July 12, 1938. C. W. KAUTZ, JR 2,123,422

ELECTRIC PLUG OR OUTLET

Filed Sept. 5, 1935

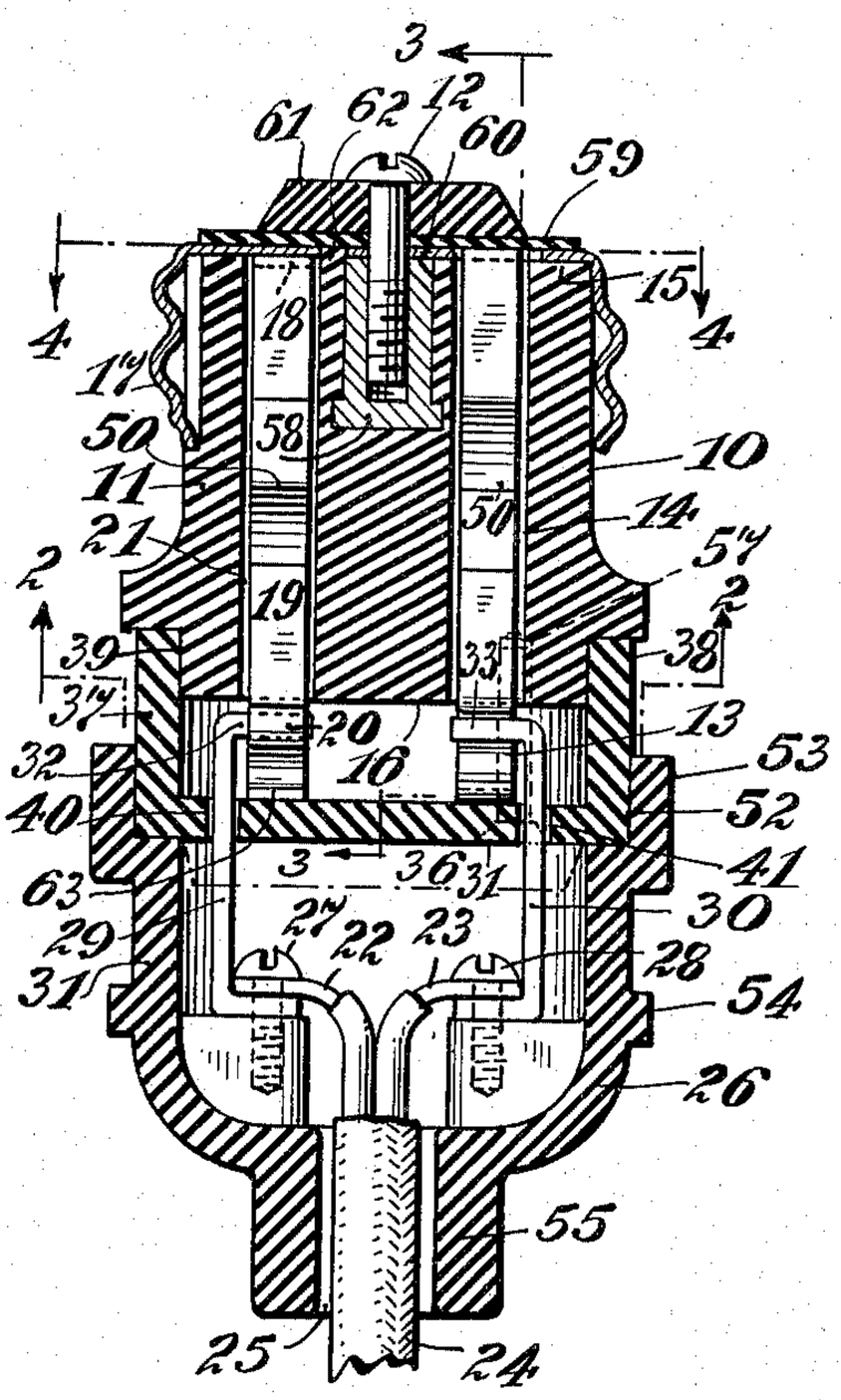

Fig. 1.

