

R. C. M. BOWLES.
HEARING INSTRUMENT.

(Application filed June 28, 1898.)

(No Model.)

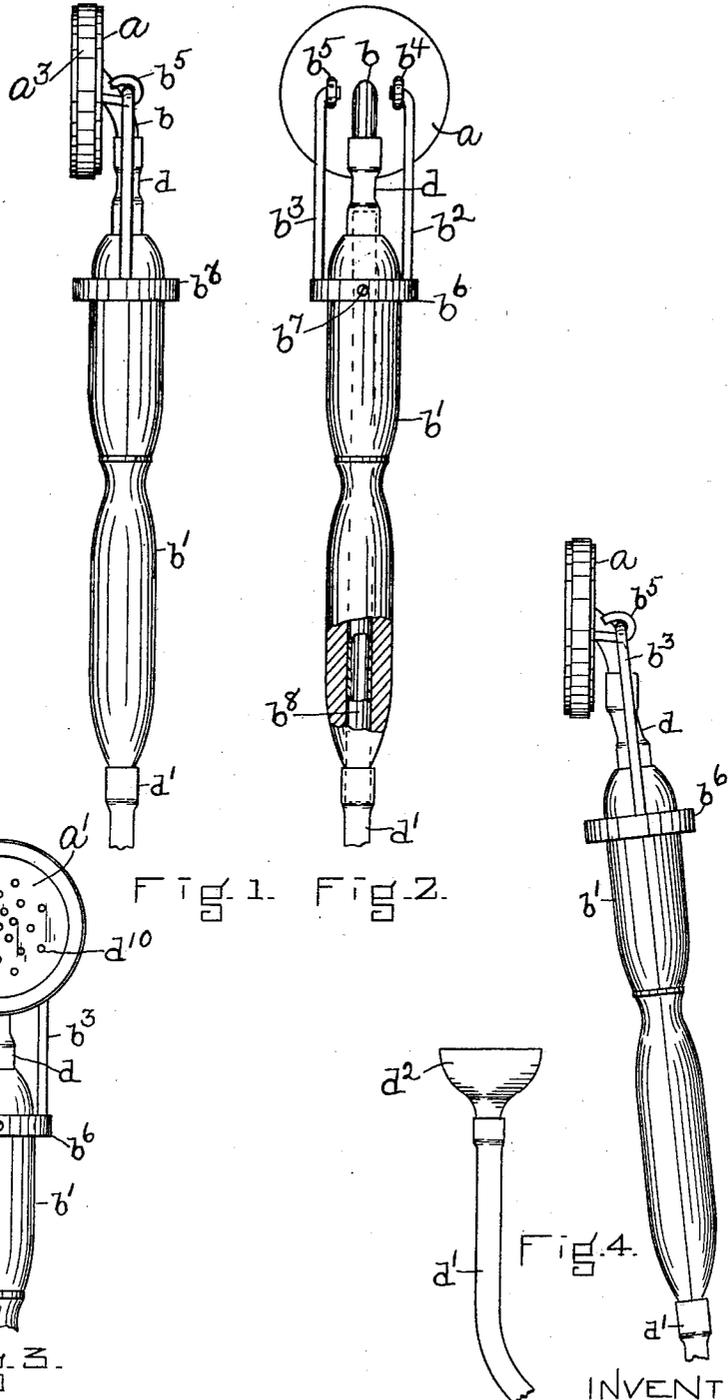


Fig. 3.
WITNESSES. □
Matthew M. Blunt.
J. Murphy

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ATT'Y.

UNITED STATES PATENT OFFICE.

ROBERT C. M. BOWLES, OF BROOKLINE, MASSACHUSETTS.

HEARING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 626,823, dated June 13, 1899.

Application filed June 28, 1898. Serial No. 684,665. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. M. BOWLES, of Brookline, county of Norfolk, and State of Massachusetts, have invented an Improvement in Hearing Instruments, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to an instrument for assisting the hearing, and is especially designed and adapted among other uses for increasing the hearing of people whose hearing is impaired.

The invention has for its object to provide a simple, neat, and efficient instrument for the purpose specified.

In accordance with this invention a sound-amplifying instrument or receiver is loosely and preferably pivotally connected to a support or handle adapted to be grasped by the hand of the operator when the receiver is applied to the ear, the pivotal connection referred to permitting the receiver to be held in close contact with the ear for a substantially long time without inconvenience to the operator. The receiver referred to is composed of a hollow body preferably provided at its front with a diaphragm and having at its back a sound-delivering tube, which is preferably curved and extends from or near the center of the back of the said body toward its edges. The receiver is pivotally connected to the handle or support, preferably by means of arms attached to the said support or handle, and the latter is preferably made hollow and joined at one end to the sound-delivering tube of the receiver by a flexible hollow connection. The opposite end of the handle may have connected to it a rubber or other tube provided at its free end with a suitable mouthpiece. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of an instrument embodying this invention; Fig. 2, a rear elevation of the instrument shown in Fig. 1 with part of the handle broken out; Fig. 3, a detail in front elevation of the upper portion of the instrument shown in Fig. 1; Fig. 4, a side elevation of the instrument, illustrating the position of the parts when in use.

