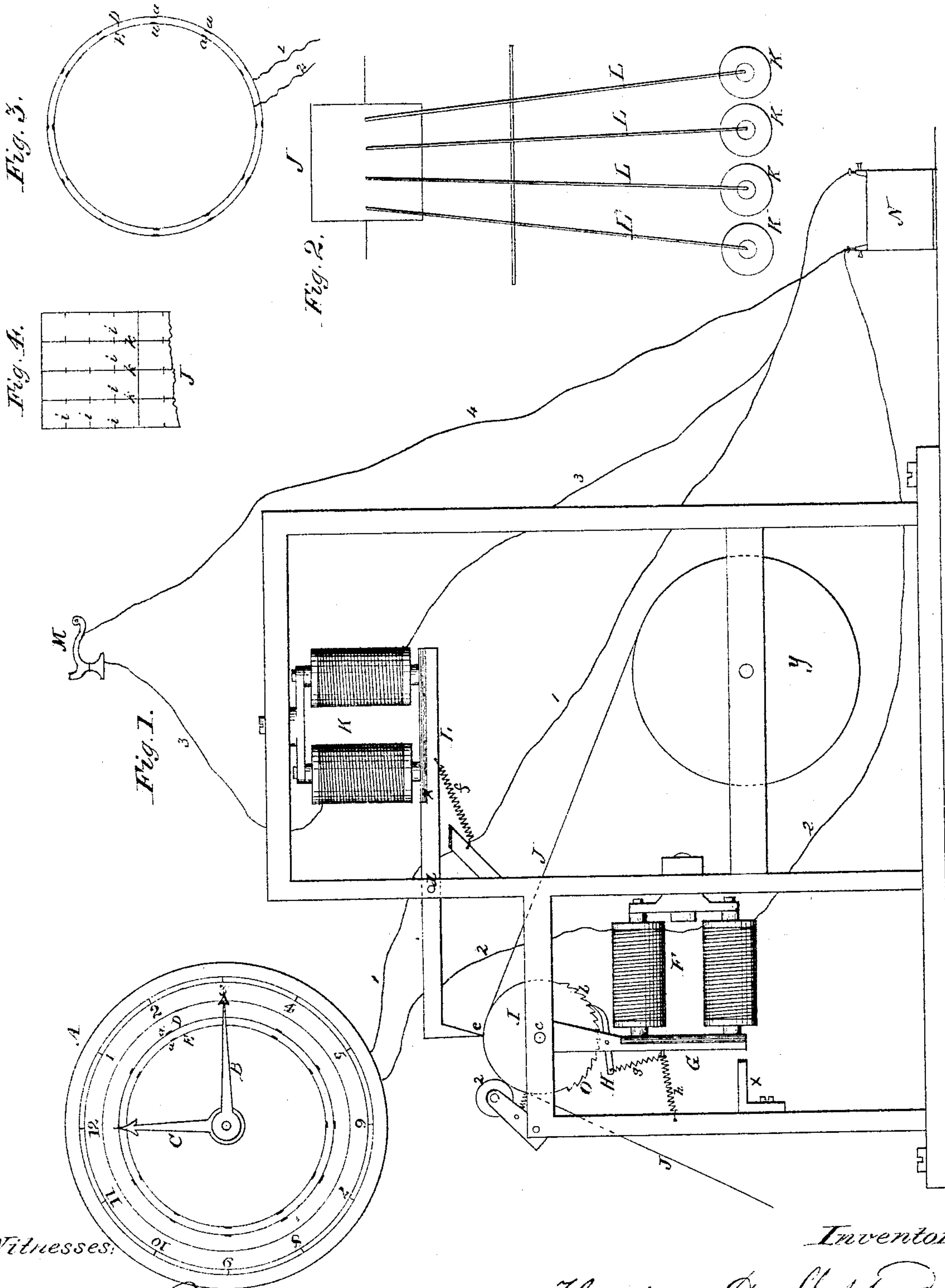


H. D. SHEPPARD.

Improvement in Electro-Magnetic Watchman's Register.

No. 125,624.

Patented April 9, 1872.



Witnesses:

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN ELECTRO-MAGNETIC WATCHMEN'S REGISTERS.

Specification forming part of Letters Patent No. 125,624, dated April 9, 1872.

To whom it may concern:

Be it known that I, HORATIO D. SHEPPARD, of the city, county, and State of New York, have invented certain new and useful Improvements in "Electro-Magnetic Watchmen's Registers;" and that the following, taken in connection with the drawing forming part of this specification, is such a full, clear, and exact description thereof as will enable others skilled in the art to make and use the same.

The object of this invention is to provide means for accurately registering the faithfulness with which a watchman attends to his duties, recording his visits to his various posts or stations and the times thereof; and is adapted for use at single stations, or in buildings, or factories containing many apartments requiring to be visited, or for use upon the street rounds of policemen; and it consists in a novel arrangement of paper-feeding mechanism, whereby the record paper is moved certain definite distances at determinate intervals, and in the novel construction of a circuit closer for accomplishing this, and in the combination with the above of certain mechanism for marking upon the paper when brought into action; and it also consists in so graduating or dividing the record-paper by marks, both length and crosswise, into divisions, that a mark in any division indicates both the time of marking and the place or station where the circuit was closed to make the mark.

In the drawing, Figure 1 represents a front view of my entire apparatus, showing, however, only one station and recording-lever. Fig. 2 is a top view of a number of marking-levers with their marking-points over the paper. Fig. 3 is a detached view of the circuit-closing device. Fig. 4 is a view of the graduated paper.

