

Nov. 7, 1967

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3,351,750

LIGHTING APPARATUS

Filed March 29, 1965

2 Sheets-Sheet 1

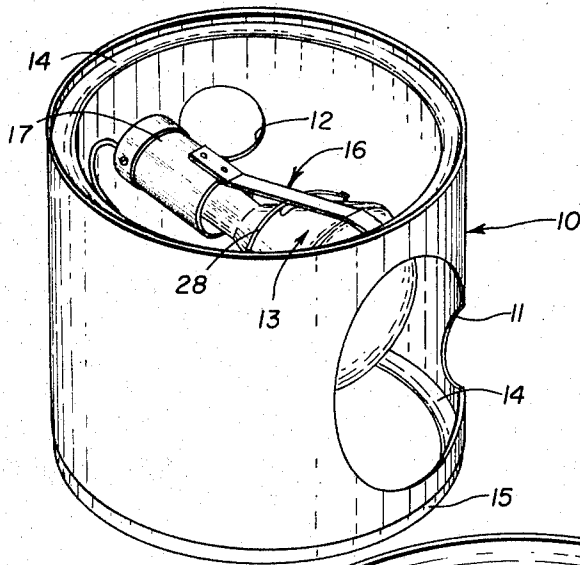


Fig. 1

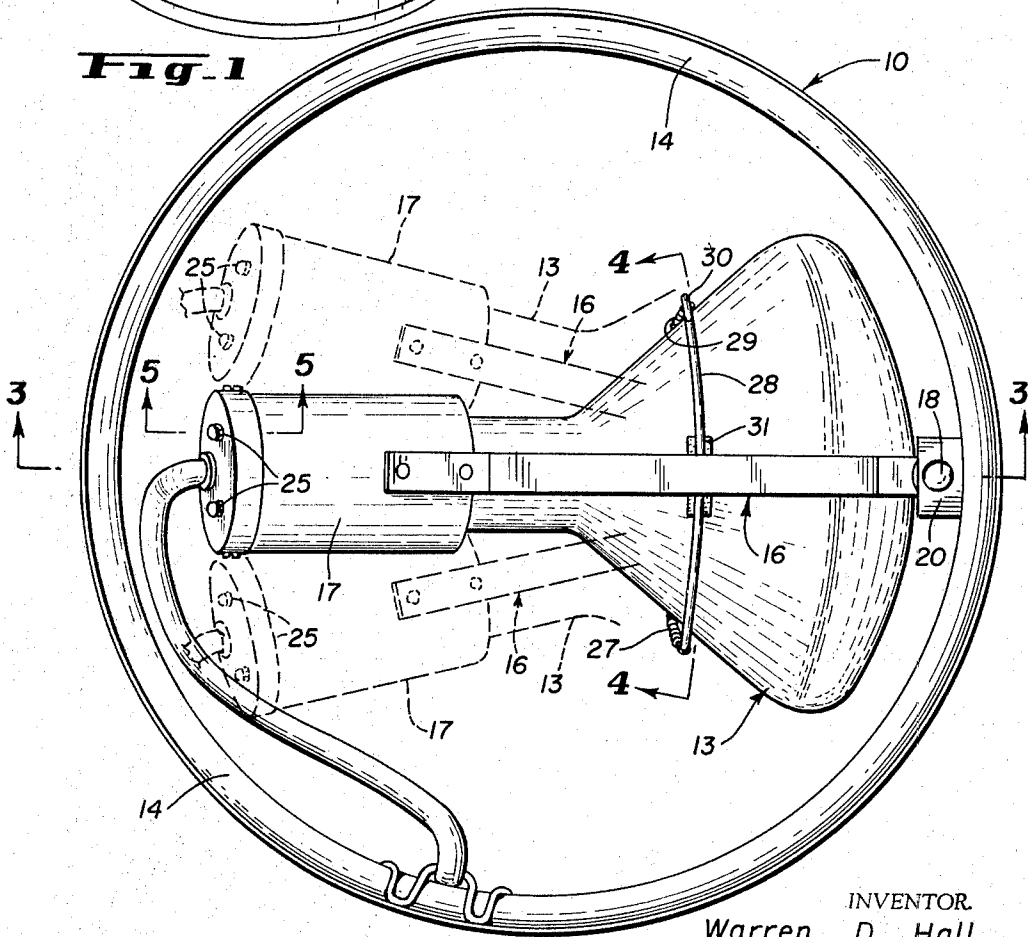


Fig. 2

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2 Sheets-Sheet 2

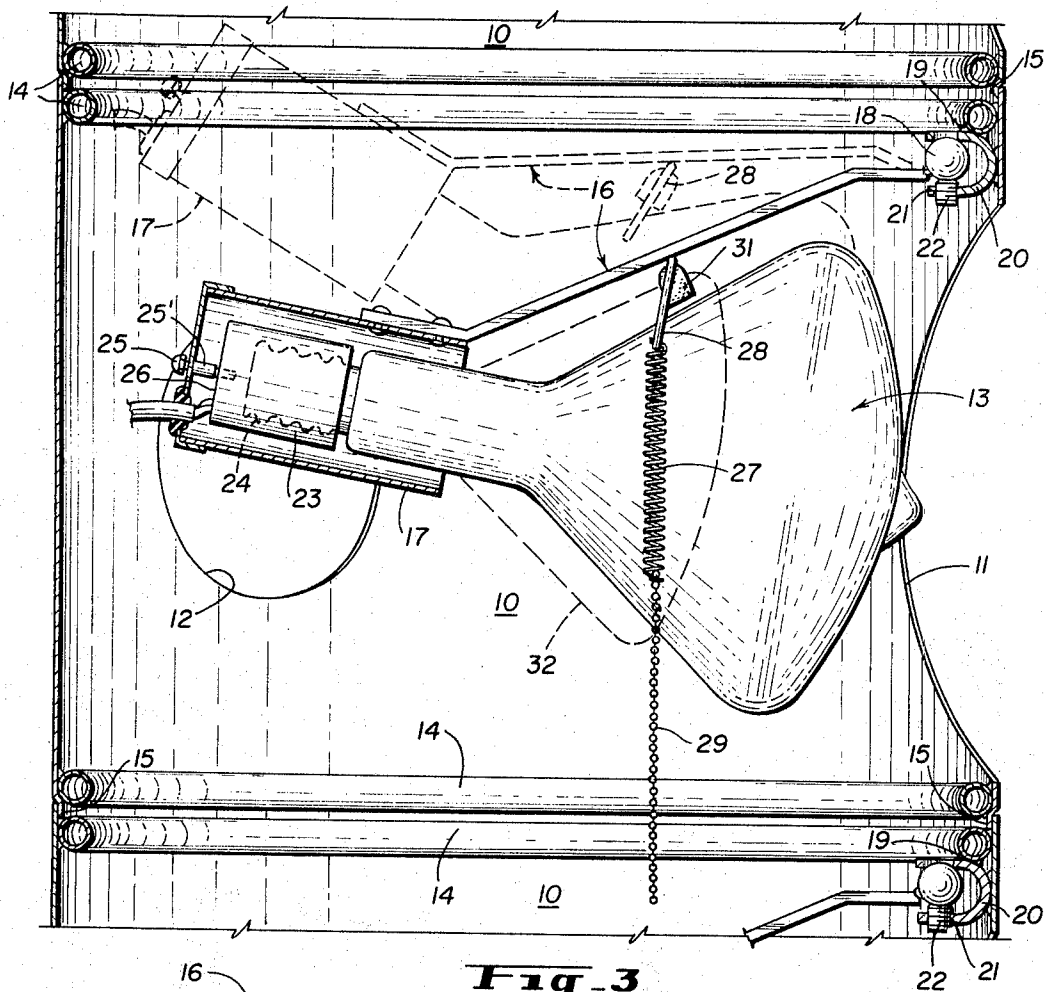


Fig. 3

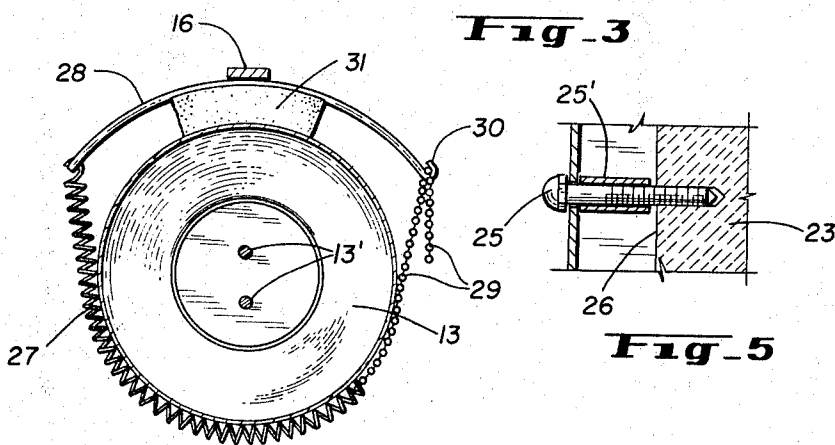


Fig. 4

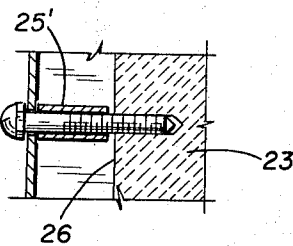


Fig. 5

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LIGHTING APPARATUS
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 Filed Mar. 29, 1965, Ser. No. 443,499
 13 Claims. (Cl. 240—3)

ABSTRACT OF THE DISCLOSURE

Lighting apparatus comprising a generally cylindrical shade provided with a side opening for passage of light rays therethrough, an elongated bracket within the shade pivotally connected at one end to the shade adjacent said opening for retaining the bracket in adjusted position, a socket casing connected to the opposite end of the bracket, a socket floatingly mounted in the casing and a lamp having an end mounted in the socket. The bracket is provided with yielding means for engaging the lamp to retain it in selected position relatively to the socket casing to relieve the lamp of excessive strain. A second access opening is located less than 180° from the center of the first opening for access to the lamp by both hands of a worker. Several lamp units may be stacked vertically and connected by means within the shades.

