Sept. 19, 1933. E. CLEMENCE 1,927,681

CURRENT TAP

Filed Jan. 5, 1929

Fig. 1.

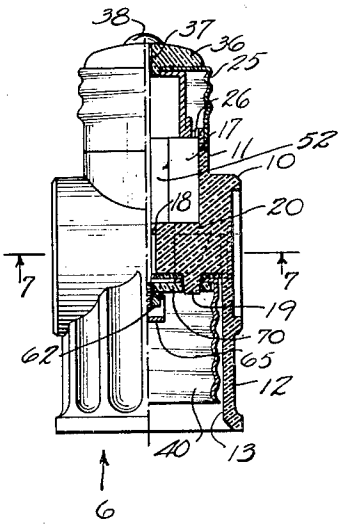
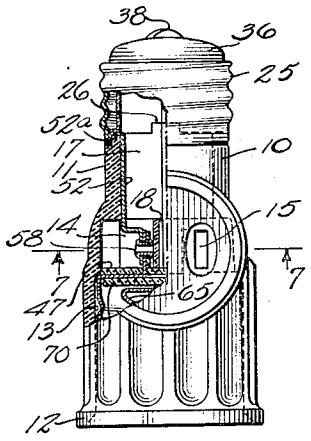


Fig. 2.



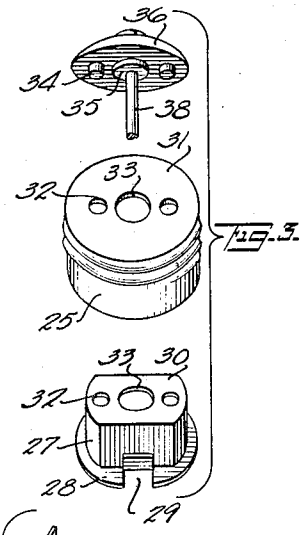


Fig. 3.

Fig. 6.

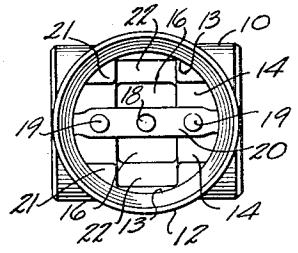
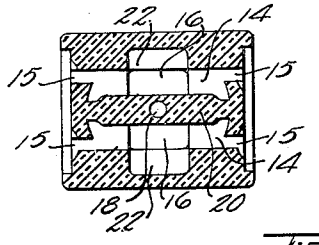
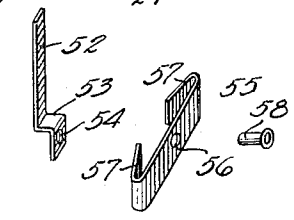


Fig. 7.





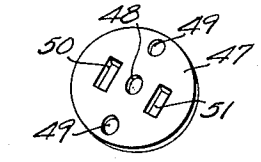
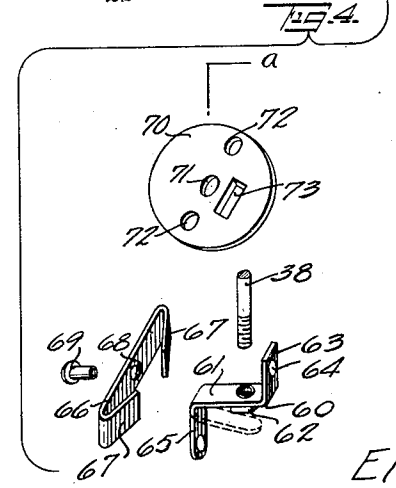


Fig. 4.



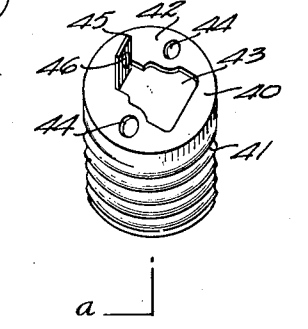
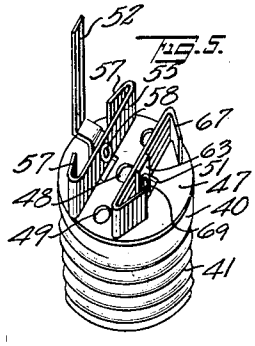


Fig. 5.