A represents an ordinary clock, behind or upon the face or dial of which are arranged two rings of copper wire, D E, insulated from each other, and connected by wires 1 2 to the battery N. These wires have projections *a a* arranged, at equal divisions or as desired, to come slightly in contact with the minute-hand B of the clock, the contact being sufficient to close the circuit from the battery by wires 1 and 2 through the magnet F. In the framing is mounted a solid cylinder, I, so as to freely turn on its journals or bearings. A conven-

ient size for this cylinder is one and a half inches in diameter and of same length. On one end of this cylinder is a ratchet-wheel, O, in the teeth *b* of which a pawl or ratchet, H, takes. This ratchet is affixed to and moved by the armature-lever G of the electro-magnet F, each pulsation through the magnet pulling the lever G and pawl H toward the magnet and turning the cylinder forward one tooth. As in the drawing a pulsation takes place every five minutes; but the frequency of these pulsations can be altered, depending upon the distance apart of the projections *a a* upon the rings D E. The armature-lever G is pulled away from the magnet upon the breaking of the circuit by the spring *h*, its motion being limited and regulated by the back-stop *x*. In front of the cylinder is stationed a reel, *y*, on which is wound a ribbon or band of paper, the paper passing over the cylinder, and being held firmly to its surface by a roller, *z*, forced down upon the paper by a small coil spring. For marking upon the paper an electro-magnet, K, is attached to the framing, and has a swinging-armature lever, L, pivoted at *d*. This armature-lever ends in a stylus, *e*, arranged to be pressed upon the cylinder I, and the paper passing thereover. A key, M, is placed at each station, the closing of which completes a circuit from the battery N, via wires 3 and 4, through the electro-magnet K. When the circuit is open the armature-lever L is drawn away from the magnet by the spring *f* lifting the stylus *e* clear of the paper; but, upon the circuit being closed by the watchman pressing the key M, the armature-lever is attracted and the stylus pressed upon the paper, making a mark thereon. The marking portion of the stylus may be a pen or pencil, or any other suitable device; or, by using chemically-prepared paper and a circuit through the armature-lever and cylinder I, the marks may be made upon the paper by chemical decomposition or changes.

The clock and registering apparatus may be placed in the office of a factory, or of a superintendent of police, or at any place desired, and the paper can be inspected often or may be left for a long time as an unfailing record of the work performed.

Circuit-closing keys are provided at suitable stations, and should be boxed in or covered to

prevent injury. Each key has a connection to its own lever and stylus and with the battery, these armature levers being arranged side by side with their points over the paper and revolving cylinder, as seen in Fig. 2.

Registering apparatus has been constructed wherein all stations connected with the same armature and marking-point, and in which each station must be visited *seriatim* in order to close the circuit to the registering instrument—*i. e.*, the circuit from station 2 could not be closed and a visit to that station recorded until No. 1 had been visited and the key then manipulated. This plan is faulty, in that a watchman or policeman may be called away to a distant part of his beat necessarily and hurriedly—say just after visiting station 1; afterward he must return to station 2, passing, perhaps, several stations on his way, before he can again register his presence on his round.

By my apparatus he can commence again at the nearest station, the position of the registering mark upon the paper, as hereinafter explained, indicating the station, and also the time elapsed and the stations not registered in the interval.

In Fig. 4 is represented the paper I use. To facilitate reading the impressions it is divided across its width by lines or marks *i i i*, each division made thereby being equal to the space the paper is moved forward at each electrical impulse through the magnet I. Lengthwise it is divided by marks or lines *k k k* into as many divisions as there are stations to receive from, a stylus, *e*, resting over or upon each division, the armature to which it is attached and the magnet being connected to a designated station.

To operate the whole apparatus the clock is wound and the battery placed in working order, as shown in the drawing. Every five minutes the minute-hand of the clock closes a circuit through the magnet F, and the paper is moved forward one division or space. If, now, the key M be closed, a circuit is established through the magnet K, and a mark is made in the division under the stylus. As shown, the paper is moved one-tenth of an inch at each impulse through F, or one and two-tenths inch per hour; thus the distance apart of the marks or impressions upon the paper—

hours and fractions of hours down to twelfths. The locality of the mark laterally indicates the lever making it or the station to which the impression belongs, so that the time and station may be understood at a glance and without calculation.

I am aware that watch or register clocks have been made in which the registering-paper was affixed to a disk moving constantly and regularly with the hands of a clock, a marking pencil being kept always in contact therewith, the course of the pencil being changed so that the marks made were in different directions for indicating the various stations registered; but my invention being different therefrom and using none of the devices therein claimed, I claim nothing thereof; but

What I do claim, and desire to secure by Letters Patent, is—

1. An electrical circuit arranged to be closed or opened by the hands of a clock, substantially as set forth.

2. In combination with the hands of a clock, the disk or wires having suitable projections, all arranged to act as an automatic circuit-closer at stated times, substantially as set forth.

3. In an electric register, the paper for registering moved a definite distance at certain stated times, substantially as set forth.

4. The combination of the circuit-closing disks or rings D and E, electro-magnet F, armature-lever G, pawl H, and cylinder I, substantially as and for the purpose set forth.

5. The registering-paper marked or graduated, substantially in the manner and for the purpose set forth.

6. In an electric registering apparatus, a circuit from any station provided with an electro-magnet, armature, and stylus independent of all other stations, and designed to register only for its own station, substantially as set forth.

7. The combination of the clock-hand B, disks or wires D E, electro-magnets F and K, armatures G and L, pawl H, stylus *e*, and cylinder I, all arranged substantially as and for the purpose set forth.

HORATIO D. SHEPPARD.

Witnesses:

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