July 12, 1938. E. M. ROTHEN 2,123,807

LOCKED LAMP GUARD

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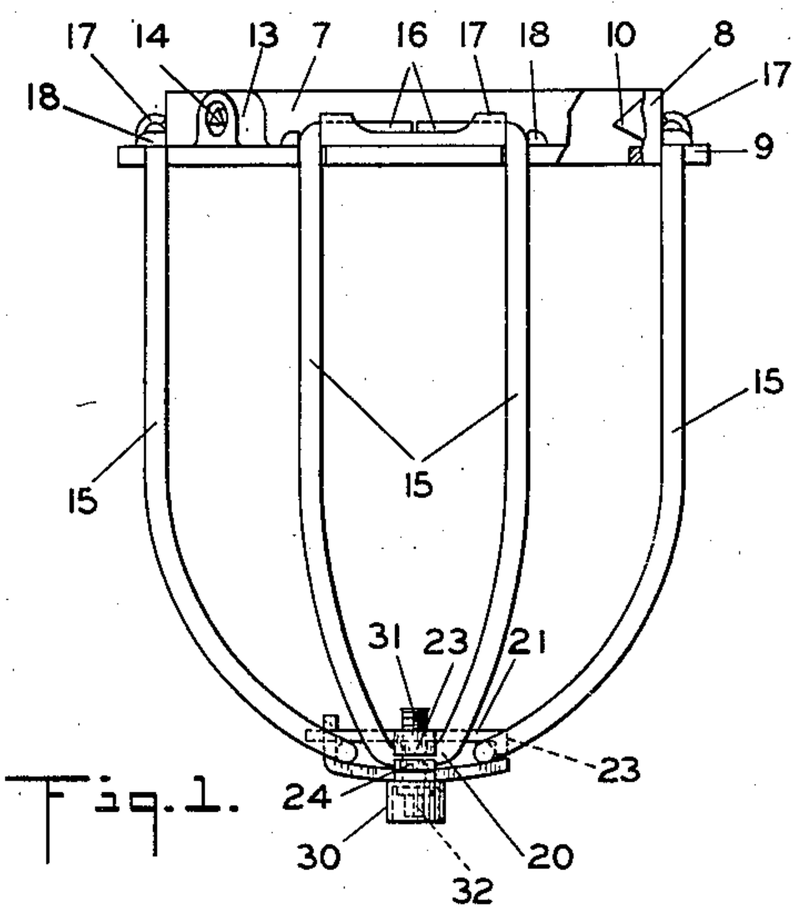


Fig. 1.

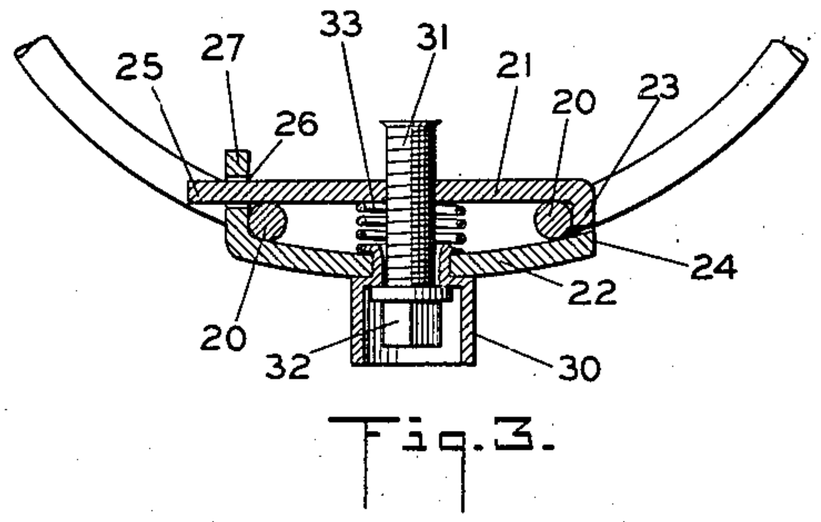


Fig. 3.

