

(No Model.)

J. A. LAKIN.
AUDIPHONE.

No. 544,732.

Patented Aug. 20, 1895.

Fig. 1.

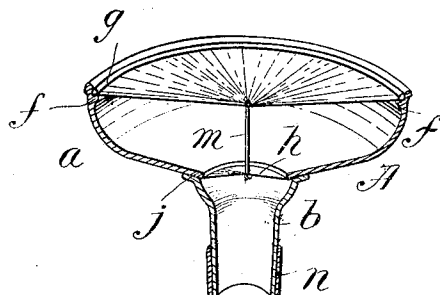


Fig. 2.

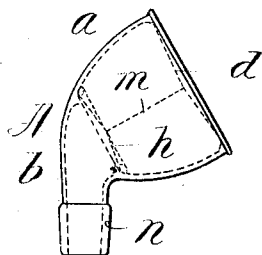
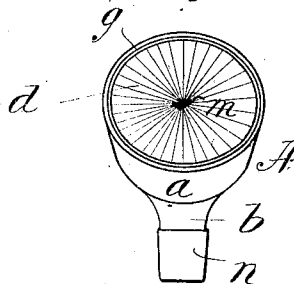


Fig. 3.



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AUDIPHONE.

SPECIFICATION forming part of Letters Patent No. 544,732, dated August 20, 1895.

Application filed October 25, 1894. Serial No. 526,921. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. LAKIN, a citizen of the United States of America, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented now and useful Improvements in Audiphones, of which the following is a specification.

This invention relates to improvements in audiphones or sound-amplifying devices for the deaf, the object being to produce a device which shall be very efficient in its sound-intensifying action, taking the place of an ear-trumpet, and one which shall be of very small size and not at all conspicuous in use, and moreover shall be simple, practicable, and cheap of construction.

The audiphone of this invention essentially comprises a hollow shell or casing the head or forward end of which is composed of a vibratory diaphragm, while the rear extremity thereof is of a contracted tubular form endwise open, a second diaphragm located within an intermediate portion of the casing, and a connection which engages and extends from one to the other of the diaphragms.

In the accompanying drawings, in which this invention is illustrated, Figure 1 is a central longitudinal section of the audiphone. Fig. 2 is a side view, and Fig. 3 is a front view, of the same.

In the drawings, A represents the case or shell of the instrument, of which the forward portion *a* is the larger, and is of bowl or forwardly-flaring form, while the rear portion is composed of the contracted tubular portion or stem *b*, which is endwise open.

The head of the instrument is composed of a vibratory diaphragm *d*, of any suitable material, as thin celluloid, rubber, metal, or thin wood, and it has its circular edge seated in the rabbet *f* and there held by the confining-ring *g*, which is held in place by shellac or other suitable adhesive.

Between the forward end and the rear end of the instrument—that is, at a portion within the casing which is in practice of considerably less diameter than that closed by the forward diaphragm—is a second diaphragm *h*, which has its position as a partition across the casing and which diaphragm is suitably edgewise supported, as by resting under and against the overhanging flange or ledge *j*.

I have found it much preferable to have the rear diaphragm, which is the nearer the ear, the smaller, substantially as shown, the result of which is that the sound transmitted from the larger to the smaller diaphragm is much simplified and intensified.

Both diaphragms have a connection the one with the other through the medium of the ligament *m*, which may be silk cord or other suitable like connection, which has each end knotted to lie by such knotted portion, respectively, against the forward and rear faces of the diaphragms *d h*, the knots being larger than the perforations which are centrally formed in the diaphragms. The length of the silk cord or other connection is such as to cause, when the cord is perfectly taut, a drawing of the central portions of the diaphragms slightly toward each other, as indicated in the drawings, thereby rendering them more sensitive to the vibratory effect of the sound, and the seats *f* and *j* prevent the diaphragms from unduly approaching each other.

The tubular stem is of such attenuated size as to be readily inserted into the inner passage in the ear, and in order to acquire an advantageous fit therein for the exclusion of extraneous sounds into the ear independently of those transmitted through the audiphone, as well as a frictional engagement for the retention of the instrument in the ear without requiring a continued hand pressure or support, the end portion of the stem is covered with the sleeve *n*, of soft rubber or analogous material.

The instrument is preferably constructed with its hollow portion to the rear of the inner diaphragm turned more or less angular to the axis of the forward part of the case, whereby while the stem may enter the ear laterally the body of the audiphone will have relatively to the stem a forward inclination, to more properly and directly receive the sound.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An audiphone comprising a case, the head or forward end of which is composed of a vibratory diaphragm, and the rear end of which is of a contracted tubular form, end-

wise open, and adapted for insertion into the passage of the ear, a second diaphragm located within an intermediate portion of, and as a partition across the casing, and a ligament which engages and extends from one to the other of said diaphragms, substantially as described.

2. An audiphone comprising a case, the head or forward end of which is composed of a vibratory diaphragm, and the rear end of which is of a contracted tubular form, endwise open, and adapted for insertion into the

passage of the ear, a second diaphragm located within an intermediate portion of, and as a partition across the case which is of less diameter than the forward diaphragm, and a ligament which engages and extends from one to the other of said diaphragms, substantially as described.

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Witnesses:

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