No. 887,166. PATENTED MAY 12, 1908.

H. WILHELM.

ELECTRIC PUSH BUTTON.

APPLICATION FILED AUG. 1, 1907.

Fig. 1.

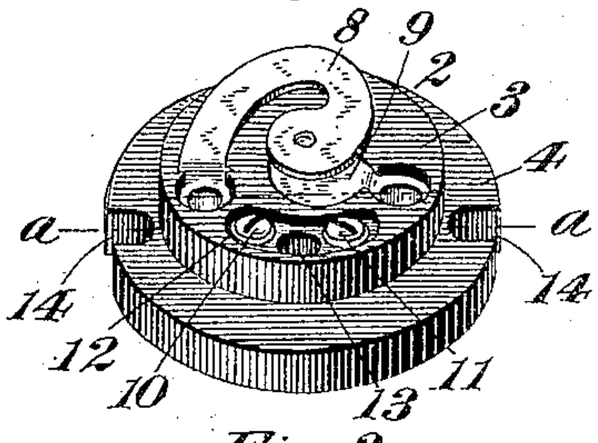


Fig. 2.

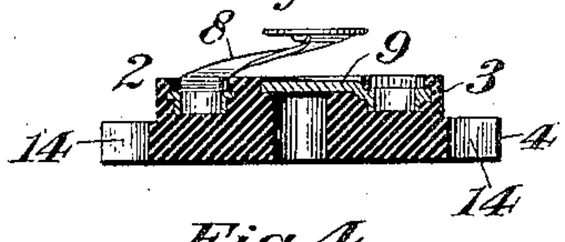
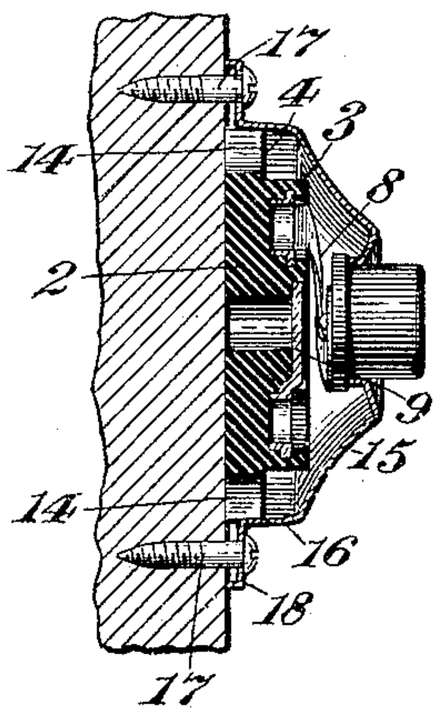
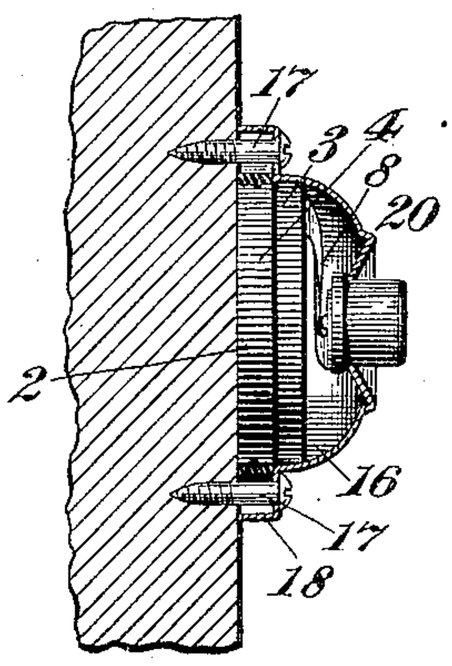


Fig. 3.

Fig. 4.

Fig. 5.