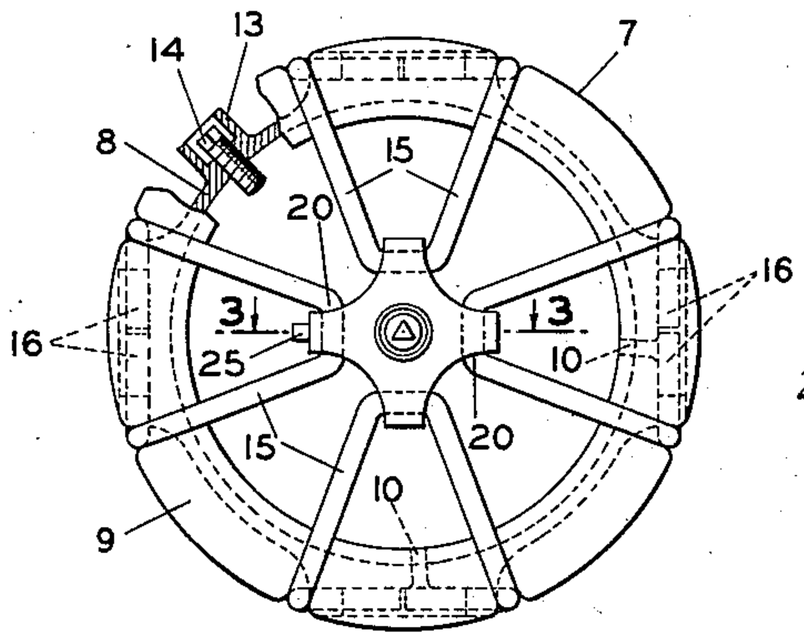


Fig. 2.

