
Other (644.22)	1.6	37.9	Austria, 36.6.
Cut, but not backed:			
Lead (644.28)	1.6	0.7	West Germany, 0.4; Belgium and Luxembourg, 0.3.
Zinc (644.30)	21.1	6.2	West Germany, 5.4.
Other (644.32)	1.9	2.8	United Kingdom, 0.9; West Germany, 0.9; Canada, 0.8.
Backed, cut or uncut, of copper:			
Covered or decorated (644.36).	1.3	0.6	Australia, 0.6.
Other (644.40)	.3	0.3	Japan, 0.3.
Total	2/	9,395.4	
1967 3/			
Not cut or backed:			
Copper (644.02)	34,179.8	21,034.4	Sweden, 9,322.6; United Kingdom, 4,063.2; Canada, 3,161.6.
Tin (644.15)	3.9	7.9	West Germany, 7.9.
Lead, valued over 13-1/3 cents per pound (644.18).	287.8	81.8	West Germany, 53.5; United Kingdom, 28.3.
Other (644.22)	7.7	94.5	Austria, 81.7.
Cut, but not backed:			
Other (644.32)	3.1	8.9	West Germany, 2.9; Austria, 2.8; United Kingdom, 2.0.
Total	2/	21,227.5	

1/ Imports of lead foil (644.17) were nil. 2/ Not meaningful because of the heterogeneity of classes and metals. 3/ Imports of lead foil (644.17 and 644.28), zinc foil (644.20 and 644.30), and copper foil (644.36 and 644.40) were nil.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Aluminum foil:	
Not backed and not cut to shape:	
Etched capacitor foil	644.06
Other	644.08, -.09, -.11, -.12
Cut to shape, but not backed	644.26
Aluminum foil and other base metal foil except copper, backed:	
Covered or decorated	644.38
Other	644.42

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is the world's largest producer and consumer of aluminum foil, having doubled the quantity of its production and consumption in the past decade. Both U.S. imports and exports are small in relation to U.S. production and consumption. Imports have been declining since 1964, and in 1966 and 1967 they supplied less than 2 percent of apparent U.S. consumption.

Description and uses

Aluminum foil, which is produced from coiled aluminum sheet, is a flat rolled product which is not over 0.006 inch in thickness, excluding coating or backing. It is produced in a variety of tempers, finishes, and coatings to meet a wide range of use specifications. The quality of aluminum foil is measured principally by the number of "pin holes" per square inch; the smaller the number of pin holes, the higher the quality. The production of foil requires precision rolling mills and raw material that meets rigid metallurgical specifications. Imperfections either in the raw material or in the mill rolls can cause an above-average number of pin holes and other damage to the foil, which passes through the rolling mills at high speeds.

Etched capacitor foil is a specialty product which is manufactured by passing high-purity foil through an electrochemical etching bath at a controlled rate of speed. It is used exclusively in the production of capacitors. Plain aluminum foil which is not over 0.00035 inch in thickness (items 644.08 and 644.09) is used primarily in capacitors and for laminating with paper, plastics, or similar material. Because the production of foil not over 0.00035 inch in thickness requires a

greater number of passes through the rolling mill, as well as additional annealing, such foil is more costly to produce than foil of a thicker gage.

Aluminum foil over 0.00035 inch thick (items 644.11 and 644.12) is used principally for packaging and for the production of containers. Aluminum foil, cut to shape, is produced from rolls of aluminum; it is used for lithographic plates and containers, among other things.

Although items 644.38 and 644.42 provide for and there is included in this summary backed foil other than copper, backed aluminum foil is virtually the only article of commercial significance covered by these items. Aluminum foil which is backed (whether or not covered or decorated) is principally used for packaging cigarettes, tobacco, candy, food, and other articles which need protection from atmospheric conditions. In recent years various plastics in sheet form have provided the major competition for aluminum foil in the packaging field. In future years steel foil, a relatively recent development, may also become a major competitor, owing to its superior strength.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows (in percent ad valorem and cents per pound):

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Aluminum foil:			
	Not backed and not cut to shape:			
644.06	Etched capacitor foil----	17%	15%	8.5%
	Other:			
	Not over 0.00035 inch in thickness:			
644.08	Valued not over 55¢ per lb.	11¢	10.5¢	8.8¢
644.09	Valued over 55¢ per lb.	20%	18%	10%
	Over 0.00035 inch in thickness:			
644.11	Valued not over 55¢ per lb.	9.25¢	8.3¢	4.6¢
644.12	Valued over 55¢ per lb.	17%	15%	8.5%
644.26	Cut to shape, but not backed.	19%	17%	9.5%
	Aluminum foil and other base metal foil except copper, backed, whether or not cut to shape:			
644.38	Covered or decorated with a character, design, fancy effect, or pattern.	4¢ + 8%	3.6¢ + 7%	2¢ + 4%
644.42	Other----------	2¢ + 8%	1.8¢ + 7%	1¢ + 4%

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade (GATT). Only the first and final stages of the annual rate modifications are shown above. (See the TSUSA-1968 for the intermediate staged rates.)

All of the prior rates of duty shown above reflect concessions granted by the United States in the GATT, and such reduced rates were in effect prior to the enactment of the TSUS. These rates had continued unchanged under the TSUS from August 31, 1963, through December 31, 1967.

The concessions granted by the United States in the Kennedy Round negotiations, which amounted to a reduction in duties of about 50 percent, are being effected in five annual stages--the final reductions going into effect on January 1, 1972.

The average ad valorem equivalents of the duties in effect at the end of 1967 for those items having a specific or compound rate, based on dutiable imports during 1967, were as follows:

TSUS item	Percent
644.08	25.2
644.11	21.6
644.38	13.2
644.42	13.7

U.S. consumption

Apparent U.S. consumption of aluminum foil has increased steadily in recent years--from about 201 million pounds in 1958 to 448 million pounds in 1967 (table 1). In 1967, as in previous years, about four-fifths of total consumption was used for containers and packaging. The ever widening of uses of aluminum foil in the rapidly growing packaging market (e.g., for trays, pouches, bags, and paper-foil combination cans) accounted for the large increase in the consumption of aluminum foil during these years. With increasing competition from other materials, such as plastics, paper, and--recently--steel foil, the consumption of aluminum foil is likely to increase for some years at a slower rate of growth than that which prevailed during 1958-67 (9.3 percent a year).

U.S. producers

In 1958, aluminum foil was produced at 17 establishments in the United States, compared with eight during World War II. By 1964, the number had increased to 26. These establishments were operated by 19 firms, six of which were fully integrated aluminum producers; another five were diversified producers of other articles which used foil produced in their establishments for the manufacture of laminated (backed) foils and other products. The integrated aluminum producers

accounted for more than 80 percent of the total quantity of aluminum foil produced. Two firms produced etched capacitor foil for sale, while a number of other firms (producers of electronic components) produced such foil for their own use from purchased plain aluminum foil.

Of the 26 establishments at which foil was produced, four were situated in California, four in the Central States, and the rest in the Northeastern and Southern States. Most of the establishments not only produce plain foil, but they also color, print, emboss, laminate, or otherwise process the foil they produce. Some 180 other establishments also process purchased aluminum foil.

U.S. producers' shipments

U.S. production of aluminum foil, as indicated by producers' shipments, has grown substantially in recent years. Annual shipments increased from about 200 million pounds in 1958 to an estimated 449 million pounds in 1967 (table 1). It is estimated that throughout the period 1958-67 foil over 0.00035 inch in thickness accounted for the bulk of the quantity of shipments, and foil not over 0.00035 inch in thickness for the greater part of the value of shipments.

It is estimated that the value of U.S. producers' shipments in 1967 was more than $325 million, although actual data are not available. The factory selling price of domestic aluminum foil currently ranges from about 40 cents a pound (for certain plain foils) to about $3.00 a pound(for the most expensive capacitor foil).

U.S. exports

Annual U.S. exports of plain (unbacked) and backed aluminum foil increased from 4.5 million pounds in 1958 to 8.6 million pounds in 1962. Exports declined to 6.2 million pounds in each of the years 1965 and 1966 then rose to 7.2 million pounds in 1967, when they were valued at $5.9 million (table 2). In 1958, exports accounted for about 2.3 percent of the quantity of shipments by U.S. producers; by 1967, the ratio had declined to about 1.6 percent.

Of the total exports in 1958, plain aluminum foil accounted for 13 percent of the quantity and 17 percent of the value. During the period 1963-67 the share of total exports accounted for by plain aluminum foil rose to 45 percent in terms of quantity and 40 percent in terms of value. U.S. exports of aluminum foil have been widely distributed. Since 1962, Canada, Australia, Mexico, and the United Kingdom have been the principal markets, accounting for 47 percent of the total value of exports during 1963-67.

The average unit value of total exports increased from about 66 cents a pound in 1958 to about 93 cents in 1966, and amounted to about 82 cents a pound in 1967. In the latter year, average unit values by markets ranged from about 69 cents a pound for exports to Colombia to $2.15 a pound for exports to Italy.

Aluminum foil made in the United States competes in foreign markets principally with foil made in West Germany, Switzerland, France, the United Kingdom, and Austria. West Germany is the principal world exporter, with exports in 1963 (the latest year for which data are available) of more than 40 million pounds, valued at more than $24 million. In that year the exports of aluminum foil from each of the countries Switzerland, France, and the United Kingdom exceeded those from the United States by a large margin. Although all of the aforementioned foreign countries are exporters of aluminum foil, their combined annual production has been much smaller than annual U.S. production.

U.S. imports

Annual U.S. imports of aluminum foil increased from 5.5 million pounds, valued at $3.7 million, in 1958 to 11.7 million pounds, valued at $6.6 million, in 1964 and then declined to 6.2 million pounds, valued at $5.0 million, in 1967 (table 3). Imports in 1967 supplied about 1.4 percent of the quantity of domestic consumption in that year.

Although the rates of duty on foil over 0.00035 inch thick (principally included now in items 644.06, 644.11, and 644.12) were reduced under the GATT effective June 30, 1958, the bulk of the increase in imports from 1958 to 1964 was in imports of foils not over 0.00035 inch thick (included in items 644.08 and 644.09) particularly those valued not over 55 cents a pound (table 4).

Imports are generally purchased by converters, which further process the imported product for making specialty foils used in small quantities. Such imports compete primarily with those foils produced by nonintegrated domestic producers, which account for about 15 to 20 percent of total domestic shipments (about 60 to 80 million pounds). In this small segment of the aluminum foil market, imports have supplied an estimated 15 percent of the consumption in recent years.

In the lower priced categories of unbacked foil (item 644.08), imports were considerably smaller in 1967 than in previous years. This change, however, is too recent to indicate whether it is the beginning of a trend or only a temporary fluctuation.

During 1965-67, West Germany, Austria, and Switzerland were the principal sources of U.S. imports of aluminum foil, accounting for almost 60 percent of the total value in that period (table 3). In 1967, France, West Germany, and Italy supplied most of the imports of etched capacitor foil (item 644.06). In that year, West Germany, Switzerland, and Italy accounted for most of the imported foil not over 0.00035 inch thick (items 644.08 and 644.09), and West Germany, Austria, and the United Kingdom supplied over three-fourths of the total imports of foil over 0.00035 inch in thickness (items 644.11 and 644.12). Most of the foil cut, but not backed (item 644.26) in 1967 was supplied by West Germany. The Netherlands, West Germany, and Switzerland were the chief suppliers of decorated backed foil (item 644.38), and Japan, Austria, and Switzerland, the principal sources of other than decorated backed foil (item 644.42).

Table 1.--Aluminum foil: U.S. producers' shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1958 and 1961-67

Year	Producers' shipments	Imports 1/	Exports	Apparent consumption	Ratio of imports to consumption
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	Percent
1958	199,559	5,542	4,516	200,585	2.8
1961	270,587	9,904	6,472	274,019	3.6
1962	297,438	10,120	8,552	299,006	3.4
1963	322,300	9,808	6,308	325,800	3.0
1964	356,704	11,692	6,341	362,055	3.2
1965	395,725	10,045	6,186	399,584	2.5
1966	427,751	8,118	6,152	429,717	1.9
1967	449,000	6,209	7,223	447,986	1.4

1/ Beginning with 1963, imports may include small quantities of backed foil other than aluminum.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 2.--Aluminum foil: U.S. exports of domestic merchandise, by principal markets, 1958 and 1963-67

Market	1958	1963	1964	1965	1966	1967
	Quantity (1,000 pounds)					
Canada	560	914	1,070	1,067	1,158	2,700
United Kingdom	2	477	289	133	196	387
Italy	11	100	143	79	127	191
Mexico	403	270	311	439	560	409
Venezuela	966	657	512	387	352	261
Australia	6	1,328	1,181	855	120	172
Philippine Republic	100	153	199	159	177	78
Colombia	222	290	191	231	505	26
New Zealand	5	179	211	79	76	17
All other	2,241	1,940	2,228	2,757	2,881	2,982
Total	4,516	6,308	6,341	6,186	6,152	7,223
	Value (1,000 dollars)					
Canada	529	1,155	1,176	1,005	1,208	1,836
United Kingdom	5	342	311	350	387	414
Italy	8	97	238	221	330	411
Mexico	244	325	331	432	501	403
Venezuela	500	310	289	244	317	221
Australia	7	774	697	581	103	191
Philippine Republic	93	201	336	295	323	110
Colombia	228	135	88	110	256	18
New Zealand	3	107	131	41	37	13
All other	1,354	1,199	1,455	1,920	2,267	2,323
Total	2,971	4,645	5,052	5,199	5,730	5,940
	Unit value (per pound)					
Canada	$0.94	$1.26	$1.10	$0.94	$1.04	$0.68
United Kingdom	3.31	.72	1.07	2.63	1.97	1.07
Italy	.74	.97	1.66	2.81	2.61	2.15
Mexico	.60	1.20	1.06	.98	.89	.99
Venezuela	.52	.47	.56	.63	.90	.85
Australia	1.22	.58	.59	.68	.86	1.11
Philippine Republic	.93	1.32	1.69	1.85	1.83	1.41
Colombia	1.02	.47	.46	.48	.51	.69
New Zealand	.64	.60	.62	.57	.49	.76
All other	.60	.62	.65	.69	.79	.78
Average	.66	.74	.80	.84	.93	.82

Source: Compiled from official statistics of the Department of Commerce.

Table 3.--Aluminum foil: U.S. imports for consumption, by principal sources, 1958 and 1963-67

Source	1958	1963	1964	1965	1966	1967
	Quantity (1,000 pounds)					
West Germany	2,819	4,869	5,954	3,858	2,135	1,431
France	40	1,121	894	602	205	180
Austria	944	1,034	1,072	1,483	1,388	1,123
Netherlands	29	22	426	879	578	612
Switzerland	725	1,960	1,596	1,583	1,002	588
Italy	332	149	138	327	411	461
United Kingdom	614	380	826	576	978	495
Japan	1	26	146	258	508	740
All other	38	247	640	479	913	577
Total	5,542	9,808	11,692	10,045	8,118	6,209
	Value (1,000 dollars)					
West Germany	1,960	2,889	3,272	2,523	1,691	1,384
France	21	568	561	534	586	821
Austria	512	593	586	842	842	730
Netherlands	15	15	265	604	355	478
Switzerland	431	1,108	985	990	689	429
Italy	185	100	91	233	408	335
United Kingdom	556	277	475	308	513	270
Japan	1/	13	64	111	228	239
All other	13	116	303	235	438	278
Total	3,693	5,679	6,602	6,380	5,750	4,964
	Unit value (per pound) 2/					
West Germany	$0.70	$0.59	$0.55	$0.65	$0.79	$0.97
France	.52	.51	.63	.89	2.86	4.56
Austria	.54	.57	.55	.57	.61	.65
Netherlands	.50	.67	.62	.69	.61	.78
Switzerland	.59	.57	.62	.62	.69	.73
Italy	.56	.67	.66	.71	.99	.59
United Kingdom	.90	.73	.58	.54	.52	.55
Japan	.17	.50	.44	.43	.45	.31
All other	.38	.47	.47	.49	.48	.48
Average	.67	.58	.56	.64	.71	.80

1/ Less than $500.
2/ Based on unrounded figures.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Aluminum foil: U.S. imports for consumption, by TSUS item numbers, 1958, 1962, and 1964-67

TSUS item number	1958	1962	1964	1965	1966	1967
	Quantity (1,000 pounds)					
644.06	1/	1/	168	366	358	328
644.08	2,135	4,613	5,640	3,751	1,322	557
644.09	809	1,573	1,318	1,157	743	275
644.11	1,437	2,373	2,241	1,465	1,725	1,141
644.12	2/ 1,161	2/ 1,561	1,147	1,441	1,789	1,552
644.26	3/	3/	73	52	20	24
644.38 4/	5/	5/	665	1,239	1,384	1,329
644.42 4/	5/	5/	440	574	777	1,003
Total	5,542	10,120	11,692	10,045	8,118	6,209
	Value (1,000 dollars)					
644.06	1/	1/	499	1,025	1,187	1,238
644.08	1,043	2,277	2,603	1,719	603	243
644.09	547	1,154	850	721	543	213
644.11	647	1,094	931	634	717	488
644.12	2/ 1,457	2/ 1,870	943	1,124	1,455	1,351
644.26	3/	3/	67	52	33	54
644.38 4/	5/	5/	449	871	891	1,022
644.42 4/	5/	5/	260	234	321	355
Total	3,693	6,395	6,602	6,380	5,750	4,964
	Unit value (per pound)					
644.06	1/	1/	$2.96	$2.80	$3.32	$3.77
644.08	$0.49	$0.49	.46	.46	.46	.43
644.09	.68	.73	.65	.62	.73	.77
644.11	.45	.46	.42	.43	.42	.43
644.12	1.25	1.20	.82	.78	.81	.87
644.26	3/	3/	.91	.99	1.70	2.25
644.38 4/	5/	5/	.68	.70	.64	.77
644.42 4/	5/	5/	.59	.41	.41	.35
Average	.67	.63	.56	.64	.71	.80

1/ Data included with those for item 644.12. 2/ Includes data for item 644.06. 3/ Data included under items 644.08 to 644.12.
4/ May include small quantities of foil other than aluminum foil.
5/ Not available; imports estimated to be nil or negligible.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--For a definition of the item numbers, see section on U.S. tariff treatment.

Commodity	TSUS item
Precious metal leaf	644.46 to 644.60, inclusive
Base metal leaf	644.64 to 644.92, inclusive
Metallic embossing and stamping materials	644.95
Metallic flitters	644.98

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

Aggregate consumption in 1967 of the articles covered by this summary was probably valued at about $55 million, of which at least $50 million was accounted for by hot stamping materials. Imports supply almost all of the U.S. consumption of copper and aluminum leaf and metallic flitters but only a negligible share of the U.S. consumption of gold leaf and metallic embossing and stamping materials. Exports consist primarily of hot stamping foils; although larger than annual imports of such foils, exports are small in relation to U.S. production and consumption.

Description and uses

Metal leaf is extremely thin metal usually made by beating thin metal sheets, first between sheets of parchment, then between sheets of animal membrane (goldbeater's skin) or, more commonly now, between sheets of thin, tough plastic. Gold leaf (items 644.46-.52), the thinnest metal leaf, is between three- and four-millionths of an inch thick. Mounted gold leaf is leaf that has a backing of tissue paper adhering to it for ease in handling; it is used mainly outdoors where winds must be contended with. Metal leaf may also be made of metal powder or flakes held together by a binder, but such leaf is of minor importance. Metal leaf is usually marketed in "books" of 25 leaves, the books being boxed in packs of 20 books. The leaves are separated by tissue paper. In the United States the standard size of commercial gold leaf and palladium leaf (item 644.60) is 3-3/8 inches by 3-3/8 inches, silver leaf (item 644.56) is 3-3/4 inches by 3-3/4 inches, aluminum leaf (items 644.64-.76) and copper-alloy leaf, (items 644.80-.92)--known as composition leaf or Dutch Metal--are 5-1/2 inches by 5-1/2 inches. Leaf is also made in rolls. Metal leaf is used for decorative purposes--as in architectural trim, lettering glass doors and windows, and gilding picture frames and statuary--and in the graphic arts.

METAL LEAF, EMBOSSING AND STAMPING MATERIALS, AND FLITTERS

Metallic embossing and stamping materials (item 644.95) consist of metallic powder, flake, or pigments, which are imposed on a backing (usually of paper or a synthetic such as cellophane or plastic). Aluminum and gold are imposed by means of a vacuum-metalizing process (accomplished in a vacuum chamber); a binder is subsequently deposited on the coating. Copper alloy and pigments are imposed by "laying on" or "brushing on." The coating is released from the backing by means of heat or pressure; most of the products included in this category are called hot stamping foils. Metallic embossing and stamping materials are used in stamping (by means of a hot die) decorations, names, symbols, and sundry information on book bindings, plastic articles, greeting cards, leather goods, and the like.

Metallic flitters, often simply called flitters, are elongated, coarse metallic particles made by ball-milling or hammering granular metal (usually copper) powder into flake form. The flakes are placed in a drum where rotating brushes flatten them against the drum walls and polish the flakes to a high luster. They are used mainly for decorative purposes as on greeting cards and ornaments and in making wallpaper.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Precious metal leaf, whether unmounted or mounted on paper or equivalent backing:			
	Gold leaf:			
	Unmounted:			
644.46	Leaves not over 11.40 square inches in area.	82.5¢ per 100 leaves	74¢ per 100 leaves	41¢ per 100 leaves
644.48	Leaves over 11.40 square inches in area.	82.5¢ for each 1,140 sq. in.	74¢ for each 1,140 sq. in.	41¢ for each 1,140 sq. in.
644.52	Mounted	6.75¢ per 100 sq. in. + 25% ad val.	6.05¢ per 100 sq. in. + 22.5% ad val.	3.37¢ per 100 sq. in. + 12.5% ad val.
644.56	Silver leaf	5¢ per 100 leaves	4.5¢ per 100 leaves	2.5¢ per 100 leaves
644.60	Platinum leaf	40% ad val.	36% ad val.	20% ad val.
	Base metal, in leaf:			
	Aluminum, in leaf:			
	Powder or flakes, in leaf:			
644.64	Leaves not over 30.25 square inches in area.	6¢ per 100 leaves + 10% ad val.	5.4¢ per 100 leaves + 9% ad val.	3¢ per 100 leaves + 5% ad val.
644.68	Leaves over 30.25 square inches in area.	6¢ for each 3,025 sq. in. + 10% ad val.	5.4¢ for each 3,025 sq. in. + 9% ad val.	3¢ for each 3,025 sq. in. + 5% ad val.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Base metal, in leaf--Cont.			
	Aluminum, in leaf--Cont.			
	Other:			
644.72	Leaves not over 30.25 square inches in area.	3¢ per 100 leaves	2.5¢ per 100 leaves	1.5¢ per 100 leaves
644.76	Leaves over 30.25 square inches in area.	3¢ for each 3,025 sq. in.	2.5¢ for each 3,025 sq. in.	1.5¢ for each 3,025 sq. in.
	Copper, in leaf:			
	Powder or flakes, in leaf:			
644.80	Leaves not over 30.25 square inches in area.	6¢ per 100 leaves + 10% ad val.	5¢ per 100 leaves + 9% ad val.	3¢ per 100 leaves + 5% ad val.
644.84	Leaves over 30.25 square inches in area..	6¢ for each 3,025 sq. in. + 10% ad val.	5¢ for each 3,025 sq. in. + 9% ad. val.	3¢ for each 3,025 sq. in. + 5% ad val.
	Other:			
644.88	Leaves not over 30.25 square inches in area.	4.5¢ per 100 leaves	4¢ per 100 leaves	2¢ per 100 leaves
644.92	Leaves over 30.25 square inches in area.	4.5¢ for each 3,025 sq. in.	4¢ for each 3,025 sq. in.	2¢ for each 3,025 sq. in.
644.95	Embossing and stamping materials comprised of metallic powder or flakes, or pigments, mounted on paper or similar backing, and releasable from the backing by means of heat and pressure.	0.3¢ per 100 sq. in.	0.27¢ per 100 sq. in.	0.15¢ per 100 sq. in.
644.98	Metallic flitters	13.25¢ per lb.	11.5¢ per lb.	6.6¢ per lb.

The tabulation above shows the column 1 rates of duty in effect at the end of 1967, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rates shown in the tabulation had remained unchanged under the TSUS from August 31, 1963, through the end of 1967.

The average ad valorem equivalents of the specific or compound rates of duty in effect at the end of 1967, based on dutiable imports in 1967 (except as indicated) were as follows:

Item	Percent	Item	Percent
644.46	18.9	644.76	3.7
644.48	1/ 20.5	644.80	2/ 21.6
644.52	2/ 54.3	644.84	16.7
644.56	1.8	644.88	5.7
644.64	17.5	644.92	4.3
644.68	2/ 19.4	644.95	11.5
644.72	4.2	644.98	10.8

1/ No imports in 1967; based on imports in 1964.
2/ No imports in 1967; based on imports in 1966.

U.S. consumption

U.S. consumption of gold leaf, estimated to be valued at $5.5 million in 1963, is reported to have declined since then because of the growing popularity of less expensive alternative materials, as well as the dearth of workers skilled in using gold leaf. Silver leaf and platinum leaf, always of minor importance, have also been largely displaced by less expensive alternative materials. Annual consumption of aluminum and copper leaf combined, estimated to be equal to imports, rose from a value of about a quarter of a million dollars in 1963 and 1964 to almost half a million dollars in 1965 and 1966, then declined to less than a quarter of a million dollars in 1967. The fluctuations in consumption of base metal leaf used for decorative purposes probably reflects the sensitivity of the market to the vagaries of fashion.

The value of U.S. consumption of hot stamping foils is estimated to have been somewhat more than $50 million in 1967 and to be increasing at a rate of about 20 percent a year. The hot stamping foils have increasingly replaced metal leaf, and clear plastics with a metal core have substituted for both to a certain extent.

U.S. consumption of metallic flitters is probably equal to imports, which have fluctuated in value from a high of $147,000 in 1963 to a low of $53,000 in 1967.

U.S. producers

The number of companies producing precious metal leaf has dwindled to just a few, and these include concerns employing only a few skilled workers. The lack of skilled workers to make the leaf and to use it, as well as the popularity of lower priced substitute materials has greatly reduced the size of the industry, which comprised more than 100 firms in 1920. Eight U.S. companies are manufacturing hot stamping foils for sale, and some consuming firms also make it for their own use. Most of the producers are situated in New York, New Jersey, Connecticut, Pennsylvania, and Illinois.

Metallic flitters, when produced, are usually a very minor product of manufacturers of copper powder.

U.S. production

U.S. production of gold leaf, officially reported (as shipments) to have been valued at $5.4 million in 1963, has declined in recent years, as has production of other precious metal leaf, which is of minor importance. Aluminum and copper leaf are, according to trade reports, not significant domestic products.

U.S. production of hot stamping foils in 1967 is estimated to have been valued at somewhat more than $50 million; the trend in annual output during 1963-67 has been steadily upward.

U.S. production of metallic flitters is believed to be negligible.

U.S. exports

Export data on the articles covered by this summary are not segregated in official statistics. Industry sources indicate that exports of metal leaf are nil, but that the value of annual exports of hot stamping foils is more than twice that of annual imports. Sizable exports of hot stamping foils go to Japan, Taiwan, and Hong Kong to decorate products made for shipment to the United States. U.S. firms prefer the results obtained from U.S.-made hot stamping foils on the products they import from Asia.

Exports of metallic flitters are believed to be nil.

U.S. imports

Aggregate imports of the articles covered by this summary were valued at $613,000 in 1966 and $376,000 in 1967 (table 1). From three-fourths to almost nine-tenths of the value of annual imports during 1965-67 consisted of metal leaf, mostly of copper. Virtually all of the U.S. consumption of copper and aluminum leaf and of metallic flitters is imported. Imports of the other materials (gold leaf and embossing and stamping materials) supply a very small part of U.S. consumption of those materials.

Annual U.S. imports of gold leaf were small during 1964-67, although their value increased from $15,000 in 1964 to $82,000 in 1967 (table 2). Starting in 1965, the value of imports of unmounted gold leaf was larger than that of the mounted gold leaf, and by 1967, imports of the latter had ceased. The annual value of imports of gold leaves not over 11.40 square inches in area was larger in 1964-67 than the value of imports of larger leaves (which were nil in 1966 and 1967). The United Kingdom was the largest supplier of gold leaf imports until 1967, when imports from West Germany were larger. Italy was also a source of imports in 1966-67.

Imports of silver leaf have been very small; in 1967, although larger than in prior years, they amounted to only $2,000. West Germany and the United Kingdom were the sources. Imports of platinum leaf were reported to be nil.

Annual imports of aluminum leaf rose to a peak value of $31,000 in 1965 from $18,000 in 1964, then declined to $16,000 in 1967. The imports were mostly from Italy and West Germany.

Imports of copper leaf rose to a peak value of $453,000 in 1966 from $241,000 in 1964, then declined to $194,000 in 1967. Most of these imports came from Italy, West Germany, and Japan.

Imports of hot stamping foils have been minor in recent years, although they increased from $18,000 in 1964 to $28,000 in 1967. The United Kingdom and West Germany were the suppliers.

Metallic flitters imported during 1964-67 rose from $62,000 in 1964 to $73,000 in 1965, then declined to $53,000 in 1967; imports were supplied principally by West Germany and the United Kingdom.

Table 1.--Metal leaf, embossing and stamping materials, and flitters: U.S. imports of foreign merchandise from all countries and from principal sources, by type, 1965-67

(In thousands of dollars)

Type and year	All countries	United Kingdom	West Germany	Italy	Japan
Gold leaf:					
1965	27	24	3	-	-
1966	50	42	7	1	-
1967	82	36	45	1	-
Aluminum leaf:					
1965	31	-	8	12	11
1966	23	1/	8	13	2
1967	16	-	3	10	1
Copper leaf:					
1965	442	-	125	263	54
1966	453	3	84	317	49
1967	194	-	29	138	22
Embossing and stamping materials:					
1965	13	11	2	-	-
1966	20	20	-	-	-
1967	28	27	1	-	-
Flitters:					
1965	73	13	60	-	-
1966	67	3	64	1/	-
1967	53	2	51	1/	-
Total: 2/					
1965	587	48	199	275	65
1966	613	68	163	331	51
1967	375	64	130	149	23

1/ Less than $500.

2/ Includes imports of silver leaf which were insignificant in 1965, nil in 1966, and totaled 2 thousand dollars in 1967. Imports of platinum leaf were nil.

Source: Compiled by the staff of the U.S. Tariff Commission from official statistics of the U.S. Department of Commerce.

Table 2.--Metal leaf, embossing and stamping materials, and flitters: U.S. imports for consumption, by TSUS item numbers, 1964-67

TSUS item	1964	1965	1966	1967
	Quantity			
644.46----------1,000 leaves---	47	438	964	1,874
644.48----1,000 square inches---	283	131	-	-
644.52----------do----------	9,623	5,779	1,357	-
644.56----------1,000 leaves---	31	50	75	86
644.60----1,000 square inches---	-	-	-	-
644.64----------1,000 leaves---	-	105	208	100
644.68----1,000 square inches---	-	2,340	1,984	-
644.72----------1,000 leaves---	1,578	4,285	2,148	1,442
644.76----1,000 square inches---	56,882	52,975	34,180	17,540
644.80----------1,000 leaves---	-	350	500	-
644.84----1,000 square inches---	16,841	3,636	1,190	1,984
644.88----------1,000 leaves---	16,863	42,068	26,131	11,065
644.92----1,000 square inches---	457,052	892,533	816,791	316,994
644.95----------do----------	112,735	68,875	77,399	109,396
644.98----------1,000 pounds---	63	71	57	43
	Value (1,000 dollars)			
644.46----------	2	20	46	82
644.48----------	1	1/	-	-
644.52----------	12	7	3	-
644.56----------	1/	1/	1	2
644.60----------	-	-	-	-
644.64----------	-	1/	2	1
644.68----------	-	1/	1/	-
644.72----------	9	21	14	10
644.76----------	9	9	7	5
644.80----------	-	4	3	-
644.84----------	4	1	1/	1
644.88----------	128	233	211	88
644.92----------	109	204	239	105
644.95----------	18	13	20	28
644.98----------	62	73	67	53

1/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--For description of TSUS items see section on U.S. tariff treatment. Data on U.S. production and exports for 1964-67 are not segregated in official statistics. See text for estimates of U.S. producers' shipments and exports based on information from trade sources.

Commodity	TSUS item
Thumb tacks	646.02, -.04, -.06

Note.--For the statutory description see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The value of annual U.S. consumption of thumb tacks is estimated at $2.5 to $3.5 million, of which 7 to 10 percent is accounted for by imports. Exports are small.

Description and uses

Virtually all thumb tacks, used principally in schools, offices, and homes, are made of steel. Very few are made either in the United States or abroad of nonferrous metals such as copper, brass, or aluminum.

