No. 854,205. PATENTED MAY 21, 1907.

F. W. ERICKSON.

CIRCUIT CLOSING DEVICE.

APPLICATION FILED JAN. 29, 1907.

Fig. 1.

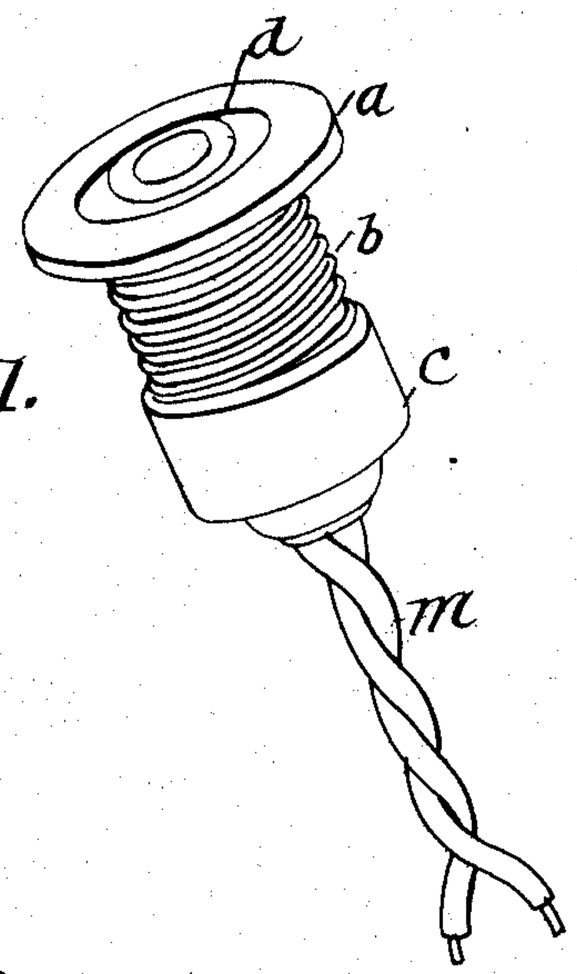


Fig. 2.

