F. BARR.

ELECTRIC PULL SWITCH.

APPLICATION FILED OCT. 24, 1912.

1,097,207. Patented May 19, 1914.

Fig. 1.

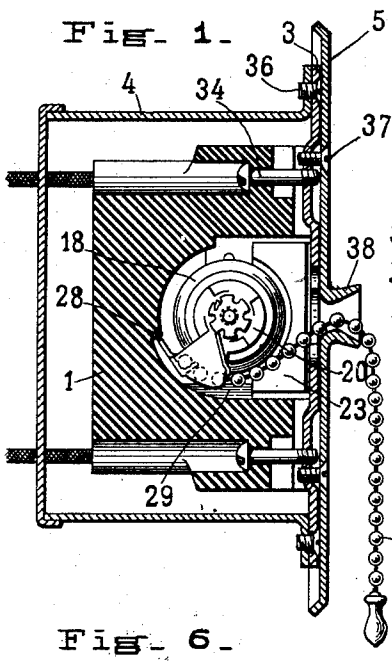


Fig. 2.

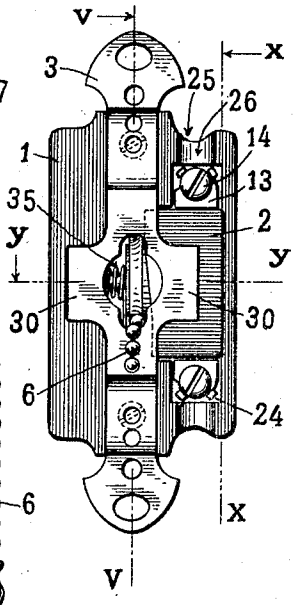


Fig. 3.

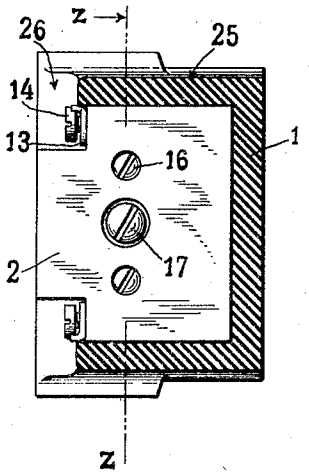


Fig. 6.

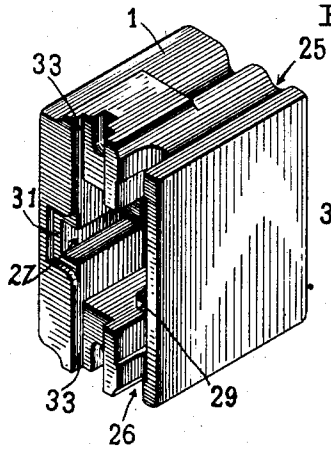


Fig. 9.

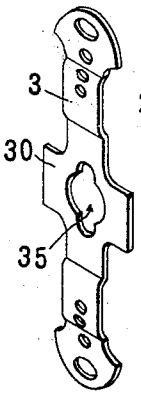


Fig. 4.

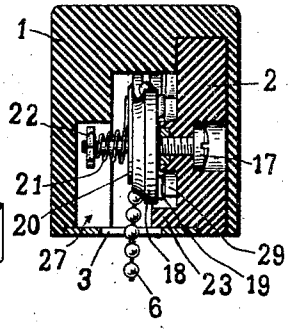


Fig. 8.

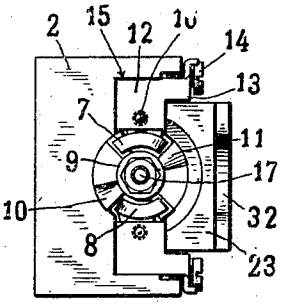
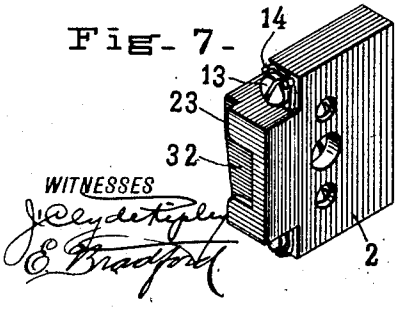


Fig. 7.



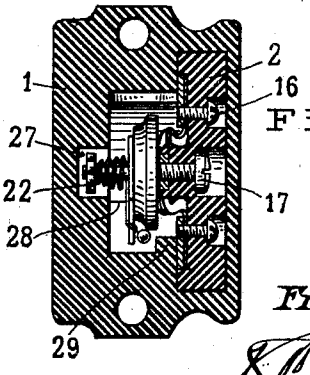


Fig. 5.

