May 31, 1960 S. BRANTINGSON 2,938,985

PUSH BUTTON SWITCH

Filed June 30, 1959

FIG. 1

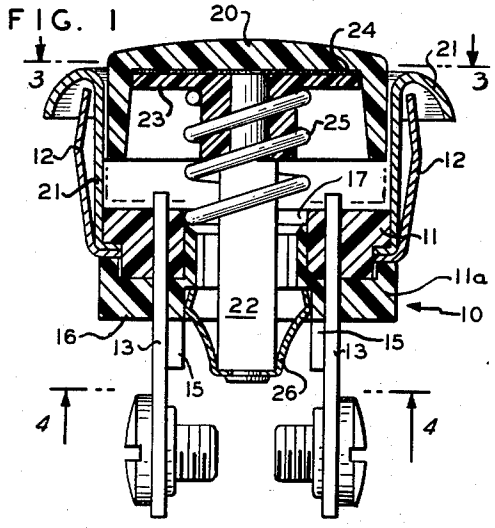


FIG. 2

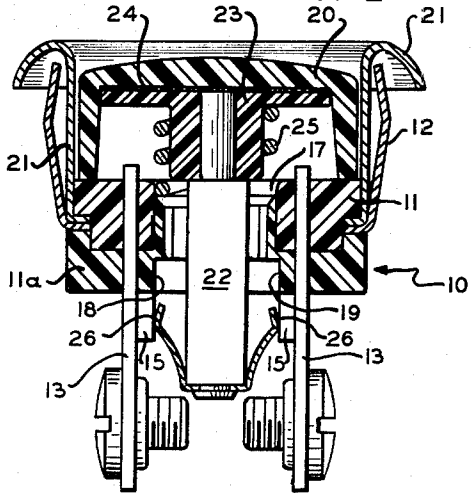


FIG. 3

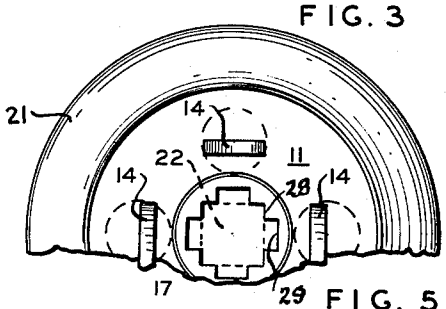


FIG. 4

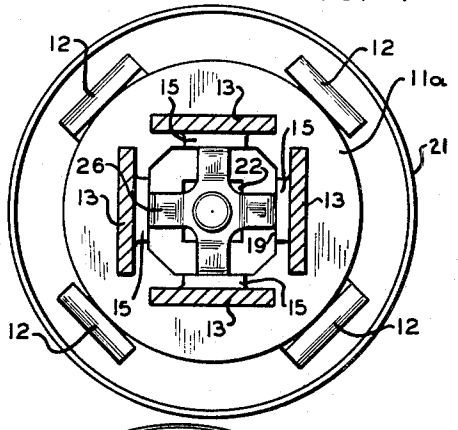


FIG. 5

FIG. 6

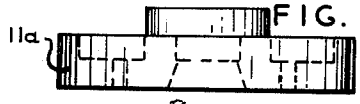


FIG. 7

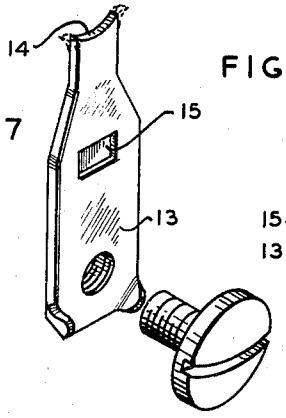


FIG. 8

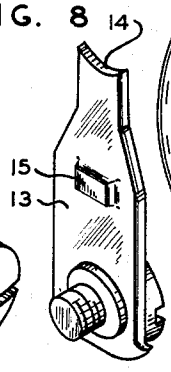
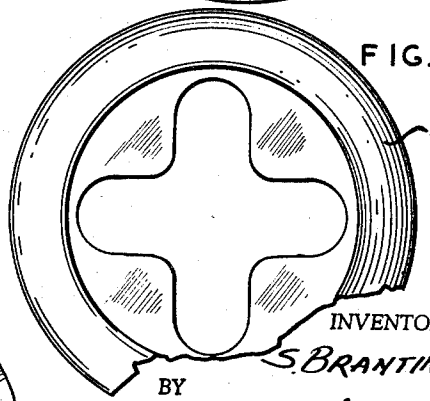


FIG. 9



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2,938,985

PUSH BUTTON SWITCH

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1 Claim. (Cl. 200—159)

This invention relates to a push button switch for selectively closing and opening an electric circuit and is particularly directed to the provision of novel means for normally holding a sliding contact member in circuit-opening position and to enable it to be readily moved therefrom into circuit-closing position and to enable the operation to be repeated time and again without appreciably straining the parts or impairing a positive on-off action.

