

F. MACDANIEL.
ELECTRICAL EAR TRUMPET.

(Application filed Dec. 1, 1899.)

(No Model.)

Fig. 1.

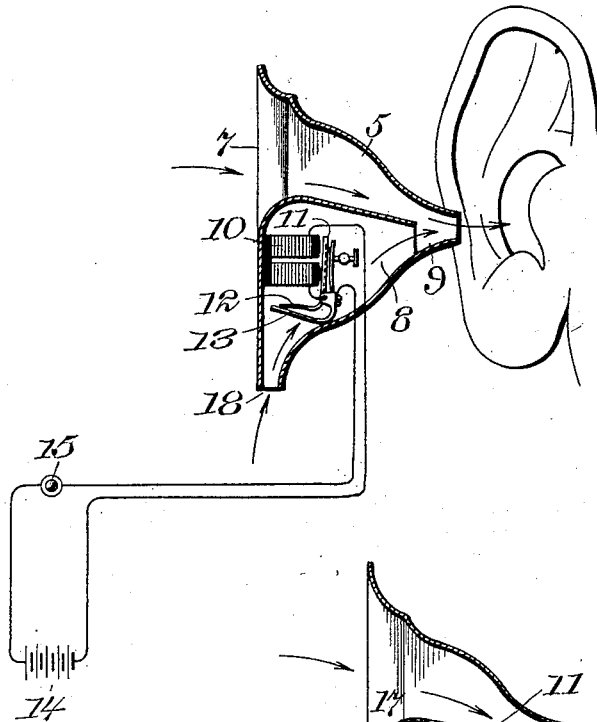
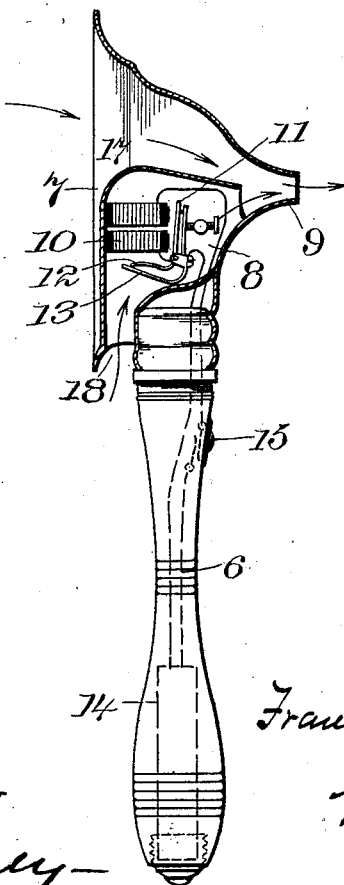


Fig. 2.



WITNESSES:

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ELECTRICAL EAR-TRUMPET.

SPECIFICATION forming part of Letters Patent No. 650,090, dated May 22, 1900.

Application filed December 1, 1899. Serial No. 738,937. (No model.)

To all whom it may concern:

Be it known that I, FRANCES MACDANIEL, a citizen of the United States, residing at New York city, county and State of New York, have
5 invented certain new and useful Improvements in Electrical Ear-Trumpets, of which the following is a specification.

My invention is based upon the well-known fact that many people commonly deaf to ordinary sounds—such, for instance, as the sounds of the human voice, music, or similar sounds of ordinary volume—can hear such sounds if produced in the presence of a sound of greater volume. Thus a person who can-
15 not hear when spoken to in the quiet of an ordinary room will be able to hear whispers if taken into a factory and spoken to amid the many sounds due to the operation of machinery. Theoretically this condition is probably due to the influence of the ordinary sound-waves produced by the voice, music, or similar means acting as superposed waves or interfering waves with the influence created by the large sound-waves upon the nerve-
25 centers.

My invention is based upon the above-stated fact and in its construction involves the principle of artificially creating near to the nerve-centers sound-waves of determined tone and
30 volume.

The mechanical construction of the instrument I prefer to be such that the sound-making apparatus shall be within the instrument and when in use brought into immediate proximity to the ear and at the same time have the capacity for collecting and directing into the ear external sounds.

I do not limit myself in any wise to the mechanism for producing the sound-waves in the
40 instrument. Preferably, however, the sound-waves will be created by the vibrations of a tuned reed set in motion by alternately making and breaking an electric circuit through a magnet.

The accompanying drawings will serve to illustrate my invention, in which—

Figure 1 is a vertical section of an instru-

ment designed to be connected to the ear, the circuit connections being shown diagrammatically. Fig. 2 is a vertical section of a
50 hand-instrument.

Similar numerals indicate like parts in both figures.

In the drawings, 5 represents the body of the instrument; 6, Fig. 2, a handle by which
55 the instrument may be carried.

The body of the instrument consists of a concave receiver 7, the median portion 8, which incloses the sound-producing mechanism, and the ear-tube 9. Located within the
60 median portion is a magnet 10. Mounted in front of the magnet is a tuned reed 11, which is normally pressed by a spring 12 in contact with a stop 13. The construction of this portion of the apparatus and its circuit connec-
65 tions to the battery 14 are practically the same as in the case of an ordinary electric buzzer.

The tuned reed 11 may be designed to give any required pitch and volume of sound. The battery 14 may be carried in the pocket of the
70 wearer and a suitable push-button 15 provided, or the battery may be located, as shown in Fig. 2, in the handle of the instrument and a push-button in a convenient position in the
75 handle.

In using the instrument the ear-tube is placed either in the ear or in proximity to the ear. The circuit is then made through the battery, magnet, and reed, which causes the reed to be set in vibration and to create a
80 definite sound.

17 is a deflecting-shield in the interior of the instrument, and 18 an opening in the case, through which external air may pass to and
85 in contact with the tuned reed.

I wish it understood that I do not limit myself in any wise to the construction of the apparatus shown and described, as many changes may be made therein without departing from the intent of my invention.
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Having thus described my invention, I claim—

1. An ear-trumpet comprising means for creating an artificial sound within the instru-

ment, means for collecting external sounds, and means for transmitting both of said sounds to the ear of the person using the instrument.

- 5 2. An ear-trumpet comprising means for creating vibration of a tuned reed, means for collecting exterior sounds, and means for transmitting sounds produced by the vibra-

tion of the tuned reed and the exterior sounds to the ear of the person using the instrument. 10

In testimony whereof I affix my signature in the presence of two witnesses.

FRANCES MACDANIEL.

Witnesses:

W. H. PUMPHREY,
J. E. PEARSON.