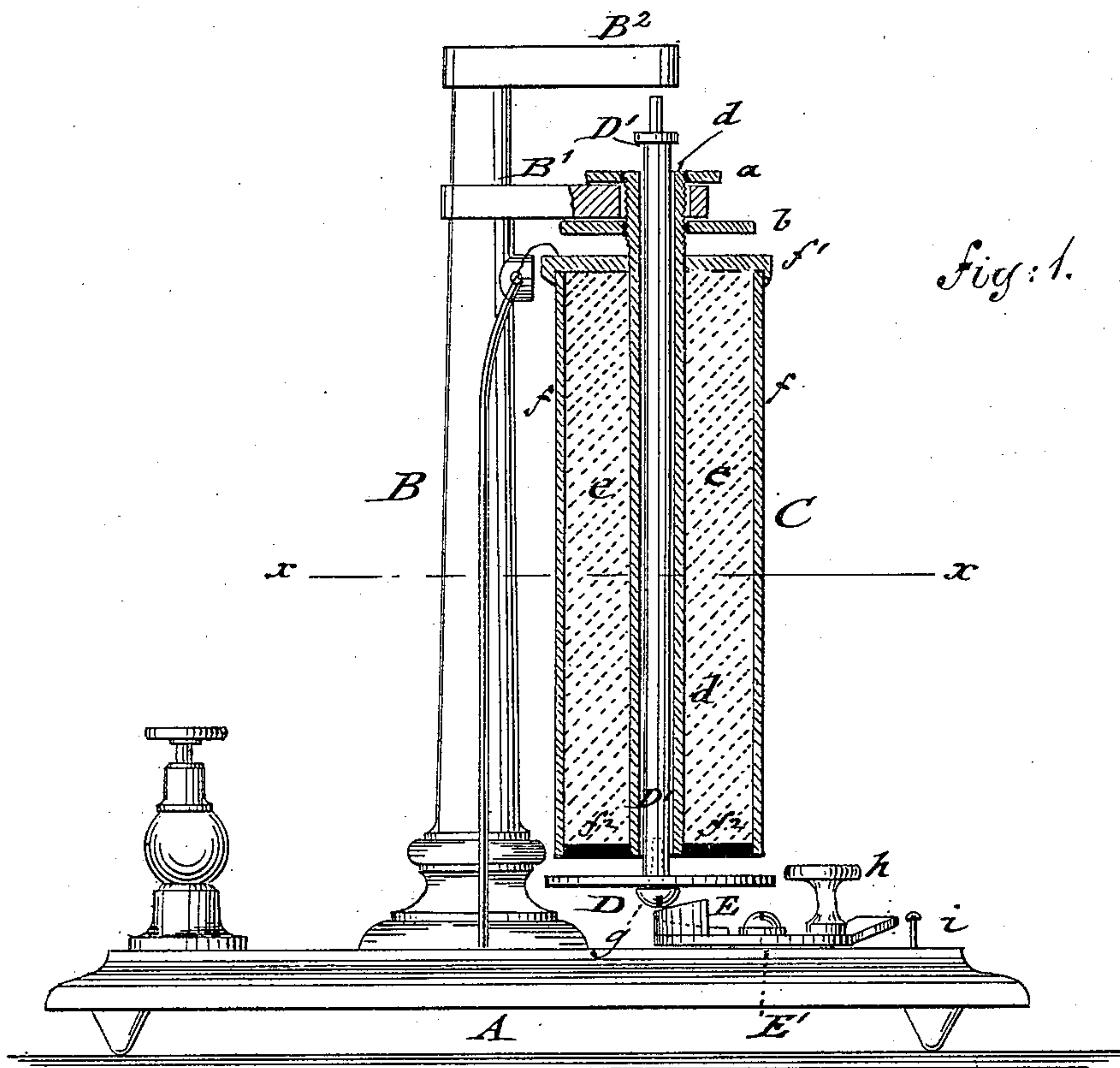


(Model.)