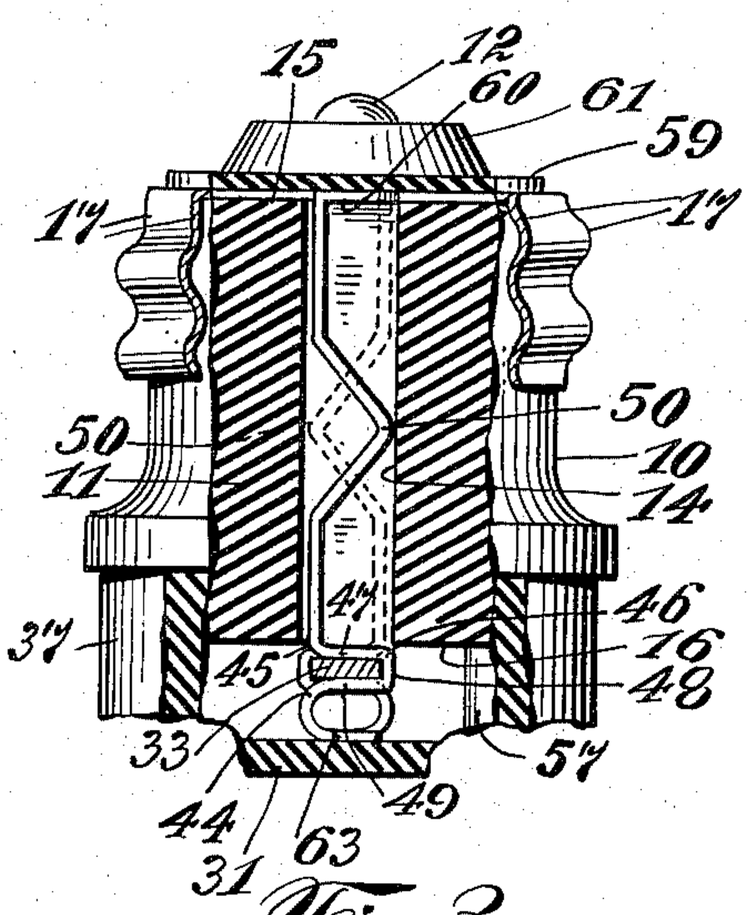

Fig. 3.

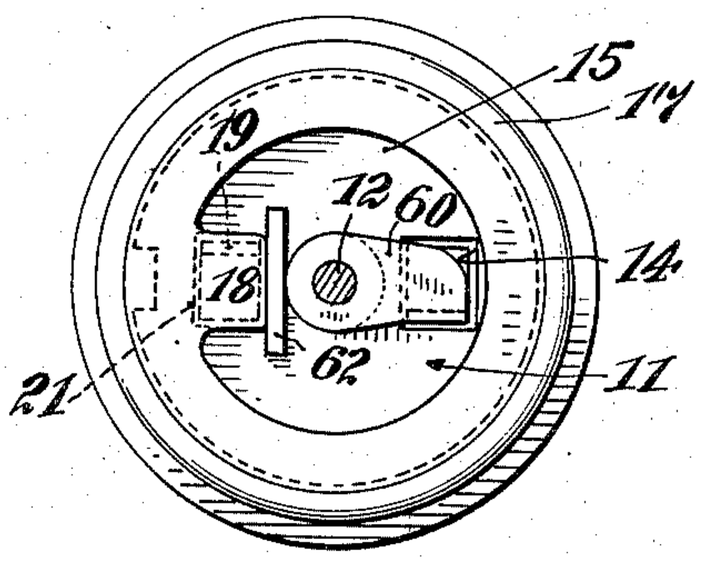

Fig. 4.

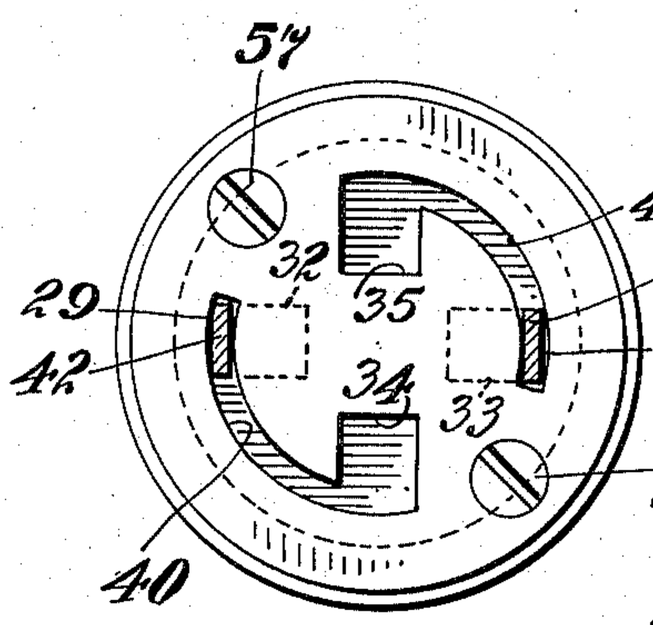

Fig. 2.

