

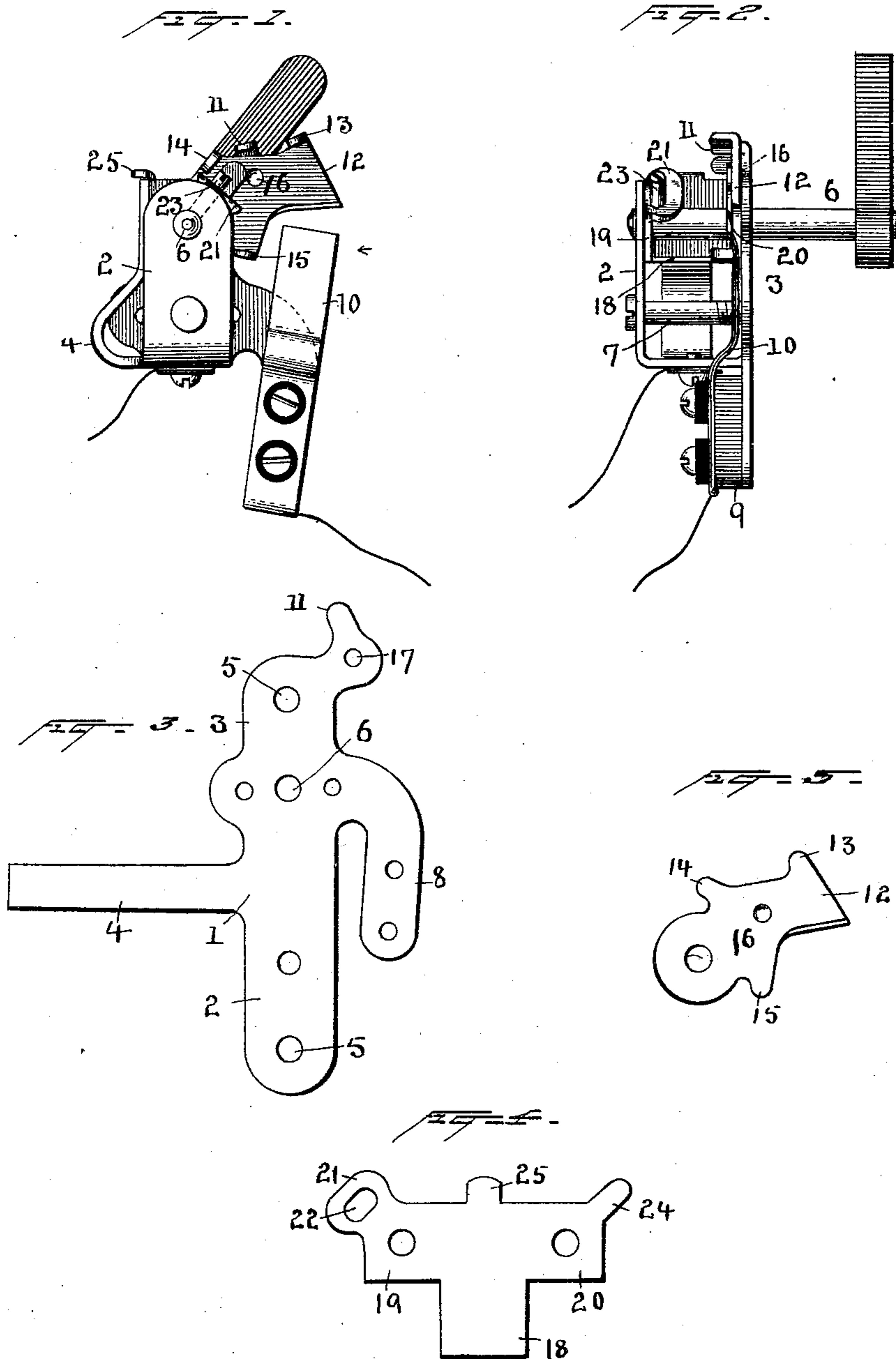
(No Model.)

2 Sheets—Sheet 1.

F. D'A. GOOLD.
SNAP SWITCH.

No. 480,722.

Patented Aug. 16, 1892.



Witnesses
Norris A. Clark.
No F. Oberly.

