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QUICK MOUNTING STRAP FOR ELECTRIC RECEPTACLE

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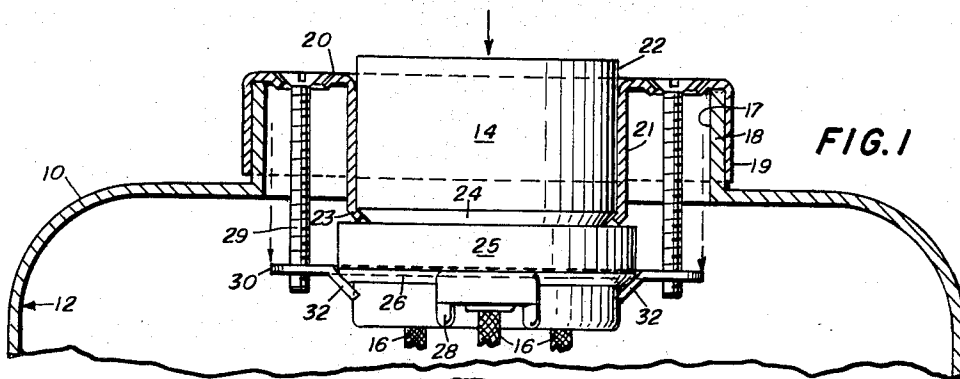


FIG. 1

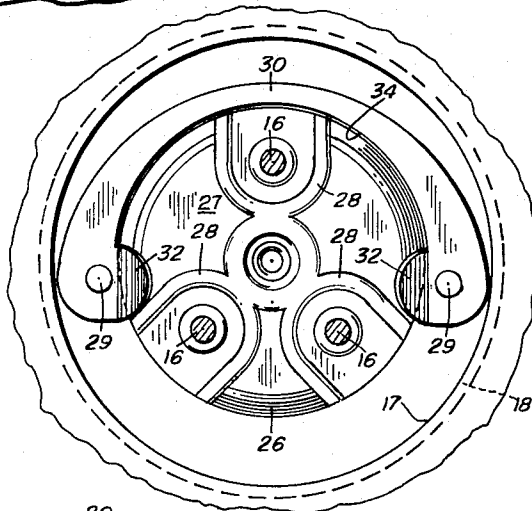


FIG. 2

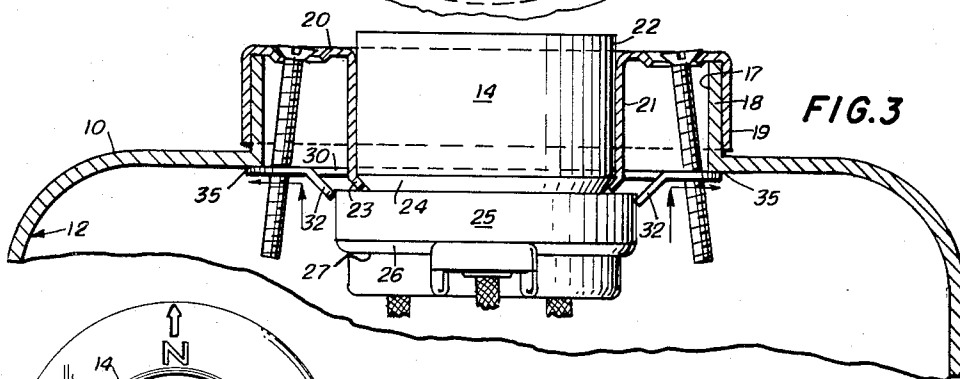


FIG. 3

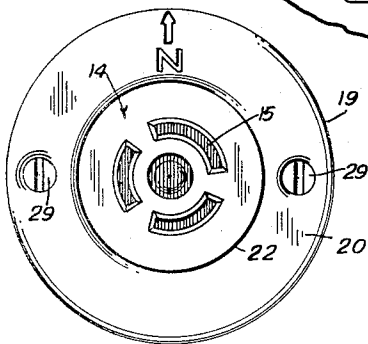


FIG. 4

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## QUICK MOUNTING STRAP FOR ELECTRIC RECEPTACLE

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4 Claims. (Cl. 339-126)

This invention relates to a mounting strap for quick mounting of an electric receptacle in an opening in a plate or housing available only from the front thereof. More particularly the invention deals with the mounting of an electric receptacle for a photo-electric cell in a collared aperture in the top of a street lighting fixture.

It is a general object of the present invention to provide a novel and effective mounting arrangement for an electric receptacle having a plate radiating from its front face to close a collar bordering and projecting upward from an aperture in a plate or housing where access for mounting is only from the collar side of the plate.

