

(No Model.)

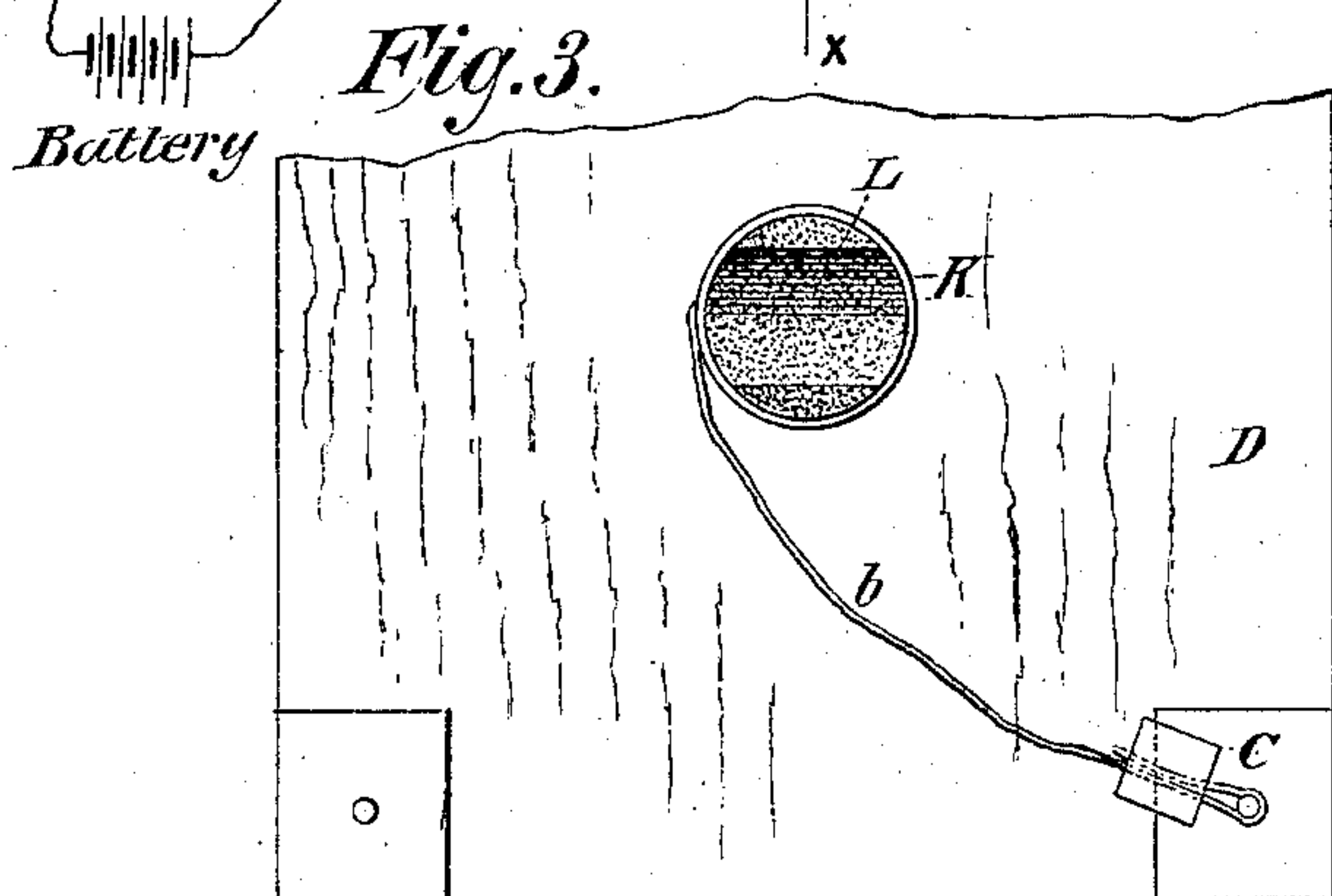
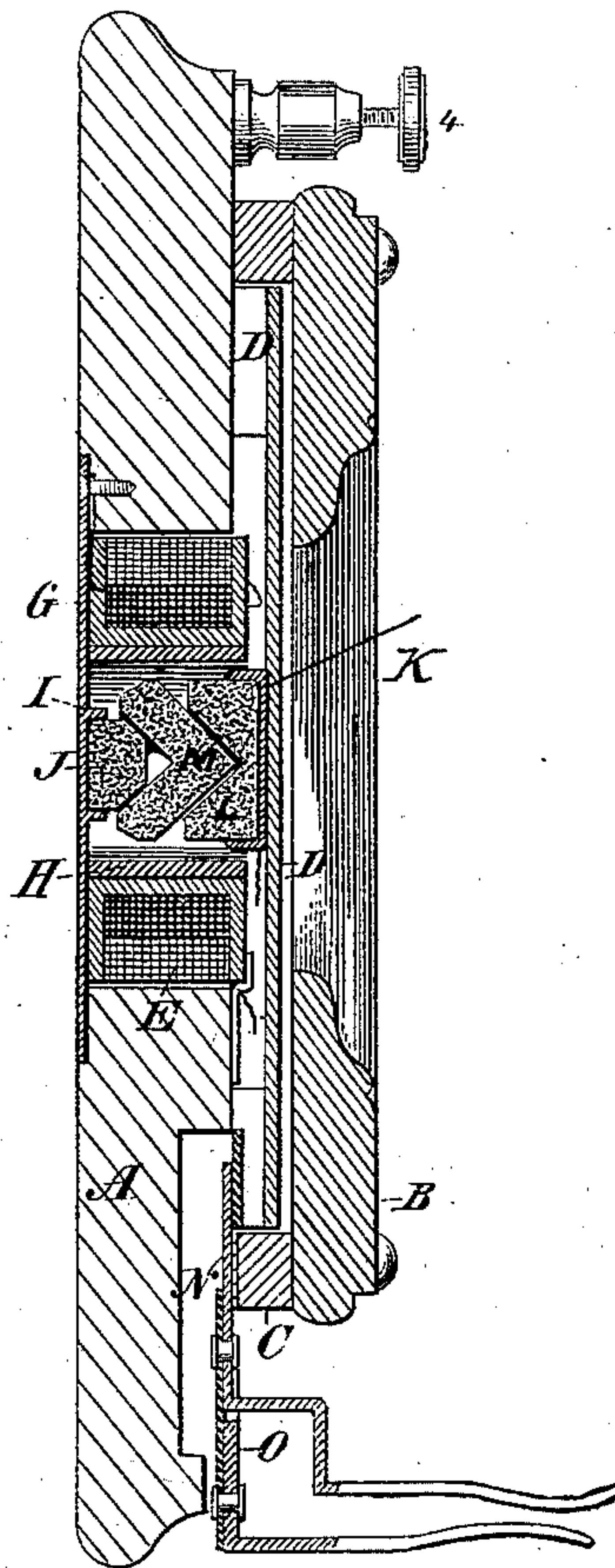
