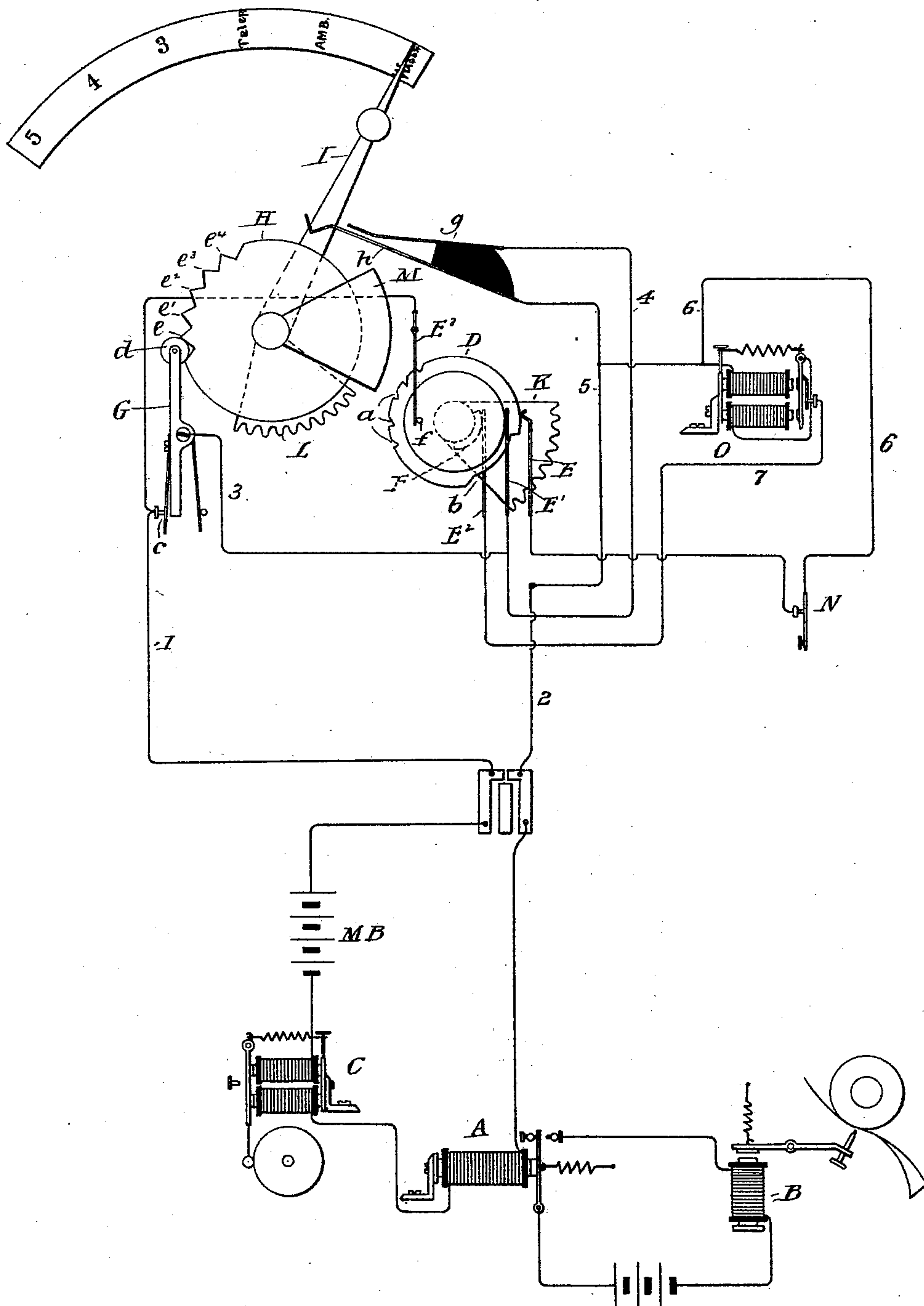


(No Model.)

W. H. KIRNAN.
POLICE SIGNALING APPARATUS.

No. 500,285.

Patented June 27, 1893.



Witnesses
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POLICE SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 500,285, dated June 27, 1893.

Application filed December 28, 1892. Serial No. 456,558. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. KIRNAN, a citizen of the United States, residing at Bayonne, county of Hudson, and State of New Jersey, have invented a certain new and useful Improvement in Police Signaling Apparatus, (Case G,) of which the following is a specification.

