

(No Model.)

J. C. WILSON.

POLICE SIGNAL APPARATUS.

No. 386,175.

Patented July 17, 1888.

Fig. 1.

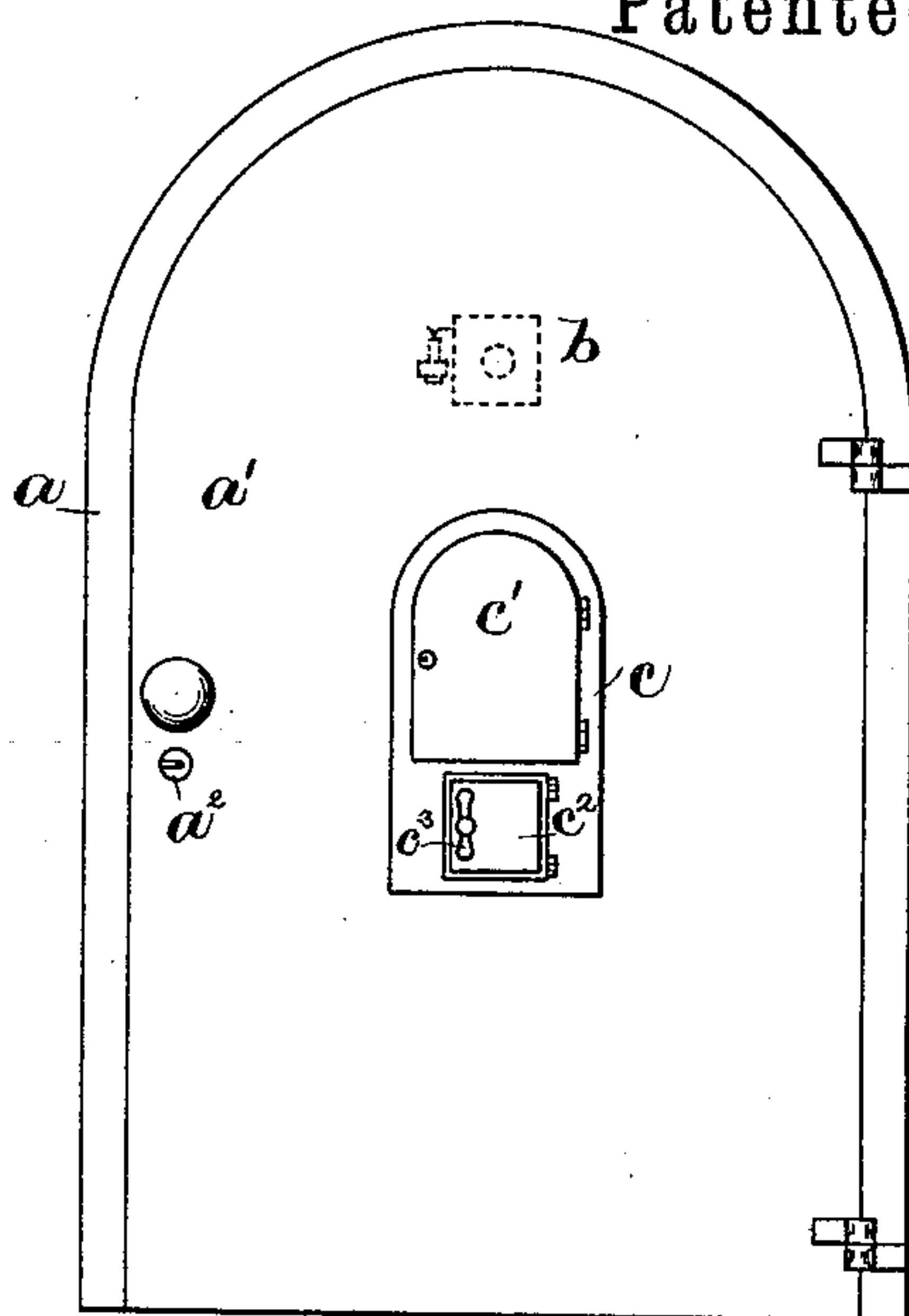


Fig. 2.

