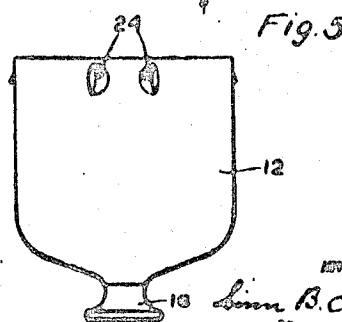
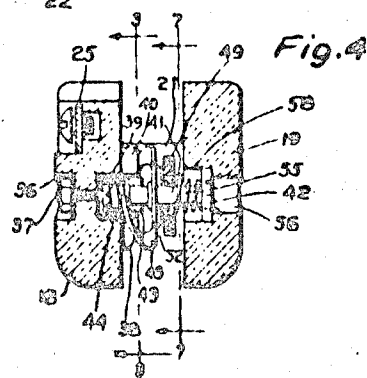
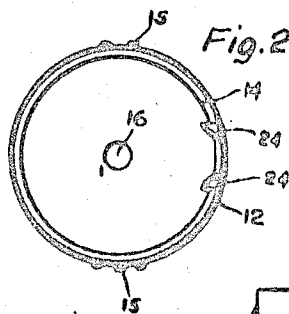
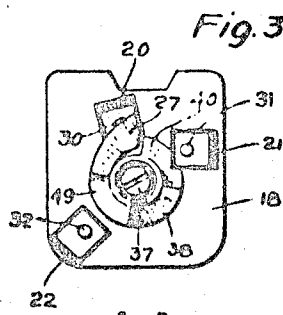
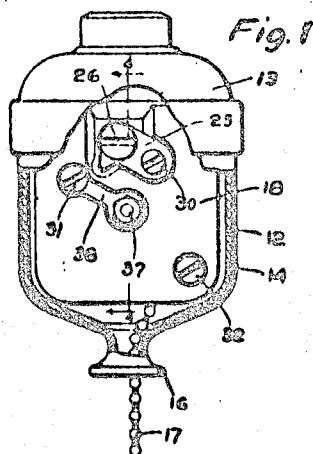


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L. D. ABBOTT.
ELECTRIC SWITCH.
APPLICATION FILED JUNE 20, 1911.

1,022,809.

Patented Apr. 9, 1912.
1 022,809—DESIG. 1.



WITNESSES:
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ELECTRIC SWITCH.
APPLICATION FILED JUNE 14 1911.

1,082,809.

Patented Apr. 9, 1912.
8 SHEETS-SHEET 1.

Fig. 6

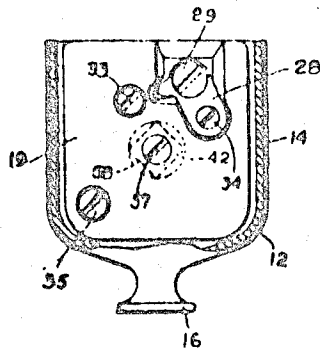


Fig. 7

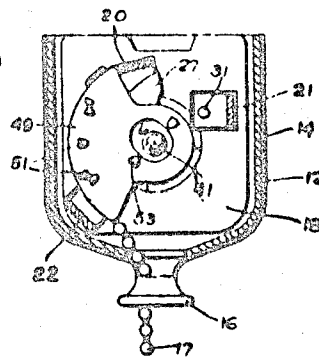
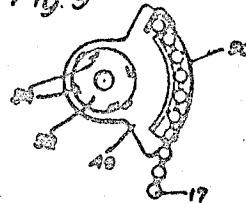


Fig. 8



Fig. 9



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1,022,809. ELECTRIC SWITCH. LINN B. ABBOTT, Bridgeport, Conn., assignor to Harvey Hubbell, Incorporated, Bridgeport, Conn., a Corporation of Connecticut. Filed June 26, 1911. Serial No. 635,418.

To all whom it may concern:

Be it known that I, LINN B. ABBOTT, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Electric Switches, of which the following is a specification.

This invention relates to pull switches and has for its object to provide a switch mechanism of simple and compact construction and arrangement which may be operated by the direct downward pull of a chain which enters the switch shell or casing through a centrally arranged guide at the bottom thereof. These and other objects of the invention, together with means whereby the same may be carried into effect, will best be understood from the following description of one form or embodiment thereof illustrated in the accompanying drawings. It will be understood however that the invention is not limited to the construction shown and described but may be embodied in other forms without departing from the spirit and scope thereof as defined by the claims hereunto appended.

In said drawings: Figure 1 is a longitudinal section through the shell, the cap and chain guide being shown in elevation partly broken away. Fig. 2 is a plan view of the shell with the switch mechanism removed. Fig. 3 is a longitudinal section, on a plane parallel to the plane of section in Fig. 1, of the switch mechanism removed from the shell. Fig. 4 is a longitudinal section of said switch mechanism taken at right angles to Fig. 3. Fig. 5 is an elevation of the body of the shell. Fig. 6 is a view similar to Fig. 1 with the cap removed and viewing the parts from the opposite side. Fig. 7 is a section on the line 7-7, Fig. 4. Fig. 8 is a detail view of the circuit closing member. Fig. 9 is a detail view of the operating segment viewed from the side opposite to that shown in Fig. 7.

12 denotes the body portion of the shell, 13 the cap, and 14 the insulating lining. The body portion and cap are secured together in any suitable manner, as by outwardly projecting lugs 15 stamped out from the metal of the shell and which engage an inwardly turned lip (not shown) at the edge of the cap, the flexibility of the parts permitting the engagement and disengagement of the lugs and lip. The body 12 is provided at its lower end with a centrally arranged guide 16 for the operating chain 17.

