July 12, 1932. H. E. SLADE ET AL 1,866,865

ELECTRIC CURRENT TAP

Filed May 1, 1928 2 Sheets-Sheet 1

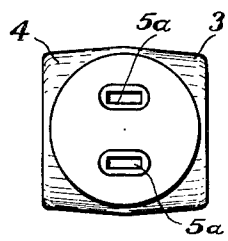


Fig. 1

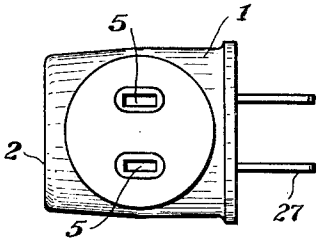


Fig. 2

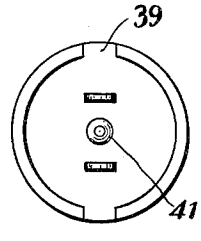


Fig. 3

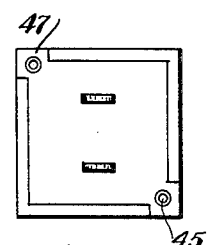


Fig. 4

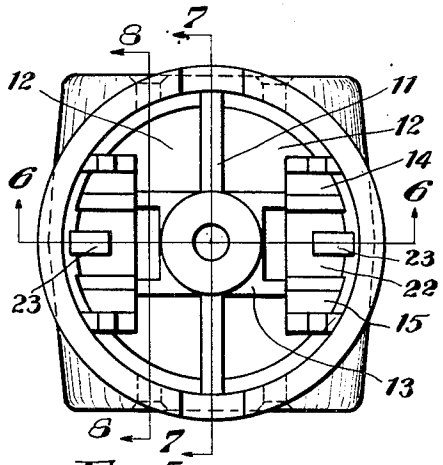


Fig. 5

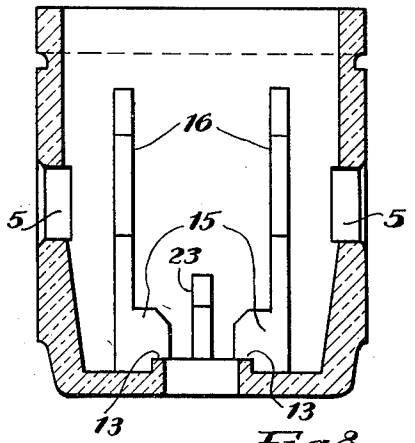


Fig. 8

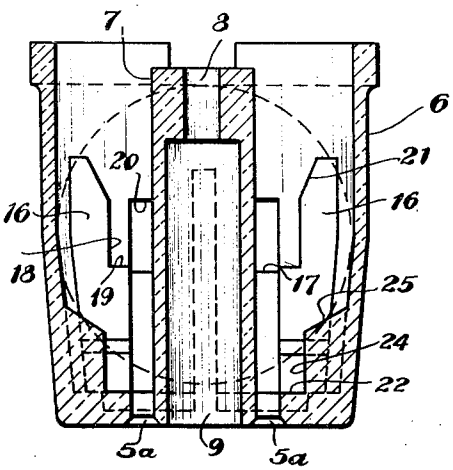


Fig. 6

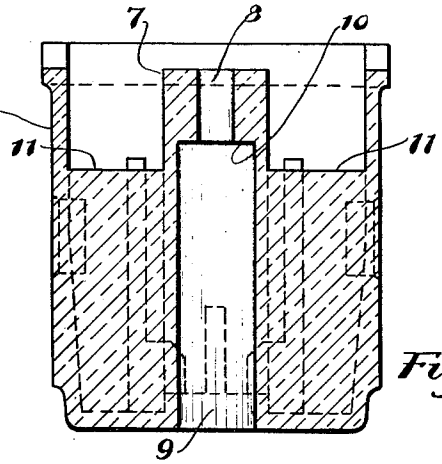


Fig. 7

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July 12, 1932. H. E. SLADE ET AL 1,866,865

