

(No Model.)

2 Sheets—Sheet 1.

J. E. RICHARDS.

STATION BOX FOR WATCHMEN'S TIME DETECTORS.

No. 409,755.

Patented Aug. 27, 1889.

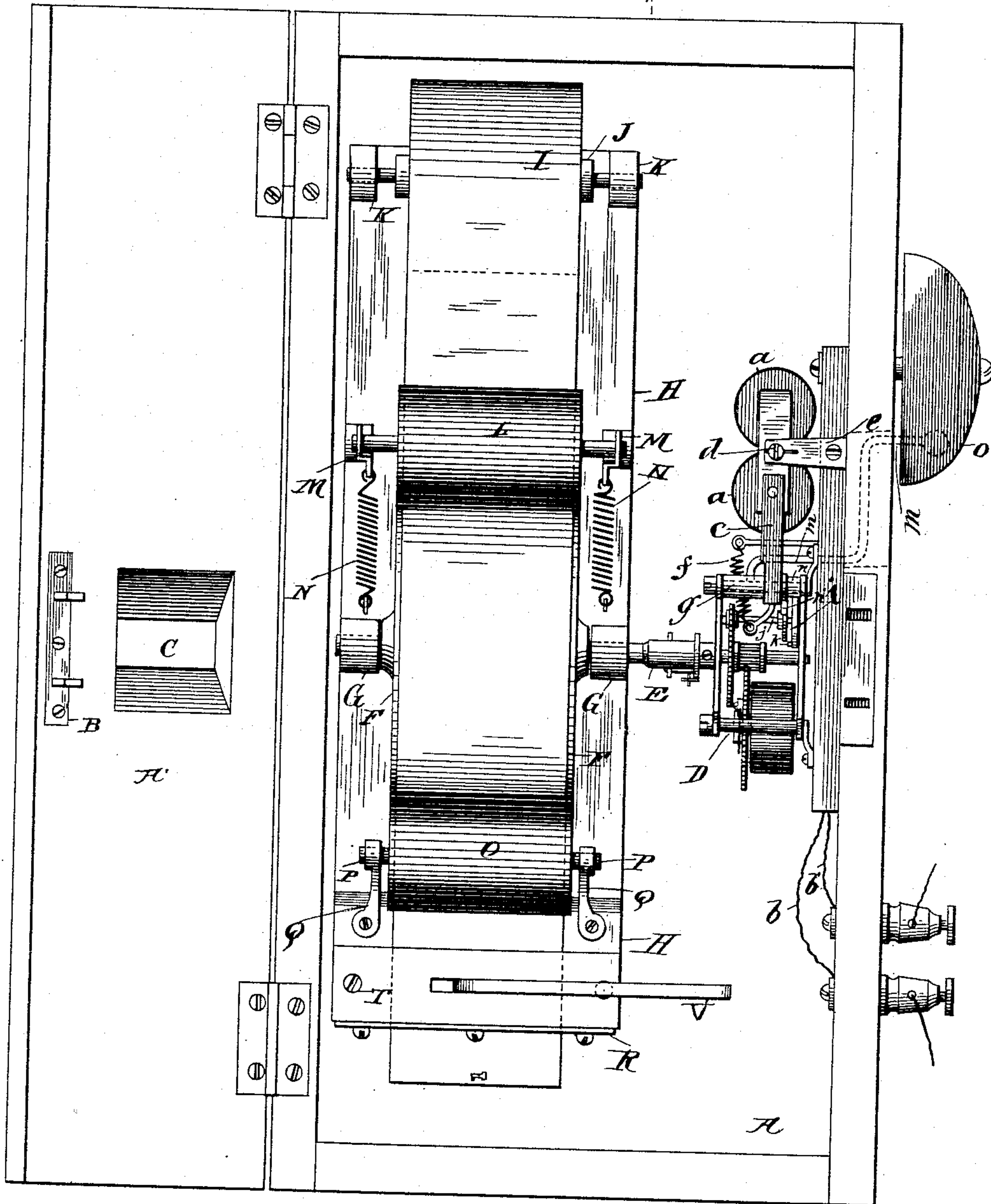
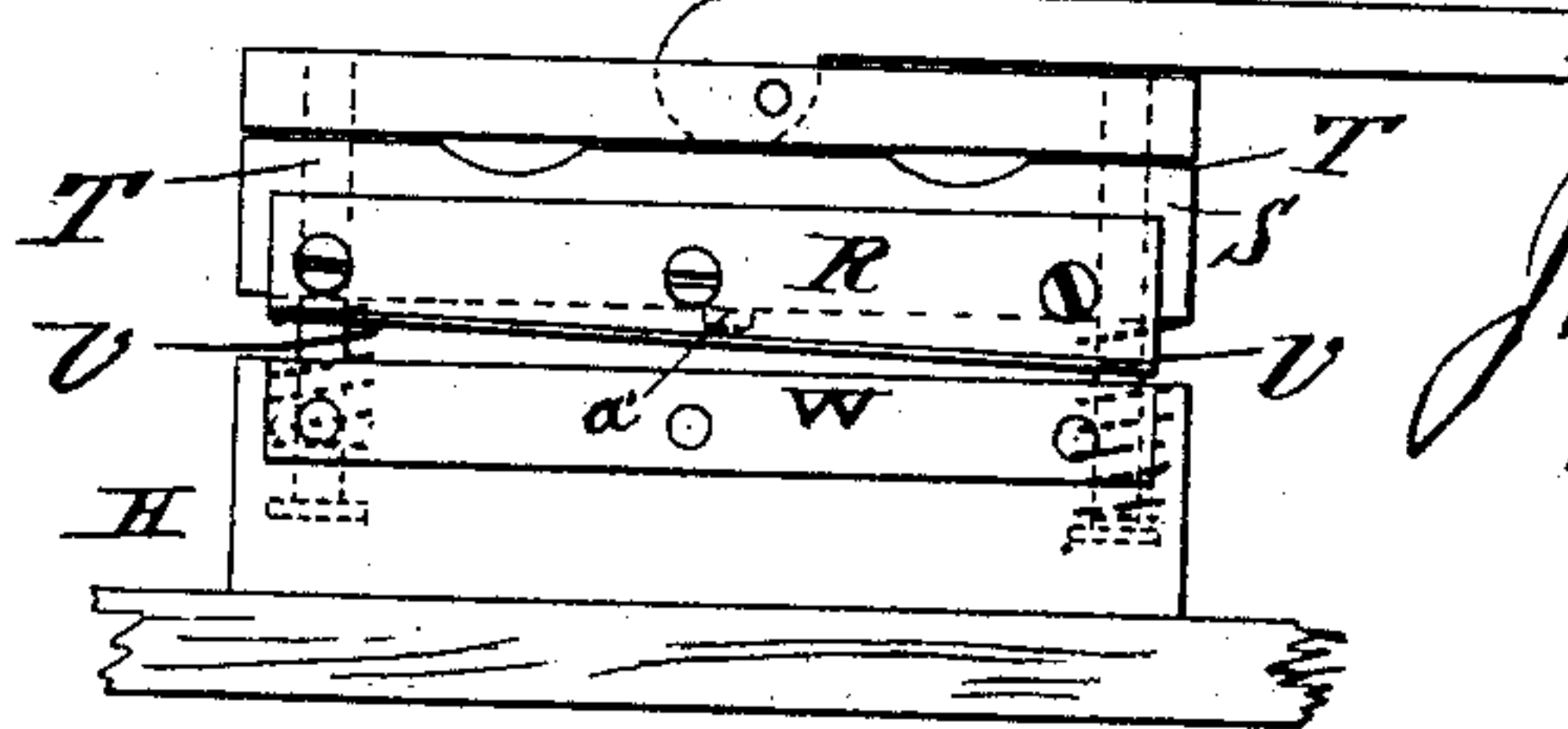