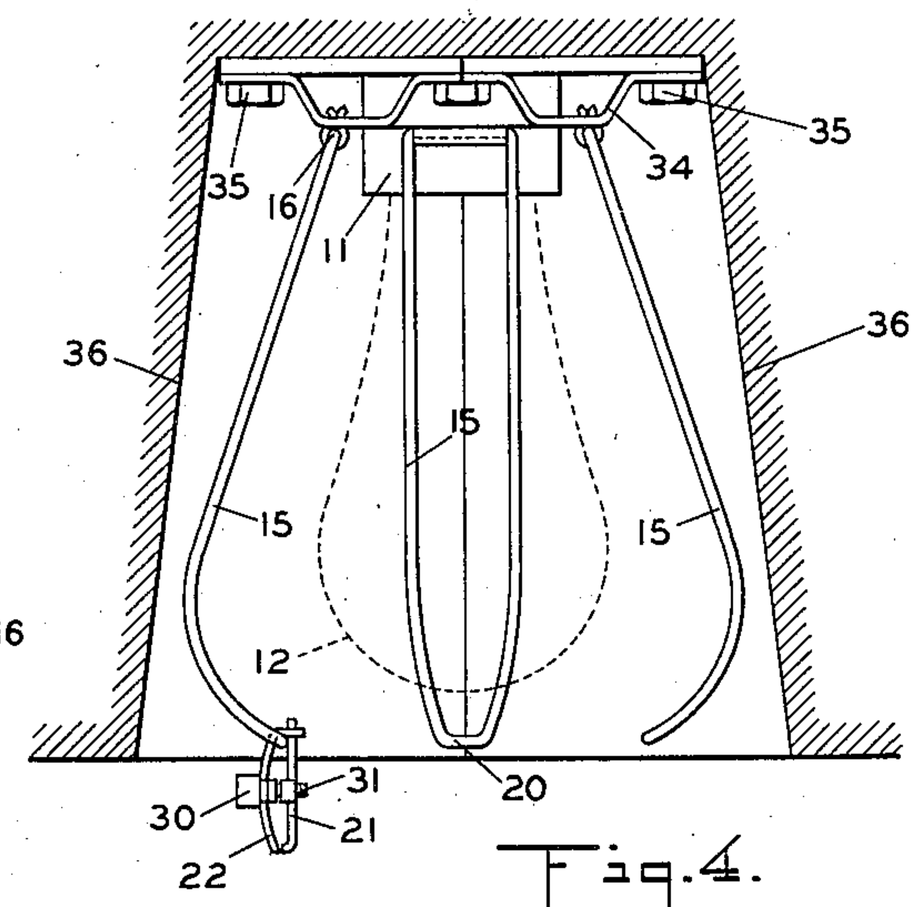
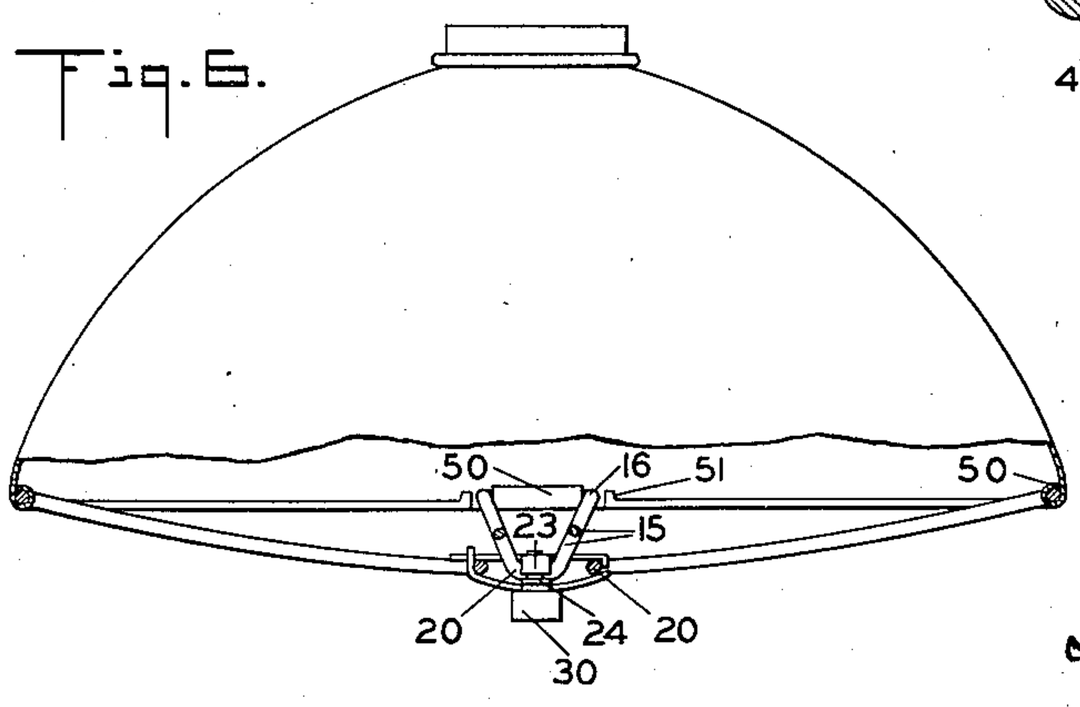


Fig. 4.

Fig. 6.



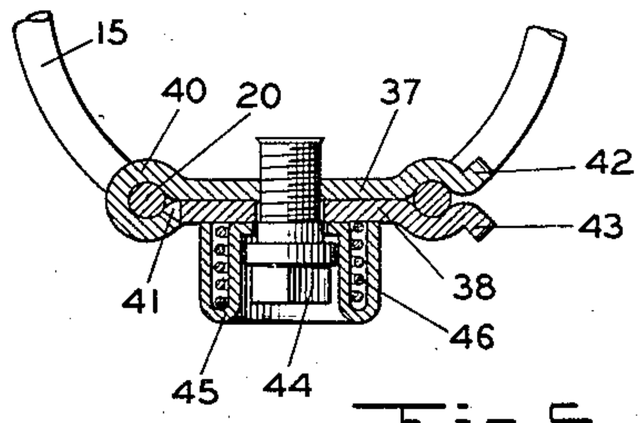


Fig. 5.

