Nov. 8, 1927. 1,648,606

T. A. BOTH

INSULATING SWITCH SHELL

Filed March 26, 1923

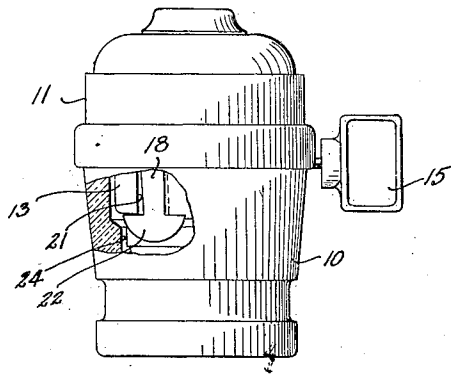


Fig. 1.

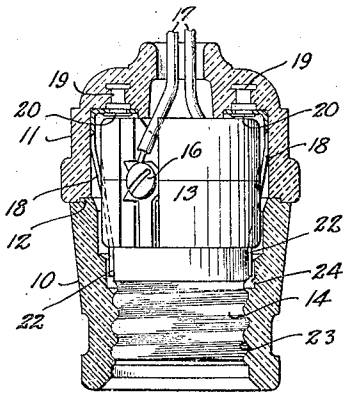


Fig. 2.

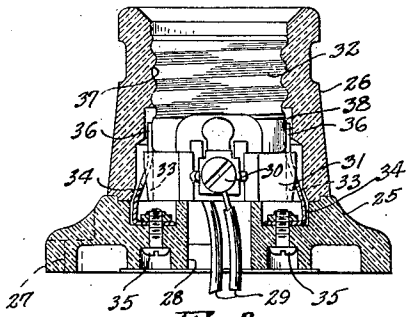


Fig. 3.

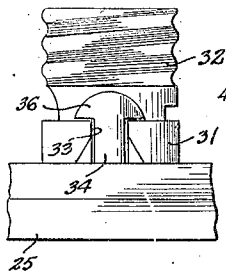


Fig. 4.

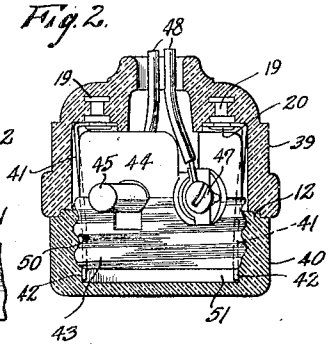


Fig. 5.

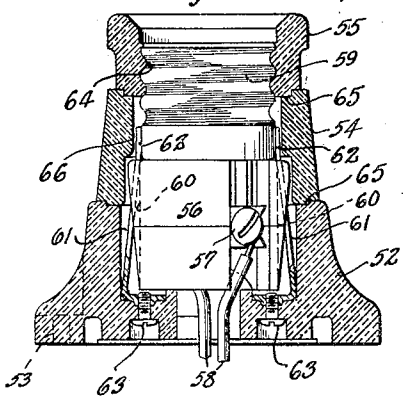


Fig. 7.

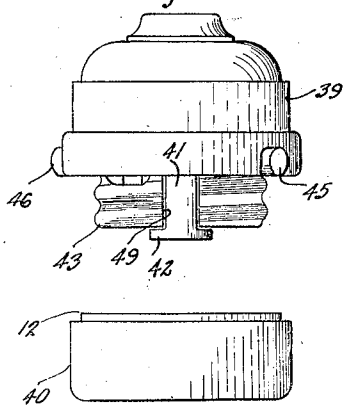


Fig. 6.

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UNITED STATES PATENT OFFICE.

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INSULATING SWITCH SHELL.

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This invention relates to electric lamp sockets, switch shells and the like, and has for an object to provide an insulating shell or casing for these switches, sockets and like devices which will be simple in construction, may be made relatively light and thin, may be easily assembled. Also one in which when assembled the various elements will be securely fastened together and not liable to become accidentally disconnected, but in which the sections of the shell may be easily and quickly disconnected to give access to the electrical devices when desired.

With these and other objects in view I have devised the constructions illustrated in the accompanying drawing, in which

Fig. 1 is a side elevation of a switch socket, a portion of the wall being broken away to show one of the holding elements.

Fig. 2 is a longitudinal section through the shell of the socket shown in Fig. 1, the works or electrical devices being shown in elevation.

Fig. 3 is a similar view showing the invention as applied to an insulating lamp base.

Fig. 4 is a side elevation looking from the right of Fig. 3 and with the upper section of the shell removed.

Fig. 5 is a transverse section through the shell of a pendant switch showing the application of my invention thereto.

Fig. 6 is a side elevation of the device shown in Fig. 5 but with the two sections of the shell separated, and

Fig. 7 is a view similar to Fig. 3 showing how, in the case of long shells, the casing may be made in more than two sections.

