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LAMP GUARD AND REFLECTOR UNIT

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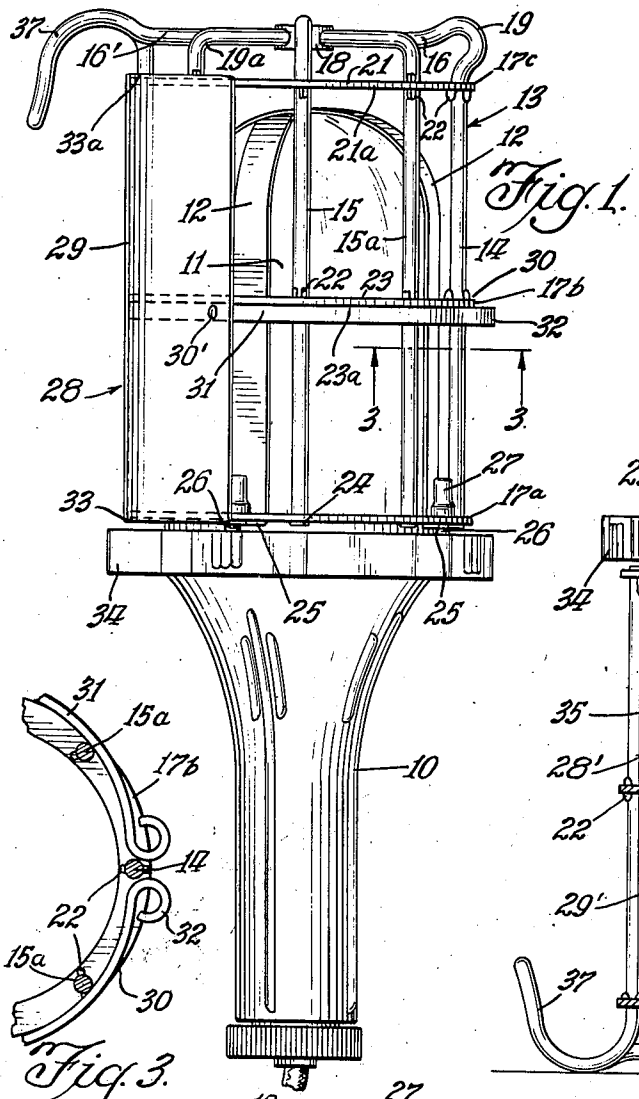


Fig. 1.

Fig. 3.

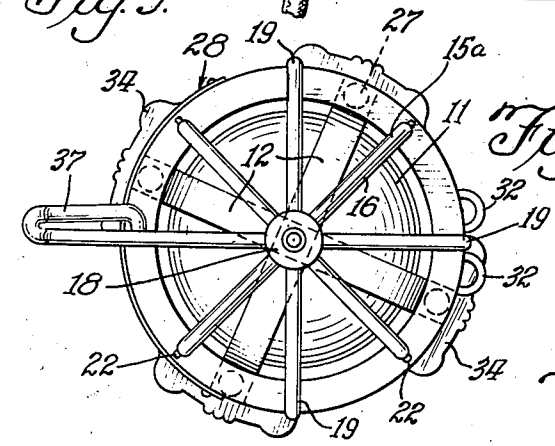


Fig. 2.

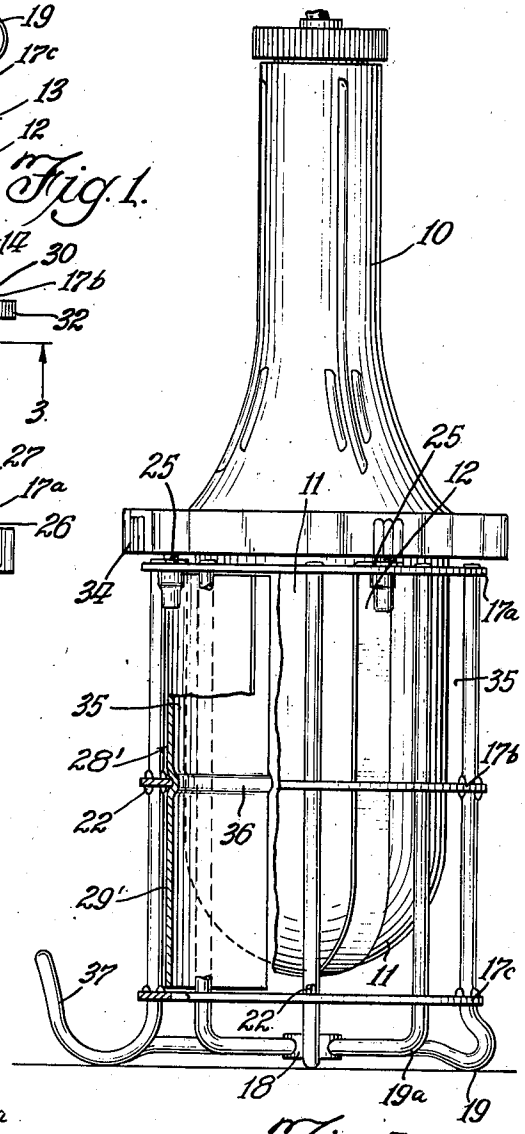


Fig. 4.

