

(No Model.)

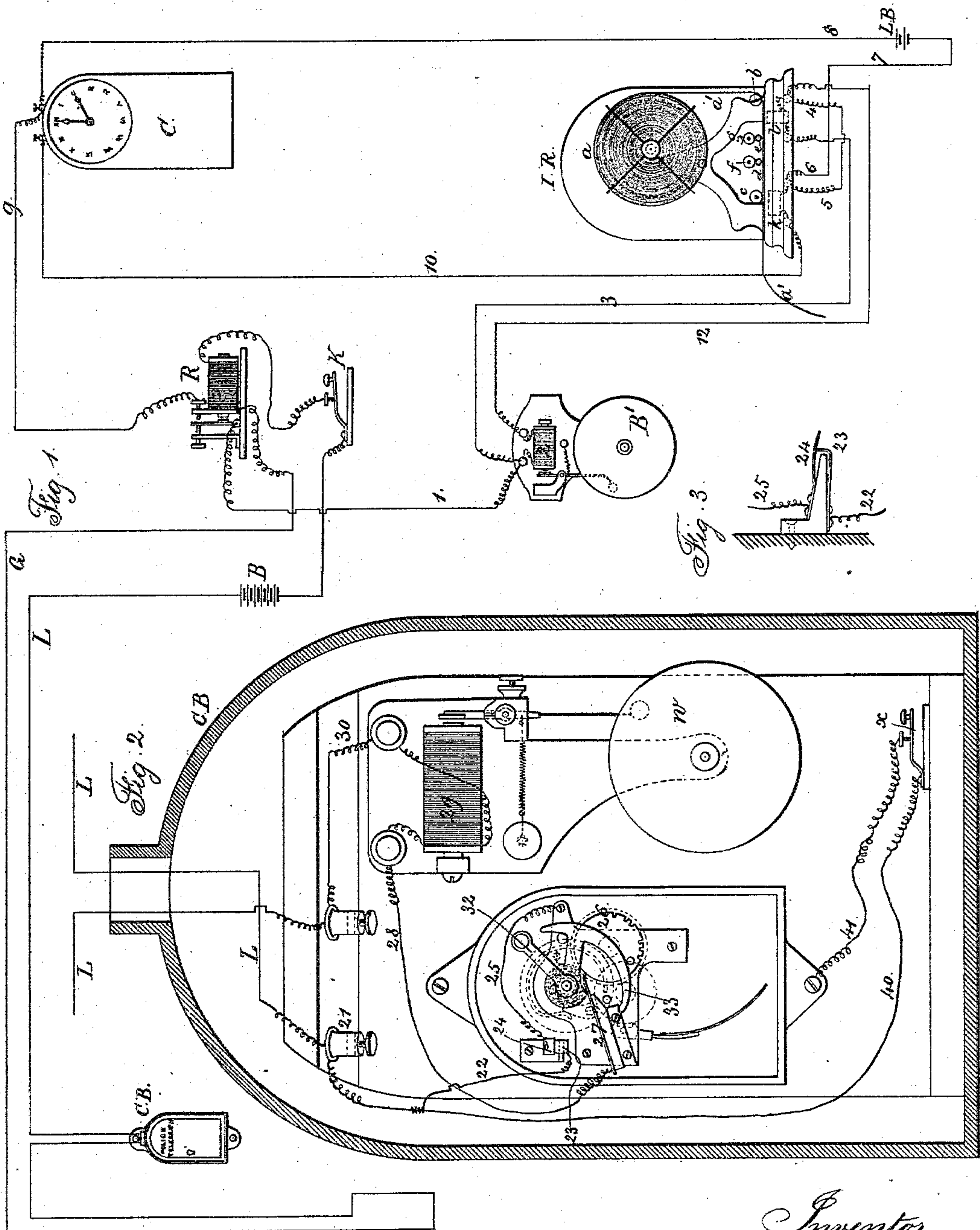
2 Sheets—Sheet 1.

F. PEARCE.

DISTRICT, POLICE, OR FIRE TELEGRAPH.

No. 288,107.

Patented Nov. 6, 1883.