The object I have in view is to produce means for distinguishing audibly between emergency or want calls and report signals, at the same time that all calls and signals will be audibly indicated.

In carrying out my invention, I provide at the receiving station a single stroke or tap-bell, which responds to all signal impulses and strikes not only the number of the box but also the special signal numbers. At each transmitting box there is located a vibrator, which has no effect upon the circuit except when an emergency or want call is sent in, when, by the adjustment of the box, this vibrator is brought into circuit during a portion of the time that the box is running, and while in circuit it makes and breaks the circuit with rapidity and causes the bell at the receiving station to ring with a continuous sound, which is readily distinguishable from the single strokes which it makes for other signals.

In the accompanying drawing, forming a part hereof, the figure illustrates, partly in diagram, an apparatus embodying my invention.

A is the main line relay, controlling the register B. At the receiving office is also located the single stroke or tap-bell C, the magnet of which is preferably located directly in the main circuit.

M B represent the main battery.

The signal box is represented as being of a type now commonly employed. This box has a main circuit wheel D, operated by a spring train and provided with notches *a* in its periphery, which, acting in conjunction with the spring E, serve to transmit the box number. A spring E', bearing upon a solid and unbroken portion of the wheel D, maintains connection at all times with that wheel. The periphery of the wheel D is provided

with a long break *b* on the side of the wheel opposite to the box signal notches.

On the same shaft with the wheel D is a sector F, shown in dotted lines, upon which bears a spring E², said spring maintaining contact with said sector during the interval that the point of the spring E is passing over the long break *b*.

The service circuit-breaker is composed of a pivoted lever G and contact point *c*. This pivoted lever has a roller *d* at its upper end, which engages with teeth *e, e', e², e³, e⁴* of a wheel H, adjusted by means of a pointer I to any one of six special signals, as indicated. The main line 1 extends to the contact point *c* of this service circuit breaker, and from the pivot of the lever G a wire 3 extends to the spring E', which makes constant connection with the box number wheel D.

In order to prevent the main line from being broken by the adjustment of the pointer I when the box is at rest, a spring E³ rests at such times against a pin *f* on the wheel D. The effect of the contact between the spring E³ and pin *f* is to shunt the points of the special service circuit-breaker while the box is at rest, but when the box is pulled, the starting of the wheel D at once separates the spring E³ and pin *f*. A toothed sector K, carried by the same shaft which carries the wheel D, engages with a toothed sector L on the same shaft with the wheel H and pointer I, so that if the pointer is adjusted to any other than the wagon call, the revolution of the wheel D will cause the sector E to engage with the sector L and turn the wheel H back to its initial position, causing the roller *d* to ride over one or more of the teeth *e, e', e², e³, e⁴*, and open and close the main circuit at the contact *c* a number of times corresponding to the number of teeth over which the roller *d* rides. The wheel H also carries a sector M of insulating material, which, when the pointer I is adjusted to the left to any one of the three report calls, will close the springs *g, h* together. The spring *g* is connected by a wire 4 with the spring E', while the spring *h* is connected by a wire 5 with the main line wire 2. The spring E is connected by a wire 6 to the wire 5, and through that wire to the main

line wire 2. A circuit-breaking key N is located in the wire 6, for a purpose which will be presently explained.

Between the spring E² and the wire 5 is a wire 7, in which is located a vibrator O.

In the normal position of the box, the circuit will be as follows: from wire 2 to wire 5, through wire 6 and key N to spring E, then through wheel D to spring E', through wire 3 to special service circuit-breaker G c, and to the other main line wire 1.

