UNITED STATES TARIFF COMMISSION

IN-THE-EAR HEARING AIDS

Report on Investigation No. 337-20
Under the Provisions of Section 337
of the Tariff Act of 1930, as Amended

TC Publication 182
Washington, D.C.
July 1966

UNITED STATES TARIFF COMMISSION

Address all communications to

United States Tariff Commission

Washington, D. C. 20436

C O N T E N T S

(TC25457)

UNITED STATES TARIFF COMMISSION
Washington

July 29, 1966

In the matter of an investigation with regard to the importation or domestic sale of certain foreign-manufactured in-the-ear hearing aids.	)	Docket No. 20 Section 337 Tariff Act of 1930, as amended

INTRODUCTION

On June 15, 1965, the Tariff Commission received a complaint under section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), 1/ filed by Dahlberg Electronics, Inc., of Minneapolis. Complainant alleged that Gaes, of Barcelona, Spain, induced by Fidelity Electronics, Ltd., Inc., of Chicago, was producing for importation by Fidelity a substantially identical copy of Dahlberg's Miracle Ear in-the-ear hearing aid, which copy (designated Fidelity model F-606) embodied or contained the invention disclosed in complainant's United States Design Patent No. 200,858. Complainant also alleged that these foreign-manufactured in-the-ear hearing aids imported into the United States by Fidelity were being sold domestically without license from the patent holder; that sales literature and promotional material were unlawfully appropriated from Dahlberg and had been utilized by Fidelity; and that, as a result, unfair methods of competition were being employed or unfair acts committed having the effect or tendency to destroy or substantially injure an industry in the United States.

On July 1, 1965, the Commission initiated a preliminary inquiry to determine (1) whether there was good and sufficient reason to institute

1/ Sec. 337 is set forth in appendix A to this report.

a full investigation under section 337 and, if so, (2) whether the Commission should recommend to the President the issuance of a temporary order of exclusion from entry under section 337(f). 1/ In September, the complaint was amended to include allegations that the in-the-ear hearing aid imported from Gaes embodied, employed, or contained the inventions disclosed in two mechanical patents newly issued to Dahlberg, U.S. Patent Nos. 3,197,576 and 3,197,577.

On September 28, 1965, the Commission ordered a full investigation under section 337 with regard to imported in-the-ear hearing aids made in accordance with, embodying, employing, or containing the inventions disclosed in the complainant's patents, and announced that a public hearing in connection with its investigation would be held on December 7, 1965. 2/ The Commission did not recommend the issuance of a temporary order of exclusion.

On November 23, 1965, the Commission received a complaint from Dahlberg Electronics that the Acousticon International Division of Dictograph Products, Inc., of Danbury, Conn. was importing into the United States a model of in-the-ear hearing aids (Acousticon Model A-455) also manufactured by Gaes alleged to embody, employ, or contain

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1/ Public notice regarding receipt of the complaint and initiation of the preliminary inquiry was published in the Federal Register of July 9, 1965 (30 F.R. 8739) and in the Treasury Decisions of July 8, 1965.

2/ Public notice of the investigation and hearing appeared in the Federal Register of Oct. 5, 1965 (30 F.R. 12693) and in the Treasury Decisions of Oct. 7, 1965. The notice provided that persons who entered an appearance in accordance with the Commission's rules would be afforded an opportunity to produce evidence and to testify concerning the subject matter of the investigation.

the inventions disclosed by Dahlberg's U.S. Patent No. 3,197,576. Until November, complainant had had no knowledge of the importation of this model. As a result of this development, the Commission amended the original notice of the investigation and postponed the date of the hearing to January 18, 1966. 1/

The Commission was informed in a letter received on December 27, 1965, that Dahlberg and Fidelity had reached an agreement which "settled all matters between the parties." Pursuant to the terms of the agreement, Fidelity submitted a statement to the Commission reciting in part that--

> Fidelity intends to cease the importation of their Model F-606 in-the-ear hearing aid and agrees to refrain from any future importation of the F-606, or any other in-the-ear hearing aid which infringe Dahlberg's patents D200,858, 3,197,576 and 3,197,577.

The public hearing, at which Dahlberg and Acousticon appeared, was held January 18-20, 1966.

1/ Public notice to this effect appeared in the Federal Register of Dec. 2, 1965 (30 F.R. 14944) and Treasury Decisions for Dec. 2, 1965.

CONCLUSIONS OF THE COMMISSION

The Commission unanimously finds unfair methods of competition and unfair acts in the importation and sale of in-the-ear hearing aids manufactured in accordance with the claims and specifications of U.S. Patent No. 3,197,576 (1965). The Commission is evenly divided, however, with respect to whether the effect or tendency of such unfair practices is to destroy or substantially injure an industry in the United States. 1/ Commissioners Culliton and Fenn find that the effect or tendency is to destroy or substantially injure an industry, efficiently and economically operated, in the United Stated accordingly, they recommend that the articles concerned be exclused from entry into the United States. 2/ Commissioners Sutton and Thunberg find no evidence that the effect or tendency of the unfair methods or acts is to destroy or substantially injure an industry; hence, they do not recommend that the imports here under consideration be excluded from entry into the United States. 3/

Whenever the Commissioners voting are divided into two equal groups on a question calling for findings of the Commission in connection with any authority conferred upon the President by law to make changes in import restrictions, and the members of each group are unanimously agreed upon their findings and recommendations, the

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1/ Chairman Kaplowitz abstained from voting, since the investigation had been concluded before he entered into office.
2/ Statement of Commissioners Culliton and Fenn begins on p. 22.
3/ Statement of Commissioners Sutton and Thunberg begins on p.28