Witnesses:
J. Hail
Chas. H. Smith

Inventor
Frederick Pearce
per Lemuel W. Perrell atty

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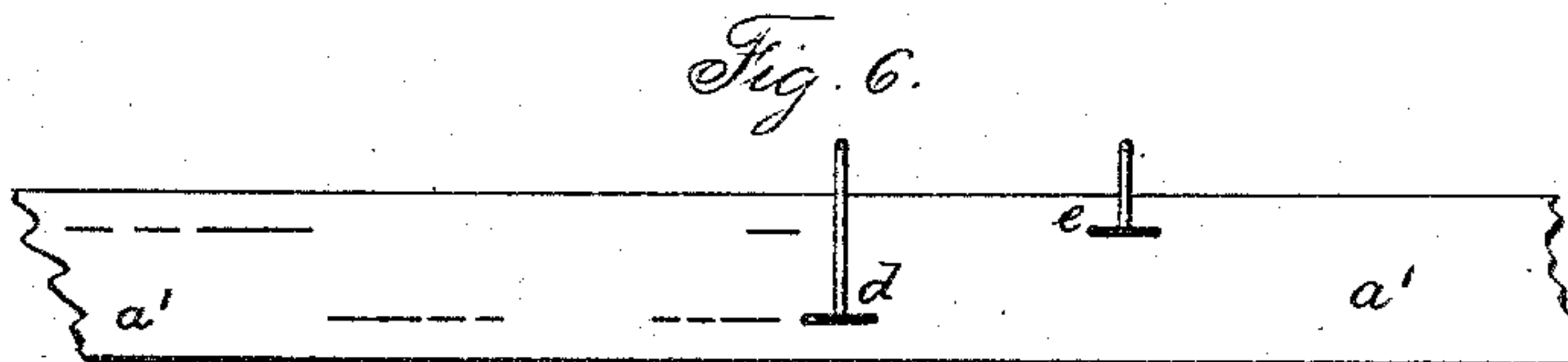