INVENTOR

Elliott Clemence

BY

ATTORNEY

Patented Sept. 19, 1933 1,927,681

UNITED STATES PATENT OFFICE

1,927,681

CURRENT TAP

Elliott Clemence, Millburn, N. J., assignor, by mesne assignments, to The Monowatt Electric Corporation, Bridgeport, Conn., a corporation of Connecticut

Application January 5, 1929. Serial No. 330,536

7 Claims. (Cl. 173—334)

The present invention relates to current taps and is more particularly directed toward current taps of the type suitable for use with screw base outlets and for providing a plurality of circuits including the lamp socket receptacle and blade openings adapted to receive the blades of attachment plug caps.

The present invention contemplates a current tap consisting principally of a single piece of molded insulating material together with suitable screw shell center contacts and blade receiving contacts capable of ready assembly in the insulating casing so as to provide the desired circuit connections.

The present invention is designed more particularly for employing molded insulating material of high mechanical strength such as phenolic condensation product, which can be molded in thin sections and all the contact parts are insertable into the casing from the lower or socket opening end of the insulating body.

The invention also contemplates the provision of a preassambled unit carrying the screw shell socket and center contacts with the lamp socket and also carrying the blade receiving contacts for cooperation with the attachment plugs, this unit being capable of being preassembled and being placed in the insulating casing as a unit.

The invention also contemplates the provision of a plug forming extension adapted for use on current taps, cluster lamp sockets, and the like by means of which one is able to employ a short insulating body and extend the same by means of a screw threaded shell and shell support.

Other and further objects will appear as the description proceeds.

The accompanying drawing shows, for purposes of illustrating the present invention one of the many possible embodiments in which the invention may take form, it being understood that the drawing is illustrative of the invention rather than limiting the same.

In the drawing:

Figures 1 and 2 are central sectional views taken at right angles to one another through the current tap, with parts in elevation;

Figure 3 is a perspective view showing the parts employed in the plug end of the device;

Figure 4 is a perspective view of the parts employed within the casing for providing the socket shell and center contact and the blade receiving contacts;

Figure 5 is a perspective view of the unit assembled out of the parts shown in Figure 4;

Figure 6 is an elevational view of the insulating casing taken in the direction of the arrow 6 of Figure 1, fittings being omitted; and

Figure 7 is a section taken on the line 7—7 of Figures 1 and 2, the fittings being omitted.

The insulating body end as above indicated is preferably made of a single piece of insulating material 10 such as phenolic condensation product. It is provided with a short tubular stem or neck 11 extending upwardly and with a tubular lower end 12 somewhat larger than a lamp socket contact shell. The lower part of the molded piece has a socket receiving opening or recess 13 of general cylindrical shape and extending upwardly to about the center of the housing. The socket opening 13 communicates with two transverse channels 14 shown more clearly in Figure 7. These channels at their outer ends communicate with narrow blade receiving openings 15 spaced to receive the blades commonly employed on attachment plug caps. These transverse passageways in turn communicate with a pair of holes or passageways 16 which open into the upper chamber 17 in the neck or stem of the body member. The body member is also provided with a centrally disposed bolt hole 18 and with a pair of depending lugs 19 extending downwardly from the bridging member 20 which separates the cross channels 14 from one another. The lower face of this bridging member 20 is placed at the same elevation as the small stop shoulders 21 shown more clearly in Figure 6. As these stop shoulders function to support the interior fittings in a manner to be described, the material between the stop shoulders is removed as indicated at 22.

