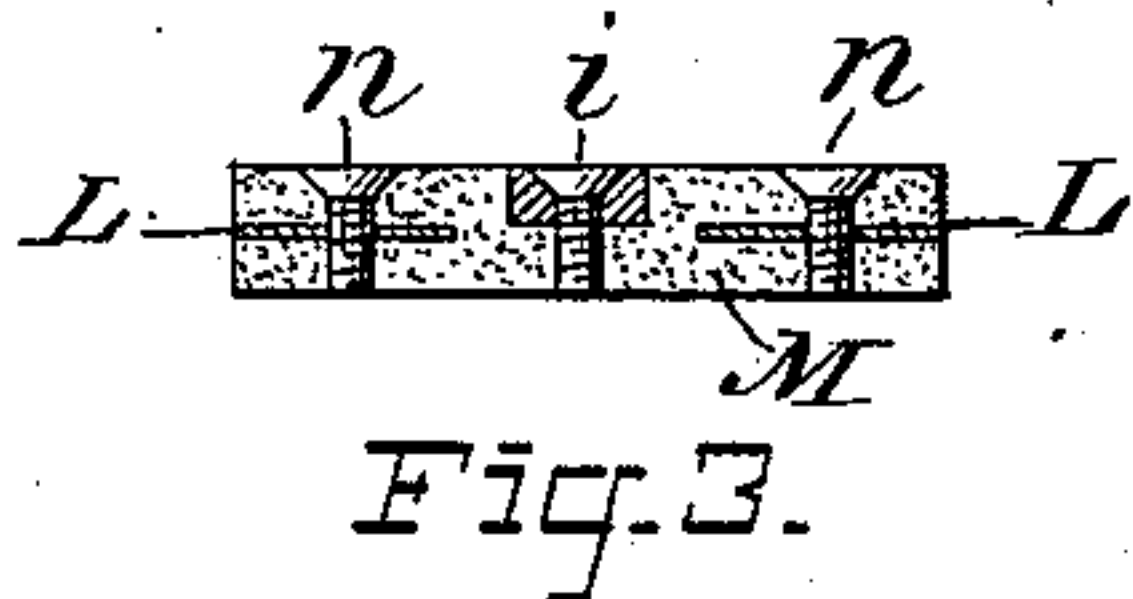
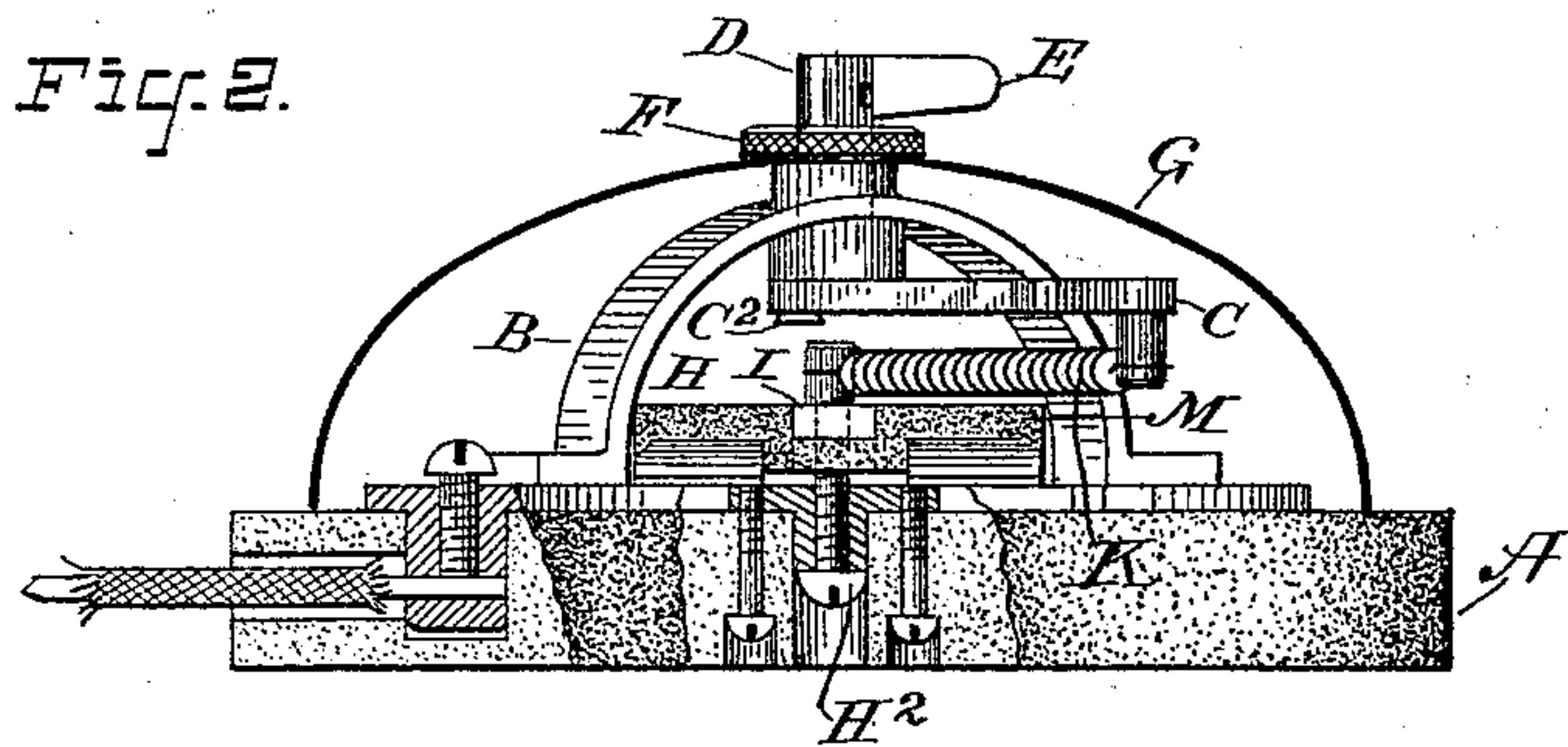
