

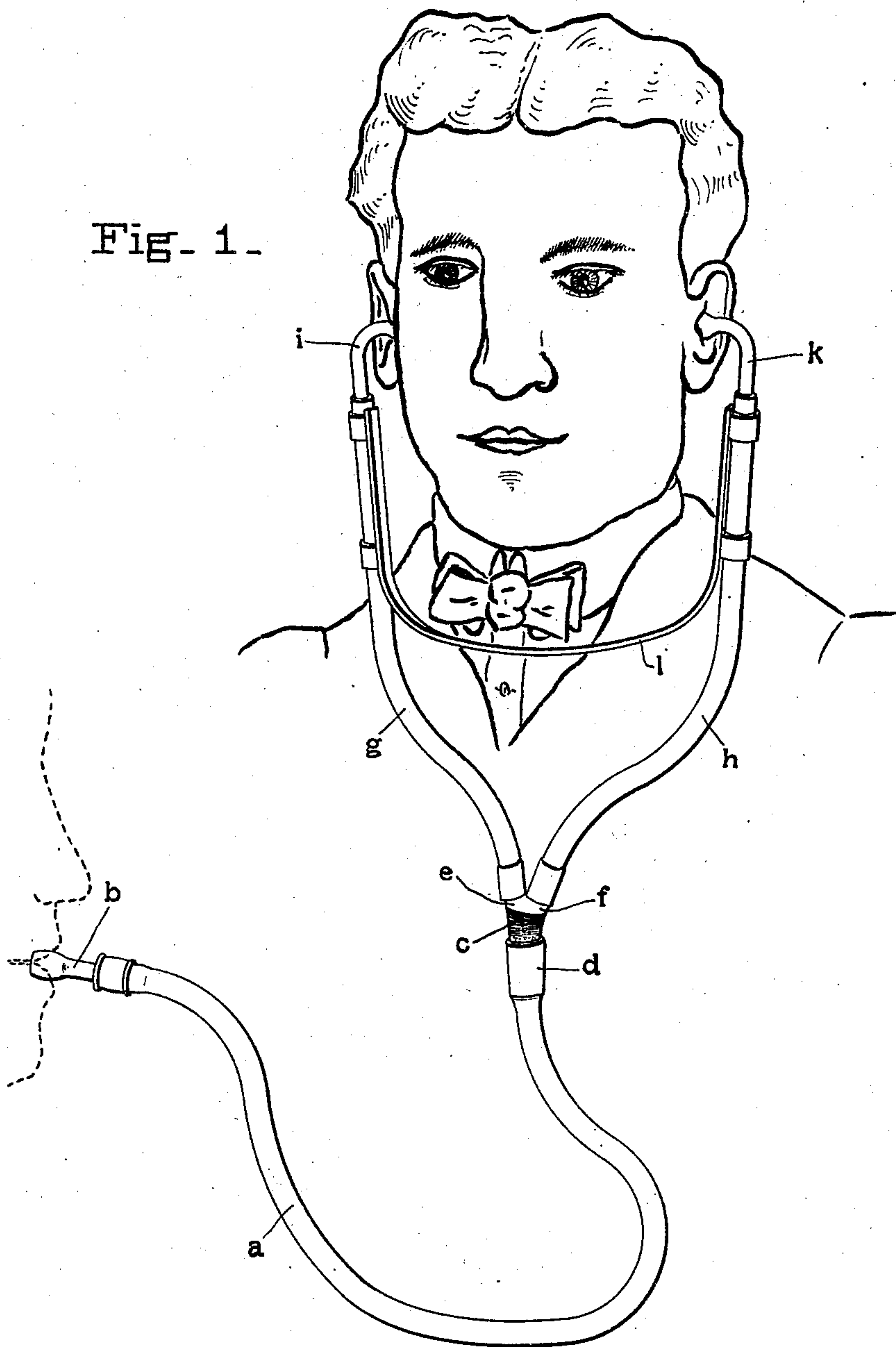
EAR TRUMPET.

**900,226.**

Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

Fig- 1.



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APPLICATION FILED OCT. 9, 1907.

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2 SHEETS—SHEET 2.

