

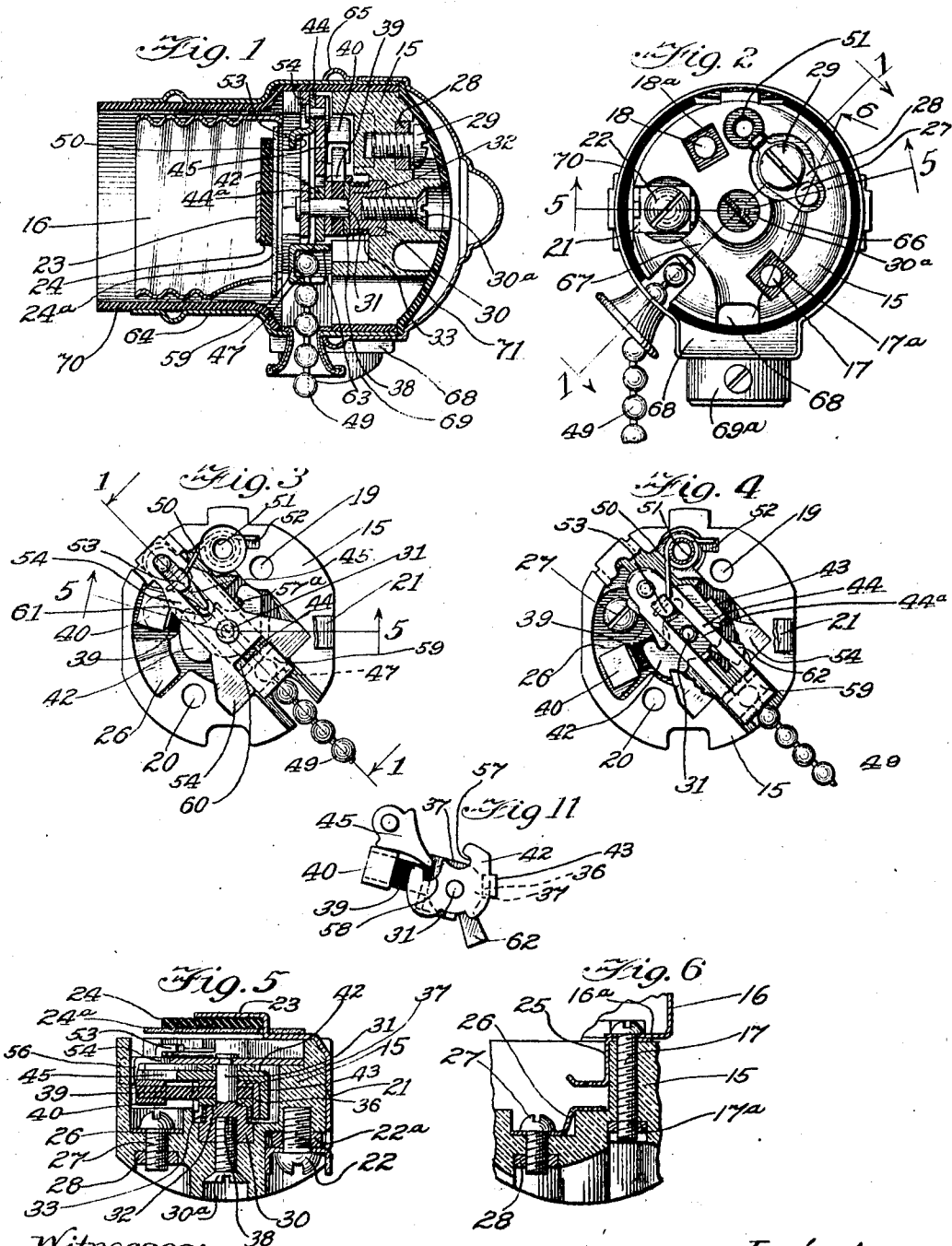
R. B. BENJAMIN.
SWITCH SOCKET.

APPLICATION FILED APR. 10, 1909.

Patented Mar. 26, 1912.

2 SHEETS-SHEET 1.

1,021,177.



