

(No Model.)

2 Sheets—Sheet 1.

J. MARET.  
TELEGRAPH SOUNDER.

No. 463,428.

Patented Nov. 17, 1891.

Fig. 1.

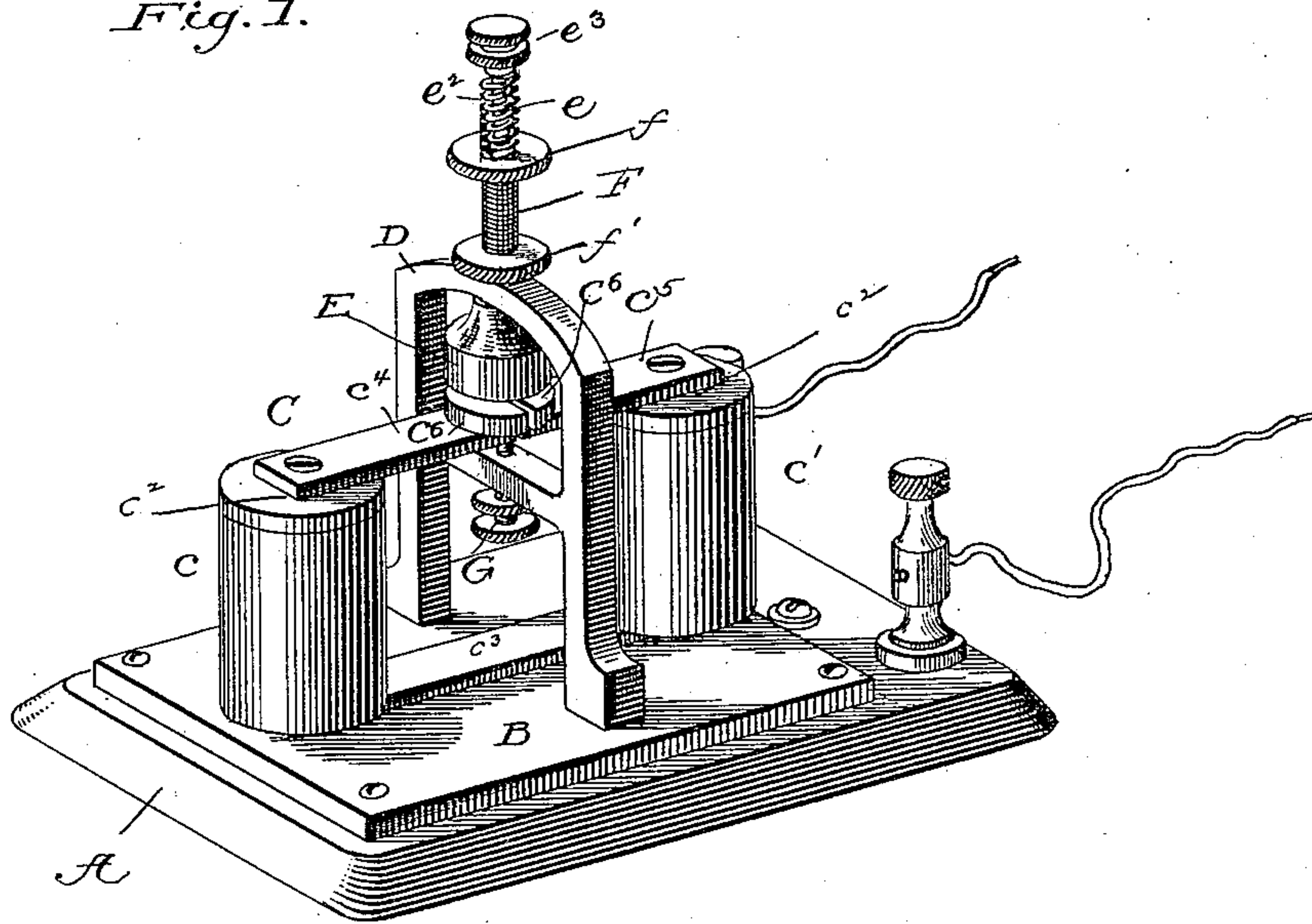
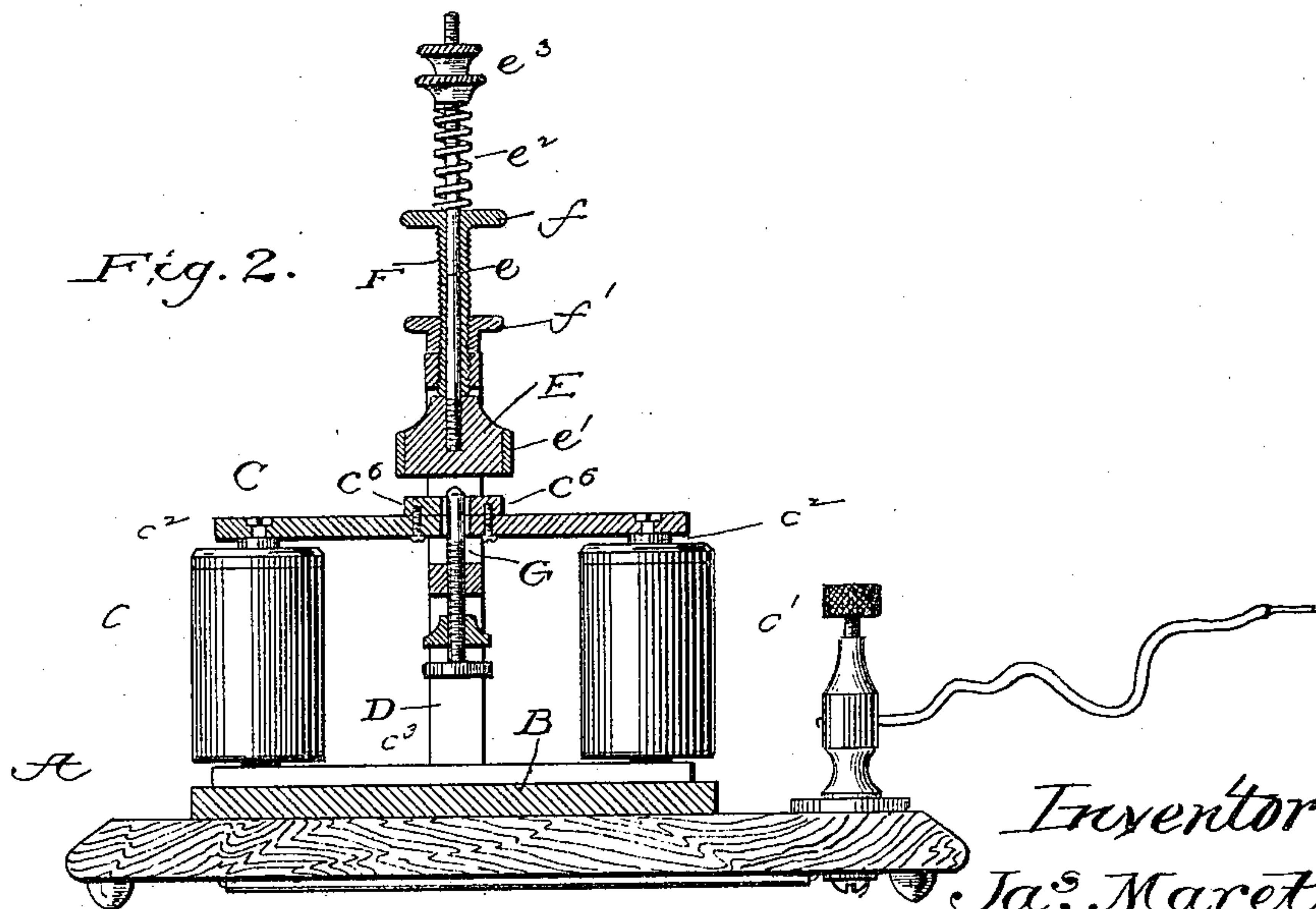