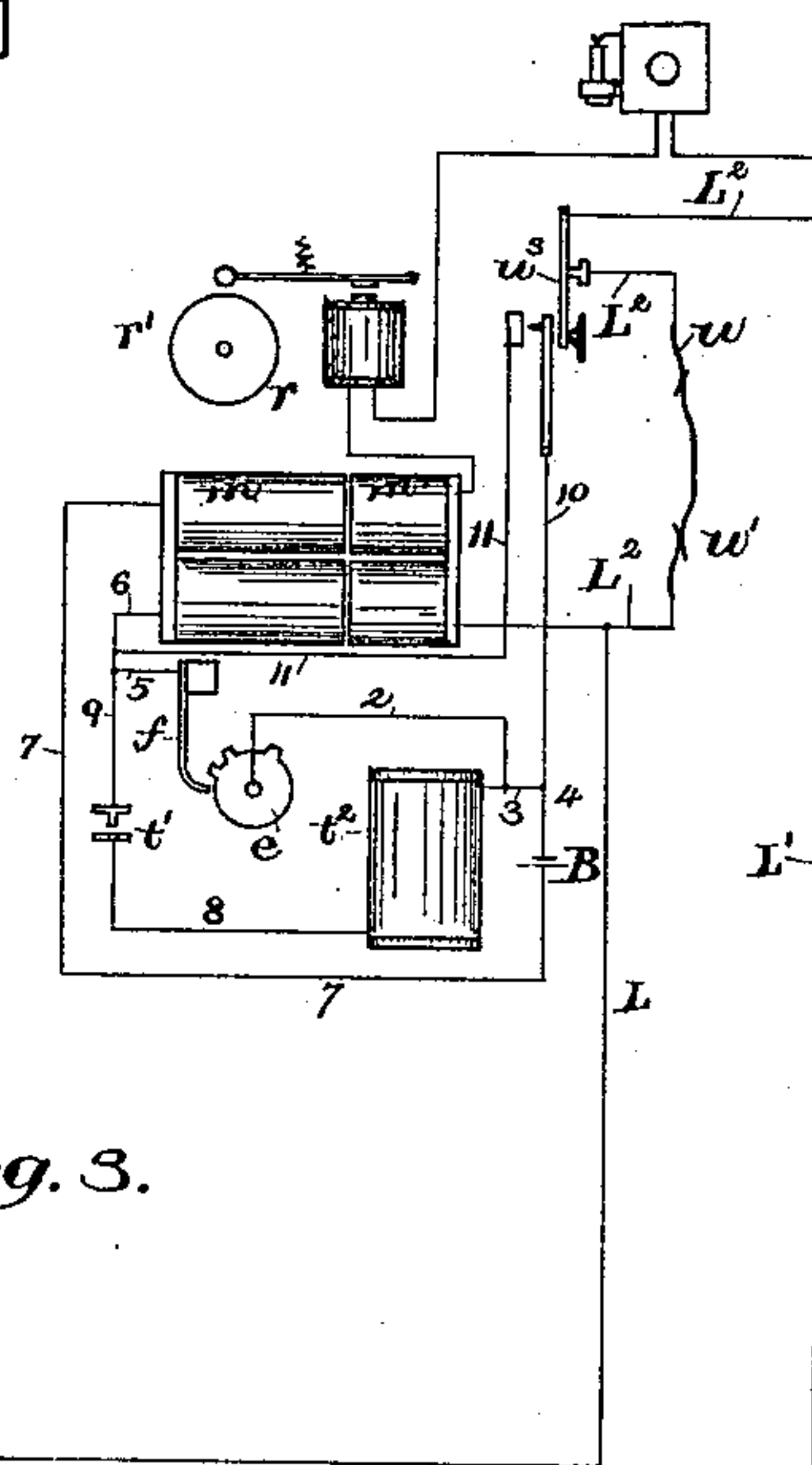