This invention relates to lighting apparatus, and more particularly to apparatus for lighting large areas, such as the parking lots and grounds adjacent shopping centers, restaurants, carlots, theaters, and other places where highly efficient lighting is required for the protection and convenience of pedestrians and motorists, and for attracting customers to commercial establishments. For these purposes, mercury or incandescent lamps are mounted, singly or in groups, on tall standards anchored in the ground or in concrete bases.

One of the objects of the invention is to provide means for facilitating the installation and maintenance of lamps in apparatus of the kinds described herein.

Another object is to provide mechanism for supporting the lamps and for adjusting their positions laterally and vertically relatively to their supports.

Another object is to provide a lamp socket floatingly mounted in a casing, and to provide a bracket to which the casing is connected. The bracket is so constructed and proportioned that different sized lamps known as R60 and R80 can be supported thereby without alteration or adjustment of the bracket. A bracket of the same form as that shown, but smaller in size, may be used for R40 lamps.

Another feature of the invention is a swivel joint between the bracket and its support whereby the bracket may be manually adjusted and fixed in selected position to thereby mount the lamp at desired angles relatively to its support.

A further object of the invention is to provide means on the bracket for yieldingly engaging the lamp and retaining it in selected position relatively to its socket casing, thereby relieving the lamp of excessive strain.

The major adjustment of the position of the lamp is obtained by means of the swivel joint between the lamp supporting bracket and the bracket support, and auxiliary adjustment is achieved by the yielding means between the bracket and lamp by which the floatingly mounted socket position may be changed relatively to its casing.

Another object of the invention is to provide supporting means for the bracket and lamp (or for a plurality of brackets and lamps) which also serves as a shade for the lamps. The shade preferably is cylindrical in cross section and is provided with openings, one for each lamp, for passage of light rays therethrough. A smaller coop-

erating opening is provided for each light passage opening, said second opening being located less than 180° from the center of the first opening for access to the rear or socket end of the lamp. The relative locations of the two openings are designed for convenient access to the lamp by both hands of a worker. This is an important consideration when the lighting apparatus is located at the top of a tall standard accessible only to a worker standing on a tall ladder. The smaller second opening associated with each lamp serves for pleasing observation of reflected light, as well as for the access purposes mentioned.

