Jan. 7, 1941. R. O. BONE 2,227,743

ELECTRIC OUTLET

Filed Nov. 28, 1938

Fig. 1.

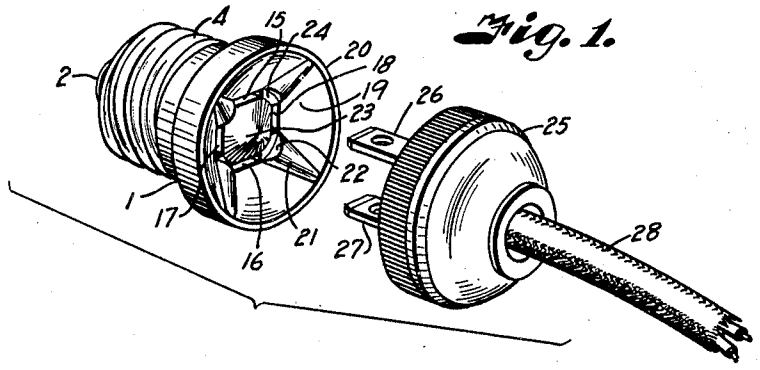


Fig. 2.

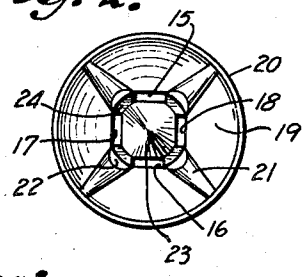


Fig. 3.

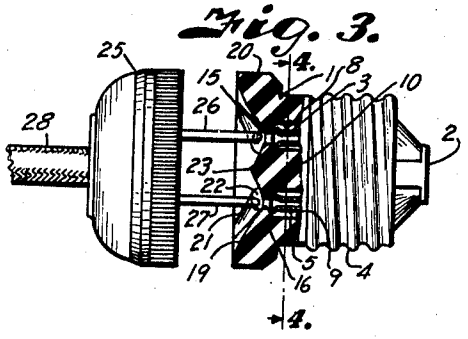


Fig. 5.

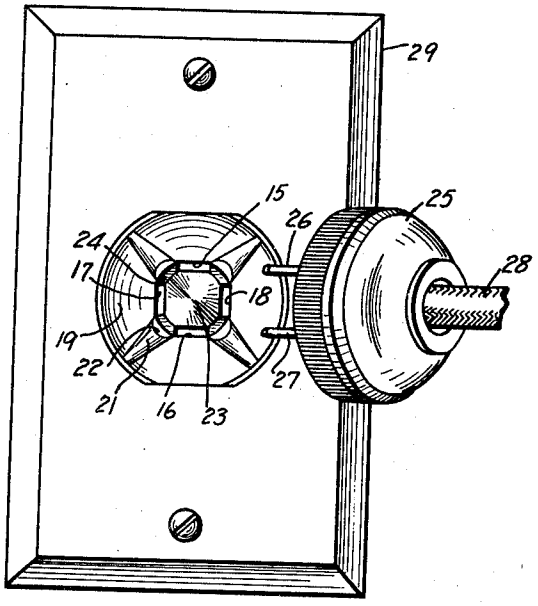
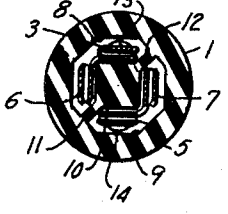


Fig. 4.



INVENTOR
Raymond O. Bone.
BY
Arthur C. Brown
ATTORNEY

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ELECTRIC OUTLET

Raymond O. Bone, Kansas City, Mo.; Maude M. Bone and The First National Bank of Kansas City, executors of said Raymond O. Bone, deceased, assignor to Maude M. Bone, Kansas City, Mo.

Application November 28, 1938, Serial No. 242,677

4 Claims. (Cl. 173—343)

This invention relates to electric outlets, and more particularly to electric outlets designed to facilitate the making of an electrical connection between receptacle and cap plug elements of such outlets.

The principal objects of the present invention are to provide an electric outlet, connections in which are made primarily by the sense of touch and are therefore not dependent on the sense of sight, and to provide a receptacle element of the outlet capable of use with conventional cap elements of a plug.

Other objects of the present invention are to provide guides for the receptacle element of the outlet upon which the blades of the cap element act in such a manner as to be guided into receptacle apertures for contact with the receptacle terminal contacts; to provide a central abutment or core cooperative with the guides for facilitating completion of electrical connections; to provide improved parts and arrangements of parts in the construction of electric outlets of this character; and to provide an electric outlet that is attractive in appearance, durable, economical and highly efficient.