When the box is adjusted to the position shown in the figure and is pulled while in that position, the special service circuit-breaker will not be operated, but the signal will be sent in from the wheel D. In the first part of the movement of this wheel, the spring E will reach the long notch *b* and its end will rest in air while that notch is passing beneath it. When the box is in this position, the circuit will be as follows:—from line 2 to wire 5, wire 7, including vibrator O, to spring E², through sector F, wheel D, spring E', wire 3, to special service circuit-breaker G c and back to the other wire 1 of the main circuit. So long as this condition prevails, and while the point of the spring E is passing over the long break *b*, the vibrator O will operate to make and break the circuit with great rapidity, starting the register and causing the bell C to strike rapidly and produce a continuous ringing sound. The record which the vibrator will produce upon the register will be a series of very short dots or a continuous line, according to the adjustment. After the break *b* has passed from under the point of the spring E and said spring again rests on the solid periphery of the wheel, the vibrator O will be stopped, because it will then be shunted, and the wheel D will continue to turn until the spring E passes over the notches *a*, which send in the box number. The vibrator, however, does not sound when these box number breaks are made, because before those notches reach the point of the spring E, the spring E² leaves the sector F and opens the shunt in which the vibrator is located. During the transmission of the impulses from the box number notches *a*, the bell C will respond by single strokes corresponding to the number of impulses constituting the box number. If the pointer I is adjusted to any one of the other emergency signals, viz., telephone or ambulance, the same operation will take place, except that, in addition to the signal impulses before transmitted, after the long break *b* has passed under the point of the spring E and the vibrator has acted, and after the spring E² leaves the sector F and opens the shunt in which the vibrator is located, the toothed sector K will strike the toothed sector L and turn the pointer to its initial position, and in doing so will send in either one or two breaks at the service circuit-breaker, according to whether the pointer I is adjusted to "Ambulance" or "Telephone." When, however, the pointer I is still farther adjusted to the left, so as to

point to one of the three "Report" calls, numbered 3, 4 and 5 on the drawing, then the sector M will close the springs *g*, *h*, connecting the wires 4 and 5, and thus shunting the long break *b* during the time that it passes under the point of the spring E, so that the vibrator will not be brought into operation in the transmission of any one of these three report calls. But with these as with all other signals the bell at the central station will respond to the box number as well as to the impulses constituting the special signal when such are transmitted.

The key N at the box may be used to throw the vibrator into action without pulling the box, and this, if desired, may be used as a telephone call. The effect of opening the wire 6 by the key N without pulling the box is to open the shunt around the vibrator and to throw the vibrator directly into the line.

It is evident that the invention may be employed in connection with other forms of signal-box, the form illustrated being, however, that which is now commonly in use.

What I claim as my invention is—

1. In a police signaling apparatus, the combination with a single circuit of an alarm bell at the receiving station which is responsive to all signal impulses transmitted, and a multiple signal-box provided with means for transmitting a vibrating current and adapted to be adjusted so that such vibrating current will be automatically transmitted with some signals and not with others, substantially as set forth.

2. In police signaling apparatus, the combination with a single circuit, of a register and alarm bell at the receiving station, both responsive to all signals transmitted, and a multiple signal-box at each transmitting station, provided with means for transmitting a vibrating current and adapted to be adjusted so that such vibrating current will be automatically transmitted with some signals and not with others, substantially as set forth.

3. In a police signaling apparatus, the combination with a bell at the receiving station responsive to all signals, of a signal transmitting box, a vibrator at such box which is brought into circuit during a portion of the operation of the box, and a circuit-controller shunting such vibrator, which circuit-controller is closed when the box is adjusted for some special signals, substantially as set forth.

4. In a police signaling apparatus, the combination with an alarm bell at the receiving station responsive to all signals, of a signal-transmitting box provided with a circuit-breaker, a circuit-making and breaking vibrator at such box shunted by said circuit-breaker and brought into the main circuit when such main circuit is opened at the circuit-breaker, for transmitting a vibrating current, and means for closing the vibrator shunt during a portion of the operation of the box, substantially as set forth.

5. In a police signaling apparatus, the com-

5 bination with an alarm bell at the receiving
station responsive to all signals, of a signal-
box provided with a circuit-breaker having
the usual signal breaks and also an addi-
tional long break, a vibrator located in a
shunt around the circuit-breaking spring, and
means for keeping the vibrator shunt closed
while the circuit-breaking spring is passing
over said long break, whereby the vibrator
10 will transmit a vibratory current during this
interval in the operation of the box, substan-
tially as set forth.

15 6. In a police signaling apparatus, the com-
bination with an alarm bell at the receiving
station responsive to all signals, of a signal-

box having a circuit-breaker provided with
an additional long break, a vibrator in a shunt
around the circuit-breaker, a sector for main-
taining the vibrator shunt during this long
break, and a circuit-controller shunting the 20
said vibrator and break when the box is ad-
justed for some special signals, substantially
as set forth.

This specification signed and witnessed this
20th day of December, 1892.

WILLIAM H. KIRNAN.

Witnesses:

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