

(No Model.)

F. H. BROWN.  
MAGNETO TELEPHONE.

No. 376,707.

Patented Jan. 17, 1888.

Line.

Fig. 1.

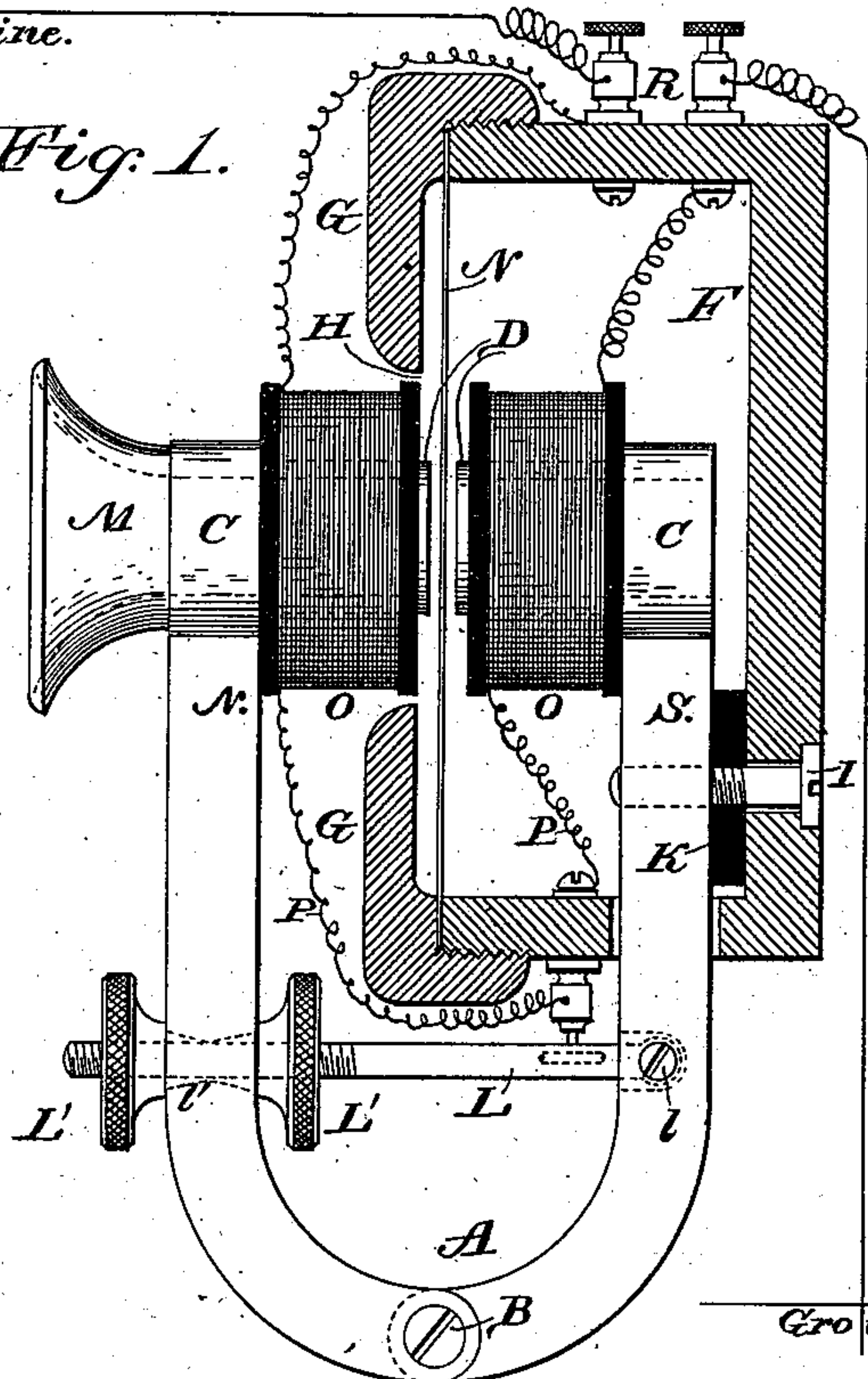


Fig. 2.

