(No Model.)

C. W. HOLTZER.

WATCHMAN'S ELECTRIC TIME RECORDER.

No. 342,013. Patented May 18, 1886.

Fig. 2.

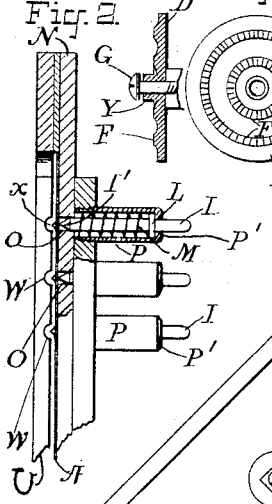


Fig. 3.

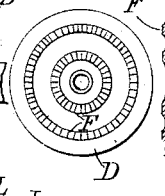
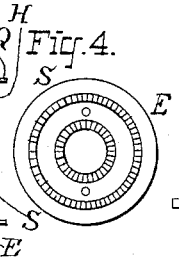


Fig. 4.



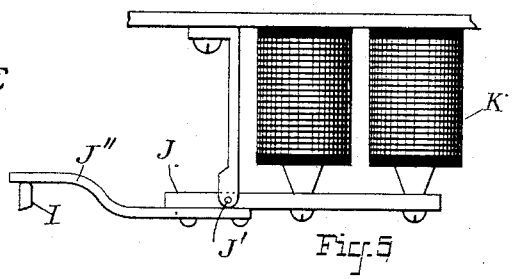
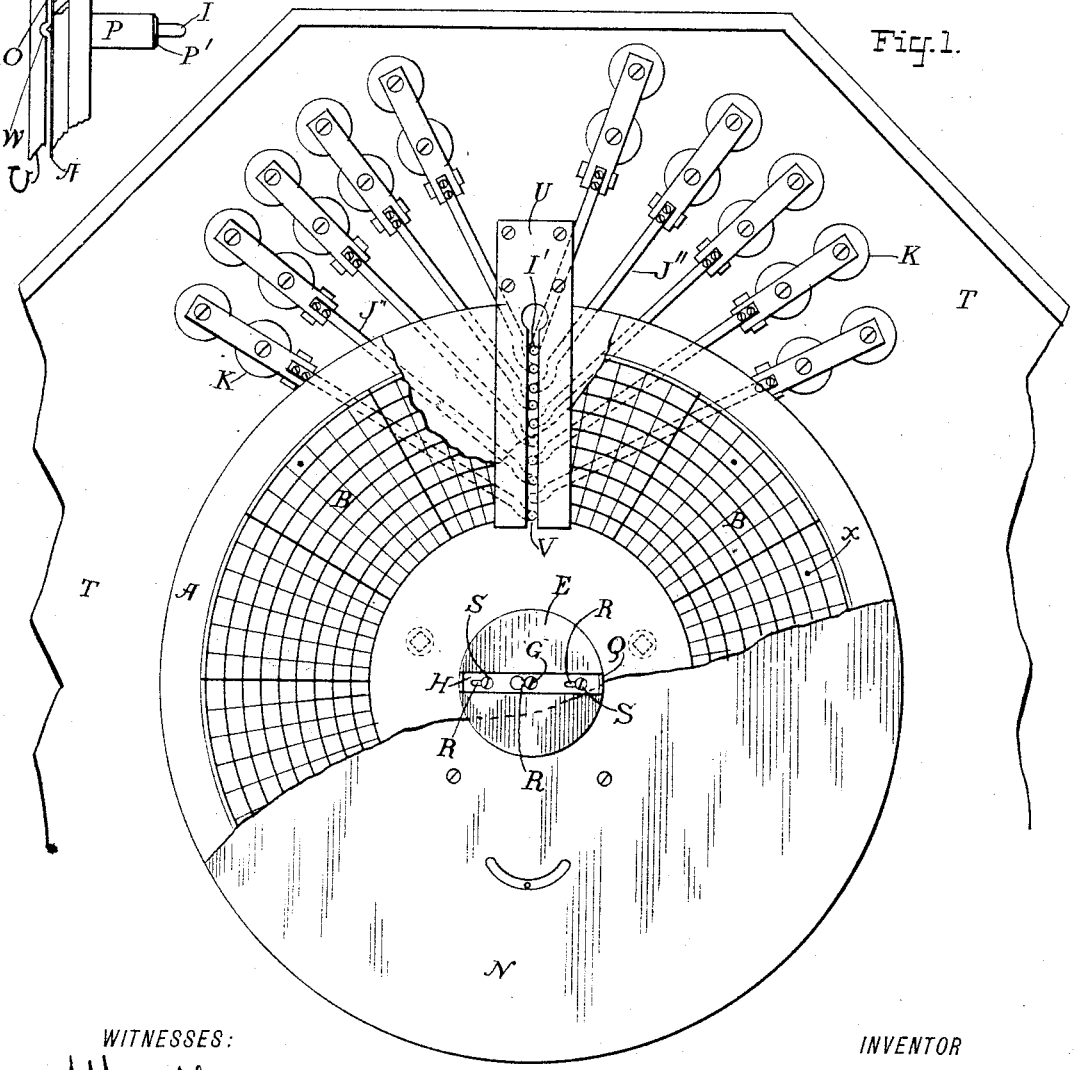


