

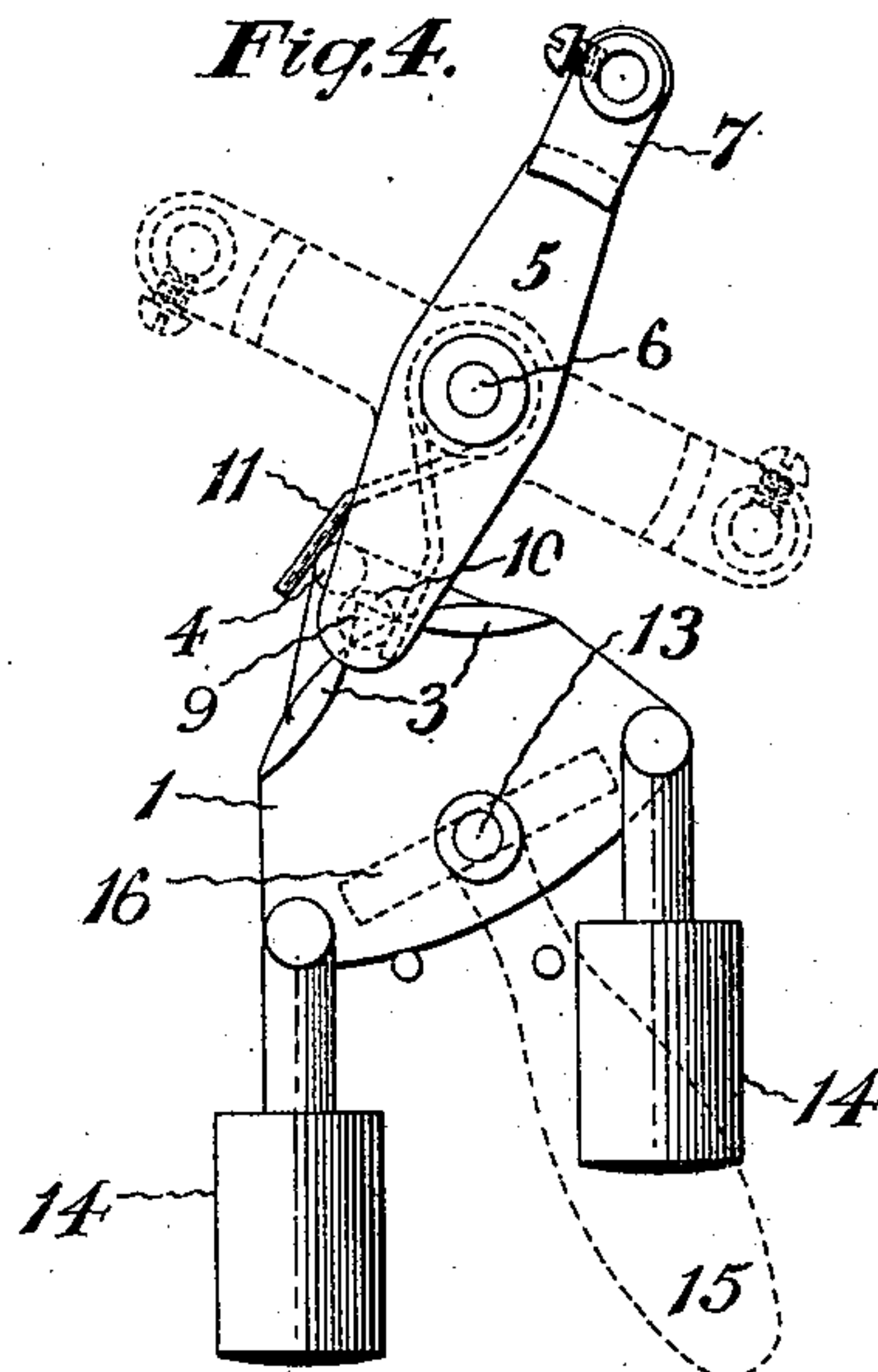