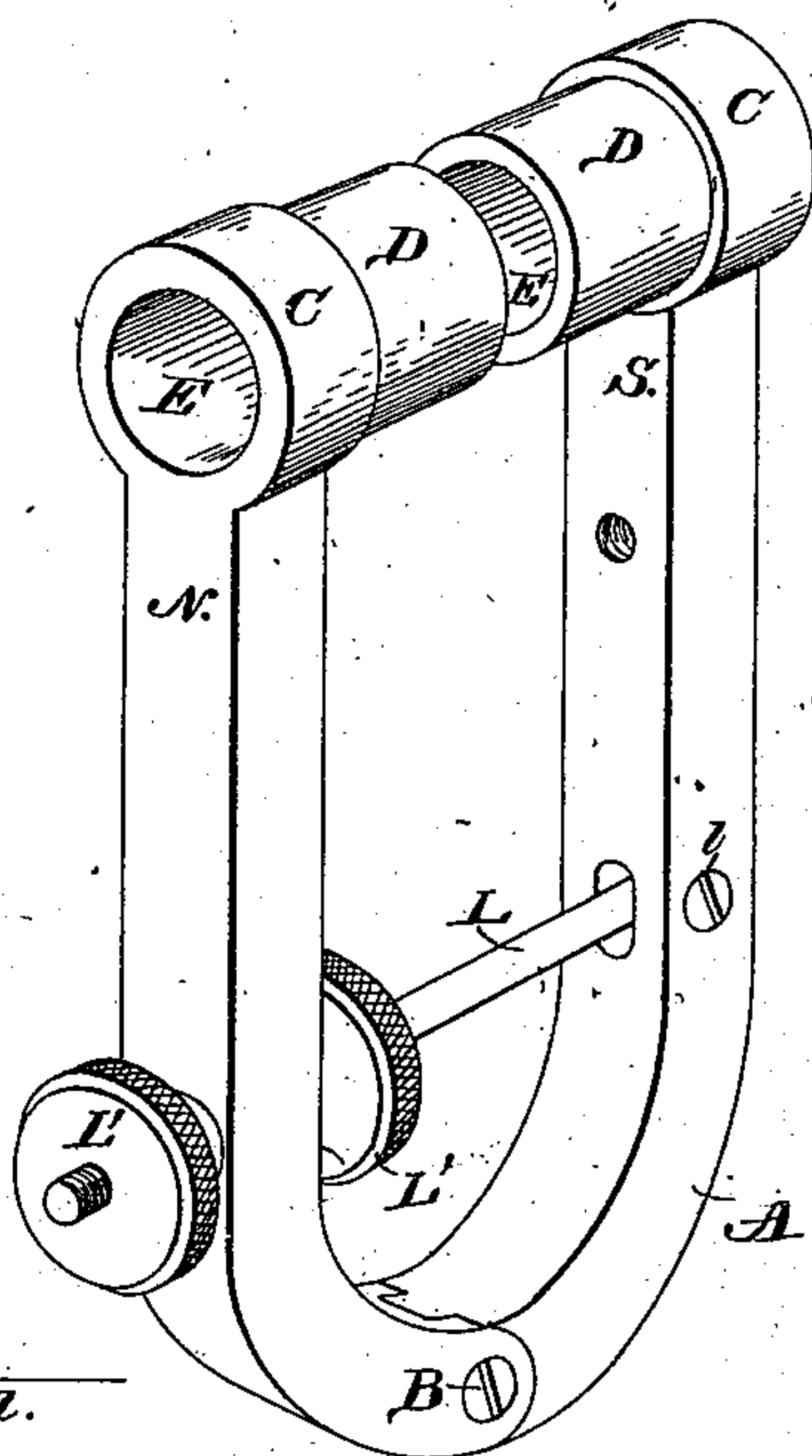