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LOCKED LAMP GUARD

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6 Claims. (Cl. 240—102)

This invention relates to locked lamp guards of the type adapted to protect electric lamp bulbs which are removably mounted in sockets, from theft as well as breakage, and has for its main object to provide a guard of this character which can be conveniently unlocked and then spread or opened out from the bulb in several directions in a limited space to facilitate relamping, whereby the guard may be mounted in reflectors, or in wells or recesses in walls or the like, and which can be readily relocked to prevent unauthorized removal of such lamp bulbs from their sockets.

Further objects are to facilitate the construction and operation of guards of this character and their locking devices, to render the same economical to manufacture and convenient to install and manipulate, and otherwise well adapted for the purposes set forth, as well as to minimize the shadow cast by the guard, and its obstruction to the light emanating from the bulb protected thereby.

Other objects and features of novelty will be apparent as the following description proceeds, reference being had to the accompanying drawing, in which

Figure 1 is a side elevation of the locked lamp guard according to the preferred embodiment of the present invention;

Figure 2 is an inverted plan view of the locked lamp guard shown in Figure 1, a portion being broken away and shown in section;

Figure 3 is an enlarged detailed section of the locking device, taken along the line 3—3 of Figure 2;

Figure 4 is a side elevation of a modification, showing the guard mounted in a light well;

Figure 5 is an enlarged section through the modified form of locking device; and

Figure 6 is an elevation of a further modification showing the lamp guard embodied in a reflector.

The invention comprises broadly the combination of a support, a plurality of inclosure members, and a locking device. The support is associated with the lamp socket, which as hereinafter exemplified can be of widely different forms, but preferably permanently mounted in position to be difficult if not impossible to remove. The inclosure members are carried by this support and permanently secured thereto, and converge beyond the lamp bulb, and the locking device retains the same in position. When unlocked the inclosure members can be spread apart in several directions, independently if desired, to facilitate manipulation thereof in limited or obstructed space.

According to the preferred embodiment of the present invention, as shown in Figures 1 and 2, the support 7 is in the form of a ring having a vertical annular flange 8 and a lateral flange 9. Spaced around the inner wall of the vertical flange 8 are a plurality of points or inward projections 10 which are adapted to engage the outer rim of the lamp socket. This lamp socket is conventional, and as the lamp guard is adapted to be used with practically any type of socket, no illustration of the socket is deemed to be necessary in this view, although a socket 11 and a lamp bulb 12 therein are indicated in Figure 4.

The vertical flange 8 of the supporting ring is further provided with a threaded boss 13 in which is mounted a screw 14 the head of which is so shaped as to require a special key to turn the same and therefore function as a lock. A triangular form is shown but it is obvious that any other irregular form could be used for this purpose. When this supporting ring 7 is applied over a lamp socket and the screw 14 is tightened up by means of the key, a socket is gripped by the points 10 and the screw 14 which together securely hold the guard ring on to the socket.

A plurality of inclosure frames 15 are secured to the guard ring 7 and extend therefrom so as to converge beyond the end of the lamp bulb. These frames 15 are preferably loops of wire, the ends 16 of which are brought together and aligned to form a pintle. The outer flange 9 of the guard ring has upstanding ears 17 which, after the pintle 16 has been applied thereover, are bent down inwardly to form knuckles. Lugs 18 on the ring 9 at each end of the pintle 16 prevent lateral removal of the wire loop ends.

The upper portions of the sides of the loop 15 are substantially parallel, while the lower portions of these sides converge to form a terminal bight 20. In addition to converging toward each other, the lower portions of the loop are curved inwardly so that the bights 20 of the respective loops approach each other in closely spaced relation.

A locking device is provided for engaging the bights of all the loops and securing them together, to form the same into a cage about the lamp bulb. In the preferred form shown in Fig. 3 this locking device comprises a pair of clamping members 21 and 22 each of which has a jaw engaging each of the bights 20. The member 21 has three such jaws 23 which are turned down at right angles over the bights 20 and the member

22 has corresponding jaws 24 which are flat and abut the turned down jaws 23. The fourth jaw of the member 21 has a narrow extension 25 which passes through a slot 26 in the turned up jaw 27 of the lower clamping member 22.

