No. 741,905. PATENTED OCT. 20, 1903.

E. W. HAM.

PUSH BUTTON.

APPLICATION FILED JAN. 10, 1903.

NO MODEL.

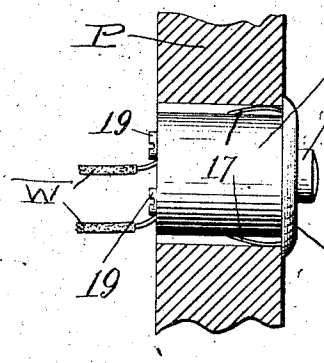


Fig. 1

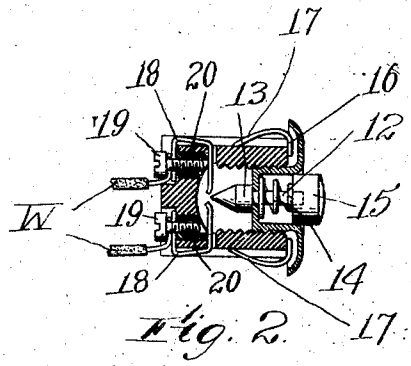


Fig. 2.

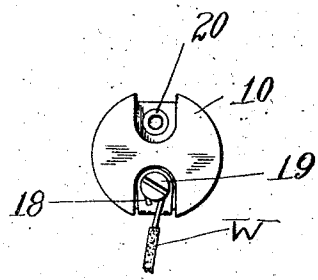


Fig. 3.

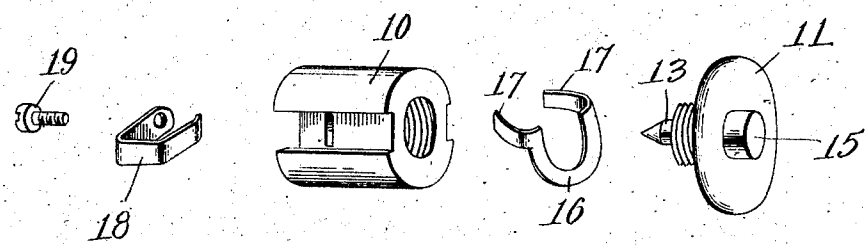


Fig. 4

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No. 741,905. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

EDWIN W. HAM, OF WORCESTER, MASSACHUSETTS.

PUSH-BUTTON.

SPECIFICATION forming part of Letters Patent No. 741,905, dated October 20, 1903.

Application filed January 10, 1903. Serial No. 138,468. (No model.)

To all whom it may concern:

Be it known that I, EDWIN W. HAM, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Push-Button, of which the following is a specification.

This invention relates to that class of circuit-making constructions or push-buttons which are employed for closing the circuits of call-bells or for similar purposes.

The especial object of this invention is to provide a strong, compact, inexpensive, substantially dust-proof push-button construction which can be secured in place in the wall or panel in which it is desired to use the same without materially marring or disfiguring the wall or panel, which will provide simple and efficient means for connecting the electrical wires, which means will afford a direct connection between the wires and contact-pieces which extend to the inside of the casing, and which will not require the use of screws or other fastenings for holding the construction in place.

To these ends this invention consists of an improved push-button as an article of manufacture and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a sectional view of sufficient part of a wall or panel to illustrate the application of a push-button constructed according to my invention thereto. Fig. 2 is a sectional view of the construction. Fig. 3 is a rear end view thereof, and Fig. 4 is a perspective view showing the several parts of a push-button constructed according to this invention occupying detached positions.

Push-buttons constructed according to my invention have been especially designed for use in parlor-cars or in other situations where it is desired to provide simple, compact, and inexpensive buttons which may be secured in woodwork or similar walls without materially disfiguring the same. To accomplish this result, push-buttons constructed according to my invention have been especially designed so as to comprise a cylindrical body or casing which has combined therewith a holding-clip or spring so arranged that the body of the push-button may be inserted into a plain auger-hole or other cylindrical cavity and will be self-sustained therein, so as not to require the use of screws or other fastenings.

Further objects of my invention are to provide push-buttons which will be reliable in operation by reason of the fact that the operative parts will be inclosed in a substantially dust-proof casing and by reason of the fact that all electrical connections are made in as direct and simple a manner as possible.

