

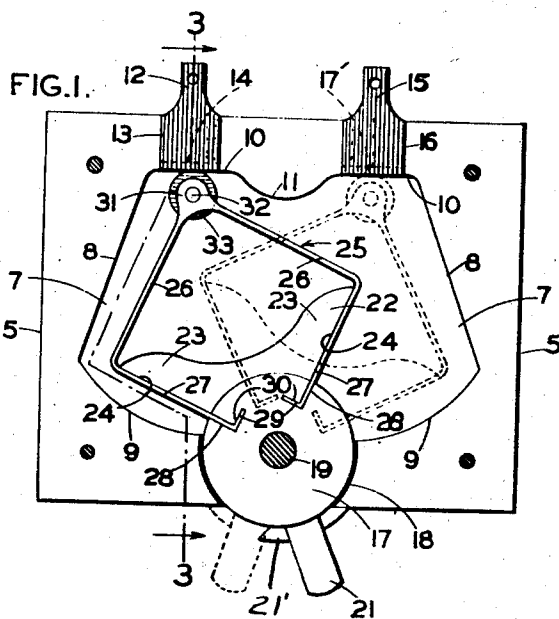
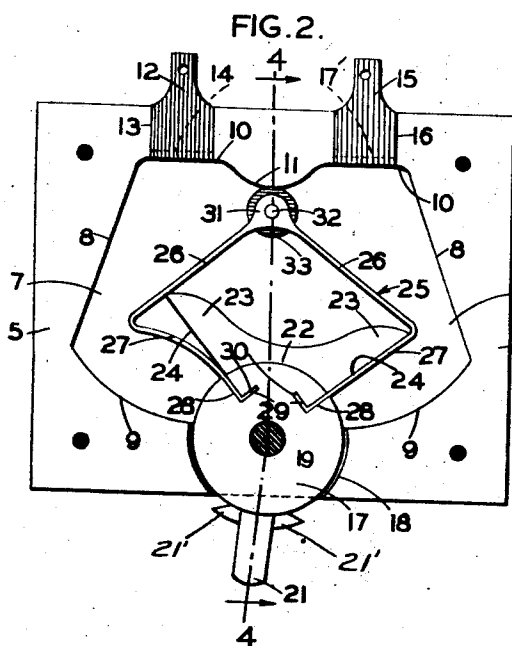
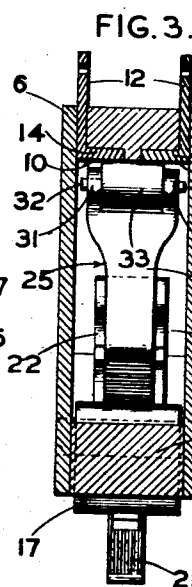
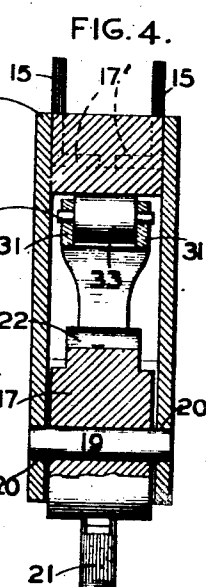
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ELECTRIC SWITCH

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ELECTRIC SWITCH

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3 Claims. (Cl. 200-154)

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My invention relates to quick action electric switches.

An important object of the invention is to provide means to shift the movable contact and hold the same in the shifted position.

A further object of the invention is to provide resilient means to quickly complete the shifting movement of the movable contact.

A further object of the invention is to provide a resilient shifting unit, a portion of which is adapted to function as a leaf spring, while other portion or portions serve as a lever to move the shiftable contact.

A further object of the invention is to provide a switch of the above mentioned character, which is simple in construction, convenient to operate and not liable to derangement.

A further object of the invention is to provide a switch of the above mentioned character having a contact element shiftable to one or more circuit closing positions.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a switch embodying my invention, the front side plate being removed and the movable contact in one circuit closing position,

Figure 2 is a similar view with the movable contact in the intermediate position,

Figure 3 is a transverse section taken on line 3—3 of Figure 1, and

Figure 4 is a similar view taken on line 4—4 of Figure 2.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates an insulating casing body portion, formed of "Bakelite" or the like. The opposite sides of this casing are covered by plates 6, formed of "Bakelite" or the like, and secured to the body portion by screws or the like. The body portion 5 has a chamber or cavity 7 formed therein, having upwardly converging side walls 8, and lower or bottom walls 9, curved as shown. The chamber 7 has a horizontal top wall 10 provided with a downwardly extending projection 11, longitudinally curved, as shown. A pair of stationary contacts 12 are provided, held within grooves 13, and having horizontal ends 14 flush with the wall 10. A similar pair of contacts 15 are provided, held within

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grooves 16 and having horizontal ends 17, flush with the wall 10. Each pair of contacts is connected in a separate circuit.