Fig. 5

Fig. 1.



WITNESSES:

J. A. Hurdle

E. P. Thompson

INVENTOR

Charles W. Holtzer

BY

W. W. Johnston

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES W. HOLTZER, OF BROOKLINE, MASSACHUSESTS.

WATCHMAN'S ELECTRIC TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 342,013, dated May 18, 1886.

Application filed January 11, 1886. Serial No. 188,192. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HOLTZER, a citizen of the United States, and a resident of Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in an Electric Recording Attachment for Clocks, of which the following is a complete, clear, and exact description, setting forth in general and in detail my invention.

My invention relates more particularly to some of the details of construction adapted to increase the efficiency of electrical energy, the delicacy of operation, and the convenience of adjustment of the various parts.

For the sake of making the description of the instrument clear and to point out the features of the invention, it may be remarked that my invention relates to three separate parts of the device: first, to the device for retaining the dial-face in position in such a manner that it can be turned out of that position by hand without affecting the normal movements of the clock mechanism; second, to the perforators for the said dial-face, and especially to the locating of the retractile springs for said perforators; third, to the stop or guard plate for said perforators.

The object of the invention is to provide improved means for recording or registering an indication or mark upon a face-plate, and its purpose is to serve as a check upon watchmen or policemen, as they are obliged by the rules under which they are employed to cause such mark to be made at stated intervals.

My idea is, fundamentally, to provide an automatic clamp for holding the dial-paper to reduce the amount of friction of the paper in its movements and to effect a more definite motion of the perforators.

In order to illustrate the practical manner of carrying out the invention and to enable others to construct and use the same, drawings are hereunto annexed and described, in which similar characters of reference represent corresponding elements.

Those devices or portions of any device mentioned in the description but not shown in the drawings are either exact duplicates of elements which are shown in another part of the drawings, or else the elements alluded to but not shown are well known in the art or are not a part of the invention.

The drawings aim to point out the invention only. Those parts delineated but not referred to are not a part of the invention.

The materials of construction, the proportional dimensions, and the exact forms of design are not in every instance alluded to.

Figure 1 is a general view of the invention, a portion of the same being broken away and other parts omitted for the sake of illustrating the more important parts. Fig. 2 shows in section some of the details of constructon of the perforating mechanism. Figs. 3 and 4 show the clamp for the dial-face, taken apart; and Fig. 5 is a side view of one of the magnets.

Without regard at present to details, the device embodying my invention consists of the combination of a dial face-plate, A, of paper or other material capable of being easily perforated and divided by lines in the ordinary manner into sections or divisions B; a clamp for supporting said paper, and consisting of two disks, D and E, provided with minute teeth or milled circular rings F upon those surfaces which touch each other, one, D, of said disks being secured loosely to a screw, G, and the other, E, having a slide, H, adapted to fasten the two disks together, and the paper A being placed between the two disks; perforators I, operated by the armatures J of the electro-magnets K, each consisting of the perforator I, proper, pointed at one end, I′, provided at the other with a collar, L, to which is secured one end of a helical spring, M, the other end of which presses against the plate N, containing the holes O for the passage of the perforators and serving as a base-plate or support of the paper A; a tube, P, for containing each perforator and of such a length that the spring will be kept under pressure, even when in its elongated condition, the collar L pressing against the flange P′ around the hole which allows the passage of that end of the perforator opposite the pointed end, and one or more armatures J, mentioned above, pivoted at J′, and having the curved projection J″, which presses against the perforator I, clearly shown in the left-hand portion of Fig. 5.