Fig. 1.

Fig. 1<sup>a</sup>



WITNESSES:

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G. F. Smith

INVENTOR.

James E. Richards  
BY Phillip Hott  
his ATTORNEY

(No Model.)

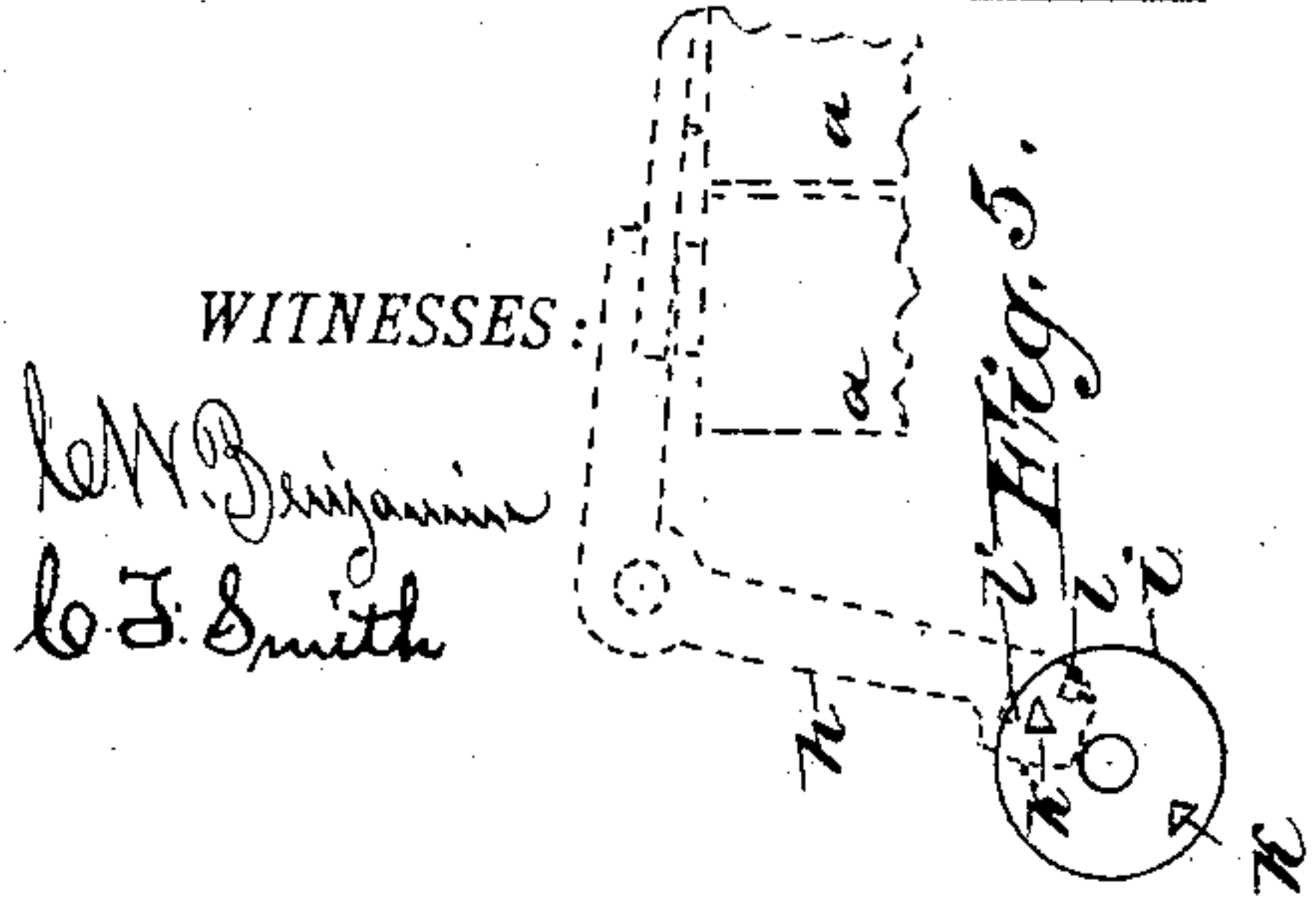
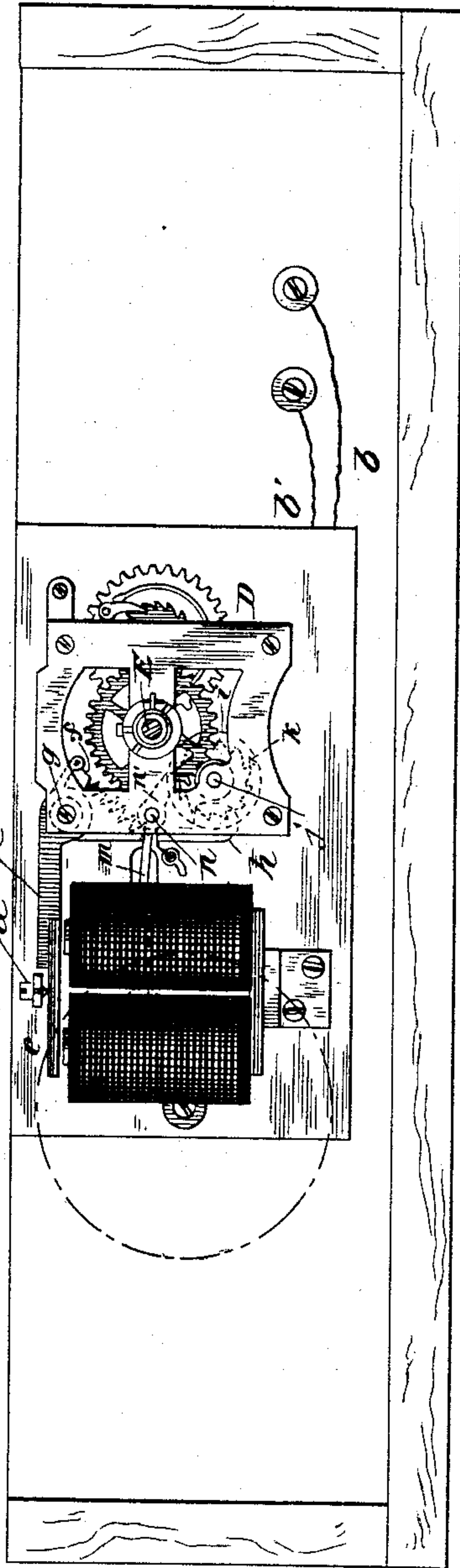
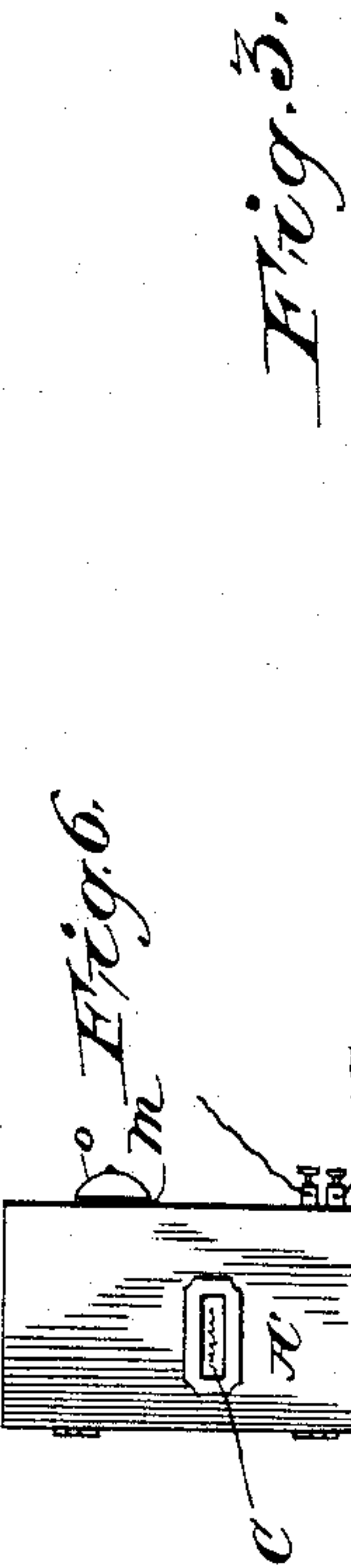
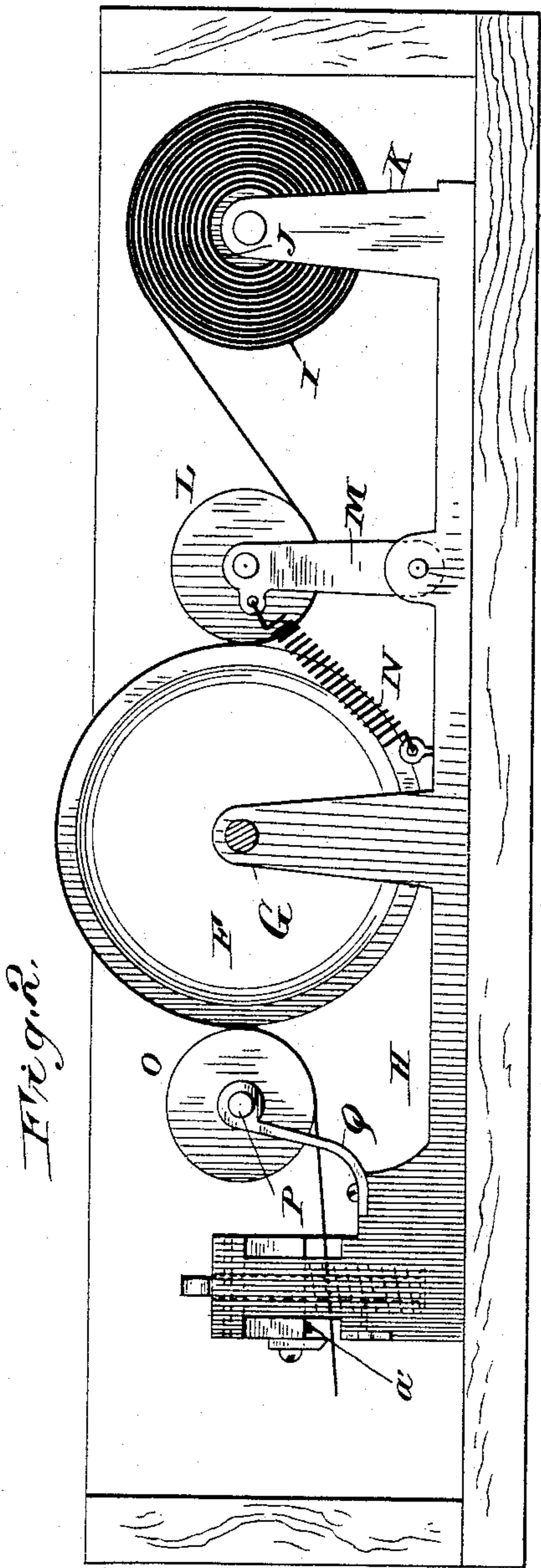
2 Sheets—Sheet 2.

