

H. HUBBELL.
INSULATING CHAIN FOR PULL SWITCHES.
APPLICATION FILED MAY 17, 1909.

946,779.

Patented Jan. 18, 1910.

Fig. 1.

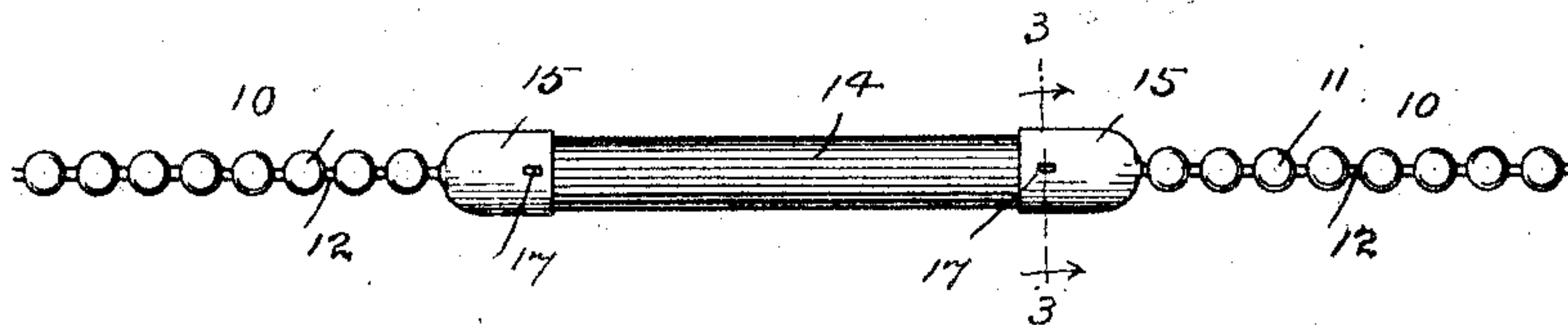


Fig. 2.

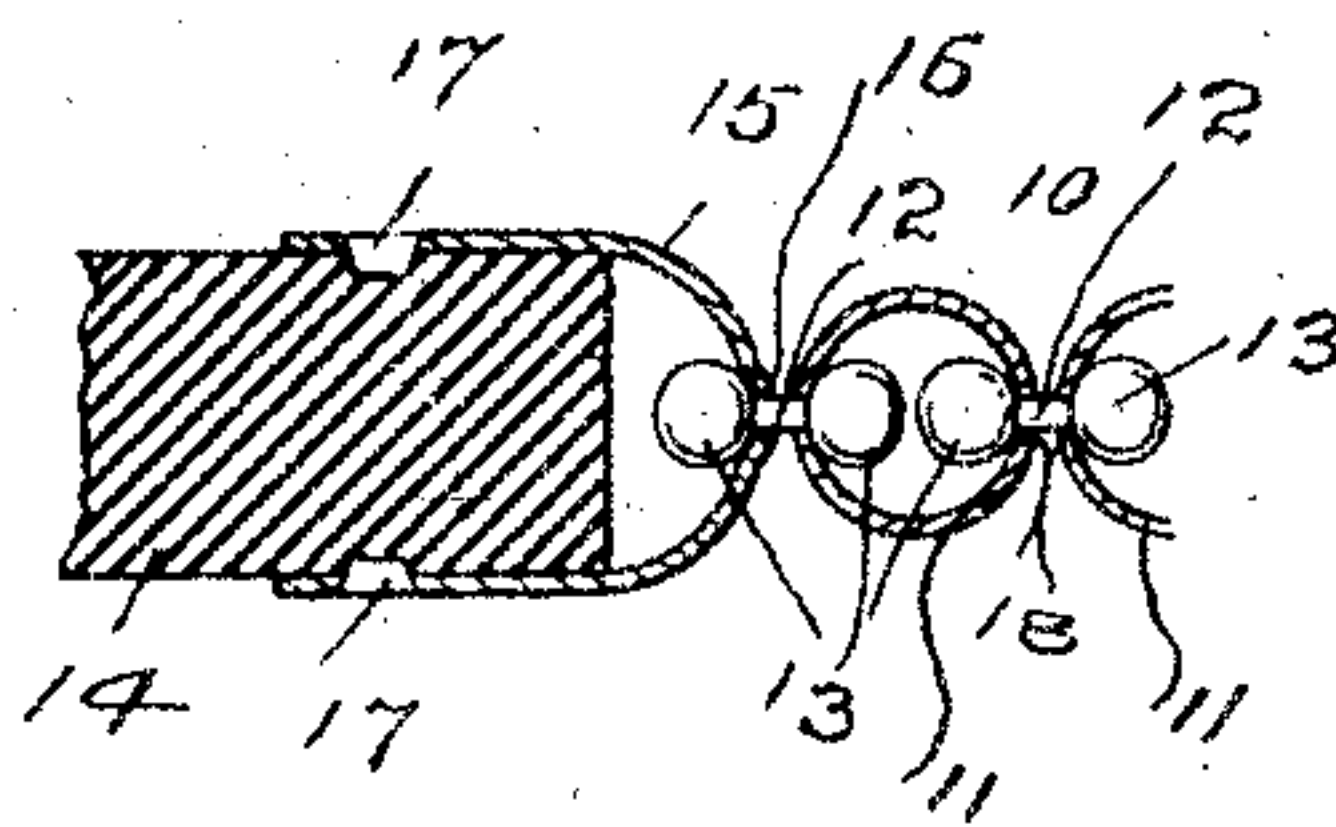
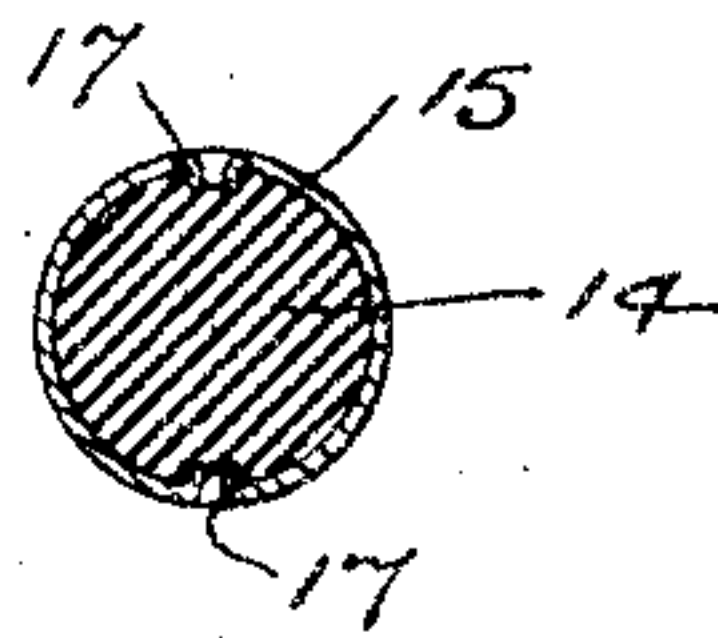