President may consider the result reached by either group as the findings and recommendations of the Commission. 1/

DESCRIPTION AND USE OF HEARING AIDS

A hearing aid is an instrument which amplifies the amount of sound energy reaching the ear of the user. Modern instruments for aiding persons with hearing losses consist almost exclusively of electronic hearing aids; the in-the-ear aid is the most recent of the several types currently being produced. In all electronic hearing aids, as in all other devices for electrical communication of speech, the sound energy is converted into electrical energy, which is amplified and converted into sound energy. The basic components of this group of hearing aids are (1) the microphone, which converts the sound energy into electrical energy; (2) the amplifier (most models produced since the early 1950's for use in hearing aids employ transistors); and (3) the receiver, which converts the electrical energy back into sound energy. Every electronic hearing aid is powered by a very small battery.

1/ Sec. 330(d)(1) of the Tariff Act of 1930, as amended, provides that--

> Whenever, in any case calling for findings of the Commission in connection with any authority conferred upon the President by law to make changes in import restrictions, a majority of the Commissioners voting are unable to agree upon findings or recommendations, the findings (and recommendations, if any) unanimously agreed upon by one-half of the number of commissioners voting may be considered by the President as the findings and recommendations of the Commission: Provided, That if the commissioners voting are divided into two equal groups each of which is unanimously agreed upon findings (and recommendations, if any) the findings (and recommendations, if any) of either group may be considered by the President as the findings (and recommendations, if any) of the Commission. In any case of a divided vote referred to in this paragraph the Commission shall transmit to the president the findings (and recommendations, if any) of each group within the Commission with respect to the matter in question.

Innovations involving the miniaturization of electronic components, the development of transistors, and, more recently, the introduction of integrated circuits (which consolidate several components into one), introduced largely by the manufacturers of components for computers and missile-control systems, have contributed greatly to the technology of producing miniaturized hearing aids.

Four types of electronic hearing aids are in use today: (1) body type, (2) eyeglass type, (3) behind-the-ear type, and (4) in-the-ear type. The body type can be carried in a pocket, pinned to the clothing, or worn in a special carrier, such as a tie clasp or hair barrette, and is connected by a cord to the ear piece. The eyeglass type consists of specially styled plastic eyeglass frames which house a complete hearing aid. Sounds are carried from a miniature microphone in the temple section through an almost invisible, plastic-covered wire to a receiver, usually behind the ear. Sound amplification can be designed for one or both ears. The twin aid (binaural) produces a stereophonic effect. The behind-the-ear type is a small unit (about 2 inches long and weighing about 1/4 to 1/3 ounce) which fits snugly behind the ear. The in-the-ear type, which is the most recent innovation in the market, contains all the elements of the basic aid in a miniaturized instrument (weighing generally 1/4 to 1/3 ounce); the complete instrument is inserted into the ear and part of it extends into the ear canal.

The early models of in-the-ear aids were much more conspicuous than those made recently. Market acceptance was at first unimpressive,

and growth in consumption was slow. As the size of the in-the-ear type was reduced, acceptance was greatly stimulated. By 1965, when almost 6 percent of the U.S. consumption of hearing aids consisted of in-the-ear models, many manufacturers considered this type to have the greatest growth potential.

There are two basic models of in-the-ear aids: custom-built and standard. Before a custom-built model is produced, a dealer takes an impression and sends it to a manufacturer, who in turn produces a custom mold and places the hearing mechanism into the mold. A standard model, on the other hand, is an instrument which is inserted into the ear without the use of an ear mold. Generally, the tip of such a hearing aid goes farther into the ear canal than does the tip of models designed to be used with an ear mold.

The type of hearing aid most suitable for the particular user is contingent on the nature and extent of his hearing loss. 1/ The causes of such loss are extremely varied; the chief factors are heredity, childhood diseases, repeated colds and sinus infections, allergies, head injuries and otosclerosis, a disease that attacks the middle ear. Advanced age may bring a hearing loss; older people frequently suffer from arterial disease, which prevents blood from flowing freely through all parts of the ear.

1/ The choice of a type of hearing aid is often governed by the appearance of the product, and by the persuasiveness of the dealer or his audiologist.

Two kinds of hearing loss are common. If a weakening or blockage of sound vibrations occurs in the outer or middle ear, the impairment is called a conductive loss. In this type of disability the sound becomes faint, but its quality does not change markedly; the source of sound merely seems to be farther away than it actually is. If a malfunctioning of the inner ear occurs, as in the nerve pathways to the brain, the impairment is called a sensorineural loss. This malfunctioning alters the quality of what is heard, and causes the sound to appear faint. Speech may become less intelligible, even though the sound is loud enough to hear.

Persons with conductive loss or those with milder cases of sensorineural loss may regain adequate understanding of normal speech by use of a proper hearing aid. However, an aid will not improve intelligibility for persons with severe sensorineural loss, since the aid can only amplify sound; it cannot correct the quality distortions which accompany severe nerve damage.

Persons having severe hearing impairment are particularly limited in their choice of aids. The only type that enables them to hear reasonably well is the body type. Tests conducted by independent research groups have shown that none of the in-the-ear models currently being marketed is suitable for persons having more than a mild hearing loss. Producers have yet to overcome entirely the problem of feedback, the squeal caused when sound from the receiver (the part that delivers the sound to the ear) goes back into the microphone. Several

companies provide a plastic ear mold, which completely covers the ear opening, for use in conjunction with in-the-ear aids, to lessen the feedback noise. The producers of in-the-ear hearing aids are sharply divided as to whether an ear mold is needed to minimize feedback. Some models are designed to be worn with or without an ear mold.

