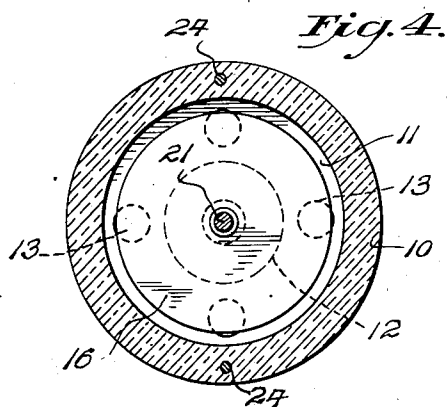
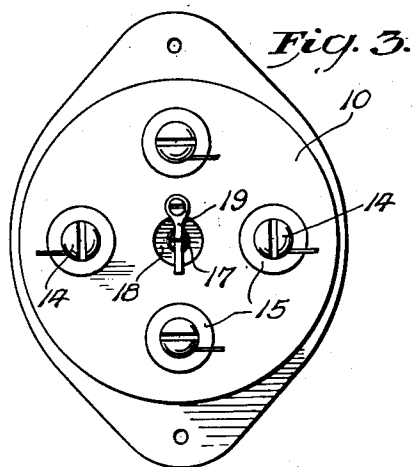
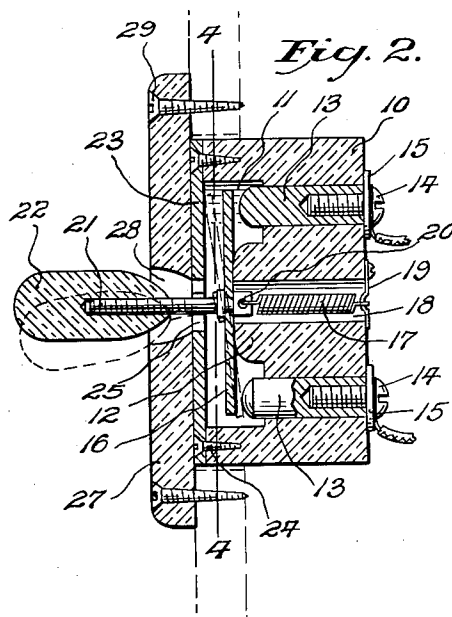
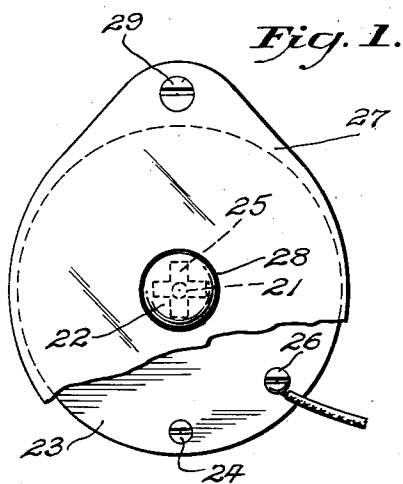


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H. G. SELLS
MULTIPLE CIRCUIT SWITCH
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MULTIPLE CIRCUIT SWITCH

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4 Claims. (Cl. 200-6)

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The present invention deals with electrical switches, and more particularly with switches of the type adapted to control a plurality of operating circuits.

The general object of this invention is to provide a single switch which is adapted for the selective momentary closure of a plurality of circuits, and which is particularly adapted for use in controlling a number of solenoid-actuated mechanisms.

It is another object of the present invention to provide a switch of this character which is ruggedly and durably constructed, and which is compact so as to occupy a relatively small operating space.

It is a further object of this invention to provide a multiple circuit switch which is structurally simple and consequently inexpensive to manufacture.

These and other objects will become readily apparent with reference to the following description and accompanying drawings wherein:

Fig. 1 is a front elevational view of a switch formed in accordance with the present invention, and partially broken away to disclose one of the circuit connections thereof;

Fig. 2 is a longitudinal vertical sectional view taken through the switch;

Fig. 3 is a rear elevational view of the switch disclosing the remaining circuit connections of the switch;

Fig. 4 is a vertical sectional view taken along the line 4-4 of Fig. 2.

Referring now to the drawings, it will be noted that the switch embodies an insulating base 10 preferably formed from a suitable dielectrical plastic, such as Bakelite or Lucite. The base 10 is substantially circular in cross-sectional configuration and is recessed at its forward end to form a substantially annular cavity 11 and a centrally positioned abutment 12. The base carries four equally spaced metallic contact poles 13 which are molded in the plastic base. The forward ends of the poles are positioned so as to extend into the open cavity 11, and terminate on a plane below the plane of the outer surface of the abutment 12. Each of the poles are provided with threaded sockets at their rearward ends which receive threaded circuit-wiring screws 14, the heads of which extend externally of the rearward side of the base. A like number of metallic washers 15 are carried by the screws 14 to provide ease of attachment for circuit wires, as shown in Fig. 2 of the drawings.