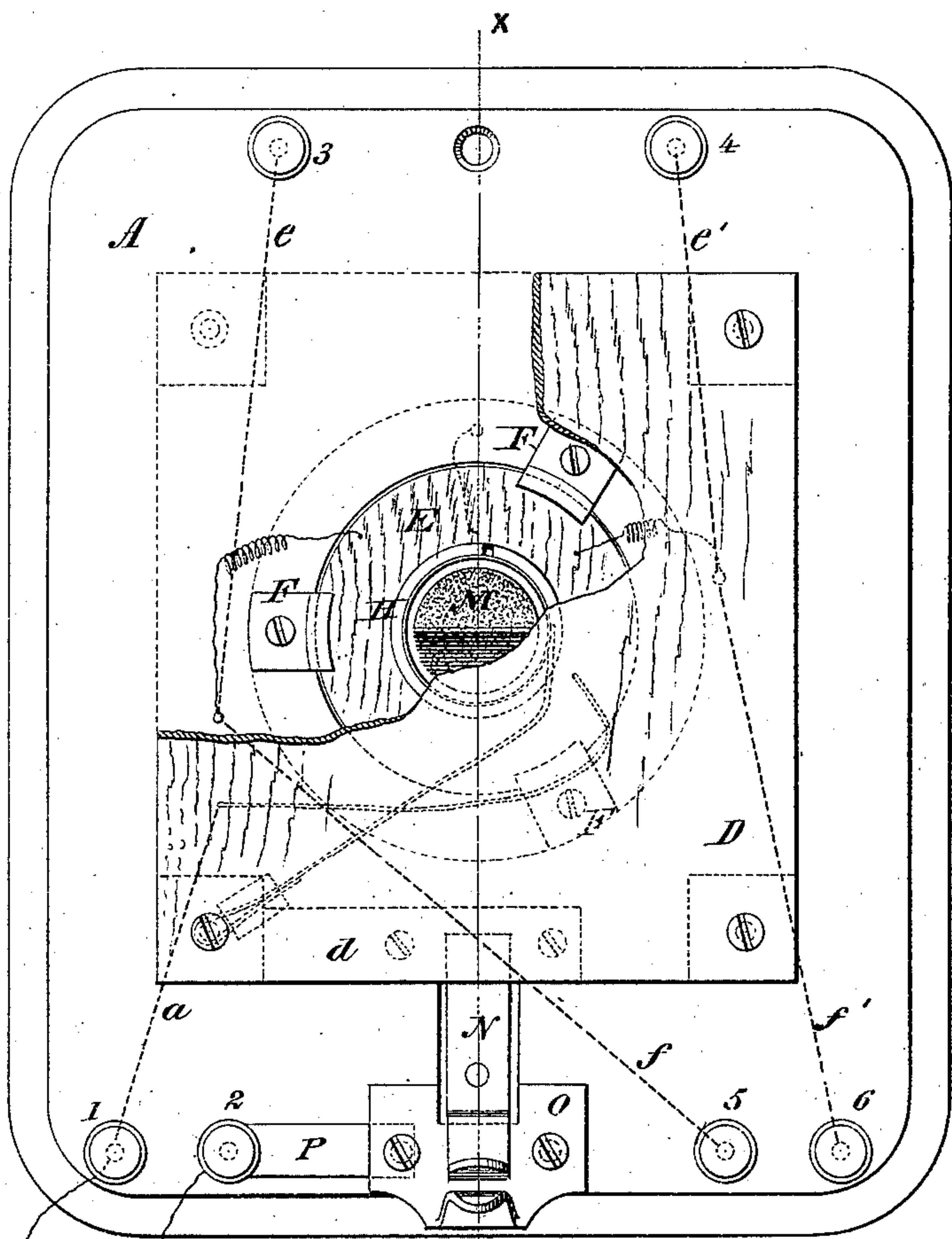
D. DRAWBAUGH.  
TELEPHONE TRANSMITTER.