Referring to Figs. 1 and 2, 10 denotes the body member and 11 the cap member of a shell, one of which has a flange 12 seated in an annular groove of the other member at their edges to provide a tight joint and hold them in alignment. Enclosed by these sections of the shell or casing are the works which comprises the electrical elements, the term "works" being used generically to indicate the electrical devices whether they comprise merely an insulating block carrying the lamp contacts and the binding posts for the connection of the leadwires thereto, the lamp contacts in combination with a switch, or merely a switch alone. In Figs. 1 and 2 I have shown it as comprising the insulating blocks 13 carrying the usual lamp contacts, one of which is the screw threaded metal shell 14 to receive the usual threaded ferrule carried by an incandescent lamp. The switch elements, of which I have shown only the key 15, are mounted within these blocks and are not illustrated as they form no part of my invention. I have, however, shown one of the binding posts 16 for connection with the leadwires 17 in the usual manner.

For the purpose of securing the two section of the shell together I have made use of the works as a part of the securing means. Within the cap member 11 I have mounted two securing fingers 18 preferably of pieces of sheet metal and secured in the cap by means of rivets 19 molded within the cap and having the free ends projecting through and riveted over laterally projecting ends of the fingers 18, as shown at 20. The blocks 13 of the works are provided with longitudinally extending grooves or recesses 21 in their outer walls to receive these fingers 18 and at their free ends these fingers are provided with heads 22 of greater width than the bodies of the fingers, so that when these fingers are seated in the grooves or recesses 21 the under sides of these heads will engage the walls of the block at the end of the groove or recess, as shown in Fig. 1. The fingers are yieldable, however, and their free ends may be drawn outwardly from the blocks 13 to disconnect them from engagement therewith. The other or body member 10 of the shell or casing is internally threaded, as shown at 23 for engagement on the outside of the threaded shell or lamp contact 14, and at a point adjacent the inner end of this threaded portion or opposite the heads 22 when the shell is assembled this member is reduced in diameter, as shown at 24, so as to prevent the heads moving outwardly from engagement with the blocks 13.

In assembling this construction, the works including the blocks 13 and outer contact or shell 14 are inserted in the cap 11 with the fingers 18 in the grooves or recesses 21. Now by threading the body member 10 onto the shell or contact 14 the elements are securely fastened together, the inner walls 24 of the body member securely holding the fingers in these recesses. If it is desired to disassemble the shell all that is necessary is to unscrew

the body member 10 when the heads of fingers 18 may be easily removed from holding engagement with the blocks.

Referring to Figs. 3 and 4 I have shown how the invention may be applied to an insulating lamp base, the base proper being indicated at 25, the body section 26 being the same as section 10 shown in Figs. 1 and 2. The base 25 is provided with openings 27 for the passage of screws or other elements for securing the base to a suitable support. The base also has an opening 28 therethrough for the passage of the leadwires 29 leading to the binding posts, one of which is shown at 30. Carried by the insulating block 31 are the works to be enclosed in the shell. In this instance there is no switch carried by this element, but merely the binding posts and the lamp contacts including the usual screw threaded shell 32 corresponding to shell 14 in the first form, and which shell is adapted for threaded engagement with the threaded ferrule carried by a lamp. The block 31 has grooves 33 in its outer surface adapted to receive the securing fingers 34, which fingers are similar to those indicated at 18 in the first form, but somewhat shorter in length, and they are secured in the base by suitable screws 35. These fingers also have an enlarged head 36 to engage the block 31 at one end of the grooves 33. The body section 26 is internally threaded at 37 for engagement on the outside of the lamp contact shell 32, and is also provided with a reduced portion 38 corresponding to that indicated at 24 in the first form. In assembling, the block 31 carrying the lamp contacts is placed on the base 25 with the fingers 34 in the grooves 33 as indicated, the heads 36 engaging the top of the block. The body section 26 is now threaded onto the shell 32 bringing its inner end into engagement with the base and securely clamping the elements together as in the first form, the walls of reduced portion 38 holding the heads 36 of fingers 34 in engagement with the block 31.

Referring to Figs. 5 and 6 I have indicated how the invention may be applied to a pendant switch. Here the shell or casing comprises two sections 39 and 40, the upper section 39 being the same as cap 11 in the form shown in Figs. 1 and 2, and has two securing fingers 41 with enlarged heads 42 secured in this section by rivets 19 molded therein and riveted over at 20 the same as shown in Fig. 2. In this case, however, there is no screw threaded lamp contact or shell, and therefore, the lower section 43 of the insulating block 44 is threaded on its outer wall. The insulating block 44 is preferably in two sections, as is usual in these constructions, and carries a switch mechanism such as a pull switch or a push through switch, which is that used in the present case, and of which the operating button is indicated at 45 and 46. One of the binding posts for this device is shown at 47 for connection with the depending leadwires 48. The insulating block 44 of the works is provided with grooves or recesses 49 in its outer walls and extending throughout the length of the lower section 43. The fingers 41 are adapted to seat in these grooves with the head 42 engaging the lower end of this block. As the lower section of the insulating block 44 is threaded on its outer walls it is preferably made somewhat larger in diameter than the upper section. For securing the elements together the lower section 40 of the casing is internally threaded, as indicated at 50, and is adapted for threaded engagement with the threads on the section 43. This construction is assembled the same as in the other forms, the works comprising insulating block 44—43 being first inserted in the upper section 39 with the fingers 41 seated in the grooves 49. The section 40 is then threaded onto section 43 securely clamping the elements together as in the other form. The internal threads 50 are preferably stopped short of the end of the section 40 to leave a cylindrical wall 51 which, when the elements are in the position shown in Fig. 5, engages the heads 42 and retains them in holding position.