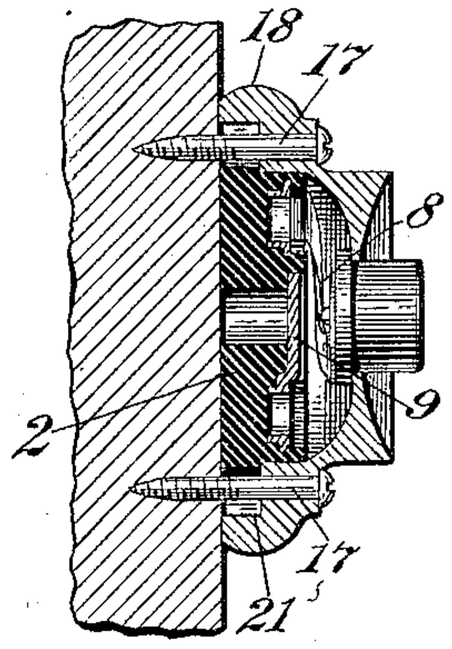


Fig. 6.

Fig. 7.

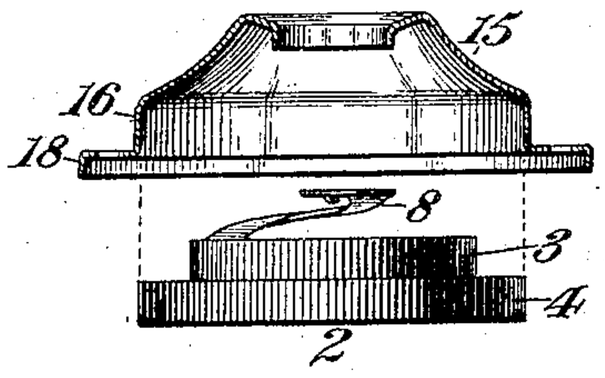


Fig. 9.

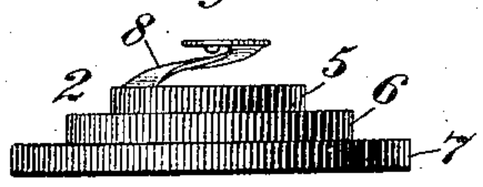
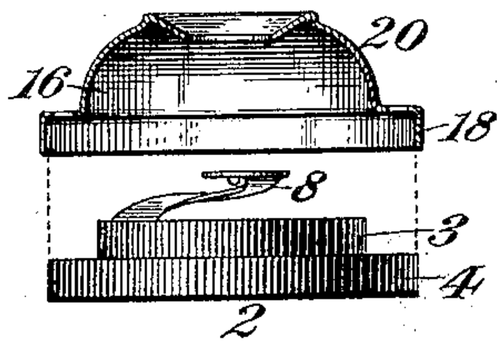
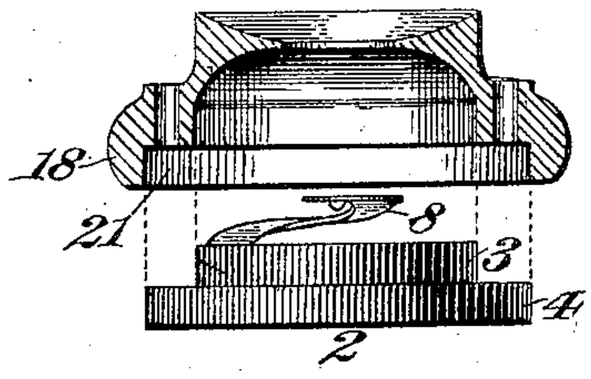


Fig. 8.





Witnesses;

L. L. Edwards.

H. D. Penney

Inventor:

Henry Wilhelm.

By his Attorney,

F. A. Richards.

UNITED STATES PATENT OFFICE.

HENRY WILHELM, OF NEW YORK, N. Y.

ELECTRIC PUSH-BUTTON.

No. 887,166. Specification of Letters Patent. Patented May 12, 1908.

Application filed August 1, 1907. Serial No. 386,552.

To all whom it may concern:

Be it known that I, HENRY WILHELM, a citizen of the United States, residing in New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric Push-Buttons, of which the following is a specification.