Some of the details of construction are as

follows: The said slide H or locking-piece consists of a strip bent upward at its ends to form projections Q, and containing three slots or elongated holes, R, the middle slot having an enlarged portion on the left end large enough to pass over the head of the screw G, screws S being secured to the disk E, and therefore permanently retaining the slide to said plate. The paper A is partly broken away, showing the front metallic plate of the device. The portion T, partly broken away, represents a suitable support for the magnets K. On the inner side of the plate U, which may conveniently be called a "stop-plate," because it stops or prevents the paper from moving with the perforators, provided with the slot V, for the guiding and passage of the perforators, are grooves W, concentric with the center G of rotation of the paper and in line with the perforators. The electric circuits are not shown in the drawings, as they have nothing to do with my invention. It is only necessary to state that currents passed through the magnets K operate the perforators in the well-known manner. The space between the plate U and the plate N is just about wide enough for the passage of the paper A. When the paper becomes punctured by the perforators, a little ridge or conical projection, X, is made, as when a pin is passed through writing-paper. These projections are shown in the grooves in Fig. 2. The dial-face is preferably made of paper, but it may be made of tin-foil, linen or cotton cloth, or any substance easily punctured. The slide has a slight curvature to it, so as to form a spring. The dial face-plate of paper being fastened to the shaft rotates with it with a definite motion, as the roughened surfaces on the disks prevent any sliding action, except when violently moved, as by one's hand in the act of adjusting the paper, as is often necessary. Let it be noticed that the armatures are not secured to the perforators, but simply rest against them. When a current magnetizes one or more of the electro-magnets K, the armatures are attracted thereto and the perforators puncture the paper, forming holes having conical projections *x*, which pass in the grooves W as the paper rotates. Upon the demagnetization of the magnets K the springs M force back the perforators almost instantaneously and quicker than if the springs were attached to the armatures J or armature projections J′ and the projections J″ linked to the perforators. As to the disposition and operation of circuits outside of the instrument represented in the drawings, they may be varied; but as an illustration of such disposition attention is called to Redding's Patent No. 299,011, May 20, 1884, for the purpose of illustrating how my invention may be applied to the purpose heretofore mentioned.

Having now stated the title, object, and nature of the said invention, having described its practical realization by reference to the accompanying drawings, having particularly ascertained the manner in which the same operates to accomplish the said object, what I consider to be novel and original, and therefore claim as my invention, is—

1. In an electric recording attachment for clocks, the combination of a rotatable dial face-plate, perforators thereto, and a stop for said perforators facing said face-plate and provided with grooves concentric to the center of rotation of said face-plate and opposite said perforators, substantially as described.

2. In an electric recording attachment for clocks, the combination of a rotatable face-plate of easily puncturable material, perforators adjacent to said face-plate and perpendicular, or nearly so, to said face-plate, hollow cylinders in which fit said perforators, a collar and retractile spring, both secured to each of said perforators, a projecting flange in said cylinder against which presses said collar, a stationary abutment for said spring at that end of it opposite the end which is fastened to said collar, and a stop-plate opposite said perforators provided with grooves concentric with the center of rotation of said face-plate.

3. In an electric recording attachment for clocks, a clamp for the paper face-plate, consisting of a disk secured to the main shaft of the clock, one or more annular concentric roughened surfaces or radial teeth upon the same, a projection upon the end of the said shaft, a curved or spring slide upon said projection, and a second disk secured to said slide, and also provided with annular roughened surfaces or radial teeth, said slide being movable or adjustable upon said second disk and fitting into a groove upon said second disk, substantially as described.

In testimony whereof I have hereunto annexed my signature, in the presence of two subscribing witnesses, this 24th day of December, 1885.

CHARLES W. HOLTZER.

Witnesses:
JOHN S. KEENAN,
HENRY J. HIENEY.