M. C. FRANK.

ILLUMINATED SWITCH BUTTON.

APPLICATION FILED JULY 17, 1916.

1,246,080. Patented Nov. 13, 1917.

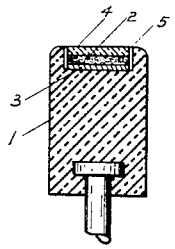


Fig. 1

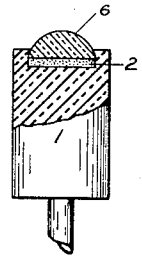


Fig. 2

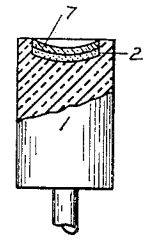


Fig. 3

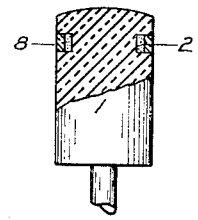


Fig. 4

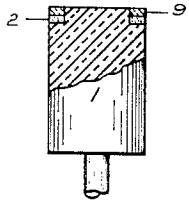


Fig. 5

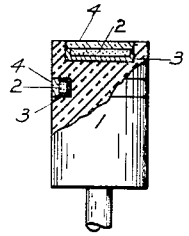


Fig. 6

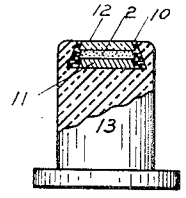


Fig. 7

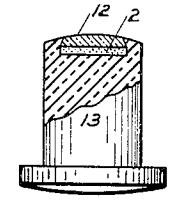


Fig. 8

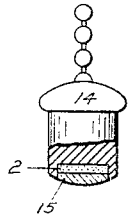


Fig. 9

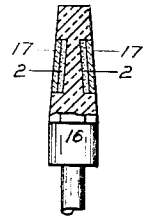


Fig. 10

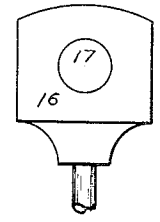


Fig. 11

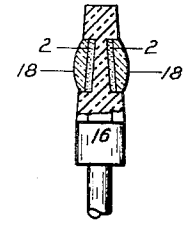


Fig. 12

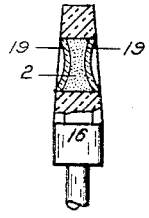


Fig. 13

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UNITED STATES PATENT OFFICE.

MAXWELL C. FRANK, OF PIEDMONT, CALIFORNIA.

ILLUMINATED SWITCH-BUTTON.

1,246,080. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed July 17, 1916. Serial No. 109,646.

To all whom it may concern:

Be it known that I, MAXWELL C. FRANK, citizen of the United States, residing at Piedmont, county of Alameda, State of California, have invented certain new and useful Improvements in Illuminated Switch-Buttons, whereof the following is a specification.

This invention relates to switch buttons and has for its primary object to provide means for illuminating such buttons so that they will be visible in the dark.

Another and more specific object of the invention is to provide switch buttons of the push, pull or other types with a luminous substance applied in various ways and protected and covered by a transparent material, such as glass or celluloid or other suitable material, embedded or otherwise secured within the button to allow the illumination to be clearly observed.

With these and other objects in view, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter fully described, illustrated and claimed at the end hereof.

In the one sheet of drawings forming a part of this application:—

Figure 1 is a sectional elevation of a push button, having a recessed end containing luminous material, a reflector and a transparent protecting cover therefor.

Fig. 2 is a side elevation partly in section, of a push button showing a curved protector for the luminous material.

Fig. 3 is a similar view showing the use of a concavo-convex washer protecting the luminous substance.

Fig. 4 is a similar view showing a push button having its periphery recessed to contain a ring of luminous material and a transparent protecting ring therefor.

Fig. 5 is a similar view showing a push button having an end-opening peripheral recess containing the luminous material and its protector.

Fig. 6 is a similar view showing two portions of a switch button recessed and illuminated.

Fig. 7 is a side elevation partly in section of a door bell push, having its end illuminated.

Fig. 8 is a similar view but showing another modification.

Fig. 9 is a side elevation partly in section showing the application of my invention to an acorn pull.

Fig. 10 is an edge elevation partly in section showing a turn button having its faces recessed to receive luminous material and the transparent coverings.

Fig. 11 is a side elevation of Fig. 10 and Figs. 12 and 13 are views showing additional applications of my invention to a turn button.

