June 26, 1923. 1,460,246

H. HUBBELL

LOCKING LAMP

Filed June 18, 1921

FIG. 1

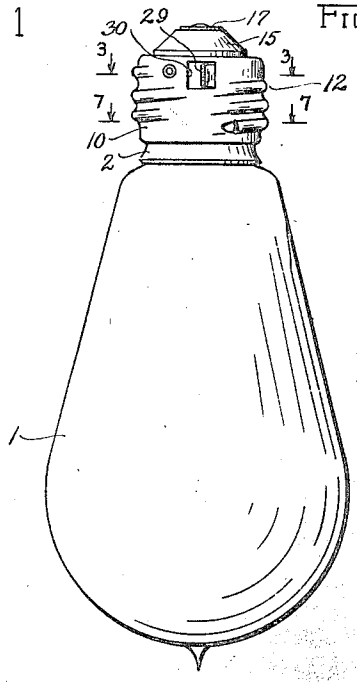


FIG. 3.

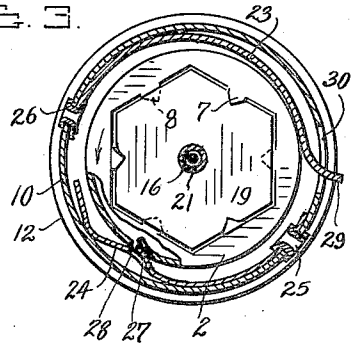


FIG. 4.

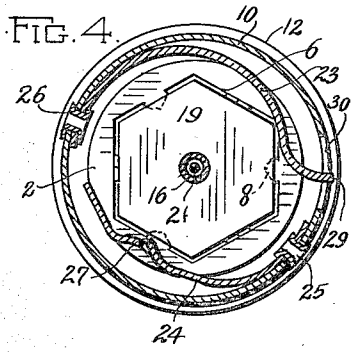


FIG. 2.

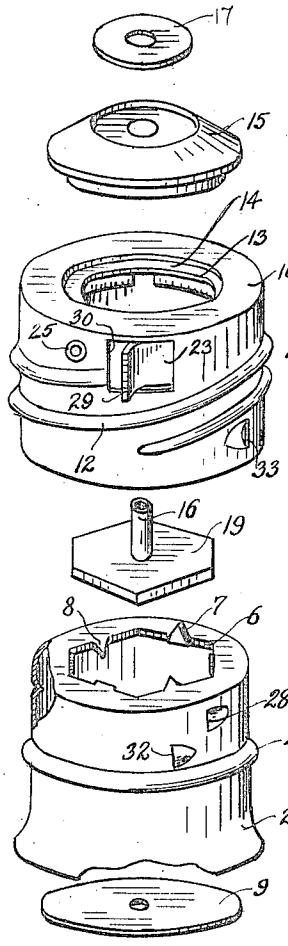


FIG. 5.

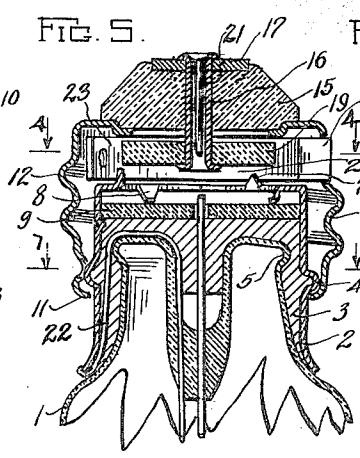


FIG. 6.

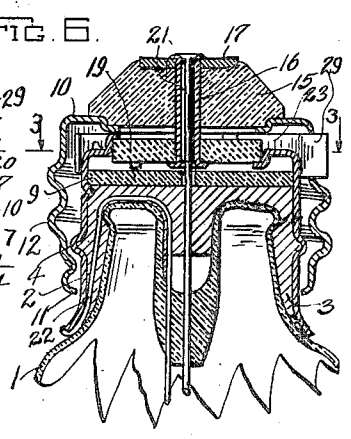
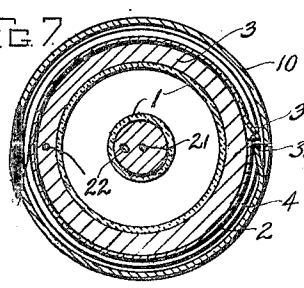


FIG. 7



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UNITED STATES PATENT OFFICE.

HARVEY HUBBELL, OF BRIDGEPORT, CONNECTICUT.

LOCKING LAMP.

Application filed June 18, 1921. Serial No. 478,502.