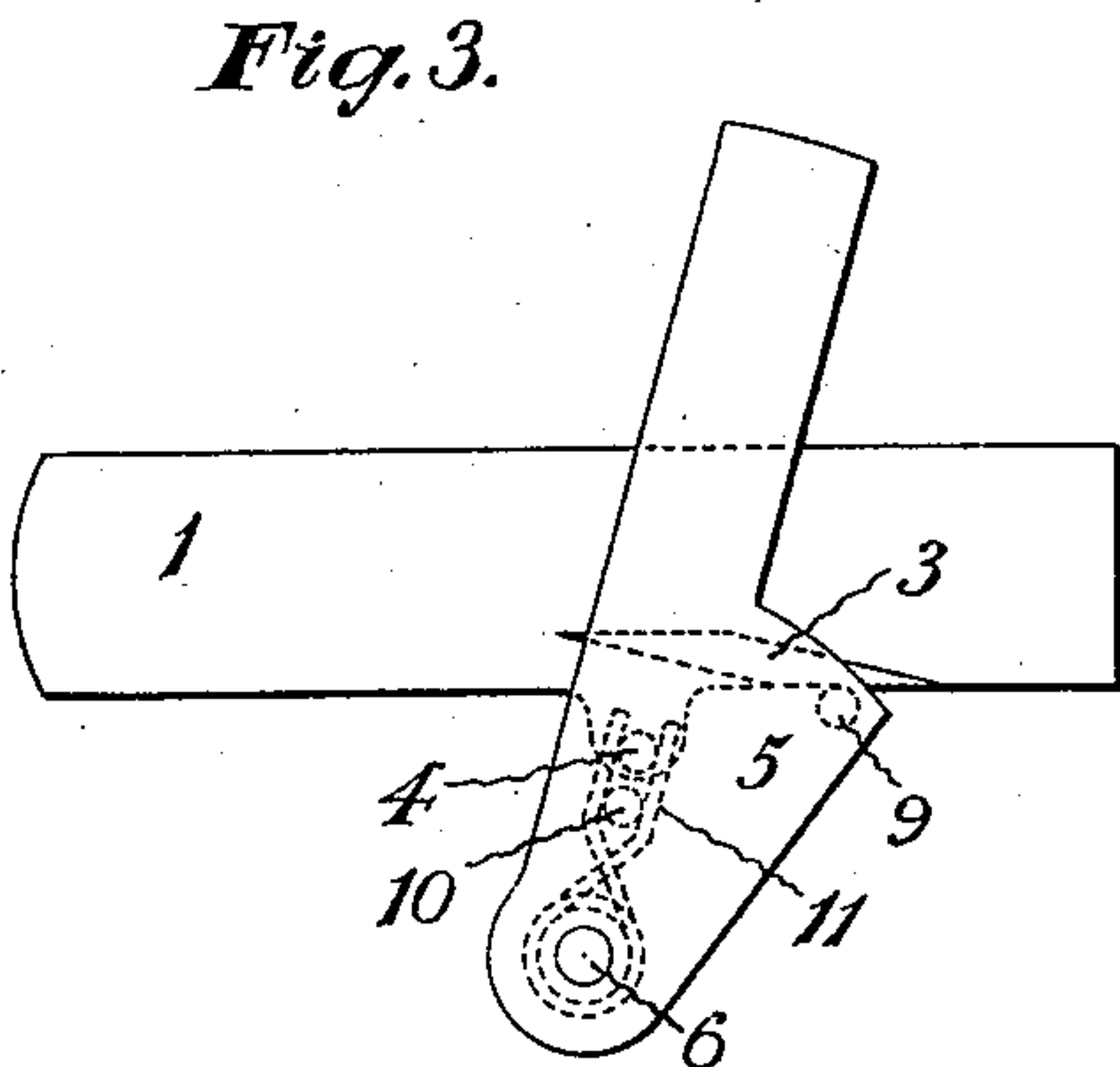