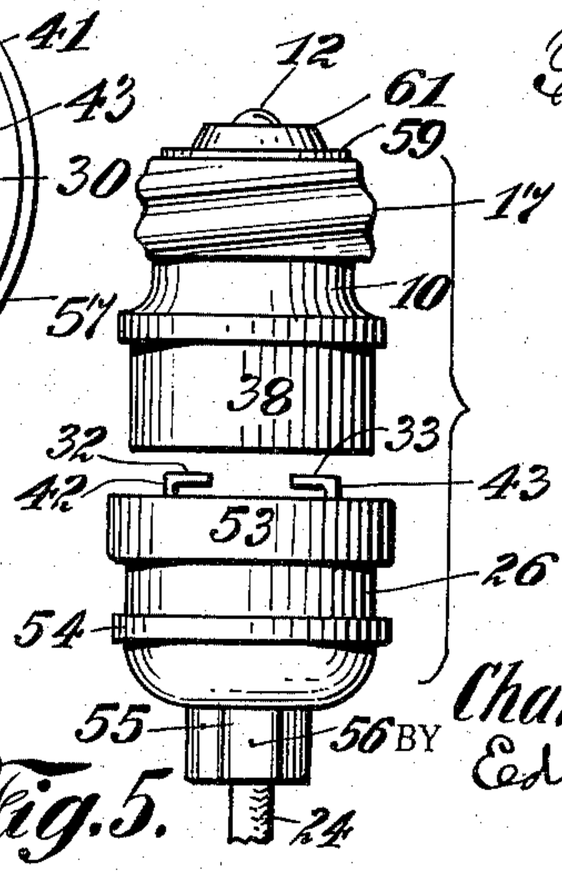

Fig. 5.

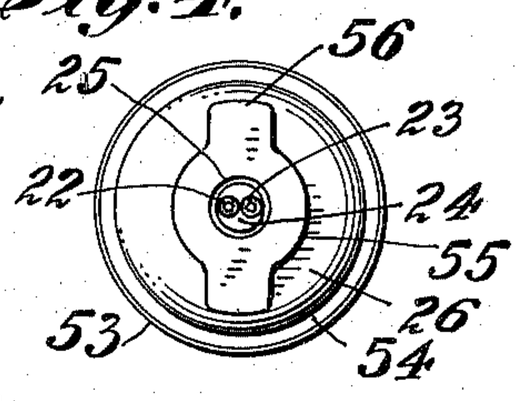

Fig. 6.

INVENTOR.
Charles W. Kautz, Jr.
BY Edward Thomas
his ATTORNEY.

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ELECTRIC PLUG OR OUTLET

Charles W. Kautz, Jr., Lancaster, Pa.

Application September 5, 1935, Serial No. 39,217

1 Claim. (Cl. 173—343)

This invention relates to electric plugs or outlets, and is herein disclosed as embodied in a plug adapted to be screwed into a standard incandescent lamp socket.

The ordinary electric light plug is convenient, but at a slight pull its terminals often slip out of the socket or outlet where they have been placed, thus cutting off the current from any device heated or lighted or driven by current coming through the plug. Often the hold of the ordinary plug is so slight in the outlet that the vibration of parts gradually pulls the plug loose in the absence of any attendant or watcher, with the result that the desired heat or light fails or the driven part stops.

According to the present invention these and other objections and difficulties are overcome and a plug is provided which cannot come loose or be accidentally pulled out. In the form shown an outlet is provided with terminals concealed behind a cover having arcuate openings.

The plug shown is provided with projecting L-shaped terminals adapted to be passed through enlarged ends of the arcuate openings. Then a twist of the plug carries the L-shaped terminals into contact with the outlet terminals, and the outlet terminals are shown as provided with resilient jaws adapted to seize the L's of the plug terminals when the twisting of the plug carries its terminals into the jaws.

The jaws grip the plug terminals making close electrical contact and holding them against slipping, besides making impossible slipping by direct pull.

Other features and advantages will hereinafter appear.

In the accompanying drawing,

Figure 1 is a sectional side view of the plug in an outlet.

Figure 2 is a section on the broken line 2—2 of Figure 1.

Figure 3 is a fragmentary section taken at right angles to Figure 1.

Figure 4 is a section on the line 4—4 of Figure 1.

Figure 5 shows the plug and outlet separated.

Figure 6 is an end view of the plug.