To all whom it may concern:

Be it known that I, HARVEY HUBBELL, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Locking Lamps, of which the following is a specification.

This invention relates to a locking lamp of the type which will screw into the standard socket in the ordinary manner but which cannot be removed from the socket without breaking one of the electrical connections to the filament within the lamp so that it cannot be used. It is an object of the invention to provide such a lamp which may be unscrewed from the socket after the electrical connection has been broken and which has means to prevent the moving of the separate elements back into contact to close the connection after it has been broken.

It is a still further object to provide a lamp having the above stated function, which will be simple in construction, comprise comparatively few parts and be easy and cheap to manufacture.

With the above and other objects in view I have devised my improved lamp which I will now describe.

Referring to the accompanying drawings forming a part of this specification, Fig. 1 is an elevation of the completed lamp detached from the socket. Fig. 2 is an exploded perspective view showing the various elements separated but indicating their relations to each other. Fig. 3 is a transverse section on the line 3—3 of Figs. 1 and 6 looking in the direction of the arrows. Fig. 4 is a transverse section on the line 4—4 of Fig. 1 looking in the direction of the arrows. Fig. 5 is a vertical central sectional view showing the positions of the parts after the electrical connection to the filament has been broken. Fig. 6 is a vertical central section showing the parts in normal position with the electrical connections unbroken and Fig. 7 is a transverse section on substantially the line 7—7 of Fig. 5 looking in the direction of the arrows.

The lamp bulb 1 has secured to the base thereof a lamp ferrule or inner lamp base shell 2 which is secured to the base of the bulb by suitable insulating means 3 such as plaster of Paris molded between the ferrule and the lamp base, the ferrule and base being provided with ribs 4 and 5 respectively to prevent them pulling away from the insulation 3. The lamp ferrule 2 is also provided in the top thereof with a polygonal opening 6, preferably hexagonal as shown, which opening has around the periphery thereof two series of teeth 7 and 8, the teeth of one series 7 being bent upwardly away from the lamp base and the other series 8 being bent downwardly toward said base. A fibre washer 9 is mounted in the ferrule on top of the insulation 3.

Surrounding the ferrule 2 is a screw ferrule or outer lamp base shell 10 which is open at its lower end to receive the ferrule 2, and the edges of this opening are bent inwardly at 11 below rib 4 on ferrule 2 to provide a stop and prevent separation of the two ferrules. The ferrule 10 is provided with outwardly extending ribs 12 forming screw-threads to engage with the threads of an ordinary standard lamp-socket. The upper end of ferrule 10 has an opening 13 surrounded by a recess 14 in which fits the insulating button 15 provided with a central opening through which extends a flanged tube 16. The upper end of the button 15 is provided with a recess in which is a contact member 17 adapted to engage with one of the contacts in the standard socket to close the circuit in the usual manner. The tube 16 is flanged over the contact member 17 at its upper end, passes through an opening in a fibre washer 19 and is flanged over on the under side thereof at 20. This washer is the same shape as opening 6 in the lamp ferrule 2 and when the lamp is assembled with the electrical connections intact, is fitted in this opening, being secured therein by the teeth 8 bent under it and teeth 7 bent over it as shown in Fig. 6. A wire connection 21 soldered to the contact 17 leads through tube 16 and insulation 3 to one end of the lamp filament while the other end of the filament is connected to lamp ferrule 2 by a wire connection 22 also passing through the insulation 3.

Secured to the inner wall of screw-ferrule 10 adjacent the upper end thereof and on diametrically opposite sides are two flat metal springs 23 and 24, these springs being secured to the ferrule by any suitable means such as rivets 25 and 26. One of these springs as 24 has a small portion struck up therefrom to form a shoulder 27 adapted when the ferrule 2 is inserted in the ferrule 10 to its extreme limit, to align with a similar shoulder 28 on the ferrule 2, these

shoulders being directed as shown in Fig. 3 so that when the bulb 1 and with it ferrule 2 is turned in the direction of the arrow these shoulders coact to also turn the screw-ferrule 10, so that it may be inserted in the socket in the usual manner. Should, however, it be attempted to remove the lamp from the socket by turning it in the opposite direction, spring 24 will yield and allow the shoulders 27 and 28 to slip past each other without turning the ferrule 10.

The spring 23 has an outwardly curved free end 29 which passes to the outside of screw-ferrule 10 through an opening 30 in the wall thereof and is so directed that when the ferrule 10 is turned in the direction to screw into the socket it will offer no appreciable resistance to the turning movement, but if it is attempted to turn the ferrule in the opposite direction to unscrew the same the free end 29 will press against the inner wall of the socket and offer sufficient resistance to the ferrule 10 turning as to insure the ferrule 2 turning relatively thereto and thus prevent removal of the lamp from the socket.