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LAMP GUARD AND REFLECTOR UNIT

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4 Claims. (Cl. 240—54)

This invention relates generally to illuminating devices and particularly to a guard and reflector unit for a portable lamp.

It is an object of this invention to provide an improved combination guard and reflector unit for a portable lamp.

Another object of this invention is to provide a guard and reflector unit for a portable lamp in which the reflector means is releasably assembled with the guard means and in assembly position is adjustably movable about the circumference of the guard means.

A still further object of this invention is to provide a guard for a portable lamp which is simple in design, rugged in construction and integrally formed with leg portions capable of supporting the lamp in a standing position and a hook portion for hanging the lamp.

Another object of this invention is to provide a guard and reflector unit for a portable lamp in which the guard means is comprised of longitudinally extending wire members, retained in an arcuately spaced relation by a retaining ring having a circumferential portion extending away from the wire members. A segmental arcuately shaped reflector plate of a length substantially coextensive with the wire members is slidably movable on the circumferential portion of the retaining ring, with means being provided for adjustably supporting the reflector plate on the guard means.

Further objects, and advantages of this invention will become apparent from the following description when taken in connection with the accompanying drawing in which:

Fig. 1 is a front elevational view of a portable lamp showing the combination guard and reflector unit in assembly therewith;

Fig. 2 is a plan view of the lamp assembly shown in Fig. 1;

Fig. 3 is a fragmentary sectional view as seen along the line 3—3 in Fig. 1 showing the adjustable assembly of the reflector with the lamp guard means; and

Fig. 4 shows a modified form of the reflector and guard of Fig. 1, with the guard means being shown supporting the lamp in a standing position.

Referring now to the drawing there is illustrated in Fig. 1 a portable vapor proof lamp including a molded handle 10, and a glass bulb or globe 11 supported on one end of the handle member and retained in assembly position thereon by metal bands 12. While the lamp is illustrated as of vapor proof type it is to be understood that the novel guard and reflector means of this invention, now to be described, may be applied to other type portable lamps.

The guard means designated generally as 13, is comprised of a plurality of wire members 15 and 15a composed of a suitable metal such as a brass alloy, and each of which is integrally formed with a longitudinally extending portion 14 and an end portion 16 bent substantially normal to the longitudinal portion 14. The wire members 15 and 15a are supported in an angularly spaced relation about the longitudinal axis of the lamp, and hence also of the guard means 13, by flat retaining or supporting rings 17a—17c, similarly provided with circumferentially spaced apertures adapted to receive therein corresponding longitudinal portions 14 of the wire members 15 and 15a. The bent end portions 16 of the wire members 15 and 15a are directed inwardly toward the longitudinal axis of the lamp for connection together at such longitudinal axis by a common connecting member 18. As is clearly evident from Fig. 1 the length of the longitudinal portions 14 is greater than the longitudinal length of the glass bulb 11 so that the bent end portions 16 of the wire members 15 and 15a enclose the free end of the glass bulb 11. The bent portions or bends 19 in the alternate wire members 15 are of an extended arcuate form relative to the bends 19a in the remaining wire members 15a, so as to project longitudinally and laterally of the guard means 13 beyond the limits of the bends 19a to serve as feet upon which to support the complete unit as shown in Fig. 4.

In the assembly of the guard means 13 the portions 14 of the members 15 and 15a are first inserted through corresponding apertures in the ring 17c, which is then slidably moved upwardly on the portions 14, as viewed in Fig. 1, until the flat side 21, thereof, is in a stop position substantially adjacent the bends or feet 19. This stop position is defined by the frictional engagement of the ring 17c with the laterally extending parts of the bends 19, the stopping action of the bends 19 being supplemented by radially extending stop portions 22 integrally formed on the portions 14 of the wire members 15a as by swedging, or pinching. The ring 17c is retained against movement in an opposite direction or downwardly on the portions 14, as also viewed in Fig. 1, by stop portions 22 formed on all of the wire members 15 and 15a in abutting engagement with the side 21a of the ring 17c. Rings 17a and 17b are connected with the members 15 and 15a in a manner similar to that of the ring 17c, with

the ring 17b being positioned substantially intermediate the ends of the longitudinal portions 14 and held in a fixed position thereon by stop projections 22 formed to engage the opposite sides 23 and 23a of the ring 17b (Figs. 1 and 3). The ring 17a is arranged at the free ends 24 of the portions 14, which ends are suitably peened or otherwise formed to prevent the ring 17a from slipping off of the wire members 15 and 15a.

