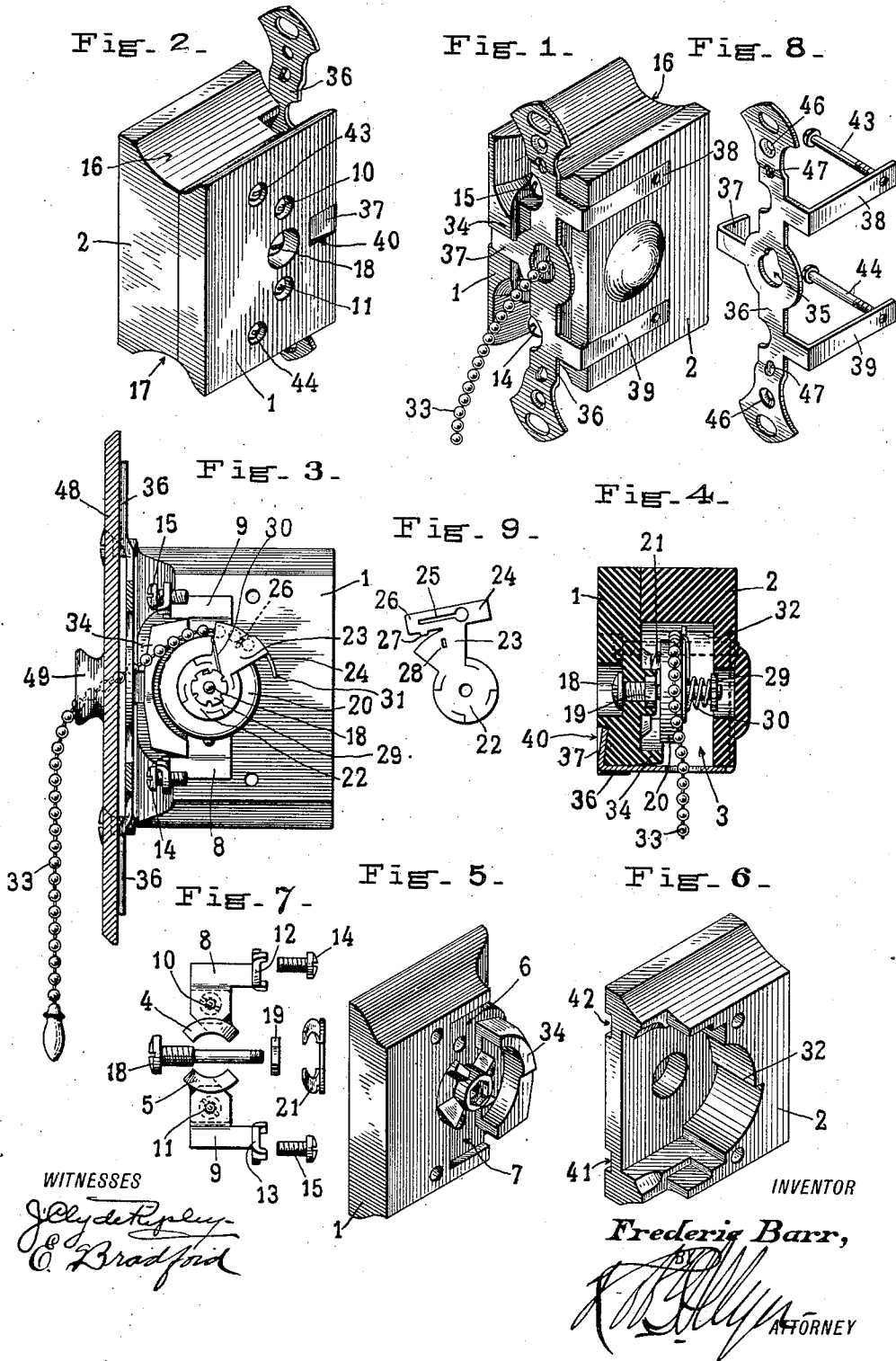


F. BARR.
ELECTRIC SWITCH.
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UNITED STATES PATENT OFFICE.

FREDERIC BARR, OF NEW YORK, N. Y.

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Specification of Letters Patent.

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To all whom it may concern:

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

My invention relates particularly to a pull type of switch adapted for use in what is sometimes known as a wall box or switch box.

The main objects are to provide a simple and reliable construction which can be made inexpensively and assembled readily and which is strong and durable and in which the parts are well protected mechanically and electrically.

The improvements reside principally in the shape of the insulating block which carries the switch parts, the arrangement of the switch mechanism in the insulating block, the means for securing the parts of the block together, the means for supporting the block in a switch box and in details of the switch mechanism.

Figure 1, is a perspective view of a construction embodying the improvements of my invention. Fig. 2, is a rear perspective view of the same. Fig. 3, is an inside view of one part of the insulating block with the switch mechanism attached to it and showing a section of a face plate. Fig. 4, is a horizontal sectional view of the construction of Fig. 1. Fig. 5, is a perspective view of the rear and inner face of that part of the insulating block which supports the switch mechanism. Fig. 6, is a perspective view from the front showing the inner face of the other part of the insulating block. Fig. 7, is a view of details of the switch mechanism. Fig. 8, is a perspective view of the device which serves to connect the parts of the insulating block and provide means for anchoring the block to a switch box and a face plate. Fig. 9, is a detail view showing the switch operating member blanked but not formed.