No. 307,026.

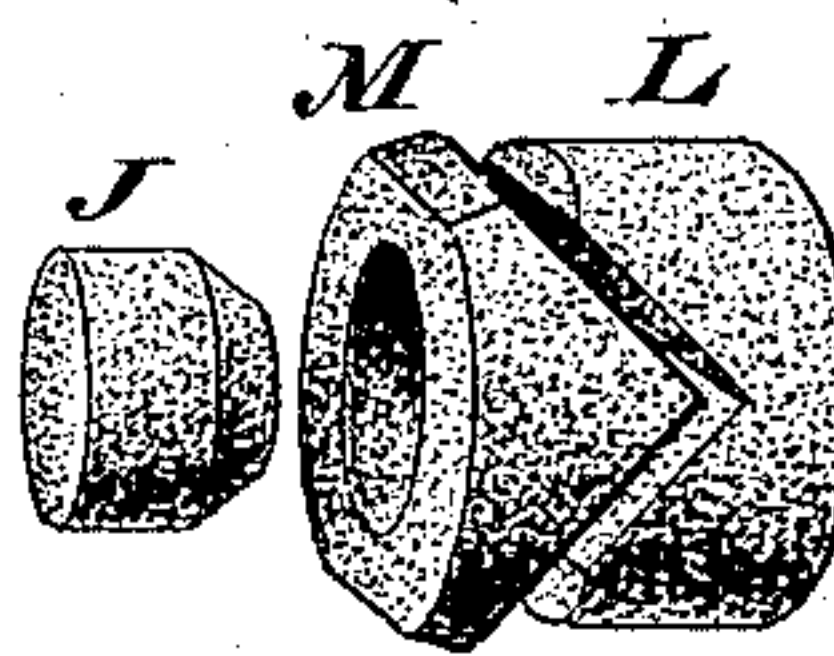
Patented Oct. 21, 1884.