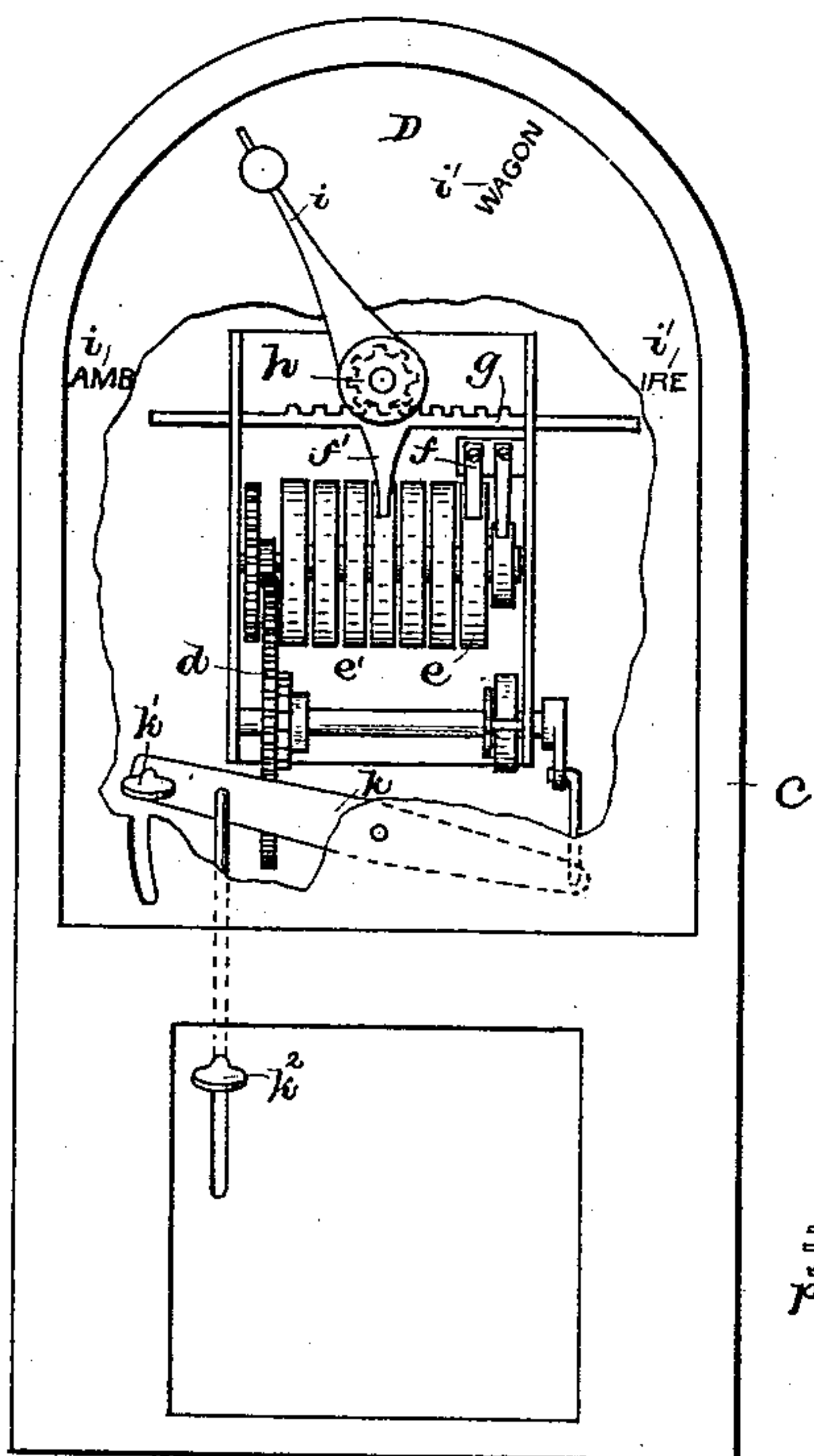