The outlet member 10 illustrated includes a solid insulating body 11, carrying a bottom terminal 12 like an ordinary lamp base which is electrically connected to a long terminal 13 lying in a bore or passage 14 extending from the face 15 on which the terminal 12 lies to the opposite face 16.

The member 10 also carries a metal screw threaded jacket 17, which may be identical with the threaded jacket of an ordinary lamp base, and, like that, adapted to make electrical contact with the thread of the ordinary lamp socket.

The jacket 17, in assembling the device, is welded or sweated to a lug 18 projecting across the face 15 from the body 19 of a terminal 20 lying in a second passage 21 which extends from the face 15 to the face 16.

To cause the terminals 12 and 20 to deliver electric current to the wires 22, and 23 of a cable 24, the cable 24 enters an opening 25 in a plug housing 26 so that its wires 22 and 23 are held by screws 27 and 28 to the turned over bottoms of terminals 29 and 30 when the screws 27 and 28 are screwed down in the body 26 through the terminals 29 and 30.

The terminals 29 and 30 are shown as standing up within the annular wall 31 of the body 26 and having inwardly projecting arms 32 and 33 which are adapted to pass through openings 34 and 35 in the end 36 a hood 37 which is carried on the end of the body 11.

The end 36 of the hood 37 is spaced from the end 16 of the body 11, being supported by an annular rim 38 which engages a rabbet 39 on the body 11.

When the arms 32 and 33 have passed through the openings 34 and 35, the housing 26 may be turned to cause the inwardly projecting arms 32 and 33 to engage the ends of the terminals 13 and 20.

For this purpose the openings 34 and 35 are continued as narrow arcuate slots 40 and 41 adapted to freely pass the shanks 42 and 43 of the terminals 29 and 30 as they turn with the housing 26.

When the arms 32 and 33 reach the terminals 13 and 20 as the housing 26 is turned, they usually encounter one of the cam faces 44 and 45 of the terminals, so as to cam the terminal slightly up or down and permit the arm 32 or 33 to seat itself snugly and with good electrical contact into the jaws of the U 46 which is formed by bending the lower end of the terminal body horizontally at 47, then downwardly at 48 and then horizontally back at 49.

To enable each terminal 13 and 20 to adjust itself to the fairly rigid arms 32 and 33, each terminal 13 and 20 is provided with a stretchable portion 50, shown as a V bend in its long stretch within the body 11.

In the form shown the annular wall 31 of the housing 26 is provided with a rabbet 52 to fit over the outer edge of the hood 36, and provided with circular ridges 53 and 54 for the fingers to grasp.

The back 56 of the casing 26 is elongated radially along one diameter at 56 to facilitate grasping and turning the housing.

The hood 36 is shown as held in place on the body 11 by screws 57 threaded into the body 11. In the form shown the bottom terminal 12 is a screw threaded into a solid metal threaded thimble 58 drawing down an insulating plate 59 against the turned over end 60 of the terminal 13 so that the end 60 of the terminal is firmly drawn into contact with the thimble 58 and, therefore, into electrical contact with the terminal 12.

To stiffen the plate 59 it is shown as backed by an insulating washer 61. To make sure that no short circuit forms between the end 60 and the lug 18, an elevated ridge 62 projects up from the body 11 between the end 60 and lug 18.

To steady the U's 48 each terminal 13 and 20 may have its metal end bent into a reverse U 63 with its end resting, or almost resting on the inside of the hood end 36. As a result when the terminals 32 and 33 are turned to the Figure 3 position the U 48 does not tend to open if the cable 24 is pulled, thus making it unnecessary to put the half hitch of such a cable over the body 10 as is often done by users of electrical apparatus to prevent the plug from pulling out.

It will be observed that the long terminals 13 and 20 provide spring clips suitable for use in wall outlets, and for giant plugs such as are used in motion picture studios, and for heavy drills, sanders and other portable machinery.

Having thus described certain embodiments of the invention, what is claimed is:

In an electric terminal device, an outlet end including two electric terminals, U-ends on said terminals forming jaws, a cover for the terminals having openings, a fixed mounting for each terminal, a bend in each terminal between the mounting and the jaw adapted to yield, a plug having two terminals with bent-over ends adapted to pass through the cover openings and to be rotated to seat the ends in the jaws, a rabbeted housing on the plug adapted to fit over the cover and center the bent-over ends to protect them, and U-extensions of the U-ends resting on the inside of the cover to resiliently support the jaws.

CHARLES W. KAUTZ, JR.