

(Model.)

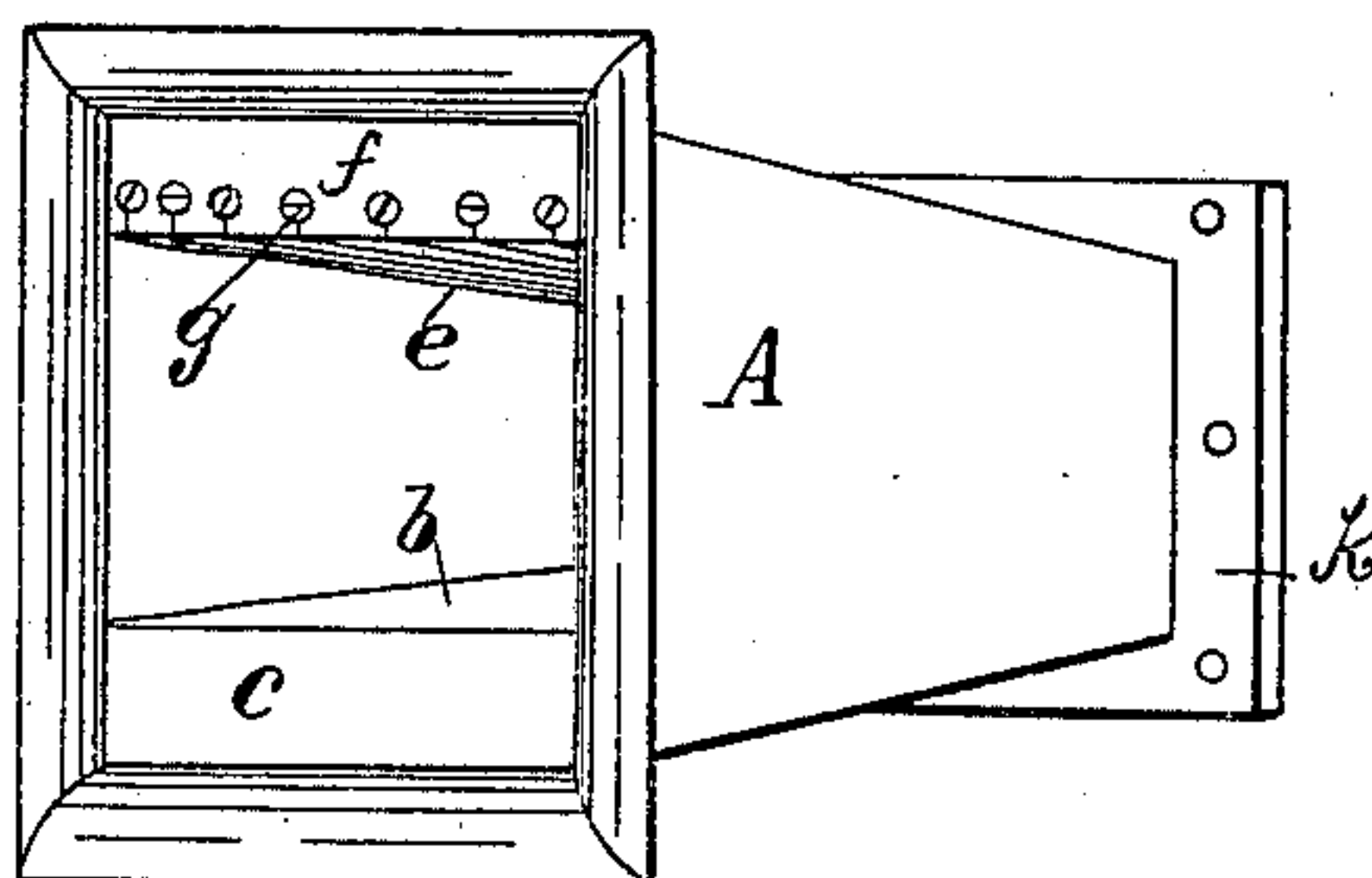
A. H. HEATZMAN.

