April 11, 1939. P. E. HAMILTON 2,154,160

ATTACHMENT FOR ELECTRICAL APPARATUS

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FIG. 1.

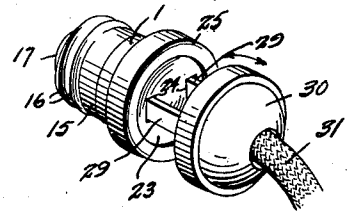


FIG. 2.

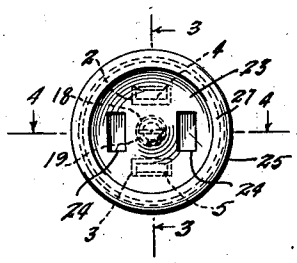


FIG. 3.

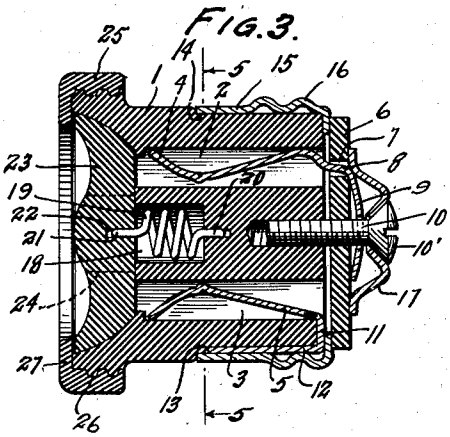


FIG. 4.

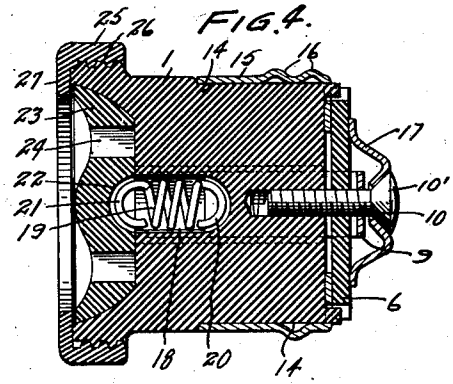


FIG. 5.

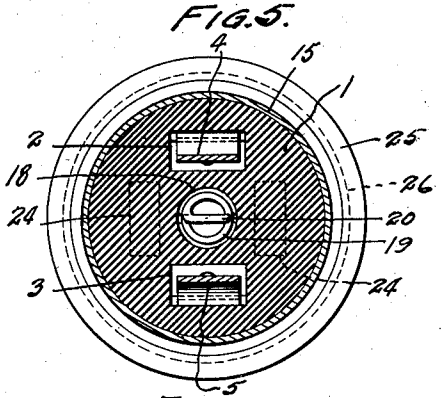
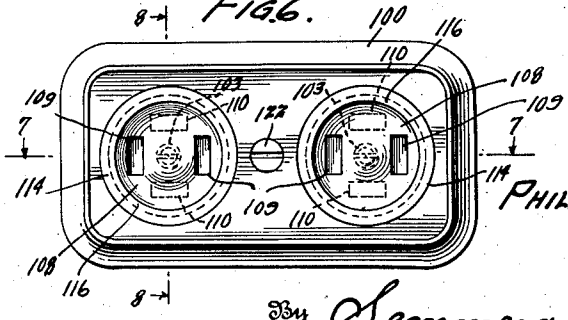


FIG. 6.



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FIG. 7.

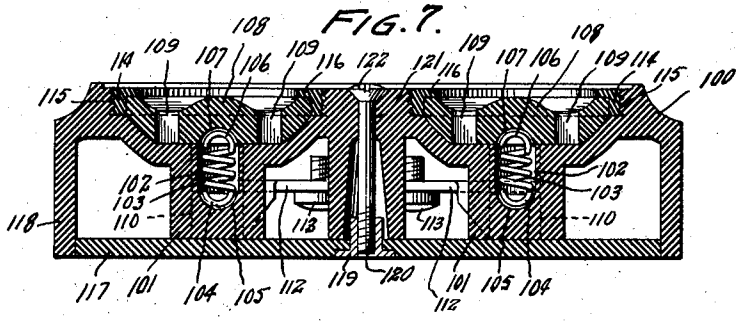


FIG. 8.