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WITNESSES:

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C. F. Smith

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# UNITED STATES PATENT OFFICE.

JAMES E. RICHARDS, OF CEDAR KEYS, FLORIDA.

STATION-BOX FOR WATCHMEN'S ELECTRIC TIME-DETECTORS.

SPECIFICATION forming part of Letters Patent No. 409,755, dated August 27, 1889.

Application filed June 1, 1889. Serial No. 312,890. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. RICHARDS, a citizen of the United States, and a resident of Cedar Keys, in the county of Levy and State of Florida, have invented certain new and useful Improvements in Station-Boxes for Watchmen's Electric Time-Detectors, of which the following is a specification.

My invention relates to improvements in the station-boxes of watchmen's electric time-detectors of the class set forth in the United States Letters Patent granted to me, dated, respectively, May 30, 1882, No. 258,603, and January 2, 1883, No. 270,125, to which I refer for a description of the parts and their operation not herein described and shown, that a clear understanding of the construction, arrangement, and operation of the apparatus as a whole may be obtained.

As stated, this present invention relates to improvements in the station-boxes of such apparatus, whereby I overcome certain objections in the station-boxes described by me in said former patents.

Among the advantages secured by my present invention are greatly-reduced battery-power, avoidance of daily adjustment or application of a dial, certainty of operation, greatly-reduced cost, simplicity of construction, the substitution of spring-power in a clock-movement for battery-power operating through magnets, and the elimination of one electric circuit. There are other advantages not necessary to enumerate.

More particularly recited, my invention consists in the employment of a clock-movement which automatically presents at an opening in the external case of the station-box different parts of a web of paper upon which the watchman writes his name and the time when he wrote it, as and for the purposes set forth in my said former patents. The clock-movement is actuated by a spring, as usual, which is controlled by an electric current operating through an armature and electro-magnet, the opening and closing of the circuit being determined by the make-and-break-circuit time or clock apparatus fully described and illustrated in said prior patents.