ELECTRIC CURRENT TAP

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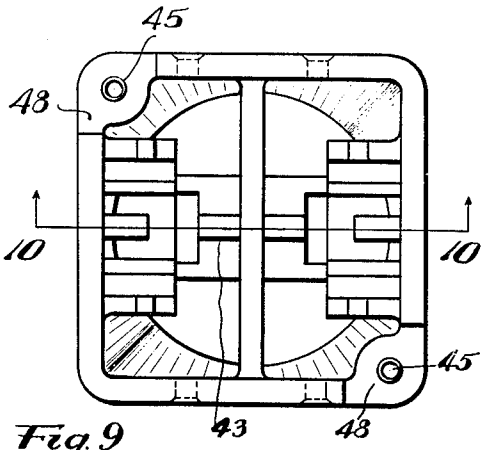


Fig. 9

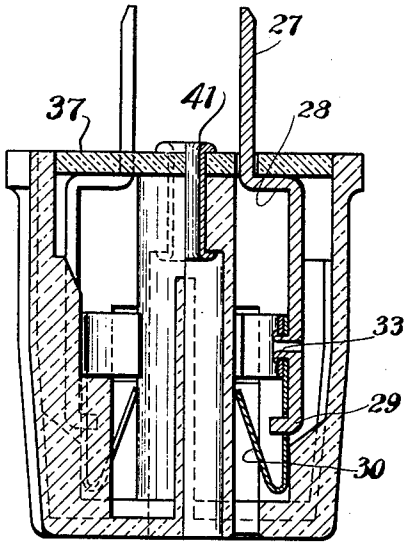


Fig. 12

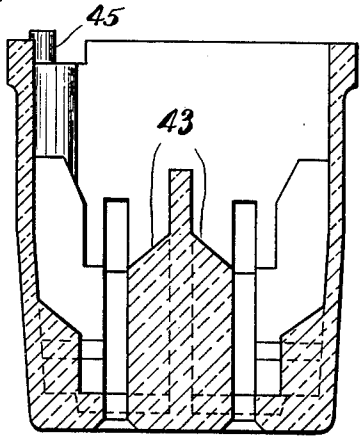


Fig 10

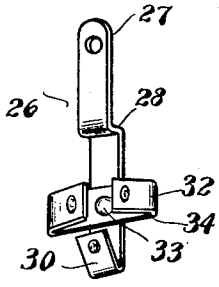


Fig. 13

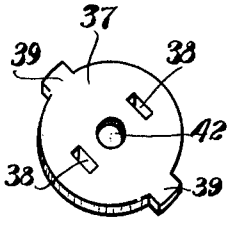


Fig. 15

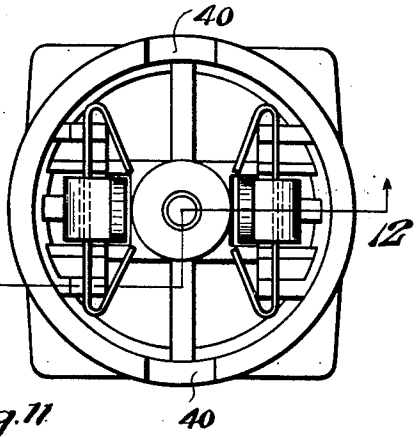


Fig. 11

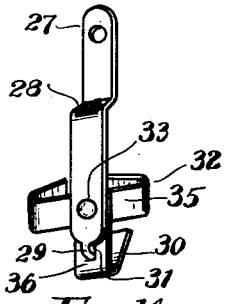


Fig. 14

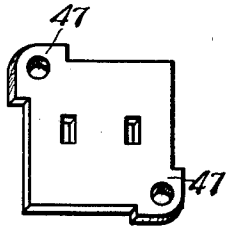


Fig. 16

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Patented July 12, 1932 1,866,865

UNITED STATES PATENT OFFICE

HAROLD E. SLADE, OF GLEN RIDGE, AND JOHN GEHRING, OF JERSEY CITY, NEW JERSEY, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO BEAVER MANUFACTURING COMPANY, OF NEWARK, NEW JERSEY, ONE-FOURTH TO REUBEN ECKSTEIN, OF NEW YORK, N. Y., AND ONE-FOURTH TO MAX POLIS, OF BROOKLYN, NEW YORK

ELECTRIC CURRENT TAP

Application filed May 1, 1928. Serial No. 274,195.