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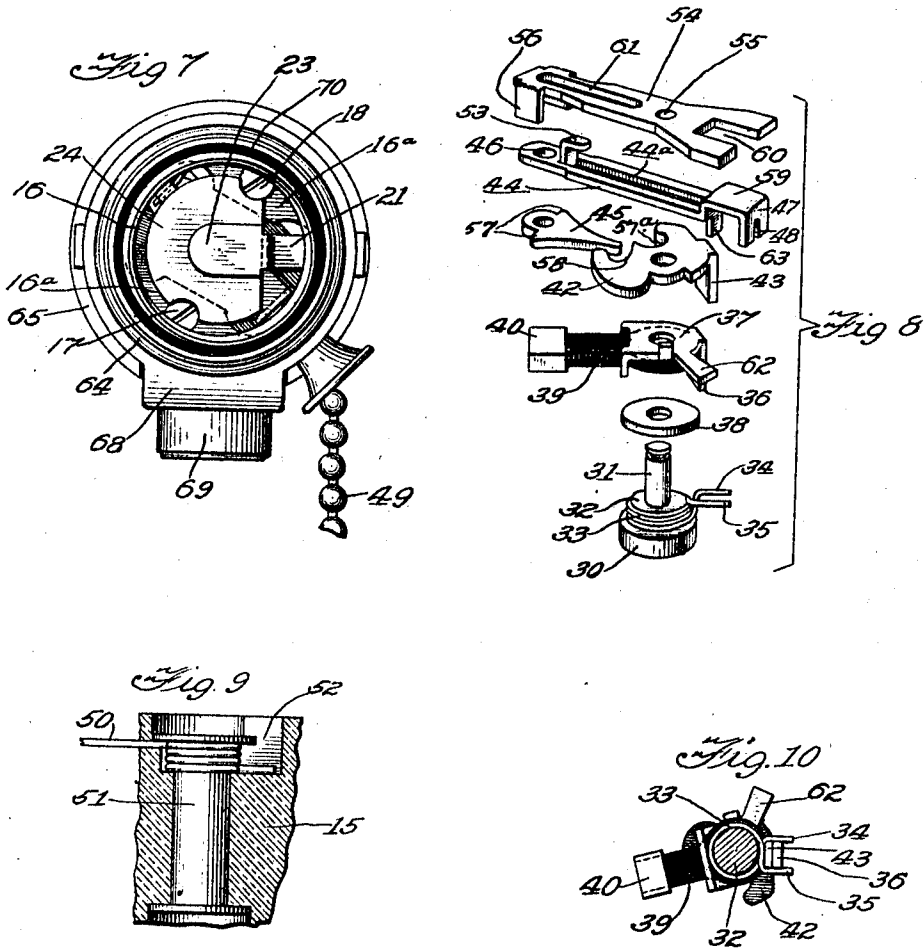
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Witnesses:-

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UNITED STATES PATENT OFFICE.

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SWITCH-SOCKET.

1,021,177.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed April 10, 1909. Serial No. 489,138.

To all whom it may concern:

Be it known that I, REUBEN B. BENJAMIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Switch-Sockets, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in switch sockets for incandescent lamps.

One of the objects of my invention is to provide a pull switch in which the switch operating mechanism has movement in a direction crosswise of the socket and may be thus operated by a direct pull.

For the purpose of disclosing my invention I have illustrated one form thereof in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a device embodying the features of my invention, the section being taken on the line 1—1 of Figs. 2 and 3, looking in the direction of the arrows; Fig. 2 shows in elevation the rear portion of the device, with the cap or cover removed; Fig. 3 is an elevational view of the insulating base and the switch mechanism carried thereby, the front side of the base being seen, or that side to which the lamp-holder is secured, the switch being in the "off" position; Fig. 4 is a view similar to Fig. 3, but shows the parts to which the chain is attached drawn forward and the switch thrown to the "on" position, certain parts being broken away to expose to view parts which are concealed in Fig. 3; Fig. 5 is a sectional view of the base and switch mechanism, taken on the line 5—5 of Figs. 2 and 3, looking in the direction of the arrows; Fig. 6 is a broken sectional view of the base, showing a fragment of the threaded lamp-receiving shell and the contacts of the switch mechanism, the section being taken on the line 6—6 of Fig. 2, looking in the direction of the arrows; Fig. 7 is an elevational end view of the device looking into the socket; Fig. 8 shows in perspective the parts of the switch mechanism arranged one above the other in such relation to one another as to be readily assembled; Fig. 9 is a partial sectional view of the base, the section being taken on the line 9 of Fig. 3, looking in the direction indicated by the arrow; Fig. 10 is an elevational view of a detail

showing the switch blade and other parts associated therewith; and Fig. 11 is an elevational view of parts of the switch mechanism in the "off" position.

In the construction of the device as illustrated I provide a substantially disk-shaped insulating base having one of its sides chambered out to provide space for the mechanism of the switch device. A threaded lamp-receiving shell is secured to the front face of the base over the switch mechanism by bolts 17 and 18, which pass through inwardly extending oppositely disposed ears 16^a and extend through openings 19 and 20 into suitable nuts 17^a and 18^a on the rear of the base.