In the drawings the same reference-letters refer to the same parts in all the figures.

Figure 1 illustrates a view looking into the station-box, the cover being open. Fig. 1<sup>a</sup> illustrates an end view of the cut-off device for severing the paper containing a previously-made record from the unused web of paper in the machine. Fig. 2 illustrates a longitudinal section on the line *xx* of Fig. 1. Fig. 3 illustrates a detailed view of the clock-movement and magnet, armature, &c., which control the operation thereof. Fig. 4 illustrates a detail of the armature and the devices which directly control the clock-movement, the magnet being dormant. Fig. 5 illustrates a view of the parts shown in Fig. 4 from a different position, the magnet being active. Fig. 6 illustrates a view in miniature of the station-box as closed.

A is the case of the station-box, made of wood, metal, or such other material as preferred. It is provided with a cover A', having a lock B and a slot C in its central portion.

D is an ordinary clock-movement, which does not require specific description. It should preferably be a "long-time" movement, because thereby care and trouble in attending to the winding of the same is reduced. A hole is made through the casing A opposite the arbor E, whereby the movement may be wound.

F is a drum, preferably made of some light material, which is attached to the arbor E and is turned by the clock-movement. It is supported by and turns in suitable bearings G in a frame H.

I is a roll of paper supported on a spindle J, which turns in bearings on supports K of the frame H, and L is a tension-roller supported on arms M, which are pivoted to the frame H, as shown.

N are springs which normally pull the tension-roller toward the drum F, thus pressing the paper which passes between the tension-roller and the drum firmly upon the drum and causing it to move therewith.

O is another roller supported on a spindle or shaft P, which turns in bearings on the supports Q, extending from the frame H. This roller simply aids in holding the paper smoothly over the surface of the drum F, and also holds the paper in contact with a large part of a surface of the drum, thereby af-



fording the requisite frictional contact to insure the feeding of the paper by the drum.

R is a cutting-blade or shears attached to the under side of a sliding block S, which moves along ways T and has retractile springs U and a pivoted cam-lever V, whereby it is caused to move forward when the lever is operated and to shear the paper off against the counter-blade W, which is rigidly attached to the end of the frame H.

Returning now to the clock-movement, *a a* show an ordinary electro-magnet. It is energized by the current through wires *b* and *b'*. The circuit is closed and opened by the make-and-break-circuit time apparatus fully set forth in said prior patents, to which I refer. Either form whereof therein shown may be used, but I prefer that disclosed in the Patent No. 270,125, of January 2, 1883.

*c* is the armature.

*d* is the adjusting-screw, supported on an arm *e*.

*f* is the retractile spring.

*g* is the pivot or axis of the armature.

*h* is an extension of the armature-lever. It, as shown in the drawings, extends at substantially right angles to the armature proper and projects toward the clock-movement until its end rests adjacent to a disk *i*, which is fast on the escapement-ratchet shaft *j*. This disk *i* has two laterally-projecting pins *k k'*, located opposite each other on the disk *i*, which, as hereinafter explained, engage with two coacting pins *l l'*, on the extended end *h* of the armature-lever. The pins *l l'* are set, as shown in Figs. 4 and 5, one above the other and one a little in advance of the other.

*m* is an ordinary oscillating bell-clapper attached to the escapement-shaft *n* of the clock-movement. It projects through a slot (shown in dotted lines, Fig. 1) made in the side of the case A, and rings a gong *o* on the exterior thereof, all as now well understood.

*n'* is the escapement.