Some means, however, must be provided to allow removal of the lamp after it has been burned out. For this purpose the two ferrules 2 and 10 are provided with shoulders 32 and 33, respectively, but which shoulders face in the opposite direction from that of shoulders 27 and 28. These shoulders 32 and 33 can come into alignment and contact with each other only when ferrule 2 is lowered in ferrule 10 so that flange or rib 4 is in contact with the inturned edge 11 as shown in Fig. 5. It will therefore be seen that when these ferrules are in their relative positions by turning the bulb 1 to the left or opposite to the direction it is turned to insert the lamp in the socket, the shoulders 32 and 33 coact to turn ferrule 10 in this direction also and remove it from the socket.

In order, however, to bring the ferrules into the relative positions shown in Fig. 5, it is necessary to first pull down on the bulb 1. This pulls ferrule 2 away from fibre washer 19 as the teeth 7 bend upwardly allowing this, and at the same time the electrical connection 21 is broken as shown in Fig. 5. After the ferrule 2 has been pulled down the springs 23 and 24 move inwardly over the top of the ferrule 2 between it and ferrule 10 and prevent the return of the ferrules to the relative positions shown in Fig. 6 and the repair of the broken electric connection. They also prevent the return of the ferrules to the relative positions where the outer ferrule will turn with the inner one to insert the outer one in a socket. The teeth 7 also spring in under the washer 19 after it has been detached therefrom and assist in preventing the return to the normal positions illustrated in Fig. 6.

The operation of the device is as follows: The normal position of the parts is shown in Fig. 6. If the lamp bulb 1 be turned in the direction to screw the lamp into a lamp socket, the shoulder 28 will engage with shoulder 27 on spring 24 and will turn the screw ferrule 10 in the lamp socket and bring the central contact 21 into engagement with the central contact in the socket, the other contact being formed through the ferrule 10 and the screw threaded socket shell in the usual manner. While the parts are in this position, however, rotation of the bulb in the opposite direction will not unscrew ferrule 10 from the socket as the shoulders 27, 28 will slide by each other, and also the end 29 of the spring 23 will engage the inner wall of the socket shell and hold the ferrule 10 against removal. If the lamp should burn out it may be removed by pulling downwardly on the bulb 1 putting the parts into the position shown in Fig. 5. This operation draws the disc 19 from the opening in the top of inner ferrule 2 as the teeth 7 yield upwardly, and this breaks the central connection 21 to the lamp filament. It also removes shoulders 27 and 28 from alignment, but brings shoulders 32 and 33 into alignment, and as they are directed in the opposite direction rotation of the bulb in the opposite direction will unscrew ferrule 10 from the socket. With the parts in this position, however, the lamp cannot be threaded in the socket as shoulders 27 and 28 are not in alignment and shoulders 32 and 33 will not coact to rotate ferrule 10 in this direction. When the parts were drawn to the position shown in Fig. 5 springs 23 and 24 moved inwardly over the top of the inner ferrule 2 removing the projection 29 from engagement with the inner wall of the lamp socket and also placing the springs in such a position that the parts cannot be returned to the normal position shown in Fig. 6. The springs 23 and 24 are assisted in this by the teeth 7, which being somewhat resilient, moved in somewhat under the disc 19 when it was separated from them. It will thus be seen that this lamp may be applied to the standard socket in the same manner as the ordinary lamp, but that it cannot be removed without breaking the central connection to the filament and so destroying the usefulness of the lamp. Also after this connection is once broken the springs 23, 24 and teeth 7 prevent returning of the parts to the normal position and thus prevent repair of the break. But means is provided for removing the lamp from the socket after the central connection has been broken by turning the bulb in the reverse direction the same as the ordinary bulb.

It will be clear from the above description of my invention that I have devised a lamp which may be inserted in the standard

socket in the usual manner, but which when once inserted therein cannot be removed therefrom without breaking the electrical connection from contact element 17 to the filament and thus rendering the the lamp useless. However, after this connection has been broken the lamp may be removed from the socket, to allow for the insertion of a new lamp, by turning it in the opposite direction in the usual manner. It will also be apparent that because of the springs 23 and 24 and the action of teeth 7 it is practically impossible to return the parts to normal position and repair the break in the electrical connection. This will effectively prevent theft of the lamps because they cannot be removed from the socket without rendering them useless.