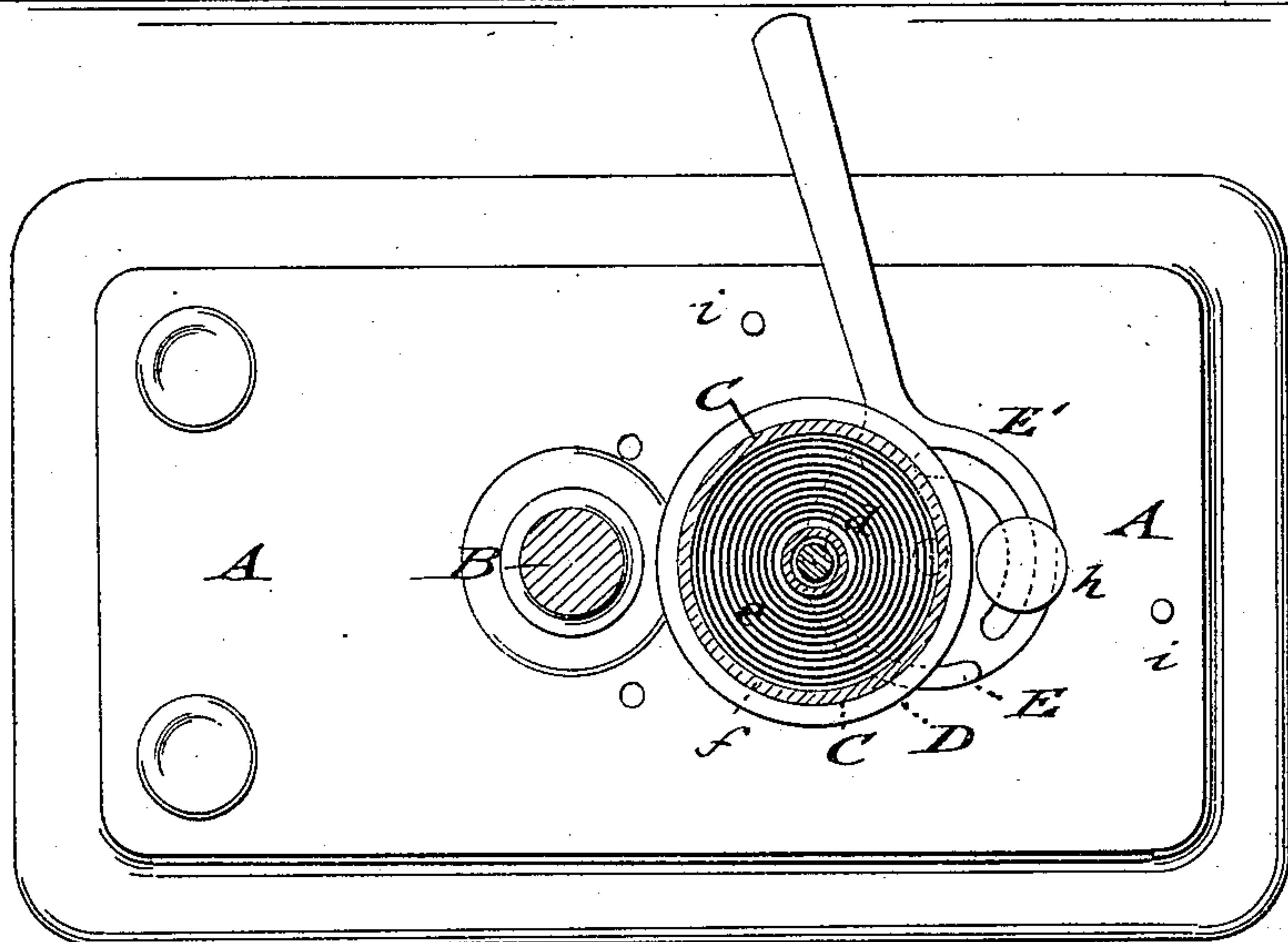
C. HERRMANN.  
Telegraph Sounder.

No. 241,213.

Patented May 10, 1881.



*Fig: 1.*



*Fig: 2.*

WITNESSES:

Carl Karp  
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# UNITED STATES PATENT OFFICE.

CARL HERRMANN, OF NEW YORK, N. Y.

## TELEGRAPH-SOUNDER.

SPECIFICATION forming part of Letters Patent No. 241,213, dated May 10, 1881.