TELEPHONE.

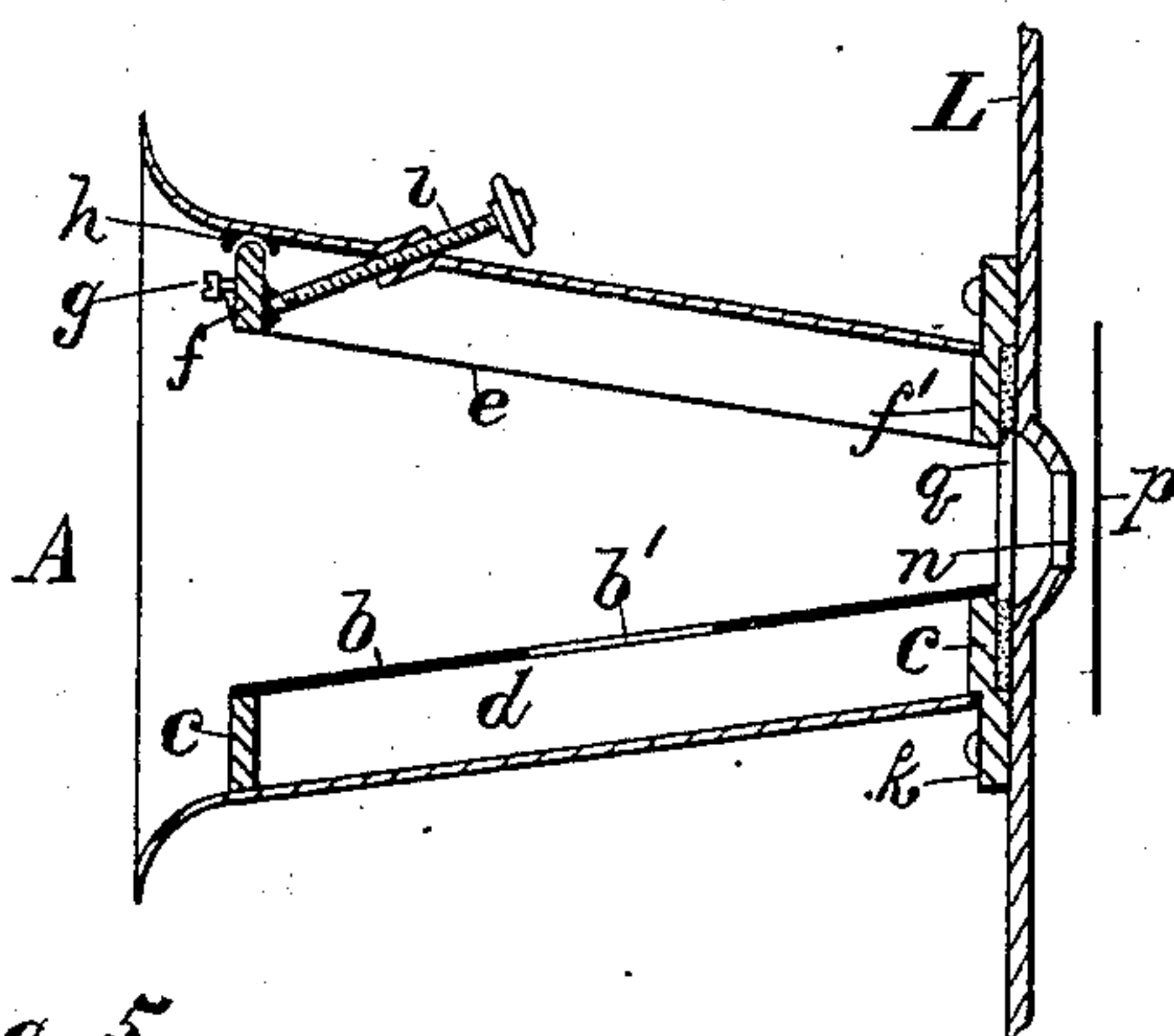
No. 257,133.

