July 30, 1935. M. N. RUSSELL 2,009,523

LAMP RECEPTACLE

Filed June 9, 1933

FIG. 1.

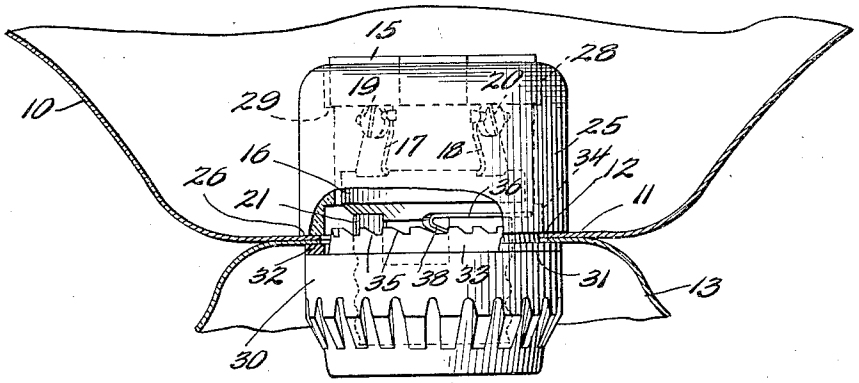


FIG. 2.

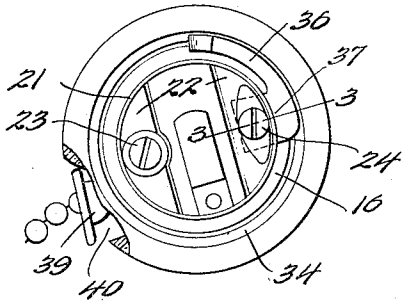


FIG. 3.

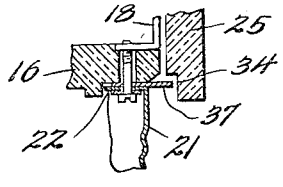
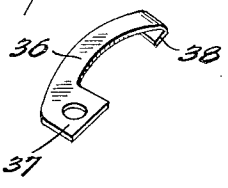


FIG. 4.



Inventor

Mark N. Russell

By Watson, Cait, Horsey & Grindle

Attorneys

Patented July 30, 1935 2,009,523

UNITED STATES PATENT OFFICE

2,009,523

LAMP RECEPTACLE

Mark N. Russell, Syracuse, N. Y., assignor to Pass & Seymour, Inc., Syracuse, N. Y., a corporation of New York

Application June 9, 1933, Serial No. 675,130

5 Claims. (Cl. 173—339)

This invention relates to electric lamp receptacles, and more particularly to such receptacles having means for locking the parts thereof together.

It is a general object of the present invention to provide a novel and improved lamp receptacle and locking means therefor.

More particularly it is an object of the invention to provide, in a receptacle of the type having a socket part, an insulating sleeve and a ring threaded onto the screw shell between which and the sleeve is clamped a portion of the fixture or the like for supporting the receptacle, means for locking the receptacle parts together so that during use the receptacle cannot become loosened in the fixture.

An important feature of the invention resides in the provision of the locking spring carried by the socket portion and engaging means on the ring to lock the same against rotation relative to the socket portion.

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

In said drawing:

Figure 1 is a side elevation of a receptacle constructed according to the present invention, parts being broken away to illustrate the interior construction and a fragment of a fixture being shown in central vertical section;

Figure 2 is a face view of the receptacle with the ring removed;

Figure 3 is a fragmentary radial section on line 3—3 of Fig. 2; and

Figure 4 is a perspective view of the locking spring.