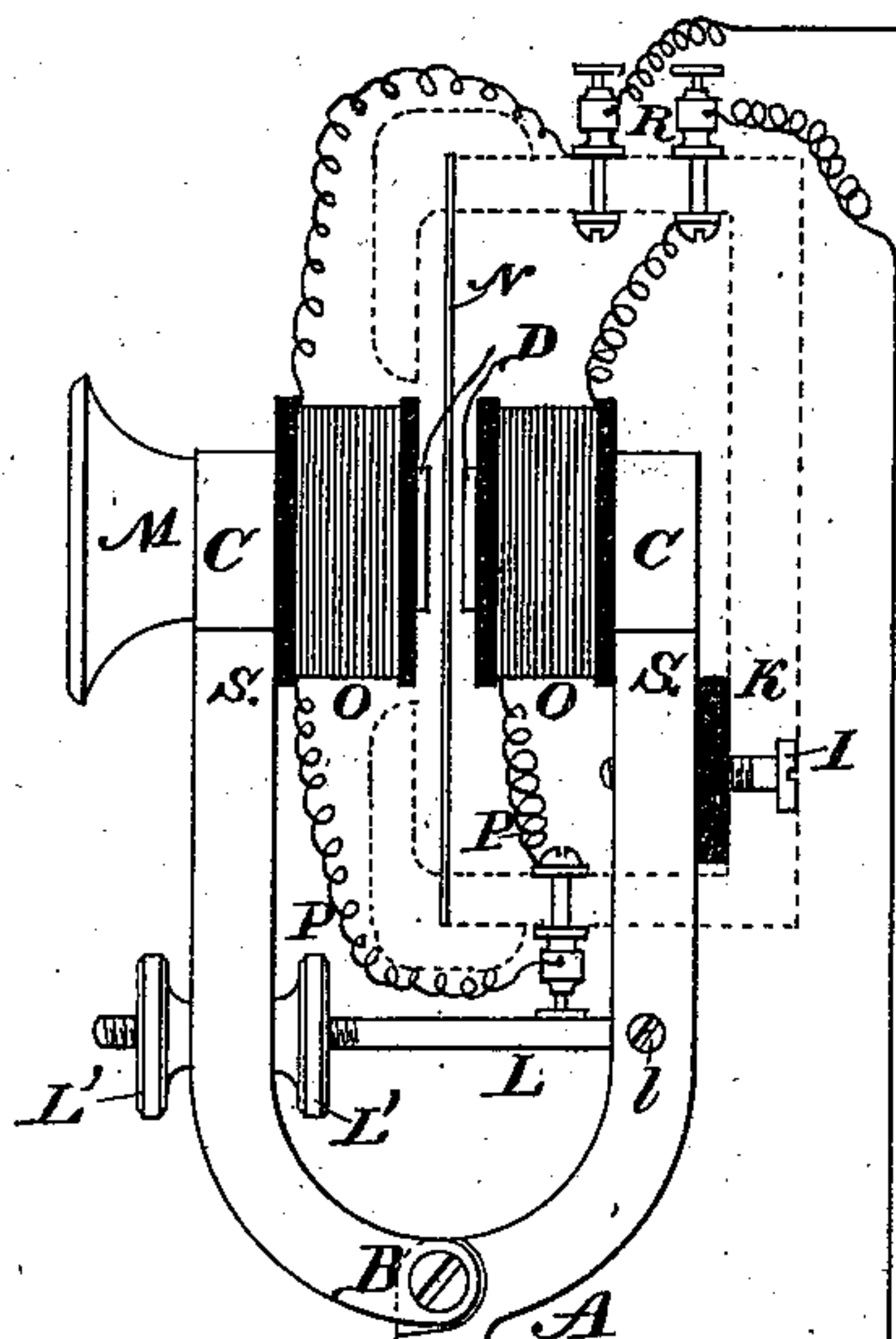


