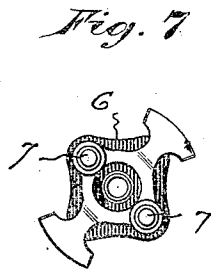
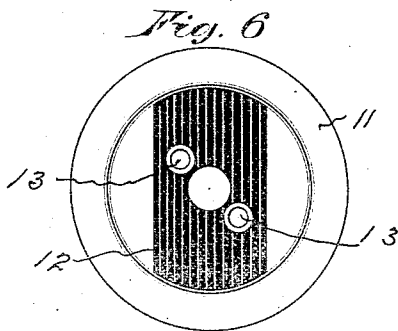
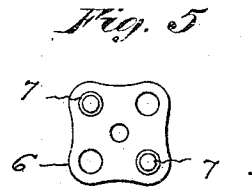
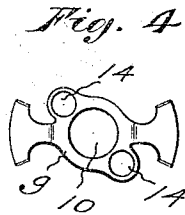
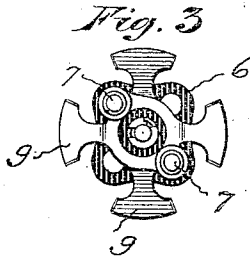
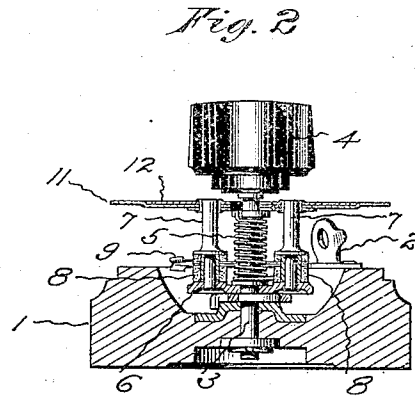
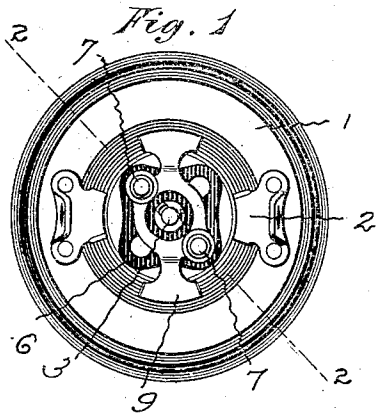


C. G. PERKINS.
ELECTRIC SNAP SWITCH MECHANISM.
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ELECTRIC SNAP-SWITCH MECHANISM.

932,056.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed October 25, 1907. Serial No. 399,146.

To all whom it may concern:

Be it known that I, CHARLES G. PERKINS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Electric Snap-Switch Mechanism, of which the following is a specification.

This invention relates to the construction of the movable circuit opening and closing parts of a snap switch, and while it is shown and described herein as designed for a turn button snap switch, it is equally applicable, without material change, to a push button snap switch.

The object of the invention is to provide a very simple and cheap mechanism, which is so designed that without changing the shape of the parts, they can be put together to provide a single pole switch or a double pole switch, capable of carrying an indicating dial or shutter if desired, having contacts which are so shaped and mounted that they are very elastic and resilient, which feature permits easy adjustment and insures efficient connection between the stationary and movable parts and long life for the operating parts.

Figure 1 of the accompanying drawings shows a plan of a rotary switch base provided with a single pole mechanism, which embodies this invention. Fig. 2 shows a section on the plane indicated by the dotted line 2—2 on Fig. 1 with an indicating shutter and handle applied. Fig. 3 shows a plan of the same mechanism arranged for a double pole rotary switch. Fig. 4 shows a plan of one of the contact plates used in building up both the single and double pole switches. Fig. 5 shows a plan of the contact carrying plate. Fig. 6 shows a plan of an indicating shutter, which may be applied to this mechanism. Fig. 7 shows a plan of the carrying plate and contacts of a modified design.

The base 1 is preferably formed of porcelain or some similar insulating material. Fastened to the base are stationary contacts 2 of any desired type. It is preferred to form each of these contacts of a single piece of metal bent to shape as shown.

The spindle 3 is mounted in the base in the usual manner and is provided with any type of handle 4. Mounted loosely on the spindle and connected therewith by a spiral spring 5 is the pole or contact carrying plate 6. Any

common form of locking mechanism for holding the pole plate while the throwing spring is being made tense, and any common form of releasing mechanism for freeing the pole plate when the spring is sufficiently tense, may be provided for holding and releasing the pole plate.

Fastened to, and projecting from the pole plate on opposite sides of the spindle opening are studs 7. Slipped upon these studs, but thoroughly insulated therefrom by washers 8, are the movable pole or contact plates 9. There are two plates for each set of poles, which plates are preferably formed of thin resilient metal, such as sheet phosphor bronze. The edges at the ends of these plates are flared so that when the poles are thrown, the upper plate will pass above, and the lower plate will pass below the projecting blades of the stationary contacts.

It is preferred, as shown in Figs. 1 and 4, to form these plates with a central opening 10, that is considerably larger than the spindle and with diagonally arranged perforations 14 which fit the insulation on the studs that project from the pole carrying plate. When the mechanism is to be arranged for a single pole switch, but one pair of these plates is placed upon the studs and securely fastened thereto, as shown in Fig. 1. When the mechanism is to be arranged for a double pole switch, two pairs of plates are placed upon the studs, one pair being turned upside down with relation to the other, as shown in Fig. 3. With the openings for the studs arranged diagonally with relation to the longitudinal axis of the contact plates, placing one pair of plates upside down with relation to the other, causes the pairs of plates to extend at right angles to each other. These pairs of plates which are insulated from each other, as well as from the studs, extend in different planes, so that one set will engage with contacts fastened to the face of the base and extending in one plane, and the other set will engage contacts fastened to the face of the base and extending in another plane.

