

(No Model.)

2 Sheets—Sheet 1.

M. B. WILLIAMSON.
MECHANICAL TELEPHONE.

No. 333,044.

Patented Dec. 22, 1885.

Fig. 1.

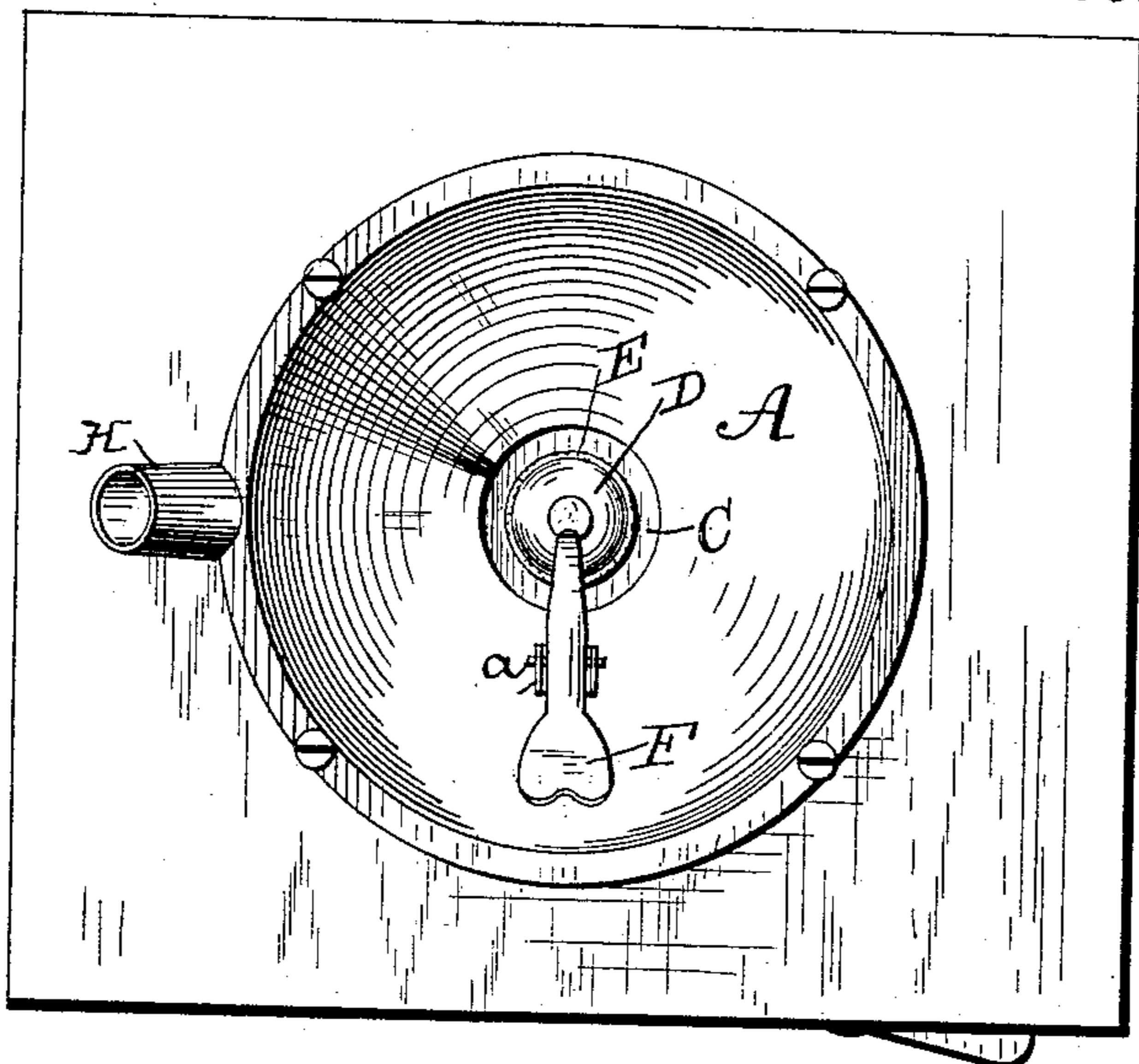


Fig. 2.