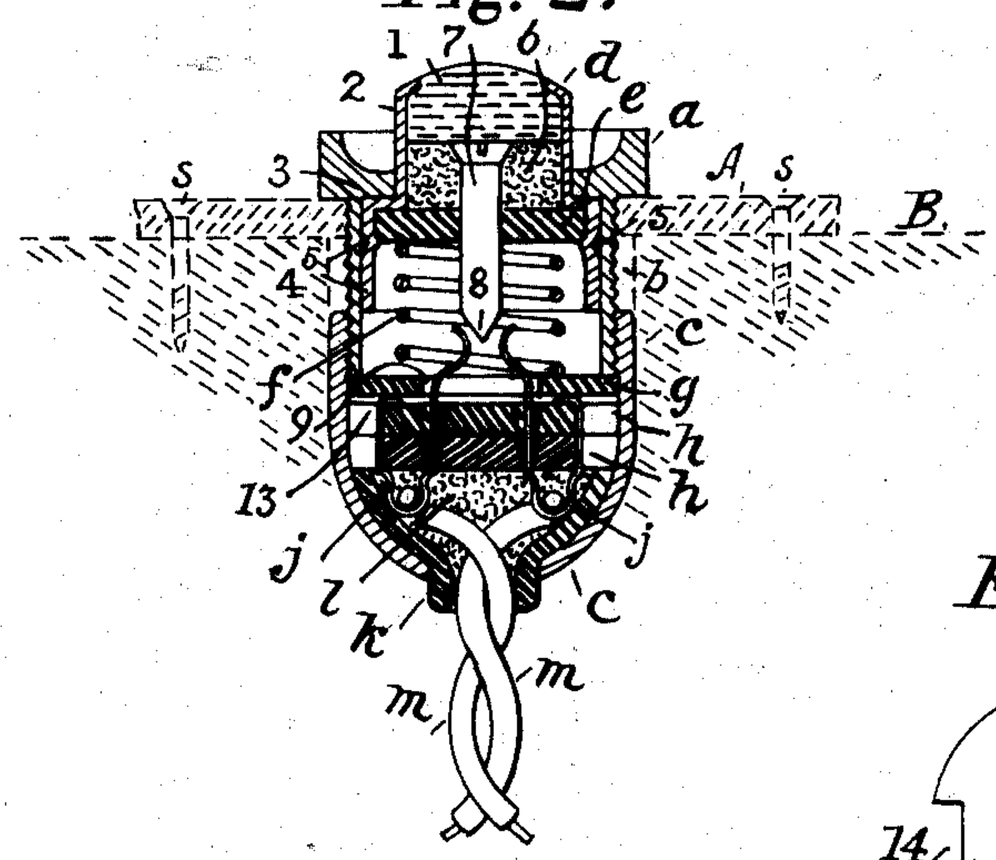


Fig. 3.

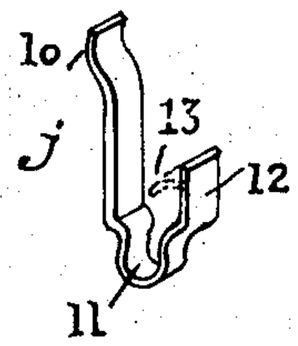
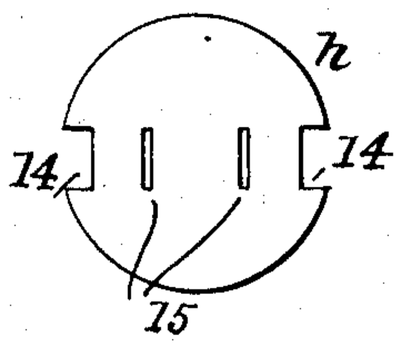


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERIC WM. ERICKSON, OF NEW YORK, N. Y.

CIRCUIT-CLOSING DEVICE.

No. 854,205. Specification of Letters Patent. Patented May 21, 1907.

Application filed January 29, 1907. Serial No. 354,606.

To all whom it may concern:

Be it known that I, FREDERIC WM. ERICKSON, residing at New York, in the county of New York and State of New York, have invented certain Improvements in Circuit-Closing Devices, of which the following is a specification.

The present invention relates to circuit closing devices such as commonly used in connection with annunciators and vibrating bells in the common house signaling systems.

The ordinary push buttons employed as a circuit closer in house systems are made upon a substantially uniform pattern, *i. e.*, with two metal parts both attached to a base piece by means of small screws which are manipulated to secure the wires of the conductors, and are frequently lost and broken, and in an installation in a large building there is much loss from such parts and more vexation. At the same time such devices are frequently out of order owing to the frail nature of the parts, and also because the outer portion can be unscrewed and carried away.

The invention about to be described refers to an improvement over the ordinary push button, in that the device is self contained, simple, and cannot be taken apart by mischievous persons.

In the accompanying drawings forming a part of this specification, Figure 1 is a perspective view of the improved device detached. Fig. 2 is a sectional view of the same located in a wall, and Figs. 3 and 4 are respectively a perspective and a plan view of detached parts.

In the drawings B represents the face of a wall or portion of wood work in which the push button is located, and A is a metal face plate secured to the wood-work by the screws *s*, *s*, having a centrally threaded hole in which the push button is screwed. The device is composed of substantially two parts *a* and *c* screwed to each other, each part carrying a portion of the combined elements. The upper part consists of a plate or disk *a* from which extends the threaded sleeve *b* (adapted to be screwed into the face plate A) and upon the lower end of the sleeve is screwed the hemi-spherical bottom piece *c* having an orifice at its lower end.

The push *d* consists of a shell or tubular part 2 having its lower portion 4 enlarged to provide a shoulder 3 to engage the under side of the disk *a* while the enlarged part 4 is adapted to slide in the shell *b*, this shell 2 is drawn up from sheet metal into the desired shape. A glass or other ornamental button 1 is held in the push *d* by the turned over edges of the part 2, and a metal spindle 7 having its head under the said button depends into the lower part 4 and is steadied by the fiber disk *e* through which its body passes, the disk is held in place by the indentations 5, 5, in the walls of the part 4, the space between the disk and the button being filled with cement 6.