The present improvement relates to electric push buttons, the object of the invention being to provide a combination base or fiber back which will enable it to be used with various sizes of caps or shells, thereby obviating the necessity of providing different sizes of fiber backs for different sizes of caps or shells, and also obviating the necessity of the retail purchaser first ascertaining the size of the cap in use before purchasing a new fiber back when the contacts or other parts of such backs have become worn out, and to furnish a combination base which can be used with either metal or wooden caps already in use.

At the present time the market is supplied with metal caps or shells of several sizes, usually two sizes, one a small cap and the other a large one, and is also supplied with wooden caps. For each of these metal caps it has been necessary to supply a particular size of fiber back, one not being adapted for use with the other, and for the wooden cap a screw threaded wooden back has been deemed necessary, thus requiring several sizes to be made and also requiring that a purchaser know exactly the diameter of the shell in use when purchasing a new fiber back. In order to overcome these disadvantages and enable one size of fiber or molded back to be used with any size of the ordinary cap, and to do away with the threaded wooden back, I provide an improved back which is interchangeable with the several sizes of caps hereinbefore referred to.

In the drawings accompanying and forming part of this specification, Figure 1 is a perspective view of this improved fiber back; Fig. 2 is a sectional view thereof, taken in line *a*—*a* of Fig. 1; Fig. 3 is an enlarged sectional view taken in said line *a*—*a*, showing the application of this improved fiber back to a large size cap or shell; Fig. 4 is a similar sectional view, but shows the application of such back to a small size cap or shell; Fig. 5 is also a similar sectional view, showing the application of such back to a wooden cap or shell; Figs. 6, 7 and 8 are respectively part sectional views of the caps and improved fiber back separated, the backs in position to be inserted into the caps, these views illustrating the application of the same fiber back to each of said caps; and Fig. 9 is a view of a modified form of fiber back.

Similar characters of reference indicate corresponding parts throughout the different figures of the drawings.

This improved fiber back 2 comprises an integral or rigidly formed structure or disk of step formation forming what may be properly termed superimposed disks 3, 4, one of less diameter than the other, thereby forming a plurality of steps, Figs. 1 to 8 showing the fiber back made with a pair of steps, and Fig. 9 illustrating it with three steps 5, 6 and 7. The diameter of the larger step will correspond with that of the usual large size cap now on the market, while the next step will correspond with the diameter of the usual small cap now on the market. This improved fiber back 2 may be provided with contact springs 8 and 9 in the usual way, but in the preferred form thereof these springs are molded within the back during the formation thereof. The back is also provided with the usual screws 10 and 11 for the connection of the ends of the positive and negative wires, and these screws pass into the ends of the contact springs, for which purpose the disk 3 is provided with a recess 12, an opening 13 being provided through the fiber back for the passage of the wires to the contact-springs. The larger or base step or disk of the fiber back is provided with a pair of diametrically opposed recesses 14 in the periphery of such disk. All of the metal parts are properly insulated from each other in this construction, as will be observed from an inspection of the drawings.

When it is desired to use the fiber back with the larger size metallic shell or cap 15, it will be seen from an inspection of Figs. 3 and 6 that it is merely necessary to insert the back 2 into the cap 15, the diameter of the larger disk being of a size to fit the base or bell portion 16 of the shell, the screws 17 for attaching the shell or cap to the wall at this time passing through the openings provided therefor in the shell rim 18 and at points outside of the edge of the base disk. When, however, it is desired to use the smaller cap 20, as illustrated for instance in Figs. 4 and 7, the back is inserted into such cap, the base disk 4 at this time fitting into the rim portion 18 of the cap, while the smaller disk 3

projects into the shell proper 16, the fastening means or screws 17 for attaching the shell to the wall passing in this instance through the recesses 14 in the base disk 4 and inside of the edge of the base disk.