Thumb tacks are commonly made in one of three types: Two-piece, solid-head; two-piece, pierced-head; and one-piece. The two-piece, solid-head thumb tack is the most attractive and generally considered to be the best quality. The head is punched from steel strip and then burnished (smoothed and washed), a wire pin is formed separately with the blunt end of the pin enlarged. In securing the pin to the head, metal from the underside of the head is forged around the enlarged end of the pin. During this joining operation the head is made slightly convex. Pierced-head thumb tacks are made in much the same way except that a hole is punched in the center of the head at the same time the head is punched from strip; the pin is then riveted to the head. The one-piece thumb tack is punched in one piece from strip; the shaft of the tack is punched from the head and bent perpendicular to the head, leaving a long tapered perforation in the head.

After being formed thumb tacks are polished by tumbling, and the rejects are eliminated. The tacks are then cleaned and painted or plated; the heads of some tacks are covered with plastic. A small number of thumb tacks are made with a solid plastic head.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to imports of thumb tacks are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Thumb tacks:			
646.02	Of two or more pieces of iron or steel, whether or not having heads coated or covered with plastic or other material.	3.2¢ per lb.	2.8¢ per lb.	1.6¢ per lb.
646.04	Of copper	16% ad val.	14% ad val.	8% ad val.
646.06	Other	0.9¢ per lb.	0.8¢ per lb.	0.45¢ per lb.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications thereof as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Each of the rates applicable to thumb tacks is being reduced by 50 percent in five annual stages, the first of which became effective on January 1, 1968 (see the TSUSA-1968 for the intermediate staged rates).

The prior rates had remained unchanged under the TSUS from August 31, 1963, through the end of 1967.

On dutiable imports entered under items 646.02 and 646.06 in 1967, the ad valorem equivalents of the prior rates were 7.4 percent and 1.7 percent, respectively.

U.S. producers

There are 15 to 20 domestic producers of thumb tacks; about six concerns, however, are believed to account for the great bulk of U.S. production. Few, if any, concerns make all three types of thumb tacks,

and for all producers thumb tacks represent only a small part of their total sales. The producers of thumb tacks also make cut tacks and wire tacks, small nails, hardware, dressmakers' and hat pins, upholsterers' nails, or a line of miscellaneous stationery products (paper clips, rulers, compasses, and so forth). While some of the producers draw their own wire from purchased rod, all of them purchase the strip from which the heads are made. Some of the producers make and package thumb tacks for other manufacturing concerns. With two exceptions, the major producers are closely held family concerns; all are located in the northeast quadrant of the United States.

U.S. consumption, production, and exports

The value of total annual U.S. consumption of thumb tacks has been variously estimated by trade sources at $2.5 to $3.5 million. Per capita consumption of thumb tacks in the United States has been declining for many years, principally because of the increasing use of other materials for fastening purposes such as masking and cellophane tape, self-adhering paper, and wire staples. Total annual consumption, however, has at least remained constant, and some trade sources believe it has increased somewhat.

The increase in U.S. population has tended to maintain a high level of consumption of thumb tacks despite the growing use of other fastening methods. The Federal Government is the largest single consumer of thumb tacks; city and county governments--particularly by reason of purchases by or for the school systems--are also large consumers. Governments, school systems, and commercial consumers of thumb tacks use an estimated 1 million to 1.5 million dollars' worth of thumb tacks a year and overwhelmingly prefer the plated, two-piece, solid-head type. For such trade, thumb tacks are generally packaged in inexpensive boxes. Consumption of thumb tacks from shelf stocks of stationery, chain, and department stores and similar outlets is estimated at about $1.5 to $2 million a year. These tacks consist largely of painted, two-piece, pierced- and riveted-head tacks marketed on cards and wrapped in brightly decorated cellophane packages. One-piece thumb tacks do not enjoy the widespread acceptance of the two-piece varieties in part because the former are not as effective in penetrating plaster or wood and are frequently not reusable.

Data on U.S. production of thumb tacks are not reported separately, but annual output is in the same range as consumption. Exports are believed to be very small, amounting to probably less than $50,000 a year.

U.S. imports

Data on annual imports of thumb tacks have been reported separately only since the beginning of 1964. The value of imports increased from $202,000 in 1964 to $261,000 in 1967. They consisted almost entirely of two-piece thumb tacks of steel (item 642.02) (table 1). Imports of thumb tacks made of copper or its alloys have been nil or negligible in recent years; imports of other miscellaneous types have also been small.

West Germany has been the predominant source of U.S. imports of thumb tacks for many years. In 1967, imports from West Germany accounted for 84 percent of the total value of imports (table 2).

Imports of thumb tacks in recent years are estimated to have accounted for 7 to 10 percent of U.S. consumption. Imported tacks are reported in the trade to be priced slightly lower than domestic tacks; for this reason a few school systems, although not the largest ones, used imported tacks.

Table 1.--Thumb tacks: U.S. imports for consumption, by kinds, 1964-67

Kind	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Made of 2 or more pieces of iron or steel (646.02)	902	402	403	573
Made of copper (646.04)	-	1	4	-
Other (646.06)	42	10	37	25
Total	944	413	444	598
	Value (1,000 dollars)			
Made of 2 or more pieces of iron or steel (646.02)	194	196	210	248
Made of copper (646.04)	-	1	2	-
Other (646.06)	8	7	33	13
Total	202	204	245	261

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on U.S. consumption, production, or exports are not reported separately in official statistics; however, it is estimated that both U.S. consumption and production range between $2.5 and $3.5 million a year. Exports are believed to be small.

Table 2.--Thumb tacks: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 pounds)			
West Germany	771	302	317	479
United Kingdom	37	38	36	54
Japan	57	2	5	2
Belgium-Luxembourg	56	39	-	58
Denmark	7	8	3	4
France	9	15	9	1
Netherlands	7	9	74	-
Other	1/	-	1/	1/
Total	944	413	444	598
	Value (1,000 dollars)			
West Germany	166	172	195	219
United Kingdom	14	15	17	23
Japan	9	1	8	11
Belgium-Luxembourg	4	3	-	4
Denmark	4	6	3	3
France	3	5	17	1
Netherlands	2	2	4	-
Other	2/	-	1	2/
Total	202	204	245	261

1/ Less than 500 pounds.
2/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Fasteners suitable for use in powder-actuated hand tools	646.15, -.17

Note.--For the statutory description see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption and production of fasteners for use in powder-actuated tools have increased substantially in recent years. The value of consumption in 1967 is estimated at $9 million to $11 million, of which 7 to 8 percent was accounted for by imports.

Description and uses

Drive pins, studs, and other fasteners suitable for use in powder-actuated hand tools are generally made from high-carbon steel wire, but some are made from alloy steel wire containing molybdenum. The fasteners resemble the more conventional nails and threaded studs in appearance except that drive pins generally have heavier shanks and heads than nails and are made to very close dimensional tolerances. The points are very sharp and are made by turning or by squeezing and trimming. After being formed, the fasteners are heat-treated by a process of austempering that imparts hardness without the loss of dutility. Although very hard, these fasteners can be bent at an angle of 90 degrees; this feature of the fastener is a safety precaution to minimize the chance of injury from shattering fasteners.

The most common diameter of drive pins, drive eyes, studs, and related articles covered by this summary is one-fourth inch (measured through the thickest part of the fastener); three-eighth-inch and half-inch fasteners are also available. The diameters of the shanks (that portion of the fastener designed for penetration) range from about one-eighth to one-fourth inch, while lengths vary from three-fourths of an inch to about 4 inches.

The fasteners covered by this summary are used principally in construction to fasten wood or steel to concrete, or wood or steel to steel, and to fasten articles to concrete or steel. All such fastenings are made without the necessity of first drilling holes in the material to be fastened. The fasteners are driven either by a powder-actuated hand tool (see separate summary relating to item 674.75 in vol. 6:6) or by means of a specially designed hammer (item 651.21, vol. 6:6) and driving guide (item 651.47, vol. 6:6). When the

fasteners are driven by a powder-actuated tool, powder loads of .22, .22 long, .25, or .38 caliber are generally used. Drive pins and studs driven by hand are identical with those driven by powder-actuated tools and are included in the items covered in this summary.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to fasteners suitable for use in powder-actuated hand tools are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Drive pins, studs, and other fasteners, suitable for use in powder-actuated hand tools:			
646.15	Not threaded	0.25¢ per lb.	Free	1/
646.17	Threaded	15.5% ad val.	13.5% ad val.	7.5% ad val.

1/ Entire U.S. concession reflected in first stage.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade.

The prior rates shown had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. The duty applicable to unthreaded fasteners (656.15) was eliminated as a result of the Kennedy Round concession; the duty-free status became effective on January 1, 1968. A concession amounting to about 50 percent reduction in duty was granted by the United States on item 646.17; this concession is being put into effect in five annual stages, of which the first and final stages are shown in the tabulation (see the TSUSA-1968 for the intermediate stages).

The average ad valorem equivalent on the prior rate applicable to item 646.15, based on dutiable imports in 1967, was 0.2 percent.

U.S. consumption

U.S. consumption of fasteners suitable for use in powder-actuated tools has increased steadily since the inception and widespread acceptance of the powder-actuated fastening system. Annual consumption of such fasteners is believed to have almost doubled during 1962-67; the value of consumption in 1967 is estimated at $9 million to $11 million.

Powder-actuated tools are being used in increasing numbers in the building trades in recent years and it is anticipated that some unions that have not yet adopted this means of fastening will do so in the future. Legislation has been introduced in some states to prohibit the use of powder-actuated tools for safety reasons but insofar as is known neither Federal nor State restrictions have been imposed to the present time. Potentially, the market is substantial and consumption of powder-actuated fasteners should continue to increase for some time to come.

U.S. producers

About eight U.S. concerns manufacture fasteners for use in powder-actuated tools. Three such producers are divisions or subsidiaries of large manufacturers of sporting arms and ammunition; the others are primarily producers of a variety of specialty fasteners. Three manufacturing establishments are situated in Connecticut, and one in each of the States of New York, New Jersey, Missouri, Texas, and Oregon.

Some of the larger domestic producers wholly or partly own manufacturing facilities in foreign countries.

U.S. production and exports

Data on U.S. production of fasteners for use in powder-actuated tools are not separately reported in official statistics; domestic output, however, is known to be increasing each year. The value of shipments by U.S. producers in 1967 is estimated at $8 million to $10 million.

Manufacturers' list prices range widely depending on the type and size of fastener but generally exceed 10 cents per fastener (not including the powder load necessary for the use of each fastener). List prices, however, are discounted at time of sale, with largest discounts on large-quantity sales.

The fasteners are distributed mostly through specialty fastener wholesalers, of which there are relatively few. Such distributors usually provide fastener engineering services.

It is believed that with the possible exception of U.S. Government purchases for use abroad, exports are small in relation to U.S. production. Consumption in foreign markets of fasteners for use in powder-actuated tools is supplied largely by foreign concerns or by the foreign subsidiaries of U.S. firms.

U.S. imports

U.S. imports of fasteners for use in powder-actuated tools, like domestic output, have increased substantially in recent years as this type of fastening system has gained wider acceptance. Imports increased from 154,000 pounds, valued at $202,000, in 1964, the first full year for which data were reported, to 496,000 pounds, valued at $737,000, in 1967 (table 1). Imports consisted primarily of drive pins (not-threaded), although imports of the threaded types (almost entirely studs) have also increased.

Liechtenstein (included with Switzerland in official statistics), West Germany, and Canada have been the principal sources of imports in recent years (table 2). The producer in Liechtenstein is as large as the largest U.S. producer or larger. This foreign firm supports its own sales engineering and distribution system in the United States and has done much to foster the acceptance and use of the powder-actuated fastening system.

Based on the U.S. consumption estimated data discussed previously, imports of all the fasteners covered by this summary apparently supplied 7 to 8 percent of U.S. consumption in 1967.

Table 1.--Fasteners for use in powder-actuated tools: U.S. imports for consumption, by kinds, 1964-67

Year	Not threaded	Threaded	Total
	Quantity (1,000 pounds)		
1964	112	42	154
1965	151	31	182
1966	280	84	364
1967	348	149	496
	Value (1,000 dollars)		
1964	135	67	202
1965	125	53	178
1966	293	105	398
1967	493	244	737
	Unit value (per pound) 1/		
1964	$1.20	$1.62	$1.31
1965	.83	1.71	.97
1966	1.04	1.26	1.09
1967	1.42	1.64	1.49

1/ Computed on the basis of unrounded data.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on U.S. production or consumption are not separately reported; the value of shipments by domestic producers of powder-actuated fasteners in 1967 is estimated at $8 million to $10 million.

Table 2.--Fasteners for use in powder-actuated tools: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Switzerland 1/	35	30	38	261
West Germany	33	23	200	113
Canada	82	122	111	67
Japan	3	2	15	28
All other	1	5	2/	3/ 27
Total	154	182	364	496
	Value (1,000 dollars)			
Switzerland 1/	77	58	61	460
West Germany	45	29	236	149
Canada	76	80	95	78
Japan	3	2	6	9
All other	1	9	4/	3/ 41
Total	202	178	398	737

1/ Imports come from Liechtenstein, which for statistical purposes is included with Switzerland.

2/ Less than 500 pounds.

3/ Includes 24 thousand pounds, valued at 39 thousand dollars, from France.

4/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Staples in strip form	646.20
If Canadian article and original motor-vehicle equipment	646.79 (pt.)

Note.--For the statutory description of this item, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The increasing U.S. requirements for staples in strip form have been supplied predominantly by domestic producers despite rapidly growing imports. During the period 1963-67 the share of the quantity of consumption supplied by imports increased from an estimated 3 percent in 1963 to about 5 percent in 1967. Exports are probably considerably smaller than imports.

Description and uses

Staples are generally short lengths of round or flat metal wire which have been formed into the shape of the letter U, usually with square corners. The staples covered by this summary are lacquered or lightly cemented together in strips to facilitate handling and loading into stapling machines. Virtually all staples for office or industrial uses are in strip form. Staples in loose form--mostly fence, poultry-netting, hoop, or lath staples--are covered by items 646.25 through 646.36 in a separate summary in this volume (6:5).

Staples of the office type are virtually all used in the hand or desk type of stapling machines for fastening two or more pieces of paper together. Staples of the industrial type are used in heavy-duty stapling machines, which are used widely in the construction industry for installing insulation, ceiling tile, roofing shingles, and other materials, and in other industries for fastening textiles, leather, and other materials to wood or metal, and for closing cartons.

Staples are produced most frequently from iron or steel wire of round, flat, or other cross-sectional shape. The wire ranges in size from very fine for staples of the office type to substantially heavier wire for those of the industrial type. Staples may be tinned, galvanized, or otherwise treated to improve their appearance or to protect them from corrosion.

U.S. tariff treatment

The column 1 (or trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to imports of staples in strip form are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
646.20	Staples in strip form----	1¢ per lb.	0.9¢ per lb.	0.5¢ per lb.
646.79	If Canadian article and original motor-vehicle equipment. 1/	Free	2/	2/

1/ See headnote 2, pt. 6B, schedule 6, TSUSA-1968.
2/ Duty-free status not affected by trade conference.

The prior rate shown above for item 646.20 had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. A concession amounting to a reduction of 50 percent was granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. The concession is being put into effect in five annual stages, of which only the first and final stages are shown in the tabulation (see the TSUSA-1968 for the intermediate staged rates).

Imports of staples in strip form, as provided for among the fasteners in item 646.79, were dutiable under item 646.20 from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682, of October 21, 1965, pertaining to the modifications of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

The ad valorem equivalent of the rate applicable at the end of 1967 to staples dutiable under item 646.20 (1 cent per pound) was 3.1 percent, based on imports during 1967.

U.S. consumption

U.S. consumption of staples in strip form undoubtedly increased

during 1958-67 and may have tripled in value, owing partly to increases in prices; however, official data on consumption are not available. The consumption of wire staples in homes and offices has risen with the growth of households and businesses. The use of the industrial type of staples, consumed in much larger volume than home and office types, has probably increased much more rapidly in conjunction with the growth in U.S. industrial activity, in construction, and in the use of labor-saving fastening devices. Heavy-duty staplers and tackers using heavier staples are also becoming more common among homeowners for repair and other projects.

The growth in the volume of U.S. consumption of staples in strip form may be deduced from the estimated growth of U.S. producers' shipments and of imports of such staples, and the fact that exports, for which data are not available, are believed to be considerably smaller than imports. Consumption probably increased from about 108 million pounds, valued at about $21 million, in 1958 to an estimated 135 million to 145 million pounds, valued at about $55 million to $65 million, in 1967.

U.S. producers, producers' shipments, and exports

There are 30 or more domestic producers of staples in strip form, several of which make a complete line of office and industrial staples, as well as stapling machines and tackers of various kinds. Some producers limit their output either to staples and stapling machines of the office type or of the industrial type. Many producers also make products not related to those considered here. Domestic producers are situated principally in the northeastern section of the United States.

U.S. producers' shipments of staples increased from 108 million pounds, valued at $21 million, in 1958 to 122 million pounds, valued at $37 million, in 1963, and it is estimated that shipments continued to increase at about the same annual rate of growth to about 130 million to 140 million pounds, valued at $50 million to $60 million, in 1967. Exports, believed to be mainly of the heavy-duty type of staples, probably amounted to less than 2 percent of shipments by U.S. producers and were considerably smaller than imports in most years.

U.S. imports

U.S. imports of staples in strip form increased in each year--except 1961--from about 300,000 pounds, valued at $129,000, in 1958 to about 7 million pounds, valued at $2.3 million, in 1967 (table 1). Imports supplied less than 1 percent of the quantity of apparent domestic consumption in 1958, about 3 percent in 1963, and an estimated 5 percent in 1967.

In 1958-67 West Germany was the largest supplier of U.S. imports of staples in strip form in all years except 1961 and 1962. In 1967 West Germany accounted for about half of all imports (table 2). Japan and Belgium were other large suppliers. The average values of imported staples ranged from $0.28 to $0.46 per pound during the period 1958-67. 1/ Staples from West Germany averaged $0.40 to $0.49 per pound during the same period, considerably higher than the averages for domestic staples. The average values per pound of staples imported from other major foreign suppliers in recent years have been much lower than those of staples from West Germany.

1/ Generally the market value in the foreign country; excluded, therefore, are U.S. import duties, freight, transportation insurance, and other handling charges.

Table 1.--Staples in strip form: 1/ U.S. imports for consumption, 1958-67

Year	Quantity	Value	Unit value
	1,000 pounds	1,000 dollars	Per pound
1958	296	129	$0.44
1959	561	249	.44
1960	669	300	.45
1961	665	308	.46
1962	1,929	546	.28
1963	2,338	757	.32
1964	4,085	1,383	.34
1965	6,219	1,762	.28
1966	6,679	2,334	.35
1967	7,048	2,300	.33

1/ Data shown do not include negligible quantities of staples in strip form imported from Canada for original motor-vehicle equipment (see summary on threaded fasteners in this volume--6:5).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on production, exports, and consumption of staples in strip form are not segregated in available official stastistics. It is estimated by the staff of the U.S. Tariff Commission that U.S. producers' shipments increased from about 108 million pounds, valued at about $21 million, in 1958 to 130 million to 240 million pounds, valued at about $50 million to $60 million, in 1967. Exports are estimated to have been less than 2 percent of shipments during 1958-67, and in most years considerably smaller than imports. Consumption is estimated to have increased from about 108 million pounds, valued at about $21 million, in 1958 to about 135 million to 145 million pounds, valued at about $55 million to $65 million, in 1967. The ratio of imports to consumption, based on quantity, probably increased from less than 1 percent in 1958 to about 5 percent in 1967.

Table 2.--Staples in strip form: 1/ U.S. imports for consumption, by principal sources, 1964-67

Country	1964	1965	1966	1967
	Quantity (1,000 pounds)			
West Germany	2,054	2,286	3,522	3,275
Japan	842	1,772	1,311	1,319
Belgium-Luxembourg	170	728	749	999
Sweden	356	529	484	618
All other	663	904	613	837
Total	4,085	6,219	6,679	7,048
	Value (1,000 dollars)			
West Germany	926	1,004	1,540	1,373
Japan	149	274	254	229
Belgium-Luxembourg	35	124	140	191
Sweden	103	148	169	210
All other	170	212	231	297
Total	1,383	1,762	2,334	2,300
	Unit value (per pound)			
West Germany	$0.45	$0.44	$0.44	$0.42
Japan	.18	.15	.19	.17
Belgium-Luxembourg	.20	.17	.19	.19
Sweden	.29	.28	.35	.34
All other	.26	.23	.38	.35
Average	.34	.28	.35	.33

1/ Data shown do not include staples in strip form imported from Canada for original motor-vehicle equipment (see summary on threaded fasteners in this volume--6:5).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Corrugated fasteners, glaziers' points, hook nails, and ring nails	646.22

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

Combined U.S. consumption of corrugated fasteners, glaziers' points, and hook and ring nails, which is supplied almost entirely from domestic production, is believed to amount to less than $5 million a year. Imports and exports are very small.

Description and uses

Corrugated fasteners are generally made from steel strip of appropriate composition and temper; however, aluminum fasteners have proved satisfactory for use in soft woods. The advantage of aluminum is its relative softness; it has less of a damaging effect on his tool should a carpenter strike the fastener during subsequent trimming or dressing of the work. After the strip is corrugated by rolling, it is beveled or serrated or both along one edge to facilitate penetration and driving. The corrugations may be parallel to each other or slightly divergent (slanted in opposite directions at each end of the fastener); the latter type results in the tightening of the adjacent pieces of wood as the fastener is driven. Most corrugated fasteners are in continuous lengths for use in automatic cutting and driving machines. Others range in size up to 1 inch in depth and up to 12 inches in length. Some corrugated fasteners in the smaller sizes are lightly cemented together (much as office staples are) for use in small driving machines. Fasteners for distribution through retail hardware outlets are seldom more than 1 inch long.

Corrugated fasteners are used in assembling flush-door frames, furniture, and cabinet work where the fastener will eventually be covered with wood veneer, upholstery, or other material. They are also used in the assembly of such items as boxes, wooden garment hangers, and frames of various kinds, and by homeowners for the repair of screens, doors, and miscellaneous articles.

Glaziers' points are small, flat, triangular or diamond-shaped pieces of metal used for securing window glass in wooden frames. 1/ Some, known

1/ This summary does not include metal sash clips used for securing glass in metal window frames (see summary covering item 657.20 in volume 6:7).

commonly as push points, are made with shoulders on them to facilitate installation by hand. Glaziers' points are made of galvanized steel or of zinc to minimize corrosion or rusting by moisture on the window. The points are concealed by putty in the finished sash. Both the triangular and diamond-shaped points are made in a variety of sizes. The diamond points are more generally used by industrial consumers and are lightly cemented together in stacks of about 100 points for use in hand-operated driving devices. The push points are normally packaged in small quantities for the retail hardware trade; triangular points are packaged in small quantities for retail hardware stores, as well as in bulk packages for larger consumers.

Hook nails and ring nails are either forged, cut from sheet or plate, or formed from wire. They are smooth-shanked articles with, as their name implies, a hook or ring at one end. They may be painted or plated for decorative or protective purposes. Hook and ring nails are used principally for securing or suspending various articles. A particular type of forged hook nail is driven into utility poles to afford a means for climbing.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to corrugated fasteners, glaziers' points, hook nails, and ring nails are shown below:

	Rate of duty
Prior rate (rate at the end of 1967)----------	19% ad val.
Concession granted by the United States in the 1964-67 trade conference (Kennedy Round):	
First stage, effective Jan. 1, 1968----------	17% ad val.
Final stage, effective Jan. 1, 1972----------	9.5% ad val.

The prior rate of 19 percent ad valorem had been in effect under the Tariff Schedules of the United States from August 31, 1963, through the end of 1967. As a result of a concession granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade, the duty is being reduced by 50 percent in five annual stages. (See the TSUSA-1968 for the intermediate staged rates.)

U.S. producers

Ten or fewer domestic concerns manufacture corrugated fasteners, and 10 to 15 domestic firms make glaziers' points. It is understood that only a few concerns make hook and ring nails. Corrugated fasteners are made mostly by the large producers of steel strapping; however, some are made

by manufacturers of bolts, nuts, and general hardware. Glaziers' points are made principally by producers of painters' and glaziers' tools and supplies, nails, and tacks. Hook and ring nails are produced by manufacturers of threaded, cut, and specialty nails and by producers of hardware for utility poles. The products discussed in this summary constitute only a very small part of the total business of the concerns involved, almost all of which are situated in the northeastern quarter of the United States.

U.S. consumption, production, and exports

U.S. consumption of corrugated fasteners, glaziers' points, and hook and ring nails is supplied almost entirely from domestic production. Consumption of corrugated fasteners, with an estimated value of $2 million to $3 million in 1967, has trended downward for a number of years owing largely to the development of new adhesives, the adoption of cardboard cartons and boxes at the expense of wooden containers, and the increased utilization of plywood and hardboard.

U.S. consumption of glaziers' points, probably valued at $1 million to $2 million a year, is believed to have remained fairly constant over the past several years. U.S. production was virtually equal to consumption. Although the use of metal window frames (utilized widely in apartment and commercial construction) precludes the use of glaziers' points, the relatively large volume of construction of single unit residences in recent years has probably prevented a decline in overall consumption and production of this product.

Exports of the products included in this summary are not reported in official statistics but are known to be small.

U.S. imports

Data on annual U.S. imports of corrugated fasteners, glaziers' points, hook nails, and ring nails were separately reported beginning in 1964. Never large in comparison with U.S. consumption or production, annual imports declined in each year during 1964-67. In 1964 imports of all these products combined amounted to 270,000 pounds, valued at $40,000; in 1967 they amounted to 48,000 pounds, valued at $7,000 (see accompanying table). Recent imports, which have come principally from Japan, West Germany, and the United Kingdom, have consisted mainly of corrugated fasteners for the retail hardware trade. Imports of hook nails and ring nails have been nil or negligible.

Corrugated fasteners, glaziers' points, hook nails, and ring nails: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (pounds)			
Japan	122,140	64,900	49,931	43,806
West Germany	19,414	19,097	12,440	4,409
United Kingdom	110,787	45,349	56,044	-
Poland	-	-	10,000	-
All other	17,380	2,395	3,016	115
Total	269,721	131,741	131,431	48,330
	Value			
Japan	$15,815	$8,290	$8,600	$5,479
West Germany	4,377	6,942	3,290	1,184
United Kingdom	16,025	6,851	8,202	-
Poland	-	-	1,200	-
All other	3,581	1,039	796	286
Total	39,798	23,122	22,088	6,949

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on U.S. production or exports are not segregated in official statistics. U.S. producers' shipments in 1967 are estimated to have amounted to $3.5 million to $6 million. U.S. exports are known to be small.

Commodity	TSUS item
Brads, nails, spikes, staples, and tacks (not including hook and ring nails, strip staples, and thumb tacks):	
Of iron or steel	646.25, -.26, -.27, -.28, -.30, -.32
Of copper	646.34
Other than iron, steel, and copper	646.36

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption of nails and related fasteners covered by this summary has been relatively constant over the past decade. Imports have tended to increase at the expense of domestic production and have supplied a large share of the U.S. market--24 percent in 1958, 39 percent in 1963, and an estimated 37 percent in 1966. U.S. exports have been very small.

Description and uses

The brads, nails, spikes, staples, and tacks covered by this summary 1/ are made not only of iron and steel but also of copper, brass, bronze, aluminum, Monel, and occasionally of other metals. The great bulk of these products, however, are made of carbon steel round wire and are of the types provided for under items 646.25 and 646.26 of the TSUS. Wire nails also comprise the bulk of the "other" iron or steel brads, nails, spikes, staples, and tacks (excluding cut) provided for under item 646.30; such wire nails are those made from round wire that do not fall within the dimensional limitations of the previously noted item numbers. Although wire nails are made in thousands of types, sizes, and finishes, the nails known as common nails probably constitute about half of the total wire nails produced or consumed. Among the other important types are finishing nails, box nails, roofing nails, casing nails, shingle nails, flooring nails, pallet nails, and lath nails. The many types differ from one another in head (e.g., flat, brad, and countersunk), point (e.g., diamond, chisel, and duckbill), shank (e.g., round, square, smooth, ring, and twisted), finish (e.g., bright, cement-coated, galvanized, and blued), length, gage, and shape of wire used. Spikes resemble common nails but are generally made of heavier gage wire and are most commonly made in lengths of 6 inches or more. Brads resemble finishing nails in that they have a brad type of

1/ This summary does not cover hook or ring nails, staples in strip form, or thumb tacks, all of which are included in other summaries in this volume (6:5).

head but are generally not as slender as finishing nails; they are produced both in the nail sizes (1 to 6 inches) and in shorter sizes. Fence, poultry-netting, hoop, and lath staples are among the most common types of wire staples.

In recent years wire nails categorized as specialty nails, which have a deformed shank to afford better holding properties, have become increasingly important. Specialty nails were originally designed and intended for special purposes; but they are now made for virtually every use served by smooth-shank nails.

Conventional wire nails are made on fully automatic machines. Wire of appropriate gage is straightened as it enters the machine and is cut, pointed, and headed in almost simultaneous operations. Generally the lighter the nail, the faster the machine is designed to operate. Most specialty nails are made in the same way, up to this point. The deformed shank is produced by rolling the shank between a fixed and a reciprocating die, or (less commonly) by cutting. The deformation may be in the form of rings around the shank or spiral threads that can vary in pitch. After being formed, wire brads, nails, and the like, particularly the special varieties, may be tumbled or otherwise cleaned to remove burrs and lubricants, or further processed by heattreating to impart the hardness required for use in flooring or masonry. Some nails are also painted or provided with other special finishes.

Conventional and specialty nails are used in building construction (for joining structural members, for assembly of millwork, and for securing flooring material, panel and dry walls, exterior siding, trim, and roofing material), in the construction of pallets, boxes, crates, and other containers, and to a lesser extent in furniture manufacturing.

Cut brads, nails, spikes, staples, and tacks are usually cut from plate, sheet, or strip. They generally have tapered shanks of square or rectangular cross section and are commonly used where holding qualities superior to those of conventional smooth, round-shank nails are required. Many cut nails are heat-hardened for use in masonry and other hard material. Cut tacks are widely used in carpet laying and upholstering.

Some nails are made of two pieces of metal. Among these are certain types of furniture nails, upholsterers' nails, and roofing nails, in which the shank is made of steel wire and the head is blanked from strip. The head of furniture and upholsterers' nails is often ornamented and dome shaped, and it is often made of brass or bronze. Roofing nails are frequently made with a dome-shaped steel head, with a lead head, or with a metallic or nonmetallic washer under the head, to prevent leakage of water through the nail hole.

In this summary all quantities are given in terms of short tons (2,000 pounds).

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to imports of brads, nails, spikes, staples, and tacks are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Brads, nails, spikes, staples, and tacks: 1/			
	Of iron or steel:			
	Of one-piece construction:			
	Made of round wire:			
646.25	Under 1 inch in length and under 0.065 inch in diameter.	0.5¢ per lb.	2/	2/
646.26	1 inch or more in length and 0.065 inch or more in diameter.	0.2¢ per lb.	0.15¢ per lb.	0.1¢ per lb. 3/
646.27	Cut:			
	Not over 2 inches in length.	8% ad val.	7% ad val.	4% ad val.
646.28	Over 2 inches in length.	0.2¢ per lb.	0.15¢ per lb.	0.1¢ per lb. 4/
646.30	Other	1.2¢ per lb.	2/	2/
646.32	Of two or more pieces, not including those having nonferrous heads.	3.2¢ per lb.	2.8¢ per lb.	1.6¢ per lb.
646.34	Of copper	16% ad val.	14% ad val.	8% ad val.
646.36	Other	19% ad val.	17% ad val.	9.2% ad val.

1/ Does not include thumb tacks, hook and ring nails, and staples in strip form.
2/ Rate of duty not affected by trade conference.
3/ Will become effective Jan. 1, 1971.
4/ Will become effective Jan. 1, 1970.

The tabulation above shows the column 1 rates in effect under the TSUS prior to January 1, 1968, and modifications thereof as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rates shown in the tabulation above had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. No concessions were granted by the United States in the recent trade conference on the round wire products provided for in items 646.25 nor on the "other" products under item 646.30. Concessions amounting to a reduction of 50 percent in rates of duty were granted by the United States on all other items covered here. The concession granted on item 646.26 is being put into effect in three stages, the final reduction to go into effect on January 1, 1971. The concession granted on item 646.28 is being put into effect in two stages, the final reduction to go into effect on January 1, 1970. All other concessions granted by the United States with respect to the items considered here are being put into effect in five annual stages, the last of which will take effect January 1, 1972.