At least some of the current models of in-the-ear hearing aids offer a higher acoustical gain than did the models predominating several years ago. With improved technology, manufacturers will further reduce the size of the instrument, and improve its performance. A number of major manufacturers are so confident of continuing technical improvements that they predict that in-the-ear hearing aids will be the largest selling type within 5 years.

As previously noted, the in-the-ear type is currently suitable only for persons having a mild or moderate hearing loss. Such persons, however, are less likely to buy a hearing aid than those having severe hearing loss. (A similar situation affects the marketability of behind-the-ear and eyeglass hearing aids.) Consequently, as higher acoustical gain and further miniaturization are incorporated into in-the-ear hearing aids, this type will attract increasing numbers of hard-of-hearing persons.

Producers, importers, and dealers look forward not only to new customers, but also to the replacement market. It is estimated that the average life of a hearing aid in daily use is about 2 to 3 years; during this period the instrument will need to be serviced several times.

U.S. PRODUCTION, SALES, IMPORTS, AND MARKETING OF HEARING AIDS

Domestic Producers

There has been an increase in the number of firms engaged in the manufacture of hearing aids in the United States in recent years, including those that make in-the-ear aids. Currently there are about 40 domestic producers in all, 15 of which produce in-the-ear aids. A few of the 15 firms also manufacture specialized equipment used to measure and correct hearing deficiencies. Producers of hearing aids generally make at least two of the four basic types of aids. Some of the producers of in-the-ear hearing aids are diversified companies that make a wide range of other electronic products having civilian and military applications. The majority of the producers of in-the-ear hearing aids, however, confine their operations exclusively or almost exclusively to making and selling hearing aids, as does Dahlberg Electronics, the complainant in this investigation.

About 80 percent of the domestic producers are in the northeast and midwest sections of the United States; the remaining 20 percent are scattered throughout the far western and southern sections.

Since 1965, at least two domestic producers have commenced marketing in-the-ear hearing aids of their own manufacture. One of them is the Acousticon International Division of Dictograph Products, Inc., the respondent in this investigation. The other is Sonotone Corp., of Elmsford, N.Y.

Production and Sales

During most of 1961-65 Dahlberg was the leading producer of in-the-ear hearing aids, and in 1964-65 it accounted for more than three-fifths of the total domestic production of in-the-ear hearing aids. Dahlberg's sales of in-the-ear hearing aids increased steadily from about 1,800 units in 1961 to more than 13,000 units in 1965. All of its output of such aids, in 1964-65, utilized the inventions disclosed by U.S. Patent No. 3,197,576.

Domestic producers that furnished information in response to the Commission's questionnaire 1/ indicated that they sold 4,534 in-the-ear hearing aids in 1961 and 7,435 such aids in 1962. In 1963, only 5,219 in-the-ear aids were sold; in 1964, the units sold were more than twice that number and in 1965, they totaled 22,490. 2/

The Hearing Aid Industry Conference (HAIC) reports that in the period July 1, 1964-July 1, 1965, the share of U.S. sales supplied by each type of hearing aid was as follows:

	Percent of total
Behind-the ear type	46.5
Eyeglass type	30.5
Conventional (body) type	17.5
In-the-ear type	5.5

Spokesmen of the HAIC interpret these data as indicating (1) the increase in popularity of behind-the-ear aids (almost half the total sales), (2) the continuing decline in eyeglass aids, and (3) the almost

1/ Recipients of the Commission's questionnaire were instructed to supply data only if they had produced in-the-ear hearing aids during the period Jan. 1, 1961-Sept. 30, 1965. It is believed that producers reporting data to the Commission accounted for all of the domestic production of in-the-ear hearing aids during the period indicated and that their output of all types of hearing aids accounted for about 65 percent of the domestic production of all types of hearing aids.

2/ Annual rate of data reported for January-September 1965.

unchanging share supplied by conventional models. In-the-ear aids almost doubled their percentage over that in the previous reporting period, although they still represent a very small part of total sales. The trade anticipates that this type of aid will supply a growing share of the market in the future.

Imports

In-the-ear hearing aids were imported into the United States for about 4 years before the issuance (in 1965) of the patent on which Dahlberg based its complaint. In 1964, while the Dahlberg patent application was pending, a small share of the imports of in-the-ear aids consisted of a model found by the Commission to be made in accordance with the claims and specifications of Dahlberg's patent. In 1965, imports of in-the-ear aids were several times as large as those in any previous year and nearly all of them consisted of two models found by the Commission to have been made in accordance with the claims and specifications of the Dahlberg patent. The two models were made by Gaes, the manufacturer in Spain; one of the models (the F-606) was imported into the United States by Fidelity Electronics, Ltd., Inc., and the other (the A-455) was imported by the Acousticon International Division of Dictograph Products, Inc.

In December 1965, Fidelity signed an agreement with Dahlberg to discontinue the importation and sale of the F-606 in-the-ear hearing aid. Acousticon, on the other hand, is still importing the model A-455

and intends to continue doing so, at least until such time as it has reached full-scale production of its recently introduced domestic model.

Distribution Methods

Hearing aids are marketed through several channels of distribution. Approximately 90 percent of all sales of hearing aids are made through outlets devoted to retailing hearing aids and accessories only. Some of these "hearing aid centers" are owned by the manufacturer, but most of them are privately owned businesses franchised by one or more domestic producers and/or an importer. Almost all of these centers are equipped to perform a variety of services including conducting audiometer tests, fitting the hearing aid, and furnishing minor repairs. Hearing aids requiring major repairs are returned to the manufacturer for service.