Our invention relates to electrical devices commonly known as cube taps, which are used as auxiliary devices with sockets or lamp holders, and convenience outlet receptacles, for the purpose of increasing the outlet capacity of such articles. Generally a socket or convenience outlet receptacle is provided with only one outlet for the attachment thereto of lamps, vacuum cleaners and like translating devices. It is the purpose of the device wherein our invention is embodied to increase this capacity to more than one outlet, and in the particular form employed to illustrate our invention there are three outlets shown.

The object of our invention is to provide a device in which there are only a few parts, of very simple design, yet thoroughly reliable in operation.

Another object is to provide a device having a casing member moulded or cast in one piece, and very light in weight. So far as we are aware, devices of this character, have in the past been made with a two part casing and which has generally been very heavy.

In use the device is attached to a socket or receptacle by means of two projecting blades, similar in character to the well known attachment plug cap blades. When the device is comparatively heavy, a rather severe strain is set up by the blades on the thin resilient contacts within the socket or receptacle with which it is associated.

With this strain being exerted on the contacts, they soon fatigue and loose their gripping power, which leads to overheating and faulty contact in the electrical connections.

With a device made in accordance with our invention all such strain is practically eliminated due to the lightness of the device, and its use has no harmful effect on the associated device.

There is a decided advantage aside from the question of weight, in the use of a one piece casing. The internal contacts may be so supported that each element of the contact may be backed-up by a support at a point where it is most needed and can be most effectively placed.

In carrying out our invention we employ a casing made of "Bakelite" or similar compound which is very strong, fairly light in weight and may be had in various colors to meet the demand for matching decorative schemes; a pair of jack-like blade conductors to which flexible contact clips are attached, and a closure member or cover plate. The casing is substantially a hollow shell of thin walls, into which contact supporting ribs are formed on the inside of the shell. The contacts rest upon and are backed up by them in such a manner as to remain in proper alignment at all times. The jack-like conductors are partially housed within the casing with the jack blades projecting thru the closure member which aligns them properly, maintains them securely within the casing and effectually seals the opening in the end of the casing where the contacts are assembled thru it. Reference is directed to the drawings accompanying this specification and forming part thereof, in which:

Figure 1 is a front elevation of the assembled device.

Figure 2 is a side elevation of the assembled device.

Figure 3 is a rear elevation of the assembled device when a circular closure member is employed.

Figure 4 is a rear elevation of the assembled device when a rectangular closure member is employed.

Figure 5 is a rear elevation of the housing employing a circular closure member.

Figure 6 is a cross-section on line 6—6 Figure 5.

Figure 7 is a cross-section on line 7—7 Figure 5.

Figure 8 is a cross-section on line 8—8 Figure 5.

Figure 9 is a rear plan or elevation of the housing employing a rectangular closure member.

Figure 10 is a cross-section on line 10—10 Figure 9.

Figure 11 is a rear elevation similar to Figure 5, except that the jack blade conductor and assembled contact clips are shown in assembled position in the housing.

Figure 12 is a cross-section on line 12—12 Figure 11.

Figure 13 is a front perspective view of the assembled conductor.

Figure 14 is a rear perspective view of the assembled conductor.

Figure 15 is a perspective view of the circular closure member.

Figure 16 is a perspective view of the rectangular closure member.

Referring now to Figures 1 and 2, the device is provided with an inlet branch 1, and three outlet branches 2, 3 and 4. The inlet branch is provided with means, to be described later, whereby it may be attached and connected to a lamp holder or convenience outlet receptacle or similar source of electric current, and for conducting current within the device. The outlet branches are each provided with slot-like apertures 5 and 5*a*.

Thru these apertures attachment plug cap blades may be inserted for drawing current from the device to other translating devices. Referring to Figures 5, 6, 7, 8, the casing or housing member consists of a hollow shell-like structure having comparatively thin walls 6. A central boss 7 extends substantially the length of the interior of the casing. Thru this boss is a hole 8, and from the outer front face of the casing the boss is counterbored as at 9, terminating at the shoulder 10. Joining the central boss 7 with the outer walls are ribs 11, which act as barriers to separate the lower inside of the casing into two compartments 12, and also the boss is maintained centrally thereby. The lower inside face of the casing is re-inforced around the apertures 5*a* by the bridge 13. Pockets are formed by the abutments 14, 15. From the outer side of these abutments, ribs 16 extend longitudinally within the housing slightly higher than top of the ribs 11. The inside edges of the ribs 16 are in alignment with the outside edges of the apertures 5, 5*a* for a distance substantially to a point in alignment with the ends 17 of the apertures 5, from which point they are set back as at 18 to form seats or ledges 19. Starting from a point of alignment in line with the ends 20 of the apertures 5 the ribs 16 taper back as at 21. Rising from the surface 22 between the abutments 14, 15 is a short rib 23, the inside face 24 of which is set back slightly from alignment with the face 18 of the ribs 16. The top of ribs 23 is tapered as at 25. The tapering of the ribs 16 and 23 greatly facilitates the assembling of the contacts within the casing.