18 and 19 denote insulating blocks arranged longitudinally of the body 12 within the same, said blocks having substantially cylindrical outer faces to fit the interior

of the shell and substantially plane opposed inner faces. The insulating blocks are connected and spaced by means of bars 20, 21 and 22 having angular ends respectively attached to insulating block 18 by screws 30, 31 and 32, and to insulating block 19 by screws 33, 34 and 35. The insulator formed by the blocks 18 and 19 provides, therefore, intermediate said blocks, a chamber for the switch mechanism which is arranged centrally with respect to the shell, extends longitudinally thereof, and communicates at its lower end with the chain guide 16. For positioning the insulator in the shell and for holding the same stationary therein, the body member 12 is provided with inwardly projecting lips 24, preferably pressed out of the metal of the shell and engaging the inner faces of the blocks 18 and 19 respectively.

25 denotes a binding post provided with a binding screw 26 and secured in a recess in the outer face of insulating block 18 by means of the screw 30 which secures space bar 20 to said block, said screw 30 also serving to attach to the inner face of said block a contact plate 27. 28 denotes a second binding post provided with a binding screw 29 and secured in a recess in the outer face of insulating block 19 by means of the screw 34 which secures space bar 21 to said block. Screw 31, by which space bar 21 is secured to insulating block 18, also secures to the outer face of said block one end of a bridge piece 36. Said bridge piece is secured to

said block 18 at its opposite end by a bolt 37 which also secures to the inner face of said block a contact plate 38 and a socket 39 whose purpose will be presently explained. The inner face of insulating block 18 is formed with inclined or ratchet projections 40, herein shown as four in number, the contact plates 27 and 38 resting upon the faces of opposite projections 40. Binding post 25, to which one of the line wires is attached, communicates through the screw 30 with contact plate 27. Binding post 28, to which the other line wire is attached, communicates through screw 34, space bar 21, screw 31, bridge piece 36, and bolt 37 with contact plate 38. The circuit through contact plates 27 and 38 is controlled by switch mechanism which will now be described.

41 denotes a shaft having at one end an angular head 42 normally held in an angular recess in insulating block 19, the opposite end of said shaft being mounted in a block 43 formed of suitable insulating material, such as fiber, said block being slidably mounted in the socket 39 and normally held in the position shown in Fig. 4 by a spring 44.

45 denotes a contact member loose on the shaft 41, the same comprising a hub portion 46 (see Fig. 8) formed with angular recesses or notches 47 and a pair of arms 48 co-operating with the ratchet projections 40.

49 denotes an operating segment loosely mounted on the shaft 41 and formed of suitable insulating material, such as fiber. At its outer edge segment 49 is provided with a curved flange 50 preferably comprising a strip of sheet metal secured to said segment, as by prongs 51 passing through the material of said segment. To the upper end of flange 50 is attached the inner end of operating chain 17.

52 denotes a disk secured to the segment 49, as by means of prongs projecting therefrom, said disk having on its face adjacent the contact member 45 a series of inclined or ratchet lugs 54 preferably stamped up from the material of said disk and cooperating with the notches 47 in the contact member 45.

55 denotes a spring secured at one end to the head 42 and at the other to the disk 52, said spring acting to hold the segment 49 toward the contact member 45 and also to return the same to normal position after it has been turned upon the shaft 41 by a pull upon the chain 17.

The operation of the device is as follows. A downward pull upon the chain 17 causes the segment 49 to be rocked upon the shaft 41 and, by engagement of the lugs 54 on the disk 52 with the notches 47 in the contact member 45, causes said segment to rotate said contact member and move its arms 48

from one pair of ratchet projections 40 on insulating block 18 to the next, thereby carrying said arms into or out of engagement with contact plates 27 and 38 and closing or breaking the circuit. During this operation the arms 48 will ride up the inclined faces of the ratchet projections 40, the spring 55 permitting the parts to move longitudinally of the shaft 41. When the arms 48 reach the ends of said projections the expansion of the spring 55 will cause these arms to be engaged behind the shoulders formed by said projections. The oscillation of the segment 49 on the shaft 41 caused by the downward pull on the chain 17 has caused the spring 55 to be partly wound up, and when said chain is released the unwinding of the spring causes the segment 49 to be returned to its initial position. During this movement the contact member 45 will be held by engagement of its arms 48 with the shoulders at the ends of the ratchet projections, and the lugs 54 on the disk 52 will ride out of the notches 47 in the contact member 45 and will pass over the face of said member and into the next adjacent notches, the spring 55 at this time yielding longitudinally to permit the necessary movement of the disk 52 longitudinally of the shaft 41.

Should it be desired to adjust the spring 55, a screw driver or similar implement may be inserted through an opening 56 in insulating block 19 and into engagement with a

slot 57 in the head 42, and the shaft moved longitudinally against the tension of the spring 44 to carry the head 42 out of the angular portion of the recess in which the same usually lies and into an annular portion 58 of said recess. The shaft 41 may now be turned to adjust the tension of the spring 55, after which the spring 44 will return the head 42 into its angular recess and hold the parts in adjusted position.

Having thus described my invention, I claim:

1. The combination with a shell having a centrally arranged chain guide at one end thereof, of a pair of spaced insulating blocks arranged longitudinally of said shell, switch mechanism between said blocks, and lips extending inwardly from said shell between said blocks and engaging the opposite faces thereof.

2. In a device of the character described, the combination with a shell having a centrally arranged chain guide at one end thereof and an insulating lining within said shell, of a pair of spaced insulating blocks arranged longitudinally of said shell, one of said blocks having a recess in its outer face, a bridge piece in the circuit lying in said recess and inclosed by said lining, switch mechanism mounted between said blocks.

and an operating chain therefor which passes through the chain guide.

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

LINN B. ABBOTT.

Witnesses:

A. M. WOOSTER,
S. W. AHERTON.