A further object of the invention is to provide a push button switch of novel structural features enabling it to be readily manufactured and assembled in quantity production, with uniform accuracy, rapidly and accurately.

In the drawings:

Figure 1 is a vertical, sectional view of a push button switch embodying the invention, shown in open position,

Figure 2 is a similar view of the switch in closed position,

Figure 3 is a fragmentary top plan view of plate and shell members used in carrying out the invention,

Figure 4 is a bottom plan view, taken at line 4—4 of Figure 1,

Figure 5 is a side elevation of a plate member used in carrying out the invention,

Figure 6 is a similar view of a lower plate member,

Figures 7 and 8 are perspective views of conductor posts used in carrying out the invention, and

Figure 9 is a fragmentary plan view of an aligning shell.

As shown in the drawing, the push button switch 10 of this invention comprises a plate 11 preferably made of dielectric material, and which may consist of two interfitted body portions, the lower body portion 11*a* being formed as a unitary extension thereof or separately as shown in Figure 1 and suitably interfitted therewith and held thereto by the conductor posts 13 which pass through registered openings in the plate members. The upper ends of said posts are preferably formed concave (as at 14, Figure 7) to facilitate riveting said upper ends (dotted lines, Figure 7) over the plate 11 (Figure 3), the conductor posts 13 being further provided with protuberances 15 to interlock with the underface 16 of the plate 11*a* (Figure 1) and to facilitate assembly of the parts as above described. The plate 11 is provided with a medial opening 17 therethrough (Figure 1), the lower plate 11*a* has a corresponding medial portion with the registering medial portion 18 (Figure 2) preferably of greater diameter than the medial portion 17 so as to

define therebetween a shouldered portion 19 (Figure 2) for a purpose presently described.

The push button disc 20 is movable in an aligning shell 21, the latter being secured (with the positioning clips 12 which engage the door or other opening to position switch 10 therein) to the plate 11 or intermediate said plate and the lower plate portion 11*a*. Plunger 22 is secured (as by force fitting it) to cap 23 which is cemented preferably as at 24 to the disc 20. A spring 25 positioned intermediate the plate 11 and the push button cap 23 (rigidly fixed at one end to the latter) and normally urges the disc 20 upwardly to thereby carry sliding contact fingers 26, which (Figures 1, 2 and 4) are fixed to the lower end of the plunger 22, upwardly and into the medial opening 18 of the lower portion 11*a* of the plate, to open the switch. The spring contact fingers 26, thus secured to or adjacent the lower end of the plunger 22, extend upwardly and outwardly therefrom the outer free ends of the fingers being formed essentially parallel with the plunger 22 so to provide sharp corners for sliding contact with the protuberances 15 of the conductor posts 13 when the push button is depressed (Figure 2) against the tension of the spring 25, thereby completing the circuit to the conductor posts 13 and the bell or other apparatus connected therewith. Two contact fingers 26 are thus formed and secured to the device as shown in Figures 1 and 2, wherein only two conductor posts 13 are provided; the number of spring contact fingers 26 provided would correspond with the number of conductor posts to be provided in the switch, the latter being thereby adapted to be used with two or more such posts to thereby control one or more electric circuits.

The plate portion 11 is provided with a non-circular opening 28 to slidably key the plunger 22 therein and with recesses 29 through which the spring contact fingers pass (on their way to the medial opening 18 in plate 11*a*) when the parts are initially assembled.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

A push button switch comprising a dielectric plate having a medial opening therethrough, a pair of conductor posts fixed to said plate and depending therefrom, a push button disc, a plunger medially secured to said disc and extending therefrom through the plate opening, spring contact fingers, secured to the free end of the plunger and extending upwardly and outwardly therefrom, means urging the push button upwardly and away from the plate, the medial opening of the plate adjacent the lower face of said plate being formed to define a shouldered portion engaged by the outer free ends of the spring fingers when the push button is left disposed away from the plate, said spring fingers being moved away from the plate when the push button is moved downwardly moving the free ends of said spring fingers into contact with the conductor posts depending from the plate, electrically connecting said conductor posts.

References Cited in the file of this patent

UNITED STATES PATENTS

1,686,506	Anthony	Oct. 9, 1928
1,859,981	Norviel	May 24, 1932