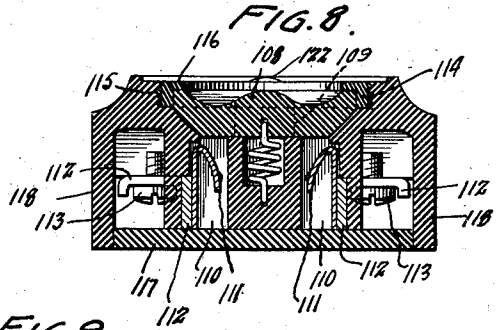


FIG. 9.

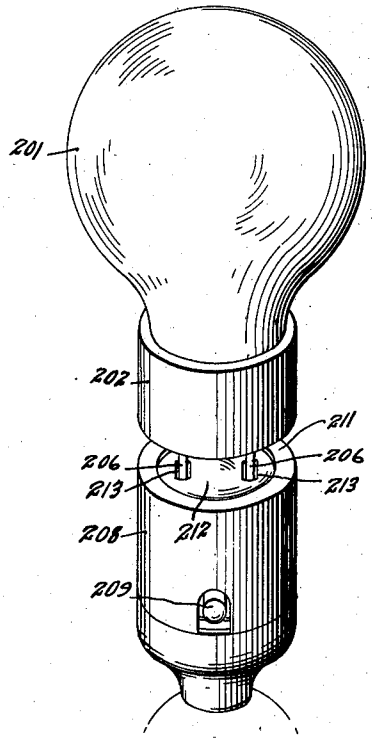


FIG. 10.

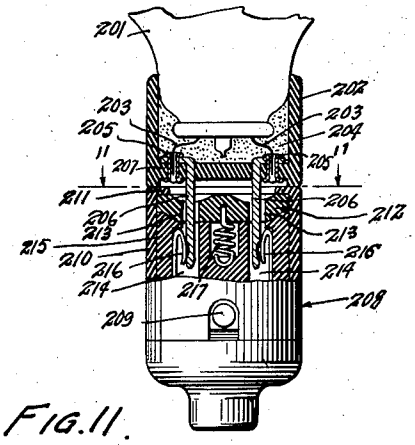
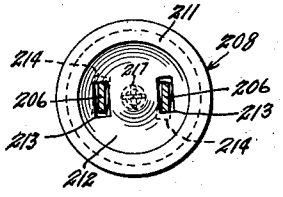


FIG. 11.



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UNITED STATES PATENT OFFICE

2,154,160

ATTACHMENT FOR ELECTRICAL APPARATUS

Philip E. Hamilton, Beaver Falls, Pa.

Application January 8, 1937, Serial No. 119,667

2 Claims. (Cl. 173—330)

My invention relates to attachments for electrical apparatus, and more particularly to attachments of the receptacle or socket type.

This application is an improvement on my copending applications Serial Nos. 93,710 and 110,934.

It is an object of the present invention to simplify and strengthen the constructions of the above identified applications.

Another object of the invention is to provide attachments for electrical apparatus which are strong and sturdy, and easy and cheap to construct, repair and replace.

Yet another object of the invention is to provide an improved single receptacle for electrical terminals which combines a high degree of safety with strength and dependability.

A further object of the invention is to provide a duplex receptacle which is operative under all ordinary conditions of use and which is sturdy and simply made.

A still further object of the invention is to provide a bulb and socket construction which embodies novel features of strength and dependability.

With these and other objects in view which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements comprising my invention may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claims.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect without limiting the improvements in their useful applications to the particular constructions which, for the purpose of explanation, have been made the subject of illustration.

In the drawings:

Figure 1 is a perspective view showing terminals about to be inserted in my single receptacle arrangement.

Figure 2 is a top plan view of my single receptacle arrangement.

Figure 3 is a view taken along the line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a view taken along the line 4—4 of Figure 2, looking in the direction of the arrows.

Figure 5 is a view taken along the line 5—5 of Figure 3, looking in the direction of the arrows.