The ad valorem equivalents of the specific rates of duty in effect prior to January 1, 1968, based on dutiable imports in 1967, were as follows:

TSUS item	Percent
646.25	3.4
646.26	2.8
646.28	2.2
646.30	10.1
646.32	13.8

More than 95 percent of the imports of the products covered by this summary consisted of articles on which the rate of duty was equivalent to less than 3.5 percent ad valorem. Because of the difference in value, the ad valorem equivalent of the 0.2-cent-per-pound rate applicable to articles provided for in item 646.26 is higher for nails having smooth shanks than it is for nails having deformed shanks.

Tariff Commission investigation

An escape-clause investigation relating to iron and steel wire nails, spikes, tacks, brads, and staples, instituted upon application of four domestic producers, was dismissed without formal findings on March 12, 1959. The Commission found it impractical to distinguish or separate operations of the producing organizations on the articles under investigation from their operations on other products and thus could not treat the production as a separate industry, pursuant to

section 7(e) of the Trade Agreements Extension Act of 1951, as amended. The Commission observed, however, that the information developed during the investigation, which included a public hearing, did not suggest that imports of the articles under review were causing or threatening serious injury to the domestic producers considered as a group.

U.S. consumption

Apparent U.S. consumption of all the brads, nails, spikes, staples, and tacks covered by this summary amounted to 828,000 short tons in 1958, and to 782,000 tons in 1963 (note to table 1). From data available, consumption during the intervening years is believed to have fluctuated between a high of about 850,000 tons (1959) and a low of 720,000 tons (1960). Despite the increase in lumber output and building construction, the indicated consumption in 1965 was barely as large as in 1958. About one-fourth of the total is believed to consist of specialty nails with deformed shanks.

Consumption by the furniture industry of two-piece upholsterers' nails and of cut tacks has declined considerably. The decline can be attributed to changes in furniture styling and the high cost of driving nails; staples are being used to an increasing extent.

Consumption of brads, nails, spikes, staples, and tacks of other than iron or steel, principally copper, copper alloys, and aluminum, is small; it amounted to about 1,650 tons in 1958 and to about 4,400 tons in 1963.

U.S. producers

There are at least 85 concerns in the United States that produce one or more types of the brads, nails, spikes, staples, and tacks covered by this summary. Most of them produce wire nails of iron or steel. About 15 concerns produce cut brads, nails, and tacks, and 8 to 10 produce upholsterers' nails. The producers range in size from small firms that produce a limited line of nails or tacks from purchased wire to the large integrated steel companies that produce from their own steel a wide variety of conventional and specialty brads, nails, spikes, staples, and tacks. In 1963, establishments classified by the Department of Commerce as "steel works" or "steel wire drawers" together accounted for the bulk (probably 80 percent or more) of the aggregate output. Comparatively few upholsterers' nails and tacks or cut brads and tacks, however, are produced by the integrated concerns.

Most of the producers other than those known as steel works purchase some or all of their raw material (wire rod or wire) from foreign sources because it is priced somewhat below the domestic material. This practice assists in keeping the nonsteelmaking producers

of nails competitive with the steelmaking producers of nails. The products covered by this summary constitute only a minute part of the total output of the large integrated steel concerns but a somewhat more significant share of the output of the smaller integrated or semi-integrated producers that are oriented toward wire and wire products. Many concerns (so-called wire drawers) using purchased rod produce brads, nails, spikes, staples, and tacks exclusively. Others produce in the same establishments such wire products as barbed wire; farm, field, and poultry fencing; concrete reinforcing mesh; and bale ties.

Plants accounting for one-third of the production are situated in Illinois. The others are in numerous States, principally in the central and eastern United States. The number of producers declined between 1958 and 1967 largely because some of the major steelmaking concerns closed their nail-producing facilities.

U.S. producers' shipments

Shipments by U.S. producers of the products covered by this summary amounted to 637,100 tons, valued at $161.4 million, in 1958 and to 483,900 tons, valued at $157.4 million, in 1963, the two most recent years for which complete data were reported. Shipments of steel wire nails and staples by steel works and drawers of steel wire in 1958-66 are shown in the following tabulation:

Year	Short tons	Year	Short tons
1958	429,521	1963	339,989
1959	403,850	1964	357,173
1960	338,913	1965	350,659
1961	340,830	1966	366,422
1962	330,678		

As indicated by the above data, shipments declined from 1958 to 1962, then increased somewhat; shipments in 1966 were still substantially below those in 1958.

The relative importance of domestic shipments by kinds during 1958 and 1963 is indicated in table 2. During the latter year, bright steel wire nails represented 47 percent of the total quantity of shipments of the brads, nails, spikes, staples, and tacks covered by this summary; wire staples represented 13 percent; galvanized steel wire nails, 10 percent; and cement-coated steel wire nails, 9 percent. All nonferrous products accounted for but 1 percent of the total volume of shipments.

Trade sources indicate that specialty nails (predominantly those with deformed shanks) represent close to a fifth of total nail shipments by domestic producers.

Most domestically produced nails, with the exception of track spikes, are distributed through steel warehouses and service centers. Substantially smaller shipments are made direct to elements of the construction industry and to many and varied fabricating industries for use in packaging or crating their own products.

The wholesale price of eightpenny common wire nails (2 1/2-inch), as reported by the U.S. Bureau of Labor Statistics, was reduced gradually from $197 a ton in January 1958 to $184 a ton in January 1963. The price advanced slightly to $186 a ton in January 1964, after which it remained unchanged until late in the first quarter of 1966. During the period March 1966-December 1967, the wholesale price was $173 a ton.

U.S. exports

Annual U.S. exports of brads, nails, spikes, staples, and tacks fluctuated irregularly during the years 1958-67 but were consistently small compared with domestic production or imports, ranging from 5,000 to 9,000 tons, valued at $4 million to $7 million (table 1). One-fourth to one-third of the fasteners, as shown in table 3, were exported to Canada, and the rest were distributed in small consignments to as many as 90 foreign markets. Exports, like domestic production and imports, consisted predominantly of articles of iron and steel, as shown in table 4. The average unit value per ton was much higher for exports than for domestic production, indicating that the exports consisted largely of the more costly articles, such as tacks and specialty nails.

U.S. imports

Apart from the abnormally large imports during 1959 owing to the extended steel strike in that year, aggregate imports of brads, nails, spikes, staples, and tacks increased annually, from 199,000 tons, valued at $30 million, in 1958 to 326,000 tons, valued at $49 million, in 1965 (table 1). Imports declined substantially in 1966 and again in 1967, amounting in the latter year to 226,000 tons, valued at $34 million. The sudden reversal of the increasing trend of imports can be attributed in large part to the reduction in the domestic price early in 1966, previously noted.

Imports supplied 24 percent of the U.S. market for brads, nails, spikes, staples, and tacks in 1958, 39 percent in 1963, 1/ and an estimated 37 percent in 1966. The proportion is large chiefly because of the imports of steel wire nails (item 646.26), which represent 95 percent of the total (table 5). Two-thirds to three-fourths of the annual imports of steel wire nails, consist of smooth shank nails, and

1/ Imports in 1963 were equivalent to about 63 percent of shipments by domestic producers.

the remainder, of specialty nails, largely ring shank pallet nails. With the exception of upholsterers' nails, imports of which are believed to be equivalent to 10 to 15 percent of U.S. consumption, imports of the other products covered by this summary, including those of nonferrous metal, probably constitute less than 5 percent of consumption.

Japan and the European Economic Community (EEC) (particularly Belgium-Luxembourg) have long been the prime sources of U.S. imports of brads, nails, spikes, staples, and tacks. During 1964-67, Japan furnished 51 percent of total imports, and the EEC supplied 32 percent (table 6). Imports from Canada, Yugoslavia, Poland, Austria, and Czechslovakia constitute the bulk of the remainder.

Imported brads, nails, spikes, staples, and tacks compete with their domestic counterparts in virtually every geographic sector of the United States. They are sold through steel warehouses and service centers, through general hardware wholesalers, and directly to large volume consumers, such as wooden pallet manufacturers. Imported nails are retailed through mail-order houses and neighborhood hardware and variety stores probably in greater volume than domestic nails.

Table 1.--Brads, nails, spikes, staples, and tacks: U.S. imports for consumption and exports of domestic merchandise, 1958-67

Year	Imports 1/		Exports 2/	
	Quantity	Value	Quantity	Value
	Short tons	1,000 dollars	Short tons	1,000 dollars
1958----	198,962	29,767	7,995	4,567
1959----	311,459	47,929	5,477	4,136
1960----	236,683	38,258	6,675	4,499
1961----	249,716	36,178	5,431	4,136
1962----	277,899	39,072	5,409	4,087
1963----	307,005	41,005	8,778	5,518
1964----	307,921	42,925	6,257	5,598
1965----	325,722	49,076	8,509	6,593
1966----	285,253	40,186	8,652	6,568
1967----	225,845	34,150	8,405	6,739

1/ Data for 1958-63 are estimated in small part.
2/ Data include thumb tacks, thus are not strictly comparable with data for shipments and imports.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Data on shipments by all U.S. producers and U.S. consumption, available only for the years 1958 and 1963, are shown below:

Item	1958	1963
Producers' shipments:		
Quantity (partly estimated--see table 2)----------short tons--	637,099	483,861
Value----------1,000 dollars--	161,414	157,374
Apparent consumption----------short tons--	828,066	782,088
Ratio of imports to consumption--- ----------percent of quantity--	24.0	39.3

Table 2.--Brads, nails, spikes, staples, and tacks: Shipments and interplant transfers by U.S. producers, by kinds, 1958 and 1963

Kind of product	1958		1963	
	Quantity	Value	Quantity	Value
	Short tons	1,000 dollars	Short tons	1,000 dollars
Steel wire nails, spikes, and brads:				
Bright	293,948	62,734	226,587	54,637
Cement-coated	65,431	14,359	45,053	10,347
Galvanized	73,114	20,671	47,899	13,163
Other	28,423	9,643	30,759	11,480
Steel wire staples	1/ 53,341	20,852	1/ 60,957	36,623
Steel tacks	2/ 13,600	8,846	12,086	8,534
Track spikes			33,507	8,446
Steel cut nails, spikes, and brads (including horseshoe nails)	87,889	17,613	11,289	6,506
Steel products not specified by kind	2/ 19,400	4,645	2/ 11,200	3,349
Total steel	1/ 635,146	159,363	1/ 479,337	153,085
Nonferrous brads, nails, spikes, staples, and tacks	1,953	2,051	4,524	4,289
Total	637,099	161,414	483,861	157,374

1/ Partly estimated by the staff of the U.S. Tariff Commission.
2/ Estimated by the staff of the U.S. Tariff Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 3.--Brads, nails, spikes, staples, and tacks: U.S. exports of domestic merchandise, by principal markets, 1964-67 1/

Market	1964	1965	1966	1967
	Quantity (short tons)			
Canada	1,360	2,780	3,228	3,281
West Germany	165	175	220	334
United Kingdom	233	142	125	155
Australia	147	183	164	261
Japan	42	58	135	208
Ecuador	84	106	152	303
Mexico	255	276	315	219
Belgium-Luxembourg	97	109	109	101
Republic of South Africa	106	110	162	133
Thailand	74	117	74	102
Venezuela	306	602	332	175
South Viet-Nam	18	118	160	108
Republic of Korea	98	379	467	511
Bahamas	159	215	298	310
Peru	164	284	168	146
France	184	114	62	52
All other 2/	2,765	2,741	2,481	2,006
Total	6,257	8,509	8,652	8,405
	Value (1,000 dollars)			
Canada	1,660	2,548	2,430	2,516
West Germany	218	151	301	654
United Kingdom	187	273	274	228
Australia	212	211	218	220
Japan	41	56	94	198
Ecuador	59	71	91	183
Mexico	163	184	230	181
Belgium-Luxembourg	148	163	156	168
Republic of South Africa	126	120	229	158
Thailand	50	48	60	136
Venezuela	189	347	211	129
South Viet-Nam	56	28	141	127
Republic of Korea	31	151	97	118
Bahamas	49	77	114	115
Peru	91	111	95	85
France	308	172	107	73
All other 2/	2,010	1,882	1,720	1,450
Total	5,598	6,593	6,568	6,739

1/ Data include thumb tacks, which are not covered by this summary.
2/ Countries included here number in excess of 75.

Source: Compiled from official statistics of the U.S. Department of Commerce.

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Table 4.--Brads, nails, spikes, staples, and tacks: U.S. exports of domestic merchandise, by kinds, 1964-67 1/

Kind	1964	1965	1966	1967
	Quantity (short tons)			
Iron and steel:				
Track spikes	756	896	741	663
All other	2/ 4,482	7,179	7,525	7,289
Nonferrous metal:				
Copper	2/ 283	277	149	231
All other		157	237	222
Total	3/ 6,257	8,509	8,652	8,405
	Value (1,000 dollars)			
Iron and steel:				
Track spikes	192	221	217	199
All other	2/ 4,518	5,697	5,801	5,879
Nonferrous metal:				
Copper	2/ 405	442	209	271
All other		233	341	390
Total	3/ 5,598	6,593	6,568	6,739

1/ Data include thumb tacks, which are not covered by this summary.
2/ Excludes tacks; see total.
3/ Includes 736 tons of tacks, valued at 483 thousand dollars.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 5.--Brads, nails, spikes, staples, and tacks: U.S. imports for consumption, by TSUS item, 1964-67

Brief description and TSUS item 1/	1964	1965	1966	1967
	Quantity (short tons)			
Of iron or steel:				
Round wire, under 1 inch (646.25)	2,481	3,553	2,799	2,690
Round wire, 1 inch or more (646.26)	294,393	309,998	271,783	213,371
Cut, 2 inches or less (646.27)	148	149	135	117
Cut, over 2 inches (646.28)	252	258	862	174
Other one-piece (646.30)	9,642	10,886	8,846	8,581
Two or more pieces (646.32)	859	759	650	686
Of copper (646.34)	21	28	39	52
Other (646.36)	125	91	139	174
Total	307,921	325,722	285,253	225,845
	Value (1,000 dollars)			
Of iron or steel:				
Round wire, under 1 inch (646.25)	695	1,091	791	802
Round wire, 1 inch or more (646.26)	40,106	45,471	37,148	30,785
Cut, 2 inches or less (646.27)	57	49	56	59
Cut, over 2 inches (646.28)	40	53	123	32
Other one-piece (646.30)	1,678	2,055	1,723	2,042
Two or more pieces (646.32)	296	285	254	318
Of copper (646.34)	12	25	20	29
Other (646.36)	41	47	71	83
Total	42,925	49,076	40,186	34,150

1/ For a complete description of the item numbers listed, see appropriate provisions of the TSUSA-1968.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 6.--Brads, nails, spikes, staples, and tacks: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (short tons)			
Japan	157,207	165,841	155,763	104,628
Canada	19,983	22,181	24,303	27,819
Belgium-Luxembourg	55,642	47,783	46,077	32,866
Netherlands	22,458	22,142	25,113	21,668
West Germany	10,371	8,439	7,685	9,146
Yugoslavia	16,408	16,178	9,673	11,609
Poland	5,672	5,872	5,647	9,848
Austria	4,706	4,833	3,691	3,433
All other	15,474	1/ 32,453	7,301	4,828
Total	307,921	325,722	285,253	225,845
	Value (1,000 dollars)			
Japan	22,237	26,340	22,431	16,618
Canada	3,908	4,276	4,980	5,748
Belgium-Luxembourg	7,119	6,413	5,437	3,905
Netherlands	2,743	2,856	2,847	2,543
West Germany	1,528	1,380	1,073	1,400
Yugoslavia	1,912	2,063	1,113	1,373
Poland	648	782	702	1,251
Austria	606	625	488	418
All other	2,224	1/ 4,341	1,115	894
Total	42,925	49,076	40,186	34,150

1/ Includes 26,534 tons, valued at 3,209 thousand dollars, imported from Italy.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Rivets of base metal:	
Of iron or steel and not brightened, lathed, or machined	646.40
Other	646.41
If Canadian article and original motor-vehicle equipment	646.79 (pt.)

Note.--For the statutory description of each item, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is one of the world's largest producers and consumers of rivets; its production and consumption have both increased only slightly, if at all, since 1964. U.S. imports accounted for about 2 percent of the value of U.S. consumption during the period 1964-67; exports were probably very small in relation to imports.

Description and uses

Rivets are generally used to fasten together tightly two or more pieces of metals or other materials. The rivets serve as pins which are passed through alined holes in the pieces of material to be joined; they are held in place by heads formed at each end of the rivet. Rivets are widely used in the construction of boilers and tanks, machinery, ships, aircraft, bridges, and other structures. They are also used in a large variety of miscellaneous manufactures of metal, plastics, leather, textiles, and paper.

Most rivets are produced from iron or steel, but substantial quantities are made of other base metals and base metal alloys, such as copper, brass, and aluminum. They can be produced from wire, wire rod, or other materials and can be solid, tubular, or split. Rivets are commonly made and sold with a head at one end; the opposite plain end is headed after the rivet has been inserted into the articles to be joined. The plain end, if accessible, may be headed by pounding with a hand or power hammer. If the plain end is not accessible, the rivet (often referred to as a blind rivet) may be headed by other means. Some rivets are produced without heads and are headed at both ends following insertion into the articles to be joined. Rivets are available in a wide variety of diameters, lengths, head styles, and strengths. Most rivets are produced on automatic cold or hot heading machines.

U.S. tariff treatment

The column 1 (or trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Rivets of base metal:			
646.40	Of iron or steel and not brightened, not lathed, and not machined.	0.5¢ per lb.	0.4¢ per lb.	0.2¢ per lb.
646.41	Other	14% ad val.	12.5% ad val.	7% ad val.
646.79 (pt.)	If Canadian article and original motor-vehicle equipment. 2/	Free	1/	1/

1/ Duty-free status not affected by Kennedy Round.
2/ See headnote 2, subpt. 6B, schedule 6, TSUSA-1968.

The tabulation above shows the column 1 rates in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rates shown above for items 646.40 and 646.41 had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. The ad valorem equivalent of the specific rate applicable to imports of rivets of iron or steel of the kind provided for under item 646.40, based on dutiable imports during 1967, was 3.4 percent.

Imports of rivets under item 646.79 were dutiable either under item 646.40 or 646.41 from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

U.S. producers

Rivets are produced by more than 100 domestic concerns situated throughout the United States, but concentrated primarily in the northeastern quadrant of the country and in California. These concerns range in size from small shops producing only rivets to large producers of all types of fasteners. Some large diversified steel and aluminum companies also produce rivets. Although most producers of rivets also produce other industrial fasteners, not all manufacturers of fasteners produce rivets.

U.S. consumption, producers' shipments, and exports

The quantity of the apparent annual U.S. consumption of rivets is estimated to have increased only slightly, if at all, during the period 1964-67. Annual consumption throughout this period is estimated to have been in the range of 225 million to 255 million pounds. The value of annual consumption, however, is estimated to have increased from about $71 million in 1964 to about $83 million in 1967. The increase in the value without a corresponding rise in the quantity reflects both a rise in prices and an increase in the proportion of the total comprised of higher valued rivets.

Annual U.S. producers' shipments of rivets, including interplant transfers, probably remained fairly constant, in the range of 225 million to 250 million pounds, during the period 1964-67. These shipments were valued at an estimated $70 million in 1964 and increased to an estimated $81 million in 1967, largely owing to price increases and changes in the product mixes. Shipments of rivets for export are not separately reported but are believed to have been a very small part of total shipments.

U.S. imports

U.S. imports of rivets increased from 2.7 million pounds, valued at $1.2 million, in 1964, to 3.9 million pounds, valued at $1.9 million in 1966. In 1967 they totaled 3.6 million pounds, valued at $1.9 million (see accompanying table). The average unit value 1/ of imported rivets rose from $0.44 per pound in 1964 to $0.53 per pound in 1967. The principal suppliers of rivets, in terms of quantity, in all 4 years were Japan, West Germany, and the United Kingdom, in the order named. In 1967 the unit values of these rivets, from the major supplying countries, ranged from $0.20 per pound for rivets imported from Japan to $1.46 per pound for rivets from the United Kingdom. Such differences in unit values reflected primarily differences in product mixes. Only a small proportion of the imports during the period

1/ Generally the market value in the foreign country, which does not include U.S. import duties, freight, transportation, insurance, and other handling costs.

1964-67 were of the iron or steel type covered by item 646.40; Japan, Belgium, and Canada were the primary suppliers of such imports. Imports of rivets are estimated to have accounted for about 2 percent of the value of U.S. consumption throughout 1964-67. Most imported rivets are comparable in quality to domestically manufactured rivets intended for similar application, although the imported product is probably available in fewer varieties and sizes.

Rivets of base metal: 1/ U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Japan	885	1,245	1,458	1,222
West Germany	739	830	1,001	993
United Kingdom	343	439	674	508
All other	772	692	793	895
Total	2,739	3,206	3,926	3,618
	Value (1,000 dollars)			
Japan	171	251	295	247
West Germany	361	405	489	532
United Kingdom	394	553	745	743
All other	286	325	384	404
Total	1,212	1,534	1,913	1,926
	Unit value (per pound)			
Japan	$0.19	$0.20	$0.20	$0.20
West Germany	.49	.49	.49	.54
United Kingdom	1.15	1.26	1.10	1.46
All other	.37	.47	.48	.45
Average	.44	.49	.49	.53

1/ Data shown do not include very small quantities of rivets which are Canadian articles and for original motor-vehicle equipment (see separate summary on threaded fasteners in this volume--6:5).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on production, exports, and consumption of rivets of base metal are not segregated in available official statistics. It is estimated that the value of U.S. producers' shipments increased from about $70 million in 1964 to about $81 million in 1967 and that the annual quantity shipped remained almost constant throughout 1964-67 at about 225 million to 250 million pounds. It is estimated that the value of apparent U.S. consumption increased from about $71 million in 1964 to about $83 million in 1967. The quantity consumed probably did not increase much, if any, throughout the period, remaining in the range of 225 million to 255 million pounds a year. Imports accounted for about 2 percent of the value of consumption throughout the period. Exports are estimated to have been much smaller than imports.

Commodity	TSUS item
Cotters, cotter pins, and fasteners or holders used with screws, bolts, and studs	646.42
If Canadian article and original motor-vehicle equipment	646.79 (pt.)

Note.--For the statutory description see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption of cotters, cotter pins, and other fasteners or holders used with screws, bolts, and studs is provided almost entirely from domestic production, which is estimated at about $8 million to $12 million. Imports and exports are small by comparison.

Description and uses

This summary covers the base metal articles, cotters and cotter pins, and fasteners or holders (except nuts) used with screws, bolts, and studs. Nuts are discussed in a separate summary in this volume (6:5).

Cotter pins are generally made from cotter pin wire which is approximately half-round in cross section and which is most frequently cold rolled from drawn round wire. Although most cotter pins are made of low-carbon steel, considerable quantities are made of stainless and other alloy steels as well as of non-ferrous metals and alloys, such as aluminum, brass, bronze, Monel, and copper. In making the most common cotter pin, the wire is bent back on itself to form what appears to be a split pin with an open-eye head. Cotter pins are used by passing them through a hole in a shaft, axle, spindle, bolt, or similar article, to prevent objects mounted thereon (such as wheels or nuts) from coming off. After the pin is passed through the hole, one or both of the free ends are bent to prevent the pin from becoming dislodged. Less conventional cotter pins made for specific applications are tempered and shaped in a way that precludes the necessity of bending the ends after insertion; some are hairpin- or horseshoe-shaped and are used by fitting them into slots or grooves cut around the circumference of the shaft or axle. Cotter pins are produced in a wide variety of sizes; some are made from wire of extremely fine diameter, are less than one-half inch in length, and number 2,000 or more per pound, while others are made from wire one-half inch in diameter, are 8 to 10 inches in length, and weigh more than half a pound each.

Cotters or taper pins are intended for similar uses but are generally solid and commonly wedge shaped or conical. They are made to closer tolerances than the common cotter pin and usually require specially designed shafts or spindles.

Cotter pins and cotters are used extensively in the assembly of automobiles, childrens' wheel goods, other miscellaneous consumer durables, machinery and industrial equipment, and the multisegment insulators used in the transmission of high-voltage electric power. The non-ferrous pins are used in chemical plants, for marine application, and in other uses or under circumstances where weather or atmosphere has a corroding effect on the more common pins of carbon steel.

The language "fasteners or holders used with screws, bolts, or studs" used in the commodity description of item 646.42 includes such base metal articles as expansion shields, wire inserts, and "molly" and toggle types of fasteners when imported without the usual accompanying bolt or stud. Expansion shields and wire inserts are used in place of nuts to fasten articles to concrete, brick, and other material where it is not possible or practical to penetrate the entire mass. Fasteners of the "molly" and toggle types are used in place of nuts to fasten articles to plaster, plasterboard, or panel walls where there is no access for using a conventional nut.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty (see general headnote 3 in the TSUSA-1968) applicable to imports of the products discussed in this summary are shown below:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
646.42	Cotters, cotter pins, and fasteners or holders (except nuts) used with screws, bolts, or studs, all the foregoing of base metal.	19% ad val.	17% ad val.	9.5% ad val.
646.79 (pt.)	If Canadian article and original motor-vehicle equipment. 2/	Free	1/	1/

1/ Duty-free status not affected by trade conference.
2/ See headnote 2, pt. 6B, schedule 6, TSUSA-1968.

The prior rate of 19 percent ad valorem applicable to item 646.42 had been in effect under the TSUS from August 31, 1963, through the end of 1967. As a result of a concession granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade, the duty is being reduced by 50 percent in five annual stages. The first stage, a reduction to 17 percent ad valorem, became effective on January 1, 1968 (see the TSUSA-1968 for the intermediate staged rates).

Imports of cotters, cotter pins, and fasteners or holders (except nuts) used with screws, bolts, or studs provided for under item 646.79, were dutiable under item 646.42 from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

U.S. consumption

According to trade estimates the value of annual U.S. consumption of cotter pins is in the range of $4 million to $6 million. Such

consumption has probably declined during the last decade with the development of a variety of self-locking nuts designed to speed and simplify the assembly of toys, automobiles, washing machines, and similar articles. The number of cotter pins used in a modern passenger automobile, for example, is estimated to have declined by 75 percent or more since World War II. The decline in consumption of cotter pins would have been more pronounced but for the increased consumption of aritcles incorporating cotter pins.

U.S. consumption of expansion shields and the other fasteners and holders discussed here has undoubtedly increased because of the high level of commercial and industrial construction and the increase in housing construction in recent years. Annual consumption of expansion shields and other fasteners and holders is probably larger than that of cotter pins (i.e., larger than $4 million to $6 million per annum), although data are not separately reported.

U.S. producers

There are many producers of the products discussed in this summary. They range from large producers of a complete line of bolts, nuts, screws, studs, rivets, and specialty fasteners to small family-owned companies that produce a variety of specialty wire products. With few exceptions the products covered here do not constitute as much as half of the total income of the manufacturing concerns; for most producers these products constitute only a small part of their total annual sales. For the most part, the domestic producers of cotter pins and other fasteners or holders are situated in the industrial areas of the northeastern and midwestern United States. Distribution of these products is often through distributors of fasteners, general hardware, or automotive equipment, parts, and accessories. Some of the manufacturers of cotter pins produce only standard sizes of conventional pins for distribution through the hardware and garage trades; others cater largely to industrial consumers with special problems and requirements.

U.S. production and exports

Since U.S. imports and exports are very small, U.S. production is almost equal to consumption--estimated at about $8 million to $12 million, annually, with more than half of the total consisting of expansion shields and holders other than cotters and cotter pins.

Data on U.S. exports have never been reported separately but are believed to be small compared with domestic consumption, particularly with respect to the standard or commonplace cotter pins and expansion shields.

U.S. imports

Aggregate annual U.S. imports of cotter pins, expansion shields, and other fasteners or holders of the type discussed here increased in each of the years 1964 (the first full year in which imports of such products were reported) through 1967; imports amounted to 1,394,000 pounds, valued at $330,000, in 1967 (see accompanying table). Imports, which probably supplied less than 5 percent of U.S. consumption in 1967, consist primarily of standard cotter pins and expansion shields for the hardware and garage trade, although some special types of fasteners and wire inserts have been imported. These data do not include imports from Canada entered free under item 646.79 for which data are not segregated in official statistics (see separate summary on threaded fasteners in this volume--(6:5).

Japan was by far the preponderant source of imports in 1964-67.

Cotters, cotter pins, and other fasteners or holders used with screws, bolts, and studs: U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Japan	430	720	1,094	1,147
Canada 1/	200	63	54	114
West Germany	10	21	12	12
France	1	-	-	48
United Kingdom	42	23	18	19
Netherlands	1	-	-	43
All other	11	8	14	11
Total	695	835	1,192	1,394
	Value (1,000 dollars)			
Japan	69	128	221	202
Canada 1/	52	22	23	47
West Germany	15	21	20	11
France	1	-	-	20
United Kingdom	12	27	18	20
Netherlands	2/	-	-	15
All others	6	5	10	15
Total	155	203	292	330

1/ Data do not include imports entered free under item 646.79 (see separate summary on threaded fasteners in this volume--(6:5)
2/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Data on production and exports are not reported separately in official statistics. Production, however, is many times larger than either exports or imports; it is estimated at about $8 to $12 million.

Commodity	TSUS item
Wood screws of base metal:	
Of iron or steel	646.49
Other	646.51, -.53
If Canadian article and original motor-vehicle equipment	646.79 (pt.)

Note.--For the statutory description of each item, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

Estimated U.S. consumption of wood screws of base metal increased during 1964-67 at an average rate of about 3 percent per year--to about $51 million in 1967. Annual U.S. imports during this period, which greatly exceeded exports, accounted for at least 6 to 9 percent of the value of U.S. consumption.

Description and uses

Wood screws are used primarily to fasten wooden components together or to fasten objects to wood. They are used largely in the furniture and building construction industries and in conjunction with builders' hardware. These screws generally consist of a head and a threaded shank or shaft. The most common wood screws have a continuous helical rib or thread which is tapered to a point; they are generally made with flat, round, or oval heads with either a slot or a cross-shaped recess to permit turning or driving with a screw driver. The bulk of such wood screws made or used in the United States are less than 1 inch in length. Wood drive screws and lag screws or bolts are also included in this summary as wood screws. Drive screws are designed to be driven by a hammer; they differ from ordinary wood screws in that there are no slots or recesses on the head and the threads on the shanks are more steeply inclined. Lag screws or bolts are usually larger than other wood screws and, in addition to a threaded shank, have a square head which may be driven by a wrench or plier type of tool. All of these threaded fasteners are most commonly made of iron or steel and are generally produced on automatic heading and threading machines. They are available in a wide variety of sizes and specifications.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports of wood screws of base metal (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage effective Jan. 1, 1972
	Wood screws (including lag screws or bolts) of base metal:			
646.49	Of iron or steel----------	12.5% ad	1/	1/
	Other:			
646.51	Having shanks or threads not over 0.12 inch in diameter.	23.5% ad val.	21% ad val.	11.5% ad val.
646.53	Having shanks or threads over 0.12 inch in diameter.	18% ad val.	16% ad val.	9% ad val.
646.79	If Canadian article and original motor-vehicle equipment. 3/	Free	2/	2/

1/ Rate of duty not affected by trade conference.
2/ Duty-free status not affected by trade conference.
3/ See headnote 2, pt. 6B, schedule 6, TSUSA-1968.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rates shown above for items 646.49, 646.51, and 646.53, had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. No concession was granted by the United States in the recent trade conference on the wood screws of iron or steel included under item 646.49.

Imports of wood screws under item 646.79, were dutiable either under item 646.49, 646.51, or 646.53 from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

Wood screws of iron or steel were the subject of four Tariff Commission investigations under section 7 of the Trade Agreements Extension Act of 1951. In the third such investigation, the six Tariff Commission members split three-to-three on the question of whether the domestic industry had been seriously injured by increased imports. When the split decision was submitted to the President in October 1954, he accepted the finding that no injury had been sustained; therefore, no "escape clause" action was taken. The fourth investigation, instituted in January 1956, was dismissed by the Tariff Commission at the request of the applicant.

U.S. consumption

The value of apparent annual U.S. consumption of wood screws of base metal is estimated to have increased from about $44 million in 1964 to about $51 million in 1967, or at an average annual rate of about 3 percent (table 1); the great bulk of these wood screws were of iron or steel. The slow rate of increase in the consumption of wood screws is attributable to increased use of materials other than wood in buildings and furniture and to the use of other, easier-to-use fasteners and methods of fastening.

Annual consumption of wood screws with slotted or cross-recessed heads was larger than the consumption of the other types of wood screws considered here, and rose less rapidly than did consumption of other types of wood screws during 1964-67. The consumption of such wood screws rose from about 58 million gross, valued at $23 million, in 1964 to 62 million gross, valued at $25 million, in 1965, and then declined to 55 million gross, valued at $24 million, in 1967 (table 2).

The value of consumption of lag screws or bolts probably rose from about $17 million in 1964 to about $20 million in 1967, the increase reflecting mostly price increases, for the quantity of consumption probably increased only slightly, if at all.