The center contact member of the socket consists of a current-carrying plate or strip 21, which extends along the side of the base from front to rear and is bent inward at each end toward the axis of the base. The rear end of the plate is provided with a binding screw 22, which is held on the plate by a nut 22^a. The forward end 23 of the strip 21 extends inward toward the center of the threaded shell, in position to be engaged by the center terminal of the lamp. An insulating plate 24 is located between the resilient end 23 of the strip 21 and the inward turned ears 16^a, to prevent the center contact 23 from being bent backward into engagement with the live parts of the switch mechanism when a lamp is screwed into the socket. As a further security against short circuiting, a mica washer 24^a is placed behind the plate 24. This washer has a slot formed therein for the passage of the strip 21 therethrough. A Z-shaped plate 25 has one of its ends clamped between the threaded shell 16 and the base 15, as shown in Fig. 6, and forms one of the stationary contacts of the switch. The second stationary contact comprises a plate 26, of substantially the same form as the plate 25, secured in the bottom of the switch chamber by means of a screw 27 adapted to extend through the base and into a binding plate 28 on the rear face of the base. The line wire is connected to the second plate by a binding screw 29 located thereon.

It will be seen that with one of the leads attached to binding screw 22 and the other lead attached to binding screw 29, current will flow through a lamp, when inserted in the socket, when the plates 25 and 26 are

electrically connected by the movable member of the switch. The mechanism hereinafter described for operating the movable member of the switch is so constructed that
 5 the part which is manually moved travels in a straight line, preferably across the axis of the lamp-holder. This manually movable member may be conveniently moved in one direction by a chain attached thereto and in
 10 an opposite direction by a spring when said chain is released. It will be understood, however, that, if preferred, some other means for moving said member back and forth may be provided, as for instance, the
 15 member may be projected beyond the casing of the socket in each direction and have upon each of its ends a button, by pressure upon which the member will be moved in one direction or the other as desired.

20 In the bottom of the switch chamber is formed a depression to receive an enlarged end 30 of a pivot pin or post 31, about which the oscillating switch blade carrying member and member for moving same, turn. The
 25 pivot pin is secured in place by a screw 30^a which passes through the base. A portion 32 of the enlarged end 30 is of smaller diameter to receive a coiled spring 33 having its ends 34 and 35 arranged to extend away
 30 from the post and to embrace a downturned finger 36 carried by an oscillating plate 37. A washer 38 is on the post and, seated upon the part 32, holds the spring 33 in position. The plate 37 has extending radially there-
 35 from an insulating bar or blade 39 adapted to carry at its outer end the bridging contact 40. Pivoted on the post 31 is another plate 42, having a downwardly extending finger 43 adapted to lie outside the finger 36 of the
 40 plate 37. The ends 34 and 35 of the spring 33 grasp between them both the fingers 36 and 43, and when the plate 42 is moved in either direction about its axis the spring 33 tends to cause the plate 37, with the switch
 45 blade carried thereby, to move in the same direction as the plate 42. A slide-plate 44 is arranged to reciprocate endwise above the plate 42, the post 41 projecting through a slot 44^a extending longitudinally of the
 50 slide-plate. This plate carries on its under side a tongue 45 pivoted to one end 46 of the plate 44 and so arranged as to be permitted to move a short distance on either side of a
 55 straight line taken through its pivot and the post 31. Means are provided, as hereinafter described, for normally restoring said tongue to a position wherein the point of the tongue lies in the straight line. The end 47 of the slide opposite the end to which
 60 the tongue 45 is pivoted, is bent downwardly and provided with a notch 48 adapted to receive the end of a chain 49 or the like, by the use of which the slide-plate 44 may be moved forward. To return the plate 44
 65 to normal position when the chain is re-

leased, there is provided a spring 50 which is coiled around one end of a hollow rivet 51 extending through a suitable aperture in the base. One end of said spring is seated in a notch 52 in the base and the opposite
 70 end hooks behind a lug 53 on the plate 44.