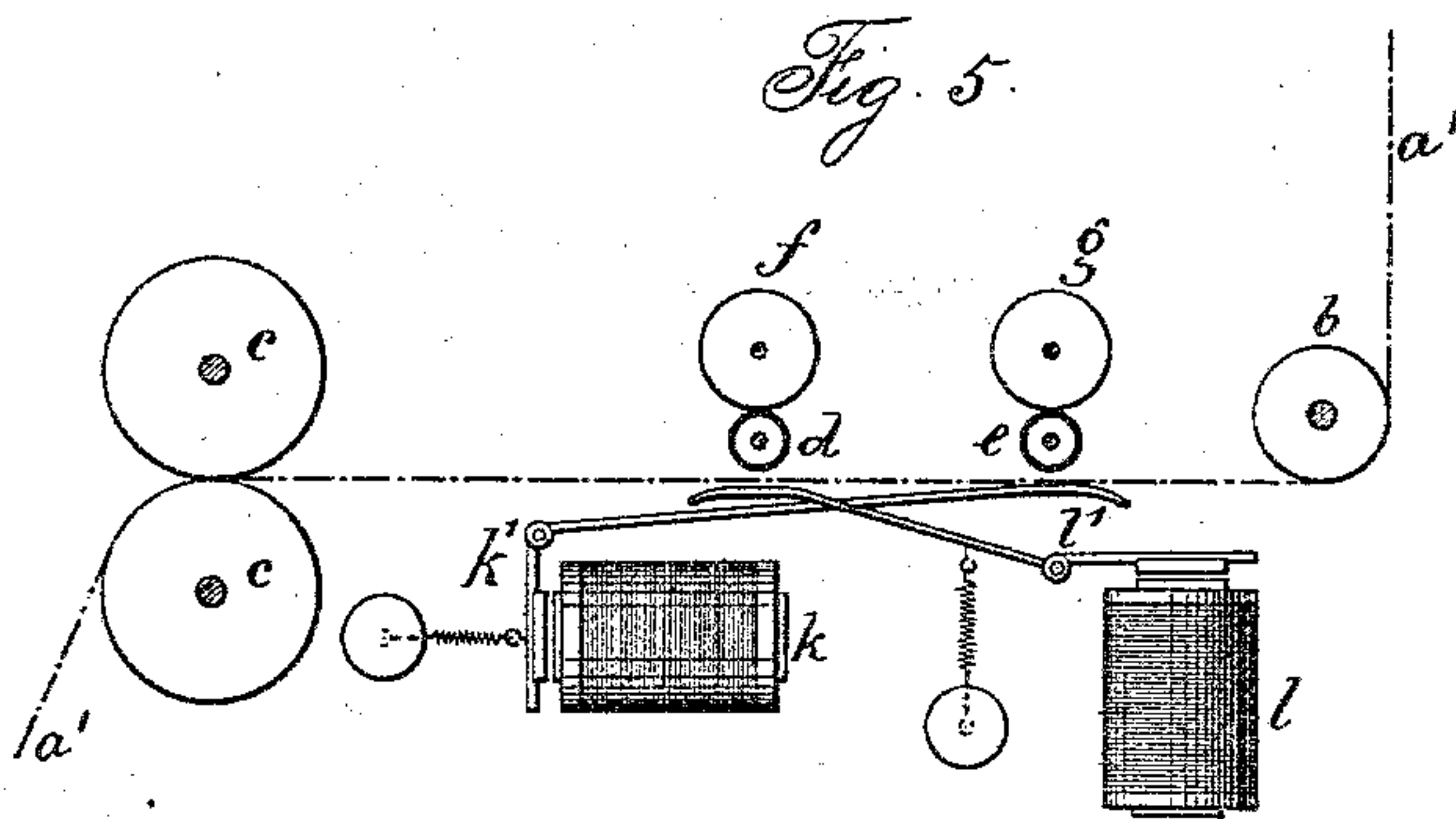
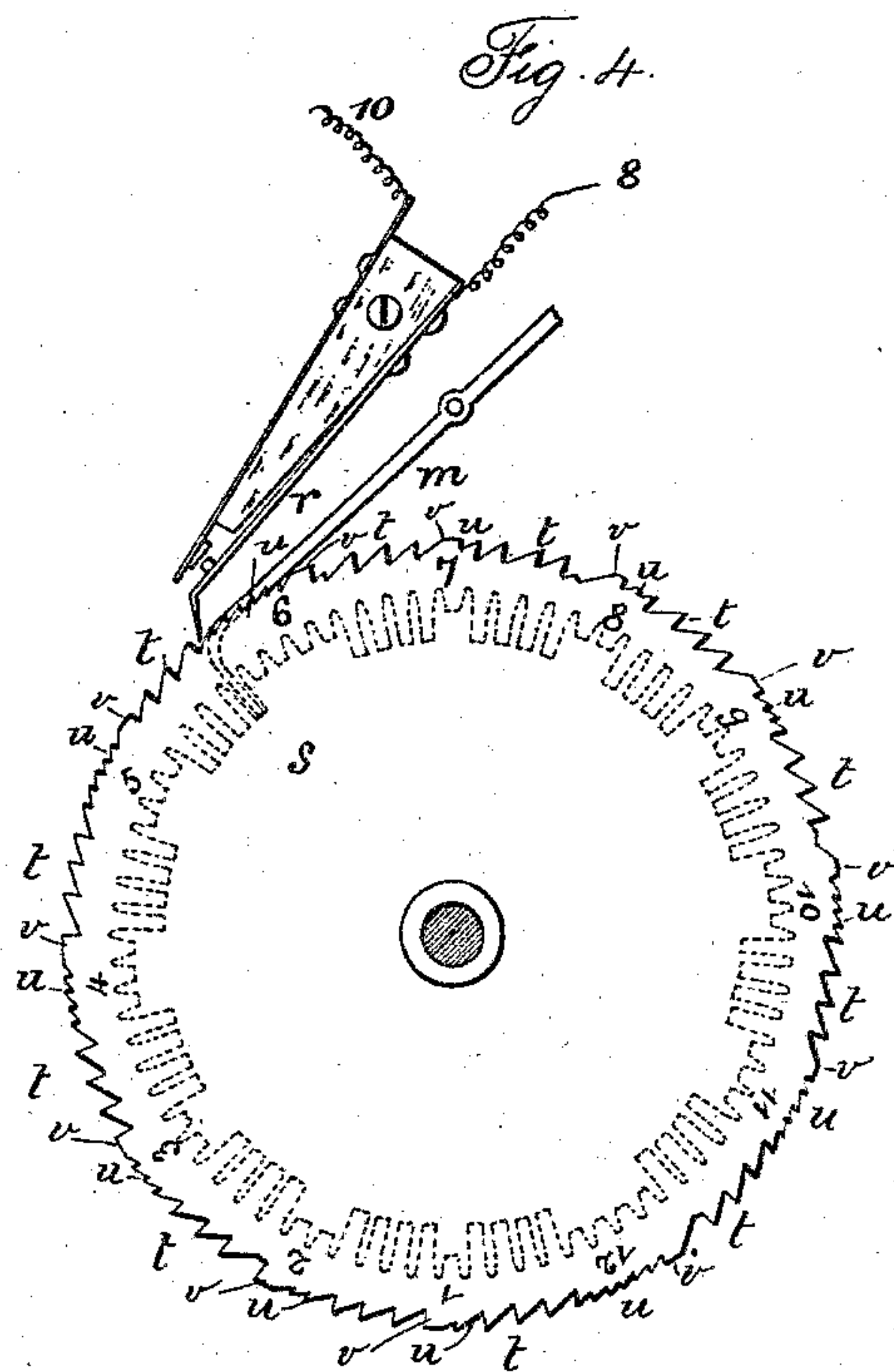
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UNITED STATES PATENT OFFICE.