The value of consumption of wood drive screws is estimated to have risen from $4 million in 1964 to about $7 million in 1967; the quantity of consumption probably increased also. The growth of consumption of wood drive screws is attributable, at least in part, to their ease of use in comparison with that of other types of wood screws and to their holding ability, which is superior to that of ordinary nails.

U.S. producers

Wood screws of base metal are produced by more than 50 domestic manufacturers; about 20 produce the more common varieties of wood screws with slotted or cross-recessed heads, and the rest produce wood drive screws or lag screws or bolts. Several of these manufacturers produce more than one of the types of fasteners covered by this summary and few, if any, produce only the types of fasteners covered here. (Other threaded fasteners are discussed in a separate summary in this volume--6:5.) Few producers of wood screws are situated outside the northeast quadrant of the country; however, several are in the South and in California. The producing firms vary in size from small shops to large producers of nearly all types of fasteners and other metal products.

U.S. shipments

The value of annual U.S. producers' shipments of wood screws of base metal is estimated to have increased from about $40 million in 1964 to about $48 million in 1967 (table 1). The quantity of shipments probably increased more slowly than the value. The estimated value of annual shipments of wood screws with slotted or cross-recessed heads increased from about $20 million in 1964 to about $22 million in 1967; the quantity shipped rose from about 41 million gross in 1964 to about 43 million gross in 1965, and declined to about 40 million gross in 1967 (table 2). The value of annual shipments of lag screws or bolts rose from about $17 million to about $19 million during 1964-67, but the quantity shipped probably declined slightly. The value of shipments of wood drive screws rose from about $4 million in 1964 to about $7 million in 1967. The quantity of wood drive screws shipped also increased substantially.

U.S. exports

Aggregate U.S. exports of wood screws of base metal accounted for less than 1 percent of U.S. producers' shipments during 1964-67 (table 1). The value of estimated exports increased from about $270,000 in 1964, to about $360,000 in 1967. Exports of wood screws with slotted or cross-recessed heads rose from about 240,000 gross,

valued at $180,000, in 1964 to an estimated 280,000 gross, valued at about $240,000, in 1967 (table 2). The value of annual exports of wood drive screws and of lag screws or bolts combined probably increased from an estimated $90,000 in 1964 to about $120,000 in 1967.

The most important U.S. export markets for wood screws of base metal are probably Canada, Denmark, and Israel; they were the largest markets in 1964, the last year for which such data were segregated.

U.S. imports

Imports of wood screws of base metal increased from 17.9 million gross, valued at about $3.4 million, in 1964 to 21.7 million gross, valued at $4.0 million, in 1966 (table 3). In 1967, imports amounted to 15.6 million gross, valued at $3.3 million. The ratio of the value of imports to the value of consumption ranged between 8 and 9 percent during 1964-66 but declined to about 6 percent in 1967; the ratios would have been significantly higher if they had been based on U.S. landed, duty-paid values of imports rather than on their foreign market values. In terms of quantity, the ratio of imports to consumption during 1964-67 was probably two to three times as high.

Imports of wood screws with slotted or cross-recessed heads increased from 17.3 million gross in 1964 to 20.9 million gross in 1966, but declined to 14.7 million gross in 1967 (table 2). The value of annual imports rose from $2.9 million in 1964, to $3.4 million in 1966, and dropped to $2.6 million in 1967. The ratio of imports to consumption during 1964-66 ranged between 30 and 34 percent in terms of quantity, and between 13 and 14 percent in terms of value. Both ratios declined substantially in 1967.

The value of imports of lag screws and bolts increased from about $600,000 in 1964 to about $800,000 in 1965, declined to about $600,000 in 1966, and climbed to about $700,000 in 1967. There were few, if any, lag screws or bolts of other than iron or steel imported during these years. Imports of lag screws or bolts amounted to about 3 to 4 percent of the value of consumption during 1964-67. Imports of wood drive screws were probably negligible during this period.

Imports of nonferrous wood screws (items 646.51 and 646.53) increased from 1.1 million gross in 1964 to about 1.4 million gross in 1966; they amounted to about 1.0 million gross in 1967. In terms of value such imports amounted to $430,000 in 1964, $540,000 in 1966, and to $400,000 in 1967.

The average unit values of the imported wood screws covered by this summary ranged from 18 to 21 cents per gross during 1964-67. Of the imports from the three major suppliers (Japan, Hong Kong, and Belgium-Luxembourg), those from Belgium-Luxembourg had the highest average unit values--23 to 36 cents per gross--and Hong Kong, the lowest--10 to 16 cents per gross. Japan has accounted for more than half of the quantity and about a third of the value of imports in recent years.

Table 1.--Wood screws of base metal: U.S. producers' shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1964-67

Year	Producers' shipments 1/	Imports 2/	Exports	Apparent consumption	Ratio of imports to consumption
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	Percent
1964----	40,500	3,400	270	43,630	8
1965----	43,800	4,100	3/ 300	47,600	9
1966----	45,400	4,000	3/ 330	49,070	8
1967----	48,300	3,300	3/ 360	51,240	6

1/ Estimated on the basis of data obtained from the U.S. Department of Commerce for 1963 and projected through 1967 on the basis of data from the United States Wood Screw Service Bureau.

2/ Data shown do not include very small quantities of wood screws imported under item 646.79 as Canadian articles which are original motor-vehicle equipment (see separate summary on threaded and other fasteners, not elsewhere enumerated, in this volume--6:5).

3/ Estimated on the basis of reported exports for a more inclusive group of commodities.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--The ratios of imports to consumption are understated, since the value of imports does not include U.S. import duties, costs of transportation, insurance for delivery of the merchandise to the United States, and other handling charges, while the value of apparent consumption is basically the factory value of U.S. producers' shipments.

Table 2.--Wood screws with slotted or cross-recessed heads, of base metal (items 646.4940 pt., 646.51 pt., and 646.53 pt.): U.S. producers' shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1964-67

(Quantity in thousands of gross; value in thousands of dollars)

Year	Producers' shipments 1/	Imports 2/	Exports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1964	41,100	17,300	240	58,160	30
1965	42,900	19,700	3/ 250	62,350	32
1966	40,600	20,900	3/ 260	61,240	34
1967	40,500	14,700	3/ 280	54,920	27
	Value				
1964	19,800	2,900	180	22,520	13
1965	21,500	3,300	3/ 200	24,600	13
1966	21,100	3,400	3/ 220	24,280	14
1967	21,900	2,600	3/ 240	24,260	11

1/ Estimated on the basis of data obtained from the U.S. Department of Commerce for 1963 and projected through 1967 on the basis of data from the United States Wood Screw Service Bureau.

2/ Data do not include very small quantities of wood screws imported from Canada and entered free of duty under item 646.79 (see summary on threaded and other fasteners, not elsewhere enumerated, in this volume--6:5).

3/ Estimated.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Wood screws covered by this table are largely of iron or steel.

Table 3.--Wood screws of base metal: 1/ U.S. imports for consumption, by principal sources, 1964-67

Source	1964	1965	1966	1967
	Quantity (1,000 gross)			
Japan	12,242	12,422	11,817	9,665
Hong Kong	1,879	3,368	5,170	2,955
Belgium-Luxembourg	748	489	640	638
All other	3,066	4,236	4,044	2,305
Total	17,935	20,515	21,671	15,563
	Value (1,000 dollars)			
Japan	2,064	2,381	2,268	2,130
Hong Kong	306	515	535	402
Belgium-Luxembourg	219	165	232	149
All other	846	1,046	958	652
Total	3,435	4,107	3,993	3,333
	Unit value (per gross)			
Japan	$0.17	$0.19	$0.19	$0.22
Hong Kong	.16	.15	.10	.14
Belgium-Luxembourg	.29	.34	.36	.23
All other	.28	.25	.24	.28
Average	.19	.20	.18	.21

1/ Data do not include very small quantities of wood screws imported from Canada and entered under item 646.79 (see summary on threaded and other fasteners, not elsewhere enumerated, in this volume--6:5).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Imports of nonferrous wood screws (items 646.51 and 646.53) included in the data above, increased from 1,100 thousand gross in 1964 to about 1,400 thousand gross in 1966; in 1967 they amounted to about 1,000 thousand gross. In terms of value, such imports increased from about 430 thousand dollars in 1964 to about 540 thousand dollars in 1966 but declined to about 400 thousand dollars in 1967.

Commodity	TSUS item
Bolts, nuts, studs and studding, screws (other than wood screws), and washers, screw eyes, screw hooks, screw rings, and turnbuckles:	
Of iron or steel----------	646.54 to 646.72, inclusive
Of other base metal-------	646.74 to 646.78, inclusive
Any article described in item 646.20 and items 646.40 to 646.78, inclusive (except 646.45 and 646.47), if Canadian article and original motor-vehicle equipment----------	646.79

Note.--For the statutory description of each item, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption of the fasteners covered by this summary increased by an average of nearly 12 percent a year during 1964-67, and in 1967 was valued at about $1.5 billion. U.S. exports increased by about 20 percent a year during the same period, and amounted to $49 million in 1967. The value of imports of such fasteners rose by an average of nearly 30 percent a year--from about $30 million in 1964 to about $65 million in 1967, when the foreign value of imports amounted to 4 percent of the value of U.S. consumption, and the U.S. landed, duty-paid value of imports was equivalent to about 5 percent of the value of consumption.

Description and uses

The base metal articles included in this summary are washers and such threaded fasteners as nuts, bolts, screws (excluding wood screws), screw eyes, screw hooks, screw rings, studs and studding, and turnbuckles. The provisions of the TSUS covered by this summary also relate to a very small quantity of merchandise which are Canadian articles and original motor-vehicle equipment. These Canadian articles (see headnote 2, part 6B, schedule 6, TSUSA) include staples in strip form; rivets; cotters and cotter pins; fasteners and holders used with screws, bolts, or studs; and wood screws (including lag screws or bolts). Except as to imports these Canadian articles are covered in separate summaries in volume 6:5. Fasteners of the type covered by this summary but for use with powder-actuated hand tools (items 646.15 and 646.17) are also dealt with in a separate summary in this volume (6:5).

Probably more than 90 percent of the fasteners covered in this summary are of iron or steel; the remaining fasteners are made of zinc, aluminum, brass, bronze, or other base metal. The fasteners listed above are covered in this summary, whether or not dedicated to use as a part of some larger article, unless they have been so modified or altered as to have lost the essential characteristics of the named screws, nuts, bolts, or other pertinent articles. The many fasteners of the types provided for in TSUS items 646.54-646.78, inclusive, and covered in this summary are quite well known, and no attempt is made to provide a detailed description of them.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Bolts, nuts, studs and studding, screws (other than wood screws), and washers (including bolts and their nuts imported in the same shipment, and assembled bolts or screws and washers, with or without nuts); screw eyes, screw hooks and screw rings; turnbuckles; all the foregoing not elsewhere enumerated, of base metal:			
	Of iron or steel:			
646.54	Bolts and bolts and their nuts imported in the same shipment.	0.5¢ per lb.	0.4¢ per lb.	0.2¢ per lb.
646.56	Nuts	0.3¢ per lb.	0.2¢ per lb.	0.1¢ per lb. 1/
646.57	Studs and studding	14.5% ad val.	13% ad val.	7% ad val.
	Screws:			
646.58	Machine screws 0.375 inch or more in length and 0.125 inch or more in diameter (not including cap screws).	0.5¢ per lb.	2/	2/
	Other:			
646.60	Having shanks or threads not over 0.24 inch in diameter.	22.5% ad val.	20% ad val.	11% ad val.

See footnotes at end of table.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Bolts, nuts, studs and studding, screws, and washers, etc.--Con.			
	Of iron or steel--Con.			
	Screws--Con.			
	Other--Con.			
646.63	Having shanks or threads over 0.24 inch in diameter.	19% ad val.	17% ad val.	9.5% ad val.
	Washers:			
646.65	Spiral and other lock washers.	20% ad val.	18% ad val.	10% ad val.
646.70	Other	0.3¢ per lb.	0.2¢ per lb.	Free 1/
646.72	Assembled bolts or screws and washers; screw eyes, screw hooks and screw rings; turnbuckles.	19% ad val.	17% ad val.	9.5% ad val.
	Of other base metal:			
	Bolts, nuts, screws, and washers (including bolts and their nuts imported in the same shipment):			
646.74	Muntz or yellow metal bolts.	3¢ per lb.	2.5¢ per lb.	1.5¢ per lb.
	Other:			
646.75	Having shanks, threads, or holes not over 0.24 inch in diameter.	23.5% ad val.	21% ad val.	11.5% ad val.
646.76	Having shanks, threads, or holes over 0.24 inch in diameter.	18% ad val.	16% ad val.	9% ad val.
646.77	Studs and studding	16% ad val.	14% ad val.	8% ad val.

See footnotes at end of table.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Bolts, nuts, studs and studding, screws, and washers, etc.--Con.			
	Of other base metal--Con.			
646.78	Assembled bolts or screws and washers; screw eyes, screw hooks and screw rings; turnbuckles.	19% ad val.	17% ad val.	9.5% ad val.
646.79	Any article described in item 646.20 and items 646.40 to 646.78 inclusive (except 646.45 and 646.47); if Canadian article and original motor-vehicle equipment 4/.	Free	3/	3/

1/ Final rate for this item will become effective Jan. 1, 1971, at the fourth stage.
2/ Rate of duty not affected by trade conference.
3/ Duty-free status not affected by trade conference.
4/ See headnote 2, part 6B, schedule 6, TSUSA-1968.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rates shown above for items 646.54 to 646.78 had remained unchanged under the TSUS from August 31, 1963, through the end of 1967.

From August 31, 1963, through January 17, 1965, imports of the articles provided for under TSUS item 646.79 were dutiable under the appropriate TSUS items 646.20, 646.40, 646.41, 646.42, and 646.49 through 646.78. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United

States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

The average ad valorem equivalents of the specific rates of duty in effect prior to January 1, 1968, based on dutiable imports in 1967, were as follows:

TSUS item	Percent
646.54	3.9
646.56	1.4
646.58	3.9
646.70	1.4
646.74	4.9

U.S. producers

The domestic producers of the fasteners covered by TSUS items 646.54 through 646.78 and considered herein probably number more than 450 and employ more than 45,000 workers; an estimated 90 percent of the producers and 93 percent of the employees are situated in the northeastern quadrant of the country and in California. Illinois--with 23 percent of the producers' shipments, 22 percent of the employees, and 17 percent of the producers--is the largest producing State; Ohio, Michigan, Pennsylvania, and California are also large producing States. In 1963, although the plant with the median number of workers employed between 20 and 49 production workers, more than half of all industry personnel were employed in plants with more than 250 workers. Most producers make extensive use of automatic screw machines and stamping and blanking machinery.

U.S. consumption

The value of apparent U.S. consumption of the types of fasteners described in items 646.54 through 646.78 and included in this summary is estimated to have increased from about $1.07 billion in 1964 to about $1.49 billion in 1967, or by an average annual rate of about 12 percent (table 1). The fastest growing segment of the industry is that producing special fasteners, of nonstandard size or shape, the consumption of which increased by about 14 percent a year after 1964 and in 1967 probably accounted for slightly more than a quarter of the value of consumption. The growth and size of the market for these special fasteners reflect a rapid growth in the use of increasingly sophisticated machinery and equipment of which these fasteners are component parts. U.S. consumption of other types of fasteners rose somewhat more slowly; some of the growth in all categories, measured in terms of value, may be attributable to price increases. In 1967, estimated consumption of all screws other than wood screws probably accounted for about 20 to 25 percent of the consumption of all the fasteners covered by this summary, estimated consumption of nuts accounted for 15 to 20 percent of the total, and consumption of bolts probably accounted for most of the remainder.

U.S. producers' shipments

The value of U.S. producers' shipments rose from an estimated $1.07 billion in 1964 to about $1.47 billion in 1967, representing an average annual increase of about 11 percent (table 1). Shipments of fasteners of nonstandard size or shape accounted for slightly more than a quarter of total shipments in 1967 and increased in 1964-67 at an average annual rate of 14 percent. Shipments of screws accounted for somewhat less than a quarter of the total in 1967, and nuts and bolts were the most important of the fasteners constituting the remainder.

U.S. exports

The value of U.S. exports of the fasteners described in TSUS items 646.54 through 646.78 increased by an average of nearly 20 percent a year from an estimated $29 million in 1964 to about $49 million in 1967. The value of such exports roughly equaled the foreign value of imports in 1964 but by 1967 the value of exports was equal to only three-quarters of the foreign value of imports (table 1).

Throughout the period 1964-67 Canada was the market for more than 60 percent--in terms of value--of all exports, most of which were of the lower priced standard types; many of these were probably for use in the automotive industry (table 2). In terms of quantity, the annual rate of growth of exports to Canada was about double the rate of growth of exports to any other major market. The United Kingdom, West Germany, and France were also important export markets, predominantly and increasingly for higher priced special fasteners for use in complex electronic and other equipment.

U.S. imports

The value of U.S. imports for consumption of all products discussed here increased from about $30 million in 1964 to about $65 million in 1967, or by an average annual rate of about 30 percent (table 1). The ratio of the foreign value of imports to consumption increased from 3 percent in 1964 to 4 percent in 1967. More than 60 percent of the value of imports in 1967 was accounted for by nuts and bolts, and more than 20 percent, by screws (table 3).

The most rapidly growing imports during 1964-67 were Canadian fasteners for original motor-vehicle equipment. These imports, which enter the United States free of duty under the provisions of the Automotive Products Trade Act of 1965, amounted in 1967 to $1.8 million. Imports of studs and studding also grew very rapidly during 1964-67; many of these imports were for use on studded automobile tires which, although prohibited by law in many States and localities, became acceptable in a number of States during this period.

The most important source of U.S. imports of the fasteners covered by this summary was Japan, which accounted for at least half of the value of all such imports during 1964-67 (table 4). Italy, Canada, and the United Kingdom are also important suppliers.

Table 1.--Threaded and other fasteners, not elsewhere enumerated: U.S. producers' shipments, imports, exports, and apparent consumption, 1964-67

Year	Producers' shipments	Imports	Exports 1/	Apparent consumption	Ratio of imports to consumption
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	Percent
1964	2/ 1,070,000	30,000	29,200	1,070,800	3
1965	2/ 1,181,800	45,500	33,800	1,193,500	4
1966	2/ 1,326,500	53,600	45,600	1,334,500	4
1967	3/ 1,473,500	64,700	49,300	1,488,900	4

1/ Estimated from official statistics for exports of broader classes of fasteners.

2/ Based on detailed statistics from the Census of Manufactures, the value of producers' shipments of the fasteners covered by this summary was $970.9 million in 1963. Data for 1964-66 were estimated on the basis of the trend indicated by shipments data (from the Annual Survey of Manufactures) for a somewhat larger group of fasteners; in 1963, shipments of the fasteners covered by this summary constituted more than 80 percent of the shipments in the more inclusive group.

3/ Projected on the basis of the average annual rate of change (about 11 percent) shown for 1964-66.

Source: Compiled from the official statistics of the U.S. Department of Commerce, except as noted.

Note.--The ratios of imports to consumption are based on the foreign market value of imports and essentially factory value of shipments. If the ratios were computed on the basis of the foreign value of imports plus U.S. import duties and costs of transportation, insurance, and other handling to deliver the merchandise to the United States, the ratios would be higher--about 5 percent in 1967.

Table 2.--Threaded and other fasteners, not elsewhere enumerated: U.S. exports, by principal markets, 1964-67

Market	1964	1965	1966	1967
	Quantity (1,000 pounds)			
Canada	27,300	35,000	55,600	60,600
United Kingdom	800	900	1,200	1,000
West Germany	400	400	400	600
France	200	200	300	300
All other	17,000	18,400	16,900	16,700
Total	45,700	54,900	74,400	79,200
	Value (1,000 dollars)			
Canada	16,100	19,900	29,200	30,900
United Kingdom	1,600	1,700	2,600	3,200
West Germany	700	1,000	1,300	2,000
France	700	600	1,100	1,100
All other	10,100	10,600	11,400	12,100
Total	29,200	33,800	45,600	49,300
	Unit value (per pound) 1/			
Canada	$0.60	$0.60	$0.50	$0.50
United Kingdom	1.90	1.80	2.20	3.10
West Germany	1.90	2.20	3.30	3.50
France	3.70	2.40	3.00	3.90
All other	.60	.60	.70	.70
Average	.60	.60	.60	.60

1/ Computed on the basis of unrounded trade figures.

Source: Estimated from official statistics of the U.S. Department of Commerce for exports of broader classes of fasteners.

Table 3.--Threaded and other fasteners, not elsewhere enumerated: U.S. imports for consumption, by product group, 1964-67

(In thousands of dollars)

Product group	1964	1965	1966	1967
Bolts, nuts, studs and studding, screws, washers, screw eyes, screw rings, and turnbuckles, all the foregoing of base metal:				
Of iron or steel:				
Nuts and bolts (646.54 and 646.56)	21,046	32,564	34,832	41,478
Studs and studding (646.57)	163	453	1,797	1,596
Screws, including cap screws, but excluding wood screws (646.58 to 646.63)	6,298	9,715	12,052	14,956
Washers (646.65 and 646.70)	1,149	1,324	1,794	2,099
Other (646.72)	264	374	578	856
Of other base metal (646.74 to 646.78)	1,070	1,021	1,689	1,980
Staples; rivets; cotters; cotter pins; fasteners and holders used with screws, bolts, or studs; wood screws; and the articles described above, if Canadian articles and original motor-vehicle equipment (646.79)	-	1/ 18	831	1,780
Total	29,990	45,469	53,573	64,745

1/ The value of actual imports in 1965 was 228 thousand dollars; of these imports, 210 thousand dollars' worth are included in the statistics for items 646.54 to 646.78; little is included in statistics for items 646.20, 646.40 to 646.42, or 646.49 to 646.53; they were entered during the retroactive period of the Automotive Products Trade Act of 1965 (Jan. 18, 1965 to Dec. 19, 1965).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Threaded and other fasteners, not elsewhere enumerated: U.S. imports for consumption, by principal sources, 1964-67

(In thousands of dollars)

Source	1964	1965	1966	1967
Japan	14,915	25,315	29,486	33,961
Italy	1,691	5,234	5,345	7,269
Canada	2,966	3,169	4,813	6,658
United Kingdom	1,846	2,362	2,694	3,813
West Germany	1,430	1,579	2,456	2,512
Ireland	1,047	816	1,275	2,010
France	1,100	1,797	1,574	1,856
Netherlands	1,074	1,133	1,605	1,419
Sweden	1,316	1,191	1,285	1,383
Poland	595	877	709	1,013
Belgium and Luxembourg	611	650	875	1,042
All other	1,399	1,346	1,456	1,809
Total	29,990	45,469	53,573	64,745

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Locks and padlocks, luggage frames incorporating locks, and parts; lock keys:	
Padlocks	646.80, -.81, -.82, -.83, -.84, -.85
Cabinet locks	646.86, -.87, -.88, -.89
Luggage locks, and parts thereof, and luggage frames incorporating locks	646.90
Other	646.92
If Canadian article and original motor-vehicle equipment	646.93

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is one of the world's largest producers, consumers, and exporters of locks. Imports, which have increased steadily in recent years, supply at least 3 to 4 percent of domestic consumption. Imports are only about a third as large as exports.

Description and uses

This summary covers padlocks (a detachable, portable lock having a shackle adapted to be opened for engagement through a staple or chain--often referred to as a shackle lock), cabinet locks, luggage locks, vehicular locks, and other locks constructed of base metal, whether key, combination, key-controlled combination, or electrically operated, and lock parts and keys. Included herein are locks used for vending machines, parking meters, apartment mail boxes, and many other articles.

Mechanically, virtually all the locks considered herein are of the pin tumbler or cylinder, the disc tumbler, the lever tumbler, or the warded type. The pin tumbler or cylinder lock contains a varying number of tumblers enclosed within a cylinder, and in order for the cylinder to rotate and disengage the bolt, each tumbler must be pushed into its proper position by the key. The pin tumbler or cylinder type offers perhaps the greatest security--the degree of security increasing as the number of tumblers employed increases.

The lever tumbler lock is rather simply constructed, consisting of one lever which, when pushed by the key into the proper position within

the lock, releases the bolt. Most combination locks (virtually all combination padlocks) are a type of lever tumbler lock. The shackle is released when the lever drops into a slot formed when the combination disks (most often three) are properly aligned.

Locks of warded construction have a series of ridges built directly into the lock casing which allows the insertion of only the proper key in order to release the bolt. Warded locks are used where high security is not essential but privacy is desired. Although economical, warded locks can be unlocked without a key more readily than other types.

Mechanisms such as night chains and panic bars are not classified as locks and therefore are not included here.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Locks and padlocks (whether key, combination, or electrically operated), luggage frames incorporating locks, all the foregoing, and parts thereof, of base metal; lock keys:			
	Padlocks:			
	Not of cylinder or pin tumbler construction:			
646.80	Not over 1.5 inches in width.	12¢ per doz. + 8% ad val.	10.8¢ per doz. + 7% ad val.	6¢ per doz. + 4% ad val.
646.81	Over 1.5 but not over 2.5 inches in width.	18¢ per doz. + 8% ad val.	16¢ per doz. + 7% ad val.	9¢ per doz. + 4% ad val.
646.82	Over 2.5 inches in width.	37.5¢ per doz. + 10% ad val.	33¢ per doz. + 9% ad val.	18¢ per doz. + 5% ad val.

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Locks and padlocks (whether key, combination, etc.--Con.			
	Padlocks: Con.			
	Of cylinder or pin tumbler construction:			
646.83	Not over 1.5 inches in width.	50¢ per doz. + 10% ad val.	48¢ per doz. + 9% ad val.	40¢ per doz. + 5% ad val.
646.84	Over 1.5 inches in width but not over 2.5 inches in width.	60¢ per doz. + 8% ad val.	54¢ per doz. + 7% ad val.	30¢ per doz. + 4% ad val.
646.85	Over 2.5 inches in width.	80¢ per doz. + 8% ad val.	72¢ per doz. + 7% ad val.	40¢ per doz. + 4% ad val.
	Cabinet locks:			
	Not of cylinder or pin tumbler construction:			
646.86	Not over 1.5 inches in width.	30¢ per doz.+8.5% ad val.	27¢ per doz. + 7.5% ad val.	15¢ per doz. + 4.25% ad val.
646.87	Over 1.5 but not over 2.5 inches in width.	43¢ per doz. + 10% ad val.	38¢ per doz. + 9% ad val.	21¢ per doz. + 5% ad val.
646.88	Over 2.5 inches in width.	65¢ per doz.+ 8.5% ad val.	58¢ per doz. + 7.5% ad val.	32¢ per doz. + 4% ad val.
646.89	Of cylinder or pin tumbler construction.	80¢ per doz. + 8% ad val.	72¢ per doz. + 7% ad val.	40¢ per doz. + 4% ad val.
646.90	Luggage locks, and parts thereof, and luggage frames incorporating locks.	22.5% ad val.	20% ad val.	11% ad val.
646.92	Other	17% ad val.	15% ad val.	9.5% ad val.
646.93	If Canadian article and original motor-vehicle equipment (see headnote 2, pt. 6B, schedule 6).	Free	1/	1/

1/ Duty-free status not affected by trade conference.

The tabulation above shows the column 1 rates of duty in effect under the TSUS prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates). The prior rates of duty shown for all items except 646.92 had remained unchanged under the TSUS from August 31, 1963, through the end of 1967.

The rate of duty applicable to item 646.92 was reduced from 19 percent to 18 percent ad valorem effective January 1, 1966, and to 17 percent on January 1, 1967, as a result of a trade agreement with Canada providing for compensatory concessions by the United States (Presidential Proclamation 3694).

Imports of locks and parts and lock keys provided for under item 646.93, were dutiable under item 646.92 from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian Automotive Agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

The ad valorem equivalents of the compound rates of duty applicable to items 646.80 to 646.89, based on dutiable imports in 1967, were as follows:

Item	Percent	Item	Percent
646.80	17.8	646.85	17.0
646.81	14.5	646.86	20.0
646.82	14.3	646.87	19.0
646.83	24.7	646.88	1/ 44.6
646.84	15.8	646.89	25.8

1/ Based on small imports during 1966; no imports in 1967.

U.S. consumption

The value of apparent U.S. consumption of all locks increased from an estimated $132 million in 1964 to $149 million in 1967. Door locks account for the bulk of U.S. consumption, followed by padlocks, cabinet locks, and luggage locks.

U.S. producers

About 80 to 85 companies, situated principally in the northeastern quadrant of the United States, produce one or more of the locks discussed herein; some of these companies have foreign subsidiaries or affiliates. Many of these concerns manufacture a variety of other items in the builders' hardware line as well as other small fabricated metal products, although some companies produce only locks and keys. About 20 firms manufacture padlocks, about 15 produce switch and door locks for motor vehicles, and about 10 manufacture luggage locks.

U.S. production

Domestic production of locks and padlocks has been steadily increasing in recent years. The value of U.S. production, which amounted to about $130 million in 1963, probably rose to about $160 million in 1967. Many segments of the lock industry have shared in the growth of shipments.

U.S. exports

During 1964-67, the value of U.S. exports of locks and padlocks ranged from $7.8 million in 1964 to $15.6 million in 1966 (table 1). In 1967 it was $15.5 million. Exports in 1967, by categories, were valued as follows: Padlocks, $1.6 million; door locks and lock sets for automotive use, $3.5 million; other door locks and lock sets, $4.9 million; and other locks and lock keys, $5.5 million. Canada has been by far the principal export market, accounting for more than 50 percent of total exports in each of the years 1965-67 (table 2). Almost 85 percent of the total exports of door-and-lock sets for automotive use were exported to Canada in 1967, the first year for which such data were published. Aside from Canada, which led in each of the export classes mentioned above, the Republic of South Africa has been an important market for padlocks; Venezuela, for door locks and lock sets; and the Philippine Republic, for other locks and lock keys.

U.S. imports

The value of U.S. imports of locks and padlocks, which has been only about one-third as large as that of U.S. exports, has increased steadily in recent years from $2.8 million in 1964 to $4.9 million in 1967 (table 1). The ratio of annual imports to U.S. consumption, based on value, rose from 2.0 percent in 1964 to 3.3 percent in 1967. 1/

TSUS items 646.90 (luggage locks and parts and luggage frames incorporating locks) and 646.92 ("other locks") together have accounted for more than two-thirds of total imports in each of the last 4 years (table 3). Padlocks (items 646.80 to 646.85) accounted for about one-fourth of the total imports in 1964-67, and cabinet locks (items 646.86 to 646.89) for less than one-twentieth.

Hong Kong has been the principal source of imports, accounting for about a fourth of the total in 1966 and 1967 (table 4). Japan, West Germany, the United Kingdom, Canada, and Italy have also been important sources of imports. The average unit value of all imports of locks 2/ increased from 73 cents per dozen in 1964 to $1.18 per dozen in 1967.

1/ These percentages would be higher if the values of imports were those computed on a U.S. landed, duty-paid basis, rather than market values in the foreign countries.

2/ Generally the market value in the foreign country; therefore it excludes U.S. import duties, freight, and transportation insurance. Freight costs to U.S. ports for a somewhat broader class of products which included locks averaged about 11 percent of the foreign value, according to a U.S. Tariff Commission release, "C.I.F. Value of U.S. Imports," dated February 7, 1967.

Table 1.--Locks and padlocks (whether key, combination, or electrically operated), luggage frames incorporating locks, all the foregoing and parts thereof, of base metal, and lock keys: U.S. imports for consumption and exports of domestic merchandise, 1964-67

(In thousands of dollars)

Year	Imports	Exports
1964	2,765	7,801
1965	3,443	14,722
1966	4,097	15,568
1967	4,896	15,463

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--U.S. producers' shipments of locks and padlocks were valued at about $130 million in 1963, the last year for which Census of Manufactures data are available. Similar data for later years are not segregated in official statistics. The value of producers' shipments during 1958-63 increased at an annual average rate of 5.5 percent. If annual shipments continued to increase at this rate, they would have amounted to about $160 million in 1967. If producers' shipments in 1967 were of this general magnitude, the U.S. landed, duty-paid value of imports would have constituted about 4 percent of the value of U.S. consumption.

