Feb. 22, 1927. 1,618,939

E. F. MARTH

ELECTRICAL RECEPTACLE

Original Filed May 21, 1923

Fig. 4.

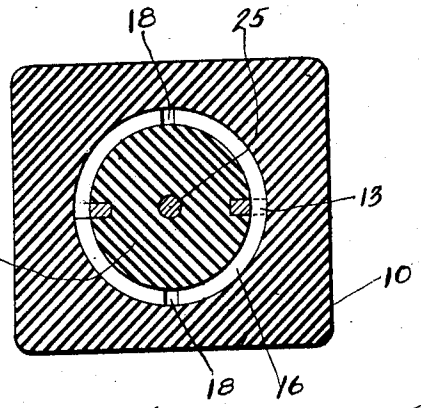


Fig. 1.

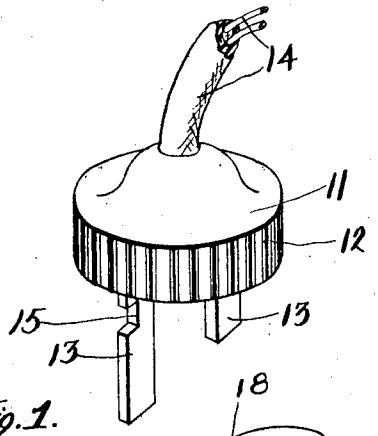
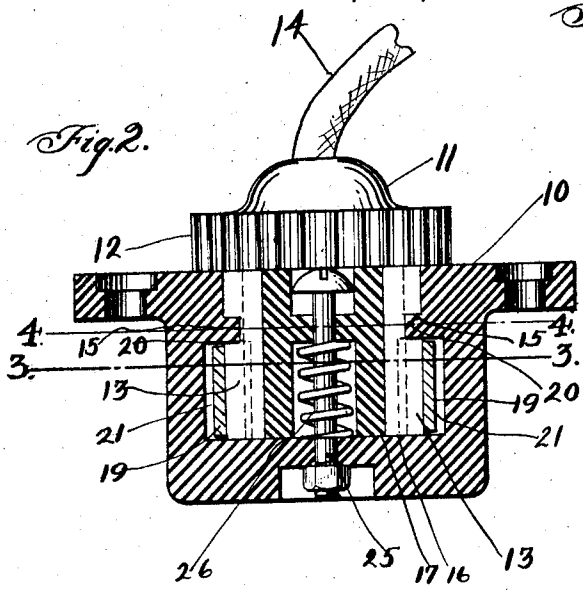


Fig. 2.



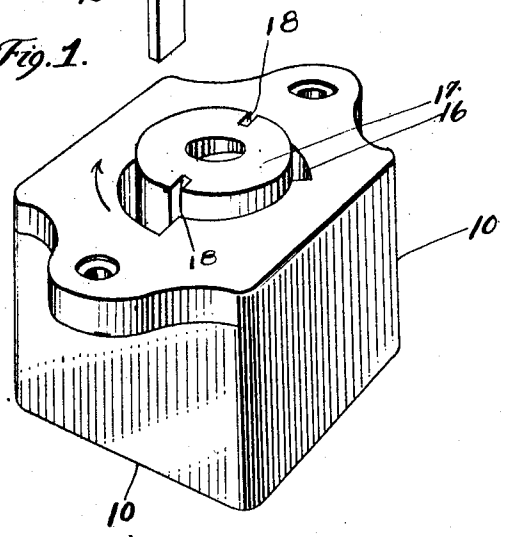


Fig. 3.

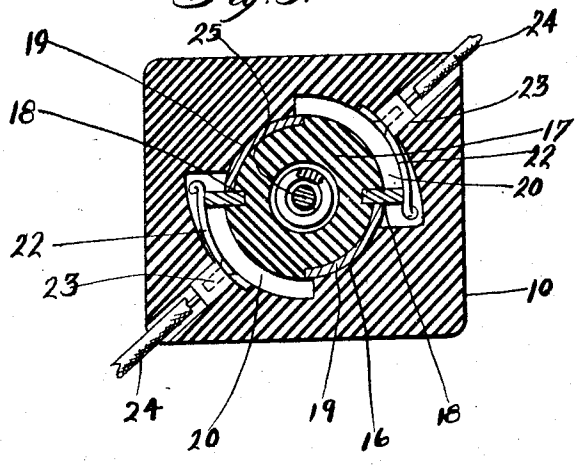
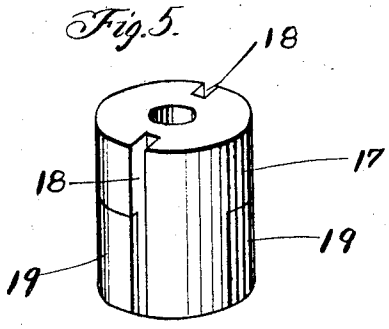


Fig. 5.



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WITNESS: J. K. Holt.

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UNITED STATES PATENT OFFICE.

EDWARD F. MARTH, OF BROOKLYN, NEW YORK.

ELECTRICAL RECEPTACLE.

Application filed May 21, 1923, Serial No. 640,509. Renewed January 12, 1927.

This invention relates to electrical receptacles and has for its primary object the provision of a device of this character including a socket member and co-acting plug, the latter serving when in its applied relation to the socket to close the circuit in which the device is arranged and to secure the plug against accidental disengagement from the socket while the device is in use.