The member 22 has a central aperture which receives the reduced inner end of a sleeve 30, which is spun over therewithin. A screw 31 passes through the sleeve 30 and engages threads in the clamping member 21. This screw has a head 32 of special shape, the same as that of the screw 14, and it is a desirable feature of the present invention that the screws 14 and 32 may be operated by the same key. The boss 13 and the sleeve 30 present further difficulties to turning these screws without the special key. A spring 33 is coiled around the screw 31 between two clamping members and urges them apart when the screw is turned toward release position.

It should be noted that the inner end of the screw 31 is burred over to prevent the member 21 from being removed. Hence when unlocked, the locking device is retained by the bight 20 between the jaws 25 and 27, while the jaws 23 and 24 released the other three bights 20. When locked, these jaws 23 and 24 engage each other so tightly as to present a substantially flush surface, and render it practically impossible to insert a screw driver to tamper with the lock.

In the form shown in Figure 4 the inclosure members or loops 15 are identical with those already described and will therefore not be again described in detail. In this form the frames 15 are carried by a base plate 34 which comprises a rectangle of sheet metal. The knuckles to receive the pintles 16 are formed by loops of sheet metal which pass through slots in the corners of the base plate 34 and are turned over on the inner side. The base plate 34 has a central aperture which passes over the socket 11 so that the socket and the base plate 34 are both secured by the bolts 35 in the corners of the plate.

While Figure 4 shows a modified construction, it also illustrates the open position of the loops for the guard shown in Figure 1. When either of these guards is mounted in a light well the walls of which are indicated at 36, the limited space around the light lamp bulb is nevertheless sufficient to permit the frames 15 to swing out a sufficient distance to permit access to and removal or replacement of the lamp bulb 12.

In fact the form shown in Figure 1 may be employed in such a well without modification, provided that in installing the socket, after the socket has been wired and before it has been secured in place, the socket wires will permit the socket to be lowered a sufficient distance to receive the guard ring 7 and permit the locking screw 14 to be tightened thereon. After the ring 7 has been secured to the socket, the socket may be mounted or permanently secured in the bottom of the well 36 in the customary manner.

A modified form of locking device is shown in Figure 5. This form comprises cooperating members 37 and 38. The member 37 has a portion 40 wrapped around one of the bights 20 to form a knuckle while the lower member 38 has a similar knuckle 41 on the same bight 20 so that the two members 37 and 38 constitute a hinge permanently secured to one of the frames 15. The members 37 and 38 each have three cooperating jaws 42 and 43 for clamping the bights of the other three loops 15 therebetween. The locking screw 44 is swiveled in the outer member 38 and threaded in the inner member 37. A hollow cap 45 is swiveled under the head of the screw 44 and forms a sleeve therefor as well as a casing for a coil compression spring 46.

The head of the screw 44 has the same irregular shape as the heads of the lock screws 14 and 32, but when this screw 44 is turned to release the locking device the spring 46 still holds the jaws together. The outer ends of the jaws 42 and 43 are curved outwardly so that the bight 20 therebetween may be snapped in and out against the action of the spring 46, and yet when the screw 44 is tightened the bights 20 are securely retained in locking position.

The description given hereinbefore of the operation within the well 36 also applies to operation within a reflector. The reflector however, affords a still further modification such as shown in Figure 6. The pintles 16 of the loops 15 are pivoted in the knuckles 50 formed by rolled up portions of the reflector rim, lugs 51 being provided by the remaining portions of the reflector rim to prevent lateral removal of the pintles 16. The bights 20 of the loops are secured together by a locking device according to either Figure 3 or Figure 5, but it should be noted that the parts are constructed and arranged to bring the bights 20 close to the lamp bulb after it has been screwed into the socket. With this arrangement even though the greater diameter of the reflector might provide access between adjacent loops 15 sufficient to turn the lamp in its socket, the lamp would abut against the locking device before it could be removed from this socket. Of course the pivots 50 could be moved up further into the reflector, or the sides of the loops 15 might be given a sinuous or maple-leaf contour which would prevent any access to the lamp bulb at all. Another expedient to prevent such access within the contemplation of this invention is to provide a larger number of loops 15 and a corresponding number of jaws on the locking device.