The numeral 17 designates a disc or carrier, mounted to turn in a transverse recess 18, and pivotally supported by a pin 19, held within openings 20, in the plates 6. The carrier or disc 17 and pin 19 are formed of insulating material, such as "Bakelite." The carrier or disc 17 projects downwardly beyond the body portion 5 and has a lever or arm 21, formed integral therewith and provided with stops 21' to limit the throw of the lever. Formed integrally with the carrier or disc 17, within the chamber 7, is an extension or shifting member 22, having upwardly diverging arm 23, provided with radial faces or shoulders 24.

Arranged within the chamber 7 is a resilient frame 25, formed of metal and which is substantially rectangular or square, when expanded. This frame includes upper sides 26 and lower sides 27, as shown. The lower ends of the sides 27 are held within radial slots 28, formed in the carrier or disc 17, and these sides have inturned ends 29, held within notches 30. At the upper ends of the sides 26 the frame is provided with knuckles 31, receiving a pin 32, carrying a roller 33.

The operation of the switch is as follows:

When the contact roller 33 is in the circuit closing position, Figure 1, the frame 25 is expanded and the lower sides 27 engage the shoulders or faces 24. In Figure 1, the contact roller is connecting or bridging the ends 14 of the contacts 12. When it is desired to break the electrical connection, between the ends 14, and connect the ends 17 of contacts 15, the carrier or disc 17 is turned clockwise, Figure 2. The contact roller 33 engages the projection 11 and is depressed thereby. The lower arm 27 to the left is now flexed, serves as a leaf spring and moves from the adjacent face or shoulder 24. The upper arm 26 to the left serves as a push rod to move the contact roller 33, while the lower side 27 to the right in conjunction with the adjacent face or shoulder 24 becomes a lever to shift the contact roller 33 to the right, moving at approximately a right angle to the line of pull. The upper arm 26 to the right serves as a leaf spring and rod for transmitting the pull to the contact roller 33. The opposite of this operation occurs when the carrier or disc 17 is swung in an opposite direction. When the contact roller 33 passes the high point of the projection 11, the roller quickly moves to the circuit closing position, to engage the ends of the pair of contacts.

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I contemplate omitting one pair of stationary contacts, so that the switch will operate as a single pull switch. The stationary contact unit may also be in the form of a single stationary contact instead of a pair of contacts, in which event the metallic frame 25 would be connected in the circuit, as is obvious.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

I claim:

1. A switch comprising a support having a projection, contact units carried by the support and arranged upon opposite sides of the projection, a swinging carrier mounted upon the support and having shoulders extending generally radially beyond such carrier, a resilient frame having its ends mounted upon the carrier and having parts to engage the shoulders, each part being movable in one direction from the shoulder, and a contact element carried by the frame and movable from one contact unit to the other contact unit and across the projection.

2. A switch comprising a support having a projection, contact units carried by the support and arranged upon opposite sides of the projection, a pivoted carrier mounted upon the support, a shifting member mounted upon the carrier and having generally radial shoulders, generally bowed resilient elements connected at corresponding ends and mounted near their opposite cor-

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responding ends upon the carrier, the shifting member being arranged between the generally bowed elements and projecting beyond the mounting of the elements upon the carrier, each generally bowed element having a part movable in one direction from the adjacent shoulder, and a contact element secured to the generally bowed elements for coaction with the contact unit and the projection.

3. A switch comprising a support having a projection, contact units carried by the support and arranged upon opposite sides of the projection, a pivoted carrier mounted upon the support, a shifting member mounted upon the carrier and having generally radial shoulders, opposed resilient elements, each resilient element including angularly arranged arms, corresponding arms of the elements being connected, the other corresponding arms being mounted upon the carrier and disposed outwardly of the shifting member and movable in one direction from the shifting member, and a contact element secured to the resilient elements for coaction with the contact units and projection.

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