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of an electric outlet embodying the features of the present invention.

Fig. 2 is a plan view of the front face of the receptacle element of a plug forming the principal feature of the invention.

Fig. 3 is a side elevation of the plug comprising cap and receptacle elements, the receptacle being shown in vertical cross-section to more clearly illustrate its construction.

Fig. 4 is a detail cross-section through the receptacle element of the plug, substantially on the line 4—4, Fig. 3, particularly illustrating a novel arrangement of spring socket terminal contacts for the receptacle element of the plug.

Fig. 5 is a front elevation of a modified form of semi-permanent electric outlet embodying the present invention.

Referring more in detail to the drawing:

1, Fig. 1, designates the receptacle element of a plug embodying the features of my improved electric outlet, the receptacle consisting of the usual insulating material to form a post having the customary end contact 2 connected with one of a plurality of spring clip socket contacts 3 and having a sleeve 4 of conducting material formed with threads to screw into a wall socket or the like, not shown, the sleeve 4 being connected with another of the spring clip socket contacts 5.

In the present instance, it has been found desirable to arrange the spring clip socket contacts 3 and 5 in interconnected pairs 3—6 and 5—7, as shown in Fig. 4, the sockets being housed in the post 1 and seating in recesses 8 and 9 formed on opposite sides of a polygonal center core 10 connected with the post by wings 11 and 12 to provide a rigid and durable supporting standard for the socket contacts. The socket contacts are fixed in position on the respective sides of the core by suitable fastening devices 13 and 14.

The recesses 8 and 9 terminate in reduced contact apertures or slots 15, 16, 17, and 18, Figs. 1 and 2, opening from the recesses onto a curved front face 19 of the receptacle element. As shown, the arrangement of the pairs of spring clip socket contacts presents one contact below each contact aperture, the apertures and sockets preferably being at approximately right angles to each other, respectively.

The front face 19 of the receptacle element is formed in an enlarged end 20 of the post 1, said face being of convex segmental formation and bulging toward the center core of the post and the slots spaced about the core. Interposed between segments of the convexly curved front face is a plurality of ribs 21 equally spaced in relation to each other and preferably initiating substantially at the outer periphery of the receptacle element and terminating in wider lower ends thereof with steeply inclined bevels 22. The core 10 is tapered and extends above the bottom of the curve of the front face of the receptacle element, the core being provided with bevels 23 formed in the outer end thereof at opposite sides of the slots in the post and in oppositely disposed relation to the rib bevels 22 to provide flat portions 24 forming an annular groove cooperative with the spaced rib and convex segments on the front face of the receptacle element in directing blades of a cap element into the contact apertures of the receptacle element.

25 designates a substantially conventional cap element for the plug of the present electric outlet, the cap being of customary insulating material and having contacts, not shown, connected with outwardly projecting blades 26 and 27 and having the usual insulated conductor 28 of a length and character suitable for conducting current from the electric outlet for any suitable purpose.

In Fig. 5, a semi-permanent receptacle element is illustrated which is mounted in a wall plate 29

suitably fixed to a wall and having electrical connection with conductors of service lines for the outlet. In this instance, the periphery of the receptacle element is flattened on opposite sides thereof to prevent accidental removal of the receptacle element from the wall plate.

The operation of both forms of the invention is substantially similar in that, assuming the receptacle element of the plug to be screwed into a wall socket, the cap element of the plug is connected by merely placing the blades of the cap anywhere within the periphery of the enlarged, convexed and ribbed front face of the receptacle element. There is a tendency to turn the cap to find the sockets for the blades and upon such turning of the cap the blades ordinarily travel less than forty-five degrees in a circle before finding one of the small ribs between the segments of the ribbed face of the receptacle element. Since the convexities lead toward the core of the post, the blades follow the ribs downwardly to the stop members at the outer end of the core and continued turning of the cap presents the blades over a pair of the contact apertures leading to the connected pairs of spring clip contacts. Continued pressure on the cap effects entrance of the blades into the sockets and the electric connection is made substantially automatically.