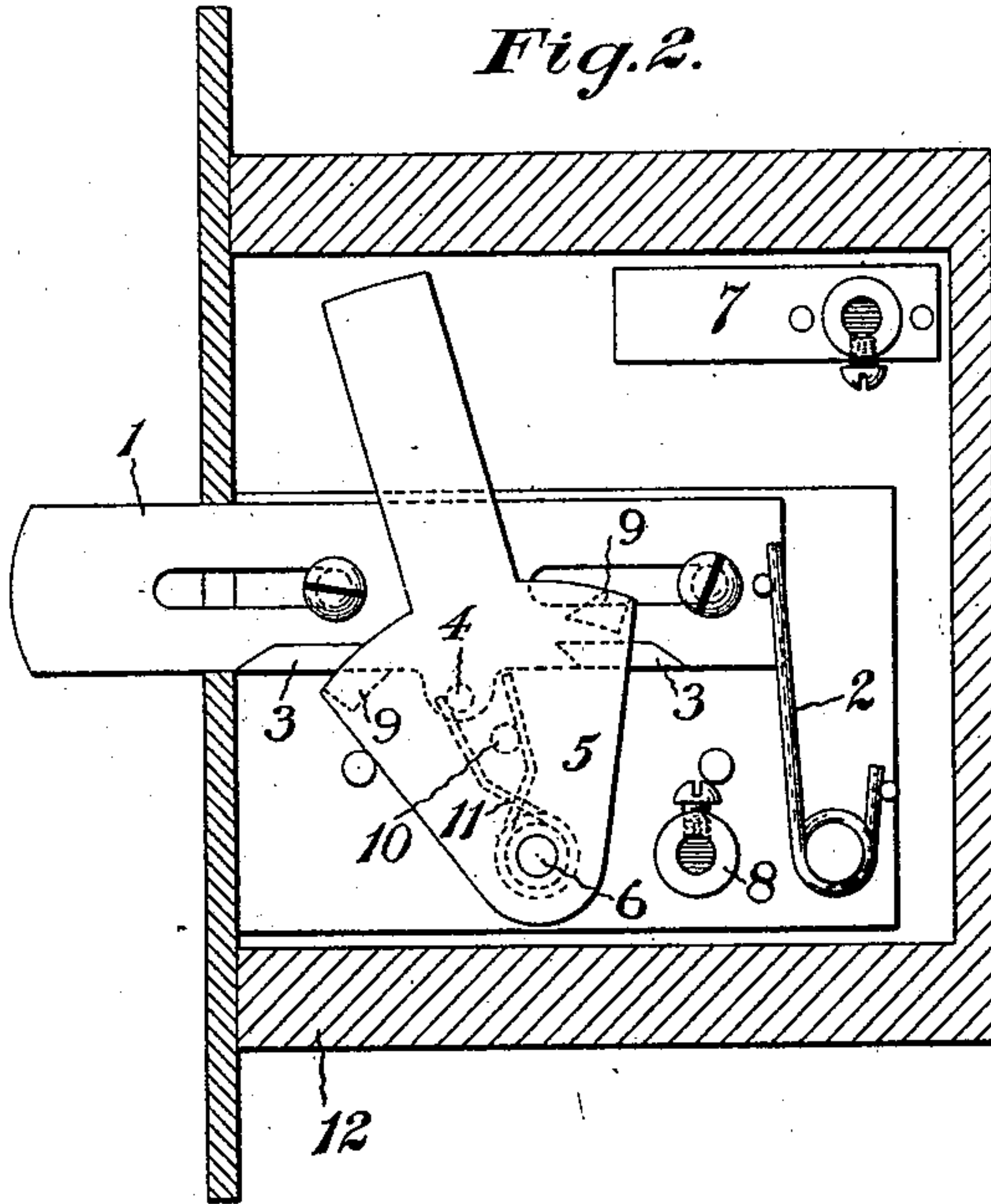