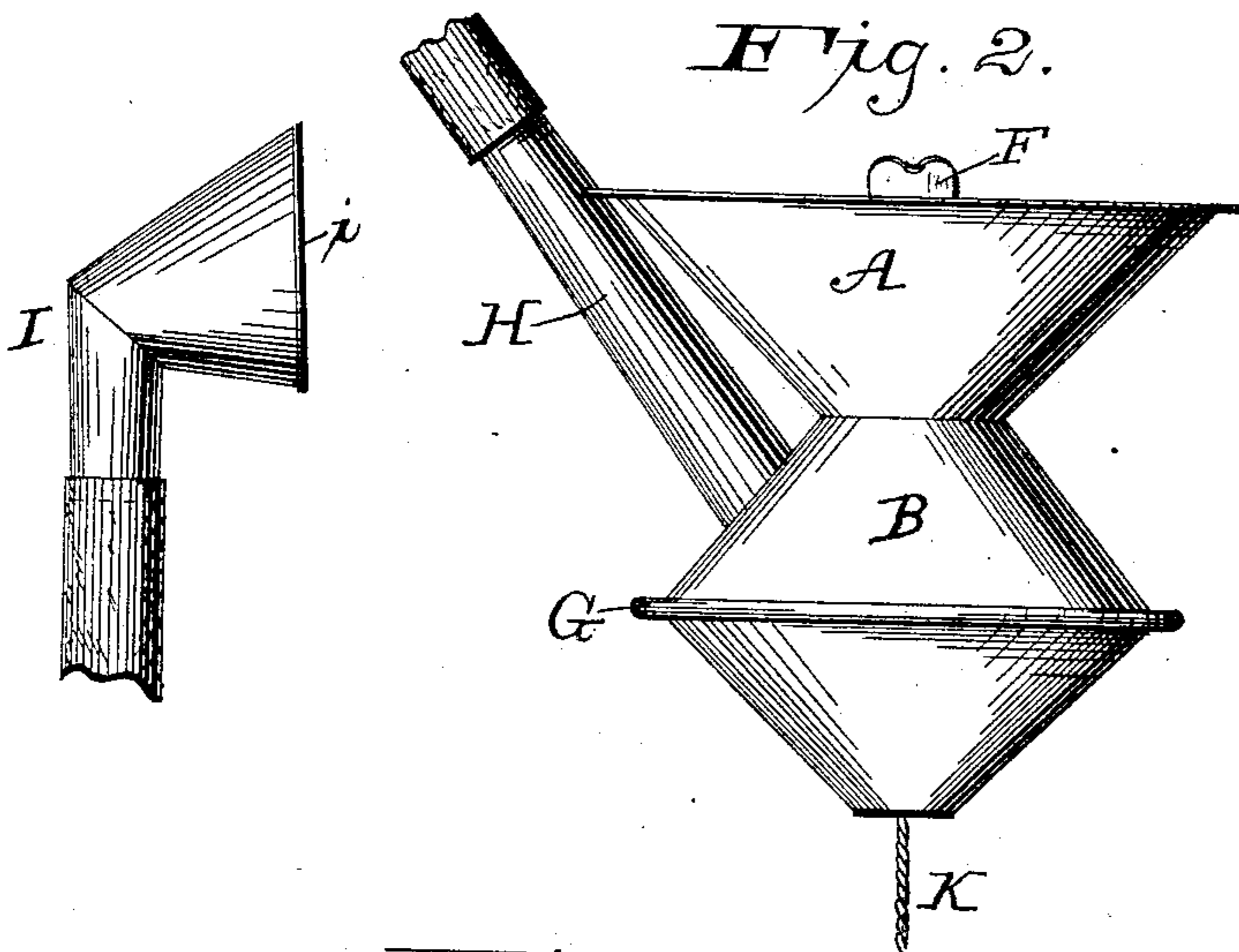
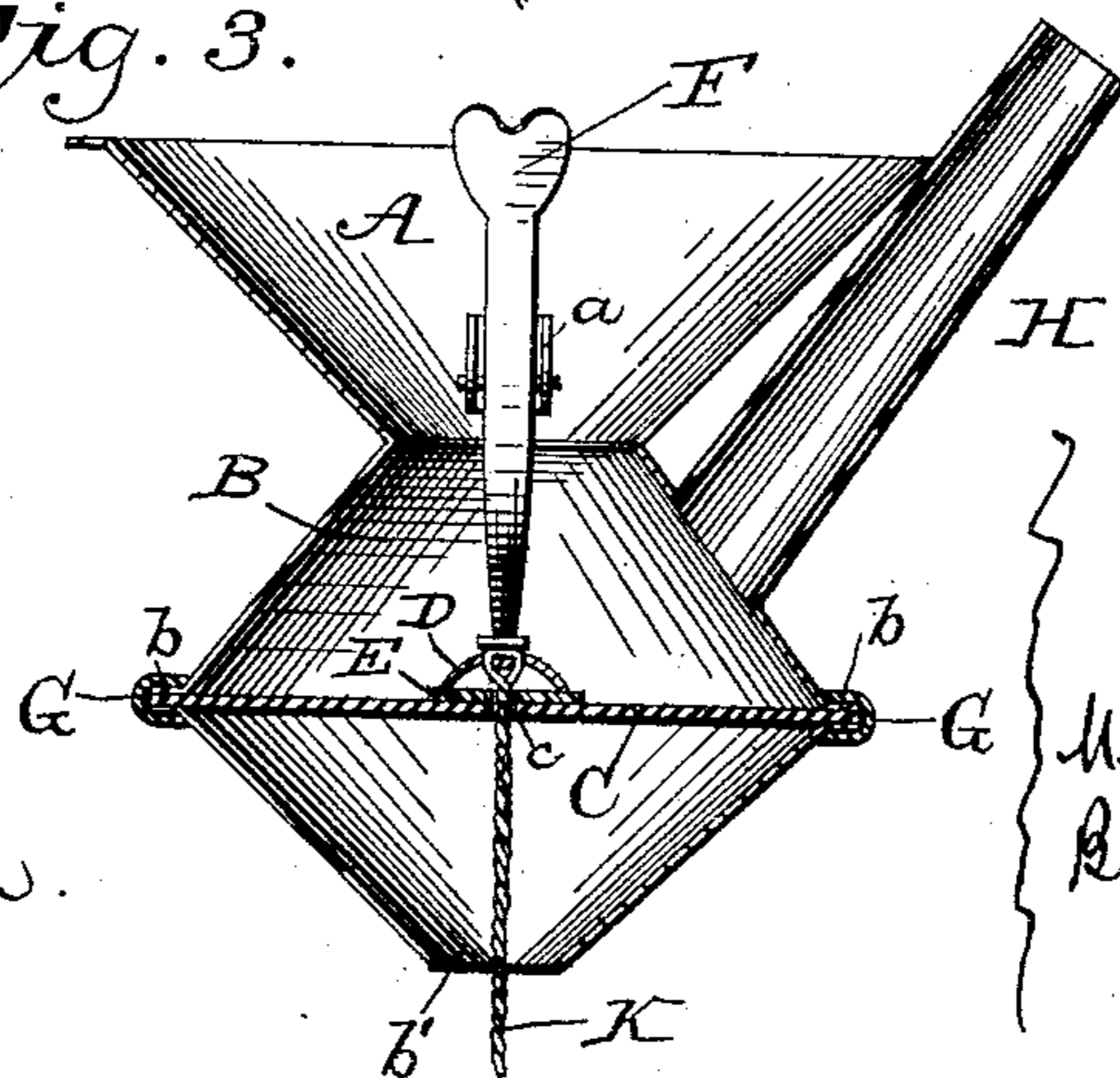