The guard means 13 is connected with the handle portion 10 by means of screws 26 angularly spaced in the handle portion 10 and extended upwardly through the ring 17a and foot portions 25 on the metal bands 12 through aligned corresponding apertures formed therein. Nuts 27 are operatively associated with the screws 26 and when tightened down engage the ring 17a to draw the guard means 13 into assembly position with the handle portion 10. By virture of the relative assembly of the rings 17a—17c and the wire members 15 and 15a all portions of the guard means are rigidly secured together in fixed positions and adapted for rigid assembly with the handle portion 10 to provide a sturdy guard means for the glass portions of the lamp.

In the use of portable lamps it is well known that the lamp is generally moved to a position in close proximity to the zone of working operation, so that unless the light from the lamp is properly reflected or shielded careful work is greatly impaired due to the continuous glare therefrom. It is desirable, therefore, apart from protecting the glass portions of the lamp from injury that reflector means be provided for the protection of the eyes of the user, and for a proper concentration of light over the zone of working operations. The reflector means 28 in the present invention is adapted for assembly with the guard means 13 as a complete unit, and includes a reflecting plate 29 of an arcuate form corresponding to the circumference of the rings 17a—17c. The plate 29 is of an arcuate length equal to substantially about one-third of the circumferential length of the rings 17a—17c, and of a longitudinal or axial length substantially coextensive with the length of the longitudinal portions 14 of the wire members 15 and 15a. Substantially intermediate the longitudinal ends 33 and 33a of the reflector plate 29 is a split spring ring 31 adapted to extend about the guard means 13 and provided at the split therein with finger gripping portions 32. From a consideration of Figs. 1 and 3 it is seen that the split ring 31 is of a thickness radially substantially equal to the circumferential portion 30 of the rings 17a—17c, which extends radially outwardly from the wire members 15 and 15a.

In the assembly of the reflector means 28 with the guard means 13 the finger portions 32 on the split ring 31 are spread apart an amount sufficient to provide for the slipping of the ring 31 about the guard means 13. As shown in Fig. 1 the spring ring 31 is secured to the reflector plate 29 by rivets 30' or the like such that when the plate 29 is coextensive with the longitudinal portions 14, the ring 31 is positioned directly below the ring 17b and in sliding engagement with the under side 23a thereof, as viewed in Fig. 1. This engagement of the ring 31 relative to the retaining ring 17b limits the longitudinal movement of the reflector means 28 in one direction relative to the guard means 13, with its movement in an opposite direction being defined by the engagement of the end 33 of the reflector plate 29 with the annular flange 34 on the handle portion 10. By virture of the split ring being of a thickness substantially equal to the circumferential ring portion 30, the inner periphery of the reflector plate 29 is in slidable engagement with the outer periphery of each of the rings 17a—17c, with the resilience in the split ring 31 serving to frictionally engage the reflector plate 29 and the rings 17a—17c so that the reflector means 28 is adjustably movable and retained in any position to which it is moved about the guard means 13. The reflector means 28 is thus positively assembled with the guard means 13 for movement as a unit therewith, and adjustably movable on the guard means to any desired position on its circumference.

A modified form of reflector means adapted for assembly with the guard means 13 is shown in Fig. 4, the guard means 13 being similar in all respects to the guard means in Fig. 1. Referring to Fig. 4 the reflector means 28' is comprised of a reflector plate 29' having an arcuate shape corresponding substantially to the inner periphery of the retaining rings 17a—17c and a length substantially co-extensive with the length of the longitudinal portions 14 of the wire members 15 and 15a. In the assembly of the reflector means 28' with the guard means 13, the reflector plate 29' is inserted within the guard means 13' in an annular space 35 formed between the longitudinal portions 14 and the metal bands 12 surrounding the glass cover or bulb 11. It is apparent, of cuorse, that when metal bands 12 are not utilized, the inner side of the annular space 35 will be defined directly by the glass cover 11, or directly by a lamp when no cover is used. The reflector plate 29' is formed with a circumferentially extending recess 36 substantially intermediate the ends thereof which is adapted to receive in sliding engagement the inner peripheral portion of the retaining ring 17b. The reflector plate 29' is thus held in sliding engagement with the ring 17b by virtue of its position in the space 35 between the portions 14 and the metal bands 12, and in a fixed position longitudinally of the guard means 13 by the mating engagement of the ring 17b and recess 36. The annular space 35 provided between the metal bands 12 and the portions 14 is of a size such that the reflector plate 29' is freely movable about the guard means 13 in sliding engagement with the ring 17b without becoming disengaged from the ring 17b. Adjustment of the reflector means 28' circumferentially about the guard means 13 is accomplished by inserting the fingers between the wire members 15 and 15a and then pushing the reflector means to any desired position.