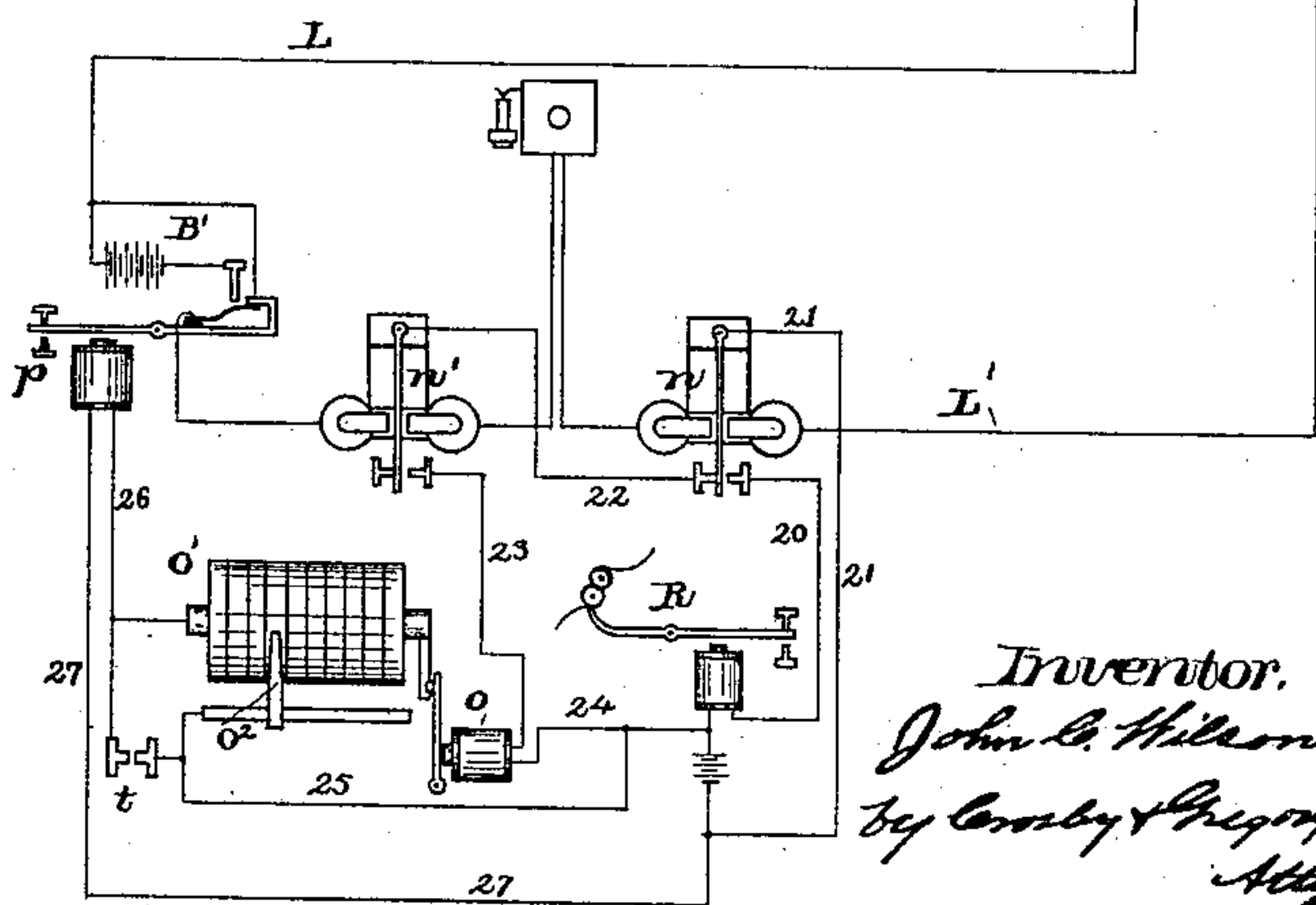


