

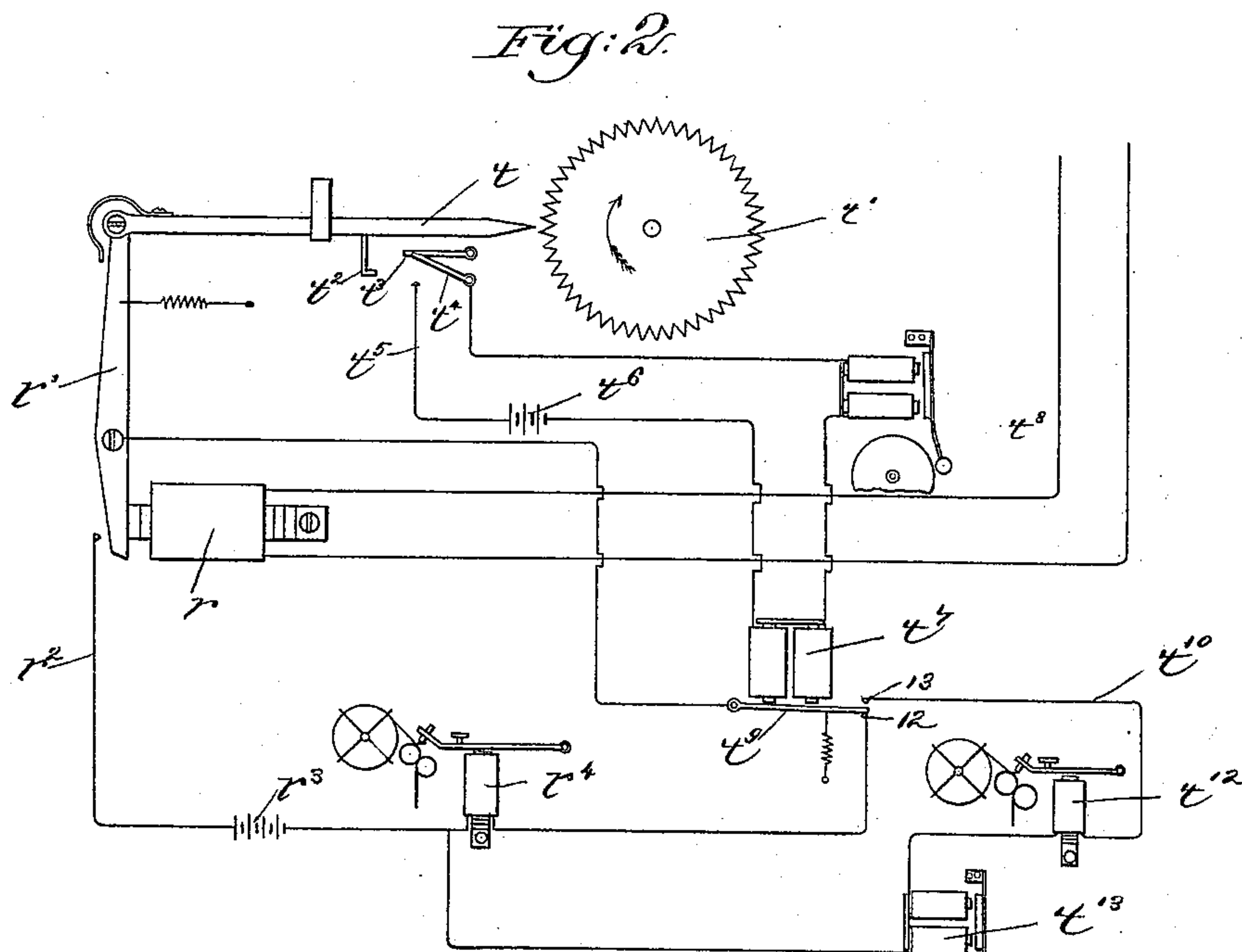