Fig. 3.



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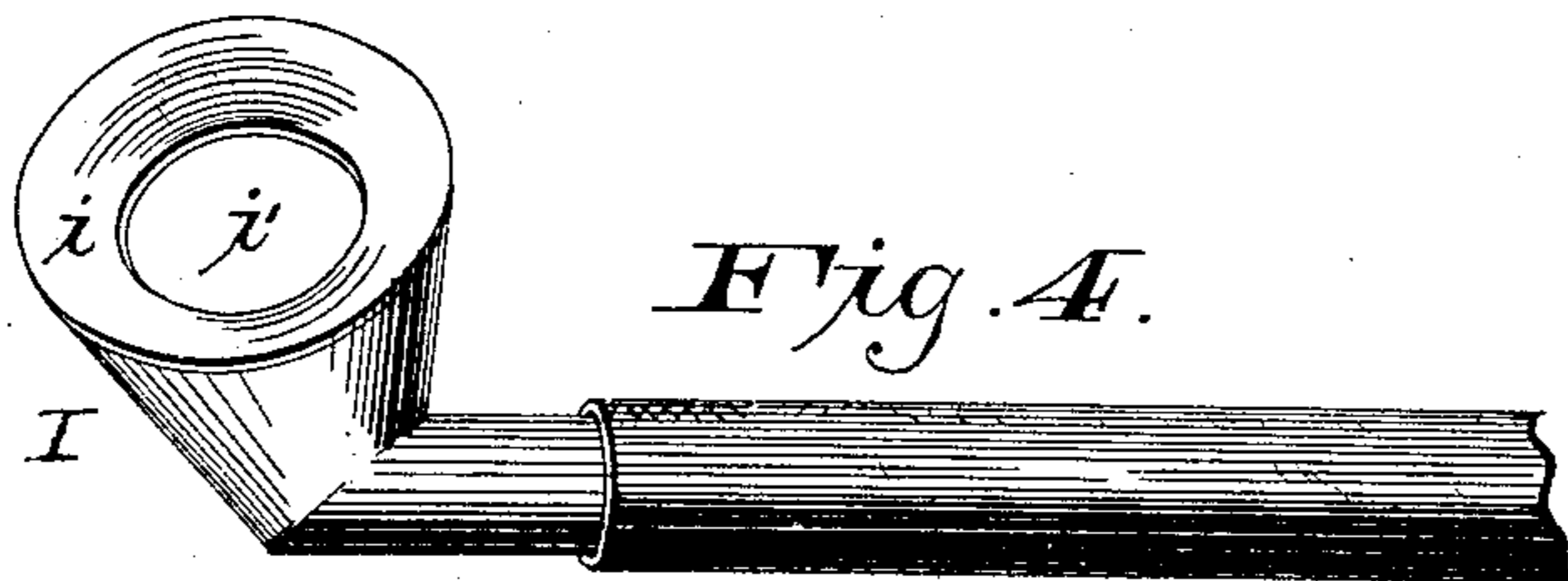


Fig. 5.

