

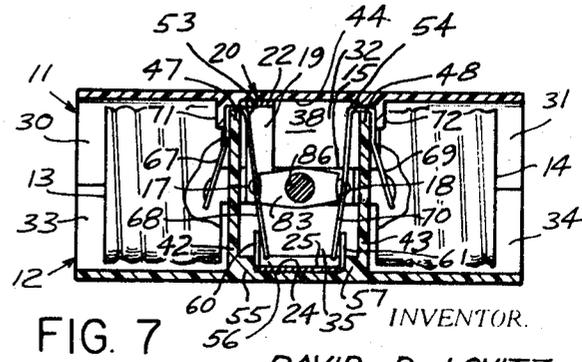
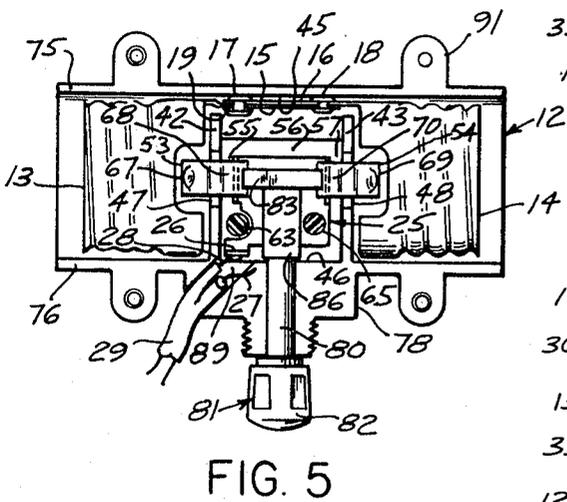
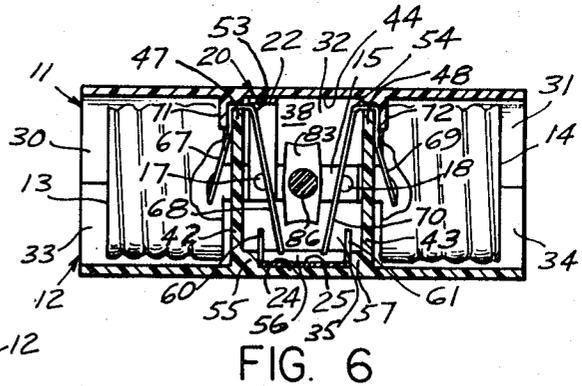
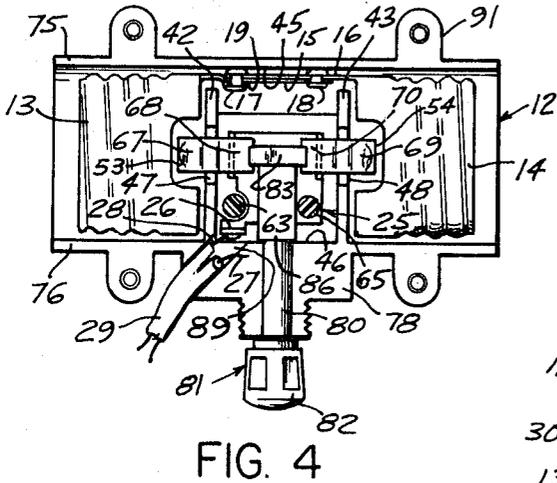
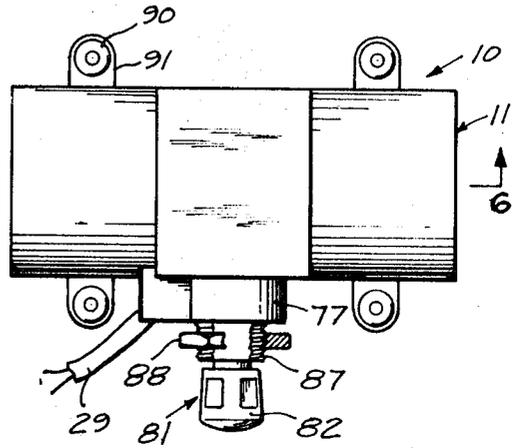
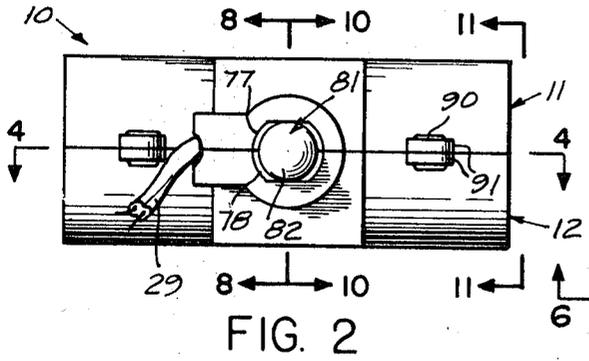
FIG. 1