Fig. 2.



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Witnesses

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Fig. 3.

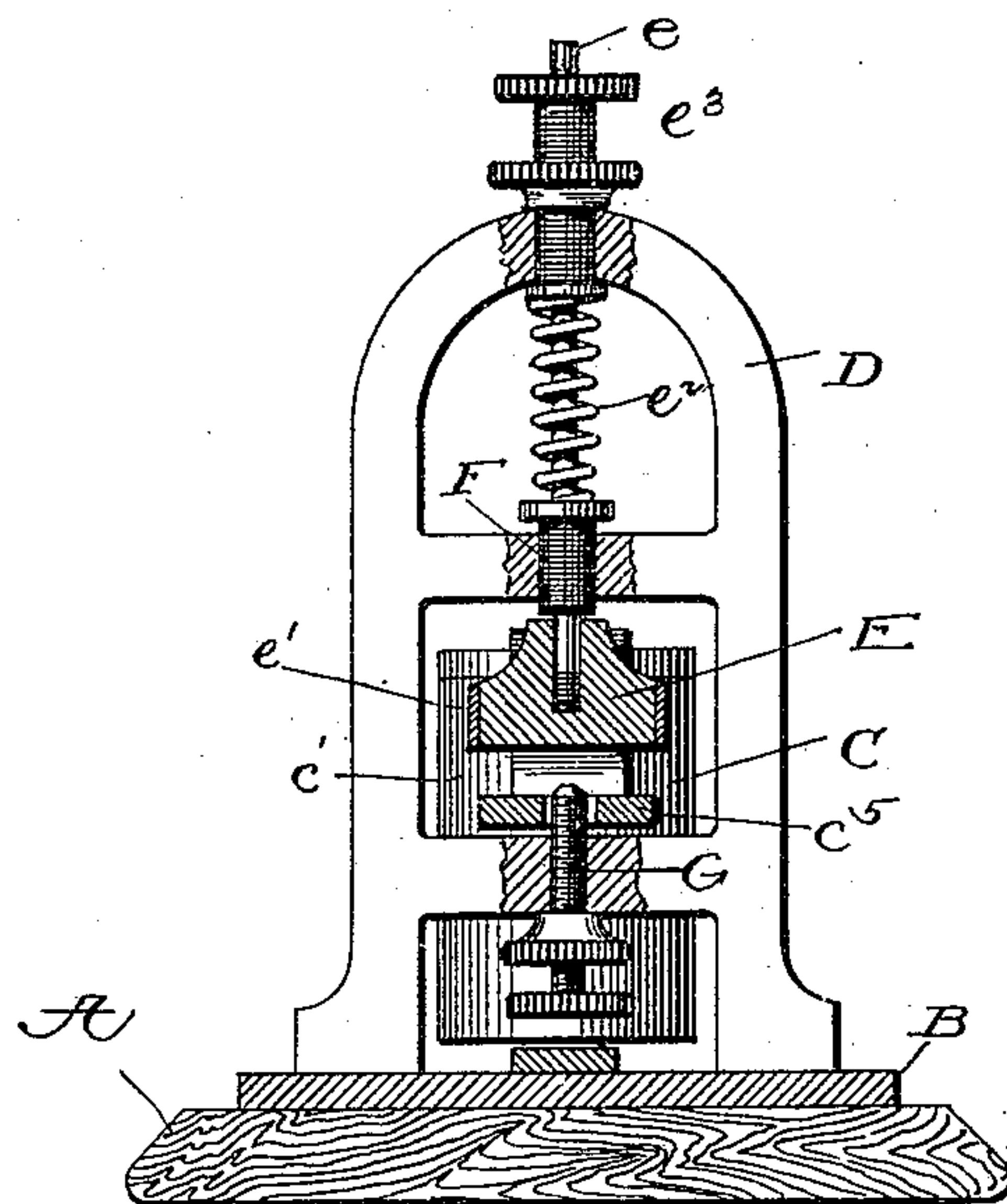
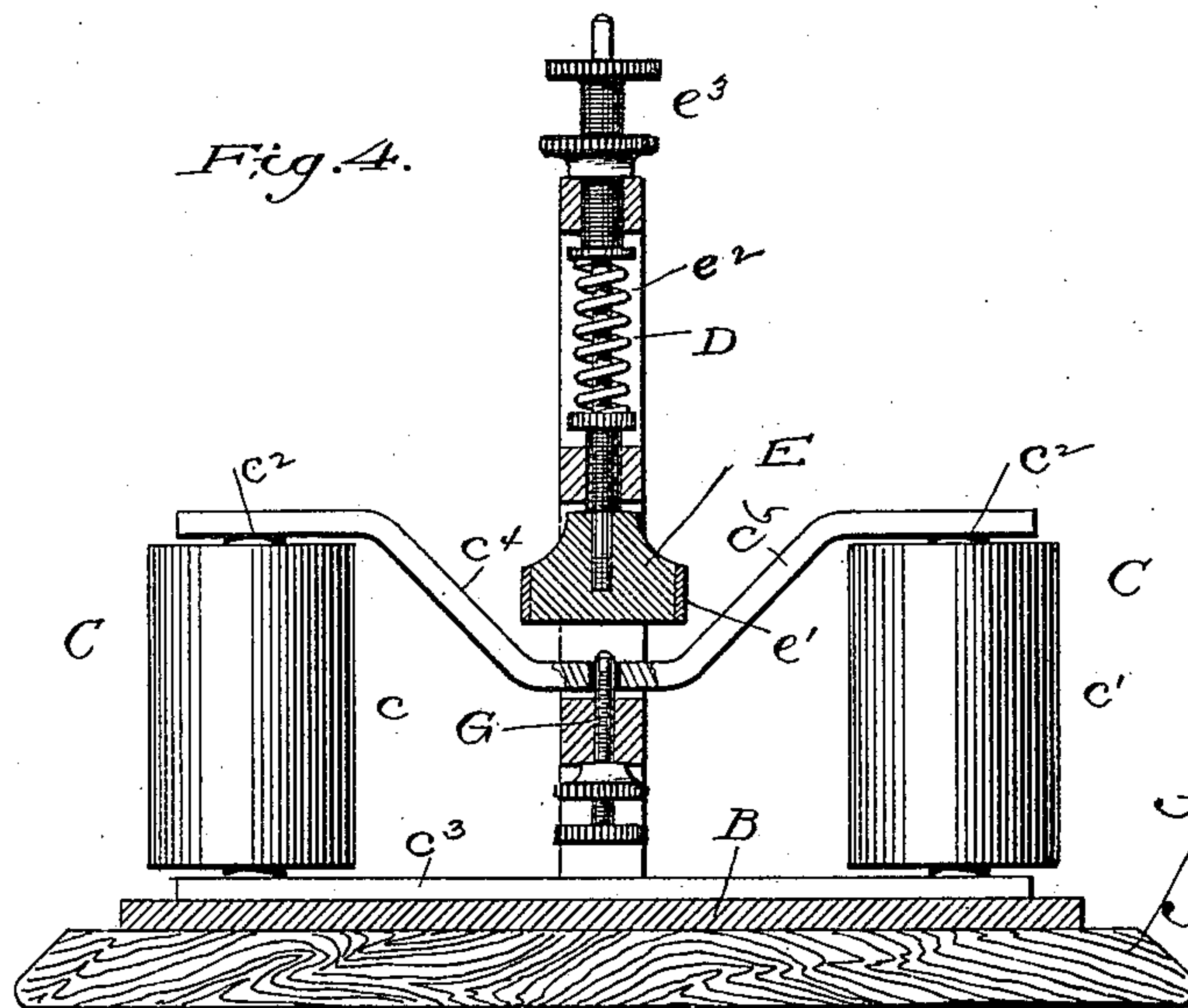