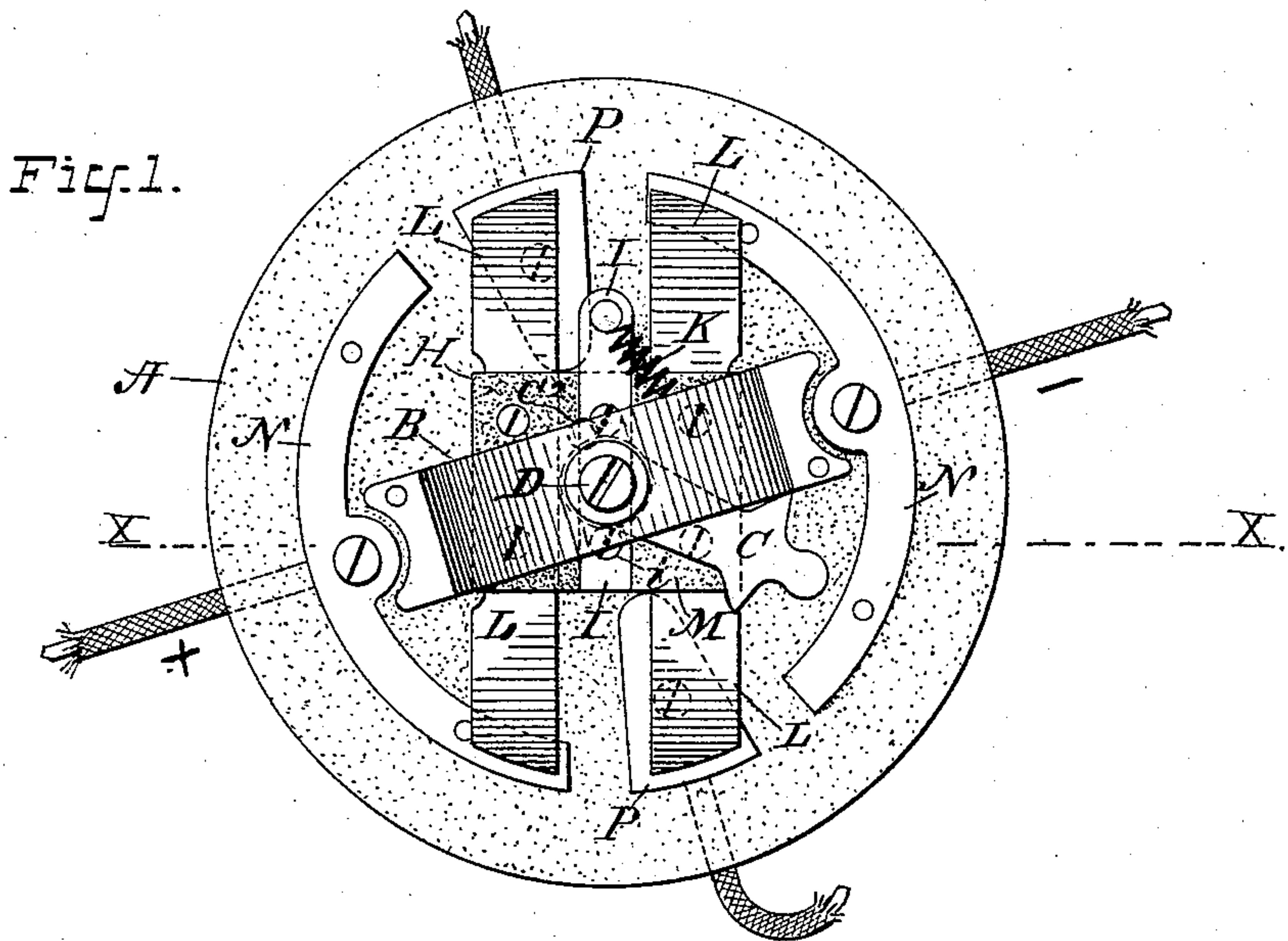