More particularly, it is an object of the invention to provide means for mounting a socket for holding, connecting and exposing a photo-electric cell on and above the flat top of a street lamp fixture having a collared aperture therein and including a cap attached to and radiating substantially from the top face of a socket and skirted to fit over and close the collared aperture, two screws extending through the cap along-side the socket and supporting a mounting strap extending partially around the socket below the undersurface of said top, said strap having oppositely disposed inwardly and downwardly directed tabs adapted when engaging the sides of said socket to expand the strap laterally to engage it beneath said top and secure the socket and cap to the fixture.

Other and further objects of the invention and particular features thereof will be more apparent to those skilled in the art upon a consideration of the following specification and the appended drawing wherein is disclosed a single exemplary embodiment of the invention, with the understanding that such changes and modifications may be made therein, as fall within the scope of the appended claims without departing from the spirit of the invention.

In said drawings:

FIGURE 1 is a fragmentary vertical, central section through the upper end of a street lighting fixture showing a receptacle and its mounting strap initially positioned therein prior to tightening the screws to expanding and clamping the mounting strap;

FIGURE 2 is a bottom plan view thereof;

FIGURE 3 is a view similar to FIGURE 1, but showing the screws tightened and the mounting strap engaging the fixture; and

FIGURE 4 is a top plan view of the receptacle and cap.

In many instances it is highly desirable to be able to mount and support an electric receptacle, such as a lamp socket, attachment plug receptacle or the like in and through an opening in a plate, box, fixture or other container, where ready access is not available to the rear thereof for fasteners, either because of its position, mounting or interference by other already attached mechanism. In accordance with the present invention this mounting from the "front" is achieved by introducing the receptacle through an appropriate opening from the forward side of the device and tightening two screws, exposed there, which laterally expand and engage mounting strap against the rear face of the device adjacent the opening therein and thus clamp the receptacle in position.

Referring now to the figures of the drawing there will be seen at 10 the substantially flat top wall of an electric

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fixture 12, such for instance as a typical form of street lighting fixture supported by a cantilevered arm some distance outwardly from a pole, and carrying a globe, not shown, at its lower side to house some illuminating means. In accordance with one specific use of the present invention it is desirable to mount a receptacle through a flat wall 10 for the purpose of supporting a photoelectric cell thereby properly exposed to the sky, and oriented, if desired, to control the delivery of current to the illuminating means in accordance with the degree of natural light available, whereby artificial illumination is provided whenever natural illumination is insufficient. Such a receptacle is shown at 14 and has an insulating shell or housing of generally cylindrical form, the top wall of which has a plurality of grooves 15 to receive the prongs of a photo-electric cell (not shown), or other similar device, for contact with terminals within the receptacle to which may be attached conductors as seen at 16, for controlling a lamp as is well known.

The flat top 10 of the illuminating fixture is representative of any wall or plate with an aperture therein, such as indicated at 17, substantially larger than the diameter of the receptacle and through which the latter may be at least partially introduced into the housing. The aperture 17 is surrounded by a substantially vertical wall or collar 18 preferably integral with the wall 10 and standing to sufficient height to permit the telescoping thereover of a tubular skirt 19 depending from the periphery of a mounting unit for the receptacle 14, which unit includes annulus 20 having an intumed tubular portion 21 which closely engages the outer wall 22 of the receptacle and preferably has its lower end 23 spun into a groove 24 in the receptacle to integrate the parts into a unit. Below the groove the receptacle is somewhat larger in diameter than the exterior diameter of the tubular portion 21 of the mounting unit and its cylindrical periphery 25 is tapered down to the lower face 27 thereof by means of chamfer 26. In explanation of the material showing below face 27 in FIGURE 2 it may be pointed out that the openings for the wires 16 are surrounded by U-shaped insulating walls 28, three in number, and leaving at least areas for face 27 spaced substantially 180 degrees apart along a diameter for purposes which will be later described.

