(No Model.)

F. L. VAN EPPS.

TELEGRAPH SOUNDER.

No. 403,626. Patented May 21, 1889.

Fig. 1.

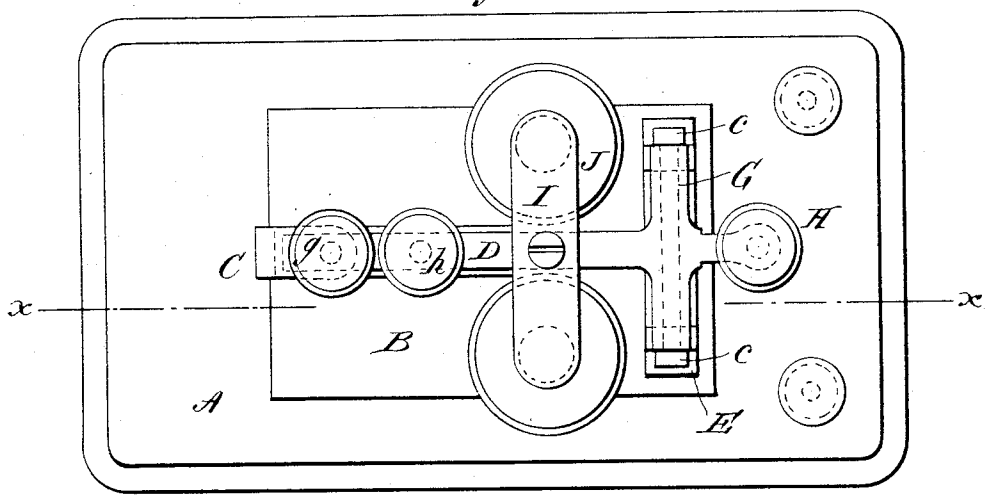


Fig. 2.

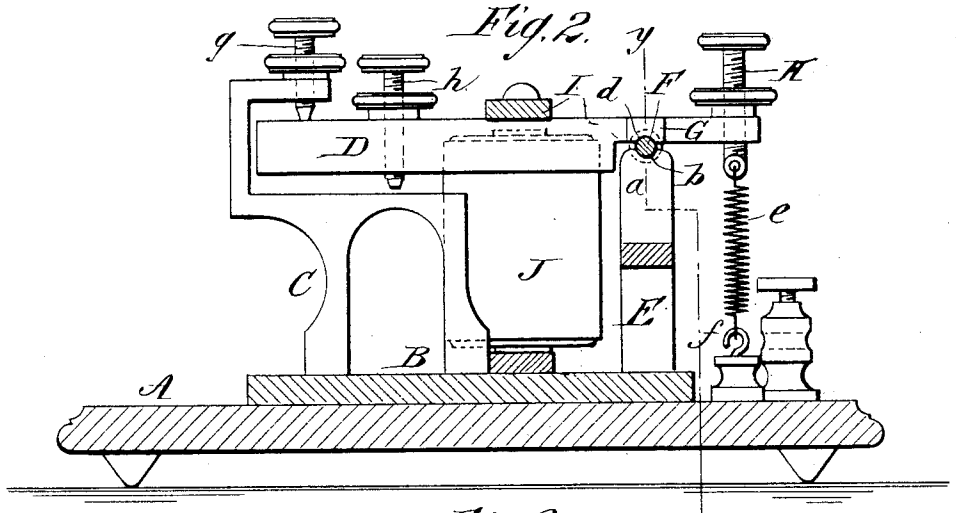


Fig. 3.

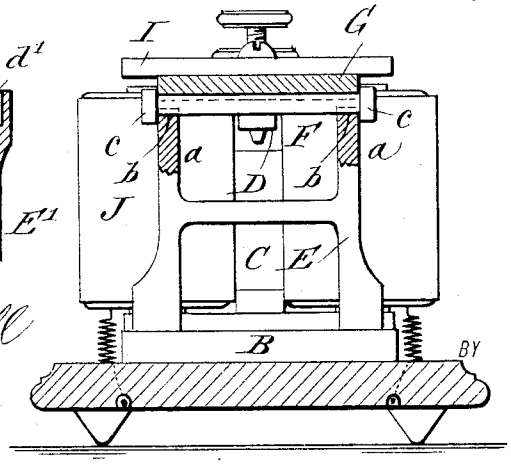


Fig. 4.

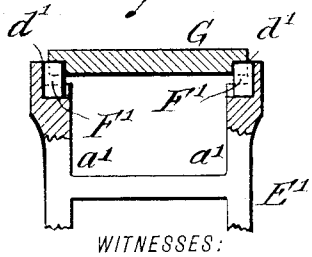
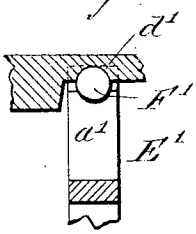


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK L. VAN EPPS, OF HUDSON, MICHIGAN.

