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MULTIPLE ELECTRIC SWITCHES

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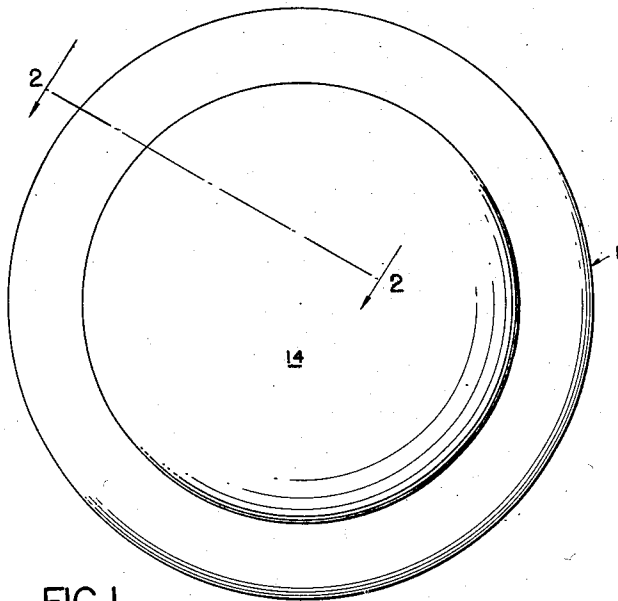


FIG. 1

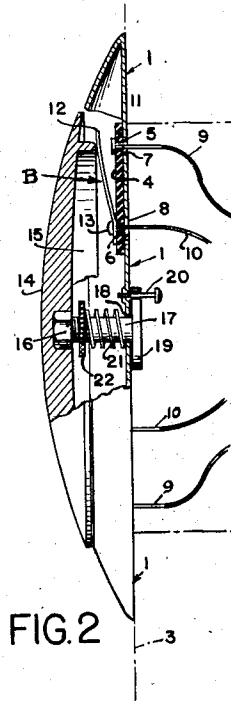


FIG. 2

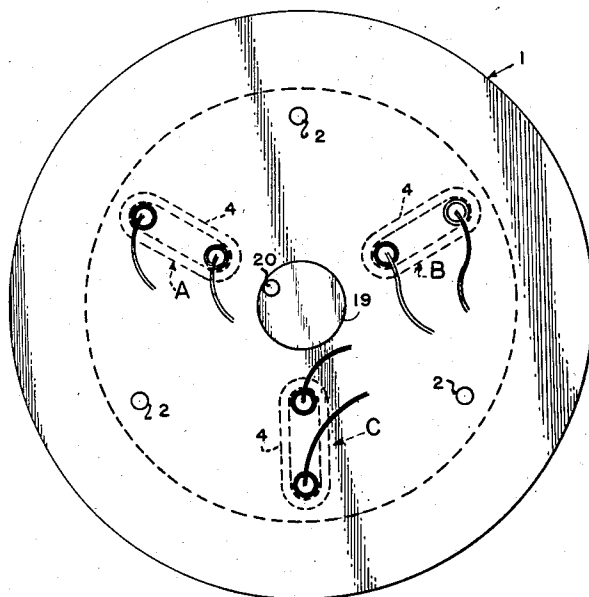


FIG. 3

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ATTY

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MULTIPLE ELECTRIC SWITCHES

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1 Claim. (Cl. 200—5)

This invention relates generally to improvements in multiple electrical switches and more particularly to new and novel means for actuating all of the switches collectively or individually through the medium of a single push plate.

A further object of the invention is the provision of a multiple switch, a housing therefor, and actuating means which are of simple, efficient, durable, and inexpensive construction which may be quickly, conveniently assembled and attached to a support and wherein said housing and pressure-actuating means are of simple, modernistic design of pleasing appearance.

These and other objects will appear as my invention is more fully hereinafter described in the following specification, illustrated in the accompanying drawing and finally pointed out in the appended claim.

In the accompanying drawing:

Figure 1 is a front view of a multiple switch unit made in accordance with my invention.

Figure 2 is a sectional side view taken approximately along the line 2—2 of Figure 1.