(No Model.)

W. HOCHHAUSEN.
ELECTRIC SNAP SWITCH.

No. 437,359.

Patented Sept. 30, 1890.



ATTEST:

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UNITED STATES PATENT OFFICE.

WILLIAM HOCHHAUSEN, OF BROOKLYN, N. Y.

ELECTRIC SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 437,359, dated September 30, 1890.

Application filed February 17, 1890. Serial No. 340,715. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOCHHAUSEN, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improved Snap-Switch, of which the following is a specification.

My invention relates to the construction of electric switches, and more particularly to the form of switch known as a "snap-switch," wherein a quick or sudden movement of the switch is brought about by the operation of a spring.

My invention relates also to details of construction adapting the switch to operate as a current-reversing switch or pole-changer.

The object of my invention is to produce a switch compact in form, reliable and durable in operation, and easy and cheap to construct; to which ends my invention consists in the features of construction and the combinations of parts hereinafter described in connection with the accompanying drawings, and then more particularly specified in the claims.

In the accompanying drawings, Figure 1 is a plan of a switch embodying my invention, the cover being removed. Fig. 2 is a side elevation of the mechanism, the cover being shown in vertical section and the parts broken away. Fig. 3 is a vertical cross-section through the switch-lever on the line X X, Fig. 1.

A indicates the base-plate on which the parts are supported, which base-plate is preferably made of slate or soapstone and has the various parts fastened to its upper surface by means of screws passing through from the bottom.

B indicates a supporting-frame or arch, preferably of iron or other cheap material of sufficient strength, which is fastened upon the base-plate as shown by screws passing through from the back and serves as a support for the actuating-lever C of the switch. The lever C is supported or carried by a rock-shaft or spindle D, which passes through a bearing in the top of the frame B, as indicated, and upon the outside of the case is furnished with an operating-handle E, fixed in a slit in the top of the spindle. The bearing for the spindle consists of a boss or pro-

jection extending upwardly and downwardly from the horizontal portion of the frame B, said boss on its outer part being formed with a screw-thread to receive a nut F, which serves to hold the cover G down in place. The actuating-lever C is prevented from dropping down upon the mechanism by means of a screw C², the head of which engages with the back side of the lever C at its pivotal point.

H indicates the switch-lever, and H² the pivot fastened upon the slate or soapstone base, as indicated, by means of screws fastened into a plate, from which the pivot projects upwardly. The switch-lever H is composed, essentially, of a bar I, of brass or other suitable material, into which the pivot H² projects, such bar I having mounted upon it the switch-springs or movable switch-contacts of the apparatus. The bar I and the actuating-lever C are connected by a stiff spiral spring K, as shown. When the actuating-lever C is moved from one side to the other, one end of the spring is carried around so that the line of strain will finally pass the pivotal point and will bring the power of the spring to bear in a direction to suddenly throw the switch from one position to the other. This action will take place on movement of the actuating-lever in both directions.

