

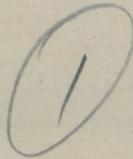
Pinkney (H)

A NEW

APPLICATION OF AN INSTRUMENT

FOR THE

*RELIEF OF DEAFNESS CAUSED BY ADHESIONS OF
THE OSSICULA OF THE TYMPANUM.*



BY

HOWARD PINKNEY, M. D.,

AURAL SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

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Conducted by Prof. E. L. YOUMANS.

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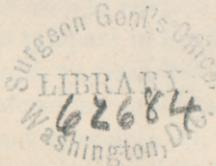
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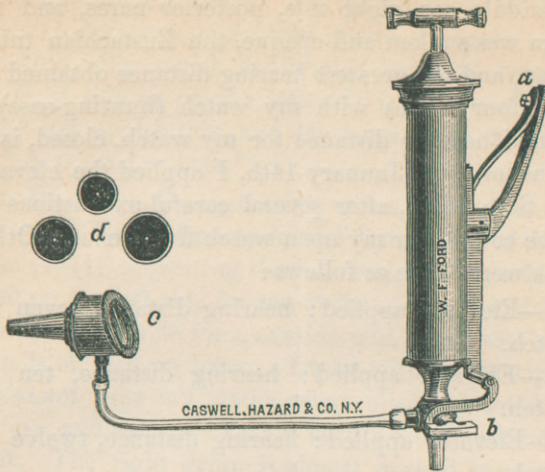
RELIEF OF DEAFNESS

*CAUSED BY ADHESIONS OF THE OSSICULA OF THE
TYMPANUM.*

DURING several years devoted more or less to the study of aural diseases, I have met with a class of cases, the treatment of which, until recently, has been most unsatisfactory. These cases are those that present, upon inspection, but slight alterations in the membrana tympani, with the Eustachian tubes open, and where sound is readily communicated by contact of the watch or tuning-fork, but where there is very decided deafness. This class of cases is referred to by Politzer in his work on the membrana tympani in the following words: "At the beginning of this work we remarked that, in a considerable number of cases of deafness, no abnormal changes are perceptible upon the membrana tympani. If, however, we find the Eustachian tube quite pervious, and little or no improvement in the hearing after the employment of the air-douche, it is difficult, often impossible, to determine whether the affection is of the tympanic cavity or of the labyrinth. The cases have

hitherto all been classed together as nervous deafness (Kramer); but since pathological anatomy has been recognized and cultivated as the groundwork of all accurate knowledge in otology, as well as in other branches of medicine, we have been led to the conclusion that, in a great number of these cases, the seat of the trouble is in the cavity of the tympanum. The dissections of Toynbee and Von Troltsch sufficiently prove this; and I am of the opinion, from my own dissections, that circumscribed affections quite certainly do occur in the middle ear, which lead at one time to adhesions between the malleus, incus, and upper wall of the tympanum, at another to the union of the stapes with the edge of the fenestra ovalis, without the membrana tympani or the Eustachian tube being in any way sympathetically affected. We must frankly confess that the diagnosis in these cases still rests on uncertain grounds; and it will be the task of physiological and pathological investigation to establish a method of discriminating the cases of impairment of function which are caused by obstacles to the transmission of sound in the cavity of the tympanum, from those caused by primary affections of the terminal branches of the auditory nerve in the labyrinth."

The cases of deafness in which the use of the instrument I am about to describe has been most useful, I believe to have been due to adhesions of the ossicula, as already described by Politzer, from the fact that sound was readily communicated by contact. To relieve this condition I have tried various means, but did not meet with any success until January, 1873, when I constructed the simple instrument figured in the accompanying engraving, which consists of merely combining two other instruments, viz., Siegle's Pneumatic Speculum and a double-valve stomach-pump; by this instrument the drum can be drawn forward or rather outward at pleasure, and passive motion of the ossicula be accomplished. The instrument is used in the following manner: The patient is placed between the light and the physician, in the usual mode now adopted in the examinations of the ear. The pneumatic speculum (which is connected to the pump by means of a piece of rubber two or three feet in length) is introduced into the meatus until a good view of the drum is obtained, and



DRUM-ELEVATOR.