Table 2.--Locks and padlocks (whether key, combination, or electrically operated), luggage frames incorporating locks, all the foregoing and parts thereof, of base metal, and lock keys: U.S. exports of domestic merchandise, by principal markets, 1964-67

(In thousands of dollars)

Market	1964	1965	1966	1967
Canada	2,506	7,663	8,055	8,421
Philippine Republic	759	594	689	881
Venezuela	865	935	765	590
Republic of South Africa	496	527	522	461
West Germany	181	285	320	430
Spain	157	275	461	386
Thailand	191	186	246	342
Australia	63	164	216	304
Peru	208	721	355	250
All other	2,375	3,372	3,939	3,398
Total	7,801	14,722	15,568	15,463

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Locks and padlocks (whether key, combination, or electrically operated), luggage frames incorporating locks, all the foregoing and parts thereof, of base metal, and lock keys: U.S. imports for consumption, by TSUS items, 1964-67

TSUS item	1964	1965	1966	1967
	Quantity (dozen)			
646.80	258,987	294,325	302,758	339,592
646.81	99,743	93,415	88,693	130,013
646.82	725	1,083	474	911
646.83	26,643	26,168	55,452	76,307
646.84	19,425	27,253	30,019	40,739
646.85	813	337	2,484	2,528
646.86	5,903	4,334	5,716	10,366
646.87	2,200	1,358	975	768
646.88	258	300	632	-
646.89	27,842	16,120	17,228	17,958
646.90 1/	2,135,000	2,455,000	2,555,000	1,985,000
646.92	1,210,288	1,522,945	1,120,000	1,500,000
646.93	2/	2/	3/ 60,000	3/ 40,000
Total	3,787,467	4,442,638	4,239,431	4,144,182
	Value (1,000 dollars)			
646.80	199	232	286	417
646.81	226	228	219	360
646.82	6	9	2	4
646.83	73	77	183	259
646.84	107	146	214	313
646.85	8	6	11	22
646.86	4	11	12	27
646.87	2	6	7	4
646.88	2	2	1	-
646.89	84	51	58	81
646.90	1,112	1,315	1,411	1,279
646.92	942	1,360	1,494	1,993
646.93	2/	2/	201	138
Total	2,765	3,443	4,097	4,896

1/ Data partly estimated.
2/ Included in figure for item 646.92.
3/ Estimated.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 4.--Locks and padlocks (whether key, combination, or electrically operated), luggage frames incoprorating locks, all the foregoing and parts thereof, of base metal, and lock keys: U.S. imports for consumption, by principal sources, 1964-67

(In thousands of dollars)

Source	1964	1965	1966	1967
Hong Kong	459	654	997	1,141
Japan	577	666	668	901
West Germany	607	702	679	795
United Kingdom	487	681	580	631
Canada	262	317	633	605
Italy	233	288	333	558
All other	140	135	207	265
Total	2,765	3,443	4,097	4,896

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Door closers and parts thereof, of base metal	646.95

Note.--For the statutory description, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The United States is one of the world's largest producers and consumers of door closers and parts. Annual U.S. production, which was almost equal to U.S. consumption, had an average value of about $46 million during 1964-67. Imports, which were considerably larger than exports, supplied about 4 percent of annual consumption.

Description and uses

There are two major classes of door closers covered by this summary--the machine type and the nonmachine type. The machine type of closers, which afford better control of door closing, are used extensively in industrial, institutional, and office buildings and in some relatively expensive residences. Most of these are liquid controlled with variations in the types of shafts and pistons used.

Nonmachine types of door closers are used principally on screen doors, storm doors, and other relatively light doors; consequently, large numbers are sold to home builders, storm-door-installation firms and homeowners. Nonmachine door closers usually consist of a cylinder enclosing a plunger and a spring, usually adjustable; they are easily installed and sell at moderate prices.

Various types of coil springs and spring hinges which may serve a function in closing doors are covered in separate summaries--springs in volume 6:7 and hinges in this volume (6:5).

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports of the articles covered by this summary (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
646.95	Door closers and parts thereof, of base metal.	11.5% ad val.	10% ad val.	5.5% ad val.

The tabulation above shows the column 1 rate of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates). The prior rate of duty had remained unchanged from the effective date of the TSUS (August 31, 1963) until the first stage of the recent concession became effective on January 1, 1968.

U.S. consumption

Apparent U.S. consumption of door closers and parts was about equal to U.S. production during 1964-67. The value of annual apparent consumption is estimated to have ranged from about $44 million in 1964 to about $49 million in 1967. Although a larger number of the nonmachine type of closers are consumed annually, the value of the machine type of door closers consumed each year exceeds that of the nonmachine types. Closers of the nonmachine type are sold largely to purchasers who are much more price conscious than the governmental, institutional, or industrial buyers of the machine type of closers.

U.S. producers, production, and exports

About 25 firms, situated principally in the Northeastern States, manufacture door closers and parts. Virtually all of the companies that produce the machine type of closers make nonmachine closers also. Most of the producers manufacture a variety of hardware articles in addition to door closers and parts.

The value of U.S. production of door closers increased from an estimated $44 million in 1964 to about $48 million in 1967 (table 1). Despite generally rising imports, U.S. producers have retained a relatively large share of the domestic market (about 96 percent during 1964-67). U.S. producers have a close working relationship with arthitects who almost invariably specify types of door closers to be used in buildings designed by them; also, replacement parts for door closers are more readily available from domestic sources than from foreign sources.

Although U.S. exports are not separately reported in official statistics, they are smaller than imports (probably amounting to less than $500,000 a year).

U.S. imports

The value of U.S. imports of door closers increased from $1.2 million in 1964 to $1.6 million in 1966, and was $1.5 million in 1967 (table 1). Throughout 1964-67 the ratio of imports to consumption, based on foreign value of imports and essentially U.S. factory value of consumption, was about 3 percent each year; if ratios were computed on the basis of U.S. landed, duty-paid values of imports, they would probably be about 4 percent. Italy, West Germany, and Japan have been the principal sources of imports (table 2). In 1967, Yugoslavia for the first time also became an important source of imports.

The bulk of U.S. imports were of the machine type; the imports, like their domestic counterparts, vary greatly in price and design. Imported door closers generally sell at prices below those of the most nearly comparable domestic closers.

Table 1.--Door closers and parts thereof, of base metal: U.S. production and imports for consumption, 1964-67

(In thousands of dollars)

Year	Production 1/	Imports
1964	44,000	1,247
1965	46,000	1,242
1966	45,000	1,572
1967	48,000	1,481

1/ Estimated by the staff of the U.S. Tariff Commission on the basis of data of the U.S. Bureau of the Census for 1963 projected through 1967, considering the trend in building construction and other information from trade sources.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Apparent annual U.S. consumption was probably about equal to U.S. production during 1964-67. U.S. exports are not separately reported in official statistics; however, they are smaller than imports (probably amounting to less than 500 thousand dollars a year).

Table 2.--Door closers and parts thereof, of base metal: U.S. imports for consumption, by principal sources, 1964-67

(In thousands of dollars)

Source	1964	1965	1966	1967
Italy	498	494	701	450
West Germany	406	405	369	409
Japan	286	216	392	397
Yugoslavia	-	-	17	114
Sweden	6	82	48	75
United Kingdom	19	15	26	18
All other	32	30	19	18
Total	1,247	1,242	1,572	1,481

Source: Compiled from official statistics of the U.S. Department of Commerce.

Commodity	TSUS item
Harness and saddlery or riding-bridle hardware:	
Not coated or plated with precious metal	646.97
Coated or plated with precious metal	646.98

Note.--For the statutory description of each item, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

The value of U.S. consumption of harness and saddlery hardware increased from an estimated $4.4 million in 1964 to an estimated $6.1 million in 1967, or at an average annual rate during 1964-67 of about 11 percent. U.S. imports increased by an average of about 24 percent a year during the same period, and in 1967 probably accounted for about a third of the value of consumption. Exports were probably much smaller than imports during this period.

Description and uses

Harness and saddlery or riding-bridle hardware includes the metal articles commonly used on or in conjunction with harnesses and saddlery for use on horses or other animals. These hardware items most commonly consist of bits, stirrups, spurs, rings, buckles, snaps, swivels, hooks, loops, and snaffles; they are generally made of iron, steel, brass, aluminum, or zinc and are often plated with chromium, nickel, or cadmium. A very small share of such hardware, usually designed for special show purposes, is coated or plated with gold, silver, or other precious metals. Some of the articles with which the hardware here is used are the appropriate products included under item 790.10 and the harness, saddles, and saddlery under item 790.30, both of which provisions are dealt with in volume 7:1.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Harness and saddlery or riding-bridle hardware, whether or not coated or plated with precious metal:			
646.97	Not coated or plated with precious metal	12.5% ad val.	11% ad val.	6% ad val.
646.98	Coated or plated with precious metal.	15% ad val.	13% ad val.	7.5% ad val.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates). The prior rates shown above for items 646.97 and 646.98 had remained unchanged under the Tariff Schedules of the United States from August 31, 1963, through the end of 1967.

U.S. producers

A full range of the items considered to be harness and saddlery hardware is produced by only two domestic manufacturers, one in Connecticut and the other in the State of New York. These two companies probably account for the bulk of U.S. production of such hardware. At least one of these companies is a large producer of a wide range of other hardware and nonrelated items. There are probably fewer than 25 other companies involved in the production of one or more items of harness and saddlery hardware; probably few, if any, of these companies produce harness and saddlery hardware exclusively.

U.S. consumption, producers' shipments, and exports

The value of apparent annual U.S. consumption of harness and saddlery hardware is estimated to have increased from $4.4 million in 1964 to about $6.1 million in 1967, or by an average annual rate of about 11 percent (table 1). Only a very small part of consumption was accounted for by hardware plated with precious metals. The increase in consumption of harness and saddlery hardware probably reflects the increasing recreational use of horses and the increasing numbers of pets.

The value of estimated U.S. producers' shipments of harness and saddlery hardware increased from about $3.4 million in 1964 to about $4.2 million in 1967 (table 1).

Exports are believed to account for a very small portion of such shipments--probably less than 5 percent.

U.S. imports

Annual U.S. imports of harness and saddlery hardware increased in value from about $1 million, or an estimated 23 percent of U.S. consumption, in 1964, to about $1.9 million, or about 31 percent of consumption, in 1967 (table 1). Imports increased at an average annual rate of about 24 percent during 1964-67. The values of imports shown above exclude freight and the related costs of handling, marine insurance, and U.S. duties. An adjustment to include such costs would increase the value of the imports considerably--to somewhat more than $2.3 million in 1967; the ratio of this value of imports to the value of consumption in 1967 would be slightly more than 34 percent. Only a very small share of imports were of the type coated or plated with precious metals. The principal sources of U.S. imports were West Germany, the United Kingdom, and Japan (table 2).

Substantial quantities of harnesses, saddles and saddlery, dog leashes, collars, and other such items are imported with harness and saddlery hardware attached; such hardware is not separately classified in official statistics and its value is not included in the figures above.

Table 1.--Harness and saddlery hardware: U.S. shipments, imports, and apparent consumption, 1964-67

Year	Producers' shipments 1/	Imports	Apparent consumption	Ratio of imports to consumption
	1,000 dollars	1,000 dollars	1,000 dollars	Percent
1964	3,400	1,000	4,400	23
1965	3,800	1,200	5,000	24
1966	4,000	1,600	5,600	29
1967	4,200	1,900	6,100	31

1/ Estimated on basis of data obtained from the U.S. Department of Commerce and from the Saddlery Hardware Manufacturers' Institute.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Export data are not segregated in official statistics, but exports are thought to be small in relation both to producers' shipments and to imports.

The ratios of imports to consumption generally are based on the foreign market value of imports and essentially factory value of producers' shipments. If the ratios were computed on the basis of the foreign value of imports plus U.S. import duties and costs of transportation, insurance, and other handling to deliver the merchandise to the United States, the ratios would be higher--somewhat more than 34 percent in 1967.

Table 2.--Harness and saddlery hardware: U.S. imports for consumption, by principal sources, 1964-67

(In thousands of dollars)

Source	1964	1965	1966	1967
West Germany	321	368	546	755
United Kingdom	411	459	546	581
Japan	235	321	428	471
Italy	34	46	79	113
All other	24	15	24	12
Total	1,024	1,209	1,622	1,933

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Imports of harness and saddlery hardware coated or plated with precious metal (included above) were very small, amounting to $4,400 in 1964, $800 in 1965, $2,000 in 1966, and $3,500 in 1967. West Germany, Mexico, and Japan were the most important suppliers of such imports in recent years; the United Kingdom was also an important supplier in 1964.

Commodity	TSUS item
Furniture glides of base metal	646.45, -.47
Hinges; fittings and mountings not specially provided for, suitable for furniture, doors, windows, blinds, staircases, luggage, vehicle coach work, caskets, cabinets, and similar uses; all the foregoing, of base metal, whether or not coated or plated with precious metal:	
Not coated or plated with precious metal	647.01, -.03, -.05
If Canadian article and original motor-vehicle equipment	647.02, -.06
Coated or plated with precious metal	647.10

Note.--For the statutory description of each item, see the Tariff Schedules of the United States Annotated (TSUSA-1968).

U.S. trade position

U.S. consumption and production of hardware were roughly equivalent during 1963-67, each increasing by about 10 percent a year; in 1967 they were estimated to be valued at about $1.8 billion to $1.9 billion. U.S. exports of these articles increased by about 17 percent a year during 1965-67, and in the latter year amounted to about $35 million, or about 2 percent of apparent consumption. Imports, which amounted to only half the value of exports in 1967, increased rapidly during 1963-67, largely owing to duty-free importation of automotive hardware under the United States-Canadian automotive agreement.

Description and uses

Furniture glides are metal articles designed to be fitted to the legs or bases of furniture in order to facilitate the sliding of the furniture from one place to another with minimum damage to floor or floor coverings. Furniture glides are made for use in furniture legs of wood and of hollow metal. The glides considered herein may be constructed from one or more pieces of metal, but those of two or more pieces of iron or steel are the most common. One-piece glides are generally dome-shaped, having three or more prongs around the periphery; they are driven, prong deep, into the bottom of wooden furniture legs. The simplest type of two-piece glide consists of a dome-shaped head to which a naillike shaft has been riveted, welded, or crimped. Glides

for use on hollow metal legs are generally secured by a spring type of device or a threaded expansion device. In many furniture glides, the metal glide itself is separated from the fastening device by a layer of rubber, plastic, felt, or other cushioning substance in which the fastener may be embedded. Furniture casters are covered in a separate summary in volume 7:8.

In addition to furniture glides, this summary covers an infinite number of fittings and mountings of base metal, whether or not coated or plated with precious metal. Besides hinges (including butt hinges) of all types, this summary covers fittings and mountings for use in vehicle coach work, including--among many other items--hood and trunk ornaments and emblems, door sill and other trim, grills, latches, window regulators, gravel shields, side-view mirror arms and housings, door handles, and kickplates. Also included are luggage, furniture, door and window, cabinet, casket, refrigerator, stove, screen, curtain, drapery, shade, and other types of hardware not elsewhere specified in the TSUS. Closely related to these articles, but excluded from this summary are locks (including luggage frames incorporating locks) and door closers and parts thereof, both of which are covered in separate summaries in this volume (6:5). Many articles of automotive hardware which are not considered to be fittings and mountings for vehicle coach work, such as bumpers, hub caps, and radiator caps, are included in a summary on automobile parts in volume 6:11.

U.S. tariff treatment

The column 1 (trade-agreement) rates of duty applicable to imports of hardware not elsewhere enumerated (see general headnote 3 in the TSUSA-1968) are as follows:

TSUS item	Commodity	Prior rate	U.S. concessions granted in 1964-67 trade conference (Kennedy Round)	
			First stage, effective Jan. 1, 1968	Final stage, effective Jan. 1, 1972
	Furniture glides of base metal:			
646.45	Of two or more pieces of iron or steel	3.6¢ per lb.	3.2¢ per lb.	1.8¢ per lb.
646.47	Other	19% ad	17% ad val.	9.5% ad val.
	Hinges; and fittings and mountings not specially provided for, suitable for furniture, doors, windows, blinds, staircases, luggage, vehicle coach work, caskets, cabinets, and similar uses; all the foregoing, of base metal, whether or not coated or plated with precious metal:			
	Not coated or plated with precious metal:			
	Of iron or steel, of aluminum, or of zinc:			
647.01	Hinges, fittings, and mountings, designed for motor vehicles.	8.5% ad val.	7.5% ad val.	4% ad val.
647.02	If Canadian article and original motor-vehicle equipment.1/	Free	2/	2/
647.03	Other	19% ad val.	17% ad val.	9.5% ad val.
647.05	Other	16% ad val.	14% ad val.	8% ad val.
647.06	If Canadian article and original motor-vehicle equipment. 1/	Free	2/	2/
647.10	Coated or plated with precious metal.	40% ad val.	36% ad val.	20% ad val.

1/ See headnote 2, subpt. 6B, schedule 6, TSUSA-1968.
2/ Duty-free status not affected by trade conference.

The tabulation above shows the column 1 rates of duty in effect prior to January 1, 1968, and modifications therein as a result of concessions granted by the United States in the sixth round of trade negotiations under the General Agreement on Tariffs and Trade. Only the first and final stages of the five annual rate modifications are shown above (see the TSUSA-1968 for the intermediate staged rates).

The prior rates shown above for items 646.45, 646.47, 647.05, and 647.10 had remained unchanged under the TSUS from August 31, 1963, through the end of 1967. Items 647.01 and 647.03 superceded item 647.00, effective December 7, 1965, under the provisions of the Tariff Schedules Technical Amendments Act of 1965 (Public Law 89-241). Articles of the type currently dutiable under item 647.01 had been dutiable at 19 percent ad valorem under item 647.00 prior to December 7, 1965, when it was changed to 8.5 percent ad valorem; the latter rate remained unchanged from December 7, 1965, through the end of 1967. The prior rate of 19 percent ad valorem shown above for item 647.03, which rate also applied under the previous item 647.00, had remained unchanged from August 31, 1963, through December 31, 1967.

Imports of hardware of the type covered in this summary and provided for under items 647.02 and 647.06, were dutiable under items 647.00 and 647.05, respectively, from August 31, 1963, through January 17, 1965. Presidential Proclamation 3682 of October 21, 1965, pertaining to the modification of the tariff schedules made necessary by the United States-Canadian automotive agreement of January 16, 1965, as implemented by Public Law 89-283, provided for the duty-free entry of Canadian articles of original motor-vehicle equipment retroactive to January 18, 1965.

The ad valorem equivalent of the duty of 3.6 cents per pound on furniture glides of two or more pieces of iron or steel (item 646.45), based on dutiable imports in 1967, averaged 12.7 percent.

U.S. producers

The domestic producers of the hardware articles considered herein are situated primarily in the northeastern quadrant of the country and in California; it is estimated that more than 90 percent of U.S. producers' shipments come from these areas. There are an estimated 800 producers, employing about 70,000 persons, in the United States. Michigan, with 25 percent of producers' shipments of hardware, 20 percent of the domestic employment, and 10 percent of the U.S. producers, is the largest producing State. Much of Michigan's production consists of hardware for the automotive industry. Ohio and Illinois are the second and third largest producing States, followed by California and New York. The average number of workers employed by a U.S. producer of hardware in 1963, was about 80 to 90, but the median number at that time was between 10 and 19 employees.

U.S. consumption

Apparent U.S. consumption of hardware of the types covered in this summary is estimated to have increased by an average of about 10 percent a year during the period 1963-67. Consumption rose from an estimated value of $1.3 billion in 1963 to about $1.8 billion in 1967. The bulk of consumption, in each year, was of automotive hardware.

U.S. producers' shipments

The value of U.S. producers' shipments of all the hardware articles herein considered increased from an estimated $1.3 billion in 1963 to about $1.9 billion in 1967, or by an average annual rate of about 10 percent (table 1). Producers' shipments of automotive hardware accounted for more than half of the total; it is believed that they increased sharply during the first part of the period but declined somewhat during the latter part.

U.S. exports

U.S. exports of hardware increased from an estimated value of $19 million in 1963 to about $35 million in 1967 (table 1). The average annual rate of increase in the value of exports during 1963-67 was slightly less than 17 percent. Exports of hardware for transportation equipment increased from $2 million to $4 million during 1965-67, much of the growth being attributable to duty-free treatment by Canada of U.S. hardware to be used as original equipment in the manufacture of Canadian motor vehicles. The value of exports of hinges and butts of base metal increased from $2.1 million in 1965 to $2.4 million in 1967. The most important markets for U.S. exports of hardware are Canada (accounting for more than half), the United Kingdom, Mexico, Venezuela, the Philippine Republic, France, and West Germany (table 2).

U.S. imports

The value of U.S. imports of the articles included in this summary increased substantially during the period 1963-67, rising from an estimated $5 million in 1963 to about $17.6 million in 1967 (table 3). In 1967, imports accounted for about 1 percent of apparent domestic consumption; in earlier years the ratio of imports to consumption had been lower. The bulk of the increase in imports since 1964 has been in articles affected by the United States-Canadian automotive agreement. Imports of automotive hardware under the duty-free provisions of items 647.02 and 647.06 increased from about $1.5 million in 1965 to about $7.8 million in 1967. Annual imports of hinges of iron or steel,

aluminum, or zinc ranged between $2.1 and $2.9 million during 1963-67, or approximately the equivalent of U.S. exports of a comparable group of articles. The primary sources of imports of hardware in recent years have been Canada, which accounted for about half of 1967 imports, Japan, West Germany, the United Kingdom, and Italy.

Table 1.--Hardware not elsewhere enumerated: U.S. producers' shipments, imports, exports, and apparent consumption, 1963-67

Year	Producers' shipments	Imports	Exports 1/	Apparent consumption	Ratio of imports to consumption
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	Percent
1963	1,286,200	2/ 5,000	2/ 18,600	1,272,600	0.4
1964	3/ 1,392,200	6,700	2/ 21,000	1,377,900	.5
1965	3/ 1,638,000	8,700	25,000	1,621,700	.5
1966	3/ 1,695,700	13,200	30,700	1,678,200	.8
1967	4/ 1,864,100	17,600	35,200	1,846,500	1.0

1/ Data not strictly comparable with those on imports.

2/ Estimate, based on official statistics of the U.S. Department of Commerce.

3/ Estimated on the basis of the trend indicated by data on shipments (from the Annual Survey of Manufactures) for a somewhat larger group of articles; shipments of the hardware articles covered by this summary accounted for more than 75 percent of the 1963 shipments in the more inclusive group.

4/ Projected on the basis of the average annual rate of change (about 10 percent) shown for 1963-66.

Source: Compiled from the official statistics of the U.S. Department of Commerce, except as noted.

Note.--The ratios of imports to consumption generally are based on the foreign market value of imports and on the U.S. factory value of shipments. If the ratios were computed on the basis of the foreign value of imports plus U.S. import duties and costs of transportation, insurance, and other handling to deliver the merchandise to the United States, the ratios would be higher--e.g., the ratio for 1967 would be about 1.1 percent.

Table 2.--Hardware not elsewhere enumerated: U.S. exports of domestic merchandise, by principal markets, 1965-67

(In thousands of dollars)

Market	1965	1966	1967
Canada	12,300	16,000	17,900
United Kingdom	1,000	1,200	1,200
Mexico	500	600	1,100
Venezuela	1,300	1,100	1,100
Philippine Republic	600	700	1,000
France	500	600	700
West Germany	500	700	500
All other	8,300	9,800	11,700
Total	25,000	30,700	35,200

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3.--Hardware not elsewhere enumerated: U.S. imports for consumption, by principal sources, 1963-67

(In thousands of dollars)

Source	1963 1/	1964	1965	1966	1967
Canada	600	700	1,700	5,000	8,700
Japan	2,500	3,100	3,400	3,600	4,000
West Germany	600	900	1,300	1,700	1,600
United Kingdom	300	400	500	800	800
Italy	300	400	500	600	600
All other	700	1,200	1,300	1,500	1,900
Total	5,000	6,700	8,700	13,200	17,600

1/ Estimate, based on official statistics of the U.S. Department of Commerce.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Duty-free imports from Canada, under the provisions of the Automotive Products Trade Act of 1965, amounted to 1,491 thousand dollars in 1965, to 4,314 thousand dollars in 1966, and 7,782 thousand dollars in 1967.

Table 4.--Hardware not elsewhere enumerated: U.S. imports for consumption, by TSUS items, 1966-67

(In thousands of dollars)

TSUS item	Description	1966	1967
	Furniture glides of base metal:		
646.45	Of two or more pieces of iron or steel	58	81
646.47	Other	6	3
	Hinges; and fittings and mountings not specially provided for, etc.:		
	Not coated or plated with precious metal:		
	Of iron, steel, aluminum, or zinc:		
647.01	Designed for motor vehicles	1,021	1,296
647.02	If Canadian article and original motor-vehicle equipment	4,303	7,781
647.03	Other	5,681	6,475
647.05	Other	2,139	1,933
647.06	If Canadian article and original motor-vehicle equipment	11	2
647.10	Coated or plated with precious metal	14	7
	Total	13,233	17,578

Source: Compiled from official statistics of the U.S. Department of Commerce.

A P P E N D I X A

Tariff Schedules of the United States Annotated (1968): General headnotes and rules of interpretation, and excerpts relating to the items included in this volume.

NOTE: The shaded areas in this appendix cover headnotes and TSUS items not included in the summaries in this volume.

GENERAL HEADNOTES AND RULES OF INTERPRETATION

1. Tariff Treatment of Imported Articles. All articles imported into the customs territory of the United States from outside thereof are subject to duty or exempt therefrom as prescribed in general headnote 3.

2. Customs Territory of the United States. The term "customs territory of the United States", as used in the schedules, includes only the States, the District of Columbia, and Puerto Rico.

3. Rates of Duty. The rates of duty in the "Rates of Duty" columns numbered 1 and 2 of the schedules apply to articles imported into the customs territory of the United States as hereinafter provided in this headnote:

(a) Products of Insular Possessions.

(i) Except as provided in headnote 6 of schedule 7, part 2, subpart E, [and] except as provided in headnote 4 of schedule 7, part 7, subpart A, articles imported from insular possessions of the United States which are outside the customs territory of the United States are subject to the rates of duty set forth in column numbered 1 of the schedules, except that all such articles the growth or product of any such possession, or manufactured or produced in any such possession from materials the growth, product, or manufacture of any such possession or of the customs territory of the United States, or of both, which do not contain foreign materials to the value of more than 50 percent of their total value, coming to the customs territory of the United States directly from any such possession, and all articles previously imported into the customs territory of the United States with payment of all applicable duties and taxes imposed upon or by reason of importation which were shipped from the United States, without remission, refund, or drawback of such duties or taxes, directly to the possession from which they are being returned by direct shipment, are exempt from duty.

(ii) In determining whether an article produced or manufactured in any such insular possession contains foreign materials to the value of more than 50 percent, no material shall be considered foreign which, at the time such article is entered, may be imported into the customs territory from a foreign country, other than Cuba or the Philippine Republic, and entered free of duty.

(b) Products of Cuba. Products of Cuba imported into the customs territory of the United States, whether imported directly or indirectly, are subject to the rates of duty set forth in column numbered 1 of the schedules. Preferential rates of duty for such products apply only as shown in the said column 1. 1/

(c) Products of the Philippine Republic.

(i) Products of the Philippine Republic imported into the customs territory of the United States, whether imported directly or indirectly, are subject to the rates of duty which are set forth in column numbered 1 of the schedules or to fractional parts of the rates in the said column 1, as hereinafter prescribed in subdivisions (c)(ii) and (c)(iii) of this headnote.

(ii) Except as otherwise prescribed in the schedules, a Philippine article, as defined in subdivision (c)(iv) of this headnote, imported into the customs territory of the United States and entered on or before July 3, 1974, is subject to that rate which results from the application of the following percentages to the most favorable rate of duty (i.e., including a preferential rate prescribed for any product of Cuba) set forth in column numbered 1 of the schedules:

(A) 20 percent, during calendar years 1963 through 1964,

(B) 40 percent, during calendar years 1965 through 1967,

(C) 60 percent, during calendar years 1968 through 1970,

(D) 80 percent, during calendar years 1971 through 1973,

(E) 100 percent, during the period from January 1, 1974, through July 3, 1974.

(iii) Except as otherwise prescribed in the schedules, products of the Philippine Republic, other than Philippine articles, are subject to the rates of duty (except any preferential rates prescribed for products of Cuba) set forth in column numbered 1 of the schedules.

(iv) The term "Philippine article", as used in the schedules, means an article which is the product of the Philippines, but does not include any article produced with the use of materials imported into the Philippines which are products of any foreign country (except materials produced within the customs territory of the United States) if the aggregate value of such imported materials when landed at the Philippine port of entry, exclusive of any landing cost and Philippine duty, was more than 20 percent of the appraised customs value of the article imported into the customs territory of the United States.

(d) Products of Canada.

(i) Products of Canada imported into the customs territory of the United States, whether imported directly or indirectly, are subject to the rates of duty set forth in column numbered 1 of the schedules. The rates of duty for a Canadian article, as defined in subdivision (d)(ii) of this headnote, apply only as shown in the said column numbered 1.

(ii) The term "Canadian article", as used in the schedules, means an article which is the product of Canada, but does not include any article produced with the use of materials imported into Canada which are products of any foreign country (except materials produced within the customs territory of the United States), if the aggregate value of such imported materials when landed at the Canadian port of entry (that is, the actual purchase price, or if not purchased, the export value, of such materials, plus, if not included therein, the cost of transporting such materials to Canada but exclusive of any landing cost and Canadian duty) was --

(A) with regard to any motor vehicle or automobile truck tractor entered on or before December 31, 1967, more than 60 percent of the appraised value of the article imported into the customs territory of the United States; and

(B) with regard to any other article (including any motor vehicle or automobile truck tractor entered after December 31, 1967), more than 50 percent of the appraised value of the article imported into the customs territory of the United States.

1/ By virtue of section 401 of the Tariff Classification Act of 1962, the application to products of Cuba of either a preferential or other reduced rate of duty in column 1 is suspended. See general headnote 3(e), infra. The provisions for preferential Cuban rates continue to be reflected in the schedules because, under section 401, the rates therefor in column 1 still form the bases for determining the rates of duty applicable to certain products, including "Philippine articles".

(e) Products of Communist Countries. Notwithstanding any of the foregoing provisions of this headnote, the rates of duty shown in column numbered 2 shall apply to products, whether imported directly or indirectly, of the following countries and areas pursuant to section 401 of the Tariff Classification Act of 1962, to section 231 or 257(e)(2) of the Trade Expansion Act of 1962, or to action taken by the President thereunder:

Albania
Bulgaria
China (any part of which may be under Communist domination or control)
Cuba 1/
Czechoslovakia
Estonia
Germany (the Soviet zone and the Soviet sector of Berlin)
Hungary
Indochina (any part of Cambodia, Laos, or Vietnam which may be under Communist domination or control)
Korea (any part of which may be under Communist domination or control)
Kurile Islands
Latvia
Lithuania
Outer Mongolia
Rumania
Southern Sakhalin
Tanna Tuva
Tibet
Union of Soviet Socialist Republics and the area in East Prussia under the provisional administration of the Union of Soviet Socialist Republics.

(f) Products of All Other Countries. Products of all countries not previously mentioned in this headnote imported into the customs territory of the United States are subject to the rates of duty set forth in column numbered 1 of the schedules.

(g) Effective Date; Exceptions - Staged Rates of Duty. Except as specified below or as may be specified elsewhere, pursuant to section 501(a) of the Tariff Classification Act of 1962 (P.L. 87-456, approved May 24, 1962), the rates of duty in columns numbered 1 and 2 become effective with respect to articles entered on or after the 10th day following the date of the President's proclamation provided for in section 102 of the said Act. If, in column numbered 1, any rate of duty or part thereof is set forth in parenthesis, the effective date shall be governed as follows:

(i) If the rate in column numbered 1 has only one part (i.e., 8¢ (10¢) per lb.), the parenthetical rate (viz., 10¢ per lb.) shall be effective as to articles entered before July 1, 1964, and the other rate (viz., 8¢ per lb.) shall be effective as to articles entered on or after July 1, 1964.

(ii) If the rate in column numbered 1 has two or more parts (i.e., 5¢ per lb. + 50% ad val.) and has a parenthetical rate for either or both parts, each part of the rate shall be governed as if it were a one-part rate. For example, if a rate is expressed as "4¢ (4.5¢) per lb. + 8% (9%) ad val.", the rate applicable to articles entered before July 1, 1964, would be "4.5¢ per lb. + 9% ad val."; the rate applicable to articles entered on or after July 1, 1964, would be "4¢ per lb. + 8% ad val.".

(iii) If the rate in column numbered 1 is marked with an asterisk (*), the foregoing provisions of (i) and (ii) shall apply except that "January 1, 1964" shall be substituted for "July 1, 1964", wherever this latter date appears.

1/ In Proclamation 3447, dated February 3, 1962, the President, acting under authority of section 620(a) of the Foreign Assistance Act of 1961 (75 Stat. 445), as amended, prohibited the importation into the United States of all goods of Cuban origin and all goods imported from or through Cuba, subject to such exceptions as the Secretary of the Treasury determines to be consistent with the effective operation of the embargo.

