April 16, 1935. J. W. BROOKS ET AL 1,997,716

DECORATIVE LAMP SOCKET

Filed Jan. 6, 1932

FIG. 1.

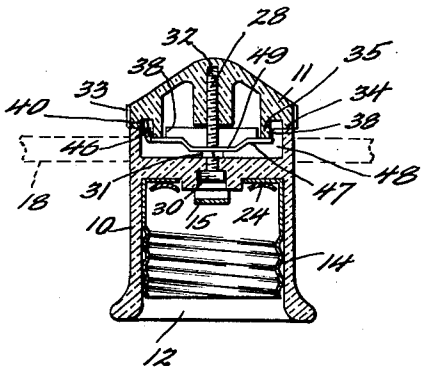


FIG. 2.

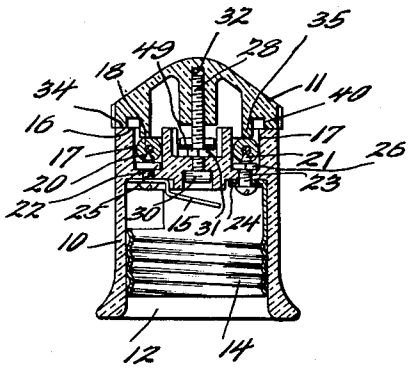


FIG. 3.

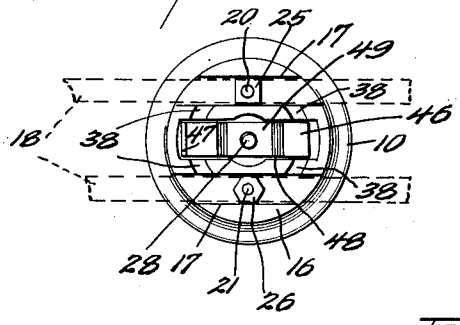


FIG. 4.

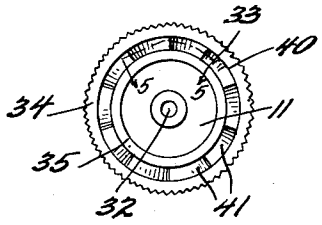
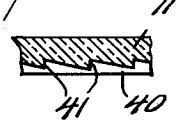


FIG. 5.



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DECORATIVE LAMP SOCKET

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7 Claims. (Cl. 173—340)

This invention relates to lamp receptacles or sockets and particularly to what is generally known as decorative lamp sockets.

It is a general object of the present invention to provide a novel and improved decorative lamp socket.

More particularly, it is an object of the invention to provide a decorative lamp socket in which a cap is attached manually without the use of tools and is automatically locked against removal.

An important feature of the invention resides in the provision of a decorative lamp socket in which the cap is applied to the base by relative rotation of the parts and in which an interposed member is provided which can be so positioned as to securely lock the parts together permanently when they are once assembled or which can be rendered ineffective so that the base and cap can be separated when desired.

Another important feature of the invention resides in the formation of the base with grooves for the passage of conductors and in the provision of means on the cap to engage and press the wires into their respective grooves as the cap is applied by relative rotation.

Still another feature of the invention resides in the provision of ratchet means on one portion of the socket and of a pawl member in the other portion adapted to lock the parts together permanently when they are attached by relative rotation.

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 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 drawing:

Figure 1 is a longitudinal central section through a receptacle constructed according to the present invention taken on a plane parallel to the direction of the conductors;

Figure 2 is a view similar to Fig. 1, but taken at right angles to the direction of the conductors;

Figure 3 is a plan view of the top of the base with the cap removed;

Figure 4 is a bottom plan view of the cap showing the ratchet teeth thereon; and

Figure 5 is a section on the arcuate line 5—5 of Fig. 4.

For decorative purposes, either temporary or permanent, use is often made of electric lamps spaced on parallel conductors and strung in festoons and the like, either supported directly by the conductors or by a messenger cable. Receptacles or sockets for this purpose are usually of the so-called pin-type construction in which the insulated wire conductors are not stripped but are contacted by a pin which projects through the insulation and engages the conductor, the pin being secured in the bottom of a groove in the receptacle between the base and the cap through which the conductor passes.

These sockets are supplied to the trade in three ways: first, they are supplied without the conductors and the presumption is that they are to be used for temporary work; second, they are supplied on the conductors with various spacings in accordance with requirements, the insulation being stripped from the wires during manufacture and the pin terminals being soldered to them, after which a sealing compound is placed over the stripped portion of the wire and the cap of the socket secured on; third, the sockets are mounted on conductors at specified spacings by allowing the pointed pins to puncture the insulation and the cap is then secured in place.