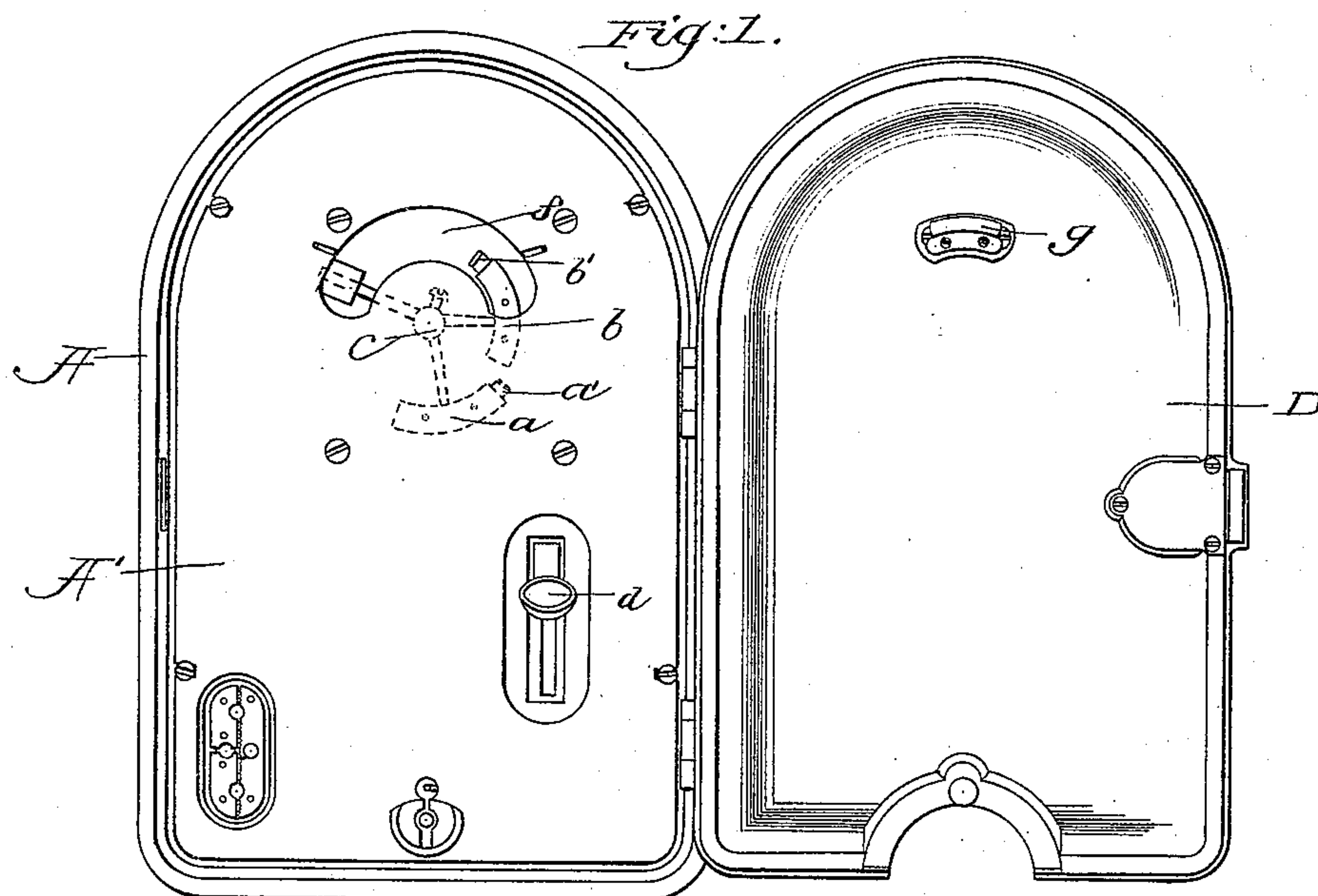
(No Model.)