4. Modification or Amendment of Rates of Duty. Except as otherwise provided in the Appendix to the Tariff Schedules --

(a) a statutory rate of duty supersedes and terminates the existing rates of duty in both column numbered 1 and column numbered 2 unless otherwise specified in the amending statute;

(b) a rate of duty proclaimed pursuant to a concession granted in a trade agreement shall be reflected in column numbered 1 and, if higher than the then existing rate in column numbered 2, also in the latter column, and shall supersede but not terminate the then existing rate (or rates) in such column (or columns);

(c) a rate of duty proclaimed pursuant to section 336 of the Tariff Act of 1930 shall be reflected in both column numbered 1 and column numbered 2 and shall supersede but not terminate the then existing rates in such columns; and

(d) whenever a proclaimed rate is terminated or suspended, the rate shall revert, unless otherwise provided, to the next intervening proclaimed rate previously superseded but not terminated or, if none, to the statutory rate.

5. Intangibles. For the purposes of headnote 1 --

(a) corpses, together with their coffins and accompanying flowers,
(b) currency (metal or paper) in current circulation in any country and imported for monetary purposes,
(c) electricity,
(d) securities and similar evidences of value, and
(e) vessels which are not "yachts or pleasure boats" within the purview of subpart D, part 6, of schedule 6,

are not articles subject to the provisions of these schedules.

6. Containers or Holders for Imported Merchandise. For the purposes of the tariff schedules, containers or holders are subject to tariff treatment as follows:

(a) Imported Empty: Containers or holders if imported empty are subject to tariff treatment as imported articles and as such are subject to duty unless they are within the purview of a provision which specifically exempts them from duty.

(b) Not Imported Empty: Containers or holders if imported containing or holding articles are subject to tariff treatment as follows:

(i) The usual or ordinary types of shipping or transportation containers or holders, if not designed for, or capable of, reuse, and containers of usual types ordinarily sold at retail with their contents, are not subject to treatment as imported articles. Their cost, however, is, under section 402 or section 402a of the tariff act, a part of the value of their contents and if their contents are subject to an ad valorem rate of duty such containers or holders are, in effect, dutiable at the same rate as their contents, except that their cost is deductible from dutiable value upon submission of satisfactory proof that they are products of the United States which are being returned without having been advanced in value or improved in condition by any means while abroad.

(ii) The usual or ordinary types of shipping or transportation containers or holders, if designed for, or capable of, reuse, are subject to treatment as imported articles separate and distinct from their contents. Such holders or containers are not part of the dutiable value of their contents and are separately subject to duty upon each and every importation into the customs territory of the United States unless within the scope of a provision specifically exempting them from duty.

(iii) In the absence of context which requires otherwise, all other containers or holders are subject to the same treatment as specified in (ii) above for usual or ordinary types of shipping or transportation containers or holders designed for, or capable of, reuse.

7. Commingling of Articles. (a) Whenever articles subject to different rates of duty are so packed together or mingled that the quantity or value of each class of articles cannot be readily ascertained by customs officers (without physical segregation of the shipment or the contents of any entire package thereof), by one or more of the following means:

(I) sampling,

(II) verification of packing lists or other documents filed at the time of entry, or

(III) evidence showing performance of commercial settlement tests generally accepted in the trade and filed in such time and manner as may be prescribed by regulations of the Secretary of the Treasury,

the commingled articles shall be subject to the highest rate of duty applicable to any part thereof unless the consignee or his agent segregates the articles pursuant to subdivision (b) hereof.

(b) Every segregation of articles made pursuant to this headnote shall be accomplished by the consignee or his agent at the risk and expense of the consignee within 30 days (unless the Secretary authorizes in writing a longer time) after the date of personal delivery or mailing, by such employee as the Secretary of the Treasury shall designate, of written notice to the consignee that the articles are commingled and that the quantity or value of each class of articles cannot be readily ascertained by customs officers. Every such segregation shall be accomplished under customs supervision, and the compensation and expenses of the supervising customs officers shall be reimbursed to the Government by the consignee under such regulations as the Secretary of the Treasury may prescribe.

(c) The foregoing provisions of this headnote do not apply with respect to any part of a shipment if the consignee or his agent furnishes, in such time and manner as may be prescribed by regulations of the Secretary of the Treasury, satisfactory proof --

(I) that such part (A) is commercially negligible, (B) is not capable of segregation without excessive cost, and (C) will not be segregated prior to its use in a manufacturing process or otherwise, and

(II) that the commingling was not intended to avoid the payment of lawful duties.

Any article with respect to which such proof is furnished shall be considered for all customs purposes as a part of the article, subject to the next lower rate of duty, with which it is commingled.

(d) The foregoing provisions of this headnote do not apply with respect to any shipment if the consignee or his agent shall furnish, in such time and manner as may be prescribed by regulations of the Secretary of the Treasury, satisfactory proof --

(I) that the value of the commingled articles is less than the aggregate value would be if the shipment were segregated;

(II) that the shipment is not capable of segregation without excessive cost and will not be segregated prior to its use in a manufacturing process or otherwise; and

(III) that the commingling was not intended to avoid the payment of lawful duties.

Any merchandise with respect to which such proof is furnished shall be considered for all customs purposes to be dutiable at the rate applicable to the material present in greater quantity than any other material.

(e) The provisions of this headnote shall apply only in cases where the schedules do not expressly provide a particular tariff treatment for commingled articles.

8. Abbreviations. In the schedules the following symbols and abbreviations are used with the meanings respectively indicated below:

$	-	dollars
¢	-	cents
%	-	percent
+	-	plus
ad val.	-	ad valorem
bu.	-	bushel
cu.	-	cubic
doz.	-	dozen
ft.	-	feet
gal.	-	gallon
in.	-	inches
lb.	-	pounds
oz.	-	ounces
sq.	-	square
wt.	-	weight
yd.	-	yard
pcs.	-	pieces
prs.	-	pairs
lin.	-	linear
I.R.C.	-	Internal Revenue Code

9. Definitions. For the purposes of the schedules, unless the context otherwise requires --

(a) the term "entered" means entered, or withdrawn from warehouse, for consumption in the customs territory of the United States;

(b) the term "entered for consumption" does not include withdrawals from warehouse for consumption;

(c) the term "withdrawn for consumption" means withdrawn from warehouse for consumption and does not include articles entered for consumption;

(d) the term "rate of duty" includes a free rate of duty; rates of duty proclaimed by the President shall be referred to as "proclaimed" rates of duty; rates of duty enacted by the Congress shall be referred to as "statutory" rates of duty; and the rates of duty in column numbered 2 at the time the schedules become effective shall be referred to as "original statutory" rates of duty;

(e) the term "ton" means 2,240 pounds, and the term "short ton" means 2,000 pounds;

(f) the terms "of", "wholly of", "almost wholly of", "in part of" and "containing", when used between the description of an article and a material (e.g., "furniture of wood", "woven fabrics, wholly of cotton", etc.), have the following meanings:

(I) "of" means that the article is wholly or in chief value of the named material;

(II) "wholly of" means that the article is, except for negligible or insignificant quantities of some other material or materials, composed completely of the named material;

(III) "almost wholly of" means that the essential character of the article is imparted by the named material, notwithstanding the fact that significant quantities of some other material or materials may be present; and

(IV) "in part of" or "containing" mean that the article contains a significant quantity of the named material.

With regard to the application of the quantitative concepts specified in subparagraphs (II) and (IV) above, it is intended that the de minimis rule apply.

APPENDIX A

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

General Headnotes and Rules of Interpretation

10. General interpretative Rules. For the purposes of these schedules --

(a) the general, schedule, part, and subpart headnotes, and the provisions describing the classes of imported articles and specifying the rates of duty or other import restrictions to be imposed thereon are subject to the rules of interpretation set forth herein and to such other rules of statutory interpretation, not inconsistent therewith, as have been or may be developed under administrative or judicial rulings;

(b) the titles of the various schedules, parts, and subparts and the footnotes therein are intended for convenience in reference only and have no legal or interpretative significance;

(c) an imported article which is described in two or more provisions of the schedules is classifiable in the provision which most specifically describes it; but, in applying this rule of interpretation, the following considerations shall govern:

(i) a superior heading cannot be enlarged by inferior headings indented under it but can be limited thereby;

(ii) comparisons are to be made only between provisions of coordinate or equal status, i.e., between the primary or main superior headings of the schedules or between coordinate inferior headings which are subordinate to the same superior heading;

(d) if two or more tariff descriptions are equally applicable to an article, such article shall be subject to duty under the description for which the original statutory rate is highest, and, should the highest original statutory rate be applicable to two or more of such descriptions, the article shall be subject to duty under that one of such descriptions which first appears in the schedules;

(e) in the absence of special language or context which otherwise requires --

(i) a tariff classification controlled by use (other than actual use) is to be determined in accordance with the use in the United States at, or immediately prior to, the date of importation, of articles of that class or kind to which the imported articles belong, and the controlling use is the chief use, i.e., the use which exceeds all other uses (if any) combined;

(ii) a tariff classification controlled by the actual use to which an imported article is put in the United States is satisfied only if such use is intended at the time of importation, the article is so used, and proof thereof is furnished within 3 years after the date the article is entered;

(f) an article is in chief value of a material if such material exceeds in value each other single component material of the article;

(g) a headnote provision which enumerates articles not included in a schedule, part, or subpart is not necessarily exhaustive, and the absence of a particular article from such headnote provision shall not be given weight in determining the relative specificity of competing provisions which describe such article;

(h) unless the context requires otherwise, a tariff description for an article covers such article, whether assembled or not assembled, and whether finished or not finished;

(ij) a provision for "parts" of an article covers a product solely or chiefly used as a part of such article, but does not prevail over a specific provision for such part.

11. Issuance of Rules and Regulations. The Secretary of the Treasury is hereby authorized to issue rules and regulations governing the admission of articles under the provisions of the schedules. The allowance of an importer's claim for classification, under any of the provisions of the schedules which provide for total or partial relief from duty or other import restrictions on the basis of facts which are not determinable from an examination of the article itself in its condition as imported, is dependent upon his complying with any rules or regulations which may be issued pursuant to this headnote.

12. The Secretary of the Treasury is authorized to prescribe methods of analyzing, testing, sampling, weighing, gauging, measuring, or other methods of ascertainment whenever he finds that such methods are necessary to determine the physical, chemical, or other properties or characteristics of articles for purposes of any law administered by the Customs Service.

General statistical headnotes:

1. Statistical Requirements for Imported Articles. Persons making customs entry or withdrawal of articles imported into the customs territory of the United States shall complete the entry or withdrawal forms, as provided herein and in regulations issued pursuant to law, to provide for statistical purposes information as follows:

(a) the number of the Customs district and of the port where the articles are being entered for consumption or warehouse, as shown in Statistical Annex A of these schedules;

(b) the name of the carrier or the means of transportation by which the articles were transported to the first port of unloading in the United States;

(c) the foreign port of lading;

(d) the United States port of unlading;

(e) the date of importation;

(f) the country of origin of the articles expressed in terms of the designation therefor in Statistical Annex B of these schedules;

(g) a description of the articles in sufficient detail to permit the classification thereof under the proper statistical reporting number in these schedules;

(h) the statistical reporting number under which the articles are classifiable;

(ij) gross weight in pounds for the articles covered by each reporting number when imported in vessels or aircraft;

(k) the net quantity in the units specified herein for the classification involved;

(l) the U.S. dollar value in accordance with the definition in Section 402 or 402a of the Tariff Act of 1930, as amended, for all merchandise including that free of duty or dutiable at specific rates; and

(m) such other information with respect to the imported articles as is provided for elsewhere in these schedules.

2. Statistical Annotations. (a) The statistical annotations to the Tariff Schedules of the United States consist of --

(i) the 2-digit statistical suffixes,
(ii) the indicated units of quantity,
(iii) the statistical headnotes and annexes, and
(iv) the italicised article descriptions.

(b) The legal text of the Tariff Schedules of the United States consists of the remaining text as more specifically identified in headnote 10(a) of the general headnotes and rules of interpretation.

(c) The statistical annotations are subordinate to the provisions of the legal text and cannot change their scope.

3. Statistical Reporting Number. (a) General Rule: Except as provided in paragraph (b) of this headnote, and in the absence of specific instructions to the contrary elsewhere, the statistical reporting number for an article consists of the 7-digit number formed by combining the 5-digit item number with the appropriate 2-digit statistical suffix. Thus, the statistical reporting number for live monkeys dutiable under item 100.95 is "100.9520".

(b) Wherever in the tariff schedules an article is classifiable under a provision which derives its rate of duty from a different provision, the statistical reporting number is, in the absence of specific instructions to the contrary elsewhere, the 7-digit number for the basic provision followed by the item number of the provision from which the rate is derived. Thus, the statistical reporting number of mixed apple and grape juices, not containing over 1.0 percent of ethyl alcohol by volume, is "165.6500-165.40".

4. Abbreviations. (a) The following symbols and abbreviations are used with the meanings respectively indicated below:

s. ton	-	short ton
C.	-	one hundred
Cwt.	-	100 lbs.
mg.	-	milligram
M.	-	1,000
bd. ft.	-	board feet
M. bd. ft.	-	1,000 board feet
mc.	-	millicurie
cord	-	128 cubic feet
square	-	amount to cover 100 square feet of surface
sup. ft.	-	superficial foot
oz.	-	ounces avoirdupois
fl. oz.	-	fluid ounce
oz. troy	-	troy ounce
pf. gal.	-	proof gallon

(b) An "X" appearing in the column for units of quantity means that no quantity (other than gross weight) is to be reported.

(c) Whenever two separate units of quantity are shown for the same article, the "v" following one of such units means that the value of the article is to be reported with that quantity.

Amendments and Modifications

PROVISIONS	
Gen Hdnte 3(a)(i)	Language "Except as provided in headnote 6 of schedule 7, part 2, subpart E," added; language "except that all articles" deleted and language "except that all such articles" inserted in lieu thereof. Pub. L. 89-805, Secs. 1(a), (c), Nov. 10, 1966, 80 Stat. 1521, 1522, effective date Jan. 1, 1967. Language "Except as provided in headnote 4 of schedule 7, part 7, subpart A," added. Pub. L. 89-806, Secs. 2(b), (c), Nov. 10, 1966, 80 Stat. 1523, effective date March 11, 1967.

PROVISIONS	
Gen Hdnte 3(d), (e), (f) and (g)	Headnotes 3(d), (e), and (f) redesignated as headnotes 3(e), (f), and (g), respectively, and new headnote 3(d) added. Pub. L. 89 283, Secs. 401(a), 403, Oct. 21, 1965, 79 Stat. 1021, 1022; entered into force Oct. 22, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68.
Gen Hdnte 6(b)(i)	Language "and containers of usual types ordinarily sold at retail with their contents," added. Pub. L. 89-241, Secs. 2(a), 4, Oct. 7, 1965, 79 Stat. 933, 934, effective date Dec. 7, 1965.

SCHEDULE 6.-METALS AND METAL PRODUCTS

APPENDIX A

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

SCHEDULE 6. - METALS AND METAL PRODUCTS

Part 1 - Metal-Bearing Ores and Other Metal-Bearing Materials

Part 2 - Metals, Their Alloys, and Their Basic Shapes and Forms
- A. Precious Metals
- B. Iron or Steel
- C. Copper
- D. Aluminum
- E. Nickel
- F. Tin
- G. Lead
- H. Zinc
- J. Beryllium, Columbium, Germanium, Hafnium, Indium, Magnesium, Molybdenum, Rhenium, Tantalum, Titanium, Tungsten, Uranium, and Zirconium
- K. Other Base Metals

Part 3 - Metal Products
- A. Metallic Containers
- B. Wire Cordage; Wire Screen, Netting and Fencing; Bale Ties
- C. Metal Leaf and Foil; Metallics
- D. Nails, Screws, Bolts, and Other Fasteners; Locks, Builders' Hardware; Furniture, Luggage, and Saddlery Hardware
- E. Tools, Cutlery, Forks and Spoons
- F. Miscellaneous Metal Products
- G. Metal Products Not Specially Provided For

Part 4 - Machinery and Mechanical Equipment
- A. Boilers, Non-Electric Motors and Engines, and Other General-Purpose Machinery
- B. Elevators, Winches, Cranes, and Related Machinery; Earth-Moving and Mining Machinery
- C. Agricultural and Horticultural Machinery; Machinery for Preparing Food and Drink
- D. Pulp and Paper Machinery; Bookbinding Machinery; Printing Machinery
- E. Textile Machines; Laundry and Dry Cleaning Machines; Sewing Machines
- F. Machines for Working Metal, Stone, and Other Materials
- G. Office Machines
- H. Other Machines
- J. Parts of Machines

Part 5 - Electrical Machinery and Equipment

Part 6 - Transportation Equipment
- A. Rail Locomotives and Rolling Stock
- B. Motor Vehicles
- C. Aircraft and Spacecraft
- D. Pleasure Boats; Floating Structures

Schedule 6 headnotes:

1. This schedule does not cover --

(i) chemical elements (except thorium and uranium) and isotopes which are usefully radioactive (see part 13B of schedule 4);
(ii) the alkali metals, i.e., cesium, lithium, potassium, rubidium, and sodium (see part 2A of schedule 4); or
(iii) certain articles and parts thereof, of metal, provided for in schedule 7 and elsewhere.

2. For the purposes of the tariff schedules, unless the context requires otherwise --

(a) the term "precious metal" embraces gold, silver, platinum and other metals of the platinum group (iridium, osmium, palladium, rhodium, and ruthenium), and precious-metal alloys;

(b) the term "base metal" embraces aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, columbium, copper, gallium, germanium, hafnium, indium, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, rhenium, the rare-earth metals (including scandium and yttrium), selenium, silicon, strontium, tantalum, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc, and zirconium, and base-metal alloys;

(c) the term "metal" embraces precious metals, base metals, and their alloys; and

(d) in determining which of two or more equally specific provisions for articles "of iron or steel", "of copper", "of aluminum", or "of" other base metals applies to an article containing two or more base metals and wholly or in chief value thereof, the classification shall be made according to the base metal which predominates by weight over each of the other base metals rather than according to the base metal in chief value.

Schedule 6 statistical headnotes:

1. When refined or smelted products are withdrawn for exportation from bonded smelting or refining warehouses established under section 312, Tariff Act of 1930, as amended, that part of such such product which entered into a bonded smelting or refining warehouse as metal-bearing material without the payment of duty thereon, must be reported separately on the warehouse withdrawal form (CF 7512) to show the statistical reporting number for the imported metal-bearing material as reported on the warehouse entry form (CF 7501).

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty	
				1	2
		Part 3. - METAL PRODUCTS			
		Part 3 headnotes:			
		1. For the purposes of this part -- (a) "wire" is deemed to be a base-metal product which conforms to the respective cross-sectional measurements for base-metal wires in part 2, whether or not conforming otherwise to the specifications set forth therein. In the provisions of this part which describe wire in terms of its cross-sectional dimension, the dimension specified is that of such wire without its metal coating, if any.			
		2. The provisions in this part which specifically refer to kitchen or table ware, or to table, kitchen, or household utensils and articles, include articles of types which are used outdoors as well as those which are used indoors.			
		Subpart A. - Metallic Containers			
		Subpart A headnotes:			
		1. The provisions in this subpart for containers include such containers whether or not equipped with fittings such as taps, valves, level gauges, and manometers. This subpart, however, does not include -- (i) containers with provision made for circulating heating or cooling fluids between the walls, or with mechanical or thermal equipment such as agitators, heating or cooling coils, or electrical elements (see parts 4 and 5 of this schedule); (ii) luggage, handbags, or flat goods (see part 10 of schedule 7); (iii) furniture (see part 4 of schedule 7); (iv) cases for musical instruments (see part 3B of schedule 7); or (v) articles of precious metal or rolled precious metal, or articles coated or plated with precious metal.			
		2. General principles with respect to containers are set forth in headnote 6 of the General Headnotes. Special classification provisions relating to substantial containers suitable for reuse are included in parts 1C and 5C of schedule 8.			
		Metal pressure containers designed and used for the transport and storage of compressed gases:			
640.05	00	Of stainless steel	No.....	13% ad val.	35% ad val.
640.10	00	Other	No.....	9% ad val.	25% ad val.

Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		Drums, flasks, casks, cans, boxes, lift vans, and other containers (except pressure containers in items 640.05 and 640.10 and collapsible tubes in item 640.40), all the foregoing, of base metal, chiefly used in the packing, transporting, or marketing of goods:			
640.20	00	Of stainless steel	X.....	13% ad val.	35% ad val.
640.25	00	Of aluminum and having a capacity of not over 5 gallons	No.....	17% ad val.	45% ad val.
640.30	00	Other	X.....	9% ad val.	25% ad val.
640.35	00	Reservoirs, tanks, vats, and other containers, all the foregoing, of metal, having a capacity over 75 gallons and ordinarily installed as fixtures in industrial plants or elsewhere for storage or manufacturing use	No.....	12% ad val.	45% ad val.
640.40	00	Collapsible tubes of metal	Gross...	10.5% ad val.	45% ad val.
		Subpart B. - Wire Cordage; Wire Screen, Netting and Fencing; Bale Ties			
		Subpart B headnote: 1. This subpart does not cover -- (i) articles of precious metal or rolled precious metal, or articles coated or plated with precious metal; (ii) insulated electric conductors or uninsulated electric conductors specially provided for in part 5 of this schedule; (iii) textile articles of metallic yarns; (iv) reinforced or laminated plastics (see part 12A of schedule 7); (v) asbestos, ceramics, or glass products containing a wire netting (see schedule 5); or (vi) building papers or felts reinforced with wire (see part 4B of schedule 2).			
642.02	00	Barbed wire	Lb.....	Free	Free
		Strands, ropes, cables, and cordage, all the foregoing, of wire, whether or not cut to length, and whether or not fitted with hooks, swivels, clamps, clips, thimbles, sockets, or other fittings or made up into slings, cargo nets, or similar articles:			
		Not fitted with fittings and not made up into articles:			
		Not covered with textile or other nonmetallic material:			
		Wire strand:			
642.06	00	Of nickel	Lb.....	12.5% ad val.	35% ad val.
642.08	00	Of stainless steel	Lb.....	18% ad val.	45% ad val.
642.10		Other	.....	13% ad val.	35% ad val.
	20	*Steel strand for prestressed concrete*	*Lb.*		
	40	*Other steel strand*	*Lb.*		
	60	*Other*	*Lb.*		

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		Strands, ropes, cables, and cordage, etc. (con.):			
		Not fitted with fittings, etc. (con.):			
		Not covered with textile, etc. (con.):			
		Ropes, cables, and cordage other than wire strand:			
642.12	00	Valued under 13 cents per pound.....	Lb.....	0.95¢ per lb.	4.5¢ per lb.
		Valued 13 cents or more per pound:			
642.14	00	Of stainless steel.....	Lb.....	12% ad val.	45% ad val.
642.16		Other.....	.....	7.5% ad val.	35% ad val.
	20	*Iron or steel (except stainless)*.....	*Lb.*		
	40	*Other*.....	*Lb.*		
642.18	00	Covered with textile or other nonmetallic material.....	Lb.....	13% ad val.	35% ad val.
642.20	00	Fitted with fittings, or made up into articles.....	Lb.....	17% ad val.	45% ad val.
642.21	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	Lb.....	Free	
		Cylinder wires, suitable for use in paper-making machines (whether or not parts of, or fitted or attached to, such machines), and woven-wire cloth suitable for use in the manufacture of Fourdrinier wires or cylinder wires suitable for use in paper-making machines:			
642.25	00	Having more than 55 meshes per lineal inch in warp or filling.....	Sq. ft..	45% ad val.	75% ad val.
642.27	00	Other.....	Sq. ft..	31% ad val.	50% ad val.
642.30	00	Fourdrinier wires, seamed or not seamed, suitable for use in paper-making machines (whether or not parts of, or fitted or attached to, such machines).....	Sq. ft..	45% ad val.	75% ad val.
642.35	00	Galvanized wire fencing wholly of round iron or steel wire measuring not over 0.20 inch and not under 0.075 inch in diameter, whether or not such wire is covered with plastics.....	Lb.....	0.2¢ per lb.	0.5¢ per lb.
		Cloth, gauze, fabric, screen, netting, and fencing, all the foregoing not specially provided for, of wire, whether in rolls, in endless bands, or in lengths, and whether or not cut to shape:			
		Not cut to shape:			
		Woven (but of other than simple warp and weft construction) and composed wholly or in substantial part of wire measuring under 0.075 inch in maximum cross-sectional dimension:			
642.45	00	Coated with metal before weaving.....	Sq. ft..	18.5% ad val.	50% ad val.
642.47	00	Coated with metal after weaving.....	Sq. ft..	22.5% ad val.	60% ad val.
		Woven (of simple warp and weft construction):			
		With meshes not finer than 30 wires to the lineal inch in warp or filling:			
		Of stainless steel:			
642.50	00	Valued not over 7.5 cents per square foot.....	Sq. ft..	0.67¢ per sq. ft. + 4.5% ad val.	1¢ per sq. ft. + 10% ad val.
642.52	00	Valued over 7.5 cents per square foot.....	Sq. ft..	13% ad val.	35% ad val.
		Of copper:			
642.54	00	Valued not over 7.5 cents per square foot.....	Sq. ft.v Lb.	0.67¢ per sq. ft. + 1.1¢ per lb.	1¢ per sq. ft. + 3¢ per lb.
642.56	00	Valued over 7.5 cents per square foot.....	Sq. ft.v Lb.	1.1¢ per lb. + 9% ad val.	3¢ per lb. + 25% ad val.
		Other:			
642.58	00	Valued not over 7.5 cents per square foot.....	Sq. ft..	0.65¢ per sq. ft.	1¢ per sq. ft.
642.60	00	Valued over 7.5 cents per square foot.....	Sq. ft..	9% ad val.	25% ad val.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		Cloth, gauze, fabric, screen, netting, etc. (con.):			
		Not cut to shape (con.):			
		Woven (of simple warp and weft, etc.)(con.):			
		With meshes finer than 30 but not finer than 90 wires to the lineal inch in warp or filling:			
		Of stainless steel:			
642.62	00	Valued not over 21.25 cents per square foot	Sq. ft..	1.9¢ per sq. ft. + 4.5% ad val.	4.25¢ per sq. ft. + 10% ad val.
642.64	00	Valued over 21.25 cents per square foot	Sq. ft..	13% ad val.	50% ad val.
		Of copper:			
642.66	00	Valued not over 21.25 cents per square foot	Sq. ft.v Lb.	1.9¢ per sq. ft. + 1.1¢ per lb.	4.25¢ per sq. ft. + 3¢ per lb.
642.68	00	Valued over 21.25 cents per square foot	Sq. ft.v Lb.	1.1¢ per lb. + 9% ad val.	3¢ per lb. + 40% ad val.
		Other:			
642.70	00	Valued not over 21.25 cents per square foot	Sq. ft..	1.9¢ per sq. ft.	4.25¢ per sq. ft.
642.72	00	Valued over 21.25 cents per square foot	Sq. ft..	9% ad val.	40% ad val.
		With meshes finer than 90 wires to the lineal inch in warp or filling:			
642.74	00	Of stainless steel	Sq. ft..	27% ad val.	60% ad val.
642.76	00	Of copper	Sq. ft.v Lb.	1.1¢ per lb. + 22.5% ad val.	3¢ per lb. + 50% ad val.
642.78	00	Other	Sq. ft..	22% ad val.	50% ad val.
		Other:			
642.80	00	Of iron or steel	Lb.....	17% ad val.	45% ad val.
642.82	00	Other	Sq. ft..	14% ad val.	45% ad val.
		Cut to shape:			
642.85	00	Of copper	Lb.....	1.1¢ per lb. + 12% ad val.	3¢ per lb. + 35% ad val.
642.86	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6)	Lb.....	Free	
642.87	00	Other	X.....	12.5% ad val.	35% ad val.
642.88	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6)	X.....	Free	
		Bale ties, of iron or steel, with or without buckles or fastenings and whether or not coated with paint or other substance:			
		Made from wire:			
642.90	00	Single loop ties made of round wire over 0.055 but not over 0.082 inch in diameter, and 7.5 or more but not over 10.5 feet in length	Lb.....	Free	Free
642.91	00	Other	Lb.....	17% ad val.	45% ad val.
642.93	00	Made from strip	Lb.....	0.04¢ per lb.	0.25¢ per lb.
		Milliners' wire and other wire covered with textile or other material not wholly of metal:			
642.96	00	Galvanized wire wholly of round iron or steel wire measuring not over 0.20 inch and not under 0.075 inch in diameter, if covered with plastics	Lb.....	0.25¢ per lb.	0.5¢ per lb.
642.97	00	Other	Lb.....	13.5% ad val.	35% ad val.

Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		Subpart C. - Metal Leaf and Foil; Metallics			
		Base metal foil (whether or not embossed, cut to shape, perforated, etched, coated, printed, colored, decorated, or backed with paper or equivalent backing) not over 0.006 inch in thickness (excluding any coating or backing):			
		Not backed and not cut to shape:			
644.02		Copper foil	.....	2.5¢ per lb.	5.5¢ per lb.
	20	*Alloyed*	*Lb.*		
	40	*Other*	*Lb.*		
		Aluminum foil:			
644.06	00	Etched capacitor foil	Lb.....	15% ad val.	40% ad val.
		Other:			
		Not over 0.00035 inch in thickness:			
644.08	00	Valued not over 55 cents per pound	Lb.....	10.5¢ per lb.	22¢ per lb.
644.09	00	Valued over 55 cents per pound	Lb.....	18% ad val.	40% ad val.
		Over 0.00035 inch in thickness:			
644.11	00	Valued not over 55 cents per pound	Lb.....	8.3¢ per lb.	22¢ per lb.
644.12	00	Valued over 55 cents per pound	Lb.....	15% ad val.	40% ad val.
644.15	00	Tin foil	Lb.....	31% ad val.	35% ad val.
		Lead foil:			
644.17	00	Valued not over 13-1/3 cents per pound	Lb.....	1.3¢ per lb.	3¢ per lb.
644.18	00	Valued over 13-1/3 cents per pound	Lb.....	10% ad val.	45% ad val.
644.20	00	Zinc foil	Lb.....	17% ad val.	45% ad val.
644.22	00	Other foil	Lb.....	16% ad val.	45% ad val.
		Cut to shape, but not backed:			
644.24	00	Copper foil	Lb.....	1.1¢ per lb. + 18% ad val.	3¢ per lb. + 45% ad val.
644.26	00	Aluminum foil	Lb.....	17% ad val.	45% ad val.
644.28	00	Lead foil	Lb.....	10% ad val.	45% ad val.
644.30	00	Zinc foil	Lb.....	17% ad val.	45% ad val.
644.32	00	Other foil	Lb.....	16% ad val.	45% ad val.
		Backed, whether or not cut to shape:			
		Covered or decorated with a character, design, fancy effect, or pattern:			
644.36	00	Copper foil	Lb.....	4.7¢ per lb. + 7% ad val.	8¢ per lb. + 20% ad val.
644.38	00	Other foil	Lb.....	3.6¢ per lb. + 7% ad val.	5¢ per lb. + 20% ad val.
		Other:			
644.40	00	Copper foil	Lb.....	2.9¢ per lb. + 7% ad val.	8¢ per lb. + 20% ad val.
644.42	00	Other foil	Lb.....	1.8¢ per lb. + 7% ad val.	5¢ per lb. + 20% ad val.
		Precious metal leaf, whether unmounted or mounted on paper or equivalent backing:			
		Gold leaf:			
		Unmounted:			
644.46	00	Leaves not over 11.40 square inches in area	Leaf....	74¢ per 100 leaves	82.5¢ per 100 leaves
644.48	00	Leaves over 11.40 square inches in area	Sq. in..	74¢ for each 1,140 sq. in.	82.5¢ for each 1,140 sq. in.
644.52	00	Mounted	Sq. in..	6.05¢ per 100 sq. in. + 22.5% ad val.	6.75¢ per 100 sq. in. + 25% ad val.
644.56	00	Silver leaf	Leaf....	4.5¢ per 100 leaves	5¢ per 100 leaves
644.60	00	Platinum leaf	Sq. in..	36% ad val.	65% ad val.