When it is desired to use the fiber back with a wooden cap, which latter is preferably provided with an annular recess 21, see Figs. 5 and 8, the back is merely inserted in the manner shown in Fig. 5, with the base or larger disk 4 fitting into the annular recess 21 of the rim 18 of the cap, the screws or other fastening means for attaching the cap to the wall passing through the recesses 14 of the back in the same manner as that just described in connection with Figs. 4 and 7.

From the foregoing it will be thus seen that the same fiber back may be used with various sizes of shells or caps, the larger or bottom disk fitting at one time within the main or bell portion of a large cap and at another time within the rim of a small cap or shell, thus obviating the necessity of keeping various sizes of fiber backs on hand for use with different sizes of shells or caps. One of the chief advantages of the present improvement is that this improved back may be used with wooden shells or caps, thus doing away with the necessity of providing threaded backs for such caps. In other words, for the interior of a house or building wooden push buttons are usually provided, and these wooden push buttons have heretofore been furnished with wooden backs, the attachment of which to the shell or cap has been by means of threads formed on a part of the back and on the interior of the shell or cap. Not only are these threads difficult to cut, but they quickly wear, and if cut when the wood is green they rip off when the wood becomes dry and frequently when the wood warps the threads do not hold, the cap pulling off on the slightest manipulation. Moreover, in use children frequently unscrew the caps with the buttons therein and they become lost. Furthermore, in order to attach this form of cap to the wall or other support the screws or other fastening means pass through the back, which must be attached to the support or wall before the cap is screwed on, and the openings for these screws,—owing to the small diameter of the back,—are adjacent to, and one of them usually under one of the contact springs, so that it is somewhat difficult to use a screw driver for the purpose of attaching the back while the contact springs are in place. All of these disadvantages, as well as others, are overcome by the provision of a back having openings or recesses in the back adjacent to or at the edge thereof for the passage of the fastening means for the push buttons. For by the provision of these openings or recesses the screws or other fastening means for holding the back in place may be inserted through the wooden cap or shell to pass into the support or wall in the same manner that they pass through the rim of the metal cap, the screws 17, Fig. 5, passing through the openings or recesses 14 in the back as in the metal push button shown in Figs. 4 and 7, without the necessity of providing a threaded back and threaded cap or shell. Moreover, the provision of these recesses or openings, which may be of various forms if desired, serves to position the back properly with relation to the cap. Of course, it is understood that the number of recesses will correspond with the number of screw-openings in the cap, two usually being provided. If the wooden push button is of large size the fastening screws passing through the rim thereof will be located exteriorly of the edge of the back, as in the large size metal cap Figs. 3 and 6, but if of small or medium size, as shown for instance in Fig. 5, these screws will pass through the recesses 14 of the back in the same manner as in the small or medium size metal cap shown in Figs. 4 and 7. Thus, by forming the back in the manner shown I am able to use it with either large or small size metal caps or shells, and also with wooden caps or shells, entirely doing away with the threading of such caps and avoiding the use of threaded wooden backs.

I claim as my invention:

1. A push button comprising a cap or shell having an annular rim provided with openings for the passage of fastening devices, and a one-piece back made up of disks of different diameters, each disk having an unthreaded, smooth edge, the base disk of a size to fit either the bell portion of a large-sized cap or the rim portion of a small-sized cap and having recesses therethrough opening at its edge for the passage of fastening devices and adapted to register with the openings in the rim of the cap when applied to a small-sized cap.

2. An insulating back for push buttons, comprising a one-piece member made up of disks of different diameters, each disk having an unthreaded, smooth edge, the larger disk of a size to fit either the bell portion of a large-sized cap or the rim portion of a small-sized cap and having recesses therethrough opening at its edge.

3. An insulating back for push buttons, comprising a disk having a smooth, unthreaded edge and of a size to fit either the bell portion of a large-sized cap or the rim portion of a small-sized cap and having recesses therethrough opening at the edge thereof for the passage of fastening devices.

HENRY WILHELM.

Witnesses:
C. A. WEED,
GEORGE M. WHEELER.