A stationary guide plate 54 extends across the chamber in the base and has an opening
 75 55 through which projects the upper end of the post 31. This plate has a pair of downwardly extending ears 56 with which corresponding ears 57 carried by the tongue 45 engage when the slide plate 44 is in its normal or rearward position. The tongue is
 80 thus held normally in such position as to extend toward the center of the post 31. When the slide-plate 44 is drawn forward to operate the switch, the point of the tongue 45 will enter one or the other of a pair of
 85 notches 57^a and 58 formed in the edge of the oscillating plate 42, the particular notch which the tongue will enter depending upon whether the plate 42 occupies its right hand or left hand position. The plate 44 is provided with a portion 59 which extends up-
 90 ward into a notch 60 in the guide plate 54, to guide the slide-plate 44 in its movement. The plate 54 is also provided with an elongated slot 61 through which projects a lug 53 on the slide-plate, to further guide the
 95 slide-plate in its movement back and forth. When the slide-plate 44 is drawn forward by the hand of the operator, the point of the tongue 45 enters one of the notches 57^a or 58. Further movement of the slide-plate
 100 causes the oscillating plate 42 to turn on the post and place the spring 33 under tension. This is due to the fact that the plate 37 is at first prevented from moving with the plate 42, by the engagement of a tongue
 105 62 carried thereby with a finger 63 carried by the slide-plate 44. When, however, the slide-plate has moved far enough to cause the finger 63 to pass off the end of the tongue 62, the plate 37 is released and is thrown
 110 quickly by the spring 33 to such a position that the fingers 36 and 43 of the plates 37 and 42 overlap each other. When the slide-plate is permitted to be moved back to normal position by the spring 50, the pivoted
 115 tongue 45 is straightened with respect to the slide-plate by the engagement of the ears 57 thereof with the ears 56 of the guide-plate 54. Upon the next forward movement of the slide-plate the pivoted tongue
 120 will enter the other notch of the plate 42 because this plate is in its other position, and the operation described above will be repeated except that the plates 37 and 42 will be shifted in the direction opposite to that in
 125 which they were shifted by the last operation. When the parts are in the position shown in Fig. 4, the movable contact 40 enters the space-between the plates 25 and 26 and bridges the gap between these plates.
 130

When the parts are in the other position, as illustrated in Fig. 3, the bridge block 40 is out of contact with the spring plates 25 and 26 and the circuit is broken.

5 The hereinbefore mentioned parts are all inclosed in a casing which comprises a tubular shell 64 having two diameters. The portion of larger diameter contains the base and the switch mechanism carried thereby, 10 while the threaded shell 16 extends into the portion of smaller diameter. A cap or cover 65 telescopes over the larger end of the tubular shell 64 and conceals the rear face of the base and the binding screws carried thereby. The rear face of the base is formed with channels 66 and 67 which extend from the binding screws to a notch 68 in the edge of the base and accommodate the lead wires. The casing 64 has an embossment 69 on one 20 side of the portion of larger diameter, and secured in this embossment is a neck 69^a which is internally threaded to receive the threaded end of a pipe or the like. In wiring the device the conductors will be brought 25 in through the neck 69^a into the notch 68 in the base and will be laid in the grooves or channels 66 and 67 and extend to the binding screws 22 and 29. The tubular portion 64 of the casing is lined with a suitable insulating sleeve 70 and the cap is provided with a lining disk 71, the edge of which engages the rearward edge of the lining sleeve 70. The sleeve 70 projects for a short distance beyond the open end of the 35 shell 64, as usual.

While I have shown and described one form of my invention, it will be understood that my invention is capable of incorporation in other forms within the scope of the 40 appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with an insulating 45 base, of a stem secured thereto, a switch blade rockably mounted on said stem, a tumbler rockably mounted on said stem, means for normally holding said switch

blade and said tumbler together, a longitudinally movable slide having means there- 50 on for engaging and operating said tumbler when said slide is removed, said slide having a member adapted to engage said switch blade but to become disengaged when said slide is moved, and said slide having an up- 55 ward projection, a guide having a slot therein for receiving the upward projection of said slide and guiding the same, and a return spring engaging said projection.

2. The combination with an insulating 60 base, of a stem secured thereto, a switch blade rockably mounted on said stem, a tumbler rockably mounted on said stem, resilient means for normally holding said switch blade and said tumbler together, a longi- 65 tudinally movable slide having a member adapted to engage said switch blade but to become disengaged therefrom when said slide is moved, an operating tongue carried by said guide and adapted to engage and 70 move said tumbler when said slide is moved, a return spring for said slide, and a guide for said slide, said guide having projections adapted to be engaged by said tongue when said slide is returned by said spring. 75

3. The combination with stationary contacts, of a contact arm pivoted to oscillate, an oscillating arm having a V shaped projection, a spring for connecting said arms, a reciprocating member, a pivoted projection 80 on said member adapted to engage alternately on each side of said V shaped projection, stationary stops against which said pivoted projection engages when retracted, to move the same to normal position, and 85 means for holding said contact arm until the spring has been placed under sufficient tension to operate the same.

In witness whereof, I have hereunto subscribed my name in the presence of two 90 witnesses.

REUBEN B. BENJAMIN.

Witnesses:

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W. PERRY HAIN.