

No. 674,398.

Patented May 21, 1901.

S. BOWER.
PUSH BUTTON.

(Application filed Nov. 26, 1900.)

(No Model.)

Fig. 1.

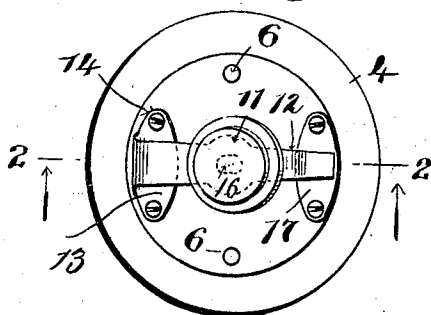


Fig. 4.

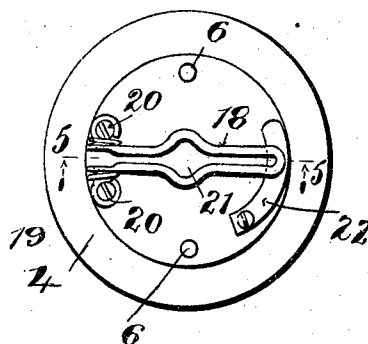


Fig. 2.

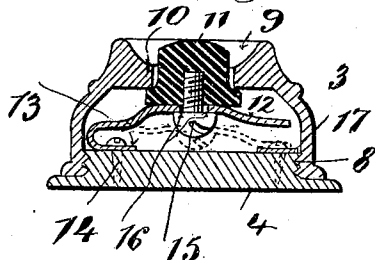


Fig. 5.

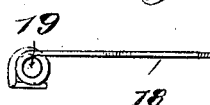
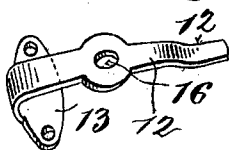


Fig. 3.



WITNESSES

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SIGMUND BOWER, OF BROOKLYN, NEW YORK.

PUSH-BUTTON.

SPECIFICATION forming part of Letters Patent No. 674,398, dated May 21, 1901.

Application filed November 26, 1900. Serial No. 37,736. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND BOWER, a subject of the Emperor of Germany, residing at the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Push-Buttons, of which the following is a specification.

My invention relates to improvements in push-buttons, the object being to provide a simple and durable push-button with but few parts, one that is cheap to manufacture, convenient to install or inspect, and easy to operate, and one in which an effective contact may always be secured.

In the ordinary push-button the button is not secured to any of the other parts, and thus is liable to be lost when the case is open for installation or inspection and causes more or less trouble when putting the device together or closing the case. Another difficulty with the ordinary button resides in the fact that the contacts become oxidized and dirty and prevent making any effective electrical connection. My invention is designed to overcome these objections in a simple and economical manner; and to this end there is provided a case comprising a shell and a base secured together, a push-button projecting through the shell and mounted upon a spring-contact, the free end of the latter being adapted to engage another contact, the whole being so constructed and arranged that the button carried by the spring does not become misplaced when the case is open and that the spring-contact slides over the other when depressed, keeping their contact-surfaces clean and bright. A position-stop for the button is also provided.

Having reference to the accompanying drawings, forming a part of this application, in which the same reference characters represent corresponding parts throughout the several views, Figure 1 is a plan view of one form of my invention with the shell removed. Fig. 2 is a sectional elevation of the same on the line 2 2, Fig. 1. Fig. 3 is a perspective view of the spring-contact. Fig. 4 is a plan view of another form of the invention in which the spring-contact is formed of wire suitably bent up; and Fig. 5 is a sectional elevation of this

wire spring-contact, taken on the line 5 5, Fig. 4.

In the figures the push-button has a case 3, consisting of a base 4 of insulating material, perforated at 6 for the reception of screws or nails with which to secure the push-button in position, and a shell adapted to be secured thereto, as by the screw-threads 8, the shell being provided with a central depression 9, having an opening 10, through which projects the button 11 for operating the instrument.

Within the case 3 and located diametrically or transversely across it, so as to be substantially at right angles to the button 11, is a spring-contact 12, forming one terminal of an electric circuit and being provided with a transverse foot 13, as shown in Fig. 3, which is perforated to receive screws 14 to firmly secure it to the base 4. The body portion of this spring 12 is bent back over the foot and, though not necessarily so, is here shown curved upwardly about midway of its length.

In order to prevent the button from becoming separated from the other parts when the shell is removed, it is securely fastened to the spring 12 in any convenient way, as by a pin or screw 15, which passes through an opening 16 in the said spring 12 and is threaded into the bottom or lower end of the button.

While not necessary to an operative device, providing sufficient clearance about the button 11 is allowed, it is thought better to make this opening 16 in the spring-contact 12 in the form of a longitudinal slot, so that as the button and spring are pressed down the button will slide on the spring toward the fixed end and the pin or screw 15 will have a corresponding travel in the said slot. As the spring-contact 12 descends in the operation of the device and the curved portion is straightened the spring is elongated and its free end is projected or slid forward over the contact 17, thus keeping their engaging surfaces bright. The slot 16 therefore not only allows the spring to freely travel until its free end engages the other contact, but it allows the additional endwise movement of this free end caused by springing the spring-strip 12 out of its normal position. The head

of the screw 15 striking against the base 4 acts as a positive stop for the button 11 to prevent too great an action upon the spring 12 and also indicating to the operator that the circuit has been closed.

The spring-contact may take the form that is shown in Figs. 4 and 5, wherein a wire is bent back upon itself to form the body portion 18, both ends being coiled downwardly, as at 19, to give it a better spring and then bent outwardly to form rings for the screws 20, by which it is attached to the base 4. The elongated opening 21, which corresponds to the slot 16, is formed by properly shaping the side wires of the body 18. This spring may be curved upwardly, as is the spring-contact 12, or it may be straight, as shown.