In the last two methods of supplying the sockets, the underwriters do not consider that the wiring is temporary and they insist that the caps of the sockets be not removable for safety purposes.

The present invention contemplates the provision of decorative sockets which comply in all respects with the underwriters' requirements and which, at the same time, can be used for temporary work. These sockets are preferably made from a molded phenolic condensation product or from any other desired material having suitable insulating quality and are formed in two parts, a base 10 and a cap 11 which are separated for the insertion of the conductors and are then attached together in accordance with the present invention.

The main or base portion 10 contains a recessed outer end 12 into which are fitted the conventional screw shell and center contacts 14 and 15, respectively. The rear end of the base 10 has a substantially flat face 16 as shown in Fig. 3 which is traversed by a pair of grooves 17 parallel to each other and equally spaced on opposite sides of the center of the face which is preferably circular. These grooves are of a depth slightly greater than the outside diameter of the conductor such as 18 which is to be used with the socket. One of these conductors is adapted

to be placed in each of the grooves and for the purpose of making contact between the wire portions thereof and the lamp engaging terminals of the socket, a contact pin extends into each groove from near the center of the length thereof projecting upwardly from the bottom. As seen in Fig. 3, these pins, numbered 20 and 21, are formed by pointing the ends of connector screws 22 and 23 which pass through the insulating material of the base between the bottom of the groove and the bottom of the recess 12. The screw 22 passes through and secures in position the center contact 15 while the screw 23 passes through a yoke 24 which engages against the bottom of the screw shell contact and secures it in position. Each of the screws is received into a suitable nut 25, 26, recessed in the bottom of the respective grooves.

A screw 28 extends upwardly from the rear face of the base member and has a non-circular head 30 sunk in a correspondingly shaped recess beneath the center contact 15 so that the screw cannot be rotated. It is held in position in the base by a nut 31 and can only be removed by the removal of this nut. It projects a considerable distance beyond the rear face and is adapted to be engaged by a blind threaded opening 32 in the cap 11.

The cap 11 is slightly greater in diameter than the base and is provided with the knurled rim 33 for ease in applying and removing. It has a peripheral border 34 which engages against the outer edge of the face 16 and closes this face against the entrance of foreign matter. It is provided with a concentric depending skirt 35, the diameter of which is such that it passes near the center of each of the grooves 17, as seen in Fig. 2, when the cap is mounted on the base. In order to accommodate the skirt between the grooves, the arcuate channels 38 are formed in the rear face of the base, as seen in Fig. 3. The purpose of this skirt is to reach down into the conductor grooves and to press the conductors tightly onto the pins to ensure puncturing of the insulation and to maintain a suitable electrical contact between the conductors and the terminal pins. By having the conductor grooves entirely in the base instead of partially in the cap, the cap can be applied to the base by relative rotation of the two parts to thus be secured by the screw 28 and at the same time adequate pressure can be applied to the conductors to make good contact.

To comply with the underwriters' requirement, means is provided to prevent the removal of the cap. For this purpose the cap, between the border 34 and the skirt 35, is provided with a circular channel 40, the bottom of which is moulded into the form of ratchet teeth 41, as seen in Figs. 4 and 5.

To engage with the ratchet teeth there is a pawl 46 which comprises an upturned end on the spring member 47 which fits loosely in the recess 48, in the face 16 of the base, between the conductor grooves. This spring is perforated to fit over the central screw 28 and has its center portion depressed as at 49 to rest on the nut 31. The end opposite the pawl is flat and is adapted to be engaged by the skirt 35, as seen in Fig. 1, to press the pawl end upwardly and ensure cooperation between the pawl and the ratchet teeth. As the cap is applied by threading it onto the screw 28, the teeth are engaged by the pawl and the cap is permanently locked in position, for the pawl is not available to any tool and the center screw cannot be removed, as previously stated, except by removing the nut 31 which is now covered by the cap.

The pawl spring is only loosely mounted in the recess provided for the purpose and when the socket is delivered is reversed in this recess so that the pawl faces downward and cannot be effective to lock the cap to the base. This permits the assembly of the three parts for shipment without the possibility of locking them together. If it is desired to use the receptacle without the locking feature, the pawl spring is merely discarded or left reversed and reliance is placed on screwing the cap tightly in position to maintain it there.

