

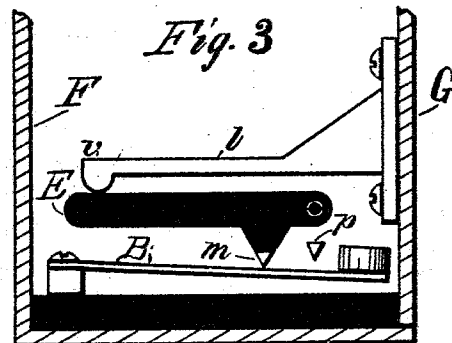
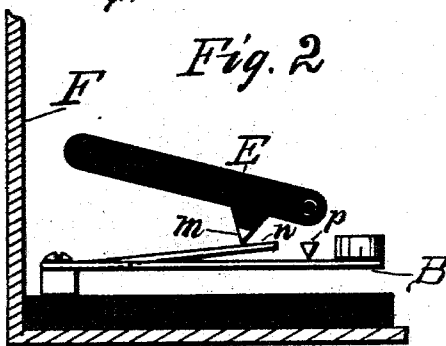
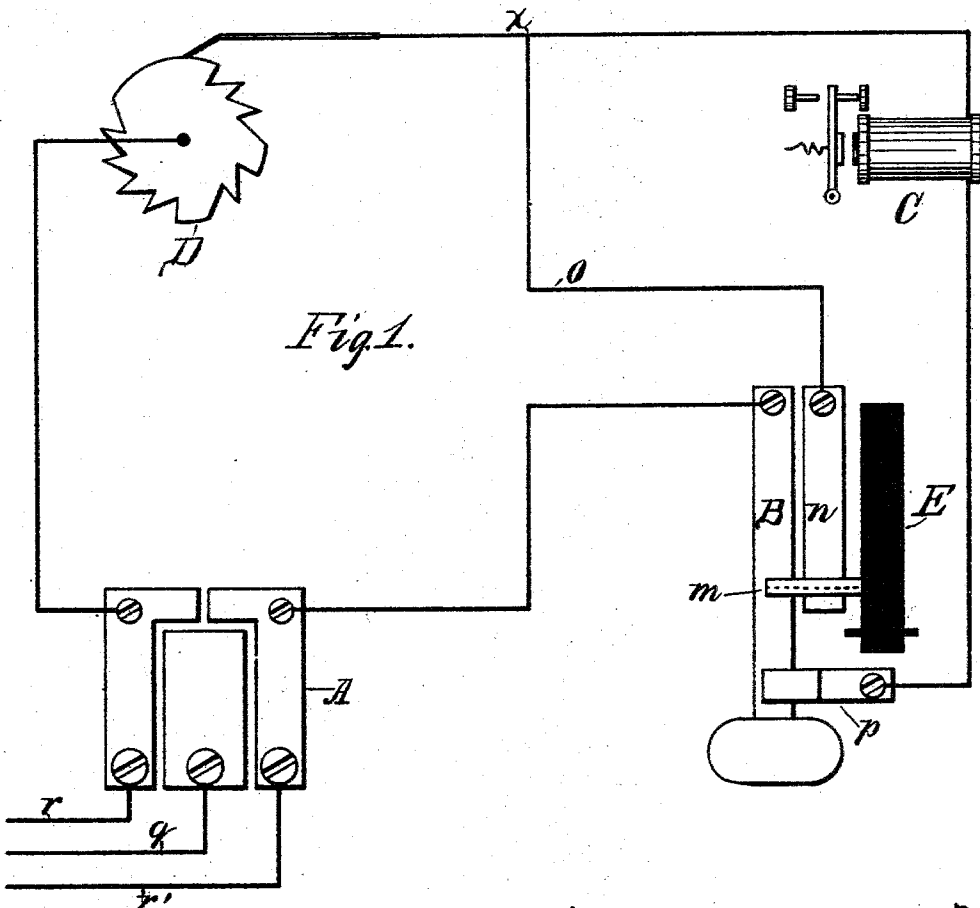
(No Model.)

J. F. MEHREN.

AUTOMATIC OUT-OUT FOR ELECTRIC SIGNALING BOXES.

No. 494,786.

Patented Apr. 4, 1893.



Witnesses:

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AUTOMATIC CUT-OUT FOR ELECTRIC SIGNALING-BOXES.

SPECIFICATION forming part of Letters Patent No. 494,786, dated April 4, 1893.

Application filed January 8, 1892. Serial No. 417,417. (No model.)

To all whom it may concern:

Be it known that I, JACOB F. MEHREN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Automatic Cut-Outs for Electric Signaling-Boxes, of which the following is a specification.

My invention relates to an improvement which I have designed for use, principally, with fire-alarm and police-alarm boxes; though it is readily adaptable for use in other connections, and I do not, therefore, wish to be understood as limiting it to the fire-alarm box connection in which, for convenience, it is hereinafter described and illustrated in the drawings.