Large numbers of ceiling and wall fixtures at present in use are of the type known as "ceiling bands" wherein a metal canopy has an inturned perforated flange which receives a receptacle and is in turn clamped between two parts thereof. In the usual construction the receptacle includes a socket portion, a sleeve of insulating material, usually porcelain, surrounding the terminals and other parts thereof and leaving most of the screw shell exposed. The screw shell is inserted through the opening in the flange of the ceiling band with the lower end of the insulating sleeve abutting the back of this flange. A porcelain or similar insulating ring is then screwed over the screw shell and engages directly or through a gasket the under surface of the flange thus clamping the flange between the ring and sleeve to hold the receptacle mounted in position. Most of the receptacles are of the pull chain type and the continued operation of the pull chain tends to loosen the receptacle in the flange so that eventually there is a possibility of a short circuit or at least of a connection between the screw shell and the metal of the fixture so that in certain communities the regulations do not permit this type of fixture to be used any longer, although it is one of great popularity and widespread use for offices, hallways, kitchens, porches and the like.

The present invention contemplates such an improvement in receptacles of the type described that there is no possibility of loosening of the parts after assembling, so that complete acceptance of this type of receptacle has been obtained from the authorities in several important metropolitan centers.

Ceiling bands are of various types, but that shown in fragment in Fig. 1 is representative. It includes a stamped or spun metal canopy 10 the base of which abuts the ceiling or wall. The outer end is inturned at 11, which is hereafter called the flange, and provided with central aperture 12 for the passage of parts of the receptacle. Oftentimes the band is provided with a shade holder or some downwardly projecting part 13 which is conveniently provided with a similar flange and the two flange parts secured together by lock-seaming, spot-welding or soldering.

The receptacle is of more or less conventional form as sold by a number of manufacturers and includes the removable interior or socket part, in the present case consisting of a pair of spaced insulation buttons 15 and 16 supporting between them the pull chain switching mechanism, not shown, and being secured together by metal straps 17 and 18 carrying the terminals 19 and 20 for the attachment of wires.

On the outer or front face of button 16 is secured the screw shell 21 for the reception of a lamp base. This screw shell has inturned base flanges 22, seen in Fig. 2, secured to the button by means of screws 23, 24.

The second part of the receptacle comprises sleeve 25 of porcelain or the like arranged to snugly receive from the rear the socket portion and of such length that when the porcelain buttons are housed within the sleeve with the outer face of

the rear button nearly flush with the rear end of the sleeve, the screw shell protrudes most of its length beyond the forward edge 26 of the sleeve. The button 15 is larger in diameter than the normal interior bore of the sleeve but fits in a counterbore 28 and has its forward face resting against shoulder 29 at the junction of this counterbore and the main bore of the sleeve so as to limit the forward movement of the socket structure into the sleeve.

After wiring the socket structure, it is inserted from the rear into the sleeve and the screw shell then passed through opening 12 until front face 26 of the sleeve abuts the rear of flange 11. Then the outer ring 30, or third part of the receptacle, is applied to the screw shell by being threaded over the same to insulate it and to hold the whole receptacle assembled in position. The upper or inner end of ring 30 has shoulder 31 against which rests gasket 32 which engages the lower face of flange 11 and resiliently clamps the whole assembly together. Spaced radially inwardly from this shoulder is tubular projection 33 of sufficient length not only to centralize the gasket but to be received partially into counterbore 34 at the front end of the sleeve. This projection passes clear through opening 12 in flange 11 and interposes a rigid insulating ring between the live metal of the screw shell and the metal ceiling band, absolutely preventing electrical engagement between these parts when the receptacle is properly assembled.

It can be seen, however, from Fig. 1 that on partial unscrewing of ring 30 it would be possible for contact to occur between the screw shell and the flange 11. To prevent the possibility of the parts loosening during use so that this could happen, the inner edge of projection 33 is toothed or provided with ratchet-like portion 35, and for engagement with these teeth there is provided spring member 36, shown as a whole in Fig. 4, having the head 37 which fits beneath one flange 22 at the base of the screw shell and is clamped by means of screw 24 between this flange and insulating button 16. The circumferentially curved intermediate portion of the spring extends arcuately around the screw shell and then has the forwardly turned hook-like end 38 which, as seen in Fig. 1, is so positioned that it can ride over the inclined edges of the teeth as the ring is being screwed clockwise into position to always drop in behind the straight edges thereof to prevent any unscrewing operation, so that once the ring is screwed into position it is there permanently, held by the dog 38 on the end of the spring.