Fig. 3.



Witnesses.

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POLICE SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 386,175, dated July 17, 1888.

Application filed May 26, 1884. Serial No. 132,755. (No model.)

To all whom it may concern:

Be it known that I, JOHN CORNELIUS WILSON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Police Signal Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention, relating to a police signaling apparatus, is embodied in an apparatus having appliances by which citizens may transmit signals from numerous sub-stations to a station-house or other main or central office to summon police aid, and by which policemen or other authorized persons may transmit any desired one of a series of predetermined or special signals to a station or main office to make known the various wants that are likely to occur in connection with the police service, and by which signals may be transmitted from the main office to any desired one of the signal-boxes or sub-stations, the transmission of the said signal being controlled from the sub-station, while its character is determined at the main station, and whereby the same circuit that is employed for signaling may also be used for telephonic communication, the telephone not being subjected to the action of a strong battery-current.

The signals are transmitted from the stations or boxes to the main station by means of induced currents, there being a local battery or generator and induction apparatus at each sub-station, and there being normally no battery-current on the main circuit, although the latter is closed, so as to transmit induced currents. The main circuit at the main station includes the coils of two polarized relays adapted to be operated by induced currents of different strength, one of the said relays, which responds only to the stronger current, controlling the local circuit of the register or other signal-receiving apparatus, and the two relays together controlling the local circuit and the detent of a signal-transmitting apparatus by which signals may be sent outward from the main office, the said local circuit and detent being so arranged that when the weaker

relay alone is affected the said local circuit is closed and the detent operated; but when both relays are operated simultaneously, as by a strong current, the said stronger relay opens the local circuit of the detent, so that the latter is not affected and no signal is transmitted.

In addition to the apparatus for transmitting induced currents from sub-stations and the receiving apparatus at the main station co-operating therewith, the invention further consists in various novel features of mechanical construction, to be hereinafter specified.

Figure 1 is a front elevation of the apparatus at a sub-station; Fig. 2, a front elevation of the signal-box proper at a sub-station, on a larger scale; Fig. 3, a diagram illustrating the electrical devices at the main and sub stations and circuits connected with the same.

The apparatus at the sub-station (shown in Fig. 1) consists of a small house or sentry-box, *a*, of sufficient size to accommodate a man while using the telephonic instruments *b* contained within said sentry-box, which is provided with a door, *a'*, having a lock, *a''*, so that it can only be opened by policemen or other authorized persons having a proper key.

The sentry-box *a* is provided with a signal-box, *c*, (shown in this instance as set in the door *a* of the sentry-box,) the said signal-box *c* containing signaling apparatus, as shown in Fig. 2, consisting, essentially, of clock-work or motor *d*, operating the signal-transmitting devices, one of which is shown as a break-wheel, *e*, having co-operating pen or contact-springs *f*, by which a number-signal may be transmitted, preceded or followed by any desired one of a series of special signals, which are, as shown, in this instance produced by a series of break-wheels, *e'*, and a corresponding pen or contact-spring, *f'*, movable into position to co-operate with any desired one of the said break-wheels *e'* by suitable mechanism, consisting in this instance of a rack-bar, *g*, connected with the said pen and having a sliding movement parallel with the axis of the break-wheels *e e'*, and a pinion, *h*, meshing with the rack-bar and having its arbor pro-

vided with a pointer, *i*, which serves as a handle and also co-operates with a dial, *D*, having marked upon it a series of signals, *i'*, corresponding with the special signals produced by the wheels *e*.

The wheels *e e'* are all mounted on the same arbor and turned simultaneously by the motor *d*, and when the pointer *i* is placed opposite any desired one of the signals *i'* the pen *f'* will be brought into connection with one of the wheels *e'*, which sends the same signal that the pointer then indicates.

The actuating weight or spring of the motor *d* is wound sufficiently to rotate the wheels *e e'* and transmit the signals by means of the starting-lever *k*, having connected with it two separate pulls or finger-pieces, *k' k''*, adapted to be engaged by the operator in order to wind the said motor. One of the said pulls, as *k'*, is inclosed by a door, *c'*, which also covers the dial *D* and pointer *i*, and may be called the "policeman's door," it being provided with a lock, so that it can only be opened by a policeman having a suitable key. The other pull, *k''*, is inclosed by a door, *c''*, which may be called the "citizens' door," the latch of which is operated by a handle, *c'''*, which in turn operates a local alarm mechanism consisting of a series of intermeshing toothed wheels, a pallet, and striker, as described in Letters Patent No. 164,406, dated June 15, 1875, so that the said door may be operated by any person, but will in such operation produce a loud alarm, which will deter any one from operating it unnecessarily. When the policeman's door *c'* is closed, the pointer *i* will be set in one particular position to give a signal known as the "citizens' call," so that when the pull *k''* is operated the wheel *e* and contact spring *f* co-operate to produce the number-signal, together with the said citizens' call signal, which may be merely a blank and which, when transmitted to the main station, will indicate that police assistance of some kind is needed at the box or station designated by the said number.