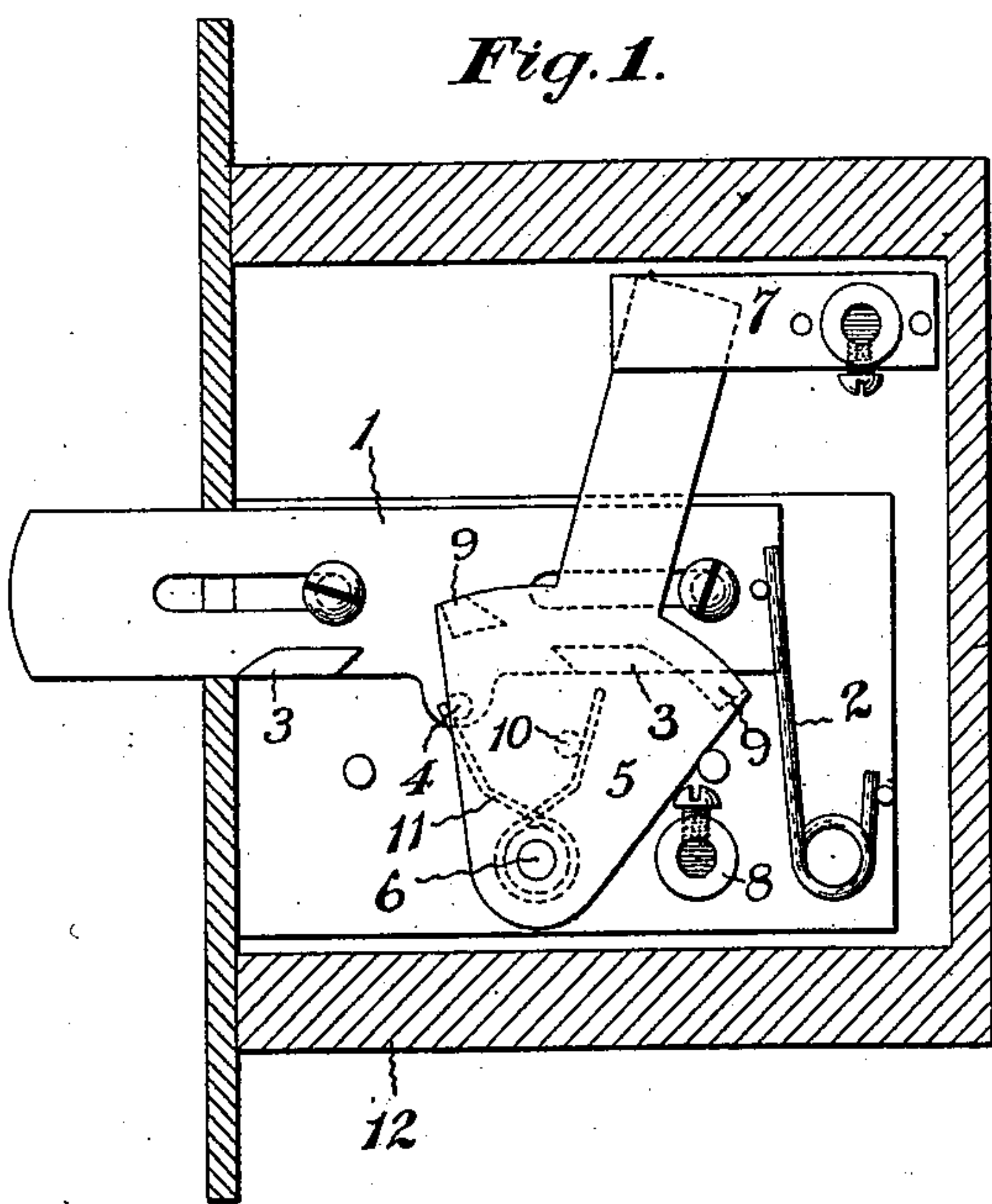
No. 639,557.

