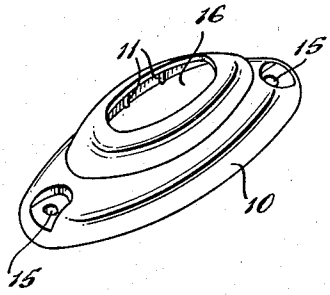
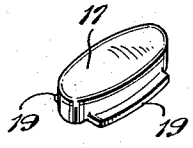
April 24, 1951 W. HUPPERT 2,550,250

ELECTRIC PUSHBUTTON

Filed May 6, 1949 2 Sheets-Sheet 1

Fig. 1.



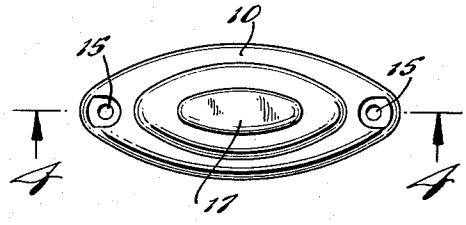
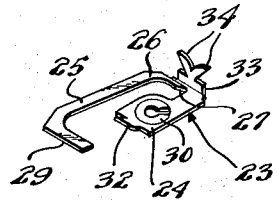
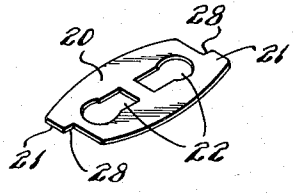
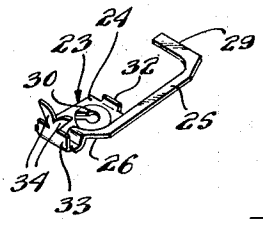




Fig. 2.



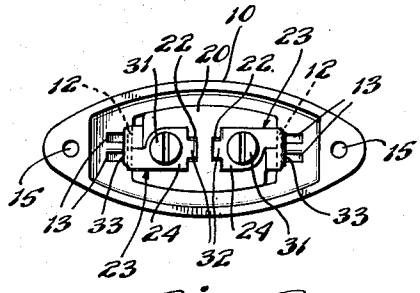




Fig. 3.

INVENTOR.
WILLIAM HUPPERT
BY Lester Dellenbach
ATTORNEY

April 24, 1951 W. HUPPERT 2,550,250

ELECTRIC PUSHBUTTON

Filed May 6, 1949 2 Sheets-Sheet 2

Fig. 4.

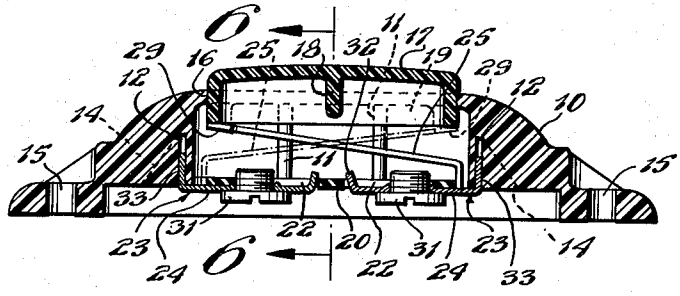



Fig. 5.

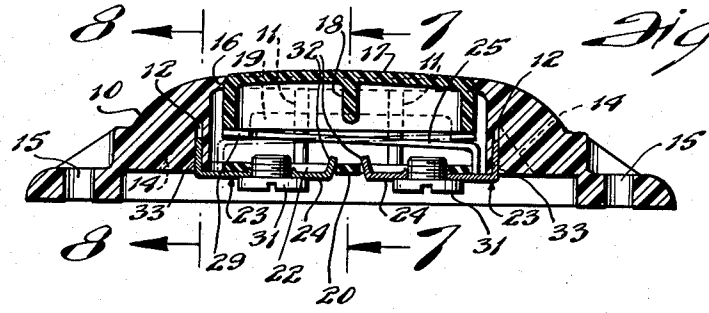



Fig. 6.