The switch mechanism proper is supported and inclosed in a block of insulating material preferably of porcelain in the form of a parallelepiped in two parts, 1 and 2, with a chamber 3 provided between adjacent faces to receive the switch mechanism. These two parts are of simple construction and preferably so shaped and de-

signed that each part can be formed readily in inexpensive dies without wasting unnecessary material.

The switch contacts 4 and 5 are in the form of curved segmental plates or spring arms whose bases are seated in recesses 6 and 7 in the block member 1. L-shaped plates 8 and 9 overlap the bases of the switch contacts 4 and 5 in the recesses 6 and 7 and screws 10 and 11 are provided to secure the plates 8 and 9 and the switch contacts to the insulating block member 1. The plates 8 and 9 are bent over at their outer ends to form lugs 12 and 13 to receive the binding screws 14 and 15 which in conjunction therewith form the circuit terminals of the switch. The upper and lower edges of the block are grooved at 16 and 17 to afford passages for the circuit wires leading from the back of the block (and the box) to the circuit terminals 15 and 14 respectively. These grooves 16 and 17 are preferably formed in the adjacent edges of the block members 1 and 2 so that approximately one-half of each groove is formed in each block. This construction facilitates manufacture.

The movable part of the switch mechanism is supported on a spindle 18 which is rigidly secured to the block member 1 by the nut 19. An insulating carrier disk 20 is rotatably mounted on the spindle 18 and connected to the lower side thereof, is a rotatable switch member 21 having spring switch arms for engaging the switch contacts 4 and 5. The switch carrier 20 and switch member 21 are rotated step by step by an oscillating ratchet member 22 which is mounted on the spindle 18 and provided with an arm 23. A flange 24 at the outer end of the arm 23 is turned at right angles to the arm and provided with a slot 25 for the operating chain or cord 33. One end 26 of the flange 24 is bent inward beneath the end of the arm 23 and provided with a lug 27 which is fitted into the hole 28 in the arm 23 so as to stiffen the flange at the point where the chain is attached and thus prevent the flange from being bent in the repeated operation of the mechanism. A notched nut 29 is screwed onto the free end of the spindle 18 to serve as an abutment for one end of the spring 30. The other end of the spring engages the arm 23 of the oscillating operating member to hold it with the shoulder 31 pressing against

the shoulder 32 in the interior of the insulating block member 2. The operating member 33 or "chain," as it is commonly termed, is secured to the end 26 of the flange 24 being inserted in the slot 25, so that by pulling upon the chain 33 the operating member is oscillated against the tension of the spring. This rotates the switch carrier 20 and the switch members 21 as the chain is pulled. When the chain is released the spring throws the operating member backward, the ratchet connection between the operating member and the carrier 20 permitting this. The block member is preferably provided with a semi-circular flange 34 which projects at right angles to the main surface of the block member 1 around the periphery of the insulating carrier disk 20 so as to serve as a guide for the chain and to guard the switch contacts.

The parts of the insulating block are secured together by what for convenience may be termed an "anchor." This consists in its preferred form of a face strip 36 having lateral arms 37, 38 and 39 which extend across the face of the insulating block and part way down the sides, the block being preferably provided with recesses 40, 41 and 42 for these arms. Screws 43 and 44 pass through the insulating block and screw into the arms 38 and 39 for drawing the two parts of the block together tightly. By forming the recess 40 under-cut and bending the end of the arm 37 inward at less than a right angle to the face plate, the parts are more securely held together. By loosening and withdrawing the screws 43 and 44, the arms 38 and 39 of the anchor member may be tilted outward so as to more readily disengage the anchor member, whereupon the parts of the insulating block are free to separate. When the parts of the block are separated, the switch mechanism is readily accessible. I preferably form the part 1 of the insulating block substantially as shown so as to leave plenty of room around the switch contacts to permit the parts being readily assembled and adjusted. The part 2 of the insulating block has the principal part of the recess 3 for the switch mechanism and as this part is detachable from the other part of the insulating block the switch mechanism is left almost completely exposed when the parts of the block are separated. The flange 34 protects the outer part of the switch contacts but as it is comparatively small interferes but little with the assembling and adjustment of the switch mechanism, and in conjunction with the other part of the switch block inclose the switch mechanism when the parts of the block are assembled.

The face strip 30 is preferably provided with a central perforation or hole 35 for the operating chain and is also provided with

suitable holes 46, 47, etc., by means of which the strip and block may be secured to an ordinary switch box and to the face plate 48. The operating chain 33 is preferably guided in a bell 49 in the face plate of suitable construction.

What I claim is:—

1. In an electric switch, the combination of a two-part insulating switch base in the form of a rectangular parallelepiped with an interior chamber open at the front, a pull switch located therein and an anchor member having arms embracing the opposite sides of the switch base and a front piece having means for attaching it to another member.