With regard to the modifications described, it should be noted that these are particularly important as showing the broad application of this invention. Accordingly, so long as there is a support which is constructed and arranged for mounting with respect to the socket to prevent unauthorized removal of the support, and the frames 15 are secured to the support and having respective parts approaching each other beyond the end of the lamp bulb, the locking device engages these frames and forms them into a cage about the lamp bulb, and the ends of the frames are movable apart in different directions when unlocked, the details of the frames, the support and the locking device may be varied considerably without departing from the broad idea of the present invention. The invention therefore embraces such embodiments of the broad idea as fall within the scope of the appended claims.

I claim:

1. A lamp guard for an electric lamp bulb removably engaged in a lamp socket therefor, comprising a support constructed and arranged with respect to said socket to prevent unauthorized removal of said support, knuckles on said support angularly spaced therearound, wire loops having terminal portions aligned end to end to form pintles received on said knuckles, means on said support adjacent said knuckles for preventing lateral removal of said pintles, said loops having other respective portions approaching each other beyond the end of said lamp bulb, and a locking device engaging said loops and preventing pivotal

movement thereof and releasable to permit said pintles to turn in said knuckles, whereby said portions may be swung apart for authorized removal of said lamp bulb therebetween.

2. A lamp guard for an electric lamp bulb removably engaged in a lamp socket therefor, comprising a support annularly disposed about said socket, knuckles angularly spaced around said support having axes outside of said socket, inclosure loops having straight portions forming pintles received in said knuckles, said loops having sides extending from said flat portions and converging inward to terminals beyond the end of said lamp bulb, and key actuated means carried by one of said terminals and adapted to engage each of the other terminals to lock them all together to form a cage about said lamp bulb, said loops being released by unlocking said means to permit said terminals to be spread sufficiently for authorized removal or replacement of said lamp bulb.

3. A lamp guard for an electric lamp bulb removably engaged in a socket therefor, comprising a plurality of inclosure loops, means for supporting said loops in angularly spaced positions about the axis of said lamp bulb and socket, said loops converging beyond the end of said lamp bulb and terminating in bights, and a locking device for securing said loops together to form a cage about the lamp and comprising cooperating members each having a jaw engaging each of said loops, a screw swiveled in one of said members and engaging threads in the other for closing and releasing said members, and a spring associated with said members and opposing the movement of said jaws in one direction.

4. A lamp guard for an electric lamp bulb comprising in combination with a reflector, inclosure members carried by said reflector and extending in confining relation about said lamp bulb, and means for locking said members in position to form a cage about said lamp bulb, said members being released by unlocking said device, and constructed and arranged to be moved apart to permit removal of said lamp bulb therebetween.

5. A lamp guard for an electric lamp bulb in combination with a lamp well, comprising a support within said well, and loops mounted inside said well and extending in confining relation about said lamp bulb, means for locking said loops in position to form a cage about said lamp bulb, said locking means being accessible from outside of said well, and said loops being released by unlocking said device, and constructed and arranged to be moved apart laterally within the confines of said well to permit endwise removal of said lamp bulb therebetween.

6. A lamp guard for an electric lamp bulb removably engaged in a socket therefor, comprising a plurality of apertured inclosure members angularly spaced about the axis of said bulb and socket, the ends of said members adjacent said socket being mounted to permit the other ends to spread for the passage of said bulb therebetween, articulated securing means extending between at least one opposite pair of said inclosure members constructed and arranged to maintain said pair in spaced relation and hooking into the apertures thereof to form a cage about said bulb and key actuated locking means for retaining said articulated means in engagement with said apertures.

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