Two nationwide chain department stores, Sears Roebuck and Montgomery Ward, sell private-brand hearing aids. Hearing aids are also sold by individual department stores, usually on the basis of a lease negotiated with a manufacturer for a certain period of time.

Prices

During the course of its investigation the Commission obtained data on prices of in-the-ear hearing aids from the leading domestic producers and from all importers of such hearing aids. The data show that in 1965 the prices to dealers of the models imported by Fidelity and Acousticon were about equal to or below the prices of the Dahlberg

patented in-the-ear aids, taking into account cooperative advertising allowances offered. Prices of other domestically produced and imported in-the-ear aids varied considerably, some being lower than the Fidelity and Acousticon imported models and others being higher than the Dahlberg patented articles.

UNFAIR METHODS OF COMPETITION AND UNFAIR ACTS IN THE IMPORTATION AND SALE OF IN-THE-EAR HEARING AIDS

Past Commission action under section 337 of the Tariff Act of 1930, approved by the Court of Customs and Patent Appeals, has established that the importation and sale of an article made in accordance with, embodying, employing, or containing the inventions disclosed in a current U.S. patent which has not been held invalid by a court of competent jurisdiction may constitute an unfair method of competition and an unfair act. 1/ This investigation involves both patent-associated claims and allegations of misleading advertising in the sale of the imported article.

Violations of Patent

The sole patent under consideration here is Martin U.S. Patent No. 3,197,576 (1965), issued on July 27, 1965, to Dahlberg Electronics, Inc., as assignee of Richard T. Martin. 2/ The invention discloses

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1/ See In re Von Clemm, 43 C.C.P.A. (Customs) 56, 229 F. 2d 441, 443 (1955); In re Orion Co., 22 C.C.P.A. (Customs) 149, 71 F. 2d 458, 465 (1934); and In re Northern Pigment Co.,22 C.C.P.A. (Customs) 166, 71 F. 2d 447, 455 (1934). See also Frischer & Co. v. Bakelite Corp., 17 C.C.P.A. (Customs) 494, 39 F. 2d 247, 260, cert. denied 282 U.S. 852 (1930).

2/ As a result of the settlement reached with Fidelity Electronics, Ltd., Inc., as discussed on p. 3 supra, the 576 patent is the only patent under consideration in this investigation.

improvements in an in-the-ear hearing aid, one object of which is to provide a miniaturized aid which fits in the ear of the user.

The patent has been involved in three court suits, all instituted by Dahlberg and all against alleged infringers. In two of these cases, consent decrees have been entered. The third suit which is still pending involves Acousticon, a respondent in this investigation.

Acousticon concedes that its model A-455, imported from Gaes, infringes claim 10 of U.S. Patent No. 3,197,576; 1/ claims 1-3 and 5-9

1/ The following exchange between counsel for complainant and respondent's technical witness, Mr. Beizer, occurred at the hearing:

Mr. Edell: Does the A-455 hearing aid produced by Acousticon infringe claim No. 10 of the patent?

Mr. Beizer: On the basis that we may not and will not question the validity (of the patent) at this hearing, it does infringe claim No. 10.

Claim 10 reads as follows:

10. In an in-the-ear hearing aid having an elongated receiver capable of producing acoustic energy from one end thereof and adapted for insertion in the ear canal of the user with said one end adjacent the eardrum, said receiver being covered by a soft resilient elongated hollow boot having an aperture adjacent said one end of said receiver, the improvement comprising:

a soft resilient tip removably fitted over said resilient boot and fitted to the shape of the ear canal of the user to hold said boot covered receiver therein.

are not alleged to be infringed. Thus, consideration is limited to claim 4 of the patent. 1/ Furthermore, Acousticon admits that 9 of the 11 elements comprising claim 4 of the patent are contained in the imported in-the-ear hearing aid; consequently, the parties disagree only on whether the Acousticon Model A-455 embodies elements (g) and (j) of claim 4.

1/ Claim 4 reads as follows:

4. An in-the-ear hearing aid comprising:
   (a) a housing adapted to be fitted into the ear of the user;
   (b) a first aperture through one of the walls of said housing;
   (c) a microphone in said housing adjacent said first aperture;
   (d) an amplifier mounted in said housing, said amplifier having an input and an output;
   (e) means connecting said microphone to the input of said amplifier;
   (f) a battery mounted in said housing and connected to said amplifier to provide an energizing source therefor;
   (g) a soft resilient elongated hollow boot having a second aperture at one end thereof and a third aperture at the opposite end thereof, said opposite end of the boot being tapered and terminating in an external lip;
   (h) an elongated receiver member capable of producing an acoustic output from one end thereof, said receiver being mounted inside of said hollow resilient boot so that the acoustic output end of said receiver is adjacent the second aperture of said boot, said boot and receiver adapted for insertion in the ear canal of the user with the second aperture adjacent the eardrum of the user;
   (i) a fourth aperture through one of the walls of said housing, said other end of the boot being positioned through said fourth aperture;
   (j) locking means connected to prevent withdrawal of said other end of the boot from said fourth aperture;
   (k) and conductor means extending through said third aperture and connecting the output of said amplifier to said receiver.

Element (g) of claim 4

The meaning and scope of the term "tapered," as used in this claim to modify "boot," is in dispute. Acousticon asserts that the receiver end of the boot on its product is not tapered.