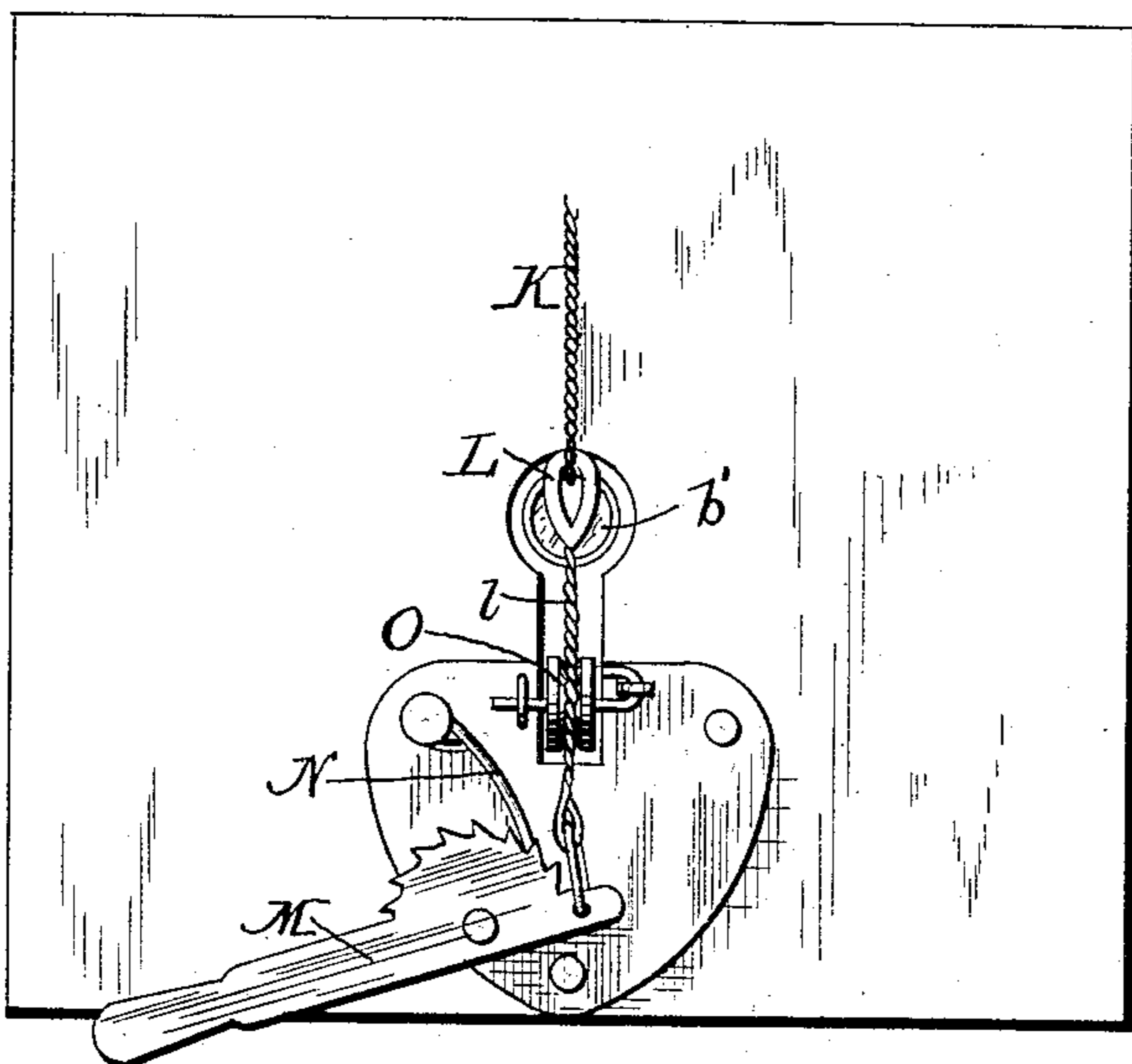