3 Sheets—Sheet 1.

B. J. NOYES.  
POLICE SIGNALING APPARATUS.

No. 447,058.

Patented Feb. 24, 1891.



witnesses.  
Howard T. Eaton.  
Fred L. Emery.

Inventor:  
Berrice J. Noyes  
by Leroy & Gregory  
Attys.

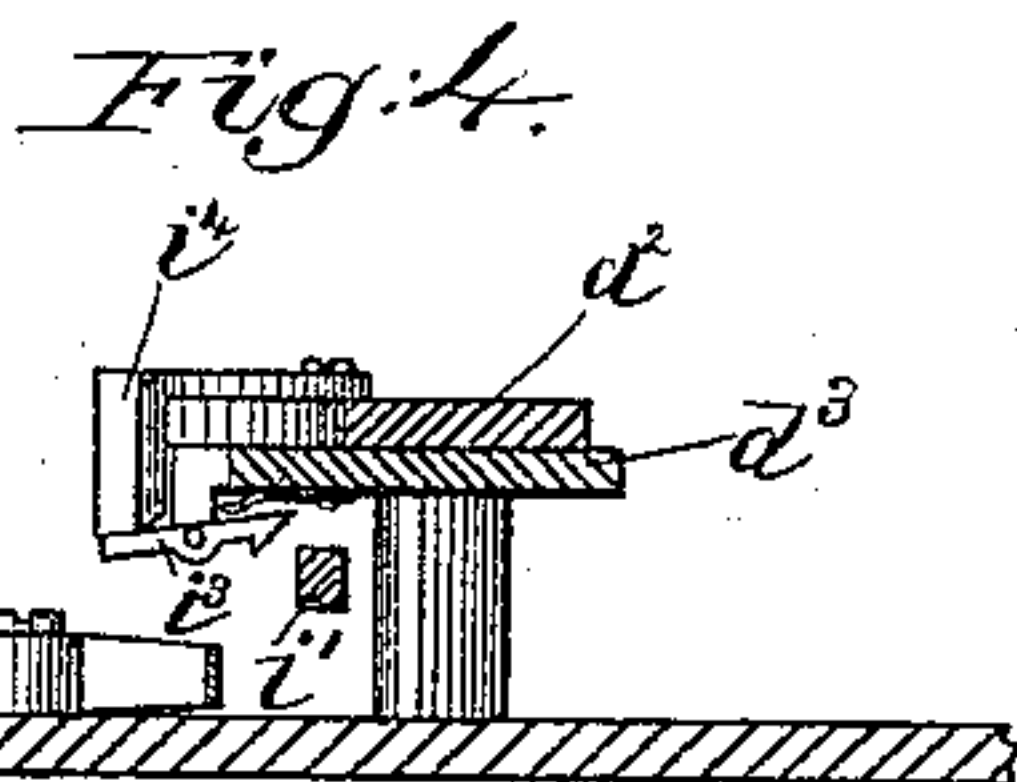
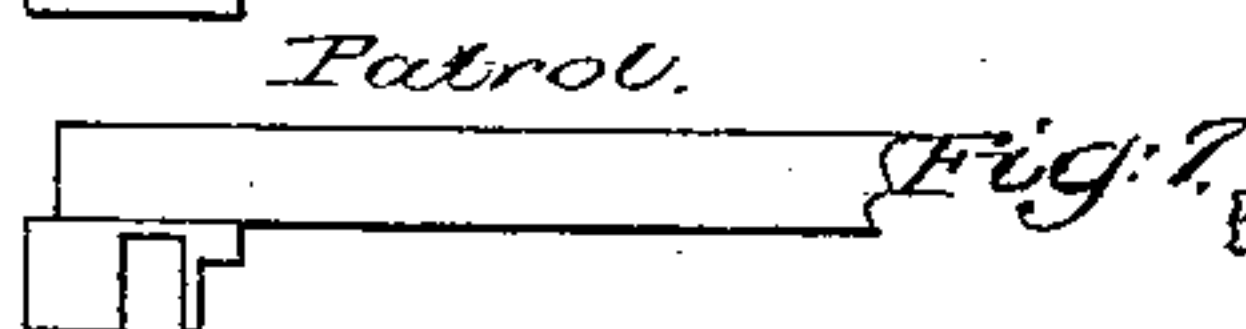
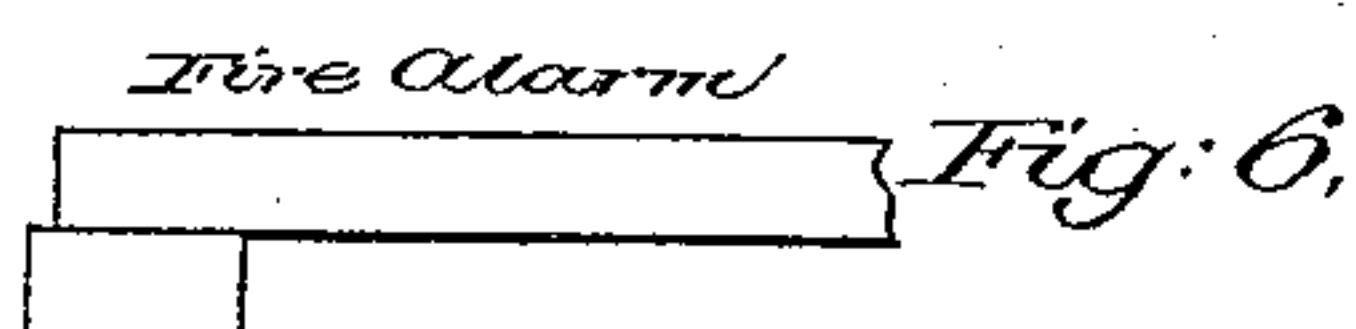
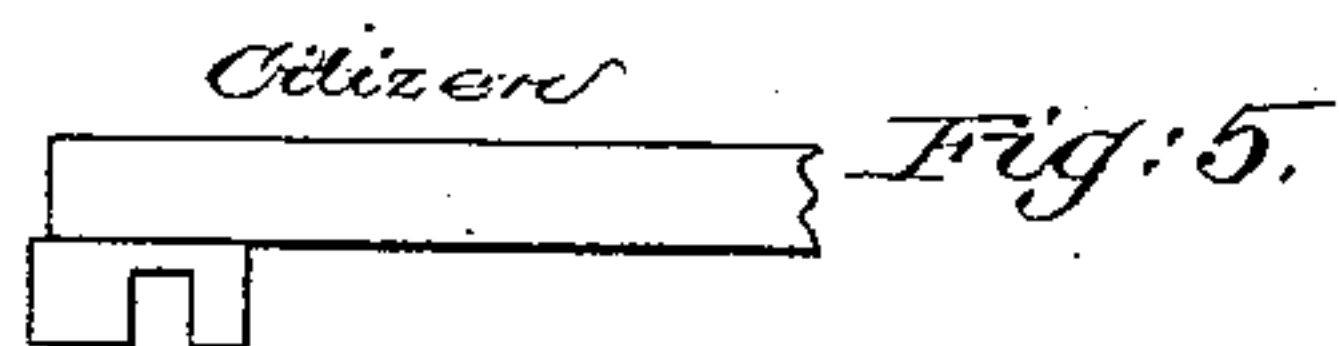
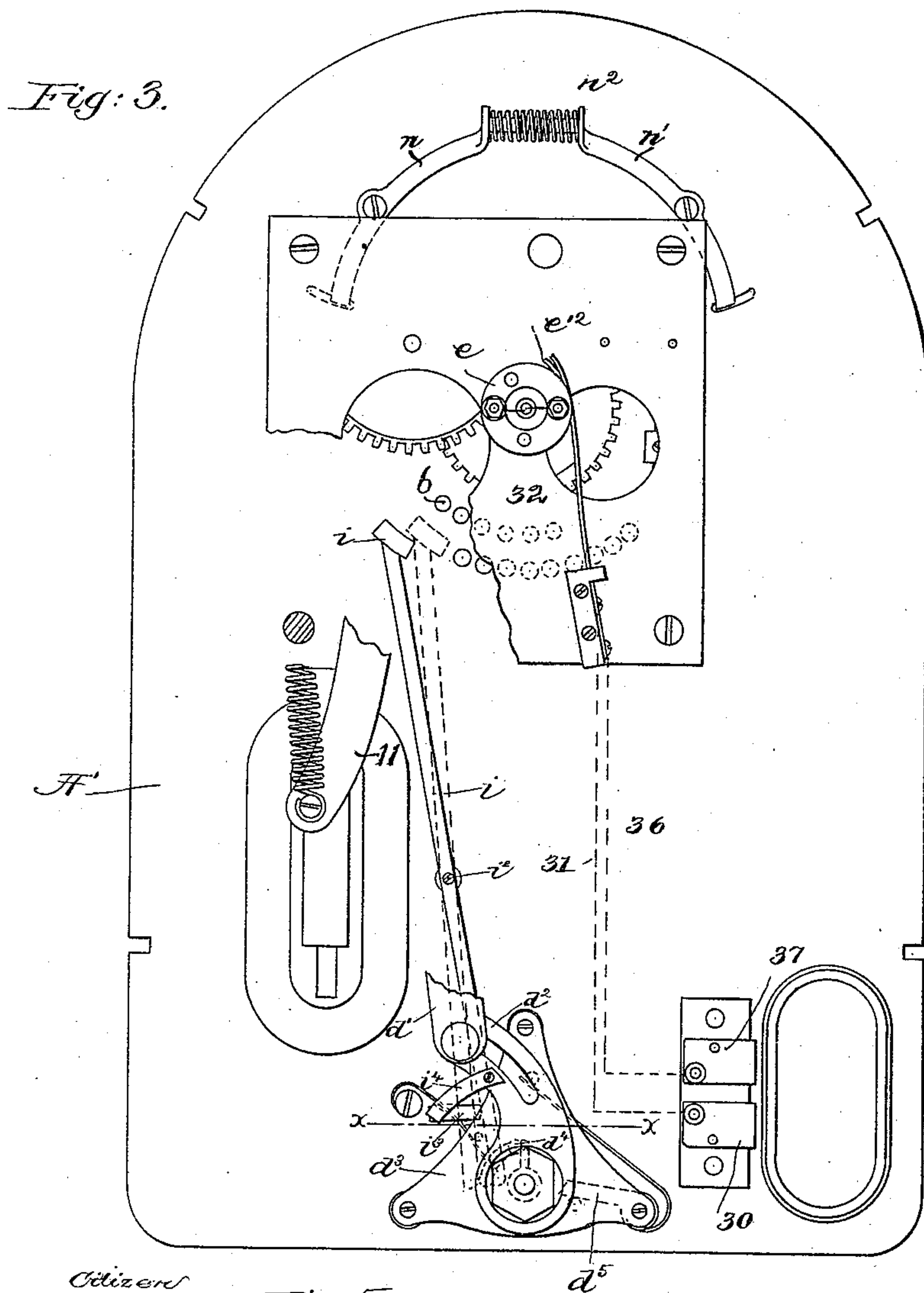
(No Model.)