M is a block or plate of insulating material—hard rubber, vulcanite, or other suitable material—which is fastened to the bar I by screws, (indicated at *i*.) To this plate or block of insulating material M are secured the spring or springs L, forming the contact-springs of the device, and composed in the present instance of strips of stiff metal, which rest in slits extending inward from the top of the plate M and are fastened in place by means of screws *n*. The two ends of each spring incline downwardly toward the soapstone plate for engagement with the fixed contact blocks or plates N N P P. The longer plates N N are each engaged alternately at opposite ends by one of the springs L L, while the plates P are engaged first by one and then by the other of the two springs at the same end of such spindle. The contacts N N are connected with that portion of the circuit in which

the flow of current is designed to be always in the same direction, while the contacts P P are connected to that portion of the circuit in which the direction of the current is reversed by the operation of the switch. In the position of the parts shown the circuit, from, say, the left-hand contact N will be by way of one of the springs L through the circuit connected to the contacts P in one direction and out by way of the other spring L and opposite plate N, while on throwing the switch to the opposite position the direction of the current in the local circuit connected to P P will be reversed, because the contact N, at which the current enters, will now be connected by one of the springs L to that one of the contacts P at which the current left the local circuit in the position of the parts previously considered. Suitable connection with the contact blocks or plates P P N N is made through holes O, extending inwardly from the edge of the soapstone disk to projections which extend downwardly into the disk from the plates P P N N and are perforated to receive the ends of the wires. Binding-screws R on the top of the contact-blocks extend downward into the block for fastening the wires in place.

What I claim as my invention is—

1. In a snap-switch, the combination, substantially as described, of the insulating-base, the frame B, secured thereto, a vertical spindle or rock-shaft mounted and supported in the frame, the switch-actuating lever C, fastened to said spindle beneath the frame, the actuating-handle secured to the spindle above the frame, the switch-lever H, mounted on the base beneath the frame and actuating-lever and carrying contact spring-plates mounted on a block of insulating material forming a part of or carried by the switch-lever, co-operating contact terminals in the base, and a spiral spring connecting the switch-lever to the actuating-lever, as and for the purpose described.

2. The combination, in an electric switch, of the arch-shaped piece B, fastened to the soapstone base, an actuating-lever C, carried on a vertical spindle which is mounted in a boss formed on said frame, an actuating-handle P, a pivoted bar I, pivoted on a stud extending upward from the soapstone base and having fastened to it a block of insulating material, a spring connecting bars I and C, a spring or springs L, fastened to such block of insulating material and having their free ends bent downwardly, and switch-contact plates or blocks secured to the face of the soapstone disk and adapted to be engaged by the bent-down ends of such springs.

3. In a pole-changing snap-switch, the combination, substantially as described, of an actuating-lever C, pivoted on and carried by a frame fastened over an insulating-base, a switch-lever pivoted on such base beneath the frame and actuating-lever and connected to

the actuating-lever by a spiral spring, two contact-springs carried by the switch-lever, and two sets of contact-plates N N P P, with which the ends of said springs engage in the manner described to reverse the circuits or connections.

4. The combination, substantially as described, of the soapstone base, the frame mounted thereon, an actuating-lever carried by a rock-shaft or spindle mounted vertically in said frame, the bar I, pivoted on the base, the spring connecting the bar and actuating-lever, the block of insulating material fastened to the bar and carrying two plate-springs L, having their contact ends bent downwardly, and two sets of contact-plates P P N N, fastened upon the top of the base, said plates N N being arranged as described, so as to be each engaged alternately by opposite ends of the same spring L, while the contacts P P are placed in position to be engaged by one and then by the other spring L.

5. In a snap-switch, the combination, with the base having a supporting-frame B mounted on its parts, of an actuating-lever C, mounted in said frame and adapted to turn in a plane parallel to the base, a pivoted bar I, pivoted on a stud fastened to the base and extended inwardly therefrom, a spring connecting the bar and lever, a block of insulating material M, secured to such bar and having a slit in its side, and one or more springs L, fastened in said slit and adapted to engage with contact plates or blocks fastened on the surface of the base.

6. The combination, in a pole-changing switch, of a switch-lever H, consisting of a bar I, pivoted on a base and carrying a block of insulating material, two plate-springs L, fastened to such block and having their ends turned downwardly, and four contact-plates P P N N, fastened to the surface of the base and adapted to be engaged by the springs L L in the manner described to reverse the connections.

7. In a pole-changing switch, the combination, with the base A, of insulating material, of the four contact blocks or plates P P N N, having projections extending downwardly into the base for attachment of the connecting wires, sockets or openings O, extending inward from the edge of the base to permit the insertion of the wires for connection to the contact-plates, and a switch-lever pivoted on the base and having two contact-springs L L, adapted to engage with the fixed contacts in the manner described to reverse the electrical connections.

Signed at New York, in the county of New York and State of New York, this 13th day of February, A. D. 1890.

WILLIAM HOCHHAUSEN.

Witnesses:

WM. H. CAPEL,
THOS. F. COUREY.