Another object of the invention is to provide single lamp units which can be stacked, one on top of the other, and be connected together in selected positions whereby the light ray passage openings face in the same or different directions as desired. Each of said units comprises a lamp, a bracket, and a shade member which also constitutes the support for the lamp and bracket. The shades are stacked in such manner that the outer surfaces are flush, and means for connecting the units together are located on the inner side of the units.

Other objects and advantages of the invention will be apparent from the drawings and following specification.

In the drawings:

FIG. 1 is an isometric view of lighting apparatus embodying my invention.

FIG. 2 is a top plan view of the apparatus, on an enlarged scale as compared to FIG. 1, the broken lines showing the lamp, socket casing and supporting bracket in different lateral positions relatively to the shade.

FIG. 3 is a vertical sectional view in the plane of the line 3—3 of FIG. 2, the broken lines showing the lamp, socket casing and bracket in a different vertical position relatively to the shade. Broken lines also indicate a smaller lamp which may be mounted in the socket casing and be supported by the bracket in place of the lamp shown in full lines.

FIG. 4 is a transverse vertical sectional view in the plane of the line 4—4 of FIG. 2.

FIG. 5 is a vertical sectional view showing part of the lamp socket casing, in the plane of the line 5—5 of FIG. 2.

In the preferred embodiment of my invention shown in the drawings, the shade 10 is shown as cylindrical in horizontal cross section, and of a height suitable for shading and supporting a single lamp. The shade may be made integral or in a number of units to accommodate more than one lamp. Lamps may be arranged in vertical groups wherein they face in the same or different directions. The cross sectional form of the shade may vary, for example, it may be cylindrical, hexagonal or other form. As shown, the shade has a large opening 11 for passage of light rays, and a smaller opening 12 which together with the opening 11 provide access to the lamp 13. The opening 12 also serves for observation of reflected light. The openings 11 and 12 are located at less than 180° from each other for convenient entry of both hands of a worker through the openings into contact with the lamp and associated parts within the shade 10. The lamp filaments are indicated at 13' in FIG. 4.

The shades 10 are reinforced internally by rings 14 welded or otherwise connected to the inner surfaces of the shades. The rings may be made of hollow tubing. If the shades 10 are made in one lamp sections, the lower edge 15 of each section is slightly offset so as to fit within the upper edge of an adjacent section. Any suitable clamping means (not shown) engaging the rings 14 of adjacent shade sections holds the sections 10 together in selected positions so that the light ray openings 11 face in desired directions.

A bracket 16 for supporting a lamp 13 has connected to one of its ends a socket casing 17, and at its other end a ball 18 is welded as indicated at 19. The ball is engaged by a U-shaped fixture 20 rigidly connected to the inner surface of a shade 10 above the opening 11. The bracket supporting fixture 20 has a threaded aperture 21 in which is located an adjusting screw 22 for engaging the ball 18 on the bracket 16 for adjusting the angular position of the bracket and holding the bracket and lamp in selected position.

The socket casing 17 has floatingly mounted therein an internally threaded socket 23 for reception of the end 24 of the lamp 13. The socket 23 is floatingly mounted by means of the screws 25 which extend through the end of the casing 17 into the closed end 26 of the socket. Spacers 25' on the screws 25 allow sufficient play between the parts to permit the socket 23 and lamp mounted therein to move relatively to the casing 17 and bracket 16.

A yielding member in the form of a coiled spring 27 has one end attached to a cross bar 28 fixed on the bracket 16. The spring 27 is designed to underlie and support the lamp 13 when the chain 29 attached to the spring 27 is fastened to the hook 30 on cross bar 28. A pad 31 of soft material may be inserted between the lamp and the bracket.

In FIG. 3, the broken lines 32 indicate a smaller size lamp which is supported by the same bracket as that used for the larger lamp 13.