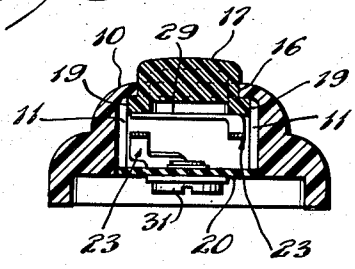
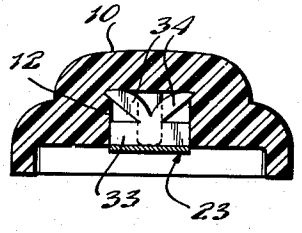



Fig. 8.



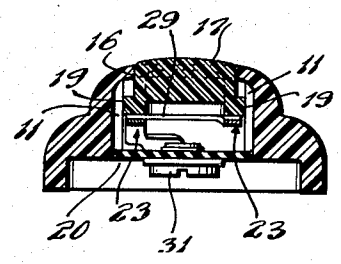




Fig. 7.

INVENTOR.
WILLIAM HUPPERT
BY Lester Williamson
ATTORNEY

Patented Apr. 24, 1951 2,550,250

# UNITED STATES PATENT OFFICE

2,550,250

## ELECTRIC PUSHBUTTON

William Huppert, New York, N. Y.; Ruth E. W. Huppert executrix of said William Huppert, deceased

Application May 6, 1949, Serial No. 91,685

3 Claims. (Cl. 200—159)

1

This invention relates to an improved push button for opening or closing an electric circuit.

One object of the invention is to provide an electric push button in which all of the operative parts are fixed to the casing so that the entire push button may be attached in place or detached as a unit.

Another object is to provide a push button of simple design consisting of few parts.

A further object is to provide a construction that is inexpensive to manufacture and easy to assemble.

A still further object is to provide a push button that is of durable construction and efficient in operation.

These as well as other objects and advantages will be evident to those skilled in the art from the following description, reference being had to the accompanying drawings in which:

Fig. 1 is an exploded perspective view of the parts of the push button;

Fig. 2 is a top or front plan view of the push button;

Fig. 3 is a bottom or rear plan view thereof;

Fig. 4 is a longitudinal vertical section on the line 4—4 of Fig. 2, showing the contact fingers in open circuit position;

Fig. 5 is a similar view showing the contact fingers in closed circuit position;

Fig. 6 is a transverse vertical section on the line 6—6 of Fig. 4;

Fig. 7 is a transverse vertical section on the line 7—7 of Fig. 5; and

Fig. 8 is a transverse vertical section on the line 8—8 of Fig. 5.

In Figs. 4 through 8 of the drawings the push button is shown on an enlarged scale for the sake of clarity of illustration.

The casing 10 is hollow and is preferably made of molded plastic, but it may be made of other suitable material and of any desired design, style, or size. In the particular embodiment shown the casing is molded with four interior side ribs 11 and with two end cavities 12 that are connected with recesses 13, which recesses each have a sloping wall 14. The purpose of these structural features will be hereinafter explained. Two screw holes 15 are provided for the screws (not shown) that attach the casing to its support. The top of the casing has an opening 16 through which the push button proper 17 projects.

The push button 17 is also preferably made of molded plastic. As best seen in Figs. 4 and 5 it may be made hollow for the sake of lightness and economy of material, with a transverse interior

2

strengthening rib 18, and it has flanges 19 along its outer lateral edges that engage the inner surface of the casing about the opening 16 to prevent separation of the button from the casing when the parts are in assembled state.

20 indicates a closure plate of fiber board or other suitable non-conductor substance. The plate has oppositely faced extensions 21 at its two ends, and apertures 22, which apertures as shown in Fig. 1 may each be of key-hole shape having a portion with parallel sides that leads into a circular or round portion. The plate serves as a mounting for the two contact members 23.

Each contact member has a terminal portion 24 and a spring finger 25 connected with the terminal portion and extending in a plane offset from the plane of the latter. The portion 26 that connects the finger to the terminal has an edge 27 that abuts against the companion edge 28 of the closure plate extension 21 and serves as one means for properly and easily locating the contact member relatively to the plate. The outer or free end of the spring finger may be formed with a substantially right-angled arm portion 29. The center of the terminal portion 24 may be stamped or swaged to form a screw-pitch 30 for engagement with the thread of the terminal screw 31. The terminal portion 24 has at one end a bent lip 32 adapted to fit into the aperture 22 between the parallel sided portion thereof, and at the other end a bent portion 33 provided with two diverging anchoring prongs 34.