a, b, Flute-key-lever-syringe of stomach-pump; *c*, Siegle's pneumatic speculum.
d, different-sized tubes adapted to the speculum.

adapted so closely as to make it air-tight. For the purpose of fitting different-sized canals, the speculum has three tubes (*d*) of different sizes, which can be attached at pleasure. The speculum now being in position, the pump is placed in the hands of a careful assistant, who gently or rapidly withdraws or depresses the piston as directed by the physician, who carefully watches its effect upon the drum through the glass covering of the speculum. The valve of the pump connected with the rubber tube should always be open when the piston is withdrawn, or while suction is being made, and closed when it is depressed, thereby opening the other valve and preventing the air being forced back against the drum. I have used this instrument, with varied success, in a large number of cases, both at the New York Eye and Ear Infirmary and at my private office. Some cases received but little benefit, while in others the improvement has been very marked. The following cases I think fully illustrate its efficacy. The first case in which I used this instrument, which, for want of a better name, I call the drum-elevator, was that of a lady, Mrs. —, aged twenty-seven years, who had been under my care for upward of a year for chronic catarrhal inflammation

of the middle ear, right side, posterior nares, and throat. The drum was sunken and opaque, the Eustachian tube partially open, and the greatest hearing distance obtained at any time was four inches with my watch (hunting-case) open. The normal hearing distance for my watch, closed, is about twenty inches. On January 14th, I applied the elevator for the first time, when, after several careful exhaustions of the pump, she could hear my open watch five inches. Other applications were made as follows:

15th.—Elevator applied: hearing distance, seven inches, open watch.

16th.—Elevator applied: hearing distance, ten inches, open watch.

22d.—Elevator applied: hearing distance, twelve inches, open watch.

23d.—Elevator applied: hearing distance, thirteen inches, open watch.

The patient then left the city, and was gone several months, and, on her return, the hearing distance was only three inches, open watch. The Eustachian tube was obstructed, and the catarrh of the nose and throat much aggravated; a reapplication of the elevator produced little or no benefit. The inflammation had extended itself to the opposite ear. Since her return, she has been under the treatment of several of our most experienced aural and catarrhal surgeons, but her hearing distance remains about the same. Although this case apparently improved under the use of the elevator at one time, it is not one where I should expect permanent success from its use, as inflammation was still going on.

CASE II.—Mr. G. applied to me on the 16th of May, 1873, complaining of deafness on the right side, which he only noticed about ten months previously. He could faintly hear my watch (closed) tick at one inch from his right ear; left ear the hearing distance was normal. The right drum was translucent, and but slightly sunken, and the Eustachian tube was open. Failing to improve the hearing after repeated efforts with Politzer's air-douche and the Eustachian catheter, I applied the elevator on May 19, 1873, when the hearing distance

was increased to ten inches; the second time, on May 22d, when it was increased to eighteen inches. I again applied it on May 30th, after which application he could hear as well on the right side as on the left. It is now nearly one year since the last application, and his hearing, to use his own words, "is as good as ever."

CASE III.—Mrs. G., aged thirty years, applied at the New York Eye and Ear Infirmary in the latter part of March of this year (1874), presenting the following history: Has heard no sound on the left side for ten or fifteen years, and has been deaf on the right side for a considerable time; she is so deaf that she is obliged to bring a friend with her to explain her case. Cannot hear my watch when closely pressed against the left ear, and can only hear it faintly when pressed against the right. The right drum is almost normal in appearance, being only slightly sunken. The left drum is sunken and opaque; both Eustachian tubes are freely open. Politzer's and Valsalva's methods for inflating the middle ear were thoroughly tried for one week, without any apparent improvement. The elevator was then applied to the left or worse ear, and, after four or five exhaustions of the pump, she could hear my closed watch one-half an inch. It was then applied to the right side, and the hearing distance was increased to five inches. The same application has been repeated about twice a week to the present time (June 17th), ten weeks from the first application, and she now distinctly hears my watch (closed) twenty inches on the right side, and ten inches on the left, and hears all ordinary conversation.

I would merely add here, that I have frequently used this instrument for the removal of purulent accumulations of the cavity of the tympanum, where there is perforation of the drum. Its use for this purpose is somewhat objectionable, as the moisture rapidly covers the glass of the speculum, and interferes with a view of the parts.

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