2. In an electric switch, the combination of a two-part insulating switch base in the form of a rectangular parallelepiped with an interior chamber open at the front, a pull switch located therein and an anchor member having arms embracing the opposite sides of the switch base, a front piece having means for attaching it to another member and screws passing through the parts of the insulating base and screwed into two of said arms.

3. In an electric switch, the combination of an insulating switch base in the form of a rectangular parallelepiped with an interior chamber open at the front, a pull switch located therein and an anchor member having arms embracing the opposite sides of said switch base and provided with a front piece having a guide passage for the operating chain and means for attaching the anchoring member to another member.

4. In an electric switch, the combination of a two-part insulating base in the form of a rectangular parallelepiped with an interior chamber having an opening at the front, an anchor member having a portion extending across the front of said insulating base and having an arm extending down one side of said insulating base and a screw passing through the two parts of said insulating base and screwed into the said arm for holding the parts of the base and the anchor member together.

5. In an electric switch, the combination of a two-part insulating base in the form of a rectangular parallelepiped with an interior chamber having an opening at the front and an anchor member having portions extending across the front of said insulating base and having arms extending down the opposite sides of the insulating base, said base having grooves for receiving said arms.

6. In an electric switch, the combination of a two-part insulating base in the form of a rectangular parallelepiped with an interior chamber having an opening at the front and an anchor member having portions extending across the front of said insulating base and having arms extending down the

opposite sides of the insulating base, said base having grooves for receiving said arms, one of said grooves being under-cut and the arm fitting therein being inclined inward at an acute angle to the front.

7. In an electric switch, the combination of a two-part insulating base in the form of a rectangular parallelepiped with an interior chamber having an opening at the front and an anchor member having portions extending across the front of said insulating base and having arms extending down the opposite sides of the insulating base, said base having grooves for receiving said arms and a screw passing through said insulating base and screwed into one of said arms for securing the parts together.

8. In an electric switch, the combination of a two-part insulating base having an interior chamber for the switch mechanism open at the front and having grooves in the opposite sides, an anchor member extending across the face of said base and having arms fitting in said grooves.

9. In an electric switch, the combination of a two-part insulating base in the form of a rectangular parallelepiped with an interior chamber open at the front, pull switch mechanism carried by one of the parts of said base and including an operating member and a stop for said operating member, said stop being formed as a part of the other part of said base.

10. In an electric switch, the combination of a two-part insulating base with an interior chamber opening at the front, an anchor member extending across the opening at the front and having an arm extending down one side of said base.

11. In an electric switch, a two-part insulating base in the form of a rectangular parallelepiped with an interior chamber open at the front, pull switch mechanism secured to one of the parts of said base, means for securing the parts of said base together and an anchor member extending across the front of said base and having a passage for the pull chain.

12. In an electric switch, the combination of a two-part insulating base in the form of a rectangular parallelepiped, a spindle extending through one of said parts, a nut for rigidly securing said spindle to said part, segmental switch contacts having bases fitted in said recesses in said part on opposite sides of said spindle, L-shaped plates fitted on top of said bases, screws for securing said plates and switch contact bases to said part, said plates having their outer ends formed as circuit terminals, a rotatable switch member on said spindle, an insulating carrier

therefor, an oscillating operator on said spindle coacting with said carrier, a notched abutment nut screwed on to the outer end of said spindle, a spring located between said nut and said operating member, an operating chain connected to said operating member, the opposite part of said base being formed with a recess for housing the parts of said switch and an anchor member secured to said insulating base and extending across the front thereof.

13. In a pull switch, a rotatable switch member, an insulating carrier therefor, an oscillating operating member having a ratchet portion and an extending arm, said arm having a flange formed at right angles thereto and provided with an opening for the pull chain, one end of said flange being bent beneath the said arm and provided with a lug fitting in a hole in said arm and a pull chain operatively connected with said end of said flange beneath said arm and extending partially around said insulating carrier.

14. In a pull switch, an oscillating operating member having an extending arm and a flange substantially at right angles to said arm, and with one end of said flange bent beneath said arm and provided with a lug fitted in a perforation in said arm, said flange having a passage for the pull chain beneath said arm.

15. In an electric switch, a two-part insulating base having an interior chamber for the switch mechanism, an anchor member having arms for opposite sides of said base, one of said arms being hooked into a recess on one side of said base and means for securing the other arm to the opposite side of said base.

16. In an electric switch, a two-part insulating base having an interior chamber for the switch mechanism, an anchor member having arms for opposite sides of said base, one of said arms being hooked into a recess on one side of said base and a screw passing through the parts of said base and securing the parts together.

17. In an electric switch, a two-part insulating base having an interior chamber for the switch mechanism, an anchor member having arms for opposite sides of said base, one of said arms being hooked into a recess on one side of said base and a screw passing through the parts of said base and into the opposite arm for securing the parts together.

FREDERIC BARR.

Witnesses:

E. BRADFORD,
J. GILMAN.