In assembly, the two contact members are mounted on the closure plate with the plate coming between the terminal and spring finger portions of each, as best seen in Figs. 4 and 5. The lip 32 fits into the parallel sided portion of aperture 22 to hold the contact member against displacement or movement. The plate-contact member assembly is then placed in the hollow of the casing with the marginal edges of the plate supported or resting on the ends of the ribs 11, and with the bent portion 33 of the terminal, together with its prongs 34, inserted in the cavities 12. Pressure is then applied on the terminal portion above the prongs so as to cause the latter to spread apart so as to engage or bite into side walls of the cavity, as seen in Fig. 8, and thus firmly anchor the plate-contact member assembly to the casing. With this construction the casing and the plate-contact member assembly can be handled, applied to or detached from a support, as a unit. The recesses 13 permit of visual inspection to see that the prongs have been properly anchored in place. The terminal screws

31 may be applied either before or after the plate-contact member assembly has been attached to the casing.

The two contact members 23—23 are preferably counterparts, each of which may be made in one integral piece by shearing and bending it to the desired form from a flat blank or strip of brass or other suitable conductor material.

In assembly, the two contact members are mounted on the plate 20 in reverse positions with their terminal portions 24 seated on the rear or outer face of the plate and the spring finger portions 25 extending upward of its front or inner face, and with the connecting portion 26 of each contact member fitting about an end of the plate.

Normally the two spring fingers 25 are out of contact with each other, as in Figs. 4 and 6, but on depressing the button 17 the arm 29 of one spring finger will be pressed into contact with the portion 26 of the other, as seen in Figs. 5 and 7, thus closing the electric circuit of which the push button is a part, or in which it is used.

The plate-contact members assembly results in producing a finished article that is simple to manufacture and that is of reduced height as compared with the various types of push buttons now commonly in use.

Various modifications in the details of the construction hereinbefore described may be made within the scope of the invention.

What I claim is:

1. An electric push button comprising a hollow casing open at the bottom and having an opening through the top, a push button projecting through the top opening, a flat plate closing the bottom opening, and a pair of contact members assembled with and mounted on the plate, each contact member having a spring finger portion extending over the inner face of the plate slightly offset therefrom to engage the push button and a terminal portion seated on the outer face of said plate, the contact members having self-contained means for anchoring the plate-contact members assembly to the casing.

2. An electric push button comprising a hollow casing open at the bottom and having an opening through the top, a push button projecting through the top opening, a flat plate having substantially parallel top and bottom faces closing the bottom opening, a pair of contact members assembled with and mounted on the plate, each contact member having a spring finger portion extending lengthwise over and spaced from the top face of the plate, a terminal portion mounted on the bottom face of the plate, and anchoring prongs that enter into and engage in the walls of a preformed cavity in the casing to secure the plate-contact members assembly to the casing.



3. An electric push button comprising a hollow casing open at the bottom and having an opening through the top, a push button projecting through the top opening, a flat plate closing the bottom opening, said plate having oppositely faced extensions at its ends and openings intermediate its ends, a pair of contact members assembled with and mounted on said plate, each contact member having a spring finger portion, a terminal portion, and a connecting portion having an edge that abuts against an edge of the plate extension, the terminal portion having a lip that enters into the opening in the plate, and integral means on each contact member for anchoring the plate-contact members assembly to the casing.

WILLIAM HUPPERT.


## REFERENCES CITED

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

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 539,079 | Oehring | May 14, 1895 |
| 730,567 | Plassmann | June 9, 1903 |
| 1,531,605 | Gaynor | Mar. 31, 1925 |
| 1,934,470 | Kempton | Nov. 7, 1933 |
| 1,949,806 | Miller | Mar. 6, 1934 |
| 1,992,806 | Benander | Feb. 26, 1935 |
| 2,418,005 | Baker et al. | Mar. 25, 1947 |