Having thus set forth the nature of my invention, what I claim is—

1. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, a contact member connected with but insulated from said inner ferrule, conductors leading from said bulb and connected with said contact member and ferrule respectively, an outer ferrule mounted to turn on said inner ferrule, and adapted for attachment to a lamp socket, said ferrules also adapted for relative longitudinal movement, and a spring connected to one of the ferrules and located between them, said spring and the other ferrule being provided with coacting shoulders to cause said outer ferrule to turn with the inner ferrule when said ferrule is turned in one direction, said spring also adapted to prevent return of the ferrules to their normal position after relative longitudinal movement.

2. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, a contact member connected with but insulated from said inner ferrule, conductors leading from said bulb and connected with said contact member and ferrule respectively, an outer ferrule mounted to turn on said inner ferrule and adapted for attachment to a lamp socket, said ferrules also adapted for relative longitudinal movement, and a spring connected to one of the ferrules and located between them, said spring and the other ferrule being provided with coacting shoulders to cause said outer ferrule to turn with the inner ferrule when said ferrule is turned in one direction, but to allow the ferrules to turn relatively to each other when the inner ferrule is turned in the opposite direction, said spring also adapted to prevent return of the ferrules to their normal position after relative longitudinal movement.

3. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, a contact member connected with but insulated from said inner ferrule, conductors leading from said bulb and connected with said contact member and ferrule respectively, an outer ferrule mounted to turn on said inner ferrule, said ferrules also adapted for relative longitudinal movement, a spring secured to the inner wall of the outer ferrule and provided with a shoulder, and a shoulder on the inner ferrule adapted to coact with the shoulder on the spring to turn the outer ferrule in one direction when said inner ferrule is turned in one direction but to allow the ferrules to turn relatively to each other when said inner ferrule is turned in the opposite direction, said spring adapted when the inner ferrule is given relative longitudinal movement to move into the path of movement thereof and prevent its return to the original position.

4. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, a contact member connected with but insulated from said inner ferrule, conductors leading from said bulb and connected with said contact member and ferrule respectively, an outer ferrule mounted to turn on said inner ferrule, coacting means carried by the two ferrules to turn the outer ferrule with the inner ferrule when said inner ferrule is turned in one direction to insert the outer ferrule in a socket, but allowing the ferrules to turn relatively to each other when the inner ferrule is turned in the opposite direction, and means secured to the outer ferrule and movable freely along the walls of the socket when the ferrule is inserted therein but adapted to bind against the walls of the socket to prevent turning of the outer ferrule in the opposite direction.

5. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, a contact member connected with but insulated from said inner ferrule, conductors leading from said bulb and connected with said contact member and ferrule respectively, an outer ferrule mounted to turn on said inner ferrule, coacting means carried by the two ferrules to turn the outer ferrule with the inner ferrule when said inner ferrule is turned in one direction to insert the outer ferrule in a socket, but allowing the ferrules to turn relatively to each other when the inner ferrule is turned in the opposite direction, and a spring secured to the outer ferrule and having a free end extending through an opening in the wall of this ferrule and contacting with the inner wall of the socket, said free end adapted to slide freely on this wall when the ferrule is inserted in the socket but adapted to bind against the wall to prevent turning of the ferrule in the opposite direction.

6. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, an outer ferrule embracing said inner ferrule and carrying oppositely disposed shoulders ar-

ranged in different positions longitudinally of said ferrule, said inner ferrule also having oppositely disposed shoulders adapted to cooperate with the respective shoulders carried by the outer ferrule, said ferrules being relatively longitudinally movable to bring different pairs of opposed shoulders on the respective ferrules into a position to engage each other, and yielding means secured to the outer ferrule adapted when said ferrules have been moved from one longitudinal position to the other to move between the ferrules to prevent relative movement to their original positions.

7. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, an outer ferrule embracing said inner ferrule and carrying oppositely disposed shoulders arranged in different positions longitudinally of said ferrule, said inner ferrule also having oppositely disposed shoulders adapted to cooperate with the respective shoulders carried by the outer ferrule, said ferrules being relatively longitudinally movable to bring different pairs of opposed shoulders on the respective ferrules into a position to engage each other, and means preventing return of the ferrules to their original position after they have been moved from one longitudinal position to the other comprising a spring carried by the outer ferrule normally held in ineffective position by the inner ferrule but adapted to move into the path of movement thereof after it has been moved to the second position.