Application filed October 4, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, CARL HERRMANN, of the city, county, and State of New York, have invented certain new and useful Improvements in Telegraph-Sounders, of which the following is a specification.

This invention has reference to improvements in telegraph sounding-instruments, by which not only their construction is simplified and rendered less expensive, but moreover, owing to the absence of springs, a more reliable and positive action secured.

The invention consists of a sounder the electro-magnet of which is formed of a central hollow core, an intermediate coil, and an exterior soft-iron shell, the core and shell forming the concentric poles of the electro-magnet. A disk-shaped gravity-armature is arranged below the poles at the lower end of the magnet, and guided by a stem or shank in the hollow core of the same. An axially-movable cam-disk adjusts the distance of the armature from the pole ends of the electro-magnet, and produces, in connection with a top anvil and projecting hammer end of the shank, the signals in a clear and distinct manner.

In the accompanying drawings, Figure 1 represents a side elevation of my improved telegraph-sounder, partly in vertical central section through the electro-magnet; and Fig. 2 is a top view, partly in horizontal section, of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

A in the drawings represents the base-board of my improved telegraph-sounder, and B an upright standard, which carries on a horizontal arm, B', an inverted electro-magnet, C, by means of clamping-nuts *a* and *b*. The electro-magnet C is constructed of a central hollow core, *d*, around which a coil, *e*, of suitable thickness is wound, which is again inclosed by a soft-iron shell, *f*, that is connected at the upper part to the central core by a flanged soft-iron disk, *f'*. The upper part of the core *d* is extended and secured by the clamp-nuts *a* *b* to the arm B', the magnet C being thereby adjusted higher or lower, as required. The magnetization of the inner core and outer shell by the current forms poles of opposite polarities at their lower ends, which are separated by a

ring, *f*<sup>2</sup>, of hard rubber or other insulating material. The coil is connected in the usual manner, by means of binding-posts, to the line, the current passing through the same being, by the hollow core and shell, utilized to greater advantage than in the horseshoe-magnets heretofore employed.

Below the electro-magnet C is arranged a disk-shaped armature, D, which is made of suitable thickness, and guided so as to approach or recede from the poles of the electro-magnet by a central shank or stem, D', which extends either partly into or passes entirely through the hollow core of the magnet.

At the under side of the armature D is arranged a projection or button, *g*, which forms contact with an inclined flange or cam, E, that extends along a part of the circumference of a slotted disk-shaped plate, E', which is centrally pivoted to the base-board A, and secured to any position by means of a clamping-screw, *h*, passing through the segmental slot of the disk-shaped plate E'. The plate E', and thereby the inclined flange or cam, is moved by a handle or lever, which is stopped in either direction by projecting pins *i*, said pins or stops defining the extreme positions of the flange or cam toward the armature.

By means of the inclined flange or cam E of the disk-shaped plate E', the armature may be adjusted nearer to or farther away from the poles of the electro-magnet, according to the strength of the current, the armature being alternately attracted or dropped by the charging or discharging of the poles of the magnet, so as to produce the signals by the contact of the button with the flange or cam. The signals are made more distinct by extending the stem of the armature above the electro-magnet and allowing the upper hammer end of the stem D' to strike against a horizontal block or anvil, B<sup>2</sup>, at the upper end of the upright standard B. In this manner not only a simpler and less expensive construction of electro-magnets for sounders and other telegraph-instruments is obtained, by which the current is more economically utilized, but furthermore a more reliable and positive motion of the armature obtained without a spring to throw off the armature from the poles of the magnet.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

1. In a telegraph sounding-instrument, the combination of an inverted electro-magnet having concentric poles at the lower end with  
5 a vertically-guided gravity-armature below the poles, and with an adjustable inclined flange or cam, all substantially as described.

2. In a telegraph sounding-instrument, the combination of an inverted electro-magnet  
10 having a hollow core and concentric poles with a gravity-armature having a central shank or

stem passing through and extended above the core, and with a fixed anvil above the hammer end of the shank, substantially as set forth.

In testimony that I claim the foregoing as  
my invention I have signed my name, in presence of two witnesses, this 1st day of October,  
1880.

CARL HERRMANN.

Witnesses :

PAUL GOEPEL,  
CARL KARP.