The receptacle 14 and the closely engaging sleeve 21 are seen to be spaced inwardly a substantial distance from the inner walls of the collar 18 on the fixture and at diametrically opposite positions through the annulus 20 are countersunk openings to receive the heads and shanks of screws 29. These screws are of substantial length in order to engage in threaded openings in an arcuate mounting strap when it is positioned as seen in FIGURE 1. Such strap is sized to fit loosely about slightly more than 180° of the circumference of portion 25 of the receptacle and is generally flat and plane except for the two tabs 32 which extend inwardly beneath the receptacle as seen in FIGURE 1 and are bent downwardly to an angle of approximately 45 degrees as seen. While the strap is so sized that the inner edge 34 thereof will extend loosely around the portion 25 the tabs 32 engage beneath the chamfered edge 26 when initially positioned as seen in FIGURE 1 with screws sufficiently loose for that purpose. This is the condition of the unit of receptacle, cap, screws and mounting strap when assembled for insertion through the opening within the collar 18 of the fixture, and as illustrated by the dotted lines in FIGURE 1 the outer diameter of the mounting strap in its relaxed condition is such that it will freely pass within the walls 18. Thus, the assembly can be inserted to the position illustrated in FIGURE 1 wherein the cap rests on the upper edges of the

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collar walls 18 and the skirt 19 closely engages the outside of these walls.

When the screws are tightened the canted portions 32 or lugs ride on the chamfered area 26 and slowly laterally expand the mounting strap so that the lugs finally have their tips engaging the outer circumference of the portion 25 of the receptacle as seen in FIGURE 3. Continued tightening of the screws, which have now assumed a canted or splayed position as seen in FIGURE 3 resulting from the spreading of the mounting strap, draws the strap up until the portions 35 thereof radially outwardly of the inclined tabs 32 engage beneath the undersurface of the flat top 10 of the illuminating fixture as seen in FIGURE 3, whereby the receptacle unit is secured tightly over the collar 18 and the whole assembly integrated against relative motion.

As seen in FIGURE 4 the surface of the cap may be marked with an arrow N for the purpose of orienting it in respect to the sun, if the photo-electric cell is specifically designed to be so oriented to function properly.

Should it be desired to remove the receptacle for replacement or any other purpose, mere loosening of the screws to the condition illustrated in FIGURE 1 will move the mounting strap to a position beneath the receptacle where it can under its own resilience retract to a dimension permitting it to be withdrawn through the aperture 17 from the top of the fixture. It will be seen therefore that the device can either be mounted or dismounted wholly from the outer side of the fixture making it particularly useful in instances where the interior or rear face of the cover plate is not accessible for one reason or another for the actuation of fastening means.

We claim:

1. The combination with an electrical housing having a wall with a large opening therein, of an electrical receptacle, a plate secured to and extending radially outwardly from the receptacle and sized to overlap the edge of said opening, a pair of screws extending through said plate between the receptacle and said edge of said opening, a metal mounting strap extending more than half-way around said receptacle and having threaded openings receiving said screws so that when suspended thereby beneath said receptacle it is sized to pass loosely through said housing wall hole, and an inwardly and downwardly extending lug integral with said strap adjacent each threaded hole therein, and means on said receptacle engaged by said lugs when the screws are tightened to laterally expand the strap so that a portion thereof on the opposite side of each hole from the lug engages beneath the under surface of said wall and secures the receptacle and plate to the wall.

2. The device as defined by claim 1 in which a neck

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protrudes outwardly from the edge of said hole in said wall and said plate has a skirt telescoping thereover to prevent relative lateral movement of the wall and receptacle.

3. An electrical receptacle adapted for mounting with access only from the front thereof in and through an opening in a fixture wall, said receptacle comprising a generally cylindrical insulating housing, a flat annular plate attached to and extending outwardly from near the front face of the housing and sized to overlap the fixture wall surrounding said opening, screws disposed about 180° apart extending through said plate and alongside the receptacle and spaced to enter through the fixture opening, a mounting strap threadedly engaged by said screws, extending more than half-way about the receptacle and normally size to loosely pass through said fixture opening, and cooperating means on said mounting strap and receptacle to laterally spread said strap as the screws are rotated from the front to draw the strap toward the fixture wall whereby portions of its upper face engage beneath the under surface of said fixture wall to clamp the housing and plate thereto.

4. An electric receptacle having a generally cylindrical body of insulating material, an annular disc secured to and radiating from near one end of said body, a pair of screws spaced about 180° apart, extending through said disc, alongside the receptacle and beneath a portion of its opposite end, an arcuate mounting strap extending more than 180° around said receptacle and having an inner wall only slightly greater in radius than the receptacle body, a threaded aperture near each end of said strap receiving one of said screws, the screw length being such that the strap may be positioned beyond said portion of said opposite end of said body, and a lug extending inwardly and inclined downwardly from adjacent each end of the strap near the screw aperture therein and engaging under said portion of said opposite end of said body, whereby on tightening the screws from the front of the disc the strap is drawn toward the disc and laterally expanded along an axis extending between the two screws to be substantially as wide as the disc diameter.

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