The details of the upper or plug end of the tap are indicated in Figures 1, 2 and 3. As above mentioned, the neck or stem of the body is short. It is slightly reduced on the outer upper end to receive a male screw shell 25, which telescopes over it a short distance. The upper face of the insulating body may be cut away slightly to accommodate the bent over end of a shell contact supporting member to be described and it is also provided with a locking device for a male screw shell support, here shown in the form of keys 26 which extend upwardly. A screw shell supporting member 27 in the form of a sheet metal stamping or thimble has a lower flange 28 adapted to fit inside the screw shell and rest on the upper end of the insulating body. This stamping has cut outs 29 to receive the locking keys or lugs 26 in the body. The upper end 30 of this stamping is adapted to engage with the inner

surface of the upper end 31 of the screw shell stamping, and these stampings are each provided with alignment holes, such as indicated at 32 and 33, adapted to receive lugs 34 and 35 extending downwardly from an insulating cap member 36. The cap member may be made of phenolic condensation product and has a central hole 37 through which passes a long screw 38. This screw forms the center contact for the plug cluster or other device with which this type of plug extension is employed.

All of the parts going to make up the contact assembly shown in Figure 5, are, according to the form of construction to be described herein, secured to the socket shell 40 indicated in detail in Figure 4. This socket shell has the usual screw threaded portion 41 adapted to cooperate with a lamp base or other device and has a flange end 42, in which is punched a comparatively large central opening 43 and two small circular openings 44 for receiving alignment lugs 19. A portion of the material punched out of hole 43 is bent upwardly to form a short tongue 45 provided with a hole 46 as indicated.

The next piece which is assembled on this socket stamping is in the form of an insulating fiber disk 47 provided with a central bolt hole 48, a pair of alignment lug holes 49 spaced the same as the lug holes 44 and a pair of slots 50 and 51. The slot 50 is placed to accommodate the tongue 45 on the socket stamping. A sheet metal strip 52 offset as indicated at 53 and provided with a hole 54 is next placed against the tongue 45 with their holes in alignment. Another contact strip 55 centrally apertured at 56 and provided with spring ends 57 is placed against the lower offset end 54 of strip 52 and a rivet 58 is passed through the holes in the parts 55, 52 and 45 thereby securing these conducting parts together and holding the insulating disk loosely in place against the flange in the socket.

The center contact for the lamp socket is in the form of a bent strip of sheet metal indicated at 60. It has a flat horizontal portion 61 carrying a nut 62, an upwardly bent tongue 63 apertured at 64 and corresponding to the tongue 45 on the socket shell and a downwardly bent spring contact member 65. This contact strip is assembled with another strip 66 similar to the strip 55 having spring prongs 67 and a central opening 68. A rivet 69 passes through the holes 68 and 64 and secures these two parts together so that they appear as indicated in Figure 5. A disk 70 similar to the disk 47 is insertable into the socket shell from underneath. This disk has holes 71, 72 spaced the same as the holes 48 and 49 of the disk 47 and has a slot 73 corresponding with the slot 51. The subassembly of parts including the center contact 60 and the laterally extending contact carrying strip 66 are riveted together after passing the end 63 of the contact strip through the slot 73 in the insulating disk 70 through opening 43 in the socket stamping and through the slot 51 in the disk 47.

The assemblage shown in Figure 5 may be brought into position in the insulating housing by merely passing the assemblage up into the opening 13 until arrested by the stop shoulders 21, the parts being in such a position that the contact strips 55 and 66 pass into channels 14, 14. At the same time, the strip 52 will pass up through one of the openings 16 and the alignment lugs 19 will enter the holes 49, 44 and 72 in the disks and socket shell stamping thereby aligning these parts together and preventing any rotation of the same relative to one another or to the casing. The strip 52 extends up alongside the inner wall of the stem 11 of the housing and is folded over the upper edge of the housing as indicated at 52*a*, a suitable slot or cut out being provided to accommodate the thickness of the metal above the stem of the housing and where it folds thereon outside the housing. The bolt 38 may then be threaded into the nut 62 carried by the center contact member 60, thereby securely clamping the upper sub-assembly including the plug extension to the stem 11, while simultaneously securely clamping the lower sub-assemblage in place against the bridging member 20 and the stop lugs 21 in the insulating housing. After the bolt 38 has been secured in place, the downwardly bent spring contact member 65 is bent as indicated by the dotted line of Fig. 4.