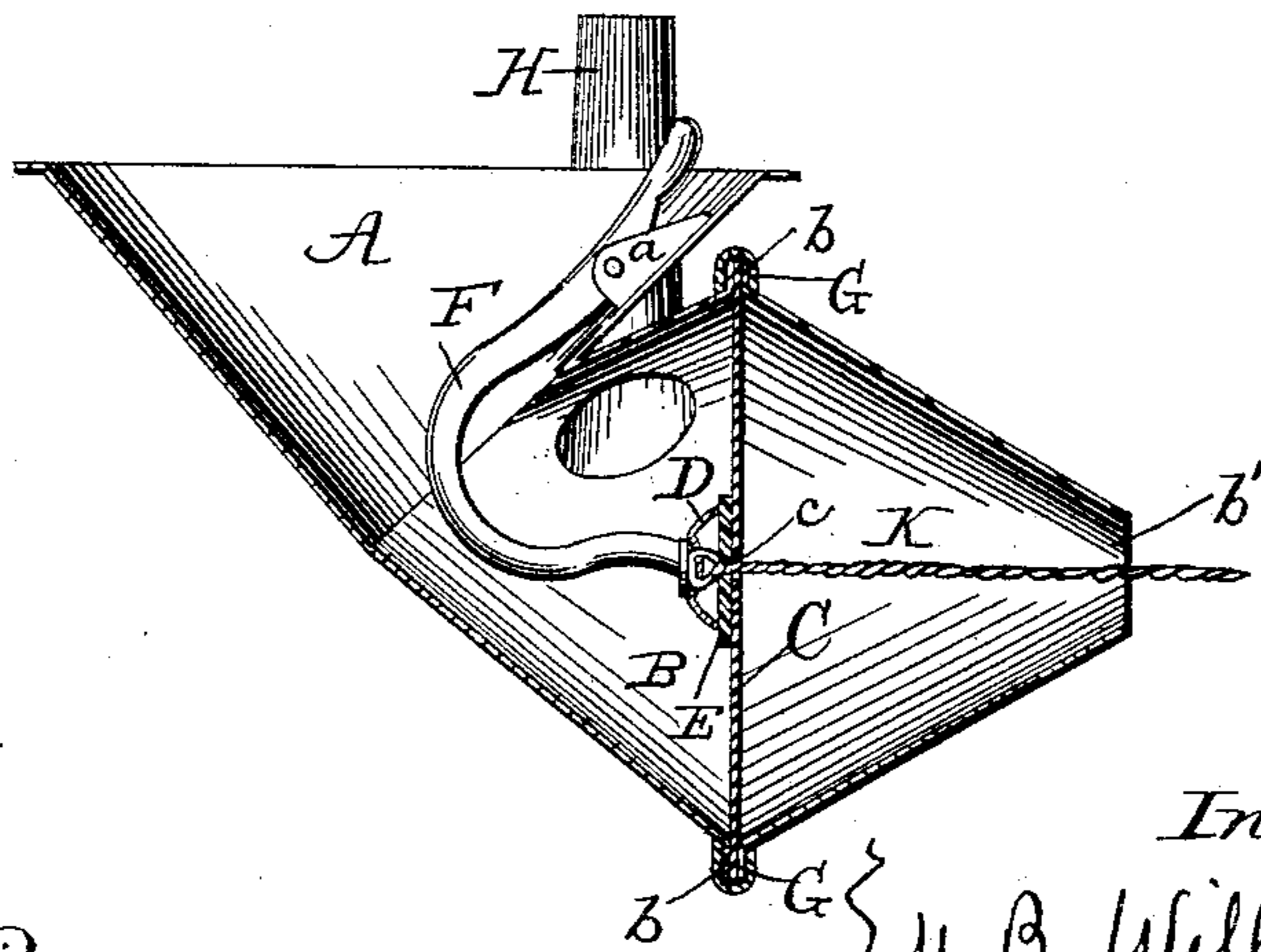