The wires of the electric circuit are attached to the terminals 12 and 17 or 18 and 22 and are led away all in the usual manner. A pin or other connection may be used in place of the screw 15 to secure the button on the spring. It is also within the spirit of my invention, broadly considered, to cause spring 12 to operate separate contacts instead of closing the electric circuit itself.

Although I have described the invention with reference to the details of construction, I would have it understood that it is not limited thereto, as I hold it to include all such changes and alterations as fairly fall within the spirit and scope thereof; but

What I claim, and desire to secure by Letters Patent, is—

1. In a push-button, the combination with a case, of a spring-contact therein, another contact with which the said spring is adapted to engage to close an electric circuit, and a button movable in an opening in said case, and movably secured to said spring to operate the same.

2. In a push-button, the combination with a case, of a contact-spring therein located diametrically across the same, another contact for engagement therewith located adjacent the free end of said contact-spring, and a button for operating the instrument movable in an opening in said case, and movably secured to said spring-contact to prevent separation therefrom when the case is open.

3. In a push-button, the combination with a case, of a contact-spring therein diametrically extending across the same, another contact located adjacent the free end of said spring for engagement therewith to close the circuit, and a button movable through an opening in the case and movably secured to said spring about midway of its length.

4. In a push-button, the combination with a case comprising a base-plate of insulating material and a shell secured thereto of a spring contact-strip therein secured at one end to said base and extending diametrically across the shell, a contact-plate also on said base, and located beneath the free end of said spring-strip, and a button movable through an opening in said shell and mounted upon

and movably secured to said spring-strip about midway of its length.

5. In a push-button or the like, the combination with a case, of a spring-contact therein, another contact with which said spring is adapted to engage to close an electric circuit, and a button movable in an opening in the case, and loosely secured to said spring to permit a slight longitudinal movement between them.

6. In a push-button, the combination with a case, of a contact-spring therein located diametrically across the same, another contact for engagement therewith located adjacent the free end of said contact-spring, and a button passing through an opening to said case movably secured to said spring-contact whereby both button and spring can readily partake of their respective movements.

7. In a push-button, the combination with a case, of a contact-spring therein diametrically extending across the same, another contact adjacent the free end of said spring for engagement therewith to close the circuit, and a button passing through an opening in the case, and movably secured to said spring about midway of its length, to permit the button to slide slightly upon the spring, whereby the button remains with the spring when the case is opened and the ordinary movements of both button and spring are allowed when the case is closed.

8. In a push-button, the combination with a case comprising a base-plate of insulating material and a shell secured thereto of a spring contact-strip therein secured at one end to said base and extending diametrically across the shell, a contact-plate also on said base, and located beneath the free end of said spring-strip, and a button movable through an opening in said shell, and slidably secured to said spring-strip about midway of its length.

9. In a push-button, the combination with a case, of an insulated spring-contact therein, another insulated contact against which said spring-contact is adapted to strike when operated to close the circuit, and means as a button movably secured to said spring-contact to operate it and cause it to rub or slide upon the other, whereby an effective connection between them is secured.

10. In a push-button, the combination with a case, of an insulated spring-contact therein located diametrically across the same, an insulated contact-plate located adjacent the free end of said spring-contact, a button in said case movably secured to the spring to operate it, and means to cause its free end to slide or rub over the other contact and thereby secure a good electrical connection between them.

11. In a push-button, the combination with a case comprising a base and a shell secured thereto, of a contact-spring secured at one end to the base within the shell and extending diametrically across the same, the said

spring having its body portion movably located some distance above the base, and a contact-plate located beneath the free end of said spring, and a push-button movable through said shell and movably secured to the said body portion of the spring-contact for operating it, and to spring it out of the normal form, whereby the free end first strikes and then slides over the other contact to insure a good electric connection.

12. In a push-button, the combination with a case comprising a base-plate of insulating material and a shell secured thereto, a contact-spring having at one end a transverse foot integral therewith projecting beyond the sides of the spring and adapting it to be attached to the base, the said spring being bent over said foot and extending transversely across the said base and being curved upwardly about midway of its length, a stationary contact-plate located beneath the free end of said spring, and a button passing through the shell movably engaging the curved portion of the spring whereby the same is pressed down and elongated to cause its free end to strike and slide over the other contact.

13. In a push-button, the combination with a case, of a button movable in the opening therein, an insulated contact-spring located within the shell at substantially right angles to said button and having an elongated opening therein, near said button, another insulated contact with which the free end of said spring engages to close the circuit, and means

passing through said opening to secure said button to said spring, and at the same time to freely permit its downward movement and change of form.

14. In a push-button, the combination with a case comprising a shell and a base connected together, of a button movable in an opening in said shell, an insulated contact within the shell located substantially at right angles to said button and having an elongated opening therein about midway of its length, and a pin or screw passing through the opening into the push-button, whereby the button is secured to the spring-contact and at the same time does not impede its downward movement or change of form by springing.

15. In a push-button, the combination with a case, of a button passing through an opening therein, a spring-contact therein substantially at right angles to said button, a screw or pin extending through an enlarged opening in said spring into said button, the head of said screw or pin being adapted to strike against said case and to act as a positive stop for said button, and another contact located adjacent the free end of said spring for engagement therewith.

Signed in the city, county, and State of New York this 14th day of November, 1900.

SIGMUND BOWER.

Witnesses:

CHAS. G. HENSLEY,
SOPHIE SEKOSKY.