

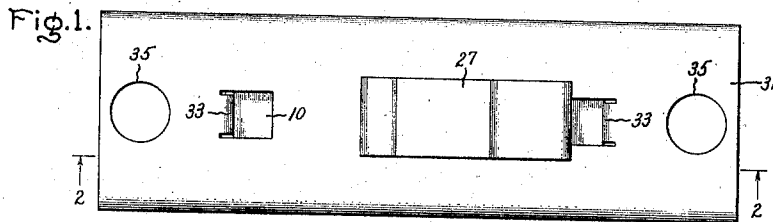
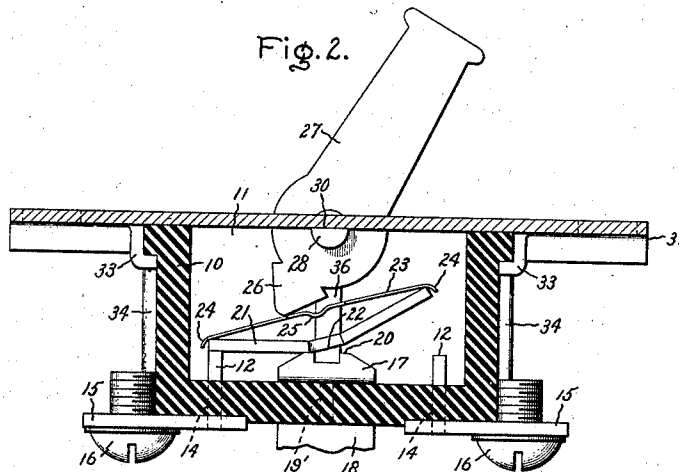
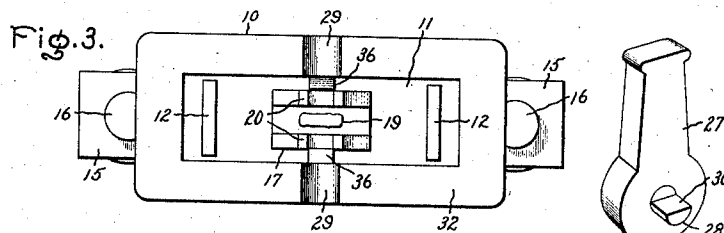
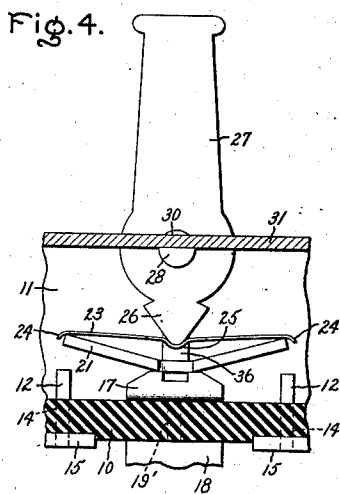
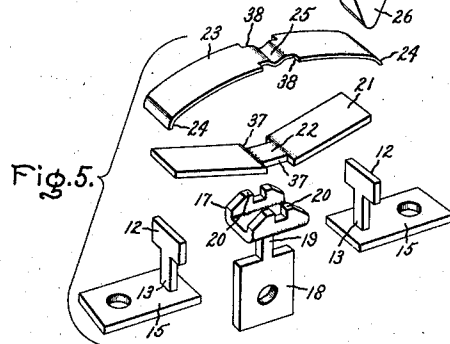
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ELECTRIC SWITCH

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ELECTRIC SWITCH

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8 Claims. (Cl. 200—68)

This invention relates to electric switches, and more particularly to electric switches having two operative positions.

5 An object of the invention is the provision of an improved mechanism for operating the switch to either position, and one which insures a quick make and break of the circuits through the switch.

10 Another object of the invention is the provision of an operating mechanism having relatively few parts, which may be easily manufactured and assembled at low cost.