Fig. 6.



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UNITED STATES PATENT OFFICE.

MOSES B. WILLIAMSON, OF XENIA, ILLINOIS.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 333,044, dated December 22, 1885.

Application filed July 23, 1884. Serial No. 138,532. (No model.)

To all whom it may concern:

Be it known that I, MOSES B. WILLIAMSON, a citizen of the United States, residing at Xenia, in the county of Clay and State of Illinois, have
5 invented certain new and useful Improvements in Mechanical Telephones; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to mechanical tele-
15 phones, and has for its object improvements in the sounding and articulating capacities of the telephone and in the insulation and tension of the wire by means of the construction and arrangement hereinafter to be described.
20 In the accompanying drawings, wherein like letters represent like parts, Figure 1 is a general plan view of the telephone. Fig. 2 is an elevation of the mouth-piece, sounding-tube, and ear-piece attachments; Fig. 3, an elevation,
25 partly in section, of the mouth-piece, key, sounding-tube, diaphragm, and button; Fig. 4, an oblique perspective of the ear-piece, showing the details thereof; Fig. 5, a front view of the mechanism for insulating and
30 tightening the transmission-wire; and Fig. 6, a vertical section of the mouth-piece, sounding-tube, and diaphragm when the transmission-wire is intended to pass through the front or side instead of the bottom of the box in
35 which the telephone is habitually fitted for service.