Inventor
F. D'A. Goold
By his Attorneys
Byerly & Seely

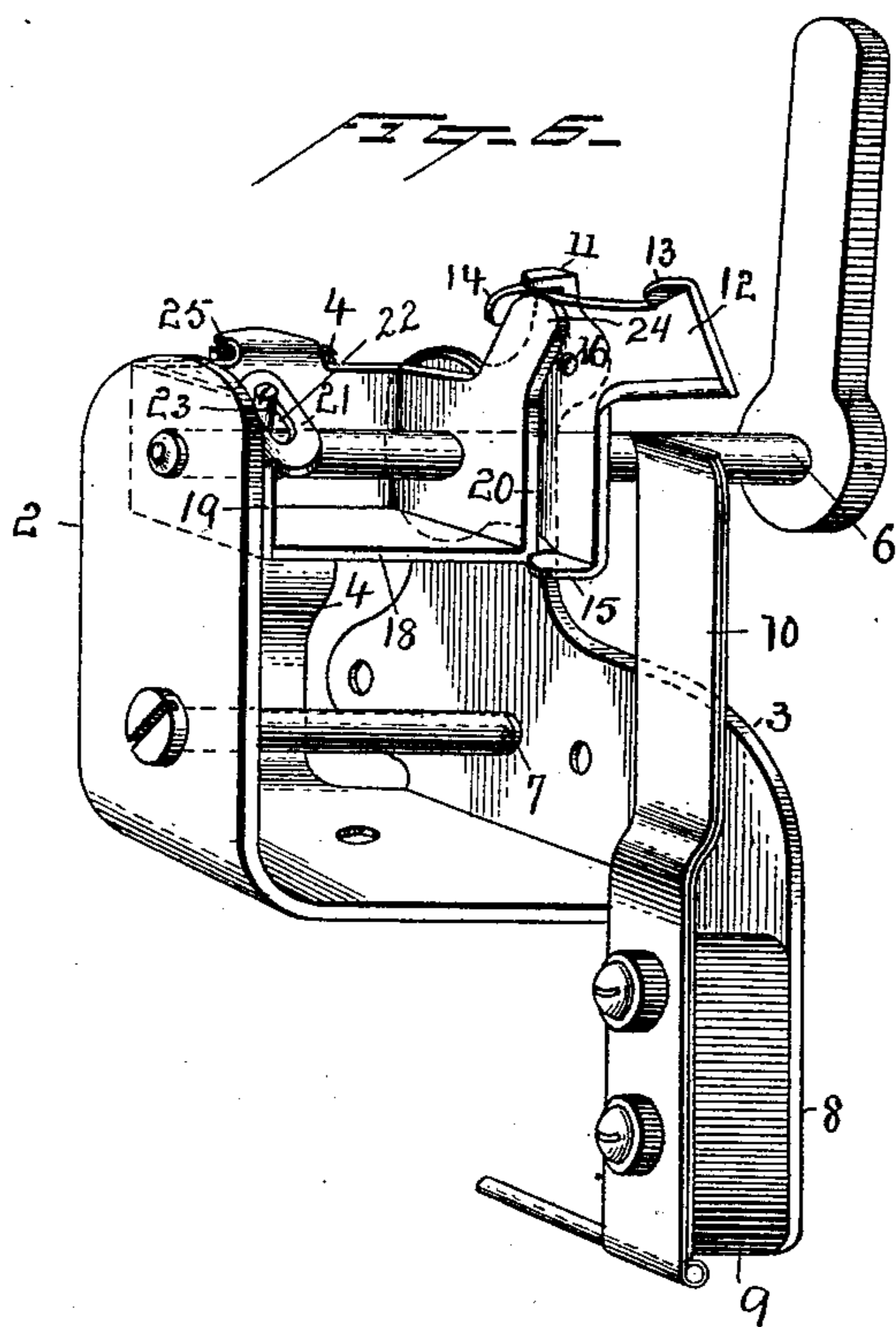
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Dr. H. Oberly

Inventor
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UNITED STATES PATENT OFFICE.

FREDERICK D'A. GOOLD, OF SCHENECTADY, ASSIGNOR TO THE EDISON
GENERAL ELECTRIC COMPANY, OF NEW YORK, N. Y.

SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 480,722, dated August 16, 1892.

Application filed March 26, 1892. Serial No. 426,469. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK D'A. GOOLD, a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented a certain new and useful Improvement in Snap-Switches for Arc-Lamp and other Circuits, of which the following is a specification.

The present invention relates to snap-switches, the special object being to cheapen and simplify their construction and at the same time to provide an improved device. This is accomplished by employing parts of special design and by reducing the number of parts in the switch to a minimum and making several of the parts of sheet metal suitably stamped or otherwise formed and bent into desired shape, the construction and arrangement being such that handwork is very largely reduced.

By my improved construction a strong spring is provided and one that is so mounted that it is impossible for it to get out of place and which is of such character that there is no danger of its losing its strength or elasticity. In this switch the switch-arm remains stationary in both its open and closed positions until the spring suddenly operates to throw it.

In the accompanying drawings, which illustrate the switch, Figure 1 is a side view thereof. Fig. 2 is a view at right angles to Fig. 1. Fig. 3 shows the shape of the blank from which the main body of the switch is formed. Fig. 4 shows the blank from which the movable body of the switch is formed. Fig. 5 shows the blank from which the switch-arm is formed, and Fig. 6 is a perspective view of the switch on a larger scale than that of the other figures.