FREDERICK PEARCE, OF NEW YORK, N. Y.

DISTRICT, POLICE, OR FIRE TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 288,107, dated November 6, 1883.

Application filed July 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK PEARCE, of the city and State of New York, have invented an Improvement in District-Police or Fire Telegraphs, of which the following is a specification.

My invention relates to a call-box, in which the particular box is indicated by pulsations sent over the line by an automatic circuit-breaker, and denoting the number or letter of the box, in combination with circuit-connections and a finger-key and sounder, by which a message can be sent and an answer received at the call-box while the automatic circuit-breaker is held in a fixed position, and when the same is relieved it indicates at the central station the letter or number of the call-box. At the central station I employ a strip of paper and ink-markers or embossers, and magnets brought into action by the incoming current, and I combine with the recording instrument a second marker and a connection to a clock, by means of which the time is marked upon the paper automatically and periodically in one or more lines, thereby indicating unerringly the time when the call comes in from the distant call-box. This is of great importance, as it defines the time when an alarm of fire may be turned in, or when an ambulance or a police-call may reach the central station.

In the drawings, Figure 1 is a general diagram indicating the circuit-connections. Fig. 2 is a section of the call-box, with the automatic circuit devices uncovered. Fig. 3 is the circuit-breaker detached. Fig. 4 represents the contact-maker in the clock. Fig. 5 shows the registering device, and Fig. 6 is a plan of the paper with the ink-marking disks.

In Fig. 1, C B represents the call-box; B, the battery; C, the clock at the central station. B' is the call-bell at the central station; K, the key; R, the relay; L, the line, and G the return-wire or ground. I R is the ink-register at the central station. The ink or embossing register I R is of ordinary construction. It contains a reel for paper, *a*, and the paper passes beneath the roller *b*, and it is drawn along by the rollers *c*. There are two ink-marking disks, *d* and *e*, running in contact with elastic inking-rollers *f g*, and there are two magnets, *k l*, in the base of the instrument. The lever-armature *k'* presses the paper up against the disk *e* when the magnet *k* is ener-

gized, and the armature-lever *l'* of the magnet *l* presses the paper up against the ink-disk *d* when the magnet *l* is energized. The magnet *l* is for printing the messages coming in from the distant call-boxes by the disk *d*, and the magnet *k* is for printing the time, both being printed on the strip of paper *a'*. It is to be understood that when a signal is turned in from any distant station or call-box the pulsations from the main battery pass over the line L, through the key K and relay R, and return by line G or ground. The relay R closes the circuit through the local circuit by wires 1 3, through magnet *l*, and by wires 4, 5, 6, and 7, through local battery L B, and by wires 8 and 9 back to the relay R. Within the clock there is a circuit-closer, hereinafter described, which periodically closes a circuit between the wire 8 and the wire 10, in which case the current of the local battery either passes by the wire 10 through the magnet *k*, and by wires 6 and 7 to local battery, or else it divides, part passing by the wire 10, as last named, and another part going through the front stop of the relay when that is energized, and by wires 1 3 4 5 6 7 to local battery, and the current will also divide at the bell, a portion going from one through the helix 2, and by wire 1 2 to 4, 5, 6, and 7. Thus there are three routes and a helix in each, and the local battery will supply the current to all three at once, the helices *k l 2* being of nearly uniform resistance.

I will now describe the circuit-closing device in the clock.

The clock itself is of any desired character, and in Fig. 4 the peculiar wheel employed by me is represented. In the ordinary striking apparatus of a clock there is a count-wheel with shallow and deep notches, and a lever, *m*, with a flat end at right angles to the lever, which is raised at each blow of the striking apparatus, and then it drops. If a deep notch in the strike-wheel presents itself, the lever drops far enough to stop the striking apparatus. If a shallow notch presents itself in the strike-wheel the lever does not descend far enough to stop the striking, and the mechanism runs on to the next blow of the hammer.

My improvement is applied with the lever *m* and count-wheel of the clock. I prefer to use a count-wheel that will strike at the quarter-hours. Such a count-wheel is shown by

dotted lines in Fig. 4. It is, however, to be understood that in the clock there should not be any bell or hammer, as the strokes would be confusing when the bell B' was being struck.

