

(No Model.)

D. J. LUDWIG.
COMBINED TELEGRAPH KEY AND SOUNDER.

No. 482,129.

Patented Sept. 6, 1892.

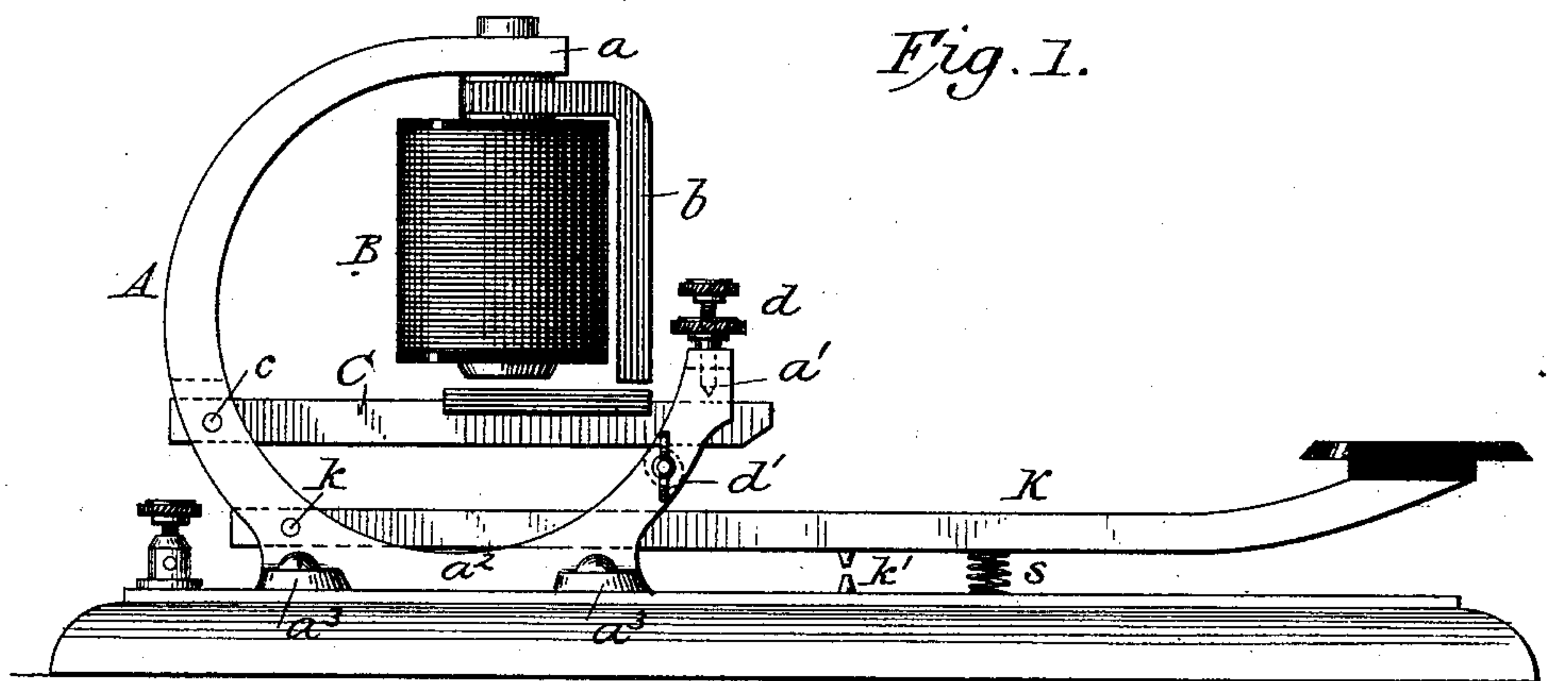
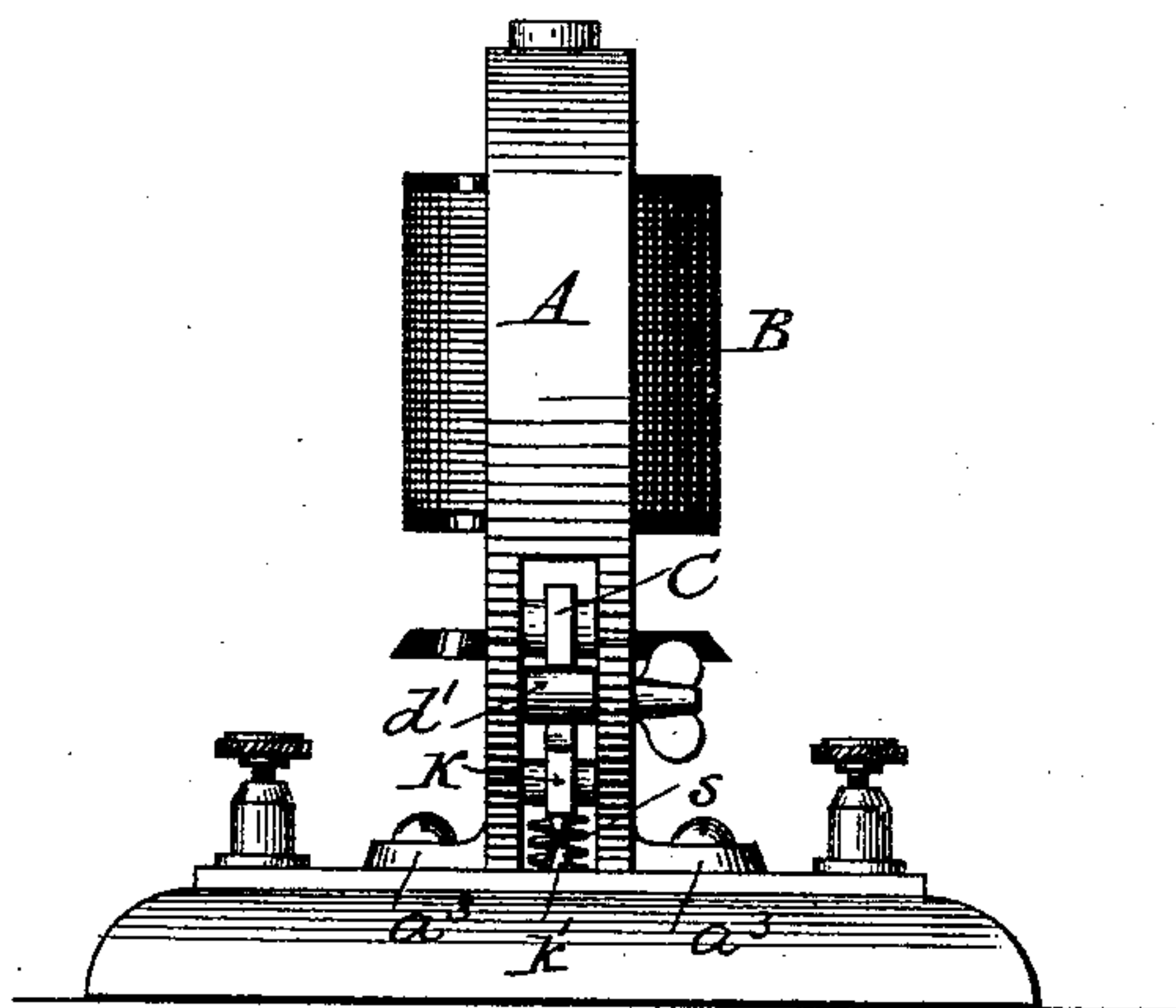