The operation is as follows: The clock-movement is normally held at rest by the engagement of one of the pins, either *k* or *k'*, of the disk *i* with or against the pin *l'*—i. e., the one nearest the end of the lever *h* of the armature. The electric make-and-break circuit apparatus, as set forth in my said former patents, is set each night to operate at such times as may be desired. At each closing of the circuit the magnet becomes energized, the armature is drawn down, the pin *l'* on the end of the armature-lever is moved away from the pin *k* or *k'* of the disk *i*, as the case may be, and the moment they cease to engage with each other the clock-movement starts off, ringing the bell by means of the escapement and bell-clapper, and also turning the drum, which feeds the paper forward, uncoiling it from the paper-roll and presenting a hitherto unexposed part thereof opposite the slot in the cover of the case. The ringing of the bell and the feeding of the paper continues

until the disk has made a half-revolution. The pin *k* or *k'*, as the case may be, which was formerly not in engagement with the pin *l'* of the armature-lever then comes in contact with the pin *l* of that lever, which has been moved into its path by the action of the magnets on the armature. The duration of the time required for the half-revolution of the disk will be determined by the adjustment of the escapement more or less, as preferred, preferably about five seconds, and the amount of paper which will be fed forward will also be determined by the requirements or preferences of each case. It is obvious that it may be varied, depending on the special mechanical adjustment of the parts. As soon as the circuit is opened, the armature being no longer attracted by the magnet is retracted by its spring, and the pin of the disk which was in contact with the pin *l* of the armature-lever during the time that the armature was in contact with the magnet then slips off from the pin *l* and immediately comes in contact with the pin *l'*, which is set below and a little in advance of the pin *l* for that purpose. The entire apparatus is thus held in its then position until the magnets are again energized.

Upon the ringing of the bells the watchman knows that he must make his rounds and write his name and the time of his doing so on the paper presented to him for that purpose through the slots in the several station-boxes. As set forth in the said former patents, the watchman will be called to make his rounds at such times as the make-and-break circuit device is set at.

As often as desired the box may be opened and the lever of the cut-off operated, (the paper being first pulled down sufficiently to bring the last signature below the cut,) which will sever the paper bearing the record from the remainder. These several pieces, being gathered together, furnish the superintendent or other person in charge of the property with a full record of the occurrences during the period covered by them. A die (marked *a'*, see Fig. 1<sup>a</sup>) may be arranged to impress on the paper at the time of its severance, by a suitable action of the movable cutting-blade against the die, the number of the station-box. Thus no confusion will arise if the slips of paper should become disarranged and mixed.

I do not limit myself to the details of construction shown and described. They may be somewhat altered and still the essential features of my invention be employed.

I claim—

1. The combination, in a station-box, of an electro-magnet, an armature-lever arranged, substantially as shown, to be automatically engaged and disengaged with stops on a disk or wheel in a clock-movement, an escapement, a bell-clapper actuated thereby, a bell or gong, a paper-feeding drum turned by the clock-movement, a rotatable roll of paper, means to press the paper against the feeding-



drum, and a cover for the box having a slot located opposite the drum, all combined and operating substantially as and for the purposes set forth.

5 2. The combination, in a station-box, of an electro-magnet, an armature-lever arranged, substantially as shown, to be automatically engaged and disengaged with stops on a disk or wheel in the clock-movement, an escape-  
10 ment, a bell-clapper actuated thereby, a bell or gong, a paper-feeding drum turned by the clock-movement, a rotatable roll of paper, guide-rollers to confine the paper to the surface of the drum, and a cover for the box  
15 having a slot located opposite the drum, all combined and operating substantially as and for the purposes set forth.

3. The combination, in a station-box, of an electro-magnet, an armature-lever arranged,  
20 substantially as shown, to be automatically engaged and disengaged with stops on a disk or wheel in the clock-movement, an escape-ment, a bell-clapper actuated thereby, a bell or gong, a paper-feeding drum turned by the  
25 clock-movement, a rotatable roll of paper, a

paper-severing device below the drum, and a cover for the box having a slot located opposite the drum, all combined and operating substantially as and for the purposes set forth.

4. The combination, in a station-box, of an electro-magnet, an armature-lever arranged, substantially as shown, to be automatically engaged and disengaged with stops on a disk or wheel in the clock-movement, an escape-  
35 ment, a bell or gong, a paper-feeding drum turned by the clock-movement, a rotatable roll of paper, a paper-severing device below the drum, a die the impression whereof is made upon the paper by the operation of the  
40 severing device, and a cover for the box having a slot located opposite the drum, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 29th day of  
45 May, A. D. 1889.

JAS. E. RICHARDS.

Witnesses:

PHILLIPS ABBOTT,  
FREDERICK SMITH.