(No Model.)

J. A. MALONEY.

TELEGRAPH SOUNDER.

No. 343,468. Patented June 8, 1886.

Fig. 1.

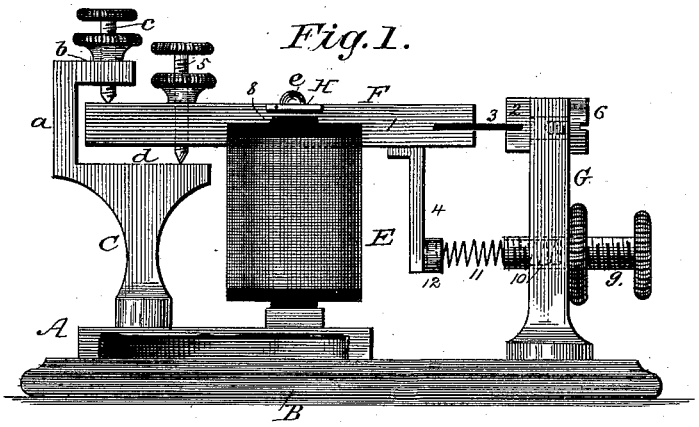


Fig. 2.

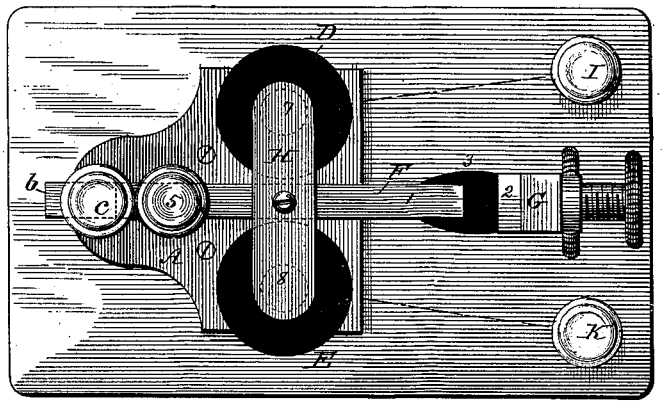
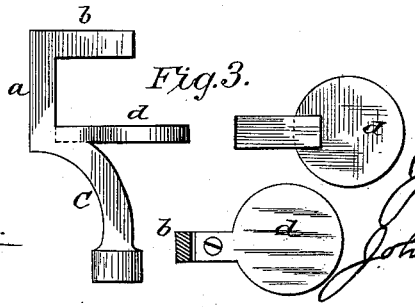


Fig. 3.



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TELEGRAPH-SOUNDER.

SPECIFICATION forming part of Letters Patent No. 343,468, dated June 8, 1886.

Application filed February 16, 1886. Serial No. 192,058. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. MALONEY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Telegraph-Sounders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to that class of instruments employed in the art of telegraphy by means of which the operator interprets the message transmitted from a distant station by the sounds produced by the vibrations of an armature-lever of an electro-magnet between two points.

The object of the invention is to produce a very sensitive instrument, capable of giving full volume to or re-enforcing the volume of the sound produced by the armature-lever in its vibrations, effected by the electro-magnet and communicated to the sounding-post.

The invention will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a side elevation, partly in section. Fig. 2 is a plan view, and Fig. 3 a detail, of a sounding-post having a disk to receive the impact of the armature-lever.

Reference being had to the drawings and the letters of reference marked thereon, A indicates a hollow metallic base-plate supported upon a wooden base, B.

C is a sounding-post secured to the base-plate A, and has a vertical arm, *a*, and a bracket, *b*, which supports the screw *c*, and is also provided with a horizontal table, *d*, which may be in the form shown in Fig. 1, or consist of a disk formed integral with the post, or be made detachable, as shown in Fig. 3. When the table *d* is in the form of a disk detachable from the post, it may be constructed of glass or steel, and by its being made thin, having a slight connection with the post and extending therefrom, it becomes extremely resonant.

D E are helices forming the electro-magnet, resting upon the metallic base-plate A.

F is a horizontal lever made in two sections, 1 2, with an interposed leaf-spring, 3, which connects the sections, and the section 1 is provided with a depending arm, 4, projecting at a right angle to the horizontal plane of the lever, and with a screw, 5. The section 2 of the lever is secured to a post, G, by a screw, 6, which engages with the end thereof, as shown in Fig. 1.

H is a soft-iron armature supported by the lever F, and secured thereto by a screw, *e*, and closes the magnetic field through the cores 7 8. The post G supports an adjusting-screw, 9, which is provided with a chamber, 10, which supports one end of a free helical tension-spring, 11, while the opposite end of the spring is supported in a cup, 12, on the arm 4 of the lever F, the object of which is to prevent the vibrations so common to springs fastened at both ends, as now used, when tension is applied, thereby materially interfering with clear and distinct sounds given off by the sounding-post. The movement of the lever F is controlled by the adjusting-screws *c* and 5, the latter of which is carried by the lever and strikes against the table *d* of the sounding-post C. The electrical current enters through the binding-post I, passes through the helices D E and out through the post K. By interposing the spring-section 3 between the sections 1 and 2 of the lever F it becomes very flexible and sensitive, and yields readily to the attractive force of the electro-magnet, which draws the lever F down, and when released by the demagnetization of the electro-magnet it is thrown up by the resiliency of the spring-section 3 and the tension-spring 11, bearing upon the arm 4 of said lever.

Heretofore sounders have been provided with trunnions or pivots supported in adjustable bearings, which are continually jarring loose and forming irregular bearings for the armature-lever, thereby interfering with the clearness and solidity of the signals. In the form of sounder which I have shown and described trunnions, pivots, and their necessary adjusting devices are entirely dispensed with, as the armature-lever has a fixed and positive position at right angles to the line of its vertical movement.

Having thus fully described my invention, what I claim is—

1. In a telegraph-sounder, a flexible armature-lever, a hollow base, and a sounding-post, in combination with a free tension-spring de-

pendent upon pressure at both ends, and means, substantially as described, for supporting said spring.

2. In a telegraph-sounder, a flexible armature-lever, an auxiliary arm attached to said lever, and a cup thereon for retaining one end of a detachable helical spring, in combination with said spring and an adjusting-screw bearing against the opposite end of the spring, substantially as described.

3. In a telegraph-sounder, a flexible armature-lever, an auxiliary arm attached thereto, and having a cup thereon for retaining one end of a free helical spring, in combination with a post supporting an adjusting-screw having a cup formed in one end, and a free helical spring interposed between the arm and the screw, substantially as described.

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

JAMES A. MALONEY.

Witnesses:
S. A. TERRY,
WM. E. DYRE.