Figure 6 is a top plan view of my improved duplex receptacle.

Figure 7 is a view taken along the line 7—7 of Figure 6, looking in the direction of the arrows.

Figure 8 is a view taken along the line 8—8 of Figure 6, looking in the direction of the arrows.

Figure 9 is a perspective view of a bulb being inserted in my socket.

Figure 10 is a view partly in section showing the special base of my bulb and the construction and arrangement of the socket.

Figure 11 is a view taken along the line 11—11 of Figure 10, looking in the direction of the arrows.

Referring to the drawings, I have shown in Figures 1 to 5 a receptacle comprising a base 1 having a pair of channels 2 and 3 therein. In the channel 2 is a flat spring contact element 4 and in the channel 3 is a similar contact spring element 5. Mounted at the back of the body 1 is a base 6 having an aperture 7 therein through which projects one end 8 of the contact element 4. The end 8 is bent over as indicated at 9, and through the bent-over portion 9 is adapted to pass an assembly screw 10.

Contact element 5 is bent over as indicated at 11 and 12. The end 12 is adapted to lie within a groove 13 provided on the side of the body 1. Adapted to fit within an annular depression 14 in the body 1 is an annular sheathing 15 provided with screw threads 16 which enable the body to be screwed into an electrical contact device wherein one of the contacts (not shown) is adapted to be electrically connected to the sheathing 15 by being screwed into a female element (not shown).

There is provided a cup-like washer 17, through an aperture in the middle of which passes a head 10' of the assembly screw 10. When the assembly screw 10 is screwed into place, there is electrical contact established between the end 9 of the contact element 4 and the head 10' of the screw 10. The head 10' of the screw 10 is adapted to lie against one of the electrical terminals (not shown) to complete the connection to the receptacle.

Mounted in an aperture 18 in the body 1 is a spiral spring 19 which has a bent-over end 20 which is adapted to lie in a socket at the base of the aperture 18. The other end 21 of the spring 19 is likewise bent-over and is adapted to fit within a slot 22 formed in a shutter element 23.

Shutter element 23 is provided with channels 24 which in certain positions of the shutter element 23 are adapted to lie directly over the channels 2 and 4 of the body member.

To hold the shutter member 23 securely in

place and permit its rotation in the body, I have shown a guard member 25 which is screw threaded, as indicated at 26, to the body member and which has an overlying flange 27 which engages the outer edge of the shutter 23. This guard 27 permits the shutter 23 to be rotated without danger of injury or sticking, and relieves any necessity for support of the shutter 23 from the spring 19.

In operation, the prongs 29 of a plug-in element 30 carrying two wires of a cord 31 are inserted in the channels 24 of the shutter element 23. The shutter element 23 is rotated against the tension of the spring 19 so that the channels 24 mesh with the channels 2 and 3 in the body. The tension of the spring is such as to ordinarily keep the shutter channels in the position shown in Figure 2. The plug-in element 30 is then pushed home, and the elements 29 make contact with the electrical contact members 4 and 5 to complete the circuit.

The contact elements 4 and 5 are bent and resilient, and tend to hold the members 29 in position. The rotative movement of the shutter 23, however, causes channel members 24 to bind tightly against the elements 29 and this also tends to hold the plug-in element in place.

On removal of the plug-in member 30, the shutter will rotate to the position indicated in Figure 2, thus saving dust from accumulating in the receptacle, preventing short circuiting through instruments in the hands of children, and presenting other advantages of construction which will be apparent.

Referring now to Figures 6, 7 and 8, I have shown an integral body portion 100 which is provided with auxiliary body portions 101 having apertures 102 therein in which are adapted to be housed helical springs 103. The lower end of each helical spring 103 is adapted to be turned over, as indicated at 104, and to lie within slots 105 formed in the bottom of apertures 102. Each helical spring 103 has its top turned over, as indicated at 106. Each top 106 is adapted to lie in a slot 107 formed in shutter members 108 similar in construction to the shutter member 23 of the form described in connection with Figures 1 to 5 inclusive.