The outer end of the abutment 12 provides a

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pivotal seat for a circular collar 16 which extends outwardly in registration with the ends of the poles 13. The collar is resiliently held against the abutment by a coil spring 17 which is positioned within a centrally disposed bore 18 of the abutment. The rearward end of the spring is anchored to the base 10 by means of a pin 19 screwed to the base. The forward end of the spring is engaged with a link 20 which forms a centrally depending part of the collar 16. In this manner, the collar is resiliently maintained in a substantially flat position upon the abutment. A forwardly extending toggle shaft 21 is rigidly connected with the center of the collar 16, on the side opposite to the link 20, by soldering or welding the same thereto. The outer end of the shaft 21 is threaded to engage with the threaded channel of an insulated toggle handle 22.

The recessed end of the base 10 is covered by a circular contact plate 23; the latter being secured to the base by screws 24. A cross-shaped slot 25 is formed in the center of the plate to allow the passage of the toggle shaft 21 there-through, and to permit swinging movement thereof in four directions corresponding to the location of the poles 13. The plate 23 also carries a single circuit wiring screw 26 for supplying an electrical charge to the plate.

A substantially oval-shaped face plate 27, also formed of insulating plastic, is bonded to the outer surface of the contact plate 23, and provided with a centrally disposed relatively enlarged aperture 28 in alignment with the cross-shaped slot 25 to permit free movement of the toggle shaft and handle. The upper and lower ends of the face plate are provided with apertures through which attaching screws 29 extend to secure the switch for operation upon a wall or similar supporting structure.

The operation of the switch may best be explained with reference to Fig. 2 of the drawings. It will be understood that the various circuit wires associated with the switch are individually connected with the separate poles 13 by the circuit wiring screws 14, and that the cooperative circuit wires are collectively connected with the contact plate 23 by the circuit wiring screw 26. In this manner, the individual circuits may be selectively closed by imparting manually executed movement to the toggle handle in any one of four directions permitted by the cross-shaped slot 25. By displacing the handle 22, the collar 16 is tilted, under tension of the spring 17, upon the abutment 12 and makes contact between the plate 23 and one of the poles 13, thus closing the

circuit associated with these two members. This tilting of the collar 16 to close a circuit is denoted by dotted lines in Fig. 2 of the drawings. It will be manifest that the remaining circuits may be selectively closed by simply displacing the toggle handle 22 in any direction permitted by the channels of the slot 25. When the handle is released, the handle 22 and collar 16 will return to their normal positions of no contact, as shown in Fig. 2, under action of the spring 17.

In view of the foregoing, it will be seen that my improved multiple circuit switch is readily adaptable for use with solenoid actuated mechanisms, and other mechanisms, requiring momentary energization of associated operating circuits. It will further be noted that the slight rotation of the collar, upon each actuation of the toggle handle, serves to vary the contacting positions thereon, and consequently to greatly enhance the operating life of the switch, due to the elimination of pitting and oxidation on any one spot on the collar. My invention is characterized by its simplicity of construction, its operational efficiency and its ease and economy of manufacture.

While I have disclosed what I now deem to be a preferred form of my invention, it will be manifest that various changes may be accomplished, to adapt the switch for use with any number of circuits, without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. A multiple circuit-controlling switch comprising an insulating base formed with a pivotal abutment, a plurality of spaced circuit poles carried by said base, a stationary contact plate carried by said base and disposed in spaced relation to said poles, and a manually operable circuit-closing member pivotally carried upon said abutment between said poles and said plate for teetering movement into circuit-closing engagement with said plate and said poles.

2. A multiple circuit-controlling switch comprising an insulating base formed with a pivotal abutment, a plurality of spaced circuit poles carried by said base, a stationary contact plate carried by said base and disposed in spaced relation to said poles, a manually operable circuit-closing collar pivotally carried upon said abutment for teetering movement thereon whereby to selectively make contact between each of said poles and said plate, and a spring carried by said base and connected with said collar for biasing the

teetering movement thereof upon said abutment.

3. A multiple circuit-controlling switch comprising an insulating base recessed at one end thereof, said base being formed with a pivotal abutment disposed centrally of its recessed end, a circuit contact plate carried at the recessed end of said base and defining therewith an internal chamber, a plurality of circuit poles disposed around said abutment and extending internally of said chamber in spaced relation to said plate, a circuit-closing member pivotally carried upon said abutment for tilting movement into simultaneous engagement with said contact plate and one of said poles, and a toggle handle attached to said member and extending exteriorly of said chamber for imparting tilting movement to said circuit-closing member whereby to selectively make contact between each of said poles and said plate.

4. A multiple circuit-controlling switch comprising an insulating base recessed at one end thereof, said base being formed with a pivotal abutment disposed centrally of its recessed end, a circuit contact plate carried at the recessed end of said base and defining therewith an internal chamber, a plurality of circuit poles disposed around said abutment and extending internally of said chamber in spaced relation to said plate, a circuit-closing member pivotally carried upon said abutment for tilting movement into simultaneous engagement with said contact plate and one of said poles, a toggle handle attached to said member and extending exteriorly of said chamber for imparting tilting movement to said circuit-closing member, and a spring carried by said base internally of said abutment and engageable with said member for biasing the tilting movement thereof upon said abutment.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,912,623	Douglas	June 6, 1933

FOREIGN PATENTS

Number	Country	Date
440,662	Germany	Feb. 11, 1927