INVENTOR.

DAVID D. LOVITZ

BY

ATTORNEY



INVENTOR.
 DAVID D. LOVITZ
 BY *[Signature]*
 ATTORNEY

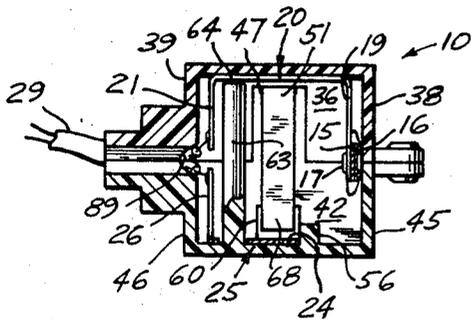


FIG. 8

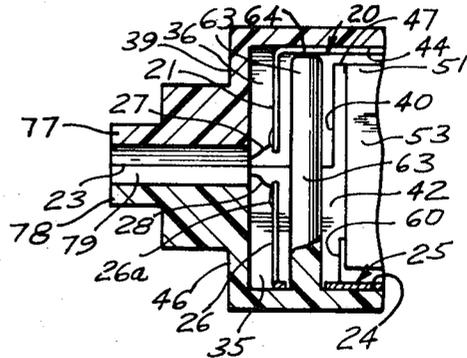


FIG. 9

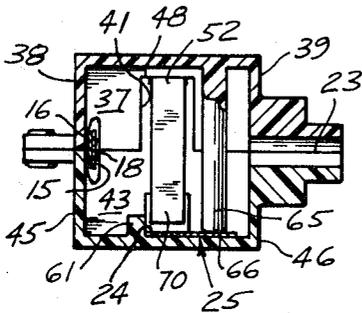


FIG. 10

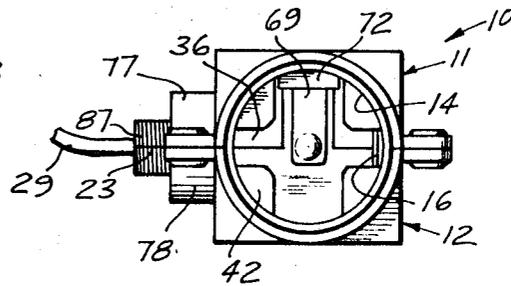


FIG. 11

INVENTOR
DAVID D. LOVITZ
BY
E. Poznaak
ATTORNEY

ELECTRIC SOCKET SWITCH

THE FIELD OF THE INVENTION

This invention relates to electric socket switches, and is particularly, though not exclusively, directed to tandem sockets for receiving the rear ends of the two oppositely positioned electric light bulbs or other appliances.

THE KNOWN ART

Conventional socket switches of the above-referred-to category require the careful assembly of their respective contact elements to assure their accurate positioning within the socket casing in order that said elements will be in positive circuit-closing positions when the switch member is in its closed position, and in firm nonoperative positions when the switch member is in its open position. To effect such desired positioning of the contact elements and other associated parts with the usual two-part casing, each of the elements and other components are manually positioned within one casing half and secured in position with suitable fastening means. Such an assembling operation is slow, tedious and uneconomical. Where such operations are not carefully performed, or where the contact elements and other components are not firmly secured in place—not an uncommon occurrence—the contact elements are loosely supported and movable out of their proper positions, at times producing inoperable or dangerous conditions within the casing.

