

H. C. ROYER.  
Telegraph-Sounders.

No. 149,527.

Patented April 7, 1874.

Fig. 1.

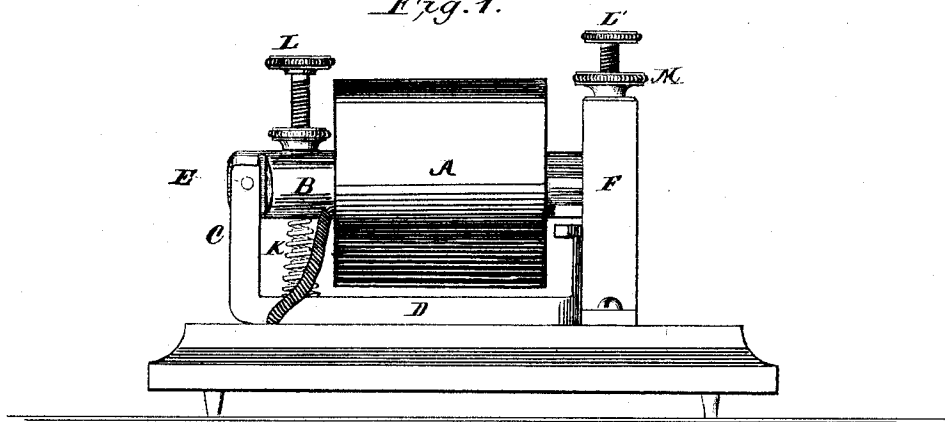


Fig. 2.

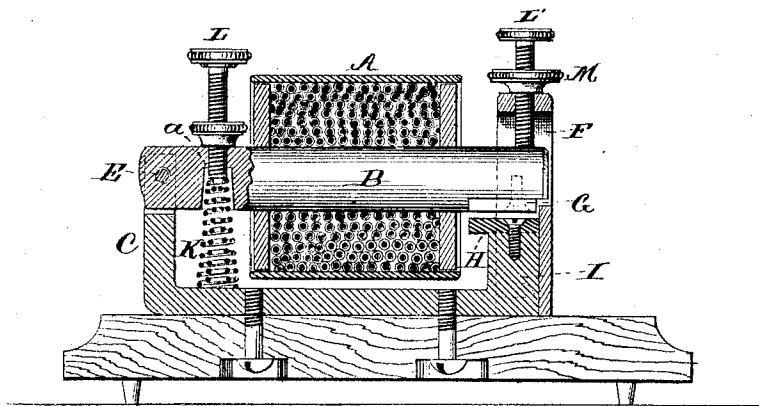
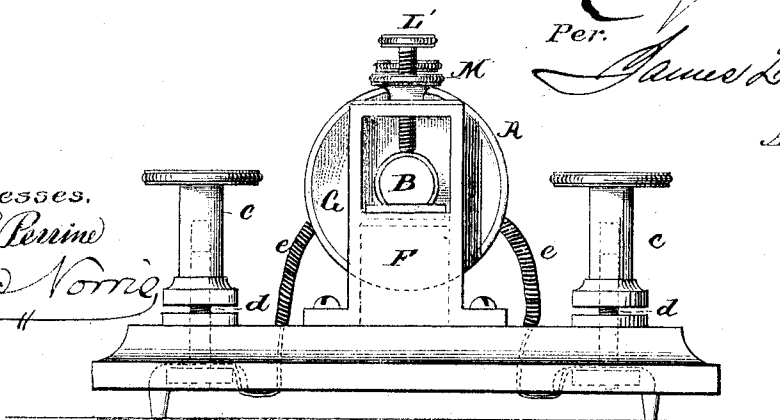


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN TELEGRAPH - SOUNDERS.

Specification forming part of Letters Patent No. **149,527**, dated April 7, 1874; application filed March 3, 1874.

*To all whom it may concern:*

Be it known that I, HENRY C. ROYER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sounders for Telegraph-Instruments, of which the following is a specification:

The present invention has reference to telegraphic sounders, in order to render the same more simple in construction and efficacious in use than others heretofore constructed; and to this end the invention consists in the employment of a hinged or vibrating electro-magnet, composed of a core and surrounding helix, and having a core projecting at each end, one end being pivoted to one arm of a bent iron base-plate, while the other end bears an armature, which is brought into contact with the other arm of the base-plate by the action of magnetism in order to produce the desired sound.

In the accompanying drawings, Figure 1 is a side elevation of a sounder constructed according to my invention. Fig. 2 is a longitudinal section of the same, representing the hinged magnet, its core, sounding-post, and armature. Fig. 3 is an end view.

The letter A designates an electro-magnet, which is composed of the helix or covering and the solid core B, the latter being extended beyond the heads of the helix, and pivoted at one end to a vertical arm, C, of a metal base-plate, D, as shown at E, while the opposite or free end extends into a slotted or recessed sounding column or post, F. The free end of the fixed core of the magnet carries an armature, G, which operates in connection with a corresponding armature or anvil, H, applied to the vertical or rising arm I of the metal base-plate D, which is located subjacent to or within the sounding-post F. At or near the fulcrum-point of the vibrating magnet there is located a coiled or other suitable spring, K, the upper end of which enters a recess, *a*, in the fixed core B, through which passes also a regulating-screw, L, bearing upon the apex of the spring. The binding-posts and screws *c* *d*, mounted on the base-frame of the instru-

ment, receive the electric conducting-wires *e* from the battery, and from thence they are conducted to the helix of the electro-magnet.

By magnetizing the core of the magnet through the medium of the surrounding helix, the resistance of the spring, which has hitherto held the magnet in an elevated position, will be overcome, causing the two armatures to approach each other, producing one sound, and when the circuit through the core is broken the magnet is thrown upward by the action of the spring, producing the secondary sound.

An electro-magnet pivoted and vibrating as described is easily influenced by the electric current, and the movement of the magnet in a downward direction against the pressure of the spring is greatly assisted, in addition to the force exerted by the electric current, by the weight or gravity of the magnet itself.

The degree of motion of the magnet is defined by means of a regulating-screw, L', and nut M, the former passing through the top of the sounding-post into the space occupied by the projecting end of the fixed core of the magnet. By adjusting the screw, to project the same more or less into the slotted sounding-post, the extent of the motion or throw of the magnet is varied, thus producing a sound of a greater or less duration. A corresponding adjustment is imparted to the spring, for varying the tension of the same, to cause it to conform to the position of the regulating-screw of the sounding-post, by means of the regulating-screw combined with said spring. The end of the core of the magnet which projects into the sounding-post will be guided in its motion by the same, and the armature carried by said core is also retained or guided properly, to prevent lateral motion, by means of suitable flanges on the inner side of the post, between which it is free to move in a vertical plane.

A sounder constructed according to my invention is adapted for use wherever a sounder can be employed, and is particularly applicable for students' use, and also for operating single-stroke and vibrating bells.

Having thus fully described my invention,

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

1. A sounding-instrument provided with a hinged or vibrating magnet, moved in one direction by magnetism and gravity, and in a reverse direction by a spring, substantially as herein described.

2. The combination, with the vibrating electro-magnet, of the spring K, arranged beneath one projecting end of the core of the magnet,

and the screw L passing directly through such end, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of February, 1874.

HENRY C. ROYER.

Witnesses:

JOHN LENNOX,  
E. H. PERDUE.