Upon the end of the shell *b* is a fiber disk *g* having a central slot 9, and under said disk are the disks *h*, *h*, one upon the other both provided with the peripheral slots 14, 14 and the central slots 15, 15; and under these disks is the hemi-spherical insulating part *k* serving as a lining to the part *c* having an extension through the orifice in the part *c*. On each side of the lower part of the device are the contact springs *j*, *j*, made from a strip of thin resilient metal and bent into the shape represented in Fig. 3, having two parallel sides or arms 10 and 12 the former the longest and curved at its end, the two sides being joined by a loop shaped end 11. In assembling the parts two spring pieces *j* have their spring sides 10 pressed through the slots 15, 15 in the two disks *h*, *h*, while the shorter arms extend up the sides of the slots 14 and their extreme ends are bent over as shown and clenched onto the upper side of the top disk; the part *k* is placed within the part *c*, the conductors have their bared ends inserted into the loops 11, of the springs *j* and soldered and are drawn down while cement *l* is placed in the lower cavity to fill all interstices, and the disks *h* are pressed firmly down, and the disk *g* is placed over the ends 10 of the springs *j* its slot 9 permitting the springs to play sidewise.

It will be seen that the button is placed in the end of the sleeve *b* and pressed outward, and when the part *b* is to be screwed onto the part *c* a spring *f* is inserted so that one end bears upon the disk *e*, and when the parts are screwed together, the opposite end of the spring *f* bears on the disk *g*.

The several disks *e*, *g* and *h* as well as the piece *k* are stamped or pressed out from the common insulating fiber.

When the device is attached to the plate A there is nothing that can be unscrewed from the outside by the hand and it makes a good solid appearance. When the button is depressed the end 8 of the spindle 7 enters,

separates and makes a scraping solid contact with the springs *j*, *j*, and when released the spring *f* brings the button sharply away to its normal position.

I claim as my invention:

1. A circuit closer consisting essentially of outer and inner parts adapted to be separably attached to each other, the outer part having an external flange from which extends an externally threaded shell, a movable tubular portion in said shell one end being of reduced diameter and extending through an orifice in said flange and constituting the push, and holding an insulated dependent spindle; the inner part adapted to engage the said threaded shell and having an orifice at its inner end and two contact springs secured in suitable insulating disks adapted to engage said spindle, with means to connect conductors passing through the said orifice to the contact springs, and a spring adapted to keep the spindle from the contact springs.

2. A circuit closer consisting essentially of outer and inner tubular parts adapted to be separably attached to each other, the outer part having an external plate from which extends an externally threaded shell, a movable tubular portion in said shell one end being reduced in diameter to form a shoulder extending through an orifice in said plate and abutting against the inner face of the same and constituting the push, and holding a dependent metal spindle supported in the shell by an insulating disk and cement; the inner part adapted to engage the said threaded shell at one end, and having its opposite end preferably hemi-spherical with a central orifice, two contact springs secured in an insulating partition adapted to engage said spindle, an insulating lining to the hemi-spherical end and its orifice, with means for connecting insulating conductors entering the orifice with the contact springs, and a spring adapted to keep the spindle from the contact springs.

3. A circuit closer consisting of two metal tubular parts separably connected with each other, the outer part provided with an external flange serving as an abutment when the tubular parts are inserted in a support, having an orifice of less area than the tubular portion to form a shoulder, a push button fitting in the tubular part with an outer portion of smaller diameter projecting from the said orifice and resting against said shoulder, an insulating disk held in the button through which extends a metal spindle whose head is held in place by cement; the inner part having a hemi-spherical end with a central orifice and containing insulating disks, two contact springs supported by said disks adapted to engage said spindle, and provided with means for connecting insulated conductors inside the inner part, and a spring adapted to keep the spindle from the contact springs, as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 26th day of January, 1907.

FREDERIC WM. ERICKSON.

Witnesses:

J. M. WATTERS

HARRIET LEVI.