Referring in detail to the drawing by numerals, 1, in Fig. 1, designates an opaque push button, having a recess formed in the outer end thereof to contain a layer of luminous material 2, which is backed by preferably a reflecting disk 3 which will not absorb light rays and which may be depressed as shown in Fig. 6, to form a casing and which is protected on its other side by a cover 4 of transparent material. The luminous material, reflector and transparent cover are secured within the recess of the opaque button 1 by any suitable adhesive 5. This construction provides a neat and practical application of my invention to a button wherein the transparent covering comes flush with the outer end of the button.

In the construction shown in Fig. 2, the button is, in the process of its manufacture, molded or formed partly around a rounded glass protector 6, which guards the luminous material 2 from wear, and soilure.

In Fig. 3 a flexible transparent washer 7, such as celluloid for example, is cupped in a recess formed in the end of the button to protect the luminous material 2 and constitutes another very apt embodiment of my invention.

In depressing the washer which is made a shade larger in diameter than the hole, a compressive force is effected at its periphery, which not only binds itself in position, but also holds the luminous substance therein which it covers and contacts.

In Fig. 4 a peripheral recess is formed in the button, adjacent to and spaced from the outer end to receive a ring of luminous material 2, which is protected by a transparent ring 8 as shown.

Fig. 5 shows another application of the ring idea wherein the button 1 is formed with an end-opening, annular, peripheral recess to receive the luminous material 2 and a transparent ring 9.

In Fig. 6 both peripheral surfaces have re-

cesses formed thereon, each containing luminous material 2 applied to its respective backing 3, and each having a transparent or translucent cover 4, secured therein in front of said luminous material.

The backing is made preferably of a reflecting material such as bright or polished metal, and is formed in the shape of a casing as shown, in which the luminous material seats and serves the purpose of reflecting the light rays, and acting as a base protector for the luminous substance from the direct heat of the hot vulcanite or other material of which the button is composed in the process of its manufacture, when being formed in the mold leaving recesses embedding the illuminating units.

In Fig. 7 I have shown a door bell push button 13 having a frusto-conical recess formed in its outer end in which is secured by cement 10, a layer of luminous material 2, a backing 11 of non-light absorbent material and a transparent protector 12. These three elements are of substantially the same diameter having their edges beveled to produce frusto-conical formations, so that the cement will take firm hold.

In Fig. 8 I have shown another application of my invention to a door bell push 13, consisting of a beveled transparent protector 12, covering the luminous substance 2 and the whole embedded in the button during the process of manufacture, similar to Figs. 2, 4, 5 and 6.

Fig. 9 shows an acorn pull 14 having its lower end recessed to receive a layer of luminous material 2 and a glass facing 15.

In Figs. 10 to 13 inclusive, I illustrate adaptations of my invention to a turn button electric switch 16. In Fig. 10 a recess is formed in each side of the turn button to receive a strip or layer 2 of luminous material and a protective transparent covering 17 made flush with the surface of the button.

In Fig. 12 the same construction as shown in Fig. 10 is employed with the exception that here the luminous material is protected by plano-convex members 18.

Fig. 13 shows the button as formed with a circular opening extending entirely therethrough to contain a layer of luminous material 2, which may be in powdered form and which is held in position by a pair of concavo-convex transparent protectors 19 as shown.

What I claim and desire to secure by Letters Patent of the United States, is the following, to wit:—

1. A switch button having embedded in the end thereof, a layer of luminous material, a disk having a reflecting surface for said luminous material, and a transparent face for said material adapted to retain the same in position.

2. A switch button formed with a peripheral recess, a ring of luminous material within said recess, and a transparent wearing face within said recess adapted to protect said luminous material.

3. A switch button having a recess formed at the end thereof, a disk provided with a reflecting surface in said recess, a layer of luminous material positioned upon said disk, and a transparent wearing face for protecting said luminous material and forming a closure for said recess.

4. A switch button having a recess formed in the end thereof, a depressed disk in said recess, a layer of luminous material positioned within said depressed disk, and a transparent protector in front of said luminous material secured in position within the inner walls of said recess and closing the same.

5. A switch button comprising a cylindrical body formed with a concentric recess, luminous material and a transparent cover facing in said recess, the facing contacting and holding the luminous material in place.

6. In combination with a switch button, a wearing face of transparent material covering and contacting a layer of luminous substance, said wearing face and luminous layer embedded in the material of the button and forming a part thereof.

In testimony that I claim the foregoing I have hereto set my hand in the presence of two witnesses, this 3 day of July, 1916.

MAXWELL C. FRANK.

Witnesses:

L. BEARDEN,

F. L. WOLFE.