"* * * it is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention." 1/ The specifications of the Martin patent, regarding the tapered part of the boot, are--

> An elongated hollow boot 39 is formed from rubber, or other suitable soft resilient material, and has an aperture 40 at one end thereof and an aperture 41 at the opposite end thereof. Aperture end 41 of boot 39 has a tapered neck portion which terminates in an external lip 42.
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> * * * * * * *
>
> * * * Plate 52 has an aperture 53 therethrough, the diameter of aperture 53 being less than the normal diameter of the exterior lip 42 of boot 39. Since boot 39 is highly resilient, the exterior lip 42 can be compressed and forced through aperture 53 of wall plate 52, boot 39 then being held in place by exterior lip 42. * * *

In the context of these specifications, the word "tapered" is not limited solely by the dictionary meaning, "to diminish gradually"; 2/ the Commission construes the invention to be any reduction in size to permit the boot to fit through the aperture in the housing and not exclusively a gradual reduction. Since the Acousticon Model A-455 has a reduction in size for this purpose, it effectively copies the invention specified in the cited patent. The Commission's view that Acousticon

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1/ United States v. Adams, 383 U.S. 39, 49 (1966).

2/ The definition of taper is "1: to make or become gradually smaller toward one end 2: to diminish gradually" (Webster's Seventh New Collegiate Dictionary, 1963).

Model A-455 constitutes a fraud on the Dahlberg patent is reinforced under the doctrine of equivalents; that doctrine, set out in Graver Tank & Manufacturing Co. v. Linde Air Products Co., 339 U.S. 605, 607-08 (1950), is as follows:

> But courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for--indeed encourage--the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.
>
> The doctrine of equivalents evolved in response to this experience. The essence of the doctrine is that one may not practice a fraud on a patent. Originating almost a century ago in the case of Winans v. Denmead, 15 How. 330, it has been consistently applied by this Court and the lower federal courts, and continues today ready and available for utilization when the proper circumstances for its application arise. "To temper unsparing logic and prevent an infringer from stealing the benefit of an invention" a patentee may invoke this doctrine to proceed against the producer of a device "if it performs substantially the same function in substantially the same way to obtain the same result." Sanitary Refrigerator Co. v. Winters, 280 U.S. 30, 42 [3 U.S.P.Q. 40, 44].

The Commission finds that the boot of the Acousticon A-455 performs substantially the same function in substantially the same way to obtain the same result as described in the Dahlberg patent.

Element (j) of claim 4

This element of claim 4 calls for a "locking means connected to prevent withdrawal of said other end of the boot from said fourth aperture." The Acousticon Model A-455 employs a silicone adhesive sealant to prevent withdrawal of the boot from the housing; the Dahlberg instrument employs a knot portion which is forced through the aperture of the boot thereby locking the boot in position. The issue is whether the use of the adhesive sealant constitutes a "locking means" within the meaning of that phrase in element (j) of claim 4.

Respondent contends that its product has a boot which is fastened and not locked, the distinction being that it is easier to remove the boot from a locking device than from an adhesive connection. But inasmuch as Webster's Seventh New Collegiate Dictionary defines "lock" to include "to hold fast or inactive," the term "locking means" is broad enough to cover a fastening. Since the patent art in this area is undeveloped and uncrowded, the claim is entitled to a broad interpretation.

The record shows that the foreign manufacturer had requested and received the Dahlberg Miracle Ear V prior to his production of in-the-ear hearing aids (Fidelity F-606 and Acousticon A-455). It is evidence of an intent by Gaes to duplicate the Dahlberg hearing aid. The means Gaes has used to accomplish the duplication is less sophisticated and less expensive than the Dahlberg original, but otherwise the same.

The Commission finds, therefore, that the Acousticon A-455 manufactured in Spain by Gaes is made in accordance with, embodies, employs,

or contains the inventions disclosed in claims 4 and 10 of a current U.S. patent which has not been held invalid by a court of competent jurisdiction.

THE INDUSTRY IN THE UNITED STATES

The Industry Concerned

The "industry" in the United States under consideration in this investigation is the industry legally entitled to manufacture and sell in-the-ear hearing aids under U.S. Patent No. 3,197,576. Dahlberg Electronics, Inc., the sole owner of the patent, manufactures in-the-ear hearing aids under the aforesaid patent. It has recently licensed three domestic companies to manufacture the same in accordance with this patent, and is conducting negotiations with three other domestic producers interested in licensing agreements.

Efficiency and Economy of Operation of the Industry 1/

Dahlberg has been in the forefront of the commercial development of in-the-ear hearing aids. Although it did not patent its first model, it subsequently obtained patent protection on the Miracle Ear V, which purportedly was the first "all-in-the-ear" hearing aid. The firm launched a costly and successful campaign to promote the sales of the Miracle Ear aid. Dahlberg, the largest producer of in-the-ear hearing aids, has made new and useful contributions to the technology of hearing-aid manufacture; the firm's production techniques apparently

1/ This section does not necessarily reflect the views of Commissioner Thunberg, who, having found no injury, considers it unnecessary to discuss the matter of efficiency.

are as advanced as those employed by other producers of hearing aids. Its sales of in-the-ear aids, and profits on such sales, have increased in recent years. The industry under consideration, therefore, is efficiently and economically operated.

