Aug. 28, 1923. 1,466,351

F. G. BROCKETT ET AL

CONNECTING HEAD FOR MULTIPLE TELEPHONE AND OTHER CIRCUITS

Filed April 5, 1922

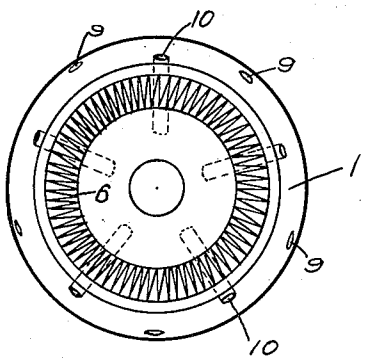


FIG. 2.

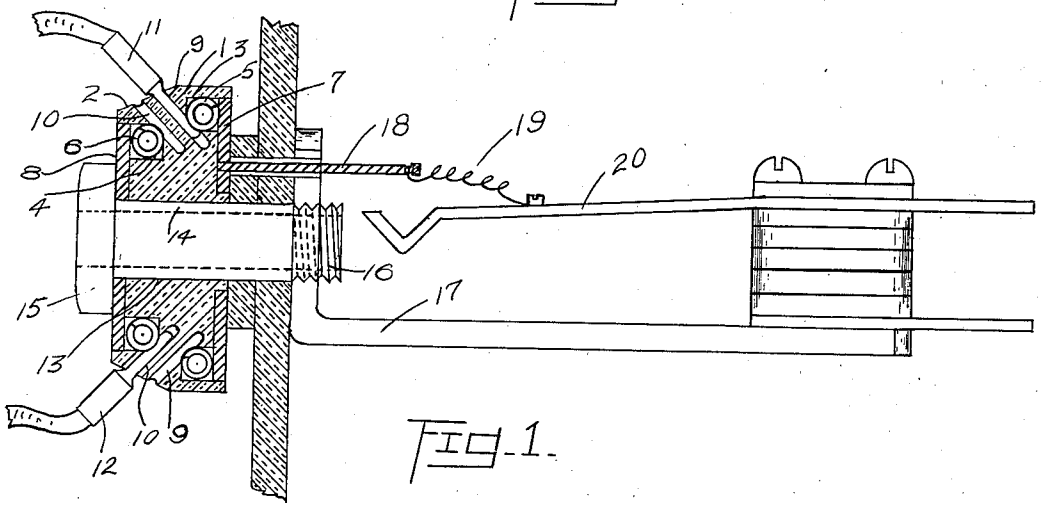


FIG. 1.

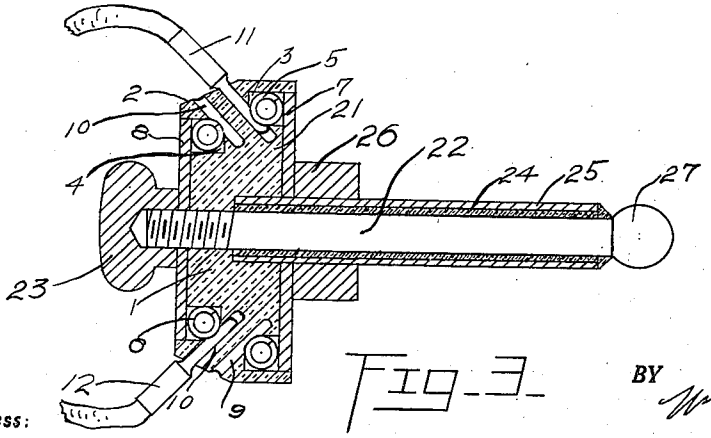


FIG. 3.

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UNITED STATES PATENT OFFICE.

FREDERICK G. BROCKETT AND CLIFTON C. WRIGHT, OF CHICAGO, ILLINOIS; SAID BROCKETT ASSIGNOR TO SAID WRIGHT.

CONNECTING HEAD FOR MULTIPLE TELEPHONE AND OTHER CIRCUITS.

Application filed April 5, 1922. Serial No. 549,789.

To all whom it may concern:

Be it known that we, FREDERICK G. BROCKETT and CLIFTON C. WRIGHT, citizens of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented a certain new and useful Improvement in Connecting Heads for Multiple Telephone and Other Circuits, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

When receiving in wireless telephone systems it is necessary, in order to permit several persons to listen, that each person be provided with a separate head-piece or that a loud speaking instrument be employed. The present devices for connecting a plurality of head-pieces to the jack are clumsy and expensive. The object of the present invention is to produce a simple, novel and inexpensive device adapted to connect any desired number of receivers or head-pieces to a wireless telephone receiving apparatus or other apparatus or system.

The various features of novelty whereby our invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of our invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a view showing in side elevation a common form of jack and in section one of our improved heads which serves also as a support for the jack;

Fig. 2 is a front view of the head with the front plate and the hollow central post removed, a modified arrangement of holes being shown; and

Fig. 3 is a central longitudinal section of a jack plug carrying one of our improved connecting heads.