This type of receptacle may be made either with or without switching mechanism. Where switching mechanism is provided, it is universally of the pull chain type and chain guide 39 is secured to the socket portion. It extends through a slot 40 leading from the rear edge of the sleeve and thus insures against any relative rotation between the sleeve and the socket part, and with this fixed relationship there can be no separation of the parts of the receptacle while locking dog 38 fits in the ratchet teeth. In the event that the receptacle is not of the pull chain type, other simple means are provided to insure against relative rotation between the sleeve and the socket portion, such for instance as a notch in the interior wall of the sleeve and a co-operating protuberance on one of the insulating buttons of the socket portion.

There is sufficient clearance between the screw shell and the main inner bore of the sleeve to permit the screw shell to be inserted slightly off center from the rear of the sleeve in spite of the slight radial projection of the spring 36 beyond the diameter of the sleeve when the socket structure is centered.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a lamp receptacle, in combination, a socket structure including an insulating button, a screw shell secured to one face of said button and wire terminals carried by said button; an insulating sleeve adapted to receive the socket structure from the rear and surround the button and terminals; means limiting movement of the button into the sleeve to allow most of the screw shell to project out beyond the front end of the sleeve; an insulating ring for threaded engagement over said screw shell and having a shoulder for cooperation with said sleeve end to clamp a fixture flange for supporting the receptacle; means preventing relative rotation of the socket structure and sleeve; ratchet teeth on said ring; a spring having one end clamped between the screw shell and button, and a dog on the opposite end of the spring positioned to engage the said ratchet teeth and positively prevent unscrewing of said ring.

2. In a lamp receptacle, in combination, a socket structure including an insulating button, a screw shell mounted on one face thereof; an insulating sleeve removably surrounding the button and base of said screw shell; means on the socket structure and sleeve to limit movement of the socket structure through the sleeve in the direction of the screw shell; an insulating ring having threaded engagement over the screw shell and presenting a shoulder in opposition to the front end of the sleeve for clamping a fixture flange through which the screw shell passes; cooperating means on the socket structure and ring and located on the button side of the said flange to prevent counter-clockwise movement of the ring in respect to the screw shell to prevent loosening of the receptacle on the flange, said means permitting clockwise rotation of the said ring.

3. In a lamp receptacle, in combination, a socket structure including a screw shell and wire terminals, insulation surrounding the terminals and base of the screw shell and presenting a forward shoulder, an insulation ring threaded over said screw shell and having a cooperating shoulder to clamp a ceiling band flange, ratchet teeth on said ring radially inwardly from said shoulder, and a locking dog on the socket structure concealed within said insulation to cooperate therewith to prevent removal of the ring but offering no opposition to screwing it into position.

4. In a lamp receptacle, in combination, a socket structure including a screw shell and wire terminals, insulation surrounding the terminals and base of the screw shell and presenting a forward shoulder, an insulation ring threaded over said screw shell and having a cooperating shoulder to clamp a ceiling band flange, ratchet teeth on said ring inwardly of the forward shoulder, and a spring locking dog on the socket structure to cooperate therewith wholly on the terminal side of the said flange to prevent removal of the ring but offering no opposition to screwing it into position.

5. In a lamp receptacle, in combination, a socket structure including a screw shell and wire

terminals, insulation surrounding the terminals and base of the screw shell and presenting a forward shoulder, an insulation ring threaded over said screw shell and having a cooperating shoulder to clamp a ceiling band flange to support said receptacle, a tubular projection of less diameter extending beyond said last mentioned shoulder and through the flange into a counterbore in said insulation, ratchet teeth integral with the circular end of said projection, and a locking spring carried by said socket structure and cooperating with said teeth.

MARK N. RUSSELL.