Figure 3 is a rear view of Figure 1.

Referring now more particularly to the drawing:

The invention comprises a flat circular supporting plate indicated generally by reference numeral 1 having an inwardly turned annular flange 1A and provided with any desired number of openings 2 for attaching the plate to a wall or other supporting surface as indicated at 3 in Figure 2. Secured by any suitable means to the front surface of the supporting plate 1 are three radially disposed blocks of dielectric material 4 which provide mountings for multiple switches generally indicated at A, B and C. The switches are identical and therefore a description of one will suffice for all. Each mounting 4 is provided with spaced apart apertures 5 and 6 registering with openings 7 and 8, respectively, in the supporting plate 1 for the passage therethrough of electrical conductors 9 and 10. The conductor 9 terminates in a fixed contact 11 on the front surface of the block 4 for cooperation with the free end of a spring contact finger 12 whose opposite end is secured as at 13 to the end of the conductor 10.

The invention is intended to be used in low-voltage electrical systems for selectively or collectively energizing relay switches and the like (not shown), of the type known as latching relays used in high-voltage electrical systems.

For actuating the switches A, B, and C, selectively or collectively, I provide a circular push plate 14 provided with an inwardly extending annulus 15, at all times in contact with the spring finger 12 of the switches. The push plate is rockably and yieldingly attached to the backing plate 1 by means of a nut 16 embedded in or secured to the push plate and attached to the threaded end of a bolt 17 extending through an opening 18 in the supporting plate and terminating on the rear face thereof in an enlarged head 19 slidably attached to the supporting plate 1 and held against rotation with respect thereto by means of a screw 20 extending through the head 19 and attached to the supporting plate. For normally main-

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taining the push plate 16 in the position shown in Figure 2 where all of the switches are in an open position, I provide the bolt 17 with a compression spring 21 whose one end bears against the front surface of the supporting plate and whose opposite end bears against an adjusting nut 22 on the bolt 17.

From the foregoing it will be apparent that equally distributed inward pressure on the push plate 14 will close all of the switches A, B, and C simultaneously through the medium of its annulus 15 forcing the spring contact fingers 12 into engagement with the fixed contacts 11 and that pressure applied to the push plate at any point in the proximity of any one of the selected switches A, B, or C will close that switch without disturbing the others due to the yieldable and rockable mounting of the push plate as foreshadowed. Similarly any two selected switches may be closed simultaneously by applying pressure to the push plate in the proximity of a half-way point between them.

Although I have shown and described three switches, A, B, and C, it is to be understood that I do not wish to be limited to that number, because any number of switches can be attached to the supporting plate and operated collectively or selectively as foreshadowed. It is to be further understood that these switches need not be radially disposed as shown so long as they are arranged with their spring contact fingers 12 in the path of movement of the flange 15 of the push plate 14.

While I have shown a particular form of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention. Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

A switching mechanism of the class described, comprising a circular supporting plate adapted for attachment to a support, a plurality of circumferentially spaced apart pressure-actuated electrical switches attached to said supporting plate, each switch having a fixed contact and a flat spring contact finger for cooperation therewith, a circular push plate, means for slidably and yieldingly attaching the push plate to the supporting plate concentrically therewith, whereby the push plate is tiltable toward the supporting plate upon application of inward pressure at any point over its entire area radially from its center, said means comprising a threaded bolt slidably and rockably extending through a central opening in the supporting plate and held against rotation, a nut carried by the opposite threaded end of the bolt and embedded in the push plate at the center thereof, an adjusting nut carried by the threaded end of the bolt, a compression spring surrounding the bolt and having one of its ends bearing against the supporting plate and its opposite end against said adjusting nut, a concentric inwardly extending annulus formed on said push plate at all times in contact with the spring contact fingers of said switches whereby all of said switches may be closed simultaneously by evenly distributed inward pressure on the push plate or any two switches may be closed simultaneously by inward pressure on the push plate at a point in the proximity of a half-way point between them or whereby an individual switch may be closed by inward pressure on the push plate in the proximity of a selected individual switch.

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