*Fig. 1.*

*Fig. 2.*



*Fig. 4.*



WITNESSES:

*Gustave Dietrich*  
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BY *Leah Benjamin*  
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# UNITED STATES PATENT OFFICE.

DANIEL DRAWBAUGH, OF EBERLY'S MILL, PENNSYLVANIA, ASSIGNOR TO  
THE PEOPLE'S TELEPHONE COMPANY, OF NEW YORK.

## TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 307,026, dated October 21, 1884.

Application filed April 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL DRAWBAUGH, of Eberly's Mill, Cumberland county, Pennsylvania, have invented a new and useful Improvement in Telephone - Transmitters, of which the following is a specification.

The invention relates to a telephone-transmitter containing electrodes, preferably of low conducting material—such as carbon—through which a current passes, which current is modified suitably for telephonic purposes by the influence of the diaphragm upon said electrodes, when said diaphragm is vibrated by sound-waves produced by the voice.

The invention consists more particularly in the construction herein set forth, wherein the electrodes are arranged in a recess or opening in the back board of the instrument and in the interior of the induction-coil; in the construction of the electrodes both generally and to adapt them for insertion in said coil, and in the arrangement of the coil in the back or base board of the instrument.

In the accompanying drawings, Figure 1 is a front view with the cover removed and a portion of the diaphragm broken away. Fig. 2 is a vertical section on the line *xx* of Fig. 1. Fig. 3 is a rear view of the diaphragm, and Fig. 4 shows the electrodes separately.

Similar letters of reference indicate like parts.

A is the base or back board of the instrument. B is the cover containing a sound-receiving orifice, and having upon its rear side the narrow flange or projection C. D is the diaphragm, which may be of wood or other non-conducting material, and which is preferably supported upon small slabs of cork or other yielding substance interposed between its rear side and the back board, A.

In the back board, A, is formed a recess or opening to receive the induction-coil E. Said coil is held in the recess by means of clips F on the front side and a metal plate, G, on the rear side. Within the coil is a hollow cylindrical core, H, of iron. The metal plate G, which is of brass, is attached by screws or other convenient means to the rear side of the back board, A. Upon its front side, and entering the hollow core of the induction-coil, is formed, or to said plate is attached, an annu-

lar flange, I, which forms a cup-shaped cavity to receive and hold a cylindrical plug, J, of carbon or other suitable material, which constitutes one of the resistance-varying electrodes.

Upon the diaphragm D is attached a metal cup, K, which receives and holds another cylindrical plug, L, of carbon or other suitable material, which constitutes another of the electrodes. In the end of this electrode is formed a V-shaped indentation.

Between the two electrodes above described is interposed a third and loose electrode, M, made V-shaped at one side to enter the indentation of electrode L, and provided on the other side with a cavity to receive the beveled end of the electrode J. The three electrodes are thus contained within the hollow core of the induction-coil, and are supported by the diaphragm and plate G, the loose intermediate electrode being supported and resting by gravity upon the other two.