Fig. 2.



Witnesses;
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UNITED STATES PATENT OFFICE.

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COMBINED TELEGRAPH KEY AND SOUNDER.

SPECIFICATION forming part of Letters Patent No. 482,129, dated September 6, 1892.

Application filed May 2, 1892. Serial No. 431,532. (No model.)

To all whom it may concern:

Be it known that I, DAN J. LUDWIG, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in a Combined Telegraph Key and Sounder, of which the following is a specification.

The object of my invention is to construct a cheap, simple, and efficient combined instrument of the character described; and to this end the invention consists in certain details of construction hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a rear elevation.

The frame A, which supports the key and the sounder-magnet and armature, may be of metal and may be shaped and constructed in substantially the following manner: It is in outline C-shaped. The ends a a' are solid, while the base or lower portion a^2 is bifurcated. The base is provided with feet a^3 , by means of which it is secured to the base-board of the instrument. To the higher end a of the frame the sounder-magnet B is attached and depends therefrom. Preferably this magnet has an angular piece of soft iron b connected with the upper end of its core and extending down parallel with the coil to a point in a plane a trifle below the lower end of the core. The armature-lever C is pivoted at c at the rear of the frame A and between its sides or bifurcations. The front end of the armature-lever plays between stops, the upper one d being an adjustable screw passing downwardly through the solid end a' of the frame and the lower one being an eccentric d' , carried by a rotatable pin passing through the sides or bifurcations of the frame. In the organization shown the armature-lever falls by gravity, being unprovided with a retractile spring. The key-lever K is located below the armature-lever, is pivoted at k in the rear of the frame, and works between its sides or bifurcations.

k' represents the bottom stop of the key, and s its elevating-spring.

The circuit connections will be as usual, are obvious, and need no illustration or description.

The sounder-magnet, its armature-lever, and the key are arranged one above the other in the same plane, forming a compact, convenient, and simple organization.

The frame A may be cast or otherwise formed of metal or other suitable material. For instance, hard rubber or vulcanized fiber might be employed; but metal is, in my opinion, preferable.

I claim as my invention—

1. The combination of a frame, the sounder-magnet depending from its upper end, the armature-lever arranged below the magnet, and the key arranged below the armature-lever, all the parts being in the same plane, or substantially so.

2. The combination of a bifurcated frame, the key and armature-lever pivoted and playing between the sides or bifurcations of the frame, and the sounder-magnet supported above the armature-lever.

3. The combination of a frame, a vertical sounder-magnet, a horizontal armature-lever arranged below the magnet, the adjustable eccentric forming its lower stop, and the adjustable screw forming its upper stop.

4. The combination of a C-shaped frame A, the pendent sounder-magnet, the iron extension b of its core arranged outside of the magnet-coil, the horizontal armature-lever arranged below the magnet, and the horizontal key arranged below the armature-lever.

5. The combination of a C-shaped frame the lower side or end of which is bifurcated and formed with lateral feet or extensions for attachment to the base-board, the downwardly-projecting sounder-magnet supported by the upper end of the frame, the horizontal armature-lever pivoted and playing between the bifurcations or sides of the frame and its adjusting-stops, and the horizontal key-lever also pivoted and playing between the sides of the frame, arranged below the armature-lever.

In testimony whereof I have hereunto subscribed my name.

DAN J. LUDWIG.

Witnesses:

EDWARD C. DAVIDSON,
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