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JAMES MARET, OF MOUNT VERNON, KENTUCKY.

## TELEGRAPH-SOUNDER.

SPECIFICATION forming part of Letters Patent No. 463,428, dated November 17, 1891.

Application filed February 3, 1891. Serial No. 380,026. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES MARET, a citizen of the United States of America, residing at Mount Vernon, in the county of Rock Castle and State of Kentucky, have invented certain new and useful Improvements in Telegraph-Sounders, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to telegraph-sounders.

The object of the invention is primarily to give great distinctness of sound and at the same time to simplify the means of adjustment and cheapen its construction; and to 15 this end it consists, essentially, in concentrating the attractive power of an electro-magnet centrally, so that its direct influence is exerted upon the armature, the armature itself 20 in its movement acting as a hammer or striker to produce sound by actual contact with the points forming the limits of its movement, the poles of the magnet serving as vibratory arms and being brought into the points of contact 25 of the armature.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 represents a perspective view of a sounder constructed in accordance with my 30 invention. Fig. 2 is a vertical longitudinal sectional view of the same, taken centrally through the electro-magnet. Fig. 3 is a cross-section of a modified form of sounder, and Fig. 4 is a longitudinal section of the 35 same.

A represents a wooden base, to which is secured the brass base-plate B, both of ordinary construction and common to the well-known sounders in general use. Upon this 40 base-plate is mounted the electro-magnet C, consisting of the helices  $c$   $c'$ , their cores  $c^2$  being connected at their lower ends by the soft-iron bar  $c^3$ , as usual. To the upper end of each core is rigidly secured a bar  $c^4$   $c^5$ , each 45 extending inward until its end nearly meets at a point midway between the helices. Thus although the coils themselves are widely separated the poles of the magnet are brought into close relation to each other and the power 50 of the magnet concentrated at a central point. The inner end of each of these extensions is increased in size by the addition of a semi-

circular piece of iron  $c^6$ , secured thereto or formed integral therewith, placed end to end, yet out of contact, together assuming the 55 shape of a severed disk. The arms, being thus secured at their outer ends and free at their inner ends, are capable of slight vibratory movement.

Midway between the helices and rising 60 from the base-plate is a bracket or standard D, in which is mounted a brass rod  $e$ , carrying at its lower end an armature E, of soft iron, preferably circular in form, and which is arranged directly above the disk-shaped 65 ends of the poles of the magnet. This armature is surrounded by a brass rim or band  $e'$ . The rod  $e$  is capable of easy vertical movement to admit of the rise and fall of the armature, owing to the magnetization or demag- 70 netization of the poles beneath. The return of the armature to its normal position during demagnetization or when the circuit is broken is insured through the action of a spring  $e^2$ , encircling the rod, its tension being 75 regulated by jam-nut  $e^3$ , against which its upper end bears.

The bearing of the rod is formed by an encircling sleeve F, threaded upon its outer side and provided with a thumb-piece  $f$ , the sleeve 80 passing through a threaded opening in the standard and adapted to be brought to bear against the upper surface of the soft-iron armature to limit its upward movement and increase or decrease the distance between the 85 magnet and the striking-armature, as may be necessary. A jam-nut  $f'$  confines the sleeve and holds it to its proper adjustment.

Centrally beneath the poles of the magnet is mounted in the bracket an adjusting-screw 90 G, the end of which extends upward between the poles and constitutes the lower point or limit of movement of the armature, its point being adjusted to extend sufficiently above the face of the poles to prevent contact of the 95 armature therewith. Thus it will be seen that the poles of the magnet encircle the lower stop, being suspended thereabout, as it were. By means of these adjustable points or stops the limit of movement of the striking arma- 100 ture or hammer can be definitely determined and fixed and from time to time adjusted at once and effectively to suit the strength of the current.



While I have shown the vibrating poles extended directly toward each other, I do not wish to confine myself to this form of construction, since it is obvious that a more compact instrument may be made by dropping the extended poles of the magnet below the level of the helices, any side attraction being prevented by the brass rim or band thereon. It is also obvious that the striking armature or hammer may be placed beneath the poles with equal advantage, the opposing stop being then located above and the order of movement reversed. These are mere variations coming within the limit of my invention.

The advantage of this instrument over those formerly known and used is apparent. The entire magnetic power of attraction is concentrated at one point and exerted directly upon the sound-producing striker or hammer itself, thus utilizing the attraction to its greatest extent.

It is obvious that my invention may be applied with equal success to telegraph-relays.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a telegraph-sounder, the combination of an electro-magnet having the poles bent or turned toward each other, a bracket or standard, an adjustable contact-screw in the standard passing between the inner ends of the poles, a striking-armature in the standard, a sleeve adjustable in the bracket, a jam-nut, and spring for said striking-armature.

2. In a telegraph-sounder, the combination

of a base-plate, an electro-magnet mounted thereon having the poles bent or turned toward each other, a bracket mounted on the base-plate and having cross-pieces above and below the poles of the magnet, an adjustable contact-point arranged in the lower cross-pieces between the poles, an adjustable hammer-armature carried by the upper cross-piece, and a spring for returning the said armature, as set forth.

3. In a telegraph-sounder, the combination of a base, a standard rising therefrom, electro-magnets mounted on the base and having their poles bent or turned inward, an adjustable contact-point arranged between the ends of the poles, and an armature having an enlarged head or hammer for striking said contact-point.

4. In a telegraph-sounder, the combination of a base, a standard rising therefrom having cross-pieces, an electro-magnet on the base having the poles bent or turned inward, a contact-point arranged in one of the cross-pieces of the standard between the ends of the poles, a striking-armature arranged in the other cross-piece, and a returning-spring for the armature.

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

JAMES MARET.

Witnesses:

HUGH MILLER,  
J. M. BROWN.