

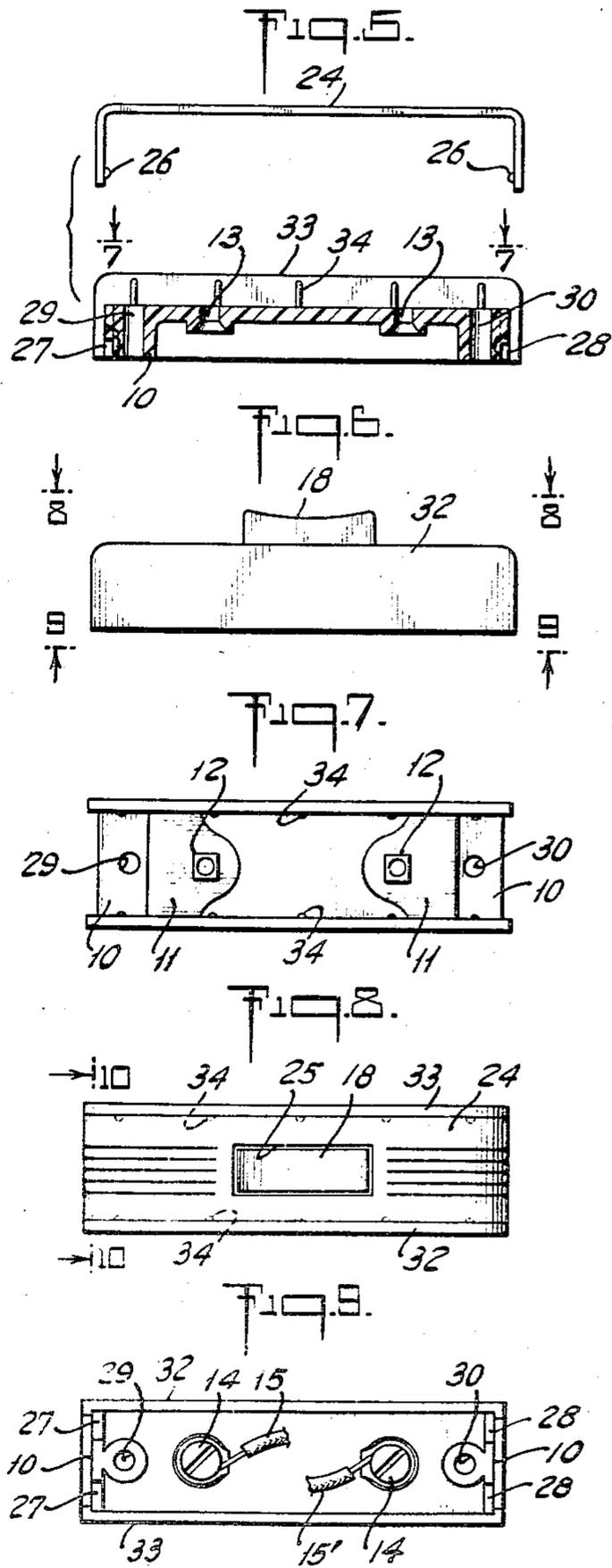
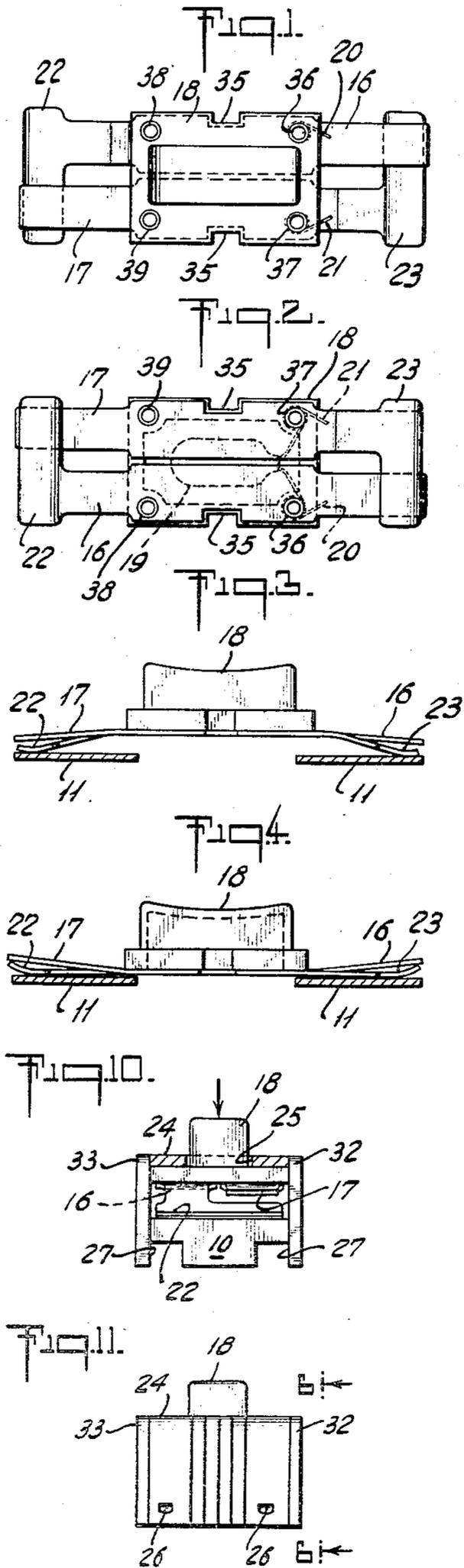
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PUSH BUTTON SWITCH