Patented Dec. 19, 1899.

M. GUETT.
ELECTRICAL SNAP SWITCH.

(Application filed Oct. 28, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

MONROE GUETT, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE HART & HEGEMAN MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRICAL SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 639,557, dated December 19, 1899.

Application filed October 28, 1898. Serial No. 694,801. (No model.)

To all whom it may concern:

Be it known that I, MONROE GUETT, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Electrical Snap-Switches, of which the following is a specification.

This invention pertains to the mechanism of a snap-switch having a circuit opener and closer that is first locked against action by the movement of the part employed to make tense the actuating-spring and then, after the spring has been made sufficiently tense, by a continuation of the same movement of that part is unlocked, so that it may be oscillated by the spring.

The object of the invention is the production of an efficient mechanism composed of but very few simple and durable parts, which can be arranged to operate automatically or to be operated by push-buttons, by a turn-button, or by a lever, and which when set in operation will cause a quick and extended make or break.

This invention resides in a switch having a plate that can be arranged to be reciprocated or oscillated by a spring, by push-buttons, by a turn-button, or by a lever, and that has parts that engage the ends of the actuating-spring and the circuit opener and closer, that also has a part engaged by the ends of the actuating-spring which is coiled about the circuit opener and closer pivot.

Of the accompanying drawings, Figure 1 shows a single-pole automatic switch that embodies the invention, the casing being cut away in order to show the mechanism, which is in the position occupied just before the circuit is opened. Fig. 2 is a similar view with the circuit open. Fig. 3 shows a modification of the mechanism; and Fig. 4 is a view showing how the mechanism can be operated by push-buttons, by a turn-button, or by a lever.

The switch illustrated in Figs. 1 and 2 is arranged to be operated automatically, and is more particularly designed for closet service, where it is desired to close a circuit and light a lamp when a door is shut and to have the circuit broken and the light extinguished when the door swings open. In this form the plate 1, which is arranged so that it may be

slid back and forth, is normally thrust forward by the end of a spring 2. This plate has two locking projections 3 and one spring projection 4, extending from its face toward the circuit opener and closer 5. The circuit opener and closer is a plate that is pivoted upon a stud 6, so that its end, which forms the movable pole of the switch, may be oscillated toward and from the contact 7, to the binding-post of which one of the circuit-wires is attached. The other circuit-wire may be attached to the binding-post 8, that is in metallic connection with the circuit opener and closer. The circuit opener and closer has two locking projections 9 and one spring projection 10 extending from its face toward the movable plate 1. A spring 11 is loosely coiled about the pivot-stud 6, and its ends are arranged to extend beyond and press against opposite sides of the projection 4 on the plate and the projection 10 on the circuit opener and closer. This mechanism is inclosed in any suitable case 12, of porcelain or other material.

The plate 1 may be moved either forward or backward by hand, or it may be moved in one direction by a hand-push and in the other direction by the push of a spring, as illustrated. The actions of the mechanisms are the same in both cases and the corresponding parts cooperate in a similar manner whichever way the plate is moved. When the plate is moved in one direction, the projection 4, which extends from the plate between the ends of the spring 11, engages and moves one end of that spring. This movement of the plate and projection places the spring 11 under tension, for the other end of the spring is engaged and held by the projection 10 on the circuit opener and closer, which cannot move because one of the locking projections 9 that it carries is engaged by one of the locking projections 3 on the plate until after the plate has traveled a sufficient distance to place the spring 11 under enough tension to impart the proper impulse to the circuit opener and closer. By the time the ends of the actuating-spring 11 are spread sufficiently to give the necessary tension the locking projection 3 on the plate will have moved beyond the path of the locking projection 9 on the cir-

cuit opener and closer and allow the tension of the spring to act and throw the circuit opener and closer quickly in the direction that the plate is being pushed. If the plate is moved in one direction, one of the projections 3 on the plate moves in the path of and temporarily engages and holds one of the projections 9 on the circuit opener and closer, while the projection 4 on the plate strains one end of the actuating-spring, the other end of which is held by the projection 10 on the circuit opener and closer. When the plate is moved in the reverse direction, the other of the projections 3 on the plate gets into the path of and engages and temporarily holds the other of the projections 9 on the circuit opener and closer, and the projection 4 on the plate strains the end of the spring which was held by the projection 10 of the circuit opener and closer when the plate was moved in the opposite direction.