The arrangement of the stud holes in the plates diagonally, not only permits the plates cut by the same dies, to be used for building up single pole and double pole switches, but also allows the plates to have much elasticity, so that they can be easily adjusted and will accommodate themselves

to any variation of the plane of or thickness of the blades of the stationary contacts. If it is desired to obtain still more elasticity for the plates, the holes for the studs can be arranged diametrically opposite each other, as shown in Fig. 7, in which case it will be noted, that there is considerable distance from the engaging outer ends of the contacts to the portions that are fastened to the studs, and that the sections of the plates that are fastened to the studs are thin and frame-like, and while having sufficient strength to insure good engagement with the stationary contacts, they can yield without becoming permanently set. This latter design of plates, however, cannot be built up to form a double pole switch without providing another pair of studs, in other words, the plates with the stud holes diametrically opposite cannot by mere reversal, be made to extend at right angles to each other, as they can when the stud holes are arranged obliquely with relation to the axis of the plates as in the form first described.

If it is desired to arrange a dial or indicating shutter with a switch which is provided with the pole mechanism, which embodies this invention, the movable part of the dial or shutter can be provided with perforations into which the pole carrying studs will project when the parts are assembled and the switch cover is in position. For instance, if it is desired to have a white indicating disk 11 and a movable black shutter 12 that will pass beneath an opening in the cover so as to show white when the circuit is closed, and black when the circuit is open, eyelets 13 may be arranged in the shutter so as to receive the ends of the studs, which will of course cause the shutter to turn with the studs and with the poles which the studs carry.

The invention claimed is:

1. In an electric snap switch in combination with the operating spindle, a pole plate rotarily movable about the spindle, mechanism for locking and releasing the pole plate, a pair of studs projecting from the pole plate, and two pairs of yielding contacts, the complementary contacts of each pair extending adjacent to each other in the same direction, but said pairs extending at right angles to each other, both of said pairs being mounted upon and supported at two points only by said studs, but insulated therefrom and from each other, substantially as specified.

2. In an electric snap switch in combination with a rotatory pole plate, two studs projecting from said plate at practically right angles therewith, and two complementary yielding contacts extending in the same direction adjacent to each other mounted upon but insulated from the studs, said contact plates having central perforations and

stud perforations diametrically opposite each other and on opposite sides of the longitudinal axes of said contact plates, substantially as specified.

3. In an electric snap switch in combination, an operating spindle, a pole plate rotarily movable about the spindle, mechanism for locking and releasing the pole plate, a pair of studs projecting from the pole plate, two contact plates mounted upon, but insulated from the studs, said plates having a central opening and stud perforations arranged diagonally with relation to their axes, whereby, if the plates are placed upon the studs reversed with relation to each other, they will extend at right angles to each other, substantially as specified.

4. In an electric snap switch in combination, an operating spindle, a pole plate rotarily movable about the spindle, mechanism for locking and releasing the pole plate, a pair of studs projecting from the pole plate, two contact plates mounted upon, but insulated from the studs, said plates having a central opening and stud perforations arranged diagonally with relation to their axes, whereby, if the plates are placed upon the studs reversed with relation to each other, they will extend at right angles to each other, and an indicating part engaged with and moved by the studs, substantially as specified.

5. In an electric snap switch in combination, an operating spindle, a pole plate rotarily movable about the spindle, mechanism for locking and releasing the pole plate, a pair of studs projecting from the pole plate, two contact plates mounted upon said studs, said plates having a central opening and stud perforations arranged diagonally with relation to their axes, substantially as specified.

6. In an electric snap switch in combination, an operating spindle, a pole plate rotarily movable about the spindle, mechanism for locking and releasing the pole plate, studs projecting from the pole plate and two yielding contact plates mounted adjacent to each other upon said studs and extending in the same direction, said contact plates having a central opening and diametrically opposite perforations on opposite sides of the longitudinal axes of said contact plates, which receive the studs whereby the contact plates are supported by the studs at two points only, substantially as specified.

7. A contact device having suspension points angularly arranged with reference to the contact members of the plate, said angle being such as to give a position of the contact points substantially at right angles when said plate is reversed with reference to its suspension points.

8. A contact device consisting of a plate having supporting members extending

therefrom and providing suspension points for a contact plate and its insulators, said contact plate having contact arms arranged in a common line and with perforations to fit about the suspension members, said perforations arranged at an angle of substantially 45° from the central line of the contact arms.

9. A contact device consisting of a plate provided with supporting members, said members and plate forming a substantially U-shaped support providing suspension points for a contact plate and its insulators, said contact plate having contact arms arranged in a common line and with perforations to fit about the suspension members, said perforations being so arranged that a line passing through them will extend transversely across the common line of the contact arms and at an angle thereto.

10. In an electric snap switch in combination, an operating spindle, a pole plate rotarily movable about the spindle, mechan-

ism for locking and releasing the pole plate, and two yielding contact plates extending adjacent to and parallel with each other in the same direction, said contact plates being supported on the pole plate at points diametrically opposite each other, which suspension points are on opposite sides of the longitudinal axes of the contact plates whereby the resiliency of the ends of said plates is unobstructed.

11. A movable member for an electric snap switch having a pole plate and a contact plate supported on the pole plate at two points only, said suspension points being diametrically opposite each other on opposite sides of the longitudinal axis of the contact plate whereby the resiliency of the ends of said plate is unobstructed.

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