WITNESSES

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ELECTRIC PULL-SWITCH.

1,097,207. Specification of Letters Patent. **Patented May 19, 1914.**

Application filed October 24, 1912. Serial No. 727,474.

To all whom it may concern:

Be it known that I, FREDERIC BARR, a citizen of the United States of America, and residing at New York, in the county of Kings and State of New York, have invented new and useful Improvements in Electric Pull-Switches, of which the following is a specification.

My invention relates particularly to a construction adapted to be used in a wall box.

One object is to provide a construction which can be readily made, assembled and operated.

Another object is to provide a construction which is simple and reliable.

Another object is to so completely insulate and protect the contacts and the operating parts that a short circuit or ground is impossible.

In the form shown the invention comprises two insulating block members, one of which serves as a container for the other which latter carries the switch mechanism, the two members being so constructed and arranged that while the parts can be readily assembled and adjusted, they are held securely in position and properly insulated and protected. The two insulating members are held together by a bridge member which also serves to connect the members to a wall or switch box and to serve as a means for attaching the face plate.

Figure 1, is a vertical section and side elevation of a switch in a wall box, the switch being shown in section on the plane of the line V V of Fig. 2 looking in the direction of the arrow. Fig. 2, is a front view of the switch. Fig. 3, is a vertical section on the plane of the line X X of Fig. 2 looking in the direction of the arrow. Fig. 4, is a horizontal section and plan on the plane of the line Y Y of Fig. 2 looking in the direction of the arrow. Fig. 5, is a vertical section and elevation on the plane of the line Z Z of Fig. 3 looking in the direction of the arrow. Fig. 6, is a perspective view of the insulating member which serves as a container or receptacle for the other parts. Fig. 7, is a perspective view of the insulating member which carries the switch mechanism and is adapted to be inserted into or removed from the front of the member shown in Fig. 6. Fig. 8, is a view of the inner side of the switch carrying member with the rotating switch member and the operating member removed. Fig. 9, is a perspective view of the bridge member.

The members 1 and 2 are preferably formed of insulating material such as porcelain, the former being provided with a recess shaped to receive and hold the latter as will be more fully hereinafter understood. The bridge member 3 extends over part of the face of the two members 1 and 2 and holds the member 2 in the member 1. The parts are designed to be used in any suitable form of switch or wall box such as 4 and with a face plate 5 having an opening suitably formed to accommodate the operating cord or pull chain 6 as it is commonly termed.

All of the switch mechanism is carried by the member 2. In the form shown, the inclined segmental yielding switch contacts 7 and 8 are mounted on opposite sides of a central boss 9 and between them are the inclined shoulders 10 and 11. Each switch contact has a foot portion secured beneath the base of a circuit terminal 12. The outer end 13 of the circuit terminal extends at right angles to the base 12 and is provided with a binding screw 14. The insulating member 2 is preferably recessed as at 15 so as to allow the outer surface of the circuit terminal 12 to be flush with the surface of the member 2. A screw 16 passes through the member 2 and through the foot of the switch contact 7 and screws into a circuit terminal. A spindle 17 is rigidly secured to the member 2 and serves as a support for the movable parts of the switch mechanism. An insulating disk 18 is rotatably mounted on the spindle and secured to it is the switch member 19 having two spring arms for engaging the switch contacts 7 and 8. A ratchet operating member 20 is mounted so that it may be oscillated on the spindle for the purpose of rotating the carrier disk 18 and switch member 19 step by step. This disk 18 is adapted to be turned anti-clockwise by the pull of the chain 6. A spring 21 has one end engaging the arm of the ratchet and the other end engaging a notched abutment 22 which is screwed on to the end of the spindle. The tension of the spring is adjusted to return the ratchet 20 to its normal position when the pull on the chain 6 is released.

Around the outer edge of the member 2 is provided an insulating guard flange 23 which extends between the two circuit ter-

minals and prevents the chain 6 from coming into engagement with the contacts. The member 2 fits into a socket 24 in the member 1 and the size and position of the parts is such that the circuit terminals are set back from the face of the switch block as shown in Fig. 3. The outer ends of the member 1 are preferably grooved as at 25 and provided with passages 26 to accommodate the circuit wires.