EFFECT OR TENDENCY OF THE UNFAIR METHODS AND UNFAIR ACTS

Statement of Commissioners Culliton and Fenn

The preceding findings agreed to by all the Commissioners participating in this investigation recite only patent-associated unfair methods of competition or unfair acts. But there are other elements of unfair methods or acts alleged and manifested in the importations and sales concerned, of which no disposition apparently is made by the other Commissioners. For instance, evidence was introduced by complainant (which was not contraverted) tending to show that both Fidelity and Acousticon dealers on occasion copied portions of Dahlberg advertising, and used these copies to advertise the Fidelity and Acousticon products. It was not shown that by so doing these dealers appropriated something in which Dahlberg had a proprietary interest. However, a result of such conduct might be to confuse and mislead the public as to the origin of the Fidelity and Acousticon products concerned, in the light of Dahlberg's commanding position in the trade involved and its extensive advertising of its product.

While these and other competitive facts in evidence, such as switch selling, 1/ may not in this instance be sufficient to establish an "unfair method of competition or unfair act" independent of the patent-associated unfair practices, we find that they must be considered in conjunction with such practices in appraising fairness and injury with respect to the importations and sales concerned.

1/ Transcript of the hearing, pp. 37-38 and 264-267.

Apart from the absence of specific agreement among the Commissioners on what constitutes evidence of unfair methods and unfair acts and apart from an absence of a finding by Commissioner Thunberg of whether the domestic industry is or is not efficiently operated, the fundamental issue dividing the Commission is whether the unfair methods of competition and unfair acts unanimously found to exist in this investigation have, within the meaning of section 337, "the effect or tendency ... to destroy or substantially injure" the domestic industry involved, i.e., the domestic producers of in-the ear hearing aids manufactured in accordance with U.S. patent 3,197,576. It is our opinion that such unfair methods and acts do have both the tendency and the effect to substantially injure the domestic industry.

The effects of patent-centered unfair acts must be examined with specific reference to the product involved and the business and marketing conditions associated therewith.

The manufacture and sale of hearing aids is characterized by a very large markup at retail and a similar high gross margin at the manufacturing level. These facts, however, do not automatically mean that profits are assured. The price structure results from the nature of the product. It is not one which the users buy with great joy--they would rather not have it; successful use of the product requires a large amount of personal service, fitting and adjustment--services for which customers do not like to pay directly as charges and which, therefore, get included in the price quoted for the product itself; furthermore, volume is relatively small and many service costs are incurred with individuals who do not, in fact, buy, and such costs--as well as advertising, selling, and administrative costs--must be loaded heavily on the sales which are made.

Put in other words, this means that in this kind of business the fixed costs of being in business--at any volume--tend to be more highly centered in administration and marketing than in manufacturing as would be the case, say, in a basic steel company. The figures of the company--which may not be released because of confidentiality--show clearly a high leverage of volume on profits where the fulcrum is not manufacturing costs but selling and administrative costs.

Given these business facts, one effective selling impetus is a growing number of satisfied customers. Here, new and improved products (with improvement meaning not only better sound amplifying performance but less conspicuous and/or more attractive instruments); attractive sales and consultation offices; courteous and understanding service; reliable instruments and, where necessary, prompt and efficient service are all ingredients of the good will that is necessary to build a volume of sales necessary to cover the required investment in sales capacity. The results do not depend on doing one thing or even several things right; they depend upon doing almost everything right or better than right. It is in this context that violation of a patent (and accompanying practices such as price cutting, misleading advertising, switch selling and poor products--especially of a new type--) becomes unfair and injurious within the meaning of section 337.

The necessary investment in marketing and service becomes especially meaningful in the case of a new and unusual item in this field, like the in-the-ear product. Dahlberg found it necessary to lay a great deal of groundwork--advertising, training of dealers, demonstrations--to develop

the level of consumer acceptance they have now reached. In fiscal 1965, their general administrative and selling expenses with respect to in-the-ear hearing aids were about 150 percent of the cost of sales.

Through unfair methods--primarily, the use of Dahlberg's patent--domestic competitors and importers were able to leap-frog the expensive research and development stage and the time-consuming and costly process of market cultivation. They were thus able to avoid the inevitable business risks involved in launching a new product and establish a strong competitive position much earlier than would otherwise have been possible. 1/ We note, for example, that Acousticon has long planned to introduce an in-the-ear product and that they specifically worked out the contract with Gaes so they could establish themselves in the market with such a product until such time as they were able to build one of their own. Dahlberg has been robbed on the lead time which it had every right to expect.

In addition, imports, which penetrated the market with ease because the ground had been prepared for them, reached approximately one-fourth of production of the domestic industry concerned by 1965. Even granting that a one-to-one replacement of the domestic product is unlikely, one can hardly claim that a loss of sales of this dimension is not injurious.

1/ In March 1965, in a letter to Gaes, the President of Fidelity spoke of the "tremendous acceptance that we had had on the F-606." In April he stated that: "The aids that you have shipped to us so far have met by and large with resounding success with our dealers, who are now able to compete with Dahlberg dealers and are finding a very substantial market for the F-606. Naturally Dahlberg has been aware of relatively heavy competition in some areas, notably in California, where Dahlberg is heavily represented."

Finally, Dahlberg is being harassed by unfair acts, requiring the diversion of funds and management manpower to safeguard their position. They have already been required to defend themselves twice against offending importers. Now, the evidence in hand clearly indicates that Gaes is in process of doing precisely what one would expect him to do, since Fidelity has ceased importation and Acousticon is planning to phase out its imports; he is aggressively looking for another importer to take their place 1/ and Dahlberg will be forced to move again. To protect an efficient domestic producer/industry in this predicament is precisely the purpose of section 337.

