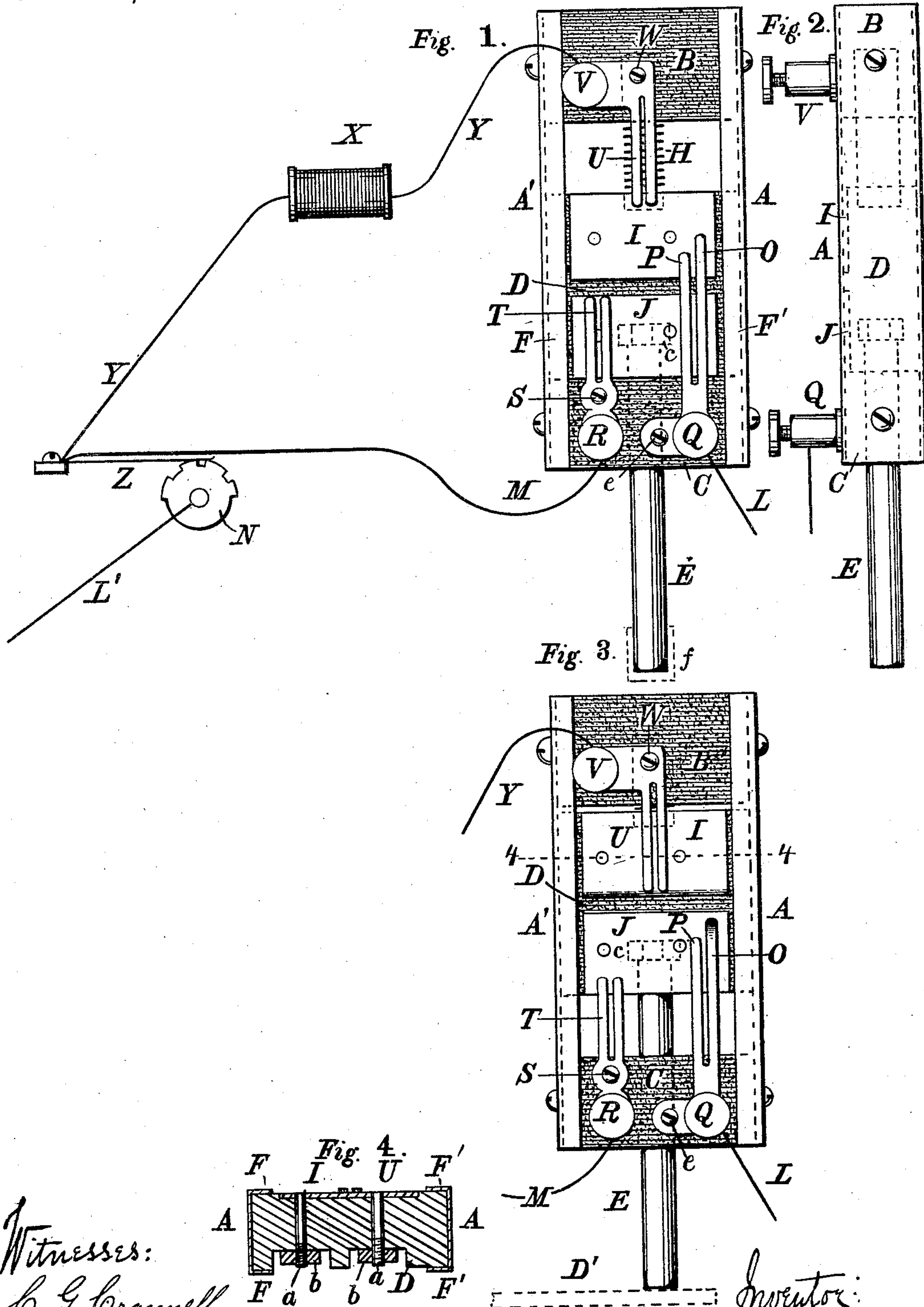


(No Model.)

L. W. MILLER.
CUT-OUT.

No. 507,150.

Patented Oct. 24, 1893.



Witnesses:
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UNITED STATES PATENT OFFICE.

LOUIS W. MILLER, OF ROCHESTER, NEW YORK.

CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 507,150, dated October 24, 1893.

Application filed July 29, 1893. Serial No. 481,884. (No model.)

To all whom it may concern:

Be it known that I, LOUIS W. MILLER, a citizen of the United States, residing at Rochester, in the county of Monroe, in the State of New York, have invented an Improved Cut-Out for Electric Signal-Boxes, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in the construction of cut-outs for electric-signal-boxes, designed more particularly for use in connection with fire-alarm or police-signal boxes, but capable of being used for other purposes.