3 Sheets—Sheet 2.

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Patented Feb. 24, 1891.



Witnesses.  
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Fred L. Emery.

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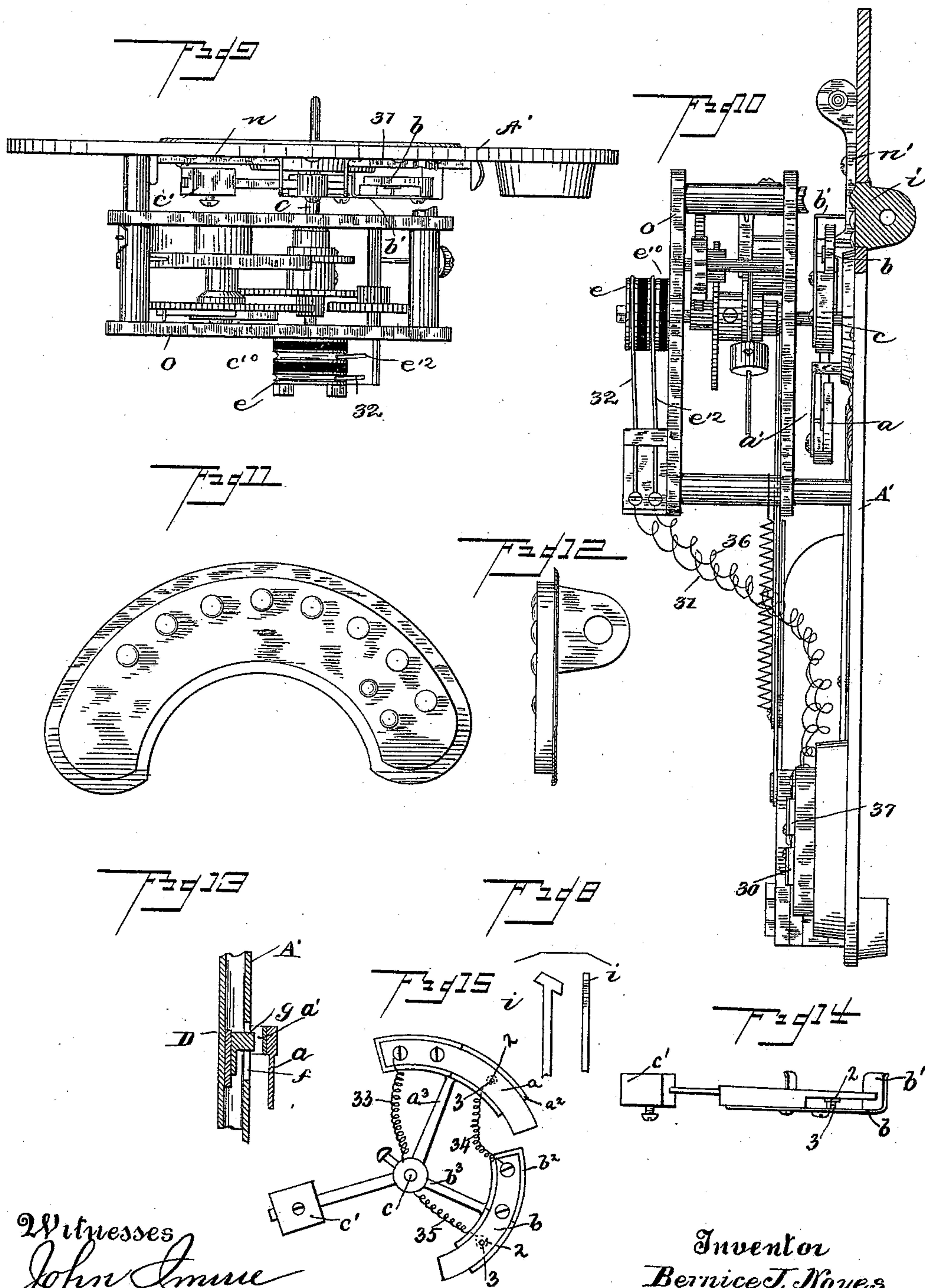
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3 Sheets—Sheet 3.

B. J. NOYES.  
POLICE SIGNALING APPARATUS.

No. 447,058.

Patented Feb. 24, 1891.



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Inventor  
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# UNITED STATES PATENT OFFICE.

BERNICE J. NOYES, OF BOSTON, MASSACHUSETTS.

## POLICE SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 447,058, dated February 24, 1891.

Application filed July 28, 1887. Serial No. 245,498. (No model.)