OBJECTIVES OF THE INVENTION

It is the objective of this invention to provide an electric socket switch of the said class having none of the shortcomings of construction and assembling above mentioned. Specifically, among the objects of this invention are the provision of a construction requiring relatively little effort and skill in the assembling operation, with the use of a minimum number of fasteners, and the provision of interlocking and holding casing portions that will engage and hold the contact elements firmly in place when the switch member is both in its open and closed positions.

SUMMARY OF THE INVENTION

In the preferred form of this invention, two casing halves have three compartments in mutual registry, the compartments of each of said halves being formed by two spaced transverse walls. The opposite end compartments of said halves are adapted to accommodate oppositely extending socket shells connected by two longitudinally extending strips that are secured together and which are connected to an inverted U-shaped connector bridge, one end of which is electrically connected to one wire of a pair of conductors. The central compartments of the casing halves are adapted to accommodate therein opposite contact components and a rotor switch with an exteriorly positioned knob. In the embodiment illustrated, the upper central compartment accommodates said connector bridge as one contact member, the lower central compartment accommodating a base contact member electrically connected to another wire of said pair of conductors. Extending down from the roof of the upper central compartment is a holding post proportioned and positioned to firmly engage the said base contact member and hold it against the floor of the lower compartment; and extending up from the said lower compartment floor is another holding post proportioned and positioned to engage said connector bridge and hold it against the said roof of the upper compartment. The said lower and upper transverse walls are shaped for interengagement, each pair of interengaged walls being adapted to hold clamped therebetween a resilient inverted V-shaped contact element, one prong of each of said contact elements being adapted for positioning within one of said socket shells, the other prong of each of said contact elements being adapted for positioning within said lower central compartment

and adjacent an upstanding finger of said base contact member. The said rotor switch has an inner actuator head which in one position engages both said prongs and holds them in yieldable engagement with the respective upstanding fingers of said base contact member for effecting a closed circuit, and in another position is out of engagement with said respective prongs whereby the prongs return to their normal position out of engagement with said fingers.

In assembling the parts of this device, a subassembly is formed of said two socket shells and said connector bridge, the said two strips and said connector bridge being connected by a rivet or other suitable fastener, the connecting bar of said bridge being on top. The said base contact element is positioned on the floor of the lower casing half, and the two contact elements positioned over the tops of the respective transverse walls of the lower casing half. The said subassembly is lowered into the lower casing half and the upper casing half placed upon the said lower half, whereby the complementary transverse walls of the upper and lower halves will interengage to clamp said contact elements therebetween, and the said holding posts will engage the said connector bridge and base contact member, respectively, in the manner above described, to firmly and accurately hold the contact components in place—all without the use of additional fasteners. The only subsequent fastening operation is that of securing the two casing halves together by bolts or rivets.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view of the components of a tandem socket switch according to this invention.

FIG. 2 is a front elevation of the assembled device.

FIG. 3 is a plan view thereof.

FIG. 4 is a section of FIG. 2 taken substantially along line 4-4, parts being in elevation, the switch being shown in open position.

FIG. 5 is a view like FIG. 4, the switch being shown in closed position.

FIG. 6 is a section of FIG. 3 taken along line 6-6, the switch being shown in open position.

FIG. 7 is a view like FIG. 6, the switch being shown in closed position.

FIG. 8 is a section of FIG. 2 taken along line 8-8, the rotor being omitted and parts being removed for clarity.

FIG. 9 is an enlarged fragmentary portion of FIG. 8.

FIG. 10 is a section of FIG. 2 taken along line 10-10.

FIG. 11 is an end view of the assembled device.