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PUSH BUTTON SWITCH

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This invention relates to a push button switch useful in the control of circuits. The invention is particularly adapted for use as a normally open switch to be closed upon pressing the switch button. It is adapted for use such as, for example, with a circuit to be closed only during the time the button is so pressed and to be automatically opened on release of pressure.

Other objects and advantages of the invention will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combination of elements, features of construction, and arrangement of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which one embodiment of the invention is illustrated:

Fig. 1 is an enlarged top plan view of a pair of elongated spring contact fingers and light-permeable bulb housing secured thereto, embodying the invention,

Fig. 2 is a bottom plan view thereof,

Fig. 3 is a side elevational view thereof, in the normal position of the parts, showing fragmentarily and sectionally, circuit terminal plates of the base on which the downwardly bent ends of the contact fingers rest,

Fig. 4 is a similar view, showing the end of each contact finger engaging the end of the other contact finger when the button (the bulb housing) is pressed toward the base,

Fig. 5 is a longitudinal partly elevational, partly sectional view of the base member and snap plate member, shown spaced apart,

Fig. 6 is a side elevational view, taken on line 6—6 of Fig. 11, of the assembled push button switch embodying the invention,

Fig. 7 is a top plan view of the base member, taken on line 7—7 of Fig. 5,

Fig. 8 is a top plan view of the assembled switch, taken on line 8—8 of Fig. 6,

Fig. 9 is a bottom plan view thereof, taken on line 9—9 of Fig. 6,

Fig. 10 is an end elevational view of the base and contact fingers and bulb housing assembly, showing, fragmentarily and sectionally, the snap plate, taken at line 10—10 of Fig. 8, and

Fig. 11 is a similar end elevational view of the assembled switch of the invention.

As shown in the drawing the push button switch of the invention comprises a base member 10, which may be made, for example, of plastic or other material, having circuit terminal studs 11 (Figs. 3, 4 and 7) in the form of flat plates fixed to the base 10 by suitable means such as square rivets 12 (Fig. 7) passed through the square openings 13 (Fig. 5) said rivets 12 being internally threaded in the base for the reception of binding posts 14 (Fig. 9) to thus connect ends 15, 15' of the circuit to be controlled by the switch. A pair of elongated spring contact fingers 16, 17 (Figs. 1-4) are

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provided; a light permeable housing 18 secured to said fingers as by rivets 36—39 (Figs. 1 and 2) receives the light bulb 19. The bulb filament has extending lead wires 20, 21 (Figs. 1 and 2) which may be secured directly to or simply engage the contact fingers 16, 17.