The closet-switch which is illustrated is so located that when the closet-door is closed the plate will be pushed against the spring 2 and the circuit opener and closer caused to move and close the circuit. While the door remains closed the parts remain in this position with the spring 2 under tension. As the door is opened the spring 2 forces the plate outwardly, and this causes the circuit opener and closer to oscillate and open the circuit.

In the form shown in Figs. 1 and 2 there are two locking projections upon the plate and two upon the circuit opener and closer. The mechanism will operate, however, with only one projection from the plate and a corresponding projection from the circuit opener and closer, as illustrated in Fig. 3. In this latter form when the plate is pushed in one direction one side of the projection 3 is in the path of, so as to engage and temporarily hold, the projection 9 on the circuit opener and closer, and thus prevents the movement of the circuit opener and closer until the spring is sufficiently tense to quickly throw the circuit opener and closer. When the plate has been moved forward enough for the pin 10 to make the spring tense, the plate has moved sufficiently far for the projection 3 to be out of the path of the projection 9, so the circuit opener and closer may be thrown by the push of the spring upon the projection 10. If this plate is pushed in a reverse direction, the other side of the projection 3 engages and temporarily holds the projection 9. Whichever way the plate 1 is moved the projection 4 which it bears engages an end of the spring and makes it tense, for the other end of the spring is held by the projection 10 on the circuit opener and closer, which cannot move until the plate has traveled sufficiently to get the projection 3 which it carries out of the path of the projection 9 on the circuit opener and closer. Of course when the plate has been moved so the path of the projection 9 is unobstructed by the projection 3, the circuit opener and closer may be thrown by the

end of the spring that presses against the projection 10. This mechanism is exceedingly simple, as there are but three operating parts—a plate with the projection which temporarily obstructs the projection from the circuit opener and closer and the projection which makes the spring tense, the circuit opener and closer with the corresponding spring and locking projections, and the actuating-spring, which is made tense by the movement of the plate in either direction for throwing the circuit opener and closer.

The circuit opener and closer may be designed to have a single movable pole, or it may be designed to carry a double pole, as illustrated in dotted outlines in Fig. 4, and the poles may of course be formed a part of the circuit opener and closer or may be attached thereto in any common manner.

The plate, which may be arranged to reciprocate, as shown in Figs. 1, 2, and 3, or may be arranged to oscillate, as shown in Fig. 4, where it is mounted upon a stud 13, can be moved by push-buttons 14, or a lever-handle 15 may be connected with it, or a turn-button 16 may be connected with its pivot. The operating means are not essential to the invention nor are the number of poles which the circuit opener and closer carries.

I claim as my invention—

1. An electric switch consisting of a movable plate having spring and locking lugs projecting toward the circuit opener and closer, a movable circuit opener and closer having spring and locking lugs projecting toward the plate, the respective locking-lugs being so arranged that the one on the plate remains in the path of the one on the circuit opener and closer during the first part of its travel when the plate is moved, and an actuating-spring with one end extending each side of the spring-lugs on both the plate and the circuit opener and closer in position to be engaged by the spring-lug on the plate and to engage the spring-lug on the circuit opener and closer in whichever direction the plate is moved, substantially as specified.

2. An electric switch consisting of a rectilinearly-movable plate having spring and locking lugs, an oscillating circuit opener and closer with spring and locking lugs, the respective locking-lugs being so arranged that the locking-lug on the plate remains in the path of a locking-lug on the circuit opener and closer during the first part of its travel when the plate is moved, an actuating-spring with an end extending each side of the spring projections on both the plate and the circuit opener and closer, and means whereby the plate may be moved, substantially as specified.

3. An electric switch consisting of a rectilinearly-movable plate having spring and locking lugs, an oscillating circuit opener and closer having spring and locking lugs, the respective lugs being so arranged that the locking-lug on the plate remains in the path

of the locking-lug on the circuit opener and closer during the first part of its travel when the plate is moved, an actuating-spring arranged to be made tense by the movement
5 of the plate spring projection and to be held, so that it can be made tense, by the circuit-opener-and-closer spring projection, and a spring for moving the plate in one direction, substantially as specified.

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