15 In the accompanying drawing Fig. 1 is a plan view of the switch; Fig. 2 is a sectional view of the switch taken along the line 2—2 of Fig. 1; Fig. 3 is a view of the interior of the switch with a portion of the operating mechanism removed; Fig. 4 is a sectional view through the switch similar to the showing of Fig. 2, but with the switch mechanism in inoperative position, and
20 Fig. 5 is an exploded view showing the switch operating mechanism.

Referring to the drawing the switch comprises a housing 10 formed of any suitable insulating material, for example, a phenolic condensation product and filler, which is provided with a recess 11 for receiving the mechanism of the switch. Stationary contacts 12 are seated within the bottom of the recess 11 and are provided with extensions 13 which pass through openings 14 in the bottom wall of the recess to be engaged by terminal plates 15. The terminal plates are welded or otherwise secured to the contact extensions and one end of each of the terminal plates extends beyond the edge of the housing to receive a terminal screw 16. A contact element 17 is disposed intermediate the spaced contacts 12. A terminal plate 18 having an extension 19 projects upwardly through an opening 19' in the
40 bottom of the recess and is welded or otherwise secured to the intermediate contact 17. In order to provide a pivot for the movable contact of the switch operating mechanism, the intermediate contact is shaped in the form of a U to provide bearing surfaces 20. A movable contact member or contacting plate 21 is seated upon the bearing surfaces 20 so that it may be moved into engagement with either of the spaced stationary contacts 12. Each end of the contacting plate is bowed upwardly from a center flat portion 22 so that as the contact plate rocks about the center pivot or intermediate contact it will engage either one of the spaced stationary contacts. The intermediate flat portion 22 provides a flat bearing
55 surface to engage the bearing surfaces 20 of the

intermediate contact. This means that the contacting plate may be seated flat upon the center contact with both of the ends elevated out of engagement with the spaced stationary contacts.

The operating mechanism for the contacting plate or movable contact includes a flat strip 23 of spring metal. The spring strip is of convex form and the ends are curved slightly at the points 24 and are curled over the edges of the contacting plate to hold the spring strip in position spaced from and above the plate. The spring strip is adapted to flex or bend toward the contacting plate and is provided at a mid-portion with an indentation or recess 25 which cooperates with an operating end or projection 26 formed in the end of the operating handle 27. This means that movement of the operating handle forces the end of the handle to bend or flex the spring strip so that the end may be seated within the indentation 25. When this occurs the contacting plate is moved to the "off" position shown by Fig. 4.

The operating handle 27 is pivotally mounted on a pin 28 which is seated in grooves 29 formed in opposite side walls of the housing. Portions of the pin 28 in contact with the walls of the housing are beveled as indicated at 30 so that a metal strip 31 may be seated tightly against the upper face 32 of the housing. In this position the plate 31 forms a closure member for the housing and, at the same time, holds the pivot 28 securely in position. In order to secure the closure plate to the housing, a plurality of tangs 33 are struck from the face of the plate and are bent downwardly to engage grooves 34 formed in the side walls of the housing. The closure plate 31 forms a convenient means for mounting the switch upon a support through the use of openings 35 punched in opposite ends of the plate.

A switch constructed in accordance with the invention utilizes relatively few parts inasmuch as the contacting plate and the spring strip are the only elements needed to provide a satisfactory quick make and break switch mechanism to interconnect either one of the spaced stationary contacts with the center contact. In assembling the switch the fixed contacts are first mounted in the housing and thereafter the contacting plate 21 and spring strip 23 are placed in the recess in engagement with the fixed contacts. To assist in the assembling operation and to guide the contacting plate and spring strip for movement within the recess, the housing is provided on opposite sides with ribs 36 which enter the notches 37 and

38 formed in opposite sides of the contacting plate and spring strip, respectively.