In Fig. 7 the invention is shown as applied to a lamp base which has a switch mechanism, and as the works in this case are of greater length, a longer shell is required to accommodate this mechanism. This shell may, of course, be made of two sections, as shown in Fig. 3, but in this figure I have shown the use of three sections. These sections are indicated at 52, the lower or base section provided with openings 53 for the passage of screws for securing it to a support, intermediate section 54, and the upper section 55. If the shell is made in two sections only the upper and intermediate sections 55 and 54 would be made in one piece and correspond with the sections 10 and 26 of the forms show in Figs. 1 and 2 and 3, the increased length of the shell being accounted for by increasing the height of the base 52. The works comprise the two insulating blocks 56 carrying the switch mechanism, not shown, the binding posts, one of which is shown at 57, for connection to the leadwires 58, and the usual lamp contacts including the screw shell 59 corresponding to the shells 14 and 32 of the first two forms. The blocks 56 are provided in their outer walls with longitudinal grooves 60 to receive the fingers 61 having enlarged heads 62 adapted to engage the upper end of the upper block, these fingers being secured to the base section by suitable screws 63. The upper section 55 is internally threaded, as shown at 64 to engage the outer wall of this threaded shell 59, the contacting ends of the sections forming a step joint, as shown at 65.

The elements are assembled by placing the blocks 56 in the base section with the fingers 61 in the grooves 60 and the heads 62 engaging the upper end of the upper block. The central section 54 is then placed about these blocks and the top section threaded onto the shell 59 securely clamping the elements together. The intermediate section 54 is reduced in diameter opposite the heads 62, as shown at 66, to prevent outward movement of these heads and disengagement from the blocks 56 when the elements are in assembled relation.

It will be apparent from the foregoing description that the same fundamental means is used in all the forms shown for securing the sections of the shell together and to the support for the electrical devices. The fingers secure the insulating supporting blocks for the electrical devices in one section of the shell or casing and then the other section of the shell or casing has threaded engagement on an outer wall of the works, either the screw threaded lamp contact, as shown in Figs. 1 to 4 and 7, or a section of the insulating block, as shown in Figs. 5 and 6. Means is also provided for securely retaining the holding fingers in engagement with the block when the elements are in assembled relation.

It will also be apparent that by merely unscrewing one section of the shell all the devices may be saparated for inspection or repair of the electrical devices. The shell or casing may be made of various material such as porcelain or other molded insulating substances, and when assembled is very neat and attractive in appearance.

Having thus set forth the nature of my invention, what I claim is:

1. A device of the character described comprising an insulating shell composed of a plurality of sections, an insulating block enclosed by said shell, electrical devices carried by said block including an externally threaded lamp contact, said block being provided with longitudinally extending recesses in its outer walls, fingers secured in one of the shell sections seated in said recesses and provided with laterally extending shoulders engaging the walls of the block at one end of the recesses to secure the same in said shell section, and another section of the shell being internally threaded to engage said threaded lamp contact and provided with a wall adjacent the free ends of the fingers to retain them in the recesses.

2. A device of the character described comprising an insulating shell composed of a plurality of sections, an insulating block enclosed by said shell, electrical devices carried by said block including an externally threaded lamp contact, said block being provided with longitudinally extending recesses in its outer walls, laterally movable fingers secured in one of the shell sections seated in said recesses and provided with laterally extending shoulders engaging the walls of the block at one end of the recesses to secure the same in said shell section, and another section of the shell being internally threaded to engage said threaded lamp contact and provided with a wall to retain said fingers in the recesses in holding position, one of the shell sections being provided with an annular groove at its open end and the other shell section being provided with a flange seated in said groove.

3. A device of the character described comprising an insulating shell composed of a plurality of sections, works comprising an insert enclosed by said shell having longitudinally extending recesses in its outer walls with shoulders leading laterally from said recesses and including an externally threaded member, laterally yieldable fingers secured in one of said sections and having laterally projecting heads forming laterally extending shoulders engaging the shoulders of said insert leading laterally from the recesses to secure the insert in said section, and another section of the shell being internally threaded to engage the threads on said externally threaded member and provided with a wall adjacent said fingers to retain them in the recesses and in holding engagement with said works.

4. A device of the character described comprising an insulating shell composed of a plurality of sections, works enclosed by said shell including an insulating block having longitudinally extending grooves, and a threaded member carried by said block, laterally yieldable fingers secured in one of the shell sections and having lateral extensions to engage the block at one end of the grooves to hold the same in said section, and another section of the shell having threaded engagement with said threaded member and provided with a wall adjacent said fingers to retain them in holding engagement with said block, one of the shell sections being provided with an annular groove at its open end and the other shell section being provided with a flange seated in said groove.

In testimony whereof I affix my signature.

TONJES A. BOTH.