The invention, of course, is not limited to the exact structure of locking means, but it is the intent in the claims to cover broadly the use of means which automatically lock the socket parts together as the cap is applied by a relative rotation of the two parts.

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

1. In a lamp socket, in combination, an insulation body portion having lamp base engaging contacts in a recess in one end thereof, the opposite end of the base being substantially flat, said end being provided with a pair of parallel grooves spaced on opposite sides of the center and adapted to receive conductors, a pin terminal in each groove at the bottom thereof, a cap to cover said end and grooves, one of said parts having a centrally mounted screw permanently secured therein, a threaded hole in the other part to cooperate therewith, means on said cap to extend into said grooves as the parts are relatively rotated to be joined together to press conductors onto the terminals, and a removable locking element between the cap and body and between the conductor grooves.

2. In a lamp socket, in combination, an insulation body portion having lamp base engaging contacts in a recess in one end thereof, the opposite end of the base being substantially flat, said end being provided with a pair of parallel grooves spaced on opposite sides of the center and adapted to receive conductors, a pin terminal in each groove at the bottom thereof, a cap to cover said end and grooves, one of said parts having a centrally mounted screw permanently secured therein, a threaded hole in the other part to cooperate therewith, a ratchet on one of said parts, and a pawl carried by the other to lock the part against removal after assembly.

3. In a lamp socket, in combination, an insulation body portion having lamp base engaging contacts in a recess in one end thereof, the opposite end of the base being substantially flat, said end being provided with a pair of parallel grooves spaced on opposite sides of the center and adapted to receive conductors, a pin terminal in each groove at the bottom thereof, a cap to cover said end and grooves, one of said parts having a centrally mounted screw permanently secured therein, a threaded hole in the other part to cooperate therewith, a ratchet on one of said parts, a pawl mounted over said screw, and means on the other part to prevent rotation of the pawl in respect thereto.

4. In a lamp socket, in combination, an insulation body portion having lamp base engaging contacts in a recess in one end thereof, the opposite end of the base being substantially flat, said end being provided with a pair of parallel grooves spaced on opposite sides of the center and

adapted to receive conductors, a pin terminal in each groove at the bottom thereof, a cap to cover said end and grooves, one of said parts having a centrally mounted screw permanently secured therein, a threaded hole in the other part to cooperate therewith, said base end having a diametrically disposed recess therein between said grooves, a spring in said recess having an end projecting above the base end and means on said cap engageable by said spring to prevent unscrewing of the parts.

5. In a lamp socket, in combination, a body portion having lamp contacts, the opposite end of the base being substantially flat and having a pair of parallel, conductor-receiving grooves spaced on opposite sides of the center thereof, a pin terminal in each groove, a recess in said end between said grooves, a screw projecting from the bottom of said recess and permanently secured in said body, a metal strap in said recess with the screw passing loosely therethrough, one end of said strap extending beyond the face of the end, a cap for said end threaded to be received on said screw and a ratchet annulus on said cap to cooperate with the said end of said strap to lock the cap on the body.

6. In a lamp socket, in combination, a body portion having lamp contacts, the opposite end of the base being substantially flat and having a pair of parallel, conductor-receiving grooves spaced on opposite sides of the center thereof, a pin terminal in each groove, a recess in said end between said grooves, a screw projecting from the bottom of said recess and permanently secured in said body, a metal strap in said recess with the screw passing loosely therethrough, one end of said strap extending beyond the face of the end, a cap for said end threaded to be received on said screw, a ratchet annulus on said cap to cooperate with the said end of said strap to lock the cap on the body, and an annulus on said cap received in each groove over the pins to press the conductors into engagement therewith.

7. In a lamp socket, in combination, a body portion having lamp contacts, the opposite end of the base being substantially flat and having a pair of parallel, conductor-receiving grooves spaced on opposite sides of the center thereof, a pin terminal in each groove, a recess in said end between said grooves, a screw projecting from the bottom of said recess and permanently secured in said body, a metal strap in said recess with the screw passing loosely therethrough, one end of said strap extending beyond the face of the end, a cap for said end threaded to be received on said screw, a ratchet annulus on said cap to cooperate with the said end of said strap to lock the cap on the body, an annulus on said cap received in each groove over the pins to press the conductors into engagement therewith, said annulus also bearing on the opposite end of said strap to maintain the first mentioned end in engagement with the ratchet.

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