APPENDIX A
TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

SCHEDULE 6. - METALS AND METAL PRODUCTS
Part 3. - Metal Products

Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		Base metal, in leaf:			
		Aluminum, in leaf:			
		Powder or flakes, in leaf:			
644.64	00	Leaves not over 30.25 square inches in area	Leaf....	5.4¢ per 100 leaves + 9% ad val.	6¢ per 100 leaves + 10% ad val.
644.68	00	Leaves over 30.25 square inches in area	Sq. in..	5.4¢ for each 3,025 sq. in. + 9% ad val.	6¢ for each 3,025 sq. in. + 10% ad val.
		Other:			
644.72	00	Leaves not over 30.25 square inches in area	Leaf....	2.5¢ per 100 leaves	6¢ per 100 leaves
644.76	00	Leaves over 30.25 square inches in area	Sq. in..	2.5¢ for each 3,025 sq. in.	6¢ for each 3,025 sq. in.
		Copper, in leaf:			
		Powder or flakes, in leaf:			
644.80	00	Leaves not over 30.25 square inches in area	Leaf....	5¢ per 100 leaves + 9% ad val.	6¢ per 100 leaves + 10% ad val.
644.84	00	Leaves over 30.25 square inches in area	Sq. in..	5¢ for each 3,025 sq. in. + 9% ad val.	6¢ for each 3,025 sq. in. + 10% ad val.
		Other:			
644.88	00	Leaves not over 30.25 square inches in area	Leaf....	4¢ per 100 leaves	6¢ per 100 leaves
644.92	00	Leaves over 30.25 square inches in area	Sq. in..	4¢ for each 3,025 sq. in.	6¢ for each 3,025 sq. in.
644.95	00	Embossing and stamping materials comprised of metallic powder or flakes, or pigments, mounted on paper or similar backing, and releasable from the backing by means of heat and pressure	Sq. in..	0.27¢ per 100 sq. in.	0.375¢ per 100 sq. in.
644.98	00	Metallic flitters	Lb.....	11.5¢ per lb.	13.25¢ per lb.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		Subpart D. - Nails, Screws, Bolts, and Other Fasteners; Locks; Builders' Hardware; Furniture, Luggage, and Saddlery Hardware			
		Subpart D headnote: 1. The provisions of this subpart do not cover articles coated or plated with precious metals unless such articles are specifically included therein.			
		Thumb tacks:			
646.02	00	Of two or more pieces of iron or steel, whether or not having heads coated or covered with plastics or other material	Lb.	2.8¢ per lb.	4.5¢ per lb.
646.04	00	Of copper	Lb.	14% ad val.	45% ad val.
646.06	00	Other	Lb.	0.8¢ per lb.	0.9¢ per lb.
		Drive pins, studs, and other fasteners, all the foregoing, whether threaded or not threaded, suitable for use in powder-actuated hand tools:			
646.15	00	Not threaded	Lb.	Free	0.7¢ per lb.
646.17	00	Threaded	Lb.	13.5% ad val.	45% ad val.
646.20	00	Staples in strip form	Lb.	0.9¢ per lb.	2¢ per lb.
646.22	00	Corrugated fasteners, glaziers' points, hook nails, and ring nails	Lb.	17% ad val.	45% ad val.
		Brads, nails, spikes, staples, and tacks, all the foregoing, not described in the foregoing provisions of this subpart, of base metal:			
		Of iron or steel (except articles with heads of nonferrous metals):			
		Of one piece construction:			
		Made of round wire:			
646.25	00	Under 1 inch in length and under 0.065 inch in diameter	Lb.	0.5¢ per lb.	0.75¢ per lb.
646.26		1 inch or more in length and 0.065 inch or more in diameter		0.15¢ per lb.	0.4¢ per lb.
	20	*Smooth shank*	*Lb.*		
	40	*Other*	*Lb.*		
		Cut:			
646.27	00	Not over 2 inches in length	Lb.	7% ad val.	15% ad val.
646.28	00	Over 2 inches in length	Lb.	0.15¢ per lb.	0.4¢ per lb.
646.30	00	Other	Lb.	1.2¢ per lb.	1.5¢ per lb.
646.32	00	Of two or more pieces	Lb.	2.8¢ per lb.	4.5¢ per lb.
646.34	00	Of copper	Lb.	14% ad val.	45% ad val.
646.36	00	Other	Lb.	17% ad val.	45% ad val.
		Rivets of base metal:			
646.40	00	Of iron or steel and not brightened, not lathed, and not machined	Lb.	0.4¢ per lb.	1¢ per lb.
646.41	00	Other	Lb.	12.5% ad val.	45% ad val.
646.42	00	Cotters, cotter pins, and fasteners or holders (except nuts) used with screws, bolts, or studs, all the foregoing of base metal	Lb.	17% ad val.	45% ad val.
		Furniture glides of base metal:			
646.45	00	Of two or more pieces of iron or steel	Lb.	3.2¢ per lb.	4.5¢ per lb.
646.47	00	Other	Lb.	17% ad val.	45% ad val.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty	
				1	2
		Wood screws (including lag screws or bolts) of base metal:			
646.49		Of iron or steel	.....	12.5% ad val.	25% ad val.
	20	*Lag screws or bolts*	*Gross*		
	40	*Other*	*Gross*		
		Other:			
646.51	00	Having shanks or threads not over 0.12 inch in diameter	Gross...	21% ad val.	45% ad val.
646.53	00	Having shanks or threads over 0.12 inch in diameter	Gross...	16% ad val.	45% ad val.
		Bolts, nuts, studs and studding, screws, and washers (including bolts and their nuts imported in the same shipment, and assembled bolts or screws and washers, with or without nuts); screw eyes, screw hooks and screw rings; turnbuckles; all the foregoing not described in the foregoing provisions of this subpart, of base metal:			
		Of iron or steel:			
646.54	00	Bolts and bolts and their nuts imported in the same shipment	Lb.....	0.4¢ per lb.	1¢ per lb.
646.56	00	Nuts	Lb.....	0.2¢ per lb.	0.6¢ per lb.
646.57	00	Studs and studding	X.....	13% ad val.	45% ad val.
		Screws:			
646.58	00	Machine screws 0.375 inch or more in length and 0.125 inch or more in diameter (not including cap screws)	Lb.....	0.5¢ per lb.	1¢ per lb.
		Other:			
646.60		Having shanks or threads not over 0.24 inch in diameter	.....	20% ad val.	45% ad val.
	20	*Cap screws*	*Gross*		
	40	*Other*	*Gross*		
646.63		Having shanks or threads over 0.24 inch in diameter	.....	17% ad val.	45% ad val.
	20	*Cap screws*	*Gross*		
	40	*Other*	*Gross*		
		Washers:			
646.65	00	Spiral and other lock washers	Lb.....	18% ad val.	35% ad val.
646.70	00	Other	Lb.....	0.2¢ per lb.	0.6¢ per lb.
646.72	00	Assembled bolts or screws and washers; screw eyes, screw hooks and screw rings; turnbuckles	X.....	17% ad val.	45% ad val.
		Of other base metal:			
		Bolts, nuts, screws, and washers (including bolts and their nuts imported in the same shipment):			
646.74	00	Muntz or yellow metal bolts	Lb.....	2.5¢ per lb.	6.5¢ per lb.
		Other:			
646.75	00	Having shanks, threads, or holes not over 0.24 inch in diameter	Gross...	21% ad val.	45% ad val.
646.76	00	Having shanks, threads, or holes over 0.24 inch in diameter	Gross...	16% ad val.	45% ad val.
646.77	00	Studs and studding	X.....	14% ad val.	45% ad val.
646.78	00	Assembled bolts or screws and washers; screw eyes, screw hooks and screw rings; turnbuckles	X.....	17% ad val.	45% ad val.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
646.79	00	Any article described in the foregoing item 646.20 and items 646.40 to 646.78, inclusive (except 646.45 and 646.47), if Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6)	X.....	Free	
		Locks and padlocks (whether key, combination, or electrically operated), luggage frames incorporating locks, all the foregoing, and parts thereof, of base metal; lock keys:			
		Padlocks:			
		Not of cylinder or pin tumbler construction:			
646.80	00	Not over 1.5 inches in width	Doz.....	10.8¢ per doz. + 7% ad val.	35¢ per doz. + 20% ad val.
646.81	00	Over 1.5 but not over 2.5 inches in width	Doz.....	16¢ per doz. + 7% ad val.	50¢ per doz. + 20% ad val.
646.82	00	Over 2.5 inches in width	Doz.....	33¢ per doz. + 9% ad val.	75¢ per doz. + 20% ad val.
		Of cylinder or pin tumbler construction:			
646.83	00	Not over 1.5 inches in width	Doz.....	48¢ per doz. + 9% ad val.	$1 per doz. + 20% ad val.
646.84	00	Over 1.5 but not over 2.5 inches in width	Doz.....	54¢ per doz. + 7% ad val.	$1.50 per doz. + 20% ad val.
646.85	00	Over 2.5 inches in width	Doz.....	72¢ per doz. + 7% ad val.	$2 per doz. + 20% ad val.
		Cabinet locks:			
		Not of cylinder or pin tumbler construction:			
646.86	00	Not over 1.5 inches in width	Doz.....	27¢ per doz. + 7.5% ad val.	70¢ per doz. + 20% ad val.
646.87	00	Over 1.5 but not over 2.5 inches in width	Doz.....	38¢ per doz. + 9% ad val.	$1 per doz. + 20% ad val.
646.88	00	Over 2.5 inches in width	Doz.....	58¢ per doz. + 7.5% ad val.	$1.50 per doz. + 20% ad val.
646.89	00	Of cylinder or pin tumbler construction	Doz.....	72¢ per doz. + 7% ad val.	$2 per doz. + 10% ad val.
646.90		Luggage locks, and parts thereof, and luggage frames incorporating locks	.....	20% ad val.	45% ad val.
	20	*Locks*	*Doz.*		
	40	*Other*	*X*		
646.92	00	Other	X.....	15% ad val.	45% ad val.
646.93	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6)	X.....	Free	

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
646.95	00	Door closers and parts thereof, of base metal.....	X.....	10% ad val.	45% ad val.
		Harness and saddlery or riding-bridle hardware whether or not coated or plated with precious metal:			
646.97	00	Not coated or plated with precious metal.....	X.....	11% ad val.	50% ad val.
646.98	00	Coated or plated with precious metal.....	X.....	13% ad val.	60% ad val.
		Hinges; and fittings and mountings not specially provided for, suitable for furniture, doors, windows, blinds, staircases, luggage, vehicle coach work, caskets, cabinets, and similar uses; all the foregoing, of base metal, whether or not coated or plated with precious metal:			
		Not coated or plated with precious metal:			
		Of iron or steel, of aluminum, or of zinc:			
647.01	00	Hinges, fittings, and mountings, designed for motor vehicles.....	X.....	7.5% ad val.	25% ad val.
647.02	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6)..	X.....	Free	
647.03		Other.....	.....	17% ad val.	45% ad val.
		Hinges:			
	20	*Butt hinges*.....	*Doz.prs.*		
	40	*Other*.....	*X*		
	60	*Other*.....	*X*		
647.05	00	Other.....	X.....	14% ad val.	45% ad val.
647.06	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free	
647.10	00	Coated or plated with precious metal.....	X.....	36% ad val.	65% ad val.

APPENDIX A

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

STAGED RATES AND HISTORICAL NOTES

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Staged Rates

Modifications of column 1 rates of duty by Pres. Proc. 3694 (Canadian Compensation), Dec. 27, 1965, 3 CFR, 1965 Supp., p. 85, as modified by Pres. Proc. 3818, Nov. 8, 1967, 32 F.R. 15467:

TSUS item	Prior rate	Rate of duty, effective with respect to articles entered on and after January 1 --				
		1966	1967	1968	1969	1970
646.92	19% ad val.	18% ad val.	17% ad val.	1/	1/	1/
652.92	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.

1/ See Kennedy Round staged rates, infra.

Modifications of column 1 rates of duty by Pres. Proc. 3744 (Japanese Compensation), Sept. 13, 1966, 3 CFR, 1966 Comp., p. 75, as modified by Pres. Proc. 3818, Nov. 8, 1967, 32 F.R. 15467:

TSUS item	Prior rate	Rate of duty, effective with respect to articles entered on and after October 1 --				
		1966	1967	1968	1969	1970
648.97	22.5% ad val.	21.5% ad val.	21.5% ad val.	1/	1/	1/
651.37	22.5% ad val.	21.5% ad val.	21.5% ad val.	1/	1/	1/
652.80	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.

1/ See Kennedy Round staged rates, infra.

Modifications of column 1 rates of duty by Pres. Proc. 3822 (Kennedy Round), Dec. 16, 1967, 32 F.R. 19005:

TSUS item	Prior rate	Rate of duty, effective with respect to articles entered on and after January 1 --				
		1968	1969	1970	1971	1972
640.05	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
640.10	10% ad val.	9% ad val.	8% ad val.	7% ad val.	6% ad val.	5% ad val.
640.20	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
640.25	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
640.30	10% ad val.	9% ad val.	8% ad val.	7% ad val.	6% ad val.	5% ad val.
640.35	13.5% ad val.	12% ad val.	10.5% ad val.	9% ad val.	8% ad val.	6.5% ad val.
640.40	12% ad val.	10.5% ad val.	9.5% ad val.	8% ad val.	7% ad val.	6% ad val.
642.06	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.	7% ad val.
642.08	20% ad val.	18% ad val.	16% ad val.	14% ad val.	12% ad val.	10% ad val.
642.10	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
642.12	1.1¢ per lb.	0.95¢ per lb.	0.85¢ per lb.	0.75¢ per lb.	0.65¢ per lb.	0.5¢ per lb.
642.14	13.5% ad val.	12% ad val.	10.5% ad val.	9% ad val.	8% ad val.	6.5% ad val.
642.16	8.5% ad val.	7.5% ad val.	6.5% ad val.	5.5% ad val.	5% ad val.	4% ad val.
642.18	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
642.20	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
642.25	50% ad val.	45% ad val.	40% ad val.	35% ad val.	30% ad val.	25% ad val.
642.27	35% ad val.	31% ad val.	28% ad val.	24% ad val.	21% ad val.	17.5% ad val.
642.30	50% ad val.	45% ad val.	40% ad val.	35% ad val.	30% ad val.	25% ad val.
642.35	0.25¢ per lb.	0.2¢ per lb.	0.2¢ per lb.	0.15¢ per lb.	0.15¢ per lb.	0.1¢ per lb.
642.45	21% ad val.	18.5% ad val.	16.5% ad val.	14.5% ad val.	12.5% ad val.	10.5% ad val.
642.47	25.5% ad val.	22.5% ad val.	20% ad val.	17.5% ad val.	15% ad val.	12.5% ad val.
642.50	0.75¢ per sq. ft. + 5% ad val.	0.67¢ per sq. ft. + 4.5% ad val.	0.6¢ per sq. ft. + 4% ad val.	0.52¢ per sq. ft. + 3.5% ad val.	0.45¢ per sq. ft. + 3% ad val.	0.37¢ per sq. ft. + 2.5% ad val.
642.52	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
642.54	0.75¢ per sq. ft. + 1.275¢ per lb.	0.67¢ per sq. ft. + 1.1¢ per lb.	0.6¢ per sq. ft. + 1¢ per lb.	0.52¢ per sq. ft. + 0.8¢ per lb.	0.45¢ per sq. ft. + 0.7¢ per lb.	0.37¢ per sq. ft. + 0.6¢ per lb.
642.56	1.275¢ per lb. + 10% ad val.	1.1¢ per lb. + 9% ad val.	1¢ per lb. + 8% ad val.	0.6¢ per lb. + 7% ad val.	0.6¢ per lb. + 6% ad val.	0.6¢ per lb. + 5% ad val.

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Staged Rates

Modifications of column 1 rates of duty by Pres. Proc. 3822 (Kennedy Round), Dec. 16, 1967, 32 F.R. 19002 (con.):

TSUS item	Prior rate	Rate of duty, effective with respect to articles entered on and after January 1 --				
		1968	1969	1970	1971	1972
642.58	0.75¢ per sq. ft.	0.65¢ per sq. ft.	0.6¢ per sq. ft.	0.5¢ per sq. ft.	0.45¢ per sq. ft.	0.37¢ per sq. ft.
642.60	10% ad val.	9% ad val.	8% ad val.	7% ad val.	6% ad val.	5% ad val.
642.62	2.125¢ per sq. ft. + 5% ad val.	1.9¢ per sq. ft. + 4.5% ad val.	1.7¢ per sq. ft. + 4% ad val.	1.45¢ per sq. ft. + 3.5% ad val.	1.25¢ per sq. ft. + 3% ad val.	1¢ per sq. ft. + 2.5% ad val.
642.64	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
642.66	2.125¢ per sq. ft. + 1.275¢ per lb.	1.9¢ per sq. ft. + 1.1¢ per lb.	1.7¢ per sq. ft. + 1¢ per lb.	1.45¢ per sq. ft. + 0.8¢ per lb.	1.25¢ per sq. ft. + 0.7¢ per lb.	1¢ per sq. ft. + 0.6¢ per lb.
642.68	1.275¢ per lb. + 10% ad val.	1.1¢ per lb. + 9% ad val.	1¢ per lb. + 8% ad val.	0.8¢ per lb. + 7% ad val.	0.7¢ per lb. + 6% ad val.	0.6¢ per lb. + 5% ad val.
642.70	2.125¢ per sq. ft.	1.9¢ per sq. ft.	1.7¢ per sq. ft.	1.45¢ per sq. ft.	1.25¢ per sq. ft.	1.06¢ per sq. ft.
642.72	10% ad val.	9% ad val.	8% ad val.	7% ad val.	6% ad val.	5% ad val.
642.74	30% ad val.	27% ad val.	24% ad val.	21% ad val.	18% ad val.	15% ad val.
642.76	1.275¢ per lb. + 25% ad val.	1.1¢ per lb. + 22.5% ad val.	1¢ per lb. + 20% ad val.	0.6¢ per lb. + 17.5% ad val.	0.6¢ per lb. + 15% ad val.	0.6¢ per lb. + 12.5% ad val.
642.78	25% ad val.	22% ad val.	20% ad val.	17% ad val.	15% ad val.	12.5% ad val.
642.80	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
642.82	16% ad val.	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.
642.85	1.275¢ per lb. + 13.5% ad val.	1.1¢ per lb. + 12% ad val.	1¢ per lb. + 10.5% ad val.	0.8¢ per lb. + 9.4% ad val.	0.6¢ per lb. + 8% ad val.	0.6¢ per lb. + 6.5% ad val.
642.87	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.	7% ad val.
642.91	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
642.93	0.05¢ per lb.	0.04¢ per lb.	0.04¢ per lb.	0.03¢ per lb.	0.03¢ per lb.	0.02¢ per lb.
642.97	15% ad val.	13.5% ad val.	12% ad val.	11% ad val.	9.5% ad val.	8.5% ad val.
644.02	3¢ per lb.	2.5¢ per lb.	2.4¢ per lb.	2¢ per lb.	1.8¢ per lb.	1.5¢ per lb.
644.06	17% ad val.	15% ad val.	13.5% ad val.	11.5% ad val.	10% ad val.	8.5% ad val.
644.08	11¢ per lb.	10.5¢ per lb.	10¢ per lb.	9.5¢ per lb.	9.2¢ per lb.	8.8¢ per lb.
644.09	20% ad val.	18% ad val.	16% ad val.	14% ad val.	12% ad val.	10% ad val.
644.11	9.25¢ per lb.	8.3¢ per lb.	7.4¢ per lb.	6.4¢ per lb.	5.5¢ per lb.	4.6¢ per lb.
644.12	17% ad val.	15% ad val.	13.5% ad val.	11.5% ad val.	10% ad val.	8.5% ad val.
644.15	35% ad val.	31% ad val.	28% ad val.	24% ad val.	21% ad val.	17.5% ad val.
644.17	1.5¢ per lb.	1.3¢ per lb.	1.2¢ per lb.	1¢ per lb.	0.9¢ per lb.	0.75¢ per lb.
644.18	11.25% ad val.	10% ad val.	9% ad val.	7.5% ad val.	6.5% ad val.	5.5% ad val.
644.20	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
644.22	18% ad val.	16% ad val.	14% ad val.	12.5% ad val.	10.5% ad val.	9% ad val.
644.24	1.275¢ per lb. + 20% ad val.	1.1¢ per lb. + 18% ad val.	1¢ per lb. + 16% ad val.	0.8¢ per lb. + 14% ad val.	0.7¢ per lb. + 12% ad val.	0.6¢ per lb. + 10% ad val.
644.26	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
644.28	11.25% ad val.	10% ad val.	9% ad val.	7.5% ad val.	6.5% ad val.	5.5% ad val.
644.30	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
644.32	18% ad val.	16% ad val.	14% ad val.	12.5% ad val.	10.5% ad val.	9% ad val.
644.36	5.25¢ per lb. + 8% ad val.	4.7¢ per lb. + 7% ad val.	4.2¢ per lb. + 6% ad val.	3.6¢ per lb. + 5.5% ad val.	3.1¢ per lb. + 4.5% ad val.	2.6¢ per lb. + 4% ad val.
644.38	4¢ per lb. + 8% ad val.	3.6¢ per lb. + 7% ad val.	3.2¢ per lb. + 6% ad val.	2.8¢ per lb. + 5.5% ad val.	2.4¢ per lb. + 4.5% ad val.	2¢ per lb. + 4% ad val.
644.40	3.25¢ per lb. + 8% ad val.	2.9¢ per lb. + 7% ad val.	2.5¢ per lb. + 6% ad val.	2.2¢ per lb. + 5.5% ad val.	1.9¢ per lb. + 4.5% ad val.	1.6¢ per lb. + 4% ad val.
644.42	2¢ per lb. + 8% ad val.	1.8¢ per lb. + 7% ad val.	1.6¢ per lb. + 6% ad val.	1.4¢ per lb. + 5.5% ad val.	1.2¢ per lb. + 4.5% ad val.	1¢ per lb. + 4% ad val.
644.46	82.5¢ per 100 leaves	74¢ per 100 leaves	66¢ per 100 leaves	57¢ per 100 leaves	49¢ per 100 leaves	41¢ per 100 leaves
644.48	82.5¢ for each 1,140 sq. in.	74¢ for each 1,140 sq. in.	66¢ for each 1,140 sq. in.	57¢ for each 1,140 sq. in.	49¢ for each 1,140 sq. in.	41¢ for each 1,140 sq. in.

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

STAGED RATES AND HISTORICAL NOTES

Notes p. 3
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Staged Rates

Modifications of column 1 rates of duty by Pres. Proc. 3822 (Kennedy Round), Dec. 16, 1967, 32 F.R. 19063 (con.):

TSUS item	Prior rate	Rate of duty, effective with respect to articles entered on and after January 1 --				
		1968	1969	1970	1971	1972
644.52	6.75¢ per 100 sq. in. + 25% ad val.	6.05¢ per 100 sq. in. + 22.5% ad val.	5.4¢ per 100 sq. in. + 20% ad val.	4.7¢ per 100 sq. in. + 17.5% ad val.	4¢ per 100 sq. in. + 15% ad val.	3.37¢ per 100 sq. in. + 12.5% ad val.
644.56	5¢ per 100 leaves	4.5¢ per 100 leaves	4¢ per 100 leaves	3.5¢ per 100 leaves	3¢ per 100 leaves	2.5¢ per 100 leaves
644.60	40% ad val.	36% ad val.	32% ad val.	28% ad val.	24% ad val.	20% ad val.
644.64	6¢ per 100 leaves + 10% ad val.	5.4¢ per 100 leaves + 9% ad val.	4.8¢ per 100 leaves + 8% ad val.	4¢ per 100 leaves + 7% ad val.	3.5¢ per 100 leaves + 6% ad val.	3¢ per 100 leaves + 5% ad val.
644.68	6¢ for each 3,025 sq. in. + 10% ad val.	5.4¢ for each 3,025 sq. in. + 9% ad val.	4.8¢ for each 3,025 sq. in. + 8% ad val.	4.2¢ for each 3,025 sq. in. + 7% ad val.	3.5¢ for each 3,025 sq. in. + 6% ad val.	3¢ for each 3,025 sq. in. + 5% ad val.
644.72	3¢ per 100 leaves	2.5¢ per 100 leaves	2.4¢ per 100 leaves	2¢ per 100 leaves	1.8¢ per 100 leaves	1.5¢ per 100 leaves
644.76	3¢ for each 3,025 sq. in.	2.5¢ for each 3,025 sq. in.	2.4¢ for each 3,025 sq. in.	2¢ for each 3,025 sq. in.	1.8¢ for each 3,025 sq. in.	1.5¢ for each 3,025 sq. in.
644.80	6¢ per 100 leaves + 10% ad val.	5¢ per 100 leaves + 9% ad val.	4.5¢ per 100 leaves + 8% ad val.	4¢ per 100 leaves + 7% ad val.	3.5¢ per 100 leaves + 6% ad val.	3¢ per 100 leaves + 5% ad val.
644.84	6¢ for each 3,025 sq. in. + 10% ad val.	5¢ for each 3,025 sq. in. + 9% ad val.	4.5¢ for each 3,025 sq. in. + 8% ad val.	4¢ for each 3,025 sq. in. + 7% ad val.	3.5¢ for each 3,025 sq. in. + 6% ad val.	3¢ for each 3,025 sq. in. + 5% ad val.
644.88	4.5¢ per 100 leaves	4¢ per 100 leaves	3.5¢ per 100 leaves	3¢ per 100 leaves	2.5¢ per 100 leaves	2¢ per 100 leaves
644.92	4.5¢ for each 3,025 sq. in.	4¢ for each 3,025 sq. in.	3.5¢ for each 3,025 sq. in.	3¢ for each 3,025 sq. in.	2.5¢ for each 3,025 sq. in.	2¢ for each 3,025 sq. in.
644.95	0.3¢ per 100 sq. in.	0.27¢ per 100 sq. in.	0.24¢ per 100 sq. in.	0.21¢ per 100 sq. in.	0.18¢ per 100 sq. in.	0.15¢ per 100 sq. in.
644.98	13.25¢ per lb.	11.5¢ per lb.	10.5¢ per lb.	9¢ per lb.	7.5¢ per lb.	6.6¢ per lb.
646.02	3.2¢ per lb.	2.8¢ per lb.	2.5¢ per lb.	2¢ per lb.	1.9¢ per lb.	1.6¢ per lb.
646.04	16% ad val.	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.
646.06	0.9¢ per lb.	0.8¢ per lb.	0.7¢ per lb.	0.6¢ per lb.	0.5¢ per lb.	0.45¢ per lb.
646.15	0.25¢ per lb.	Free	Free	Free	Free	Free
646.17	15.5% ad val.	13.5% ad val.	12% ad val.	10.5% ad val.	9% ad val.	7.5% ad val.
646.20	1¢ per lb.	0.9¢ per lb.	0.8¢ per lb.	0.7¢ per lb.	0.5¢ per lb.	0.5¢ per lb.
646.22	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.26	0.2¢ per lb.	0.15¢ per lb.	0.15¢ per lb.	0.14¢ per lb.	0.1¢ per lb.	0.1¢ per lb.
646.27	8% ad val.	7% ad val.	6% ad val.	5.5% ad val.	4.5% ad val.	4% ad val.
646.28	0.2¢ per lb.	0.15¢ per lb.	0.15¢ per lb.	0.1¢ per lb.	0.1¢ per lb.	0.1¢ per lb.
646.32	3.2¢ per lb.	2.8¢ per lb.	2.5¢ per lb.	2.2¢ per lb.	1.9¢ per lb.	1.6¢ per lb.
646.34	16% ad val.	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.
646.36	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.40	0.5¢ per lb.	0.4¢ per lb.	0.4¢ per lb.	0.3¢ per lb.	0.3¢ per lb.	0.2¢ per lb.
646.41	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.	7% ad val.
646.42	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.45	3.6¢ per lb.	3.2¢ per lb.	2.8¢ per lb.	2.5¢ per lb.	2.1¢ per lb.	1.8¢ per lb.
646.47	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.51	23.5% ad val.	21% ad val.	18.5% ad val.	16% ad val.	14% ad val.	11.5% ad val.
646.53	18% ad val.	16% ad val.	14% ad val.	12.5% ad val.	10.5% ad val.	9% ad val.
646.54	0.5¢ per lb.	0.4¢ per lb.	0.4¢ per lb.	0.3¢ per lb.	0.3¢ per lb.	0.2¢ per lb.
646.56	0.3¢ per lb.	0.2¢ per lb.	0.2¢ per lb.	0.2¢ per lb.	0.1¢ per lb.	0.1¢ per lb.
646.57	14.5% ad val.	13% ad val.	11.5% ad val.	10% ad val.	8.5% ad val.	7% ad val.
646.60	22.5% ad val.	20% ad val.	18% ad val.	15.5% ad val.	13% ad val.	11% ad val.
646.63	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.65	20% ad val.	18% ad val.	16% ad val.	14% ad val.	12% ad val.	10% ad val.
646.70	0.3¢ per lb.	0.2¢ per lb.	0.1¢ per lb.	0.1¢ per lb.	Free	Free

APPENDIX A

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

STAGED RATES AND HISTORICAL NOTES

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Staged Rates

Modifications of column 1 rates of duty by Pres. Proc. 3822 (Kennedy Round), Dec. 16, 1967, 32 F.R. 19002 (con.):

TSUS Item	Prior rate	Rate of duty, effective with respect to articles entered on and after January 1 --				
		1968	1969	1970	1971	1972
646.72	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.74	3¢ per lb.	2.5¢ per lb.	2.4¢ per lb.	2¢ per lb.	1.8¢ per lb.	1.5¢ per lb.
646.75	23.5% ad val.	21% ad val.	18.5% ad val.	16% ad val.	14% ad val.	11.5% ad val.
646.76	18% ad val.	16% ad val.	14% ad val.	12.5% ad val.	10.5% ad val.	9% ad val.
646.77	16% ad val.	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.
646.78	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
646.80	12¢ per doz. + 8% ad val.	10.8¢ per doz. + 7% ad val.	9.6¢ per doz. + 6% ad val.	8.4¢ per doz. + 5.5% ad val.	7.2¢ per doz. + 4.5% ad val.	6¢ per doz. + 4% ad val.
646.81	18¢ per doz. + 8% ad val.	16¢ per doz. + 7% ad val.	14.4¢ per doz. + 6% ad val.	12¢ per doz. + 5.5% ad val.	10.5¢ per doz. + 4.5% ad val.	9¢ per doz. + 4% ad val.
646.82	37.5¢ per doz. + 10% ad val.	33¢ per doz. + 9% ad val.	30¢ per doz. + 8% ad val.	26¢ per doz. + 7% ad val.	22¢ per doz. + 6% ad val.	18¢ per doz. + 5% ad val.
646.83	50¢ per doz. + 10% ad val.	48¢ per doz. + 9% ad val.	46¢ per doz. + 8% ad val.	44¢ per doz. + 7% ad val.	42¢ per doz. + 6% ad val.	40¢ per doz. + 5% ad val.
646.84	60¢ per doz. + 8% ad val.	54¢ per doz. + 7% ad val.	48¢ per doz. + 6% ad val.	42¢ per doz. + 5.5% ad val.	36¢ per doz. + 4.5% ad val.	30¢ per doz. + 4% ad val.
646.85	80¢ per doz. + 8% ad val.	72¢ per doz. + 7% ad val.	64¢ per doz. + 6% ad val.	56¢ per doz. + 5.5% ad val.	48¢ per doz. + 4.5% ad val.	40¢ per doz. + 4% ad val.
646.86	30¢ per doz. + 8.5% ad val.	27¢ per doz. + 7.5% ad val.	24¢ per doz. + 6.5% ad val.	21¢ per doz. + 5.5% ad val.	18¢ per doz. + 5% ad val.	15¢ per doz. + 4.25% ad val.
646.87	43¢ per . + 10% ad .	38¢ per doz. + 9% ad val.	34¢ per doz. + 8% ad val.	30¢ per doz. + 7% ad val.	25¢ per doz. + 6% ad val.	21¢ per doz. + 5% ad val.
646.88	65¢ per doz + 8.5% ad val.	58¢ per doz. + 7.5% ad val.	52¢ per doz. + 6.5% ad val.	45.5¢ per doz. + 5.5% ad val.	39¢ per doz. + 5% ad val.	32¢ per doz. + 4% ad val.
646.89	80¢ per doz. + 8% ad val.	72¢ per doz. + 7% ad val.	64¢ per doz. + 6% ad val.	56¢ per doz. + 5.5% ad val.	48¢ per doz. + 4.5% ad val.	40¢ per doz. + 4% ad val.
646.90	22.5% ad val.	20% ad val.	18% ad val.	15.5% ad val.	13% ad val.	11% ad val.
646.92	17% ad val.	15% ad val.	14% ad val.	12% ad val.	11% ad val.	9.5% ad val.
646.95	11.5% ad val.	10% ad val.	9% ad val.	8% ad val.	6.5% ad val.	5.5% ad val.
646.97	12.5% ad val.	11% ad val.	10% ad val.	8.5% ad val.	7% ad val.	6% ad val.
646.98	15% ad val.	13% ad val.	12% ad val.	10% ad val.	9% ad val.	7.5% ad val.
647.01	8.5% ad val.	7.5% ad val.	6.5% ad val.	5.5% ad val.	5% ad val.	4% ad val.
647.03	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
647.05	16% ad val.	14% ad val.	12.5% ad val.	11% ad val.	9.5% ad val.	8% ad val.
647.10	40% ad val.	36% ad val.	32% ad val.	28% ad val.	24% ad val.	20% ad val.
648.54	7.5% ad val.	6.5% ad val.	5% ad val.	4% ad val.	4% ad val.	3.5% ad val.
648.57	15% ad val.	13% ad val.	12% ad val.	10% ad val.	8% ad val.	7.5% ad val.
648.61	7.5% ad val.	6.5% ad val.	6% ad val.	5% ad val.	4% ad val.	3.5% ad val.
648.62	18% ad val.	17% ad val.	17% ad val.	10% ad val.	9% ad val.	7.5% ad val.
648.67	22.5% ad val.	20% ad val.	18% ad val.	15.5% ad val.	13% ad val.	11% ad val.
648.69	6.5% ad val.	7.5% ad val.	6.5% ad val.	5.5% ad val.	5% ad val.	4% ad val.
648.71	4¢ each + 15.5% ad val.	1.6¢ each + 13% ad val.	1.5¢ each + 11% ad val.	1.4¢ each + 9.5% ad val.	1.3¢ each + 7% ad val.	1¢ each + 6% ad val.
648.73	10¢ each + 27.5% ad val.	9¢ each + 25% ad val.	8¢ each + 18% ad val.	7¢ each + 15.5% ad val.	6¢ each + 13% ad val.	5¢ each + 11% ad val.
648.75	4¢ each + 8% ad val.	3.5¢ each + 7% ad val.	3.2¢ each + 6% ad val.	2.8¢ each + 5.5% ad val.	2.4¢ each + 4.5% ad val.	2¢ each + 4% ad val.
648.85	2.1/5¢ each + 20% ad val.	2¢ each + 18% ad val.	2.5¢ each + 16% ad val.	2.3¢ each + 14% ad val.	2¢ each + 12% ad val.	1.6¢ each + 10% ad val.
648.89	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
648.91	10¢ each + 22.5% ad val.	9¢ each + 20% ad val.	8¢ each + 18% ad val.	7¢ each + 16.5% ad val.	6¢ each + 13% ad val.	5¢ each + 11% ad val.
648.93	20% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.	9.5% ad val.
648.95	23% ad val.	18.5% ad val.	16.5% ad val.	14.5% ad val.	12.5% ad val.	10.5% ad val.
648.97	22.5% ad val.	19% ad val.	17% ad val.	15% ad val.	13% ad val.	11% ad val.