The receiver of the instrument herein shown is preferably composed of a circular body *a*, which may, and preferably will, be provided with a diaphragm *a'*, which forms with the body a hollow chamber, the said diaphragm being secured to the front face of the body *a*, as shown, by a detachable ring *a*². The hollow chamber of the receiver is provided with a sound-inlet tube or pipe *b*, preferably attached to the back of the body *a* near its center and bent or curved toward the edge of said body. The receiver referred to is loosely attached to a support or handle *b'*, and this loose connection may be effected, as herein shown, by means of arms *b*² *b*³, having inwardly-extended ends which engage suitable eyes *b*⁴ *b*⁵, attached to the back of the receiver, the arms *b*² *b*³ being attached to the handle *b'*, as shown, by means of a collar or ring *b*⁶, which may be secured to the handle, as by screws *b*⁷. The handle *b'* may, and preferably will, be made of wood or other suitable material and is preferably made hollow, and in the present instance has extended through it a substantially small tube *b*⁸, which projects beyond the ends of the handle for the attachment at one end of a flexible connection *d* between the handle and the inlet tube or pipe *b* of the receiver and for the attachment at the other end of a flexible tube *d'*, provided with a mouthpiece *d*². The flexible tube *d'* may be made of any desired length to suit the desires of the person using the instrument. The diaphragm *a'* may be provided with small perforations *a*¹⁰, as shown in Fig. 3.

When it is desired to use the instrument, the operator grasps the handle and applies the front face of the receiver to the ear, and by reason of the flexible connection between the receiver and handle the receiver may be turned into a position at an angle to the handle, and vice versa, (see Fig. 4,) so that the diaphragm of the receiver may be held close to and in contact with the ear, while the hand of the person or operator may assume a comfortable and convenient position away from the face, thereby avoiding a cramped position of the hand and enabling the instrument to be used with a minimum inconvenience. The mouthpiece *d*² may be made of any desired size, preferably small, for ordinary use, as for conversation between persons, but

which may be substantially large and similar to a small megaphone for use in theaters, concerts, and like public places. In ordinary conversation I prefer to use a small mouth-piece d^2 , which is held in the hollow of the closed hand, thereby avoiding reverberation and consequent indistinct articulation caused by the usual "bell" without any loss of volume of sound.

10 I have herein shown the hollow handle as having a metal tube b^s extended through it; but I do not desire to limit my invention in this respect, as the metal tube b^s may be omitted and the flexible tube d' extended
15 through the hollow handle and attached to the sound-inlet tube b . I have also referred particularly to the use of the instrument by people with impaired hearing; but it also recommends itself to physicians as especially
20 efficient in respiratory auscultation, as the slightest breathing is largely amplified.

I claim—

1. In an instrument of the class described, the combination with a receiver provided with
25 a diaphragm adapted to be applied to and make contact with the human ear, of a rigid handle to which said receiver is connected to permit the said parts to occupy positions at an angle to each other, for the purpose specified.
30

2. In an instrument of the class described, the combination with a receiver comprising a body portion provided with a sound-inlet tube, of a hollow rigid handle connected with
35 the receiver to permit the latter to occupy different positions with relation to said handle and with the said inlet-tube for the transmission of sound through the hollow handle and inlet-tube into said receiver, substantially as described.
40

3. In an instrument of the class described, the combination with a receiver adapted to be applied to the human ear, and provided with a diaphragm and with a sound-inlet tube,
45 of a hollow rigid handle connected to the said receiver to permit the latter to occupy different positions with relation to it, and a flexible sound-conducting tube connected with said inlet-tube, substantially as described.

4. In an instrument of the class described, 50 the combination with a receiver provided with a diaphragm adapted to be applied to the human ear, and with a sound-inlet tube, of a rigid handle, means to connect said receiver to said handle to permit the receiver to occupy
55 different positions with relation to the handle, and a flexible sound-conducting tube connected to the inlet-tube of the receiver, substantially as described.

5. In an instrument of the class described, 60 the combination with a receiver adapted to be applied to the human ear and provided with a diaphragm and with a sound-inlet tube, of a hollow rigid handle pivotally connected to said receiver, and a flexible connection be-
65 tween said hollow handle and said inlet-tube, substantially as described.

6. In an instrument of the class described, the combination with a receiver adapted to be applied to the human ear and provided
70 with a diaphragm and with a bent sound-inlet tube extended from the back of said instrument toward its outer edge, of a rigid handle loosely connected to said receiver, and a flexible sound-conducting tube attached to said
75 inlet-tube, substantially as described.

7. In an instrument of the class described, the combination with a receiver adapted to be applied to the human ear and provided
80 with a perforated diaphragm and with a sound-inlet tube, of a rigid handle pivotally connected to said receiver, and a flexible sound-conducting tube attached to said inlet-tube, substantially as described.

8. In an instrument of the class described, 85 the combination with a receiver adapted to be applied to the human ear and provided with a sound-inlet, of a rigid handle to which said receiver is loosely connected, and a flexible sound-conducting tube connected with
90 said sound-inlet, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT C. M. BOWLES.

Witnesses:

JAS. H. CHURCHILL,
ROSA HALLAHAN.