DESCRIPTION OF A PREFERRED EMBODIMENT

In the tandem socket switch embodiment of this invention illustrated in the drawings, the two-part casing 10 comprises the substantially semicylindrical upper half and lower half parts 11 and 12, respectively, the casing supporting therein the two longitudinally aligned threaded socket shells 13 and 14 electrically and mechanically connected by the overlapping strips 15 and 16. In the particular construction shown in the drawings, the strip 15 is a longitudinal extension of shell 13 and strip 16 is a longitudinal extension of shell 14, the strips being secured together by the eyelets 17 and 18. Secured to said overlapping strips 15 and 16 at the said eyelet 17 is the leg 19 of the inverted U-shaped conductor bridge 20, the opposite leg 21 extending down parallel to leg 19 from the said bridge's connecting bar 22. The said bar 22 extends transversely across the said upper casing half 11, its said leg 21 preferably extending down to a level above the juncture 23 of the upper and lower casing halves 11 and 12 (FIGS. 8 and 9). Disposed upon the intermediate base portion 24 of the lower casing half 12 is the base contact member 25, to be more fully hereinafter described, said member 25 having an upwardly extending arm 26 the upper edge 26a of which is spaced below said leg 21 of said bridge member 20. Electrically connected to said leg 21 and arm 26 are the respective stripped ends 27 and 28 of the line cord 29. The above-described combination of socket

shells 13 and 14, bridge 20, base contact member 25 and line cord 29 constitute a subassembly generally designed S, firmly locked and operatively positioned within the casing 10 without the use of rivets, bolts or other separate fasteners, all as will more clearly appear from the description hereinafter given.

The said upper casing half 11 is divided into opposite end compartments 30 and 31 and intermediate compartment 32, these being in registry with the respective opposite end compartments 33 and 34 and intermediate compartment 35 of the said lower casing half 12. The said compartments 32 and 35 together form a switch and contacts housing as will more clearly hereinafter appear. The said compartments 30, 31 and 32 in said upper casing half 11 are formed by the longitudinally opposite transverse walls 36 and 37, the lateral walls 38 and 39 and the roof 44. Wall 36 has the central recess 40 therein and wall 37 has the central recess 41 therein. The said compartments 33, 34 and 35 in said lower casing half 12 are formed by the longitudinally opposite transverse walls 42 and 43, the lateral walls 45 and 46 and the said base 24. Wall 42 has the central upright extension 47 and wall 43 has the central upright extension 48. Said extensions 47 and 48 are so proportioned and positioned as to interengage the said respective recessed portions 40 and 41 when the said upper and lower halves 11 and 12 are in operative assembled relation. The said upright extensions 47 and 48 have at their upper edges the respective notched portions 49 and 50 accomodating therein the respective upper apical portions 51 and 52 of the respective resilient contact elements 53 and 54 to be hereinbelow described.

Extending upwardly from said base 24 of the lower casing half 12 are the ridges or short wall sections 55, 56 and 57 defining a cavity 59 with which the said base contact member 25 fits. The said member comprises, in addition to the said upwardly extending arm 26, the short longitudinally opposite contact fingers 60 and 61 extending upwardly from the flat base 62 and adapted for coactive engagement with said contact elements 53 and 54 in a manner to be hereinafter set forth. Integral with and extending upwardly from the base portion 24 of said intermediate compartment 35 of the lower casing half 12 is the holding post 63, positioned and proportioned so that its top end 64 is in engagement with the underside of the connecting bar 22 of said conductor bridge 20, said connecting bar being in engagement with the roof 44 of said upper casing half 11. Integral with and extending down from the roof 44 of said upper casing half 11 is the holding post 65 positioned and proportioned so that its bottom end 66 is in engagement with the upper surface of the flat base 62 of the said base contact member 25. Both of said posts are offset inwardly with respect to the said transverse walls. The arrangement is hence such that when the two casing halves 11 and 12 are in assembled relation, the conductor bridge 20 and the base contact member 25 are held rigidly in place by the respective holding posts 63 and 65.