The circuits in the instrument proceed as follows: from the battery to binding-post 1, by a wire, *a*, to the primary of the induction-coil, to the rear plate, G, to the electrodes J, M, and L, and metal cup K, thence by a wire, *b*, on the diaphragm, Fig. 3, to a contact-plate, *c*. When the diaphragm is in place, the contact-plate *c* meets a metal plate, *d*, secured to the back board, and the current then proceeds to a spring contact-plate, N, fixed plate O, plate P, and binding-post 2, and so back to battery. The secondary of the induction-coil is connected to the line binding-posts 3 and 4 by the wires *e e'*, and by branch wires *f f'* to the binding-posts 5 and 6, to which a receiving-telephone may be attached. When speech is uttered in front of the diaphragm, the said diaphragm is caused to vibrate, producing modifications of pressure, or of contact area between the electrodes, thus varying the resistance offered by the same to the current passing through them, and rendering said current undulatory in form and adapted for telephonic purposes.

I do not claim herein the combination, broadly, of two electrodes, one attached to a diaphragm and the other to a support, the said electrodes having inclined faces, and a third electrode resting upon said inclined



faces by gravity and bridging said electrodes, this subject-matter being embodied in another application, No. 59,482, filed by me April 25, 1882.

5 I claim as my invention—

1. In a telephone, and in combination with the diaphragm and resistance-varying electrodes thereof, a centrally-located induction-coil and a base recessed to receive said coil,  
10 substantially as described.

2. The combination, in a telephone, of a diaphragm, an induction-coil, resistance-varying electrodes located within the induction-coil, and a base forming a case or support having  
15 a cavity for the reception of the induction-coil, substantially as described.

3. The combination, in a telephone, of a centrally-located induction-coil, a case provided with a suitable recess or cavity for the reception of said induction-coil, resistance-varying electrodes situated within the induction-coil, and a diaphragm to which one of said electrodes is attached, substantially as described.  
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4. The combination, in a telephone, of a diaphragm, an induction-coil, and resistance-varying electrodes located wholly within said induction-coil, substantially as described.  
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5. In a telephone, a diaphragm, a hollow induction-coil centrally disposed and facing said diaphragm, and resistance-varying electrodes of substantially cylindrical form and adapted to be contained within said coil, substantially as described.  
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6. In a telephone, an induction-coil and a base or back board having an opening extending through it to receive the induction-coil, a plate on the one side of said opening and a clip or clips on the other side, between which plate and clips the induction-coil is confined, substantially as described.  
35

7. In a telephone, a diaphragm, an induction-coil, a cylindrical iron or steel core contained within said coil, and resistance-varying electrodes located within said core, substantially as described.  
40

8. In a telephone, a base or back board containing a recess, a diaphragm supported upon said back board in front of said recess, and re-

sistance-varying electrodes arranged in said recess and supported by and between the diaphragm and the rear wall of said recess, substantially as described. 50

9. In a telephone, a base or back board containing an opening extending through it, a diaphragm supported upon said back board in front of said opening, a removable plate closing said opening in the rear, and resistance-varying electrodes arranged in said opening and supported by and between the diaphragm and rear plate, substantially as described. 55

10. In a telephone, a base or back board containing an opening, a cup-shaped receptacle formed upon or attached to the inner side of the rear wall of said opening, an electrode contained in said cup, a diaphragm supported in front of said opening, a cup-shaped receptacle attached to said diaphragm, an electrode contained in said receptacle, and a third electrode supported by and between the two electrodes named, substantially as described. 60

11. In a telephone, a diaphragm, a support, two fixed electrodes held respectively thereon, and one loose electrode, one fixed electrode having a cavity to receive the loose electrode, and the loose electrode having a cavity to receive the other fixed electrode, substantially as described. 65

12. In a telephone, a diaphragm, a support, and three resistance-varying electrodes arranged in series between said diaphragm and support, the first electrode having a recess to receive the end of the second electrode, and the second electrode having a recess to receive the end of the third electrode, substantially as described. 70

13. In a telephone, the combination of the back board, A, cover B, diaphragm D, electrodes J M L, plate G, means of attachment of electrodes J and L, respectively, to the diaphragm D and the plate G, and induction-coil E, substantially as described. 75

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Witnesses:

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