It is thus apparent that an electric outlet is provided by this invention which because of its ornamental arrangement of ribs and core is of attractive appearance. The core itself acts with the ribs in centering the blades by preventing their lodgment on the tapered surface of the core thus making for ease of forming an electric connection, and the electric outlet as a whole greatly facilitates the making of electric connections by the sense of touch alone, and without dependence upon a well lighted room or unhindered access of the blades of the cap to the contact apertures of the receptacle elements.

What I claim and desire to secure by Letters Patent is:

1. In a device of the character described, a plug receptacle element including a post of insulating material having exposed contact means engageable with contacts of an electric outlet, an end of said post being depressed inwardly to form an exterior recess having an inner periphery spaced outwardly from the longitudinal axis of the post, the inner periphery of said recess terminating in an inwardly laterally disposed groove, said post having an interior recess, a core in the interior recess, contacts mounted on the sides of said core respectively, adjacent contacts being interconnected in spaced pairs and being interconnected with said exposed contact means, said groove having openings aligned with said last named contacts respectively for interconnecting said recesses to allow engagement of said contacts by prongs of an electric outlet cap element when applied to said exterior recess, and ribs radially arranged in the exterior recess, whereby the cap element is normally turned less than forty-five degrees to complete a contact.

2. In a device of the character described, a plug receptacle element including a post of insulating material having exposed contact means engageable with contacts of an electric outlet, an end of said post being depressed inwardly to form an exterior recess having an inner periphery spaced outwardly from the longitudinal axis of the post, the inner periphery of said recess terminating in an inwardly laterally disposed groove, said post having an interior recess, a core in the interior recess having a portion extending outwardly into the exterior recess, contacts mounted on the sides of said core respectively, adjacent contacts being interconnected in spaced pairs and being interconnected with said exposed contact means, said groove having openings aligned with said last named contacts respectively for interconnecting said recesses to allow engagement of said contacts by prongs of an electric outlet cap element applied to said exterior recess, and ribs radially arranged in the exterior recess, whereby the cap element is normally turned less than forty-five degrees to complete a contact, the portion of said core extending into said exterior recess being tapered from the upper end thereof toward said groove and being steeply inclined adjacent portions of the groove between the openings therein for aiding in guiding the prongs of the cap element into said openings for engagement with the contacts on the core.

3. In a device of the character described, a plug receptacle element including a post of insulating material having exposed contact means engageable with contacts of an electric outlet, an end of said post being depressed inwardly to form an exterior recess having an inner periphery spaced outwardly from the longitudinal axis of the post, the inner periphery of said recess terminating in an inwardly laterally disposed groove, said post having an interior recess, a core in the interior recess, contacts mounted on the sides of said core respectively, adjacent contacts being interconnected in spaced pairs and being interconnected with said exposed contact means, said groove having openings aligned with said last named contacts respectively for interconnecting said recesses to allow engagement of said contacts by prongs of an electric outlet cap element applied to said exterior recess, and ribs on the wall of the exterior recess extending radially from said groove adjacent the portions thereof between said openings outwardly toward the outer periphery of said recess for aiding in guiding said prongs of said cap element when applied to said recess to the contact openings in said groove, whereby the cap element is normally turned less than forty-five degrees to complete a contact.

4. In a device of the character described, a plug receptacle element including a post of insulating material having exposed contact means engageable with contacts of an electric outlet, an end of said post being depressed inwardly to form an exterior recess having an inner periphery spaced outwardly from the longitudinal axis of the post, the inner periphery of said recess terminating in an inwardly laterally disposed groove, said post having an interior recess, a core in the interior recess having a portion extending outwardly into the exterior recess, contacts mounted on the sides of said core respectively, adjacent contacts being interconnected in spaced pairs and being interconnected with said exposed contact means, said groove having openings aligned with said last named contacts respectively for interconnecting said recesses to allow engagement of said contacts by prongs of an electric outlet cap element when applied to said exterior recess, the portion of said core extending into said exterior recess being tapered from the upper end thereof toward said groove and being steeply inclined adjacent portions of the groove between

the openings therein for aiding in guiding the prongs of the cap element into said openings, and ribs on the wall of the exterior recess extending radially from said groove adjacent the portions thereof between said openings outwardly toward the outer periphery of said recess for aiding in guiding said prongs of said cap element to the contact openings in said groove, said ribs being steeply bevelled adjacent said groove and the inclined portions of said core for aiding said core in directing said prongs to said contact openings, whereby the cap element is normally turned less than forty-five degrees to complete a contact.

RAYMOND O. BONE.