Each shutter 108 is provided with a pair of channels 109 which are adapted in certain positions to lie adjacent channels 110 formed on the auxiliary body portions. These auxiliary body portions carry spring contact elements 111. Each contact element 111 is carried by a contact piece 112 to which are adapted to be screwed, by means of screws 113, the terminals of an electric circuit.

Each shutter 108 is adapted to be held in place by a guard element 114 which is screwed, as indicated at 115, into the top of the body 100. The guard 115 is provided with an inturned flange 116 which is adapted to bear against the outside edge of each shutter 108.

There is a bottom plate 117 which fits within downwardly extending walls 118 of the body 100. This bottom plate carries a holding element 119 which is provided with a female screw thread which meshes with a screw thread 120 carried by a screw 121. The screw 121 is adapted to be turned by means of its head 122 which pulls up on member 119 and holds the base plate 117 firmly in position in contact with the auxiliary body members 101.

The guard members 114 are so designed that the shutter 108 can be rotated against the tension of the springs 103 to permit the insertion of plugs in either or both plug receiving mechanisms of this duplex construction.

In Figures 9, 10 and 11 there is shown a construction for holding light bulbs or similar bulbs. In the drawings there is shown a bulb 201 mounted in a special base 202. From the bulb project terminals 203 which pass through a cement 204 in the base 202 and are adapted to make contact with eyelet constructions 205 which carry plug-in elements 206 that project through the bottom 207 of the special base 202.

Adapted to cooperate with this construction just described is a socket construction which I have indicated generally by the numeral 208. The socket construction comprises the usual switch button and accompanying mechanism, which I have indicated generally by the numeral 209 and which is not further described, as this is a standard and well known construction.

The socket construction, however, comprises an outer shell 210 having a downturned guard lip 211 which fits over a revoluble shutter element 212. The revoluble shutter element 212 has channels 213 therein through which are adapted to pass the terminals or jacks 206 which project from the bulb. These terminals or jacks 206 are adapted to project into channels 214 formed in an annular body 215.

In the channels 214 lie spring contact elements 216 which contact with the jacks 206.

As in the other construction described, the channels 213 are adapted to lie out of register with the channels 214 in the body, being held in the out-of-register position by means of a helical spring 217 whose ends engage slots in the body and in the shutter.

The guard lip 211 holds the shutter 212 adjacent the body 215, permitting the easy rotation of the shutter against the tension of the spring 217. The guard lip not only holds the assembly in operative position, but prevents dust or dirt getting into the operating parts.

It is to be noted, as diagrammatically illustrated in Figure 11, that the jacks 206 are held, by means of the action of the spring 217, securely in the socket 208. The rotative force applied to the shutter causes the shutter to bind against the jacks 206 and thus hold the light bulbs firmly in place on the socket 208.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

I claim:

1. An electrical receptacle comprising a body portion, channels in the body portion, an electrical contact member in each channel, a circular shutter member having a pair of slots adapted to register with the channels, a capping ring attached to the rim of the body member adjacent the shutter member, said capping ring having a portion extending over the edge of the shutter member whereby the shutter member is held against outward motion in relation to the body portion, a slotted aperture in the lower portion of the shutter member, a slotted aperture in the upper portion of the body portion, a helical spring having its ends bent over along its diameter, said spring being positioned with said bent over portions in said apertures to normally hold

the shutter slots out of register with the channels.

2. An electrical receptacle comprising a body portion, channels in the body portion, an electrical contact member in each channel, a circular recessed portion at the contact ends of the channels, said recessed portion flaring progressively outward away from the channels, a shutter member fitting in countersunk position in the recessed portion, said shutter member having a pair of slots adapted to register with the channels, a capping ring attached to the rim of the body member adjacent the shutter member, said capping ring having a portion extending over the edge of the shutter member whereby the shutter member is held against outward motion in relation to the body portion, a slotted aperture in the lower portion of the shutter member, a slotted aperture in the upper portion of the body portion, a helical spring having its ends bent over along its diameter, said spring being positioned with said bent over portions in said apertures to normally hold the shutter slots out of register with the channels.

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