Alternate ends 22, 23 of the contact fingers 16, 17 are downwardly arcuately bent (Fig. 3) and normally rest on the circuit terminal studs 11 of the base, thereby normally completing the circuit through the bulb 19, illuminating the housing 18. The remaining portions, including the opposite ends, of the contact fingers are straight; thus (Fig. 3) the contact fingers normally are not in direct contact with each other, but are in contact with the bulb and with the circuit terminal studs 11 to complete the circuit through wires 15, 15', contact fingers 16, 17 and the bulb. But, on pressing the bulb housing (button) toward the base, the contact fingers 16, 17 (Fig. 4) are flattened, the straight end of each contact finger being thus brought into engagement with the alternate end (22 or 23) of the other contact finger (Fig. 4), said alternate ends may be arced transversely (Figs. 3 and 4) to enhance the action described. Thus circuit terminal studs 11 of the base are connected directly through the interengaging contact fingers, and the circuit through wires 15, 15' is closed. On release of pressure (Figs. 3 and 10) the direct circuit between the binding posts 14 is opened, the current then passing from one binding post through the bulb and to the other binding post 14.

Thus, normally, the bulb is illuminated and serves as a pilot bulb; when the button is pressed, the switch directly closes the circuit through wires 15, 15'.

The arced ends 22, 23 of the contact fingers are directed toward each other and normally underlie the straight ends of said fingers, as above stated, and, for that purpose, said arced ends of the contact fingers are preferably L-shaped, the angularly directed end portions (22 or 23) of one finger being directed toward and normally underlying the straight portion of the other finger. A snap plate 24 is adapted to be secured to the base and has an opening 25 (Fig. 8) through which the button may be moved as above mentioned. The plate is preferably made of spring material, and complementary interengaging means frictionally secure the plate to the base. For example, the downturned ends of the snap plate 24 may have protuberances 26 to snap into the recesses 27, 28 (Figs. 10 and 5) in the base.

It will be apparent from the foregoing, that the parts may be readily assembled and disassembled. The base member may be provided with apertures 29, 30 (Figs. 5 and 7) to facilitate securing the switch to a supporting surface. The base 10 may have upstanding sides 33, 32 (Figs. 10 and 5) and one or more vertical ribs 34 extending inwardly therefrom, to support the cover plate 24. Housing 18 may have recesses 35 (Fig. 2) as clearance for the ribs.

From the foregoing, it will be noted that, pursuant to the invention, a push button switch structure is provided which is simple and highly efficient in use, the parts of which may be readily manufactured in quantities separately and interchangeable for assembly providing a durable and highly practical switch of uniformly positive action and long lasting life. A further feature of the invention resides in the structural features of the parts, enabling their assembly in simple fashion and without the use of special tools, to complete the unit, and which may be readily disassembled, from time to time, for inspection, repair or replacement of parts.

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

1. A push-button switch comprising a base member, flat terminal studs in said base member for connection

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with a circuit to be controlled by said switch, a pair of elongated flat spring strips, a light permeable bulb housing, means securing the housing to the flat strip springs medially of the length of the latter, a laterally extended end portion at one end of each of the flat strip springs, defining therewith an L-shape, said strips being so secured to said housing with the laterally extended end portion of each strip in crossing relation to and bent below the other strip, a bulb in said housing, said bulb having lead wires passing through the bulb housing and connected to the strips, so that the bulb housing may be depressed to press the ends of the flat spring strips which do not have the laterally extended portions against the so extended portions of the strips, the latter sliding

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on and making positive contact with the flat terminal studs in the base member to complete the connection between the terminals, said L-shaped strips resting on the base member studs but being freely movable thereon and having no rigid connection therewith.

2. In a push-button switch as set forth in claim 1, complementary aligning means on the base member and bulb housing for guiding the bulb housing in its movement upwardly and downwardly on the base member.

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