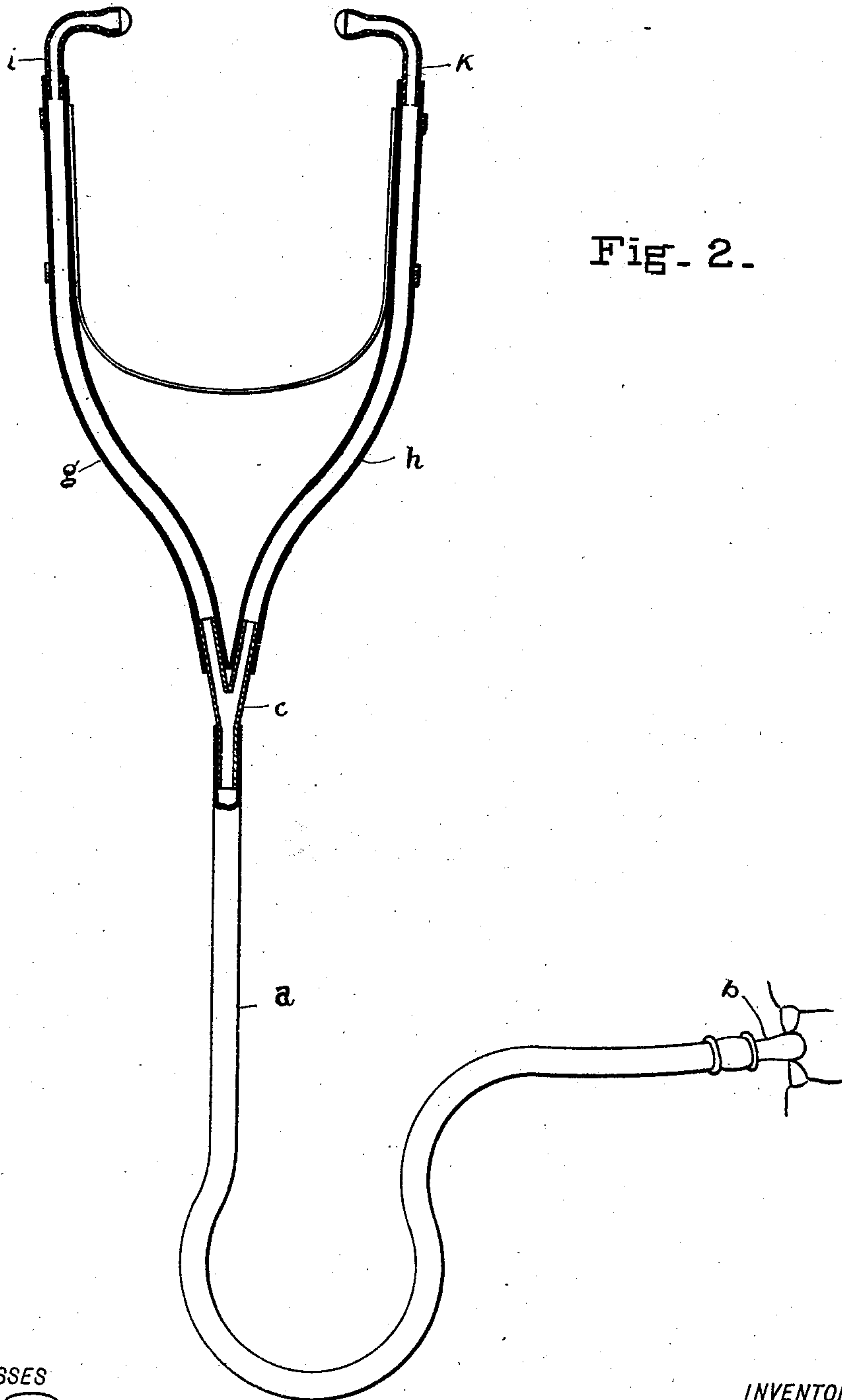


Fig. 2.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## EAR-TRUMPET.

No. 900,226.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed October 9, 1907. Serial No. 396,548.

*To all whom it may concern:*

Be it known that I, BENJAMIN S. STEPHENSON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, (whose post-office address is 116 Montague street, Brooklyn, New York,) have invented certain new and useful Improvements in Ear-Trumpets, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The invention relates to the class of devices known as ear trumpets, and more particularly to an ear trumpet having particular advantages of magnifying sounds to such an extent that the deaf may be taught to distinguish and hear by the exercising of the auditory nerve.

The objects of the invention are to provide a device of the class indicated, by which sounds may be magnified and the vibrations will create an effective result upon the auditory nerve.