Changes may be made in details of construction and form of parts without departing from the scope of the appended claims. For example, the shade 10 has been referred to as generally cylindrical in form, and this is intended to include shades which are round or hexagonal or other form in cross section.

I claim:

1. Lighting apparatus for lighting large areas comprising

- (a) a generally cylindrical shade provided with a side opening for passage of light rays therethrough,
- (b) an elongated bracket,
- (c) means pivotally connecting one end of the bracket to the shade and for retaining the bracket in adjusted position,
- (d) a socket casing connected to the opposite end of the bracket,
- (e) a socket floatingly mounted in the socket casing,
- (f) a lamp having an end mounted in said socket, and
- (g) yielding means engaging the lamp and connected to the bracket for supporting the lamp and socket in adjusted position relatively to the socket casing.

2. Lighting apparatus defined by claim 1, in which the means pivotally connecting the bracket to the shade comprises a fixture rigidly mounted on the shade adjacent the opening therein, and swivel means connected to the bracket for engagement by the fixture.

3. Lighting apparatus defined by claim 1, in which the yielding means engaging the lamp is a coiled spring, and includes a cross bar mounted between its ends on the bracket, said coiled spring having one end connected to the cross bar and the other end detachably connected to the cross bar.

4. Lighting apparatus defined by claim 1, in which the shade is provided with a second opening located less than 180° from the first opening for access of both hands of a worker into the interior of the shade.

5. Lighting apparatus for lighting large areas comprising

- (a) a generally cylindrical shade provided with a side opening for passage of light rays therethrough,
- (b) an elongated bracket within the shade,
- (c) means within the shade accessible through said side opening pivotally connecting one end of the bracket to the shade adjacent said opening and for retaining the bracket in adjusted position,

(d) a socket casing connected to the opposite end of the bracket,

(e) a socket in the casing, and

(f) a lamp having an end mounted in the socket.

6. Lighting apparatus defined by claim 5, in which the means pivotally connecting the bracket to the shade comprises a U-shaped fixture connected to the shade, a ball connected to the bracket for engagement by the fixture, and an adjusting screw extending through the U-shaped fixture into contact with the ball.

7. Lighting apparatus defined by claim 5 which includes means floatingly connecting the socket in the socket casing, comprising screws extending through the casing end and into the socket, and spacers around the screws spacing the socket from the casing.

8. Lighting apparatus defined by claim 5 which includes yielding means engaging the lamp and connected to the bracket for supporting the lamp and socket in adjusted position relatively to the socket casing.

9. Lighting apparatus for lighting large areas comprising

(a) a generally cylindrical shade provided with an opening for passage of light rays therethrough,

(b) a fixture rigidly secured to the inner surface of the shade adjacent said opening,

(c) an elongated bracket,

(d) swivel means attached to one end of the bracket for swivel engagement with the fixture for supporting the bracket in selected angular position relatively to the shade,

(e) a socket casing connected to the opposite end of the bracket,

(f) a cross bar fixed on the bracket between said socket casing and swivel carrying end, said bar extending laterally in opposite directions from the bracket,

(g) a socket floatingly mounted in the socket casing,

(h) a lamp having an end mounted in said socket, and

(i) yielding means engaging the lamp, said means being connected at opposite ends to said cross bar for adjusting the angular position of the lamp and socket in the socket casing and relieving the lamp of excessive strain adjacent its mounting in the socket.

10. The lighting apparatus defined by claim 9, in which the shade is provided with a second opening located in approximately the same horizontal plane as the first opening and less than 180° from said first opening.

11. The lighting apparatus defined by claim 9, which comprises a plurality of said shades stacked one on top of another, each of said shades having mounted therein one of said lamps and supporting brackets.

12. The lighting apparatus defined by claim 5, in which the shade is provided with a second opening located in approximately the same horizontal plane as the first opening and less than 180° from said first opening for access to the lamp by both hands of a worker.

13. The lighting apparatus defined by claim 5, which comprises a plurality of said shades stacked one on top of another, each of said shades having mounted therein one of said lamps and supporting brackets, and means connecting said shades together.

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