Referring now to Figures 13, 14 which illustrate the assembled jack conductor and branch contact clips, 26 is a heavy conductor strip, such for example as brass, having a rounded end jack contact 27, an offset portion 28 and the reduced hook-like end 29. A resilient contact clip 30 having a hole 31 for accommodating the hook, lies against the face of the conductor strip, and a double-ended resilient contact clip 32 overlies the contact clip 30 and both of the clips are securely fastened to the conductor strip by means of the eyelet 33 drawn from the conductor or other equally suitable means.

A pair of these assembled conductors are housed within the casing in the following manner:

The conductors are inserted in the casing thru the open end or inlet branch so that the lower edgs 34 of the clip 32 come to rest on the ledges 19 of the ribs 16 with the outer faces 35 of the clip pressed against the edges 18 of the ribs. The contact clip 30 depends between the abutments 14, 15 with the outer face 36 of the clip pressing against the face 24 of the rib 23. This brings the offset 28 in alignment with the top of the boss 7. To align and properly space the jack blades 27, and to maintain the assembled conductors within the casing and at the same time close the open end of it, a closure member or cover plate 37 made of any suitable insulating material, is employed. The jack blades 27 are passed thru the holes 38 in the closure member which then stops against the offset portion 28 of the conductor and the top of the boss 7. The closure member is prevented from rotating by the keys 39 fitting in the keyways 40 in the casing. An eyelt or rivet 41 is passed thru the hole 42 in the closure member and hole 8 in the casing, after which it is headed over the shoulder 10 and the outside of the closure member.

The conductor strip and associated clips are maintained in proper alignment in the following manner:

The lower clip 30 depends between the abutments in the casing and is prevented from pivoting about the eyelet 33 by the hook on the conductor strip the upper end of which is held in place by the closure member.

In this way sidewise motion is prevented. The double ended contact is prevented from pivoting about the eyelet by which it is fastened to the conductor strip by the lower edges 34 resting against the ledges 19 on the ribs 16 and located on both sides of the center line of the pivoting point. Any tendency to move inward toward the center is resisted by the spring pressure exerted against the central boss 7 by the ends of the contact clips.

Figures 4, 9, 10, and 16 show an alternate design of a casing and a closure member therefor which may be used to further obtain lightness in weight. This type of casing has a rectangular inlet branch, the design of which eliminates the material forming the corners of the outlet branches in the circular type casing. The circular boss in the center of the casing is also done away with and a thin rib 43 substituted for the

end of the contact clips to press against. The closure member is fastened by means of the hollow rivets 45 which are moulded integrally in the casing. In addition to the two rivets which will also aid in locating the closure member, keys 47 are provided to fit within the keyways 48 of the casing to prevent any shifting of the closure member.

From the foregoing description it will be apparent that we have invented a new and unique design for a device of the character stated, which results in a very light structure that is thoroughly reliable in operation, the parts of which are simple and well supported and adequately held in their respective positions at all times, and while we have shown the desired form embodying our invention, and which has proven satisfactory and reliable in operation, it will be understood that other forms equally well suited to the carrying out of the invention may be brought about without departing from the scope and spirit of the invention. Therefore we do not limit ourselves to the exact structure shown.

Having described our invention, we claim:

1. An electric current tap casing comprising a shell-like one piece moulding having thin walls, open at one end and having internal vertically disposed ribs tapered at their upper ends and provided with contact supporting ledges thereon.

2. An electric current tap comprising a one piece casing open at one end, and provided at said end with a disc-like closure member; vertically disposed tapered internal ribs arranged within said casing for supporting current carrying contacts; a conductor member to which are attached resilient current carrying contacts assembled in said casing; said closure member having apertures therein thru which jack blades project; said jack blades being provided for connecting said current tap to a source of electrical energy and to connect said contacts to said source.