A is the flared mouth-piece; B, the sounding-tube, consisting of two hollow truncated cones joined at their bases, which are formed
40 into outwardly-turned flanges *b*, to make a joint.

C is a diaphragm of horn riveted near its edge between the flanges *b*, and provided with the usual center hole, *c*, for the admission of
45 the wire.

D is a hollow convexed bottom resting on a cushion of felt, E, or other equivalent elastic material, and suitably provided with holes for the attachment of the wire.

50 F is the call-key, pivoted to a bracket, *a*, in the mouth-piece, and it may have any familiar

and suitable spring attachment to keep the foot of the key pressed upon the button.

G is a broad, tight elastic band fitting upon and infolding the edges of the flanges *b*.

H is a small tube inserted in the dome of the sounding-tube, to convey received sounds to the ear-piece.

I is the ear-piece, attachable to the tube H by an elastic tube or other suitable means, and provided with a concave face, *i*, having a center hole, *i'*.

K is the transmitting-wire, attached to the button and passing through the aperture *b'* in the bottom of the sounding-tube.

L is an insulating-thimble, of leather or other equivalent material, loosely encircling the wire and attached by a short cable, *l*, to one end of the tension-key M, the other end of which is prolonged into a hand-lever, and which is pivoted suitably to the telephone-box and provided with a half-circular ratchet, to co-operate in an obvious manner with the pawl N, likewise pivoted to the box, and so maintain the wire K in tension. A roller-pulley, O, accommodates the cable pertaining to the thimble.

By means of the construction and arrangement above described I obtain the following useful results: First, the sounding-tube is well shaped above to insure vibration of the diaphragm, and below to concentrate the vibrations upon the wire; secondly, the character of the diaphragm-plate and the manner in which it is rigidly embedded in the walls of the sounding-tube tend to reduce the expansions and contractions due to changes of humidity and temperature; thirdly, the material of the diaphragm, the normal pressure of the key upon the button, the pad beneath the button, and the tight close-textured band around the joint of the sounding-tube all contribute toward the suppression of ringing or jarring noises and the promotion of distinct articulation; fourthly, in windy or stormy weather the call-key can be used as a means of communication according to a prearranged code of sounds; fifthly, the round concaved face of the ear-piece enables the receiver to place the orifice of the ear-piece very close to the orifice of his ear, and so exclude foreign adjacent sounds; and, sixthly, the insulation and ten-

sion of the wire are efficiently and simply insured.

It is intended to fit the apparatus into any kind of suitable case or box having the necessary inlets and outlets to accommodate the various parts, this box being fastened to the wall or any other convenient support.

The instrument I have above described contemplates the passage of the transmitting-wire through the bottom of the box; but if it be more convenient to have such passage through a vertical wall of the box it is only necessary to vary the shape and direction of parts, as shown in Fig. 6, without introducing new or additional elements.

Having thus described my invention, what I claim to be new and useful, and desire to secure by Letters Patent, is the following:

1. The combination, in a mechanical telephone, of the sounding-tube B, having flanges *b*, with the diaphragm C and the band G, in the manner hereinbefore described, whereby distinct transmission of sounds is promoted.

2. The combination, in a mechanical telephone, of the sounding-tube B, having flanges *b*, with the diaphragm C, the button D, the cushion E, and the band G, all in the manner hereinbefore set forth, for the purpose of improving telephonic articulation by the suppression of ringing and jarring noises, as herein set forth.

3. The combination, in a mechanical telephone, of the thimble L, having a short cable *l*, with the tension-key M, the pawl N, and the pulley O, in the manner hereinbefore described, for the purpose of insulating and tightening the transmitting-wire of such a telephone, as herein set forth.

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

MOSES B. WILLIAMSON.

Witnesses:

R. D. S. FILSON,
D. L. TUCKER.