My improvements are fully described and illustrated in the following specification and the accompanying drawings,—the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings representing my improved cut-out, figure 1 is a plan view, showing the connections with the mechanism of the box, when the door of the box is open. Fig. 2 is a side view. Fig. 3 is a plan view when the door is closed. Fig. 4 is a section on the line 4—4, Fig. 3.

My improved cut-out consists essentially of the ways A A', attached together at their ends by the blocks B and C, the sliding block D, made of insulating material and carrying the separate metallic plates I and J, which are insulated from each other by the block, the rod E arranged to be pushed in by the door when closed, and the electric connections. The ways A A' in which the block D slides are conveniently formed of sheet-metal, bent to the proper shape, and having flanges F F' projecting over the edges of the blocks B, C and D. The ways are attached at their ends to the opposite sides of the blocks B and C, in any suitable way. A spring, H, is provided between blocks B and D, which forces the block D constantly toward the block C. The ends of the spring are seated in suitable recesses in the blocks B and D.

L and L' represent the line wires, which lead to the central station, either directly or through other boxes.

N represents the brake-wheel of the signal box, the mechanism of which is of any ordinary or preferred construction for either fire or patrol boxes.

X represents a magnet in the circuit, which is used for ringing a bell or giving other signals.

When the door D' of the signal box is open, the spring H forces the block D toward the block C, as represented in Fig. 1, and the course of the current through the apparatus is as follows: from line wire L through binding post Q to the springs O and P, thence through plate I to springs U, to post V, and thence through wire Y, magnet X, and spring Z to the break-wheel N, the shaft of which is in electric connection with the line-wire L'. A lightning-arrester may be applied to the line-wires. When the door is closed, the rod E is forced inward,—the spring H being compressed, and the block D shifted, so that the course of the current is as follows: from line-wire L, through post Q and springs O and P, to plate J, and thence through spring T and post R to wire M, which connects with the spring Z and break-wheel N and thence to line-wire. It will be observed that, when the door is closed, the magnets X are cut out of the circuit, and also the telephone or any additional appliances which may be inserted on the wire Y. The break-wheel still remains in circuit, so that signals can come in from the box when the door D' is closed. It will thus be seen that in case a current of too great strength should reach the box, as from contact of a line-wire with an electric light or street-railway wire, the magnets, &c., cannot be injured,—since the spring Z can be made heavy enough to carry such current.

The block D is preferably made of porcelain, and the plates I and J are attached to it by the bolts a and nuts b located in a recess on one side of the block, as shown in Fig. 4. The rod E is secured in the block D by the nut c. The plates I and J are arranged on one side of the block D, with a transverse space between their inner edges. The springs O P and T are made of such a length that the former can contact with either of the plates I or J, while the latter contacts with J only. The blocks B and C may also be of porcelain, or the posts R, Q and V may be insulated by tubes and washers or in any preferred manner. The springs O and P are secured in place by a screw or bolt e,—these springs being of different lengths to bridge

the break between the plates I and J, so that the circuit will not open when the sliding block is shifting. As the springs O and P slide into contact with the plate I, the shunt circuit through Q, R, is broken, the plane of plate I being sufficiently higher than that of J to accomplish this by lifting the springs O, P out of contact with plate J. As the spring P is shorter than spring O, it will spring down into contact with plate J, while the spring O, is still elevated and in contact with plate I. The circuit between Q and R is therefore established before the circuit from Q to V is broken, so that the current circulates constantly without break when the block D is shifted. This arrangement is especially useful on those circuits in which a signal is given by breaking the circuit, as in fire-alarm systems, since by it I prevent the giving of a signal when the box is opened or closed. The difference in length between O and P is somewhat greater than the space between the edges of the plates I and J. The springs U and T are made double, in order to secure good contacts. They are secured in place by the screws S and W. The end of the rod E is also preferably provided with an insulator *f*, Fig. 1.

My improved cut-out is simple and durable, and not liable to get out of order, as I have demonstrated by a practical trial during a considerable period of time.

I claim—

1. The combination with the mechanism of an electric signal box, of the herein described cut-out, comprising the ways A A', connected at their ends by the insulating blocks B and C, the sliding block D, formed of insulating material and carrying the plates I and J arranged transversely on one side of the block with an interval between their inner edges, the spring U attached to one end-block and projecting inward between the ways, two springs of different lengths attached to the other-end block and projecting inward between the ways, one of said springs being adapted to contact with either of the plates I or J, while the other contacts with J only, and suitable electric connections, substantially as described.

2. The combination, in a cut-out for an electric-signal-box, of the ways A A', the sliding block D made of insulating material and provided with plates I and J, two contact-springs of different lengths arranged at one end of the movement of the block, one of these springs having portions O P of different lengths, and a third contact spring located at the opposite end of said movement, substantially as described.

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Witnesses:

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