A further object is to provide an instrument having above advantages and the additional utility of a massage instrument whereby the operator may perform pneumatic massage upon the drums of the ear by his own breath, thereby stimulating circulation and so decreasing the thickening of the membranes that the conducting power of the auditory muscles and adnexa is increased.

Referring to the drawings: Figure 1 illustrates the ear trumpet in one form as applied to the patient. Fig. 2 is a sectional view through the apparatus.

The apparatus herein described has many uses beyond the distinctive use of an ear trumpet, or means for conveying sound to the deaf. It has been found by experiment that the apparatus when used, as hereinafter described, amplifies and magnifies the sound of the voice to such an extent that the deaf may distinguish sounds, and by the continued use of the trumpet the auditory nerve can be vibrated or exercised to such an extent that it will detect sounds to which it has previously been absolutely inert without the use of the device.

An additional advantage and a further use to which the apparatus may be put is that of decreasing the thickening of the membranes and increasing the conducting power of the auditory muscles and adnexa by using the ear trumpet for pneumatic massage—that is,

increasing and decreasing the air pressure against the drums of the ear through the action of the breath. The device may also be used in cases of acute or chronic otorrhea, where having an equal pressure upon both ear drums the breath may be used as a medium to withdraw deposits by effecting a partial vacuum in the tubes.

All of the above curative features are mere incidentals to the use of the device which in its primary objects and effect is simply an ear trumpet having special advantages from its peculiar formation and method of use in magnifying a sound to such an extent that the auditory nerve will perceive said sounds to a very appreciable extent.

In the accompanying drawings the letter *a* denotes a tube having at one end a mouth piece *b* adapted to be inserted in the lips preferably between the teeth of the person producing vocal sounds. The mouth piece *b* is preferably formed of hard rubber, made detachable from the tube *a*. This provides a convenient means of maintaining the hygienic conditions, inasmuch as the mouth piece may be made of very inexpensive material and readily removed and cleansed, or even destroyed after once used by any operator.

The tube *a* extends from the mouth piece *b* to a union or "Y" joint *c*, one arm of which is secured to the tube *a* as at *d* and the other two arms *e* and *f* of which are inserted within two tubes *g* and *h*. These tubes terminate in ear pieces *i* and *k* adapted to be inserted within the canal of the outer ear. As a matter of convenience for holding the tubes in the ear, a spring band *l* is provided, and this band is suitably strapped to the branch tubes *g* and *h* and has just sufficient spring tension to maintain the ear pieces *i* and *k* within the canals of the ears.

It will be noted in the above description in reference to the drawings that there is a continuous closed passage directly from the interior of the mouth of the speaker or the person producing vocal sounds to the ears and other auditory parts of the person to receive said sounds. It has been found by experiment that an opening of either of the tubes *g* or *h* materially decreases and practically destroys the effective operation of the device. It has also been found that the use of a large orifice at the inlet end in place of the mouth piece *b* is ineffective and destroys the practical use of the apparatus. It therefore ap-



pears that it is essential to maintain a passage of comparatively uniform size directly from the interior of the mouth of the speaker to the ear of the listener. In fact, 5 in actual experience it has been found that a deaf mute could not distinguish and repeat sounds diverted into an ordinary trumpet with a large speaking orifice, whereas with the device herein described, the same deaf 10 mute has been able to appreciate sounds, and even repeat various sounds thus taught.

As shown in the drawings the tube *a* and the tubes *g* and *h* are indicated as flexible rubber tubes slipped over the nipples of the 15 "Y" joint *c* and mouth piece *b*. Soft rubber tubing has been found to be very effective inasmuch as cross vibrations are evidently deadened or dissipated. It is of course possible that other materials may be used in the 20 same or analogous juxtaposition, and it is not the intention therefore to limit the invention to precise form or material herein described.

What I claim as my invention and desire to secure by Letters Patent is: 25

1. An ear trumpet having a main speaking tube and branch tubes for the ears, and a mouth piece appurtenant to the main speaking tube adapted to be gripped in the mouth 30 of the speaker.

2. An ear trumpet having ear tubes and a main speaking tube, said speaking tube adapted to be held in the mouth of the speaker.

3. As an article of manufacture, an ear 35 trumpet having an ear tube for each ear, a main speaking tube connected therewith, and a mouth piece adapted to be held in the mouth of the speaker, said mouth piece and speaking tube having substantially the same 40 conducting area.

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Witnesses:

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