3. An electric current tap comprising a one piece casing open at one end and provided with vertically disposed tapered internal ribs; a closure member for said opening; means for attaching said closure member to said casing; means for conducting current within said casing, said means being supported by said ribs and having jack elements projecting thru apertures in said closure member whereby said current tap may be connected to a source of electrical energy.

4. In a device of the character stated, a jack conductor including a heavy conductor strip having a rounded end, an offset portion 28, a lower reduced hook-like end, a lower contact clip apertured to accommodate said hook-like end, and a laterally extended intermediate double ended resilient contact clip secured to said heavy conductor strip.

5. An electric current tap, comprising a one piece casing having therein vertically disposed ribs, extending from the bottom to about the mid height of the casing, and a series of bottom shorter ribs, a disc-like closure for the top of said casing having apertures therein, jack blade elements projecting through apertures in said closure and each having an offset element below said closure, and a terminal hook-like element at the end opposite to said jack blade element, resilient current carrying contact clips attached to said jack blade elements adjacent the hook element and arranged transversely and intermediate of the hook-like element and the opposite end of said offset element, fastening means for said contact clips, the latter being supported on certain of said ribs, and means for locking said closure to said one piece casing.

6. An electric current tap comprising a shell like one-piece moulding having thin walls, open at one end and having internal vertically disposed ribs provided with contact supporting ledges thereon.

7. In an electrical outlet fitting, in combination, an insulating body having slots in opposite walls thereof for receiving plug blades, and current carrying means disposed within said body, said means comprising a plug blade and oppositely extending spring contact members secured to said blade at the inner ends thereof, said body having means integrally formed therewith for supporting said members adjacent said slots, and additional means for supporting said members adjacent the inner ends thereof.

8. An insulating housing for a multi-way outlet fitting comprising a hollow body having an open upper end, an integral central post extending from the bottom wall of said body, a cover member for said open end secured to said post, said body having a pair of plug blade-receiving slots in the bottom wall thereof on opposite sides of said post, and a pair of parallel spaced walls formed integrally with and extending from each of a pair of opposite side walls of said body to said central post at said opposite sides thereof, each of said pair of spaced walls being disposed on opposite sides of one of said slots and serving as guides for a blade inserted into said slots.

9. In an electrical outlet fitting, in combination, a hollow insulating body having a bottom wall, side walls and end walls and being open at the top end thereof, each of said end walls and said bottom walls having a pair of slots for receiving a pair of plug blades, a cover member for the upper open end of said body, a plurality of cross-shaped current carrying members symmetrically disposed within said body, each of said mem-

bers comprising a plug blade extending through said cover and bent spring arms extending adjacent said slots, said arms comprising inner portions attached to said plug blade, and bent outer portions, said body having means integrally formed therewith for supporting said arms, said means comprising portions contacting the outer bent portions of said arms and portions spaced from said end walls contacting said inner portions of said arms.

10. In an electrical outlet fitting, in combination, a one-piece hollow insulating body having a bottom wall, side walls and end walls and being open at the upper end thereof, said end walls and bottom wall having pairs of parallel slots formed therein for receiving plug blades, current carrying members mounted within said body, each of said members comprising a plate portion extending through the open end of said body, a downwardly extending spring contact attached to said plate portion and having a folded back free end portion disposed adjacent one of the slots in the said bottom wall, and a pair of outwardly extending spring arms attached to said plate portion, said outwardly extending arms having folded back free end portions disposed adjacent slots in said end walls, a pair of spaced walls integrally formed within said body extending upwardly from said bottom walls and spaced from said end walls, receiving said downwardly extending spring arm therebetween, said body being further formed with integral wall portions transverse to and extending from said end walls and disposed between said spaced parallel walls adapted to contact and support said plate portion and said downwardly extending spring arm of each of said current carrying members, said end walls being formed with integral ledges adjacent the slots in said end walls for supporting said outwardly extending arms at the bent ends thereof, said spaced parallel walls being adapted to contact said outwardly extending arms adjacent the inner ends thereof.

Signed at Newark, in the county of Essex and State of New Jersey, this 27th day of April, 1928.

HAROLD E. SLADE.
JOHN GEHRING.