5 It is apparent that the simple addition of a greater number of teeth upon the count-wheel will cause the mechanism to strike more frequently than at the quarter-hours. If as many impressions were made upon the paper by the
10 roller *e* as the hours struck in succession, too much paper *a'* would be wasted, and the time-marks would take up too much space. I therefore arrange to give one impression each quarter-hour, and one dot for one o'clock, two dots
15 for two o'clock, three for three o'clock, and so on to six o'clock. A dash and then a dot now stand for seven, a dash and two dots for eight, a dash and three dots for nine, and so on, and a dash and six dots for twelve.

20 Upon inspection of Fig. 4 it will be seen that the end of the circuit-closing spring *r* is above the edge of the notched wheel *s*, and as the teeth come around in succession by the ordinary striking movement of the clock, the circuit between 8 and 10 is closed by *r*. The
25 numbers around within the wheel indicate the portions allotted to giving the signals of the hours, and around the edges of the wheel *s* the groups of teeth marked *t* close the circuit to mark the quarter-hours, the teeth at *u* close the circuit to make the number-marks for the
30 hours by the dots from 1 to 6, and the long teeth *v* keep the circuit closed to indicate the dash to denote six, as aforesaid. A dash made
35 after the dots is to be understood as without meaning; but when the dash comes before the dots it is to indicate six.

At the call-box C B the line L passes in by the wire L, to binding-post 21, through wire
40 22, and a spring-switch, 23 24, (seen in Fig. 3;) thence by 25 to train of gearing, through notched signal-wheel 26, insulated circuit-spring 27, and by wire 28 through helix 29 of call-bell *w*, and out by 30 to line, and so on
45 through as many call-boxes as there are in circuit. The call-box thus far named is well known, and I remark that the signal-wheel 26 is notched to send in a certain known number or signal to denote what box the call comes
50 from.

The handle 32 is to be turned to wind-up the spring that moves the signal-wheel when the handle is let go. This is also usual; but I put
55 upon the arbor of the handle the switch-opener 33, so that when the handle 32 is turned to bring the signal-wheel into position ready for action, the end of the switch-opener 33 presses against the spring 24, and raises the same, breaking circuit with 23. At this time the
60 key *x*, in the signal-box C B, can be operated to send Morse or other characters to the central station, and call for assistance, an ambulance, re-enforcements, or any other pre-arranged or needed call. In this instance the
65 current passes from 21, by wire 40, to key *x*, and from key to the base of the instrument, and through gearing signal-wheel 26, spring

27, wire 28, helix 29, and wire 30 to line or ground, and the helix 29, being in the circuit of the key *x*, the sender is able to know
70 whether or not his signals are being sent, and an answer can be sent by the key K at the central station and received on the bell *w*. As soon as the handle 32 is released the mechanism turns the signal-wheel 26, and denotes the
75 number of the call-box to the central station. By this arrangement communication both ways is provided for, but a message can only be sent by the key *x* while the handle 32 is held down, and the number of the call-box is sent
80 in when the handle is relieved, thus preventing the possibility of oversight under the most perplexing circumstances.

I claim as my invention—

1. The combination, in a signal call-box, of
85 a signal-wheel and its actuating mechanism, with a circuit-switch, 23 24, the switch-opener 33, acting upon the switch 24, and receiving its motion from the handle of the signal-wheel, and a key, *x*, in a shunt circuit around the switch
90 23 24, substantially as set forth, whereby the key *x* can be operated by hand to signal the central station, while the handle 32 is drawn down and the switch opened at 24, substantially
95 as set forth.

2. The combination, in a fire or district telegraph system, of a line circuit and battery, a call and key at the central station, and at the distant station a signal-wheel and its actuating mechanism, and a call-bell and a key,
100 to be operated by hand, and a circuit-opener and circuits, as set forth, for connecting the key in the main line when the handle that actuates the signal-wheel is held down, substantially as set forth.
105

3. The combination, in a fire or district telegraph system, of a call-box and its signal-wheel at the distant station, and at the central station an ink-register, with a disk and impression-pad, and a magnet for operating the
110 same in a local circuit, and a relay in the main circuit, and a second ink-register disk, a magnet, and pressure-pad, for pressing the paper on such disk, a clock-movement, and a circuit-closer, to bring into action periodically a set
115 of signals that denote the time of day or night on the same strip of paper as of the signals sent in from the call-boxes, substantially as set forth.

4. The combination, with a clock-movement containing a count-wheel similar to the count-wheel of the ordinary striking mechanism, of a wheel adapted to be moved around progressively with such count-wheel, and a spring circuit-closer, acted upon by the teeth
120 in the periphery of the latter wheel, substantially as set forth.
125

Signed by me this 23d day of June, A. D. 1883.

FREDK. PEARCE.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.