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STAGED RATES AND HISTORICAL NOTES

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Other Amendments and Modifications

PROVISION	
Part 3--Headnote 2 added. Pub. L. 89-241, Secs. 2(a), 34, hdnte 2	Oct. 7, 1965, 79 Stat. 933, 939, effective date Dec. 7, 1965.
642.21--Item 642.21 added. Pub. L. 89-283, Secs. 401(a), 405(d),	Oct. 21, 1965, 79 Stat. 1021, 1025; entered into force Dec. 20, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68; effective with respect to articles entered on and after Jan. 18, 1965.
642.35--Language "not under 0.08 inch in diameter" deleted	from article description and language "not under 0.075 inch in diameter" inserted in lieu thereof. Pub. L. 89-241, Secs. 2(a), 35(a), Oct. 7, 1965, 79 Stat. 933, 940, effective date Dec. 7, 1965.
642.45--Language "under 0.08 inch" deleted from heading 642.47	immediately preceding item 642.45 and language "under 0.075 inch" inserted in lieu thereof. Pub. L. 89-241, Secs. 2(a), 35(b), Oct. 7, 1965, 79 Stat. 933, 940, effective date Dec. 7, 1965.
642.86--Items 642.86 and 642.88 added. Pub. L. 89-283, Secs. 642.88	401(a), 405(d), Oct. 21, 1965, 79 Stat. 1021, 1025; entered into force Dec. 20, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68; effective with respect to articles entered on and after Jan. 18, 1965.
642.96--Language "not under 0.08 inch in diameter" deleted from	article description and language "not under 0.075 inch in diameter" inserted in lieu thereof. Pub. L. 89-241, Secs. 2(a), 35(c), Oct. 7, 1965, 79 Stat. 933, 940, effective date Dec. 7, 1965.
646.79--Item 646.79 added. Pub. L. 89-283, Secs. 401(a),	405(b), Oct. 21, 1965, 79 Stat. 1021, 1024; entered into force Dec. 20, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68; effective with respect to articles entered on and after Jan. 18, 1965.
646.93--Item 646.93 added. Pub. L. 89-283, Secs. 401(a),	405(d), Oct. 21, 1965, 79 Stat. 1021, 1025; entered into force Dec. 20, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68; effective with respect to articles entered on and after Jan. 18, 1965.
647.00--Item 647.00 (column 1 rate--19% ad val.; column 2 647.01	rate--45% ad val.) deleted and items 647.01 and 647.03 added in lieu thereof. Pub. L. 89-241, Secs. 2(a), 36(a), Oct. 7, 1965, 79 Stat. 933, 940, effective date Dec. 7, 1965.
647.02--Item 647.02 added. Pub. L. 89-283, Secs. 401(a),	405(d), Oct. 21, 1965, 79 Stat. 1021, 1025; entered into force Dec. 20, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68; effective with respect to articles entered on and after Jan. 18, 1965.
647.06--Item 647.06 added. Pub. L. 89-283, Secs. 401(a),	405(d), Oct. 21, 1965, 79 Stat. 1021, 1025; entered into force Dec. 20, 1965, by Pres. Proc. 3682, Oct. 21, 1965, 3 CFR, 1965 Supp., p. 68; effective with respect to articles entered on and after Jan. 18, 1965.

PROVISION	
Supp 2--Headnote 2 deleted and headnotes 3 and 4 redesig- hdnte 3, 4, and 5	nated as headnotes 2 and 3, respectively. Pub. L. 89-241, Secs. 2(a), 34, Oct. 7, 1965, 79 Stat. 933, 939, effective date Dec. 7, 1965.
648.53--Column 1 rate of duty of 12% ad val. reduced to 7.5%	ad val. Pub. L. 89-241, Secs. 2(a), 32, Oct. 7, 1965, 79 Stat. 933, 941, effective date Dec. 7, 1965.
649.05--Article descriptions for items 649.05 and 649.07 649.07	amended by deleting "7 inches" and inserting "8.75 inches" in lieu thereof. Pub. L. 89-241, Secs. 2(a), 10, Oct. 7, 1965, 79 Stat. 933, 941, effective date Dec. 7, 1965.
649.44--Item 649.44 (column 1 rate--41% ad val., column 2 649.45	rate--60% ad val.) deleted and items 649.44 and 649.46 649.46 and heading immediately preceding item 649.44 added in lieu thereof. Pres. Proc. (Kennedy Round), 32 F.R. , effective date Jan. 1, 1968.
649.64--Language "and for line machinery" added to article	description. Pub. L. 89-241, Secs. 2(a), 43(a), Oct. 7, 1965, 79 Stat. 933, 941, effective date Dec. 7, 1965.
649.71--Column 1 rate of duty changed from 0.2¢ each + 42.5%	ad val. to 30% ad val. on July 1, 1964. General headnote 2(g).
649.73--Column 1 rate of duty changed from 0.3¢ each + 42.5%	ad val. to 50% ad val. on July 1, 1964. General headnote 2(g).
649.75--Column 1 rate of duty changed from 1.8¢ each + 12.5%	ad val. to 50% ad val. on July 1, 1964. General headnote 2(g).
650.08--Items 650.09 (column 1 rate--1¢ each + 12.5% ad val.; 650.09	column 2 rate--2¢ each + 45% ad val.) and 650.11 650.10 (column 1 rate--1¢ each + 17.5% ad val.; column 2 650.11 rate--2¢ each + 45% ad val.) deleted and new items 650.12 650.00, 650.09, 650.10, and 650.12 and headings immediately preceding items 650.08 and 650.10 added in lieu thereof. Pres. Proc. (Kennedy Round), 32 F.R. , effective date Jan. 1, 1968. The column 1 and 2 rates of duty for the articles described in items 650.08 and 650.10 have been temporarily increased for over-quota imports by former items 927.55, 927.60, and 927.61.
650.38--Items 650.39 (column 1 rate--1¢ each + 12.5% ad val.; 650.39	column 2 rate--2¢ each + 45% ad val.) and 650.41 650.40 (column 1 rate--1¢ each + 17.5% ad val.; column 2 650.41 rate--2¢ each + 45% ad val.) deleted and new items 650.42 650.38, 650.39, 650.40, and 650.42 and headings immediately preceding items 650.38 and 650.40 added in lieu thereof. Pres. Proc. (Kennedy Round), 32 F.R. , effective date Jan. 1, 1968. The column 1 and 2 rates of duty for the articles described in items 650.38 and 650.40 had been temporarily increased for over-quota imports by former items 927.55, 927.60, and 927.61.

APPENDIX A

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1968)

STAGED RATES AND HISTORICAL NOTES

Notes p. 11
Schedule 6,
Part 3

Statistical Notes

PROVISION	Effective date
Hdnte. 2--See Other Amendments and Modifications for clarifying language covering items 653.60-654.20	
642.21--See Other Amendments and Modifications	
00--Estab.(transferred from 642.2000pt).....Dec.20,	1965
642.35--See Other Amendments and Modifications	
642.45--See Other Amendments and Modifications	
642.47--See Other Amendments and Modifications	
642.80--	
00--Estab.(transferred from 642.8020 & 40)....Jan. 1,	1966
20--Disc.(transferred to 642.8000).....	do
40--Disc. do	do
642.86--See other Amendments and Modifications	
00--Estab.(transferred from 642.8500pt).....Dec.20,	1965
642.88--See Other Amendments and Modifications	
00--Estab.(transferred from 642.8700pt).....Dec.20,	1965
642.93--	
00--Estab.(transferred from 642.9320 & 40)....Jan. 1,	1966
20--Disc.(transferred to 642.9300).....	do
40--Disc. do	do
642.96--See Other Amendments and Modifications	
644.02--	
00--Disc.(transferred to 644.0220 & 40).....Jan. 1,	1966
20--Estab.(transferred from 644.0200pt).....	do
40--Estab. do	do
646.26--	
00--Disc.(transferred to 646.2620 & 40).....Jan. 1,	1966
20--Estab.(transferred from 646.2600pt).....	do
40--Estab. do	do
646.75--	
00--Estab.(transferred from 646.7520 & 40)....Jan. 1,	1966
20--Disc.(transferred to 646.7500).....	do
40--Disc. do	do
646.76--	
00--Estab.(transferred from 646.7620 & 40)....Jan. 1,	1966
20--Disc.(transferred to 646.7600).....	do
40--Disc. do	do
646.79--See Other Amendments and Modifications	
00--Estab.(transferred from 646.2000, 646.4000-646.4200 & 646.4920-646.7800)...Dec.20,	1965
646.92--	
00--Articles subject to Automotive Products Trade Act (APTA) transferred to 646.9300.....Dec.20,	1965
Unit of quantity changed from "Doz." to "X".....Jan. 1,	1966
646.93--See Other Amendments and Modifications	
00--Estab.(transferred from 646.9200pt).....Dec.20,	1965
Unit of quantity changed from "Doz." to "X".....Jan. 1,	1966
647.00--See Other Amendments and Modifications	
20--Disc.(transferred to 647.0100 & 647.0320).....Dec. 7,	1965
40--Disc.(transferred to 647.0100 & 647.0340).....	do
60--Disc.(transferred to 647.0100 & 647.0360).....	do

PROVISION	Effective date
647.01--See Other Amendments and Modifications	
00--Estab.(transferred from 647.0020pt, 40pt & 60pt).....Dec. 7,	1965
Articles subject to APTA transferred to 647.0200.....Dec.20,	1965
647.02--See Other Amendments and Modifications	
00--Estab.(transferred from 647.0100pt).....Dec.20,	1965
647.03--See Other Amendments and Modifications	
20--Estab.(transferred from 647.0020pt).....Dec. 7,	1965
40--Estab.(transferred from 647.0040pt).....	do
60--Estab.(transferred from 647.0060pt).....	do
647.06--See Other Amendments and Modifications	
00--Estab.(transferred from 647.0500pt).....Dec.20,	1965
648.58--See Other Amendments and Modifications	
648.86--See Other Amendments and Modifications	
648.87--See Other Amendments and Modifications	
648.18--	
00--Estab.(transferred from 648.1180 & 40)....Jan. 1,	1966
20--Disc.(transferred to 648.1800).....	do
40--Disc. do	do
648.45--	
00--Estab.(transferred from 648.4200pt).....Jan. 1,	1968
10--Estab. do	do
18--Estab. do	do
20--Unit of quantity changed from "Doz." to "X".....	do
25--Estab.(transferred from 648.4360pt).....	do
30--Estab. do	do
50--Disc.(transferred to 648.4500, 10, 16, 30, 50 & 90).....do	
80--Estab.(transferred from 648.4380pt).....Jan. 1,	1968
648.44--See Other Amendments and Modifications	
00--Estab.(transferred from 648.4640).....Jan. 1,	1968
648.45--See Other Amendments and Modifications	
20--Disc.(transferred to 648.4400).....Jan. 1,	1968
40--Disc.(transferred to 648.4600).....	do
648.46--See Other Amendments and Modifications	
00--Estab.(transferred from 648.4640).....Jan. 1,	1968
648.51--See Other Amendments and Modifications	
648.71--See Other Amendments and Modifications	
648.73--See Other Amendments and Modifications	
648.76--See Other Amendments and Modifications	
650.06--See Other Amendments and Modifications	
00--Estab.(transferred from 650.0820pt).....Jan. 1,	1968
650.09--See Other Amendments and Modifications	
10--Estab.(transferred from 650.0920pt & 40)..Jan. 1,	1968
20--Articles valued under 25 cents each transferred from 922.5040 & 922.6040....Oct. 12,	1967
Disc.(transferred to 650.0920 & 650.0940).....Jan. 1,	1968
30--Disc.(transferred to 650.0900).....	do
650.10--See Other Amendments and Modifications	
00--Estab.(transferred from 650.1120pt).....Jan. 1,	1968

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		PART 6. - TRANSPORTATION EQUIPMENT			
		Part 6 headnote:			
		1. This part does not cover -- (i) bicycles (see part 5C of schedule 7); or (ii) sleds and toboggans (see part 5D of schedule 7).			
		Subpart A. - Rail Locomotives and Rolling Stock			
690.05	00	Rail locomotives and tenders	No.	10% ad val.	35% ad val.
690.10	00	Self-propelled rail vehicles designed to carry passengers or articles	No.	11.5% ad val.	35% ad val.
		Railroad and railway rolling stock:			
690.15	00	Passenger, baggage, mail, freight and other cars, not self-propelled	No.	18% ad val.	45% ad val.
690.20	00	Workshops, cranes, and other service vehicles	X	0% ad val.	45% ad val.
		Parts of the foregoing articles:			
690.25	00	Axles and parts thereof, and axle hubs, all of the foregoing of iron or steel	lb.	0.7¢ per lb.	0.4¢ per lb.
690.30	00	Wheels and parts thereof, of iron or steel; and any of such wheels or parts imported with iron or steel axles fitted in them	Lv.	0.3¢ per lb.	1¢ per lb.
		Other:			
690.35	00	Parts of cars provided for in item 690.15, except brake regulators	X	15% ad val.	45% ad val.
690.40	00	Other	X	10% ad val.	35% ad val.
		Subpart B. - Motor Vehicles			
		Subpart B headnotes:			
		1. For the purposes of this subpart -- (a) the term "motor vehicles" includes amphibious motor vehicles, (b) automobile truck tractors imported with their trailers are, together with their trailers, classifiable in item 692.02 but, if such tractors or trailers are separately imported, they are classifiable in item 692.27.			
		2. Motor Vehicles and Original Equipment Therefor of Canadian Origin. (a) The term "original motor-vehicle equipment", as used in the schedules with reference to a Canadian article (as defined by general headnote 3(d)), means such a Canadian article which has been obtained from a supplier in Canada under or pursuant to a written order, contract, or letter of intent of a bona fide motor-vehicle manufacturer in the United States, and which is a fabricated component intended for use as original equipment in the manufacture in the United States of a motor vehicle, but the term does not include trailers or articles to be used in their manufacture. (b) The term "motor vehicle", as used in this headnote, means a motor vehicle of a kind described in item 692.02, 692.04, or 692.10 of this subpart (excluding an electric trolley bus and a three-wheeled vehicle) or an automobile truck tractor.			

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
		(c) The term "bona fide motor-vehicle manufacturer", as used in this headnote, means a person who, upon application to the Secretary of Commerce, is determined by the Secretary to have produced no fewer than 15 complete motor vehicles in the United States during the previous 12 months, and to have installed capacity in the United States to produce 10 or more complete motor vehicles per 40-hour week. The Secretary of Commerce shall maintain, and publish from time to time in the Federal Register, a list of the names and addresses of bona fide motor-vehicle manufacturers. (d) If any Canadian article accorded the status of original motor-vehicle equipment is not so used in the manufacture in the United States of motor vehicles, such Canadian article or its value (to be recovered from the importer or other person who diverted the article from its intended use as original motor-vehicle equipment) shall be subject to forfeiture, unless at the time of the diversion of the Canadian article the United States Customs Service is notified in writing, and, pursuant to arrangements made with the Service ... (i) the Canadian article is, under customs supervision, destroyed or exported, or (ii) duty is paid to the United States Government in an amount equal to the duty which would have been payable at the time of entry if the Canadian article had not been entered as original motor-vehicle equipment.			
		Motor vehicles (except motorcycles) for the transport of persons or articles:			
		Automobile trucks valued at $1,000 or more, and motor buses:			
692.02	00	Automobile trucks	No.	3.5% ad val. 1/	25% ad val.
692.03	00	If Canadian article, but not including any three-wheeled vehicle, or trailer accompanying an automobile truck tractor (see general headnote 3(d))	No.	Free	
692.04	00	Motor buses	No.	3.5% ad val.	25% ad val.
692.07	00	If Canadian article, but not including any electric trolley bus or three-wheeled vehicle (see general headnote 3(d))	No.	Free	
692.10		Other		3.5% ad val.	10% ad val.
		On-the-highway, four-wheeled, passenger automobiles:			
	30	*New*	No.		
	40	*Used*	No.		
	45	*Vehicles which operate in whole or in part on rubber or skis*	No.		
	50	*Other*	No.		
692.11		If Canadian article, but not including any three-wheeled vehicle (see general headnote 3(d))		Free	
		On-the-highway, four-wheeled, passenger automobiles:			
	70	*New*	No.		
	80	*Used*	No.		
	85	*Vehicles which operate in whole or in part on rubber or skis*	No.		
	90	*Other*	No.		
		Motor vehicles specially constructed and equipped to perform special services or functions, such as, but not limited to, fire engines, mobile cranes, mixers, concrete pavers, and mobile clinics:			
692.14	00	Fire engines	No.	4% ad val.	25% ad val.
692.16	00	Other	No.	8% ad val.	25% ad val.

1/ Rate temporarily increased by proclamation. See

A P P E N D I X B

Value of U.S. imports for consumption, by TSUS items included in the individual summaries of this volume, total and from the 3 principal suppliers, 1967.

Value of U.S. imports for consumption, by TSUS items included in the individual summaries of this volume, total and from the 3 principal suppliers, 1967

(In thousands of dollars. The dollar value of imports shown is defined generally as the market value in the foreign country and therefore excludes U.S. import duties, freight, and transportation insurance)

TSUS item	All countries		First supplier		Second supplier		Third supplier	
	Amount in 1967	Percent change from 1966	Country	Value	Country	Value	Country	Value
Metal pressure containers (p. 5)								
640.05	5	-13	U. K.	4	Japan	2	-	-
640.10	43	-75	Canada	9	Japan	8	U. K.	5
Metal drums, cans, flasks, and related containers (p. 11)								
640.20	18	-97	U. K.	5	Norway	3	Turkey	2
640.25	623	+112	Italy	338	U. K.	77	Netherlands	65
640.30	4,933	+16	Canada	2,150	W. Germany	584	U. K.	499
Metal reservoirs, tanks, vats, and other large containers (p. 23)								
640.35	1,142	+530	W. Germany	949	Canada	122	Japan	47
Collapsible tubes of metal (p. 27)								
640.40	29	1/	Canada	29	France	1	-	-
Barbed wire (p. 35)								
642.02	9,392	-4	Belg.& Lux.	5,071	W. Germany	2,493	Netherlands	808
Strand, rope, cable, and cordage of wire (p. 41)								
642.06	110	3/	Canada	110	-	-	-	-
642.08	47	+64	Canada	20	Japan	18	Belg.& Lux.	7
642.10	14,464	+26	Japan	12,209	W. Germany	884	Canada	689
642.12	1,009	+25	Japan	783	Belg.& Lux.	113	W. Germany	41
642.14	532	+123	Japan	283	Belg.& Lux.	183	W. Germany	51
642.16	11,042	+11	Japan	3,356	U. K.	1,848	W. Germany	1,815
642.18	239	+204	Canada	194	Belg.& Lux.	17	U. K.	16
642.20	297	-20	W. Germany	89	U. K.	77	Japan	37
642.21	3	+25	Canada	3	-	-	-	-
Fourdrinier and cylinder wires (p. 57)								
642.25	79	-9	Canada	70	W. Germany	7	France	2
642.27	37	+102	Canada	21	W. Germany	14	Sweden	3
642.30	295	-17	U. K.	210	W. Germany	63	Sweden	10
Specified wire fencing, netting, and reinforcing fabric (p. 67)								
642.35	8,598	+9	Belg.& Lux.	6,371	Canada	639	W. Germany	633
642.45	304	-8	W. Germany	177	Belg.& Lux.	111	U. K.	9
642.47	144	-24	Belg.& Lux.	52	W. Germany	49	Netherlands	20
642.80	1,998	-26	Belg.& Lux.	891	Netherlands	475	Italy	276
642.82	56	+109	W. Germany	34	Japan	13	Belg.& Lux.	3

See footnotes at end of table.

Value of U.S. imports for consumption, by TSUS items included in the individual summaries of this volume, total and from the 3 principal suppliers, 1967

(In thousands of dollars. The dollar value of imports shown is defined generally as the market value in the foreign country and therefore excludes U.S. import duties, freight, and transportation insurance)

TSUS item	All countries		First supplier		Second supplier		Third supplier	
	Amount in 1967	Percent change from 1966	Country	Value	Country	Value	Country	Value
Wire cloth and related wire products (p. 83)								
642.50	1	-86	Japan	1	-	-	-	-
642.52	928	+23	Japan	744	Netherlands	78	W. Germany	44
642.54	2	3/	Japan	2	-	-	-	-
642.56	197	+11	Japan	113	W. Germany	70	Netherlands	7
642.58	199	+16	Japan	93	Netherlands	56	Canada	30
642.60	382	4/	Japan	134	Netherlands	72	Canada	68
642.62	13	-46	Japan	13	-	-	-	-
642.64	738	+26	Japan	449	Switzerland	137	W. Germany	129
642.66	110	-48	Japan	95	W. Germany	15	-	-
642.68	196	-42	Japan	93	W. Germany	77	Belg.& Lux.	10
642.70	93	-36	Japan	62	Netherlands	12	W. Germany	11
642.72	399	+53	W. Germany	260	Canada	111	Netherlands	14
642.74	2,514	-3	W. Germany	1,454	Switzerland	610	Japan	253
642.76	221	-47	W. Germany	101	Japan	94	Ireland	12
642.78	489	+29	W. Germany	380	Japan	43	Portugal	19
642.85	16	1/	France	12	Austria	2	Japan	1
642.86	-	-	-	-	-	-	-	-
642.87	1,194	+30	W. Germany	893	U. K.	95	Switzerland	68
642.88	-	-	-	-	-	-	-	-
Bale ties of iron or steel (p. 99)								
642.90	71	+7	Belg.& Lux.	56	France	11	W. Germany	4
642.91	109	-7	Belg.& Lux.	44	France	34	W. Germany	18
642.93	1,958	-37	Belg.& Lux.	1,183	U. K.	362	W. Germany	331
Milliners' and other covered wire (p. 105)								
642.96	170	+3	Belg.& Lux.	62	Canada	56	Japan	25
642.97	233	+4	Belg.& Lux.	77	W. Germany	48	Japan	46
Base metal foil other than aluminum foil (p. 111)								
644.02	21,034	+5	Sweden	9,323	U. K.	4,063	Canada	3,162
644.15	8	+2,825	W. Germany	8	-	-	-	-
644.17	-	-	-	-	-	-	-	-
644.18	82	+44	W. Germany	54	U. K.	28	-	-
644.20	-	-	-	-	-	-	-	-
644.22	95	-41	Austria	82	W. Germany	10	Canada	2
644.24	-	-	-	-	-	-	-	-
644.28	-	-	-	-	-	-	-	-
644.30	-	-	-	-	-	-	-	-
644.32	9	-54	W. Germany	3	Austria	3	U. K.	2
644.36	-	-	-	-	-	-	-	-
644.40	-	-	-	-	-	-	-	-

See footnotes at end of table.

Value of U.S. imports for consumption, by TSUS items included in the individual summaries of this volume, total and from the 3 principal suppliers, 1967

(In thousands of dollars. The dollar value of imports shown is defined generally as the market value in the foreign country and therefore excludes U.S. import duties, freight, and transportation insurance)

TSUS item	All countries		First supplier		Second supplier		Third supplier	
	Amount in 1967	Percent change from 1966	Country	Value	Country	Value	Country	Value
Aluminum foil (p. 123)								
644.06	1,238	+4	France	758	W. Germany	302	Italy	127
644.08	243	-60	Italy	100	Switzerland	50	W. Germany	34
644.09	213	-61	W. Germany	92	Switzerland	76	U. K.	43
644.11	488	-32	Austria	159	U. K.	109	Sweden	100
644.12	1,351	-7	W. Germany	672	Austria	381	Switzerland	88
644.26	54	+62	W. Germany	42	Japan	7	Canada	5
644.38	1,023	+15	Netherlands	472	W. Germany	189	Switzerland	130
644.42	355	+11	Japan	186	Austria	69	Switzerland	32
Metal leaf, embossing and stamping materials, and flitters (p. 135)								
644.46	82	+76	W. Germany	45	U. K.	36	Italy	1
644.48	-	-	-	-	-	-	-	-
644.52	-	-	-	-	-	-	-	-
644.56	2	+252	France	1	W. Germany	1	-	-
644.60	-	-	-	-	-	-	-	-
644.64	1	-36	W. Germany	1	-	-	-	-
644.68	-	-	-	-	-	-	-	-
644.72	10	-26	Italy	6	W. Germany	2	Japan	1
644.76	5	-39	Italy	4	W. Germany	1	-	-
644.80	-	-	-	-	-	-	-	-
644.84	1	+97	Italy	1	-	-	-	-
644.88	88	-58	Italy	45	Japan	22	W. Germany	19
644.92	105	-56	Italy	92	W. Germany	10	Portugal	4
644.95	28	+40	U. K.	27	W. Germany	1	-	-
644.98	53	-22	W. Germany	51	U. K.	2	Italy	2/
Thumb tacks (p. 145)								
646.02	248	+18	W. Germany	206	U. K.	23	Japan	11
646.04	-	-	-	-	-	-	-	-
646.06	13	-59	W. Germany	13	Kor. Rep.	2/	-	-
Fasteners for use in powder-actuated tools (p. 151)								
646.15	493	+68	Switzerland	326	W. Germany	101	Canada	33
646.17	244	+132	Switzerland	133	W. Germany	48	Canada	45
Staples in strip form (p. 157)								
646.20	2,300	-1	W. Germany	1,373	Japan	229	Sweden	210
646.79(pt.)	2/	2/	Canada	2/	-	-	-	-
Corrugated fasteners, glaziers' points, hook nails and ring nails (p. 163)								
646.22	7	-69	Japan	5	W. Germany	1	Canada	2/

See footnotes at end of table.

Value of U.S. imports for consumption, by TSUS items included in the individual summaries of this volume, total and from the 3 principal suppliers, 1967

(In thousands of dollars. The dollar value of imports shown is defined generally as the market value in the foreign country and therefore excludes U.S. import duties, freight, and transportation insurance)

TSUS item	All countries		First supplier		Second supplier		Third supplier	
	Amount in 1967	Percent change from 1966	Country	Value	Country	Value	Country	Value
Brads, nails, spikes, staples, and tacks (p. 167)								
646.25	802	+1	Japan	548	U. K.	168	W. Germany	29
646.26	30,785	-17	Japan	14,336	Canada	5,517	Belg.& Lux.	3,819
646.27	59	+6	Netherlands	40	U. K.	7	Japan	4
646.28	32	-74	Canada	17	W. Germany	8	Japan	7
646.30	2,042	+19	Japan	1,627	Canada	197	W. Germany	71
646.32	318	+25	W. Germany	195	Japan	44	U. K.	32
646.34	29	+42	U. K.	9	W. Germany	6	Canada	5
646.36	83	+17	Japan	47	U. K.	14	Italy	10
Rivets of base metal (p. 181)								
646.40	87	+24	Japan	45	Canada	21	Belg.& Lux.	10
646.41	1,839	4/	U. K.	738	W. Germany	529	Japan	201
646.79(pt.)	5/	5/	Canada	5/	-	-	-	-
Cotters, cotter pins, and certain other fasteners (p. 187)								
646.42	330	+13	Japan	202	Canada	47	France	20
646.79(pt.)	5/	5/	Canada	5/	-	-	-	-
Wood screws of base metal (p. 193)								
646.49	2,935	-15	Japan	2,028	Hong Kong	394	India	123
646.51	69	+10	Japan	29	Italy	16	Canada	8
646.53	329	-31	Italy	148	Japan	74	Belg.& Lux.	43
646.79(pt.)	5/	5/	Canada	5/	-	-	-	-
Threaded and other fasteners, not elsewhere enumerated (p. 203)								
646.54	15,135	+31	Japan	7,214	Canada	2,823	Italy	2,506
646.56	26,343	+13	Japan	14,200	Italy	3,162	U. K.	2,507
646.57	1,596	-11	W. Germany	738	Sweden	521	Canada	132
646.58	3,031	-7	Japan	2,780	U. K.	78	Canada	55
646.60	3,807	+36	Japan	2,482	Italy	752	Ireland	699
646.63	8,119	+36	Japan	4,763	Ireland	1,084	Italy	1,011
646.65	905	+8	Japan	757	U. K.	82	W. Germany	33
646.70	1,194	+25	Canada	399	Japan	315	U. K.	127
646.72	856	+48	Japan	672	W. Germany	76	Italy	53
646.74	748	-7	Belg.& Lux.	259	Italy	245	Japan	126
646.75	628	+23	Japan	315	Switzerland	105	W. Germany	54
646.76	470	+50	Japan	196	Italy	65	W. Germany	65
646.77	37	+125	Canada	11	W. Germany	9	U. K.	7
646.78	98	+101	Japan	69	W. Germany	12	U. K.	4
646.79	1,780	+114	Canada	1,780	-	-	-	-

See footnotes at end of table.

Value of U.S. imports for consumption, by TSUS items included in the individual summaries of this volume, total and from the 3 principal suppliers, 1967

(In thousands of dollars. The dollar value of imports shown is defined generally as the market value in the foreign country and therefore excludes U.S. import duties, freight, and transportation insurance)

TSUS item	All countries		First supplier		Second supplier		Third supplier	
	Amount in 1967	Percent change from 1966	Country	Value	Country	Value	Country	Value
Locks and padlocks (p. 215)								
646.80	417	+46	Japan	220	Hong Kong	99	Italy	56
646.81	360	+64	Japan	107	W. Germany	88	Hong Kong	73
646.82	4	+91	Denmark	2	Hong Kong	1	W. Germany	1
646.83	259	+41	Hong Kong	175	Italy	30	W. Germany	28
646.84	313	+47	Italy	139	W. Germany	82	Hong Kong	57
646.85	22	+112	Italy	12	W. Germany	8	Japan	2
646.86	27	+131	Hong Kong	15	Japan	7	W. Germany	5
646.87	4	-47	W. Germany	3	Hong Kong	1	-	-
646.88	-	-	-	-	-	-	-	-
646.89	81	+40	Japan	50	Canada	15	Switzerland	9
646.90	1,279	-9	Hong Kong	338	W. Germany	261	Japan	226
646.92	1,993	+33	Canada	441	U. K.	397	Hong Kong	377
646.93	138	-31	Canada	138	-	-	-	-
Door closers of base metal (p. 225)								
646.95	1,481	-6	Italy	450	W. Germany	409	Japan	397
Harness and saddlery hardware (p. 231)								
646.97	1,930	+19	W. Germany	754	U. K.	580	Japan	470
646.98	3	+77	W. Germany	1	Mexico	1	Japan	1
Hardware not elsewhere enumerated (p. 237)								
646.45	81	+39	Netherlands	50	W. Germany	16	Japan	12
646.47	3	-52	Japan	3	-	-	-	-
647.01	1,296	+27	W. Germany	601	U. K.	229	Canada	227
647.02	7,780	+81	Canada	7,780	-	-	-	-
647.03	6,476	+20	Japan	3,707	W. Germany	734	Canada	660
647.05	1,933	-10	Spain	354	W. Germany	300	Italy	272
647.06	2	-81	Canada	2	-	-	-	-
647.10	7	-52	Belg.& Lux.	6	Canada	1	-	-

1/ An increase of less than 0.5 percent.
2/ Less than $500.
3/ No imports in 1966.
4/ A decrease of less than 0.5 percent.
5/ Not available; see summary on threaded fasteners.