The interior of the member 1 is preferably provided with a groove or channel 27 for the end of the spindle, spring and abutment on the end of the spindle. This prevents any possibility of the chain being caught around the end of the spindle in adjusting or manipulating the mechanism. The back of the recess in the member 1 is provided with a shoulder 28 which serves as a stop or abutment for the ratchet member 20 as shown, particularly in Fig. 1. The member 1 is also provided with a flange 29 which extends over the base of the adjacent circuit terminal so as to prevent the operating chain from coming into contact therewith.

The bridge member 3 is preferably formed of sheet metal such as brass and provided with lateral extensions 30, 30 symmetrically arranged and adapted to fit into recesses 31 in the member 1 and 32 in the member 2 respectively. The member 1 is also provided with longitudinally extending face grooves or recesses 33 to accommodate the main arms of the bridge member 3. By this construction the bridge member is let into the face of the insulating block and lies flush therewith, the shape of the parts assuring accurate assembling and preventing accidental displacement. The bridge member is secured to the insulating member 1 by means of screws such as 34 passing from the rear through holes in the ends of the insulating member. The bridge member is provided with an opening 35 in the center for the operating chain. The ends of the bridge member are adapted to be secured for instance, by means of screws such as 36 to the switch or wall box 4. The face plate 5 is adapted to be secured to the bridge member by screws such as 37. The face plate is preferably provided with an extending bell 38 which serves as a guide for the operating chain at the point where it emerges.

It will be noted that the switch mechanism is all carried by the insulating member 2 and may be readily removed from or inserted into the member 1 when the bridge member 3 is released. It is therefore easy to assemble the parts in the process of manufacture or for the purpose of repair or adjustment afterward. It will also be noted that this method of construction does not necessitate the formation of any holes through the container 1 extending into the interior. It will also be noted that there are no exposed screw heads connected to parts which carry current, the screws such as 16 being incased in the member 2 which is inclosed in the container 1. The container 1 and carrier 2 are both so constructed that they can be made by simple die action inexpensively.

What I claim is:—

1. A pull switch comprising an insulating container member having a recess in one face thereof, an insulating carrier member removably fitting in one side of said recess, switch mechanism carried by said carrier and including a spindle extending toward the opposite side of said recess, switch contacts, an operating ratchet and a chain, said container having an interior groove open at the front with walls guarding the end of said spindle from said chain.

2. A pull switch comprising an insulating member having a recess, an insulating carrier removably fitting in one side of said recess, switch mechanism carried by said carrier and including switch contacts and circuit terminals and an operating chain, said recessed member having an insulating flange extending over one of said circuit terminals and interposed between said terminal and said operating chain.

3. In a pull switch, an insulating body comprising a container member having a recess opening toward the front and a carrier member insertible into said recess from the front thereof, pull switch mechanism mounted on said carrier member and removable therewith, a bridge member adapted to be secured to a receptacle and having an opening for the operating chain and also having a portion extending over one edge of said carrier member, means for detachably securing said bridge member to said container member to thereby hold said carrier member within said container member, said carrier member being readily removable from said container member when said bridge member is detached from said container member.

4. A pull switch comprising an insulating container having a recess, a carrier removably fitting in said recess, switch contacts and circuit terminals carried by said carrier, an operating chain carried by said carrier, said container and said carrier having insulating walls preventing said chain from engaging said circuit terminals.

5. A pull switch comprising an insulating container having a recess, a carrier removably fitting in said recess, circuit terminals, switch contacts and operating mechanism carried by said carrier and including a pull chain, and an insulating guard extending between said circuit terminals around the outer side of said switch contacts adjacent the operating chain.

6. A pull switch comprising an insulating container having a recess, a carrier remov-

ably fitting in said recess, switch contacts and an operating ratchet carried by said carrier, said container having a shoulder acting as a back stop for said operating ratchet.

7. A pull switch comprising an insulating container having a recess, an insulating carrier removably fitting in said recess, switch contacts carried by said carrier, an operating ratchet and a pull chain, said container and said carrier having insulating flanges adjacent said pull chain and around one side of said contacts.

8. In a pull switch, an insulating body comprising a container member having a recess open at the front and a carrier member fitting in said recess, pull switch mechanism and circuit terminals all carried by said carrier, said circuit terminals being arranged at the front of said carrier and accessible thereat and said container member having passages for the circuit wires leading from the back forward to said terminals and a bridge member for removably securing said carrier in said container.

9. A pull switch comprising an insulating container having a recess, an insulating carrier removably fitting in said recess, circuit terminals and pull switch mechanism carried by said carrier, said container and said carrier having insulating flanges surrounding the outer ends of said circuit terminals and a face plate extending over said container and said carrier and having a guide for the pull chain.

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Witnesses:
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