*To all whom it may concern:*

Be it known that I, BERNICE J. NOYES, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Police Signaling Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to construct a signal-box adapted for both police and fire-alarm purposes, and also to provide suitable receiving-instruments and arrangement of circuits, whereby the police-signals  
15 may be distinguished from the fire-alarm signals. The police signals or calls especially desired are the box-number alone, or in conjunction with a special signal to indicate "wagon," for instance, or in conjunction with  
20 a variable signal to identify the officer at the box, such signals being transmitted in the manner and by substantially the same mechanism in the present instance as in application filed by me July 28, 1887, Serial No.  
25 245,499. The fire-alarm signal need only be a box-number; but to distinguish this signal an independent receiving-instrument is employed at the receiving-station, means being provided for including it in the line and simultaneously cutting out the police-alarm receiving-instrument.

Figure 1 shows in front elevation a signal-box embodying this invention, the door being opened; Fig. 2, a diagram of the circuits and  
35 receiving-instruments at the receiving-station; Fig. 3, a rear side view of the face-plate of the box removed; Fig. 4, a sectional detail of the means employed for actuating the motor to transmit the signal. Figs. 5, 6, and 7  
40 show the several keys to be employed. Fig. 8 shows details of the circuit-controlling device to be referred to. Fig. 9 is a top view of the signaling-train shown in Fig. 3; Fig. 10, a side view of the signaling-train shown in  
45 Fig. 3. Figs. 11 and 12 are details of the individual signaling-key. Fig. 13 is a sectional detail of a portion of the box-door and face-plate, the former being closed. Figs. 14 and  
50 15 are enlarged details of the circuit-changing devices to be described.

The signal-box herein shown, in so far as it is adapted for police signaling, is substan-

tially the same as in the application above referred to, it consisting of the case A, a face-plate A', adapted to be held therein by suitable screws or otherwise, and to the rear side of which is attached the signal-transmitting devices and the door D.

The device for transmitting the signals, and which is supported on the rear side of the face-plate A', consists of a motor of usual construction, which is employed to rotate the shaft *c*, carrying one or more circuit-changing devices, or it may be pens, two being herein shown, as *a a'* *b b'*. As shown in Figs. 1, 3, 65 14, and 15, these pens *a a'* and *b b'* respectively contact with each other, forming signaling-keys. These circuit-changing devices are substantially alike, each consisting of a signaling-key having an upwardly-turned end, as *a' b'*, and having circuit-closing contacts 2 3 like unto an ordinary telegraph-key. These keys *a b* are secured, respectively, to blocks *a<sup>2</sup> b<sup>2</sup>*, fixed to the extremities of arms *a<sup>3</sup> b<sup>3</sup>*, radiating from a shaft *c*, such arms being herein shown, for the purposes to be hereinafter described, as radiating at an angle of substantially ninety degrees. A counterbalancing-weight *c'* is fixed to another arm radiating from the shaft *c* at a point between the arms *a<sup>3</sup> b<sup>3</sup>* to counterbalance the weight of the signal-keys *a b*. This shaft *c* has its bearings in the face-plate A' and the back plate O, which is secured to the rear side of the face-plate A' by suitable posts.

85 The shaft *c* is driven by a motor mechanism of any ordinary construction commonly employed in signal-boxes, such motors being wound up by depressing a suitable pull, as *d*, or other winding-arm, and operating when said pull is released or during its return movement. Such form of motor being old, a detailed description of the same is deemed unnecessary.

The circuit of the box, as represented in Figs. 3 and 10, is as follows: Starting at the plate 30 it extends by wire 31 to a contact-pen 32, bearing on the wheel *e*, secured to the shaft *c*, thence along the shaft and by wire 33 to the signaling-key *a*, circuit-closing contacts 2 3, wire 34, to the signaling-key *b*, circuit-closing contacts 2 3, wire 35, along the shaft to the wheel *e<sup>10</sup>*, also on said shaft but insulated from the wheel *e*, contact-pen *e<sup>12</sup>*



bearing thereon, and thence by wire 36 to the plate 37. Thus it will be seen that the circuit in the box is normally closed.

I deem it advantageous to employ the two-part keys  $a a'$  or  $b b'$  instead of a one-part key, because by means of the two parts the circuit-contact is made between them, they contacting one with the other, and thereby avoiding the necessity of carrying the current through the controlling device.

A permanent signal-controlling device for the circuit-changing devices or pens is employed, it consisting of a series of studs or projections 6, herein shown as placed in two concentric rows located upon the rear side of the face-plate  $A'$  in an arc of a circle in the path of movement of the circuit-changing devices or signaling-keys, projecting sufficiently to be struck by the members  $a'$  or  $b'$  as the shaft  $c$  revolves, and to thereby move such members away from contact with their fellow members and to open the circuit. I may employ two concentric rows of studs or projections, one of which will co-operate with the signal-key  $a$ , and the other of which will co-operate with the signal-key  $b$ , it being understood and shown that the signal-key  $b$  is arranged on an arm which is shorter than the arm on which the signal-key  $a$  is arranged, and thereby describing an arc of a circle of less diameter. By placing the two series or rows concentric and arranging the signal-keys on arms rotating in different arcs one of the signaling-keys, as  $a$ , for instance, will pass over one row of studs, and thereafter the other signaling-key, as  $b$ , will pass over the other row of studs and said studs protrude sufficiently to lift the circuit-closing pens to separate the circuit-closing contacts 2 3 successively as the shaft revolves, thereby sending a continuous signal.