Referring to Figs. 1 and 2 of the drawing, 1 represents a block of insulating material, preferably in the form of a short cylinder having one end gradually reduced in diameter, as indicated at 2, to form a frustum of a cone. In the two ends of the member 1 are annular grooves 3 and 4, respectively, the greatest diameter of each groove being only slightly less than the external diameter of the corresponding end of the block. In each groove lies a ring of conducting material, the rings being indicated at 5 and 6. These rings are preferably made yieldable and resilient. These characteristics may conveniently be secured by making each ring out of a long helical coil of spring wire bent into the form of a circle. The rings are held in the grooves by means of metal discs 7 and 8 placed against the ends of the blocks and each having a diameter sufficient to permit it to cover the corresponding ring. Extending diagonally into the block through the conical face thereof are two sets of holes 9 and 10; the holes 9 being so drilled that a portion of the ring 5 will project into each of the same; and the holes 10 being so drilled that the ring 6 will project slightly into each of these holes. The result is that when a contact piece of a size to fit one of these holes is inserted into the same it will strike the corresponding ring, pressing the adjacent coils apart and making a sliding connection therewith as the contact piece is pushed farther in; thus insuring a good electrical connection between the contact piece and the ring. In the illustration two contact pieces 11 and 12 are shown inserted in the block, the contact piece 11 engaging with the ring 5 and the contact piece 12 engaging with the ring 6.

Suitable means are provided for connecting the rings 5 and 6 to the leading-in wires. The plates 7 and 8 engage with the respective rings 5 and 6 and serve as parts of the circuits. In the arrangement shown in Figs. 1 and 2, the block is provided with an axial opening 13 through which passes a stud 14 having on its outer end a head 15 which engages with the plate 8. The inner end of the stud is screw threaded as indicated at 16, this portion being screwed into the stationary member 17 of a suitable jack. A metallic rod 18 is fastened to the plate 7 and is electrically connected in any suitable way as, for example, by means of a flexible wire 19, to the movable member 20 of the jack. It will thus be seen that current can flow from the member 17 of the jack through the stud 14 and plate 8 to the ring 6 and from the member 20 of the jack through the wire 19, member 18 and plate 7 to the ring 5. The member 14 may be provided with an opening extending axially through the same so that, if desired, any suitable jack

plug may be inserted through the stud and into engagement with the movable member or finger 20 of the jack.

In Fig. 3 we have shown the device as taking the form of a jack plug. All the parts of the head are the same as in the arrangement previously described excepting that the block is fixed on a suitable stem adapted to be inserted into a jack. In the arrangement shown, the stem comprises a rod 22 of conducting material extending entirely through the block and having a head or button 23 screwed on the front end thereof. Around that portion of the rod which lies behind the block, and also extending partway through the block, is a sleeve 24 of insulating material. Surrounding the sleeve 24 is a metallic sleeve 25 on which is fixed a metal collar 26 adapted to engage with the rear plate 7 of the head. The block and the two plates at the ends thereof are clamped between the nut or button 23 and the collar 26. The extreme rear end of the rod projects beyond the rear ends of the sleeves and is provided with a knob or ball 27 which is adapted to complete the connection through one side of the line while the sleeve 25 completes the connection through the other side of the line when the plug is inserted into a jack.

It will thus be seen that we have produced a simple and novel device composed of a few inexpensive parts readily assembled and readily taken apart, which will permit any desired number of leads to be connected to a pair of terminals or leading-in wires. So far as concerns the specific embodiments of our invention which we have illustrated, it will be seen that we have produced simple, cheap devices adapted to connect any desired head pieces to the jack of a wireless telephone.

While we have illustrated and described with particularity only a single preferred form of our invention, we do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the terms employed in the definitions of our invention constituting the appended claims.

We claim:

1. A device of the character described, comprising a head of insulating material provided with outwardly-opening annular grooves in opposite ends thereof, a yieldable resilient ring lying in each of said grooves, plates of conducting material lying against the ends of said head in contact with said rings, a rod extending through said head, said rod being electrically connected to one of said plates and insulated from the other plate, a sleeve surrounding and insulated from said rod and electrically connected to the latter plate, means on said rod and on said sleeve acting to clamp the plates against said head, said head having therein two series of holes each arranged adjacent to one of said rings.

2. A device of the character described, comprising a head of insulating material provided with outwardly-opening annular grooves in opposite ends thereof, a yielding resilient ring lying in each of said grooves, metal plates lying against the ends of said head in contact with said rings, a clamping device holding said plates and said head together, said clamping device including two parts insulated from each other and each electrically connected to one of said plates to form two terminals.

3. A device of the character described, comprising a block of insulating material having an annular groove in each end thereof, a yieldable resilient ring of conducting material arranged in each groove, a metal plate lying against each end of said block and engaging with the corresponding ring, said block having in the sides thereof two sets of holes to receive detachable contact pieces, the holes of one set being so disposed that contact pieces therein will engage with one of said rings, and the holes of the other set being so disposed that contact pieces therein will engage the other of said rings.

4. A device of the character described, comprising a block of insulating material having an annular groove in each end thereof, a yieldable resilient ring of conducting material arranged in each groove, a metal plate lying against each end of said block and engaging with the corresponding ring, said block having in the sides thereof two sets of holes to receive detachable contact pieces, the holes of one set being so disposed that contact pieces therein will engage with one of said rings, the holes of the other set being so disposed that contact pieces therein will engage the other of said rings, and a clamping device for holding said plates on the block and forming an electrical connection with one of said plates.

5. In a device of the character described, a block of insulating material having an annular groove therein, a helical coil of spring wire bent into the form of a ring and lying in said groove, and a plate of conducting material overlying said groove and engaging with said ring and constituting one terminal therefor, said block having therein a plurality of holes for the reception of detachable contact pieces, said holes being so disposed that contact pieces therein are yieldingly engaged by said ring.

In testimony whereof, we sign this specification.

FREDERICK G. BROCKETT.
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