Referring to the accompanying drawings for a detail description of a push-button constructed according to my invention, P designates part of a partition or panel having a cylindrical socket or plain hole for receiving the body portion of the push-button. The body portion of the push-button is of cylindrical shape and is preferably of cast insulating material having one closed end, with a cavity or recess opening into the other end. Threaded into the body portion 10 is a front piece or face-plate 11. The front piece or face-plate 11, as shown most clearly in Fig. 2, is preferably formed of sheet metal and is provided with a central pressed-in hub, which is threaded into the end of the body portion 10. Extending through the threaded hub of the face-plate 11 is an operating-rod 12, having an enlarged conical contact-point 13 on its inner end and a finger-piece or button 15 on its outer end. Coiled around the operating-rod 12 is a spring 14, preferably of conical form, so that the convolutions thereof will nest comparatively compactly together when the finger-piece is pushed in.

In order to hold the body portion of the push-button in position where it is to be used, I preferably provide a spring-clip or holding-piece, which is fastened in place between the body portion and sheet-metal face-plate. As illustrated most clearly in Fig. 4, this holding-clip comprises a partial washer or body 16, having rearwardly-extending spring-arms 17, engaging grooves in the sides of the body portion 10. By means of this construction whenever it is desired to fasten a push-button into a wooden panel or other supporting material it is simply necessary to bore a plain hole corresponding with the diameter of the body portion 10. When the body of the push-

button is placed in a plain hole of this kind, its holding-clips will have sufficient tension to fasten the push-button in place with sufficient firmness to prevent its being accidentally displaced, while at the same time whenever it is desired to remove the push-button or change the location thereof the same can be readily withdrawn from its socket and the comparatively small hole which has been made for receiving the body of the push-button can be plugged and refinished without materially marring the woodwork or other material in which the push-button may be located.

The electrical connections controlled by the finger-piece of the push-button are preferably arranged in as simple and direct a manner as possible, so that the electric wires may so connect that little chance will be afforded for short-circuiting or electrical resistance, while at the same time the operative parts will be inclosed in a substantially dust-proof casing. To accomplish these results, I preferably employ substantially U-shaped contact-pieces 18, the ends of which form spring-arms extending in through slots in the walls of the casing to coöperate with the conical point 13 of the operating-rod. At their rear ends the contact-pieces 18 are perforated to receive the fastening-screws 19. The heads of the fastening-screws 19 preferably fit into counterbored recesses in the rear of the body 10, as shown in Fig. 3, and the screws 19 may engage small metal bushings 20, which are cast into the rear end of the insulating-casing 10. The screws 19 by means of this construction are utilized both for holding the contact-pieces 18 in place and for forming binding-posts to connect the wires W directly to the contact-pieces. By having the heads of the screws 19 fitting into recesses or counterbored sockets the walls of these sockets will hold the ends of the wires W in place, so that the ends of the wires will be directed back away from each other to prevent the ends of the wires being bent into contact to accidentally produce short circuits.

I am aware that changes may be made in the construction of my push-button without departing from the scope of my invention as expressed in the claims and that constructions may be devised embodying a part only of the features which I have herein shown and described.

I do not wish, therefore, to be limited to the construction herein illustrated; but

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

1. As an article of manufacture, a push-button construction comprising an insulating-casing, two substantially U-shaped contact-pieces, one arm of each of said contact-pieces projecting through a slot in the side wall of the insulating-casing, and the other arm of said contact-piece extending around to the rear end of the casing, and means for making connection between the ends of the contact-pieces which are extended into the inside of the casing.

2. As an article of manufacture, a push-button construction comprising a cylindrical insulating-casing with a closed inner end, and having oppositely-disposed grooves in its outer face, two substantially U-shaped contact-pieces mounted in the grooves, one arm of each contact-piece extending through a slot to the inside of the casing, while its other arm extends around to the other end of the casing, a screw fastening each contact-piece to the end of the casing and furnishing means for connecting a wire thereto, and a contact-making plunger for making connection between the ends of the contact-pieces which extend to the inside of the casing.

3. As an article of manufacture, a push-button construction comprising internally-threaded bushings, and insulating-casing cast around the bushings, contact-pieces having arms extending through slots in the side walls of the casing, with the other ends of said contact-pieces extending around to the rear of the casing, screws threaded into the bushings and serving as fastenings for the contact-pieces and as binding-posts for connecting the wires thereto, and means for establishing connection between the contact-pieces.

4. In a push-button construction, the combination of a cylindrical insulating-casing, a front piece or face-plate secured to the end of the casing, and a spring holding-clip fastened in position by the face-plate and serving to hold the push-button in the socket or recess into which the same is fitted.

5. As an article of manufacture, a push-button construction comprising a cylindrical insulating-casing, a sheet-metal face-plate threaded to the casing, and a holding-clip fastened in place by the face-plate and consisting of a partial washer-shaped body with spring-arms extending from the ends thereof.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWIN W. HAM.

Witnesses:
LOUIS W. SOUTHGATE,
PHILIP W. SOUTHGATE.