The face-plate is provided with an opening  $f$ , which is adapted to receive a removable signal-controlling device, which is shown in Figs. 11 and 12 as a plate provided with a series of studs also arranged in two concentric rows, which co-operate with the circuit-changing devices  $a a' b b'$ , respectively, to open and close the circuit as the shaft  $c$  revolves, to thereby transmit such a signal or number as may correspond with the studs or projections on such plate.

The permanent signal-controlling device is designed for the box-number, and the removable device for the officer's individual number, each officer carrying one having studs on it to correspond with his number.

Suitable locking-jaws  $n n'$  (shown as spring controlled) are pivoted to the rear side of the face-plate, their ends passing out through small openings to engage and hold the removable signal-plate.

Both the box-number and the officer's number are designed to change the condition of the circuit for a short interval of time, that dots only will be registered.

A dash or special signal-controlling device

$g$  is fixed to the inside of the door  $D$ , consisting of an enlarged projection which when the door is closed enters the opening  $f$  and lies in the path of movement of the circuit-changing devices, and as the shaft  $c$  rotates the circuit-changing devices or pens will co-operate with the studs or projections, and the box-number, in conjunction with a dash, will be transmitted, as fully described in the said application, Serial No. 245,499, the device  $a$  passing over the bar  $g$ , and then over one of the series of studs or projections, and then after the device  $b$  will pass over the other series of studs.

The dash effects the operation of an audible alarm besides the registration of the message, as shown in United States patent granted to me, No. 359,688.

An actuating-pull  $d$  is employed to transmit the signal when the box-door is opened, it being connected to the winding-arm (not shown) of the motor mechanism by a link 11, (broken out in Fig. 3,) and an actuating device accessible from the exterior of the box is employed to transmit the special signal, said actuating device in itself forming no part of my invention, but consisting of a rod  $d'$ , (shown as broken off in Fig. 3,) and connected loosely at one end to an arm  $d^2$ , pivoted to a stud having its bearings in the plate or stand  $d^3$ , said arm  $d^2$  having a pin  $d^4$ , which is engaged by the bit of the key for moving it, said rod being connected at its opposite end to the winding-arm at the same point as is the upper end of the link 11, so that the winding-arm can be operated by the pull or by an outside key.

A spring-controlled latch  $d^5$  (shown in dotted lines, Fig. 3) is employed for preventing the key when once turned from again registering with the key-hole to be withdrawn.

To adapt the signal-box thus shown and described, and which is substantially the same as is shown and described in said application referred to for fire-alarm purposes, I provide a signal-controlling device or dash-signal consisting of a block or plate  $i$ , fixed to an arm  $i'$ , pivoted at  $i^2$  to the rear side of the face-plate  $A'$ , the opposite end of said arm or lever extending down to the lower end of the box to co-operate with a key which may be inserted from the outside when the box-door is closed, as will be described.

The signal-controlling device  $i$  normally lies out of the path of movement of the circuit device or signaling-key, but is adapted to be moved into such path of movement by the fire-alarm key shown in Fig. 6, the bit of said key, as the key is turned, striking the lower end of the lever  $i'$  and moving it to the left in Fig. 3 at the same time that the arm  $d^2$  is turned by the bit of the key engaging the pin  $d^4$ . As the lever  $i'$  is moved over a spring-controlled latch  $i^3$ , (see Fig. 4,) it is locked during the time that the circuit-changing devices are rotated and co-operating with the several signal-controlling devices. As the



actuating-arm  $d^2$  resumes its normal position, the bent arm  $i^4$ , fixed thereto, engages the end of said latch  $i^3$  and lifts it to release the lever  $i'$ , permitting said lever to resume its normal position, the fire-alarm signal having been sent in. It will be seen that the lever  $i'$  is not connected in any way to the rod  $d'$  or arm  $d^2$ , the key used and described being so shaped as to move both simultaneously but independently.

It is designed, in connection with the signal-box herein described, that citizens shall carry keys which are adapted to transmit a special signal when the box-door is closed, such key being locked or prevented from being withdrawn by the latch  $d^5$ , such key being shown in Fig. 5, it having a long bit. It is also desired that the patrolman shall carry a signaling-key such as shown in Fig. 7, it having a short bit, so that while it may be inserted in the outside key-hole when the box-door is closed and effect the transmission of the special signal it cannot be locked by the latch  $d^5$ , this same key being also employed to open the box-door D. It is also designed that the key for transmitting the fire-alarm signal, and shown in Fig. 6, shall be locked by the latch  $d^5$ , and hence the bit of this key is of substantially the same length as the bit of the citizen's key, and adapted to engage the pin  $d^4$  and also the lever  $i'$  while the citizen's key engages the pin  $d^4$ .