The series of break-wheels *e e'* and their co-operating springs *f f'* may control the circuit in any usual manner to produce a series of interruptions in the electric current having a special character. As shown in this instance, (see Fig. 3,) the break-wheels *e e'* and springs *f f'* are connected in circuit with a local battery, *B*, the said wheels being connected by wires 2 3 4 with one pole of the said battery and the springs by wires 5 6 7 with the other pole thereof, and the said circuit, including the primary coil *m* of an induction apparatus, *m m'*, the secondary coil of which is included in the main line *L L'*, connecting the central station with the various sub-stations in the usual manner. The local battery *B* will be inclosed in the sentry-box *a*, and will be used with the telephone-transmitter in the usual manner, its circuit being normally open, as shown.

The main line *L L'* at the main station passes through the coils of two polarized relays, *n n'*,

the former of which is adjusted to respond only to stronger currents than are required to move the armature of the other relay, *n'*, so that when a strong current is transmitted it will operate both relays, but when a weaker current is transmitted it will operate only the relay *n'*.

The relay *n* controls a local circuit, 20 21, of the receiving-instrument *R*, which may be the usual self-starting register, and the relay *n'* controls the local circuit 21 22 23 24, including the armature of the relay *n* when the latter is in its normal position, so that it is only when the armature of the relay *n'* alone is moved by a current not strong enough to move the armature of the relay *n* that the said local circuit is closed. This local circuit controlled by the relay *n'* includes the coils of a magnet, *o*, operating the detent or controlling the movement of a signal-transmitting device, *o'*, consisting of a series of signaling-surfaces and a co-operating spring, *o''*, which may be moved into position to co-operate with any desired one of the said surfaces, which, in connection with the said spring, controls the local circuit 25 26 27 of a transmitting-instrument, *p*, by means of which the main battery *B'* may be thrown into and out from the main line *L L'*, the current passing through a signaling-magnet, *r*, at the sub station, which will thus cause a series of taps to be struck on a bell, *r'*, corresponding to the number of projections on that one of the signaling-surfaces that is then co-operating with the spring *o''*. A key or circuit-closer, *t*, may be employed in the circuit 24 25 26 27 to operate the transmitter *p* by hand, if desired.

A weak current is transmitted from the sub-stations in order to affect the relay *n'*, and thus set the transmitter *o'* in operation by means of a finger-key or press-button, *t'*, which closes the local circuit 4 3 8 9 6 7 through the primary coil *m* and resistance *t''*, which thus weakens the effect of the current of the battery *B*, so that a weaker current is induced than when the circuit 2 3 4 5 6 7 is closed by the break-wheels *e e'* and springs *f f'*. This weaker current is capable of affecting the relay *n'*, but not the relay *n*, so that the local circuit of the magnet *o* will be closed, although that of the receiving-instrument *R* will remain unaffected.

The entire apparatus at each sub-station may be shunted, when the doors of the signal-box are closed, by a branch, *L''*, containing circuit-breakers *u u'*, controlled by the doors *c' c''*, they being closed when the said doors are shut; but when either of the said doors is opened the corresponding one of the said circuit-closers is opened, thus breaking the shunt *L''* and throwing the apparatus into circuit.

When a policeman desires to use the telephone without previously operating the signal-box, the operator at the main office can be called by means of a key, *u''*, which breaks the shunt *L''*, and at the same time closes the

local circuit 4 10 11 6 7, thus transmitting a stronger impulse, which will make a single stroke or mark at the receiving-instrument R that will be understood as the signal or call for telephone communication.

I claim—

1. In a police signal system, the combination, substantially as described, of a main station and sub-stations and main electric circuit connecting them, the said sub stations each containing a local circuit and a multiple-signal-transmitting apparatus therein, comprising a series of signaling-surfaces adapted to change the condition of the current to transmit a determinate signal corresponding with the particular signaling-surface employed, and an induction apparatus the coils of which form part of the local circuit and also part of the main circuit, and the said main station containing signal-receiving apparatus the operation of which is effected by the induced currents.