The facts recited above constitute not the mere tendency to substantially injure--the minimum standard required for an affirmative determination under section 337--but, in fact and in law, substantial injury to the domestic industry. In conclusion, we wish to make explicit what has often been implicit, namely that under existing law different standards for injury are applicable in situations where unfair acts are involved than in those situations arising from the normal pushing and pulling of business competition. This position is supported by traditional American legal concepts and interpretation of trade regulatory law--witness, for example, the assumption of injury in price-fixing cases; by the particular wording

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1/ Subsequent to the public hearing the Commission obtained documentary evidence that Gaes is actively seeking new United States outlets for its production of in-the-ear aids made in accordance with the claims and specifications of the Dahlberg patent.

of section 337 as contrasted to other legislation; 1/ and by Tariff Commission precedent under section 337 as confirmed by the Court of Customs and Patent Appeals. Since injurious consequences are often inherent in the nature of an unfair act, the unfairness of the act cannot be neatly cut apart from its "effect or tendency" to cause injury, particularly when the offender wilfully and continuously engages in the unfair act.

Respectfully submitted.

James W. Culliton, Commissioner

Dan H. Fenn, Jr., Commissioner

1/ Other statutes administered by the Commission require, among other things, an assessment by the Commission of the effect upon domestic industries of imports, but section 337 is unique in that the effect or tendency to be determined is that of methods of competition and acts which lie outside accepted modes of trade.

Statement of Commissioners Sutton and Thunberg

Acousticon's imported in-the-ear hearing aids appear to be made in accordance with the claims and specifications of an unexpired U.S. patent; 1/ accordingly, their importation and sale in the United States constitute an unfair method of competition or unfair act within the meaning of section 337 of the Tariff Act of 1930. We find no evidence, however, that the effect or tendency of these imports "is to destroy or substantially injure" an efficiently and economically operated domestic industry. According to the clear language of the statute, the existence of "unfair methods of competition and unfair acts" alone is not sufficient to warrant excluding the patent-violating imports from the U.S. market. These acts must in addition cause--or must in addition be likely to cause--injury so substantial that the danger of the destruction of a domestic industry is present. The record contains no evidence of any such danger or any such injury.

It must be remembered that section 337 is not an extension of the patent laws and is not designed to protect patent rights as such. The Commission has been judicially instructed that it may not determine patent validity under section 337. 2/ Accordingly, the injury determination under the statute must be confined to economic considerations appropriate to determining the impact of imports upon the domestic industry.

1/ Whose validity must be presumed by the Commission although it is presently in litigation in the courts.

2/ Frischer & Co. v. Bakelite Corp., 39 F. 2d 247, (1930), cert. denied 282 U.S. 852 (1930).

The domestic "industry" under consideration in this investigation is the firm legally entitled to manufacture and sell in-the-ear hearing aids under U.S. Patent 3,197,576. Dahlberg Electronics, Inc. owns and manufactures in-the-ear aids under this patent, and until recently has been the sole manufacturer entitled to do so. Dahlberg has been a leader in the development of in-the-ear hearing aids. The company has made useful contributions to the technology of hearing-aid manufacture; its production techniques are well advanced compared with those employed by other producers of hearing aids. The number of patented in-the-ear aids sold by Dahlberg in 1965 was nearly 80 percent greater than in 1964 and, despite a doubling in total domestic production of in-the-ear aids and a nearly tenfold expansion of imports of such aids in 1965, Dahlberg's gross and net profits grew. The firm's profits on sales of in-the-ear aids have increased consistently since 1963 without any softening of prices received.

Dahlberg has recently licensed several domestic firms to manufacture in-the-ear aids in accordance with Patent 3,197,576 and is conducting negotiations with additional U.S. companies interested in licensing agreements.

This expansion of Dahlberg's operations is evidence that the domestic industry entitled to manufacture the patented hearing aid has not been prevented from becoming established and that the industry is not being injured substantially within the meaning of section 337.

Further, we find no evidence of a tendency toward destruction or toward substantial injury to the industry in this case. The patent-violating imports have been brought into the United States by two

companies, by Fidelity Electronics, Ltd., Inc., as well as by the Acousticon Division of Dictograph Products, Inc. In December 1965, Fidelity undertook in an agreement with Dahlberg, inter alia, to cease the importation and sale of in-the-ear hearing aids that violated Dahlberg's patent rights. Thus the impact on the industry of Fidelity's imports of the hearing aids in question--more than half of such imports in 1965--has been eliminated.

Acousticon continues to import its model A-455, found by the Commission to be made in accordance with Dahlberg's patent, but as previously shown Dahlberg's business has continued to flourish despite increasing competition from domestic sources as well as from Acousticon. There is no direct evidence that Acousticon's A-455 is in any way an inferior product, or that its dealers have engaged in switch tactics. Nor is there any evidence that Dahlberg's sales of in-the-ear aids have been affected by misleading advertising by Acousticon dealers. In addition Acousticon is test-marketing an American-made in-the-ear model of its own manufacture. Once certain defects in the new model have been eliminated, the firm intends to go into full-scale production and to phase out its importation of the model A-455.

We recognize that the profits available at current price levels provide an incentive to foreign manufacturers to seek replacement for Fidelity and Acousticon as U.S. importers of in-the-ear hearing aids. It is unlikely, however, that imported in-the-ear aids which violate Dahlberg's patent rights can be marketed on a sustained basis in the

United States in view of Fidelity's experience in attempting to market the F-606 in this country and Acousticon's preference for manufacturing an in-the-ear aid in the United States instead of continuing to import the A-455. Meanwhile other domestic producers are reacting to the same incentive by expanding production of in-the-ear hearing aids not subject to the Dahlberg patent or under license from Dahlberg. This expansion of output, if sustained, is likely to be followed by price declines which in themselves will tend to inhibit further imports.