At the receiving-station a receiving-relay  $r$  is included in the main line, the armature  $r'$  of which controls a local circuit  $r^2$ , containing a local battery  $r^3$  and a register  $r^4$ . The armature-lever  $r'$  carries a wedge-pointed bar  $t$ , the outer end of which, when the armature-lever is moved, engages the teeth of the moving wheel  $t'$ . The bar  $t$  has upon its under side a hook  $t^2$ , which, when the bar  $t$  is raised, strikes a pivoted bar  $t^3$  and releases a bar  $t^4$ , which is included in and forms a part of a local circuit  $t^5$ , containing a local battery  $t^6$  and a relay  $t^7$ , the said local circuit also containing a bell  $t^8$ .

It will be understood upon referring to patent No. 359,688, above referred to, that impulses of short duration will effect the operation of the register  $r^4$ , while an impulse of long duration permits the bar  $t$  to be raised and effect the operation of the bell  $t^8$  and also the relay  $t^7$ .

The armature  $t^9$  of the relay  $t^7$  is normally retracted and bears against a contact-point 12, thereby forming a part of the local circuit  $r^2$ , and when said armature is retracted it strikes the contact-point 13 of the branch wire  $t^{10}$ , which is connected to the local circuits between the battery and registry  $r^4$ , and includes a register  $t^{12}$  and a tap-bell  $t^{13}$ . It will thus be seen that upon the occurrence of a signal comprising a series of impulses of short duration the register  $r^4$  will respond, upon the occurrence of the signal comprising a series of impulses of short duration and an

impulse of long duration the register  $r^4$  will respond, and also the bell  $t^8$ , and upon the occurrence of a signal comprising an impulse of long duration followed by impulses of short duration—as the fire-alarm signal, for instance—the armature  $t^9$  of the relay  $t^7$  includes the branch wire  $t^{10}$  in the local circuit, cutting out the register  $r^4$ , so that the impulses of short duration of such signal will be received upon the register  $t^{12}$  and the tap-bell respond.

I claim—

1. The combination of the following instrumentalities, viz: a main electric circuit, a signal-transmitter for said circuit constructed and arranged to transmit, in conjunction with the signal, a differentiating impulse, as an impulse of long duration, a receiving-instrument controlled by the main circuit, an indicating-signal, a switch controlled by the differentiating impulse for governing the operation of said indicating-signal, and another receiving-instrument controlled by the main circuit, but rendered operative by the afore-said switch, substantially as described.

2. The combination of the following instrumentalities, viz: a main electric circuit, a signal-transmitter for said circuit constructed and arranged to transmit signals by impulses of short duration preceded by or followed by an impulse of long duration, a receiving-instrument controlled by the main circuit, an indicating-signal, a switch controlling the operation of said indicating-signal and responsive to the impulses of long duration, and another receiving-instrument rendered operative by said switch and thereafter controlled by the main circuit, substantially as described.

3. A signal-box containing a multiple-signal-transmitting device, combined with a receiving-relay connected in circuit with the said transmitting device, the message-receiving instrument  $r^4$ , included in a local circuit controlled by said relay, the branch wire  $t^{10}$ , connected to said local circuit between said message-receiving instrument and the local battery, the message-receiving instrument  $t^{12}$  in said branch wire, and a switch for cutting out the message-receiving instrument  $r^4$  and cutting in the message-receiving instrument  $t^{12}$ , substantially as described.

4. A signal-box containing a rotating circuit-changing device, and a permanent and a removable signal-controlling device for the circuit-changing device, the latter being moved by the box-door, combined with another removable signal-controlling device contained within the box, but which can be reached from the exterior of the box to be interposed upon occasions, substantially as described.

5. A signal-box containing a rotating circuit-changer or pen, and a permanent and also a removable signal-controller therefor, the latter being moved by the box-door, combined with another removable controller, and a key which, when inserted and turned, interposes



the said removable circuit-controller and also actuates the signaling mechanism, substantially as described.

6. In a signal-box; a permanent signal-  
5 transmitting device for transmitting a signal indicating the locality of the box, a variable signal-transmitting device the control of which is removable and interchangeable with other boxes, and an actuating-pull therefor,  
10 accessible and operative by keys inserted from the outside of the box, combined with another signal-transmitting device, a co-

operative part of which is removable, and an arm accessible from the exterior of the box for interposing said co-operative part, sub- 15  
stantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNICE J. NOYES.

Witnesses:

G. W. GREGORY,  
F. L. EMERY.