8. An electric lamp comprising a bulb, a button, a tube passing through said button, a washer carried by the inner end of the tube, an inner ferrule secured to said bulb and having an opening and teeth about said opening engaging said washer, an outer ferrule adapted for attachment to a lamp-socket and to turn on said inner ferrule, said ferrules being relatively longitudinally movable, coacting means for operatively connecting said ferrules for movement in unison when the inner ferrule is turned in one direction in one of the longitudinal positions and in the opposite direction in the other longitudinal position, and a spring member independent of the teeth adapted to move between the ferrules when they are moved to the second longitudinal position to prevent the return thereof to the first longitudinal position.

9. An electric lamp comprising a bulb, and a lamp-base, said base including an outer ferrule adapted for attachment to a lamp-socket, an inner ferrule longitudinally movable in the outer ferrule and secured to said bulb, means operatively connecting said ferrules for rotation in an opposite direction at each extreme of the longitudinal movement of the inner ferrule to permit the lamp to be secured within or removed from the lamp-socket, and means acting after the inner ferrule has been removed to the lamp removing position to prevent its return to the lamp securing position comprising a spring carried by one of said ferrules and normally held in ineffective position by the other ferrule but adapted to move into effective holding position when the inner ferrule is moved to the lamp removing position.

10. An electric lamp comprising a bulb, and a lamp-base, said lamp-base including, in combination, an inner ferrule secured to the bulb, an outer ferrule rotatably and longitudinally movable relative thereto, means connecting said ferrules and operative when the bulb is turned in one direction to cause engagement of the outer ferrule with a lamp-socket and inoperative when the bulb is turned in the opposite direction without longitudinal movement, means causing removal of the lamp when turned in the opposite direction after longitudinal movement, and means movable into position after said longitudinal movement to prevent reverse longitudinal movement to lamp-securing position comprising a spring carried by one of said ferrules and normally held in ineffective position by the other ferrule but adapted to move into effective holding position when the inner ferrule is moved to the lamp removing position.

11. An electric lamp comprising a bulb, an inner ferrule secured to said bulb, an outer ferrule adapted for attachment to a lamp-socket and to receive said inner ferrule, said inner ferrule being rotatably and longitudinally movable relative to the outer ferrule, means connecting said ferrules when the inner ferrule is at its inner extreme of longitudinal movement, operative when the bulb is turned in one direction to cause engagement of the outer ferrule with a lamp-socket, and inoperative when the bulb is turned in the opposite direction without longitudinal movement, means causing removal of the lamp when the bulb is turned in the opposite direction after longitudinal movement, and means mounted in the outer ferrule and extending through a wall thereof adapted to coact with the socket to prevent turning of the outer ferrule in a direction to remove it from the said socket, said latter means also adapted, after longitudinal movement of the inner ferrule to move from cooperation with the socket to a position to prevent movement of the inner ferrule to attaching position.

12. An electric lamp comprising a bulb, and a lamp-base, said base including an outer ferrule adapted for attachment to a lamp-socket, an inner ferrule longitudinally movable in the outer ferrule and secured to said bulb, means operatively connecting said ferrules for rotation in an opposite direction at each extreme of the longitudinal

movement of the inner ferrule to permit the lamp to be secured within or removed from the lamp-socket, and means to engage the socket to prevent removal of the outer ferrule therefrom, said means being so arranged that it is held in effective holding position when the ferrules are in lamp securing position and released when the ferrules are in lamp removing position.

13. An electric lamp comprising a bulb, and a lamp-base, said base including an outer ferrule adapted for attachment to a lamp-socket, an inner ferrule longitudinally movable in the outer ferrule and secured to said bulb, means operatively connecting said ferrules for rotation in an opposite direction at each extreme of the longitudinal movement of the inner ferrule to permit the lamp to be secured within or removed from the lamp-socket, and a spring carried by the outer ferrule and adapted to engage the socket to prevent removal of the ferrule therefrom, said spring being so arranged that it is held in effective holding position by the inner ferrule when the ferrules are in lamp securing position and is removed from effective holding position when the ferrules are in lamp removing position.

14. An electric lamp comprising a bulb, and a lamp-base, said base including an outer ferrule adapted for attachment to a lamp-socket, an inner ferrule longitudinally movable in the outer ferrule and secured to said bulb, means operatively connecting said ferrules for rotation in an opposite direction at each extreme of the longitudinal movement of the inner ferrule to permit the lamp to be secured within or removed from the lamp-socket, and means to engage the socket to prevent removal of the outer ferrule therefrom, said means being so arranged that it is held in effective holding position when the ferrules are in lamp securing position and released when the ferrules are in lamp removing position, said means also adapted to prevent the return of the ferrules to lamp securing position.

In testimony whereof I affix my signature.

HARVEY HUBBELL.