

(No Model.)

H. E. HUSTON.
ACOUSTIC TELEPHONE.

No. 294,238.

Patented Feb. 26, 1884.

Fig. 1.

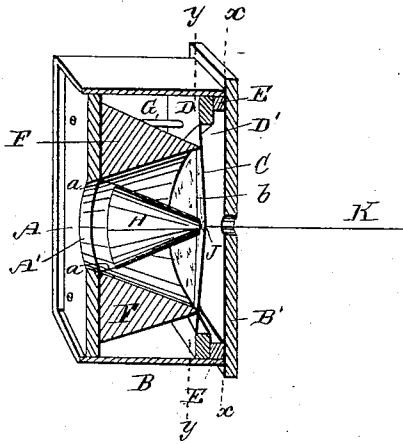


Fig. 2.

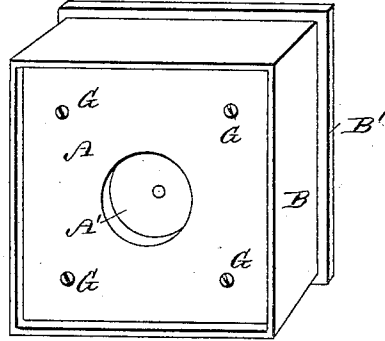


Fig. 3.

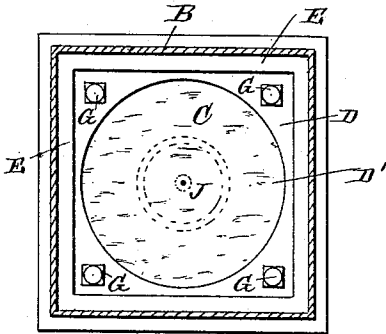


Fig. 4.

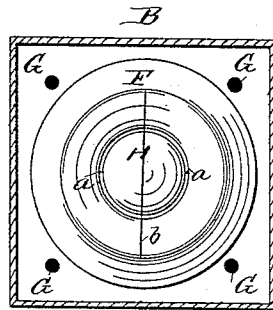


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HARVEY E. HUSTON, OF MONTICELLO, ILLINOIS.

ACOUSTIC TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 294,238, dated February 26, 1884.

Application filed August 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, HARVEY E. HUSTON, of Monticello, Piatt county, Illinois, have invented a new and Improved Acoustic Telephone, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved transmitting-instrument for acoustic-telephone lines, and also a new and improved diaphragm for such instruments.

The invention consists in an acoustic telephone constructed with a ring having a wedge-shaped cross-section and resting on the diaphragm, in the opening of which ring a funnel is held, which concentrates the sound-waves and conducts them to the middle of the diaphragm.

The invention consists in a new diaphragm, and in various other parts and details, as will be fully set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a cross-sectional view, partly in perspective, of my improved acoustic telephone. Fig. 2 is a perspective front view. Fig. 3 is a longitudinal section on the line *xx*, Fig. 1. Fig. 4 is a longitudinal section on the line *yy*, Fig. 1. Fig. 5 is a longitudinal section of the diaphragm.

A front or top board, A, provided with a central aperture, A', fits closely in the outer or upper part of a box, B, provided with a bottom board, B'. The diaphragm C is stretched over the central opening, D', of a board, D, provided on its under side and along the edges with strengthening-ribs E, which rest on the bottom or back board, B'. The bolts or screws for fastening the instrument to a suitable support are passed through the board B' and the ribs E into the diaphragm-board D. An annular block of wood, F, or other material—such as hard rubber, bone, &c.—is placed between the top or front board, A, and the diaphragm C, the thickness of the annular piece decreasing from the top toward the bottom on the inner as well as the outer side, whereby the ring will have a triangular or a wedge-shaped cross-section, as shown. The upper

opening of the ring F coincides with the central opening, A', of the top or front board, and the bottom opening of the ring F is to be within or smaller than the opening in the diaphragm-board D. The bottom edge of the ring F rests upon the diaphragm C, and is pressed on the same by bolts G, which are screw-threaded and passed through the corners of the front or top plate, C, and the diaphragm-plate D. A funnel-shaped vessel, H, is placed in the central opening of the ring F, and is held in place by wires *a b* at the top and bottom, which wires hold the lower end of the funnel a short distance from the diaphragm C. A button, J, is fastened to the middle of the diaphragm, and to the said button a wire, K, is fastened in the usual manner. The funnel H concentrates the sound-waves and guides them to the button J, thereby causing stronger and more distinct vibrations, and thus causing the words to be reproduced very plainly.

The diaphragm can be made of parchment, thin sheet metal, &c.; but I prefer to make it, as shown in Fig. 5, of one or more layers, *m*, of parchment, sheep-skin, calf-skin, or other animal-skin, alternating with one or more layers of textile fabric, rubber, or analogous material, *n*, so placed that the skin or parchment is in contact with the fabric or rubber, and the diaphragm is then stretched tight in the usual manner.

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

1. An acoustic telephone constructed with a ring having a wedge-shaped cross-section and resting on the diaphragm, the inner wall of said ring being flared toward its rear edge, and a funnel held within the ring, to concentrate the sound-waves in the middle of the diaphragm, substantially as herein shown and described.

2. In an acoustic telephone, the combination, with the box B and the diaphragm C, of the ring F, having a wedge-shaped cross-section and resting on the diaphragm, and of the funnel H, held within the ring F by wires, substantially as herein shown and described.

3. In an acoustic telephone, the combination, with the box B, of the board D, having an aperture, D', the diaphragm C, stretched over

the aperture, and the ring F, having a wedge-shaped cross-section and resting on the diaphragm within the edges of the aperture D', the inner wall of said ring being flared toward its rear edge, substantially as herein shown and described.

4. In an acoustic telephone, the combination, with the box B, of the front or top board, A, the board D, having an aperture, D', the diaphragm C, the ring F, the inner wall of said ring being flared toward its rear edge, and the bolts G, substantially as herein shown and described.

5. In an acoustic telephone, the combination, with the box B, of the apertured board D, the

strengthening-ribs E, the diaphragm C, the ring F, having a wedge-shaped cross-section, and its inner wall flared toward its rear edge, the funnel H, the top or front board, A, and the bolts G, substantially as herein shown and described.

6. In an acoustic telephone, a diaphragm formed of alternate layers of animal-skin and textile fabric, substantially as and for the purpose set forth.

HARVEY E. HUSTON.

Witnesses:

JOHN R. HUSTON,
CHARLES P. BROWN.