Fig. 3.



WITNESSES:

H. F. Lamb,
S. W. Atherton.

INVENTOR

Harvey Hubbell

BY

A. M. Wooster
ATTORNEY

UNITED STATES PATENT OFFICE

HARVEY HUBBELL, OF BRIDGEPORT, CONNECTICUT.

INSULATING-CHAIN FOR PULL-SWITCHES.

946,779.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed May 17, 1909. Serial No. 496,623.

To all whom it may concern:

Be it known that I, HARVEY HUBBELL, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Insulating-Chains for Pull-Switches, of which the following is a specification.

This invention has for its object to provide an insulating chain for use upon pull switches or wherever it is required to insulate a chain in electrical fixtures.

It is of course well understood that pull switches are ordinarily operated by means of chains comprised of a series of hollow metal balls loosely connected together by short bars having heads lying within the balls. These chains in use are not always perfectly insulated from the switches, the result of which is that a person operating a switch by means of a chain of this character not infrequently receives more or less of a shock.

My present device provides in the chain itself an insulating device which will effectually protect the user in operating a switch even should short circuiting occur in the switch, the requirements being that the device be simple and inexpensive to produce and attach so as not to add appreciably to the cost of the chain, that it be effective and that it be compact and so constructed as to avoid unsightliness of appearance.

With these and other objects in view I have devised the simple and novel insulating device for metallic chains which I will now describe, referring to the accompanying drawing forming a part of this specification and using reference characters to indicate the several parts.

Figure 1 is an elevation on an enlarged scale, illustrating the application of my novel insulating device to the form of chain ordinarily used in switches; Fig. 2 a detail longitudinal section on a still larger scale; and Fig. 3 is a section on the same scale on the line 3—3 in Fig. 1, looking in the direction of the arrows.

10 denotes the chain as a whole, which consists of hollow metallic balls indicated by 11 connected together by short bars 12 passing through holes 18 in the balls and having heads 13 lying within the balls, whereby the balls are securely connected together, leaving the chain sufficiently flexible to meet all the requirements of use.

My novel insulating device comprises a rod or pencil 14 made of suitable insulating material as vulcanized fiber and having at its ends metallic caps 15. These caps are drawn from disks of sheet metal, each cap being provided with an opening in its tip large enough for one of the heads 13 to be passed through, the metal of the cap being then closed about the head leaving an opening 16 in which the bar 12 lies. The attachment of the bars to the caps is the same as the attachment shown of the bars to the balls; that is, the heads upon the bars are passed into the balls and caps and then the metal of the balls and caps is closed about the heads leaving the bars lying in the openings at the ends of the balls and caps. The special mode of construction of the chain, however, is wholly immaterial so far as the present invention is concerned. The caps are placed over the ends of the insulating rods 14 and are rigidly secured to the rods in any suitable manner as by striking in lugs 17 of the metal of the caps into engagement with the material of the rods, thereby locking the caps rigidly in place on the rods.

Having thus described my invention I claim:—

1. A chain of the character described provided with link bars having enlarged ends, an insulating rod, and caps secured to each end of said insulating rod and each provided with an opening through which one of said link bars is passed, the enlarged end of each link bar being interposed between one end of said insulating rod and the wall of said cap.

2. A chain of the character described provided with link bars having enlarged ends, an insulating rod, and caps embracing the ends of said rod, said caps being provided with lugs engaging said rod, each of said caps being provided with an opening through which one of said link bars is passed, the enlarged end of each link bar being interposed between one end of said insulating rod and the wall of said cap.

In testimony whereof I affix my signature in presence of two witnesses.

HARVEY HUBBELL.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.