2. A multiple signaling device composed of a series of signaling-surfaces, combined with a contact-pen movable in a direction parallel with the axial centers of the signaling-surfaces and another contact-pen fixed in position to co-operate with one of the signaling-surfaces, a pointer or indicator co-operating with a stationary dial and operatively connected with the movable contact-pen, movement of which indicator moves the pen into position to co-operate with any desired one of the signaling-surfaces to transmit a signal indicated by the position of the pointer on the dial, whereby a determinate signal, with or without a variable signal, may be transmitted, substantially as described.

3. The main station containing relays adapted to respond to currents of different strength and controlling signal-receiving and signal-transmitting instruments, combined with the sub-station containing a local circuit and induction apparatus and independent devices for controlling the said circuit and for introducing resistance therein, and a main circuit connecting the said main and sub stations, transmitting impulses of different strength derived from the local circuit at the sub-station by induction, substantially as described.

4. In a signal-box, a series of signaling-surfaces and means, substantially as described, for revolving the same, combined with a single contact-spring arranged to travel longitudinally across said surfaces to co-operate with any particular one desired, a dial, indicator, and connecting mechanism uniting the indicator to said spring, whereby upon moving the indicator the spring is adjusted to any position desired with reference to the signaling-surfaces, substantially as described.

5. A multiple-signal-transmitting device composed of a series of signaling-surfaces, combined with a slide-bar and contact-pen carried by the slide-bar to bear against one or the other signaling-surfaces as the slide-bar is moved, and a rotatable shaft and pinion fixed

to it for moving the slide-bar, substantially as described.

6. A multiple-signal-transmitting device composed of a series of signaling-surfaces, combined with a slide-bar and contact-pen carried by the slide-bar to bear against one or another signaling-surface as the slide-bar is moved, a rotatable shaft and pinion for moving the slide-bar, and a pointer secured to the rotatable shaft which co-operates with a suitable dial, the position of the pointer indicating which signaling-surface shall be employed, substantially as described.

7. A multiple-signal-transmitting device composed of a series of signaling-surfaces, as break-wheels, mounted upon a shaft, and a co-operating contact-pen for transmitting a determinate and also a variable signal, combined with a motor mechanism and starting-lever therefor, and two independent pulls connected with the said starting-lever, movement of one pull effecting the transmission of the determinate signal and movement of the other pull effecting the transmission of the variable signal, substantially as described.

8. In a police signal system, the combination, substantially as described, of the main and one or more sub-stations, and a main electric circuit connecting them, and telephonic instruments located at the said main and sub stations to operate in the main circuit, the local circuit located at the sub-station, and a multiple signaling device therein, which includes as a co-operative part of it a series of signaling-surfaces for effecting the transmission of one or another of a series of signals at the will of the operator, and an induction apparatus also at the sub station, the coils of which form part of both the local and main circuits, respectively, whereby impulses are transmitted from the local to the main circuit, and receiving-instruments at the main station, which respond to the induced currents transmitted from the sub-stations.

9. In a police signal system, the combination, substantially as described, of a main and sub-station, and a main electric circuit connecting them, a signal-transmitting device located at the sub-station and constructed and arranged to transmit a signal over the main circuit by induction, a polarized relay located at the main station responsive to the said signals, a non-polarized receiving electro-magnet located at the sub-station, a circuit-controlling instrument, as *p*, located at the main station, and means for moving it to throw a battery-current upon the main circuit, and a signaling device, also located at the main station, to produce a series of interruptions in the main circuit to effect the operation of the non-polarized electro-magnet at the sub-station.

10. In a police signal system, the combination, substantially as described, of a main and one or more sub-stations and a main electric circuit connecting them, signal-transmitting devices at the sub-stations, and signal-receiving devices at the main station, and an induc-

tion apparatus, one of the coils of which is included in the main circuit, whereby induced currents are employed for the signals, and telephonic instruments included in the main circuit and located at both the main and sub stations, as and for the purposes specified.

In testimony whereof I have signed my name

to this specification in the presence of two subscribing witnesses.

JOHN CORNELIUS WILSON.

Witnesses:

JOS. P. LIVERMORE,

W. H. SIGSTON.