TELEGRAPH-SOUNDER.

SPECIFICATION forming part of Letters Patent No. 403,626, dated May 21, 1889.

Application filed January 30, 1889. Serial No. 298,083. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. VAN EPPS, of Hudson, in the county of Lenawee and State of Michigan, have invented a new and Improved Telegraph-Sounder, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a plan view of my improved telegraph-sounder. Fig. 2 is a longitudinal section taken on line *x x* in Fig. 1. Fig. 3 is a transverse section taken on line *y y* in Fig. 2. Fig. 4 is a transverse section through the armature-lever bearing of a modified form, and Fig. 5 is a side sectional elevation of one of the bearings of a modified form of the sounder.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct a telegraph-sounder in which the bearing of the armature-lever will be non-adjustable and in which the wear of the armature-lever will be automatically taken up.

My invention consists in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

To the base-board A of the sounder is attached a metallic bed-plate, B, furnished with the frame C for limiting the motion of the armature-lever D, and provided in the present case with the double standard E, having the upwardly-projecting arms *a*, furnished in their upper ends with the approximately semicircular notches *b*, for receiving the rod F. The rod F is provided with heads *c* at opposite ends, which fit over the outer surfaces of the arms *a*, so as to prevent longitudinal movement of the said rod.

The armature-lever D is provided with the cross-bar G, in which is formed an approximately semicircular groove, *d*, fitted to the rod F, and of sufficient length to fill the space between the heads *c* of the said rod. The armature-lever D is prolonged beyond its bearing and provided with a set-screw, H, which receives one end of the spiral retractile-spring *e*, the other end of which is connected to a hook, *f*, attached to the base-board A. To the armature-lever D is secured the armature I, which extends over the poles of the electro-magnet J, of the usual description, secured to the base-plate B. The upward movement of the armature-lever D is limited by the screw *g*, inserted in the upper arm of the frame C, and its downward motion is limited by the screw *h*, passing through the armature-lever D and adapted to strike upon the horizontal part of the frame C.

By means of my improvement it is possible to remove the armature-lever from the sounder without the necessity of turning screws or throwing any of the parts out of adjustment. After disengaging the spring *e* from the hook *f* the armature-lever D may be lifted from its bearings and removed from the instrument, and the rod F may be taken from its seats in the standards E.

In the modification shown in Figs. 4 and 5 the rod F is replaced by a pair of short steel cylinders, F′, which are received in recesses in the arms *a′* of the standard E′, and in lieu of a semicircular groove extending entirely across the cross-arm G semicircular notches *d′* are formed in the under surface of the ends of the cross-arm, which fit upon the steel cylinders F′. The armature-lever D is held in place upon the rod F by the downward pull of the spring *e*. As the said rod F or the surfaces of the cross-arm G or double standard E wear, the wear is continually taken up by the action of the said spring. All necessary adjustments are secured by means of the screws *g h*. The tension of the spring *e* is adjusted, as in other instruments, by means of the screw H.

As the rod F is loosely placed in its bearings in the standard, it is able to roll each time the armature-lever is drawn down, thereby distributing the wear upon all sides of the rod.

In carrying out my invention I do not limit or confine myself to the use of the double standard, as shown, as the invention is equally well adapted to a single standard; neither do I limit myself to the application of my improvement to sounders, as it may be applied to keys, relays, and other electrical instruments.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, in a telegraph-instrument, with the armature-lever and the standard, having registering curved recesses on

their lower and upper surfaces, respectively, of a rolling bearing-piece in said recesses, substantially as set forth.

2. In a telegraph-sounder, the combination of the standard E, provided with arms *a*, having approximately semicircular notches *b* in the upper ends thereof, the rolling rod F, resting and turning freely in the notches *b* and provided with the heads *c*, and the armature-lever D, provided with the cross-arm G, having the approximately semicircular groove *d* receiving the upper side of said rod to allow the arm to rock on the rod and the rod to roll, substantially as specified.

3. In a telegraph-sounder, the combination of the standard E, provided with one or more arms, *a*, having approximately semicircular notches *b* in the upper ends thereof, the rolling rod F, resting and turning freely in the notches *b* and provided with the heads *c*, the armature-lever D, provided with the cross-arm G, having the approximately semicircular groove *d* receiving the upper side of the rolling rod to allow the arm to rock on the rod and the rod to roll, the ends of the arm G being flush with the outer sides of the standard and resting between the upper halves of the heads *c*, and the retractile spring *e*, adapted to hold the armature-lever D down upon the rod F, substantially as specified.

FRANK L. VAN EPPS.

Witnesses:
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A. H. BOIES.