G. H. ROTH.
Watchman's Detecter.

No. 213,072. Patented Mar. 11, 1879.

Fig. 1.

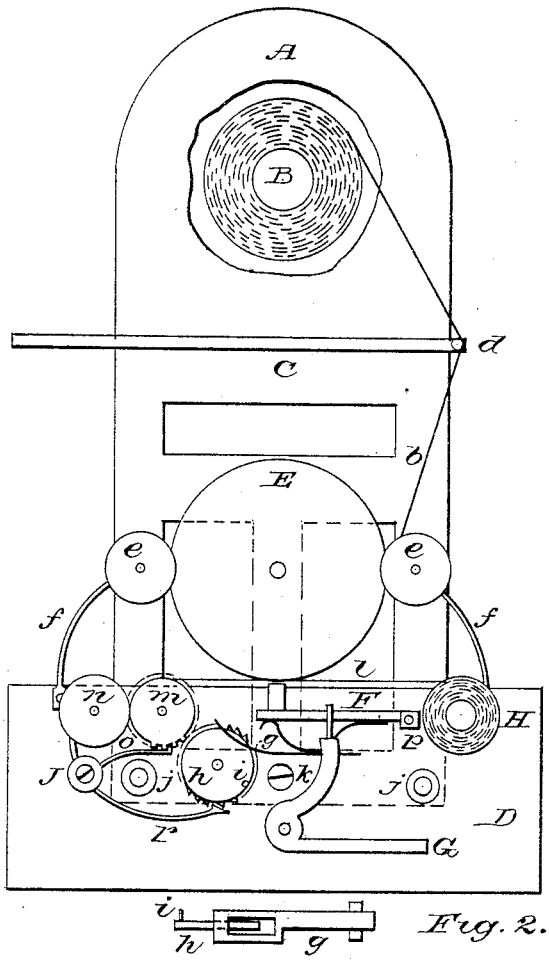

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

GUSTAV H. ROTH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN WATCHMEN'S DETECTERS.

Specification forming part of Letters Patent No. **213,072,** dated March 11, 1879; application filed February 1, 1878.

To all whom it may concern:

Be it known that I, GUSTAV H. ROTH, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Watchmen's Detecters; and I declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and letters and figures of reference thereon, which make a part of this specification.

This invention relates particularly to my improved watchman's detecter, a description of which is embodied in my application for a patent thereon filed in the Patent Office October 4, 1877, which case is still pending.

My present object is, first, to make certain improvements in the arrangements and manner of adjusting the several devices used in my said detecter, so that as many as possible and convenient may be adjusted to a single plate in such a manner that the same may be attached thereto, ready to be attached to the clock-frame at pleasure; second, in an improved device for actuating the tension-rolls to create a slight strain upon the printing-ribbon, also at regular intervals, corresponding to the use of the printing device to change the printing-ribbon, so as to bring a fresh section of the same to the point of use; third, I further desire to improve the practical utility of the paper ribbon used in connection with my said detecter by placing thereon at regular intervals, (each space to be not more than once around the figured drum,) numbers in their regular order from one to one thousand, more or less, in proportion to the length of the paper used, as an additional security against fraud on the part of the watchman.

It is well known that lettered or figured paper ribbon has been used in other devices for registering purposes, and therefore is not broadly claimed, but is believed to be new in the present arrangement and combination, as herein shown and described.

In the drawings accompanying, Figure 1 is an outline of several devices as arranged and adjusted to the frame of an ordinary clock, A being the case for the paper ribbon, a section being broken out to show the paper roll B within. C represents the frame of a clock, and D the plate, to which I adjust as many as may be convenient of the several devices used. *b* represents the paper ribbon, used and adjusted as explained in my former application above referred to; and *d*, the guiding-pin. E represents the figured dial-wheel; and *e e*, two guide-rollers, having their several supporting-springs, *f f*, attached in an appropriate manner to the plate D. G is an irregular lever, the office of which was described in my application above referred to, but in the present case performs the additional office of support and actuating-lever for the spring-ratchet pawl *g*, another view of which is given in Fig. 2. *h* represents a ratchet-wheel, carrying the pin *i*. (Best shown in Fig. 2.) *j j* are simple openings in the plate D, to allow the corner posts of the clock-frame to pass through the plate. The plate D is securely fastened to the frame of the clock by means of the screw K. H represents a roll of printing-ribbon; and *l*, the ribbon passing under the figured dial-wheel E, over the ratchet-wheel *m*, and down between it and the friction-wheel *n*. F represents the printing-lever with its spring, the lever being hinged upon the post *p*, said post being attached to the plate D.