Fig. 3.



Witnesses

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By his Attorneys

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# UNITED STATES PATENT OFFICE.

FRED. H. BROWN, OF NEW YORK, N. Y.; ASSIGNOR TO THE MAGNETO TELEGRAPH COMPANY, OF NEW YORK.

## MAGNETO-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 376,707, dated January 17, 1888.

Application filed February 20, 1886. Serial No. 192,672. (No model.)

*To all whom it may concern:*

Be it known that I, FRED. H. BROWN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Magneto-Telephones, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in magneto-telephones; and it consists, first, in the combination, with a permanent magnet having opposing poles, of a diaphragm free to vibrate between the said opposing poles, whereby the magnetic stress is exerted with equal intensity on both sides of the diaphragm to balance the latter and render it more susceptible to the influence of atmospheric sound-waves; and it further consists in the peculiar construction and combination of parts that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a magneto-telephone embodying my invention. Fig. 2 is a detail perspective view of the magnet. Fig. 3 is a diagram illustrating a modified form of my invention.

A represents the permanent horseshoe or U shaped magnet having its arms hinged together, as at B. The outer ends of the arms of the magnet are enlarged and rounded, as at C, and are provided on their opposing sides with inwardly-projecting studs D, which form the poles of the magnet, the said studs being in a line with each other. Through the centers of these aligned poles or studs D are bored cylindrical openings E, which extend through the outer ends of the arms of the magnet and through the studs D in a continuous line.

F represents a sounding-box, which is made of any suitable size and shape, and is provided on one side with a cap, G, in the center of which is made an opening, H. One arm of the magnet is secured in the sounding-box by means of a screw, I, which passes through the outer side of the box, through a rubber washer, K, which is interposed between the box and the arm of the magnet and through the said arm, as shown in Fig. 1. The opening in the box through which the screw passes is of greater diameter than the screw, so that the

latter merely works in the threaded opening of the magnet-arm and turns freely in the opening in the box.

L represents a screw-rod, one end of which is pivoted to one arm of the magnet, as at L, and the other end of which passes through an opening, L', that is made in the other arm of the magnet. Thumb-nuts L' work on the screw L, one on each side of the outer or free arm of the magnet, and bear on opposite sides thereof. A mouth-piece, M, is provided for the outer arm of the magnet and communicates with the opening E thereof.

N represents a diaphragm, which is secured between the sounding-box and its cap equally distant between the opposing poles of the magnet, and the hollow cylindrical poles of the magnet are provided with helices O of insulated wire which are connected together, as at P, in electric circuit, and have their free ends attached to binding-posts R, arranged for the attachment of the line and ground wires.

It will be seen that the diaphragm is arranged between the opposing poles of the magnet, so that equal stress is exerted upon the magnet by each pole, the stress of one pole being counterbalanced by that of the other and thereby balancing the diaphragm in the magnetic field and increasing its sensibility.

By providing the magnet with the opposing hollow cylindrical poles and the mouth-piece communicating therewith the sound-waves are conveyed directly to the center of the diaphragm and are unobstructed by the outer arm of the magnet and its helix, which would be the case if outer arm of the magnet were not provided with the opening E.

By means of the screw I and the elastic washer K the inner arm of the magnet may be adjusted to cause its pole to approach or recede from the diaphragm to the requisite extent, and by providing the screw-rod L, connecting the hinged arms of the magnet and the thumb-nut L' thereon, the outer arm of the magnet may also be adjusted with relation to the diaphragm.

In Fig. 3 I show a modified form of my invention, in which the magnet is provided with an extended pole, a, of opposite polarity to those arranged on opposite sides of the dia-



phragm, by means of which the intensity or strength of the magnetic field in which the diaphragm is balanced is increased. The extended pole *a* also forms a convenient handle 5 for the telephone.

Having thus described my invention, I claim—

1. The combination of the magnet A, hinged at the point B, hollow cylinders D, formed 10 with the upper portion of the said magnet, the adjusting-rod L, hinged to one part of said magnet, screws L', engaging with the other end of said rod where it passes through the opposing portion of the magnet, and the dia- 15 phragm N, substantially as described.

2. The permanent magnet having the opposing arms of the same polarity and the extended arm of opposite polarity, the helices

arranged as set forth, the diaphragm N, and the adjusting-rod L, substantially as described. 20

3. In a magnetic telephone, the combination of the magnet constructed with a hinged joint and having its arms provided with aligned opposing hollow cylinders formed therewith, the helices wound thereon, the mouth-piece com- 25 municating with one of said hollow poles, the diaphragm arranged between the said poles, and the adjusting-rod L, substantially as described.

In testimony that I claim the foregoing as 30 my own I have hereto affixed my signature in presence of two witnesses.

FRED. H. BROWN.

Witnesses:

WILLIAM H. CLARKSON,  
A. BARONN.