In the position of the switch shown by Fig. 2, the center contact is electrically connected with the left-hand contact 12 through the medium of the contacting plate 21 which is held securely in electrical connection with each of the contacts by the flexible spring strip which is pressed or flexed toward the contact plate by the operating end 26 of the handle. To move the switch to "off" position the handle is moved to the left as shown in Fig. 2 so that the spring strip 23 is further flexed and as the end of the handle 27 passes in to the center recess or indentation 25, the contacting plate 21 will snap to "off" position, as shown by Fig. 4, under the influence of the spring strip 23 with the bearing plate 22 resting flat upon the bearing surfaces 20 of the center contact. The "off" position of the switch is indicated to the user by the fact that the operating end 26 of the handle rests within the indentation 25. Further movement of the operating handle to the left, in the showing of Fig. 2, will cause the operating end 26 to again flex the spring strip 23 as it passes out of the recess 25 and the contacting plate is then snapped into engagement with the right-hand stationary contact.

While the switch has been illustrated and described as provided with two stationary contacts spaced on each side of an intermediate contact for controlling a plurality of circuits, it should be manifest that either one of the stationary contacts may be disconnected from a circuit or, in some cases, may be omitted from the switch structure when the switch is to be used to control a single circuit. In such cases, the contacting plate 21 will be movable to two positions, i. e., a central "off" position and an "on" position when it is tipped to one side into engagement with a stationary contact.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In an electric switch, spaced stationary contacts and a center contact disposed intermediate said spaced contacts, a contacting plate pivoted on said center contact, a convex spring strip resting upon said contacting plate and a pivoted operating handle having an end engaging said spring strip and adapted to flex the same towards said contacting plate to rock said plate about said center contact into engagement with either of said stationary contacts.

2. In an electric switch, spaced stationary contacts, and a center contact intermediate said spaced contacts, a bowed contact plate pivoted on said center contact, a convex spring strip resting upon said contacting plate, and an operating handle having an end engaging said spring strip and adapted to flex the same to rock said plate about said one contact into engagement with either of said stationary contacts.

3. In an electric switch, spaced stationary contacts and another contact disposed intermediate said spaced contacts, a bowed contacting plate pivoted on said intermediate contact, a spring strip resting upon said contact plate and a piv-

oted operating handle having an end engaging said spring strip to flex the same towards said contacting plate whereby said plate is rocked about said intermediate contact into engagement with either of said stationary contacts.

4. In an electric switch, spaced stationary contacts and another contact disposed intermediate said spaced contacts, a bowed contacting plate pivoted on said center contact, a convex spring strip having a centrally disposed indentation therein resting upon said contacting plate and a pivoted operating handle having an end engaging said spring strip and cooperating with said indentation to flex the strip as said handle is moved to and fro to rock said plate about said center contact into engagement with either of said stationary contacts.

5. In an electric switch, a housing having a recess therein, spaced stationary contacts mounted in said recess and a center contact disposed intermediate said spaced contacts, a bowed contacting plate pivoted on said center contact, a convex spring strip resting upon said contacting plate and a pivoted operating handle having an end engaging said spring strip and adapted to flex the same as said handle is moved to and fro to rock said plate about said center contact into engagement with either of said stationary contacts.

6. An electric switch comprising a housing having a recess therein, stationary contacts mounted in said recess in spaced relation to one another and another contact disposed intermediate said spaced contacts, a bowed contacting plate pivoted on said center contact, a convex flexible spring strip resting upon said contacting plate and having a centrally disposed indentation therein and an operating handle pivotally mounted on said housing and having an end engaging said spring strip and cooperating with said indentation to flex said strip as said handle is moved to and fro whereby said contacting plate is rocked about said center contact into engagement with either of said stationary contacts.

7. In an electric switch, a stationary contact and a second contact spaced from said stationary contact, a bowed contacting plate pivoted on said second contact, a spring strip resting upon said contacting plate and a pivoted operating handle having an end engaging said spring strip to flex the same toward said contacting plate whereby said plate is rocked about said second contact into engagement with said stationary contact.

8. In an electric switch, a stationary contact and another contact spaced from said stationary contact, a bowed contacting plate pivotally mounted on said second-mentioned contact, a convex spring strip having an indentation therein resting upon said contacting plate and a pivoted operating handle having an end engaging said spring strip and cooperating with said indentation to flex the strip as said handle is moved to and fro to rock said contacting plate about said second-mentioned contact into engagement with said stationary contact.

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