When said contact elements 53 and 54 are operatively in place over the respective wall extensions 47 and 48, the two prongs of the respective contact elements straddle the respective supporting wall extensions, the outer prong 67 of contact element 53 extending into the socket shell 13 and the inner prong 68 thereof being in coacting relation with the said contact finger 60, the outer prong 69 of contact element 54 extending into the socket shell 14 and the inner prong 70 thereof being in coacting relation with the said contact finger 61. When the two casing halves 11 and 12 are in assembled relation, the two short holding panels 71 and 72 adjacent the top central portions of the said walls 36 and 37 of the upper casing half 11 engage the said respective apical portions 51 and 52 of said contact elements 53 and 54 and, coactively with the said respective upright extensions 47 and 48 of the lower casing half, hold said contact elements rigidly in place.

Thus it is apparent that when the said two casing halves 11 and 12 are in assembled relation, with their respective junction edges 73, 74 and 75, 76 in abutting engagement, and the

lower casing half 12 containing the said subassembly S and coactive components in place as above described, all the said inner parts of the socket device are firmly held in place without the use of special fasteners — due to the interlocking arrangement of the said upper walls 36 and 37 with the respective lower walls 42 and 43, the holding action of said posts 63 and 65, and the coaction of said panels 71 and 72 and the said upright extensions 47 and 48.

The said upper and lower casing halves 11 and 12 have congruent lateral extensions 77 and 78 with grooves 79a and 79b together forming a bearing 79 for the shank 80 of the rotor switch 81, said switch having an outer knob 82 and an inner rectangular actuator head 83, with the sides 84 longer than the operative shorter sides 85, said actuator head being operatively positioned between said inner prongs 68 and 70 of said respective contact elements 53 and 54. The said shank has an inner enlarged portion 86 in engagement with the adjacent walls 39 and 46 of the upper and lower casing halves 11 and 12, respectively, thereby to hold the switch 81 in operative position. The threaded boss sections 87 of said extensions 77 and 78 are held together by the nut 88 in known manner. The said extensions 77 and 78 contain opposing grooves 89a and 89b together forming a channel 89 for the line cord 29.

The said actuator head 83 is so proportioned that when the rotor switch 81 is operatively turned so that the longer side 84 of the actuator head is in a vertical position as illustrated in FIG. 6, the head will be spaced from and out of engagement with the adjacent prongs 68 and 70 of the contact elements 53 and 54. When the switch is operatively rotated so that the said longer side 84 is in a horizontal position as illustrated in FIG. 7, the operative short sides 85, 85, will be in pressing engagement with the said prongs 68 and 70 of the resilient contact elements 53 and 54 to hold said prongs in engagement with the respective adjacent fingers 60 and 61 of the said base contact member 25. In this latter position of the switch 81 the said member 25, connected to the conductor 28 of the line cord 29, will be electrically connected to the respective prongs 67 and 69 within the socket shells 13 and 14, respectively, said prongs being adapted for operative engagement, in known manner, with corresponding terminals of electric bulbs within said socket shells, said socket shells being electrically connected to said conductor bridge 20 and to the conductor 27 in the manner above described.

The only fasteners required to complete the assembly are fasteners such as the rivets 90, in operative engagement with the coactively positioned apertured lugs 91 of the casing halves 11 and 12, in known manner.

In the above description, the invention has been disclosed by way of example and in preferred manner; but obviously many variations and modifications may be made therein. It is to be understood, therefore, that the invention is not limited to any form or manner of practicing same.

I claim:

1. An electric socket switch comprising a two-part casing made of two separable halves, a socket shell in one portion of the casing, a switch and contacts compartment in an adjacent portion of the casing, said halves having mutually engaged and separable transverse walls defining said portions, a resilient bent contact element held clamped between said walls, said contact element having a first contact prong operatively extending into said shell and a second contact prong extending into said compartment, a first contact member electrically connected to said socket shell and having a portion thereof in engagement with a wall of one of said halves, a second contact member having a portion thereof in engagement with an oppositely disposed wall of the other of said halves, two holding posts extending from said respective oppositely disposed walls and in engagement with the said respective oppositely disposed contact members and holding them in engagement with the corresponding adjacent walls, said second contact prong being in adjacent coactive relation to said second contact member and normally out of engagement therewith, a switch member within said compartment and movable

between two limiting positions, said switch member being in coactive relation to said second contact prong and being so proportioned and positioned that when it is in one of said limiting positions it will engage and move said second contact prong into yieldable engagement with said second contact member, said first and second contact members having portions adapted for connection to a source of electrical current.