The blank 1, from which the body or frame of the switch is formed, is stamped or cut from sheet metal having considerable or the desired thickness. The arms 2 3 are bent up, as indicated in Figs. 1 and 2, and form the two main sides of the switch-body. The arm 4 is bent up, as shown in Fig. 1, and forms the strong permanent spring for throwing the switch and forms, also, a third side of the switch-body, the opposite side being left open. In the arms 2 3 are holes 5, through which a

spindle 6 can be inserted, and also holes 6, through which a screw 7 may be inserted, if found necessary, for the purpose of preventing the sides spreading apart. The arm 8 is left in the same plane with the part of the blank to which the numeral 3 is applied and serves in the switch to support an insulating-block 9, to which the stationary spring 10 of the switch is secured. This spring preferably consists of two or more spring-strips placed side by side to give suitable conductivity and resiliency. The tip 11 of the side 3 is bent over, as indicated in Figs. 1 and 2, and forms a stop on the upper side for the switch-arm 12, which is centered on the spindle 6 and is provided with three lugs 13 14 15, formed by bending up the lugs having corresponding numbers in Fig. 5. The switch-arm also has a projecting nipple 16, formed by a punch. This nipple is adapted to ride into and out from the hole 17 in the arm 3 as the switch is operated. Centered on the spindle 6 also is a movable body approximately a cube in form and made from the blank shown in Fig. 4. The extension 18 is bent up through ninety degrees, as also are the extensions 19 and 20, thus forming a body with four closed and two open sides. The ear 21, having an elongated slot 22, is then again bent so that it occupies the position shown in Fig. 2, and serves when the switch is put together to receive the screw 23, projecting from the spindle 6. The ear 24 on the side or arm 20 rests against the switch-arm 12 and extends between the two ears 14 15. The ear 25 is bent over and forms a stop for the movable body to limit its motion in one direction—namely, when the switch is opened. One circuit-wire is connected to the body of the switch. The other is connected to the spring 10. When the handle on spindle 6 is turned from the position which it occupies in Figs. 1 and 2, the screw 23 bears against the lower end of the slot 22 and moves the body of which the ear 21 forms a part along with the spindle, the switch-arm 12 being meanwhile held stationary by the nipple 16, resting in the hole 17. The motion of said body is resisted by the strong spring side 4, which rests flatly against one side of said body. As soon, however, as the body is turned far

enough to carry the lower corner by the dead-center, the spring operates to throw the body suddenly forward, the pin-and-slot connection allowing lost or independent motion between the body and spindle. This movement causes the ear 24 to strike the ear 15, thus operatively connecting the spring and switch-arm, throwing the switch-arm from its open position instantly to its closed position. In opening the circuit the above movement would be reversed. With this arrangement it is not necessary that the movement of the spindle by the hand should start the switch-arm toward or away from the spring-contact, as usual in snap-switches, since the spring side 4 has sufficient strength to start the arm and to throw it through its whole movement. It will be seen that by removing the single screw 23 all the main parts of the switch may be separated, this being the only device for securing said parts together. If the metal from which the body is formed is thick enough to give the necessary rigidity, the screw 7 may be omitted; but it is generally preferable to use it.

While the forms of the blanks shown give the most satisfactory results with the least amount of metal, it is evident that they may be varied somewhat without departing from this invention.

What I claim is—

1. The combination, in a switch, of a sheet-metal body or frame having two substantially parallel sides and a spring forming a third side, said parts being formed of one piece of metal, a contact adapted to be connected to one wire of the circuit and insulated from the switch-body, a spindle having bearings in the first-mentioned sides of the switch-body, a switch-arm on said spindle and in position to co-operate with said contact, and a body also on and moved by said spindle, but having a connection therewith, allowing lost or independent motion and co-operating with the switch-arm to move it, substantially as described.

2. The combination, in a snap-switch, of a body having two sides with holes adapted to receive a spindle, a third side bent to form a spring, a spindle in said holes, a switch-arm on said spindle, a body also on the spindle and having a slot in it adapted to receive the pin or screw, a pin or screw projecting from the spindle through said slot, an arm or lug carried by the body, and ears or projections on the switch-arm in position to be struck by said lug, and a stationary spring or contact, substantially as described.

3. The combination, in a snap-switch, of the main body, the spindle, the movable switch-body on the spindle, and the spring forming a part of said main body and bearing against the body on the spindle and adapted to throw it to change the circuit instantaneously, substantially as described.

4. The combination, in a snap-switch, of the main body, the spindle supported thereby, the movable body having sides at an angle with each other, and a switch-arm centered on said spindle, the arm having stops on opposite edges and at a suitable distance apart, the body having an arm or lug projecting between said stops, and the spring resting against one of the sides of the movable body and adapted to throw it, substantially as described.

5. The combination, in a snap-switch, of the main body, the spindle, the movable body, and the switch-arm on said spindle, and the single screw 23, projecting from the spindle and engaging the movable body and through which motion is conveyed from the spindle to the body and switch-arm and which forms the sole device for securing said parts together, substantially as described.

This specification signed and witnessed this 24th day of March, 1892.

FREDERICK D'A. GOOLD.

Witnesses:

CHARLES M. CATLIN,
GEORGE B. BUCHANAN.