From the foregoing it will be apparent that the present form of construction provides a multiple outlet current tap suitable for being plugged into a screw receptacle and for receiving a lamp base or other screw threaded device, as well as two attachment plug caps. The parts employed are a single insulating housing capable of being molded in one piece, a sub-assembly of current carrying devices insertable from one end of the device, and a sub-assembly including the plug extension which passes onto the other end of the casing. These parts are secured together by a single screw passing longitudinally through the casing. All the parts required in the device are capable of cheap and inexpensive manufacture and the entire device capable of quick assembly.

It is obvious that the invention may be embodied in many forms and constructions, and I wish it to be understood that the particular form shown is but one of the many forms. Various modifications and changes being possible, I do not limit myself in any way with respect thereto.

I claim:

1. An electrical connector of the screw plug type having an insulating body with a tubular stem, a sheet metal plug extension having a flange resting on the end of the tubular stem and a centrally apertured end spaced from the flange, a male screw shell having a centrally apertured end, the skirt of the shell surrounding the flange and telescoping over the stem, an insulating disk outside the end of the screw shell, and an axially extending conductor passing through the disk and the central apertures in the extension and shell.

2. An electrical connector of the screw plug type having an insulating body with a tubular stem, a sheet metal plug extension having a flange resting on in interlocked relation to the end of the tubular stem and a centrally apertured end spaced from the flange, a male screw shell having a centrally apertured end, the skirt of the shell surrounding the flange and telescoping over the stem, an insulating disk outside the end of the screw shell and provided with an eccentric lug passing through said shell end and into the end of said sheet metal plug extension, and an axially extending conductor passing through the disk and the central apertures in the extension and shell.

3. An electrical connector of the screw plug type having an insulating body with a tubular stem, a sheet metal plug extension having a flange resting on the end of the tubular stem

and a centrally apertured end spaced from the flange, the flange being notched to receive a lug extending upwardly from the stem, a male screw shell having a centrally apertured end, the skirt of the shell surrounding the flange and telescoping over the stem, an insulating disk outside the end of the screw shell, and an axially extending conductor passing through the disk and the central apertures in the extension and shell.

4. An electrical connector of the screw plug type having an insulating body with a tubular stem, a sheet metal plug extension having a flange resting on the end of the tubular stem and a centrally apertured end spaced from the flange, a male screw shell having a centrally apertured end, the skirt of the shell surrounding the flange and telescoping over the stem, an insulating disk outside the end of the screw shell, the disk having locking lugs extending through off center holes in the shell and extension, and an axially extending conductor passing through the disk and the central apertures in the extension and shell.

5. An electrical connector of the screw plug type having an insulating body with a tubular stem, a sheet metal plug extension having a flange resting on the end of the tubular stem and a centrally apertured end spaced from the flange, the flange being notched to receive a lug extending upwardly from the stem, a male screw shell having a centrally apertured end, the skirt of the shell surrounding the flange and telescoping over the stem, an insulating disk outside the end of the screw shell, the disk having locking lugs extending through off center holes in the shell and extension, and an axially extending conductor passing through the disk and the central apertures in the extension and shell.

6. In an electrical connector of the screw plug type, the combination with an insulating body, a screw shell contact, and an insulating disk carried by the end of the screw shell, of an interiorly disposed metallic thimble interlocked with said body and positioning the screw shell relative to the body, and an axially extending bolt acting as a center contact and clamping the disk and the shell and thimble in place.

7. In an electrical connector of the screw plug type, the combination with an insulating body, a screw shell contact, and an insulating disk carried by the end of the screw shell, of an interiorly disposed metal thimble engaging said body and positioning the screw shell relative to the body, and an axially extending bolt acting as a center contact and clamping the disk and the shell and thimble in place, said metal thimble being interlocked with said screw shell being interlocked with said thimble to prevent relative rotation.

ELLIOTT CLEMENCE.

CERTIFICATE OF CORRECTION.

Patent No. 1,927,681. September 19, 1933.

ELLIOTT CLEMENCE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 102, claim 7, after "said" insert "base and said"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of October, A. D. 1933.

F. M. Hopkins

Acting Commissioner of Patents.

(Seal)