The spring-lever, upon which the wheel *n* is placed, is attached to the plate I, which is securely attached to the plate D. The pawls *o* and *r* are also attached to the plate I.

The ribbon *b* has printed or written upon it numbers in their order, placed at appropriate intervals the entire length of the ribbon. It is desirable to have the numbers on the ribbon sufficiently near each other so that some number will be constantly on the wheel E. Thus the section of ribbon printed by the watchman will also have upon its face one or more of the numbers previously placed on the paper ribbon *b*, taking the train of motion from the roll of paper ribbon B. The ribbon passes down around the guide-pin *d*, between the guide-roller *e* and the wheel E, beneath the wheel E, and again upward between it and the roll *e*, upon the opposite side, from which it passes to the outside of the clock, if desired. The watchman, by actuating the lever G, prints on the paper the hours and quarters, as shown in Fig. 3.

It is intended that the party having charge of the clock shall keep a book in which the

slips detached each day, showing the record of the printing by the watchman during the night, shall be placed, pasted therein in the order of the numbers previously printed or written on the ribbon, as aforesaid. This book can then be kept for the inspection of the agents of insurance companies, guests of hotels, and all others interested in the faithfulness of the watchman. If the numbers appear in consecutive order, the watchman's record will also appear. Two sections of this ribbon are shown in Fig. 3 as they should appear pasted in the record-book, the light figures thereon representing the figures printed by the watchman, the smallest figures representing the quarter, half, and three-quarters of the hour, and the heavy figures the numbers placed on the ribbon before it is placed in the clock.

It is obvious that letters or other characters might be placed on the ribbon instead of the numbers used, and would be an equivalent therefor; but I prefer numbers, as a means of supplying a more perfect record.

Again taking the train of motion from the roll H, the ribbon passes, as shown at *l*, beneath the dial-wheel E and above the lever F, over the wheel *m*, and down between it and the wheel *n*. This ribbon does not run with the clock, as does the paper ribbon above described; but it is necessary that the surface used in printing be changed often enough to furnish the necessary coloring-matter for printing. This is accomplished as follows: As the watchman moves the lever G to print the time, the spring-pawl *g* is passed forward over the teeth of the ratchet-wheel *h*, the spring-pawl *r* preventing any motion of the wheel while the pawl *g* is passing forward. As the pawl *g* returns to its normal position it engages the teeth of the wheel *h* and gives the same a slight rotary motion, and the spring-pawl *r* holds the wheel at the point turned by the pawl *g*.

Through the wheel *h* is placed the pin *i*, (best shown in Fig. 2,) so as to engage with the teeth of the wheel *m*, thus giving at intervals a slight rotary motion to the wheel *m* at each full revolution of the wheel *h*. The wheel *m* drawing on the ribbon *l* changes the printing-surface of the same. Should this motion prove too slow, more pins may be easily placed in the wheel *h*. The pawl *o* engages in the teeth of the wheel *m* and holds the same where it is left by the pin *i*.

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

1. The paper ribbon *b*, having consecutive numbers printed or written thereon at regular intervals, the space between being something less than the circumference of the lettered wheel E, in combination with the hour-wheel E, printing-ribbon *l*, and printing-lever F.

2. The arrangement and adjustment of the levers *f f* and wheels thereon, the wheels *n*, *m*, and *h*, plate I, levers F and G, and ribbon-roll H upon a single plate, D, as a simple and appropriate means of support for the same, and by which the several devices may be connected with a common frame of a clock.

3. The plate D, having attached thereto the lever F, with its spring *s*, and lever G with its spring-pawl *g*, spring-levers *f f*, with their wheels *e e*, plate I, with its pawls *o* and *r*, and their wheels *m* and *h*, wheel *n*, and its lever *v*, ribbon *l*, and spool H, all arranged thereon as shown and described, in combination with the clock-frame C.

4. The combination and arrangement of the pin *i*, wheels *h* and *m*, pawls *o*, *r*, and *g*, and ribbon *l*, as shown, and for the purpose described.

5. The arrangement on a paper ribbon of numbers in consecutive order at regular intervals, the space between being so arranged that at each revolution of the hour-wheel E, with which it is designed to run, at least one of the numbers shall be passed between the wheel E and the printing-lever F, be the same more or less, and thus continuing the entire length of the ribbon.

6. The combination of the wheels *h* and *m*, pin *i*, and pawls *g*, *r*, and *o*, made, arranged, and operating substantially as set forth.

7. The combination of the ribbon-roll H, wheels *m* and *h*, pawls *o*, *r*, and *g*, and lever G, arranged, adjusted, and operating substantially as shown and specified.

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