As previously mentioned the wire members 15 are provided with ends 19 which project laterally and longitudinally of the guard 13 beyond the confines of the bends 19a on the wire members 15a. This construction of the bends 19 provides legs or feet which are capable of supporting the lamp in a standing inverted position as shown in Fig. 4. Although four of the wire members 15 are shown with supporting legs or bends 19 it is to be understood that only three legs could be used with equal satisfaction.

With reference to Figs. 1 and 2 one of the wire members 15 is shown as being integrally formed with a hook portion 37 for suspending the lamp. The portion of the wire forming the hook 37, as shown particularly in Fig. 2, is projected longitudinally outwardly from the guard means 13 a distance equal to the bends 19, so as to also function as a supporting leg for the lamp, and is then

bent laterally downwardly to the left as viewed in Fig. 1, reversely bent in following contour with the hook portion 37 and extended to the connecting member 18. The hook portion 37 is thus formed integrally with the guard means 13 with the reverse bending of the wire member from which it is formed increasing its rigidity and strength so as to eliminate any possibility of its being broken off or damaged over a long service life.

From a consideration of the above description and drawings it is seen that the invention provides for a combination guard and reflector unit for a portable lamp which is simple in design, rugged in construction and adapted to provide for either the suspension of the lamp, or the support of the lamp in a standing position. The reflector means is operatively assembled in releasable connection with the guard means and in its assembly position is simply and easily moved about the circumference of the guard means to any desired position.

It is to be understood that although the invention has been described with specific reference to several preferred embodiments thereof it is not to be so limited, since the parts thereof and their relative arrangement can be changed in a manner which is within the full intended scope of this invention as defined by the appended claims.

I claim:

1. A guard unit for a portable lamp including in combination a plurality of longitudinally extending members converging to a common center at one end, with certain of said members being bent substantially at right angles and deformed into feet portions to support said guard unit and lamp at such one end on a substantially horizontal surface, a one-piece ring member rigidly secured on said guard unit at said one end having annularly spaced apertures therein with each member in a corresponding aperture and with said ring positioned immediately adjacent said feet and maintained at one side against movement toward said one end by the bend of said feet, and with said members having stop portions integral therewith on the other side of said ring to maintain said ring against movement on said members away from said one end, said ring acting to maintain all of said longitudinally extending members in fixed annular spacing and acting to maintain rigid said feet portions on certain of said members.

2. A combination guard and reflector unit for a portable lamp device including a plurality of longitudinally extending members converging to a common center at one end and adapted for mounting at the other end on the portable lamp device, said members serving collectively as a lamp guard and having an inner side and an outer side, an annularly extending ring rigidly secured to said members intermediate said one and said other ends and positioned in a plane at right angles to said longitudinally extending members, and reflector means including an arcuate reflector plate mounted on said lamp guard on one of said sides thereof and manually adjustable annularly on said side, said reflector means being deformable for removal from or insertion on said lamp guard, and said reflector means having an arcuate portion intermediate its ends for mating engagement with said annularly extending ring to guide the reflector means upon annular adjustment thereof and to limit its movement longitudinally of said guard unit when in a normal non-deformed condition.

3. In a portable lamp guard unit having longitudinally extending side members with a securing ring intermediate the ends thereof and in a plane at right angles thereto, reflector means for said guard unit including an arcuate reflector plate positionable on the outside of the guard unit members and adjustable annularly relative thereto, said reflector means including a yieldable finger gripping portion extending from each of two sides of said reflector plate to grip the outside of said guard unit to retain the reflector means thereon with said gripping portions secured to said reflector plate at a position intermediate its ends corresponding to the position of the securing ring on the guard unit substantially for mating engagement with said ring when the reflector means is on the guard unit.

4. In a portable lamp guard unit having longitudinally extending side members with a securing ring intermediate the ends thereof and in a plane at right angles thereto, reflector means for said guard unit including an arcuate reflector plate positionable on the inside of the guard unit members and adjustable annularly relative thereto, said reflector plate having an arcuate groove intermediate its ends for mating engagement with the guard unit securing ring to guide the reflector plate as it is adjusted, said reflector plate being deformable arcuately for movement in and out of the mating engagement.

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