Heretofore receptacles of this character have been provided with respective contact devices, certain of which are carried by the plug and others by the socket. These contact devices, due to the construction and arrangement of the receptacle have been the frequent cause of short circuits, due to initial improper engagement of the co-acting contacts which result in the formation of an arc and a burning out of the circuit.

An important object of my invention is to provide a receptacle of this character wherein the contact devices of the plug will be uniformly related to the mating contact devices of the socket, whereby in the act of closing the circuit by rotating the plug in the socket, the contact devices of the plug will be firmly advanced against the aforesaid mating contact devices of the socket, thereby creating a firm intimate relation to the respective contact devices without creating an arc and at the same time operatively closing the circuit.

Receptacles of this character are used to a large extent in connection with electrical appliances such as sad irons, vacuum cleaners and the like. Where no means are provided for locking the plug in the socket after the circuit has been closed, pull upon the wires leading to the plug causes dislocation in the arrangement of the contact devices and sets up an arcing tendency between the contact devices, which in turn, causes short circuits. In my invention I have provided a receptacle which will establish firm engagement of the respective contact devices with each other and effectively lock said devices in this relation and positively prevent accidental withdrawal of the plug from the socket.

Another object of the invention is to provide a device of this character consisting of mating parts which can be readily connected or disconnected as the occasion necessitates.

With these and other objects in view, the invention resides in certain novel construction and combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claim, and are illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the receptacle showing the plug separated from the socket.

Figure 2 is a vertical section therethrough.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a perspective view of the guide member.

In carrying the invention into practice, I use a socket member 10 constructed of porcelain or other insulating material and a mating plug 11 knurled at 12 and provided with metal contact devices 13, 13. These devices are operatively connected in any suitable well-known manner with the lead wires 14. Between the ends and formed in the outer edges of the contact devices 13 are notches 15.

The receptacle 10 is provided with a central opening 16 in which a cylindrical guide member 17 is mounted to respectively slide and rotate. This guide member is provided with diametrically disposed slots 18, 18, in which the contact devices 13 are adapted to slide. Said member 17 is also provided with arcuate diametrically disposed contact plates 19, 19 and as shown in Figures 3 and 5, these plates extend to the slots 18 so as to come into engagement with the contact devices 13, 13.

The receptacle 10 is provided with arcuate lugs 20 as clearly shown in Figures 2 and 3. These lugs are adapted to receive the notches 15 in the contact devices 13. In order that the portions of the contact devices 13 inwardly of the notches 15 can be operatively accommodated in the socket, I provide the latter with arcuate recesses 21 and arranged in these recesses are arcuate contact springs 22. Each of these springs is firmly secured at 23 to the socket member and connected with one wire 24 of the circuit in which the device is arranged. The free ends of the springs normally yield toward the guide member 17 so as to bear thereagainst.

The guide member 17 is mounted to slide upon a bolt 25 carried by the socket mem-

ber axially thereof and embracing the bolt and operatively bearing against said member 17 is a spring 26. As shown in Figure 1 the spring operates to normally advance the outer end of the member 17 slightly beyond the outer face of the socket 10. This prominently exposes the grooves 18 and permits the devices 13 to be quickly inserted therein and moved into the socket when initially placing the parts together. By pressing the plug 11 against the outer surface of the member 17, the notches 15 are operatively aligned with the arcuate lugs 20 and the plug may be then rotated to bring the edges of the contact devices 13 in to firm engagement with the contact springs 22 as shown in Figure 3. As previously stated the free ends of the springs 22 yield against the member 17 and incident thereto it will be seen that on first rotating the guide member 17 the plates 19 thereof will be advanced over the free ends of the springs 22 and thereby establish circuit connections between the wires 14 and 24. As the rotation of the member 17 is continued, the broad outer edges of the devices 13 are brought firmly against the free ends of the springs 22. Due to this organization of parts it will be seen that the engaging relation of the respective contact devices 13 and 22 is governed with such regularity as to cause uniformity of engagement between said devices and in consequence thereof the objectionable arcing and short circuiting are entirely eliminated. When the plug has been fully inserted in the socket and turned to the position shown in Figure 3 the lugs 20 serve to securely lock the plug against accidental disconnection from this socket and the customary pull which is exerted upon the plug will not cause derangement of the respective contact devices.

While I have described what I deem to be the most desirable embodiment of my invention, it is obvious that many of the details may be varied without in any way departing from the spirit of my invention, and I therefore do not limit myself to the exact details of construction herein set forth nor to anything less than the whole of my invention limited only by the appended claim.

What is claimed as new is:—

A device of the character described comprising a socket member provided with a central opening, a cylindrical guide member mounted for slidable and rotatable movement within the central opening, a headed bolt passing through the guide member to limit its slidable movement, a spring surrounding the bolt and having its end convolutions engaging the bottom of the opening and the guide member respectively in a manner to normally position the guide member above the top surface of the socket member, arcuate shaped lugs extending inwardly from the side walls of the central opening, said socket being provided with arcuate shaped recesses below the lugs, an arcuate shaped contact spring secured in each recess in a manner whereby one end of each spring yields normally toward the guide member for contacting engagement therewith, a plug, contacts projecting from the plug and each contact being provided with a notch to recess the lugs, and said contacts engaging the arcuate shaped springs as and for the purpose specified.

In testimony whereof I have affixed my signature.

EDWARD F. MARTH.