Respectfully submitted.

Glenn W. Sutton, Vice Chairman

Penelope H. Thunberg, Commissioner

APPENDIX A

SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

SEC. 337. UNFAIR PRACTICES IN IMPORT TRADE.[1/]

(a) Unfair Methods of Competition Declared Unlawful.-- Unfair methods of competition and unfair acts in the importation of articles into the United States, or in their sale by the owner, importer, consignee, or agent of either, the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States, or to prevent the establishment of such an industry, or to restrain or monopolize trade and commerce in the United States, are hereby declared unlawful, and when found by the President to exist shall be dealt with, in addition to any other provisions of law, as hereinafter provided.

(b) Investigations of Violations by Commission.-- To assist the President in making any decisions under this section the commission is hereby authorized to investigate any alleged violation hereof on complaint under oath or upon its initiative.

(c) Hearings and Review.-- The commission shall make such investigation and give such notice and afford such hearing, and when deemed proper by the commission such rehearing, with opportunity to offer evidence, oral or written, as it may deem sufficient for a full presentation of the facts involved in such investigation. The testimony in every such investigation shall be reduced to writing, and a transcript thereof with the findings and recommendation of the commission shall be the official record of the proceedings and findings in the case, and in any case where the findings in such investigation show a violation of this section, a copy of the findings shall be promptly mailed or delivered to the importer or consignee of such articles. Such findings, if supported by evidence, shall be conclusive, except that a rehearing may be granted by the commission and except that, within such time after said findings are made and in such manner as appeals may be taken from decisions of the United States Customs Court, an appeal may be taken from said findings upon a question or questions of law only to the United States Court of Customs and Patent Appeals by the importer or consignee of such articles. If it shall be shown to the satisfaction of said court that further evidence should be taken, and that there were reasonable grounds for the failure to adduce such evidence in the proceedings before the commission, said court may order such additional evidence to be taken before the commission in such manner and upon such terms and conditions as to the court may seem proper. The

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1/ The importation hereafter for use, sale, or exchange of a product made, produced, processed, or mined under or by means of a process covered by the claims of any unexpired valid United States letters patent, whether issued heretofore or hereafter, shall have the same status for the purposes of section 337 of the Tariff Act of 1930 as the importation of any product or article covered by the claims of any unexpired valid United States letters patent.

commission may modify its findings as to the facts or make new findings by reason of additional evidence, which, if supported by evidence, shall be conclusive as to the facts except that within such time and in such manner an appeal may be taken as aforesaid upon a question or questions of law only. The judgment of said court shall be final.

(d) Transmission of Findings to President.-- The final findings of the commission shall be transmitted with the record to the President.

(e) Exclusion of Articles from Entry.-- Whenever the existence of any such unfair method or act shall be established to the satisfaction of the President he shall direct that the articles concerned in such unfair methods or acts, imported by any person violating the provisions of this Act, shall be excluded from entry into the United States, and upon information of such action by the President, the Secretary of the Treasury shall, through the proper officers, refuse such entry. The decision of the President shall be conclusive.

(f) Entry Under Bond.-- Whenever the President has reason to believe that any article is offered or sought to be offered for entry into the United States in violation of this section but has not information sufficient to satisfy him thereof, the Secretary of the Treasury shall, upon his request in writing, forbid entry thereof until such investigation as the President may deem necessary shall be completed; except that such articles shall be entitled to entry under bond prescribed by the Secretary of the Treasury.

(g) Continuance of Exclusion.-- Any refusal of entry under this section shall continue in effect until the President shall find and instruct the Secretary of the Treasury that the conditions which led to such refusal of entry no longer exist.

(h) Definition.-- When used in this section and in sections 338 and 340, the term "United States" includes the several States and Territories, the District of Columbia, and all possessions of the United States except the Virgin Islands, American Samoa, and the island of Guam.

APPENDIX B

Production of all types of hearing aids by all U.S. producers; sales of all types of hearing aids and of in-the-ear hearing aids (1) by all U.S. producers of in-the-ear hearing aids and (2) by Dahlberg, 1961-65

Year	Production by all U.S. producers	Sales by U.S. firms producing in-the-ear hearing aids			Sales by Dahlberg 1/		
		All types of aids	In-the-ear aids		All types of aids	In-the-ear aids	
			Number	Percent of all aids		Number	Percent of all aids
	Units	Units	Units		Units	Units	
1961	2/	231,682	4,534	2.0	24,123	1,821	7.5
1962	2/	218,478	7,435	3.4	23,152	1,948	8.4
1963	2/	214,010	5,219	2.4	23,890	2,246	9.4
1964	4/ 387,000	230,648	11,336	4.9	29,969	5/ 7,644	25.5
1965	4/ 410,000	6/ 241,546	6/ 22,490	9.3	6/ 38,782	5/ 6/ 13,100	33.8

1/ Included in the record with the express consent of Dahlberg Electronics, Inc.
2/ Not available.
3/ Estimated from data reported to the Tariff Commission by the producers.
4/ Estimated from data published in the "...Annual Facts and Figures," November 1964 and November 1965 issues, respectively, of the National Hearing Aid Journal.
5/ All described by patents on which Dahlberg bases its complaint.
6/ Annual rate of data reported for January-September 1965.

Source: Compiled from questionnaires returned to the Tariff Commission except as noted.