Patented Apr. 25, 1882.

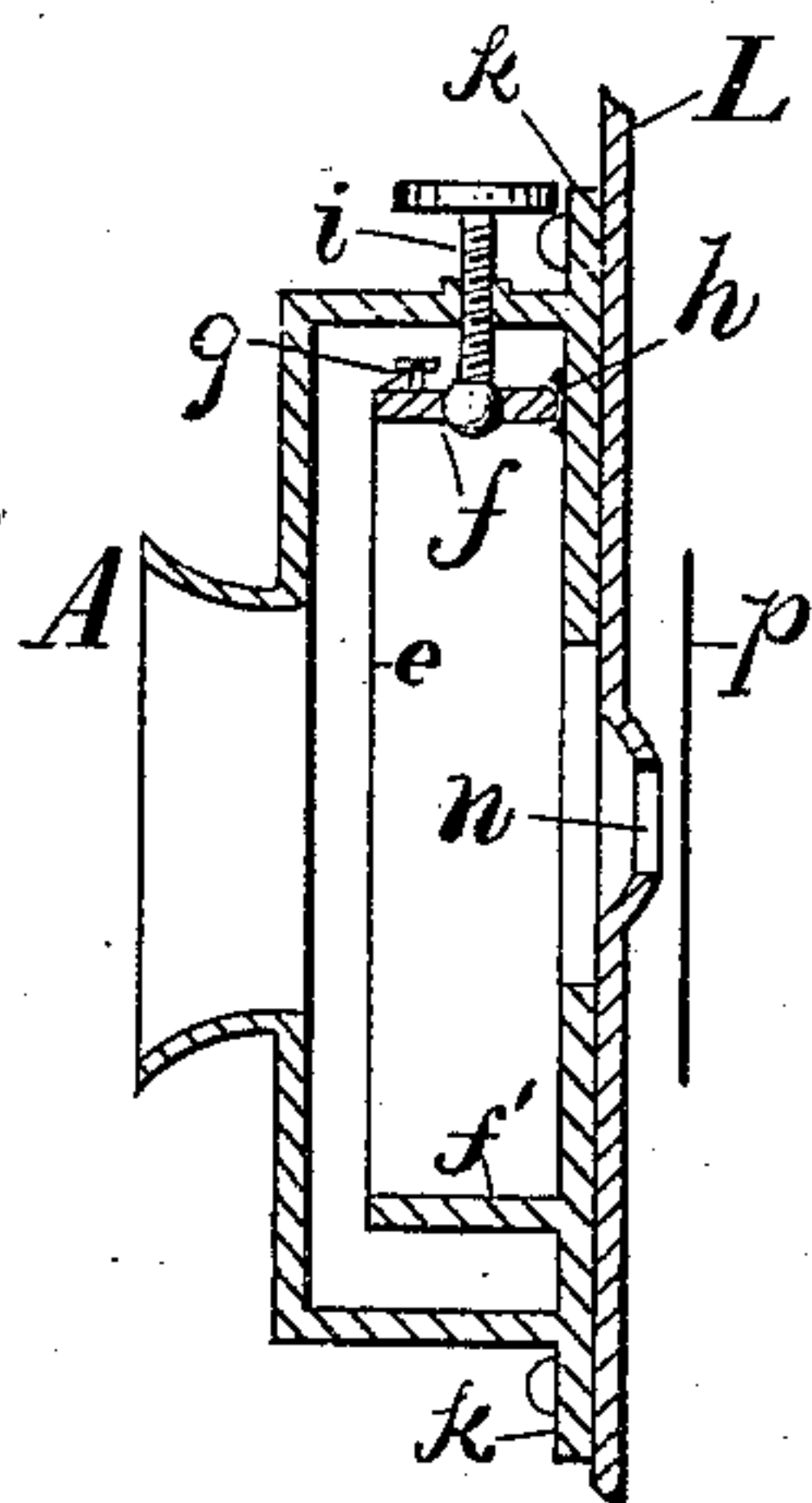
*Fig. 1.*



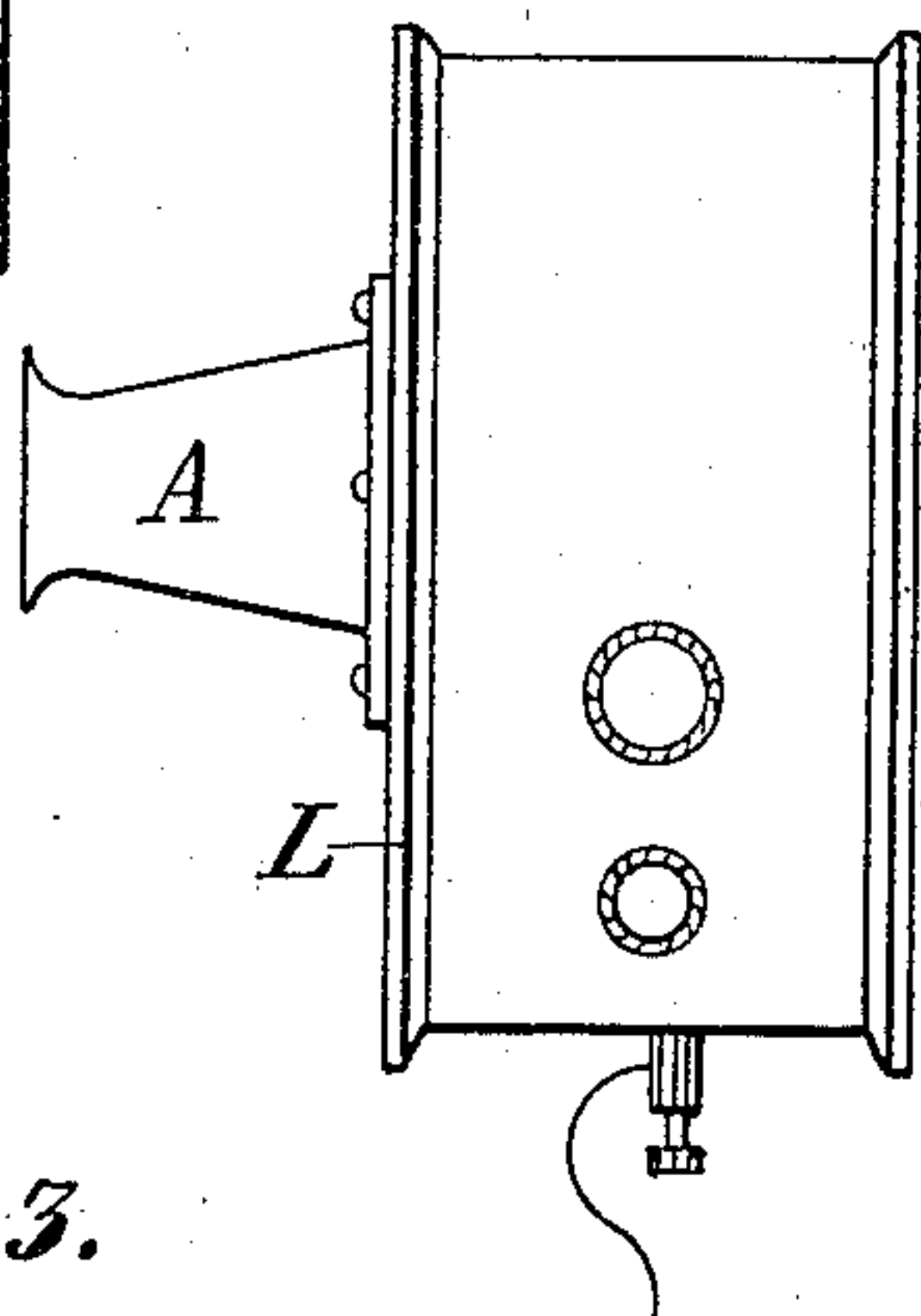
*Fig. 2.*



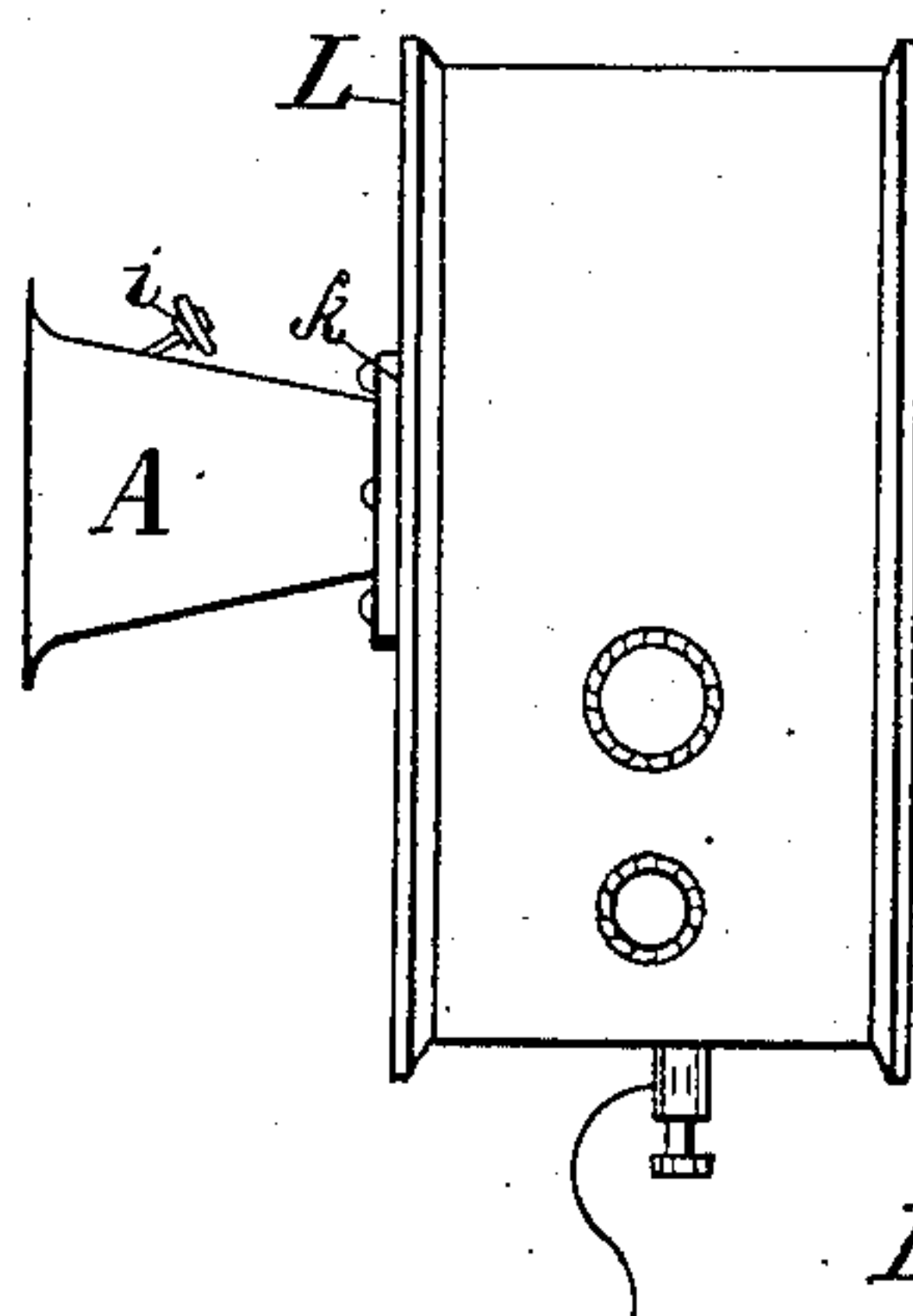
*Fig. 5.*



*Fig. 3.*



*Fig. 4.*



*Witnesses:*

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*Chas B. Mann*

# UNITED STATES PATENT OFFICE.

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## TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 257,133, dated April 25, 1882.