2. An electric socket switch according to claim 1, said posts being offset with respect to said transverse walls, said transverse walls being mutually interengaged.

3. An electric socket switch according to claim 2, one of said transverse walls having a recessed portion, the other of said transverse walls having an extension extending into said recessed portion, one of said transverse walls having along an edge thereof a notched portion, said contact element extending through said notched portion.

4. An electric socket switch comprising a two-part casing made of two separable halves, said casing having two oppositely positioned end portions and an intermediate switch and contacts compartment, the said halves having two correspondingly spaced transverse walls, the two walls of one half being in separable engagement with the respective corresponding two walls of the other half, said mutually engaged pairs of walls defining said end portions and said compartment, a resilient bent contact element held clamped between each pair of said mutually engaged walls, each of said contact elements having a first contact prong operatively extending into the adjacent one of said shells and a second contact prong extending into said intermediate compartment, said socket shells being electrically connected to each other, a first contact member electrically connected to said shells and having a portion thereof in engagement with a wall of one of said halves, a second contact member having a portion thereof in engagement with an oppositely disposed wall of the other of said halves, two holding posts extending from said respective oppositely disposed walls and in engagement with the said respective oppositely disposed contact members and holding them in engagement with the corresponding adjacent walls, each of said second contact prongs being in adjacent coactive relation to said second contact member and normally out of engagement therewith, a switch member within said compartment and movable between two limiting positions, said switch member being in coactive relation to both of said second contact prongs and being so proportioned and positioned that when it is in one of said limiting positions it will engage and move both of said second contact prongs into yieldable engagement with the said second contact member, said first and second contact members having portions adapted for connection to a source of electrical current.

5. An electric socket switch according to claim 4, said pairs of engaged transverse walls being interengaged, said holding posts being disposed within said intermediate compartment.

6. An electric socket switch according to claim 4, the said socket shells being mechanically connected by mutually engaged strips extending from said respective shells across said compartment, said first contact member being attached to said strips and having a portion thereof extending transversely across said compartment and in engagement with a wall of one of said halves, the said second contact member having a base portion in engagement with said oppositely disposed wall of the other of said halves, one of said holding posts being in engagement with said transversely extending portion of said first contact member, the other of said holding posts being in engagement with said base portion of the said second contact member.

7. An electric socket switch according to claim 6, said first contact member being of inverted U-shaped configuration with one leg thereof attached to said strips, the opposite end thereof having a first electric wire terminal, and the connecting bar thereof being the said portion of said first contact member engaged by one of said posts, whereby said first contact member constitutes a bridge member between laterally opposite sides of said casing, the said base portion of said second contact member having an arm with a second electric wire terminal, said terminals being in spaced relation.

8. An electric socket switch according to claim 6, said base portion of said second contact member having two opposite upstanding fingers in adjacent coactive relation to said second contact prongs of said respective bent contact elements.

9. An electric socket switch according to claim 6, said wall engaged by said second contact member having a cavity therein, said base portion of said second contact member being confined within said cavity.

10. An electric socket switch according to claim 7, said two casing halves having congruent lateral extensions with congruent grooved portions, said grooved portions together forming a bearing, said switch member comprising a shank rotatably positioned within said bearing, an exterior knob and an actuating head disposed within said intermediate compartment and between and in coactive adjacent relation to said second contact prongs of said respective bent contact elements.

11. An electric socket switch according to claim 10, said lateral extensions of said two casing halves having congruent channels together forming a single channel adapted to receive a line cord for operative connection to said respective wire terminals.

5

10

15

20

25

30

35

40

45

50

55

60

65

70

75