In addition to the automatic signaling device, a box of the kind referred to is provided with a telegraphic or telephonic apparatus, which it is found desirable, when not in use, to maintain cut out of the circuit to protect it against injury by burning from abnormal currents, as lightning, a common manner of so cutting out such apparatus, after use, and also of cutting it in, for use, being to do so automatically by closing, in the one instance and opening, in the other instance, the door of the box.

The objects of my improvement are to provide a construction of automatic cut-out which, though dependent for operation on the closing and opening of the door of the box, is not dependent for reliability of operation on the door being secured in closed position against it; by causing the automatic cut-out first to shunt the desired portion of the circuit and then to open the branch including that portion; and to provide a generally improved construction of automatic cut-out for electric signaling-boxes.

My improvement is illustrated in the accompanying drawings, in which—

Figure 1 represents, by way of a diagram, apparatus generally employed in a fire-alarm box, but improved in accordance with my invention. Fig. 2 is a broken view showing a portion of the box, without the door and with the key and cut-out lever, in side elevation, mounted in position on a base. Fig. 3 is a

view like that presented in Fig. 2, but with the door of the box in its closed position.

The lines r and r' represent the main-line wires, and g denotes the ground-line wire. The line r' is connected to one side of a lightning-arrester A, whence the circuit leads to a key-lever B, through an upper contact-stop p of the key to the relay C; thence through a signal-wheel D to the other side of the arrester A and to the main-line r . A branch-wire o connects the main-circuit at a point x between the signal-wheel and relay, and leads to a spring n adjacent to the key B.

E is the cut-out lever of insulating material, pivoted near one end and carrying toward its opposite end a contact-bar m , preferably of the V-shape illustrated, which rests on and is supported by the spring n , the latter extending normally to a higher plane than the lever B, and thus tending to maintain the bar m out of contact with the key, as represented in Fig. 2.

The mechanism described is contained in a box F, or other suitable form of case, provided with a door G, which carries on its inner side an arm l extending lengthwise over the lever E when the door is closed. Closing the door G causes the bearing-end v of the arm l to depress the lever E against the resistance of the spring n until the latter is lowered to the plane of the key-lever B, when the bar m comes into contact also with the key-lever, and continued depression of the lever E thenceforward depresses both the spring and key-lever, thereby separating the latter from the contact-stop p . Thus, as will be seen, when the cut-out lever E, which, as will be understood, is in the nature of a switch, is brought to and held, by closing the door, in the position illustrated in Fig. 3, the contact p and relay C are cut practically "dead" from the circuit, (though to insure absolute cutting out of the same there should be a separation, as will be understood by those skilled in the art, in the main circuit, say near the point x) and that the branch-wire o , through the spring n and contact-bar m to the key-lever B complete the circuit, including only, besides the arrester A, the signal-wheel D, which, as is usual in devices of the class to which my im-

provement relates, may be operated in the ordinary manner, through the medium of a train of clock-gear (not shown). The branch from *x*, including the apparatus involving the key B and relay C desired to be cut out, being thus cut dead from the main circuit, no currents, abnormal or otherwise, can pass through and destroy such apparatus. When, however, the door G is opened and the arm *l* is thereby withdrawn, the cut-out lever E will be raised by the resilient action of the spring *n* to the position represented in Fig. 2; and the entire apparatus will, obviously, be cut into the circuit. It will be apparent that the shunt-lever E exerts against the door no pressure in a direction which would tend to open it, but, on the contrary, the pressure exerted against the arm *l* is in an upward direction and would tend, rather, to bind or hold the door in closed position.

An advantage incidental to my peculiar construction consists in the sliding contact made between the bar *m*, spring *n* and key-lever E, whereby the contact-surfaces are abraded by the operation of contact-making and thus kept clean, insuring safe connection.

My improvement admits of various modifications as to details, which would readily suggest themselves to those skilled in the art to which my invention relates; and I do not, therefore, wish to be understood as limiting my improvement to the particular details shown and described.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a box having a door,

automatic signaling apparatus, and a key, for manual signaling, in the circuit thereof, and a cut-out or switch, operated automatically by closing and opening the door to separate the key-contacts and to switch the circuit, substantially as described.

2. In combination with a box having a door, automatic electric signaling apparatus, a key for manual signaling and a relay in the circuit thereof, and a cut-out or switch operated automatically by closing and opening the door to separate the key-contacts and thereby cut out the relay and to switch the circuit, substantially as described.

3. In combination with a box having a door and containing an electric signaling device D permanently in the main circuit, a relay C in said circuit, a key B, a branch-circuit containing a spring *n*, and a lever E having a contact-bar *m* extending transversely across the said spring and key and actuated by closing the said door to depress the lever and successively shunt the relay and cut it "dead" out of the main circuit, substantially as described.

4. In combination with an electric signaling-box having a door G and an arrester A, a signal-device, a key B, a contact-stop *p* and a relay C normally in the main circuit, of a spring *n* in a branch-circuit *o*, a lever E having a contact *m* extending transversely across the spring and key, and an arm *g* on the door for operating the lever, substantially as described.

JACOB F. MEHREN.

In presence of—

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