Application filed April 4, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, A. HOWARD HEATZMAN, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State Maryland, have invented certain new and useful Improvements in Telephones; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to a resonant augment-er-box of novel construction, into which the sound of the human voice may be delivered, its object being to augment or magnify the sounds both before their transmission and after, the better adapting the telephone for very long lines.

In the drawings hereto annexed, Figure 1 is a perspective view of the box. Fig. 2 is a longitudinal section of same. Fig. 3 illustrates the application of the sound-augmenter box as a transmitter to an ordinary telephone-diaphragm-inclosing case. Fig. 4 illustrates the same applied as a receiver. Fig. 5 illustrates the resonant wires occupying a vertical position before the diaphragm.

The box A is of suitable size, and preferably is larger at one end than at the other, though it may be of uniform size throughout its length. Within the box, at one side, is a sounding-board, b, which is secured a half inch or more from the side of the box by a cross-strip, c, at each end. This board incloses a space, d. The board is provided with a circular hole, b', though this may be dispensed with. The sounding-board may be made of thin wood or suitable metal.

Within and at the opposite side of the box are secured a number of resonant strings, e, or preferably steel wires, like the fine wires used on pianos. One end of each wire is immovably secured to the cross-strip f', and the other end, by means of the independent screw g, is secured to a cross-strip, f, which latter is hinged by one edge, h, to the box. The wires are drawn over that edge which is opposite the hinged edge. A tightening-screw, i, whose thumb-piece is on the outside of the box, passes

through a nut and through the wall or side of the box, and its end bears against that edge of the swinging strip f over which the wires are drawn.

By means of the independent screws g the tension of any one wire may be increased, and by means of the thumb-screw all the wires may be tightened at once.

It will be noticed the wires are not parallel with the sounding-board, but extend in a line which is at an angle therewith. The wires may have this position whether the box be tapering in shape or not. At the small end is the opening at which the person's mouth is applied. The sound of the voice enters in a direct line between the sounding-board and wires.

The box is provided at one end with a flange, k, by which it is attached to any ordinary diaphragm-inclosing case, L, immediately before its mouth-piece n and diaphragm p. In order to insure a close connection of the sound-augmenter box to the telephone-case, a rubber gasket, q, is employed between the flange n and the case. When thus secured the position of the sounding-board is substantially that of a right angle with respect to the diaphragm p, whereby the sound of the voice passes across the whole length of the board, and the effect of this device is to give increased distinctness of the voice at the other end of the line.

The angle which the resonant wires occupy with respect to the sound-board may be varied from that shown in Figs. 1 and 2 of the drawings to any other desired angle or position, and they may occupy a vertical position before the diaphragm, as shown in Fig. 5, and, as indicated in the same figure, the resonant wires may be employed without reference to a sound-board.

It will be understood this is an attachment for ordinary telephones, applicable either as a transmitter or receiver. When used as a receiver the sound issues from the large end, as shown in Fig. 4.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with a diaphragm, of a sound-augmenter box having an opening at which the mouth or ear may be applied, and a



number of resonant wires, under tension, secured within the box between the opening and diaphragm, as set forth.

2. A sound-augmenter for telephones, having a number of resonant wires, each capable of independent adjustment, and a device by means of which all the wires may be adjusted at once, as set forth.

3. The combination, with a diaphragm, of a sound-augmenter box having a sounding-board whose position is substantially that of a right angle with respect to the diaphragm, whereby

the sound of the voice passes across the whole length of the board, as set forth.

4. The combination, with a diaphragm, of a sound-augmenter box having an opening at which the mouth or ear may be applied, a number of resonant wires, under tension, secured within the box, and a sounding-board, substantially as set forth.

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