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G. ARRAS

2,299,870

ELECTRIC FIXTURE

Filed March 23, 1940

Fig. 1.

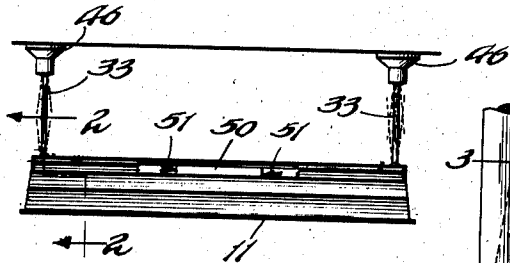


Fig. 6.

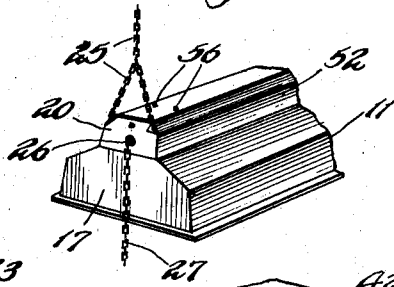


Fig. 2.

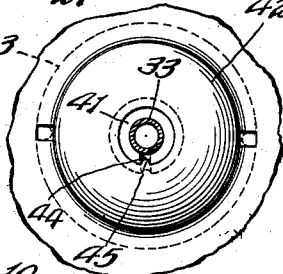
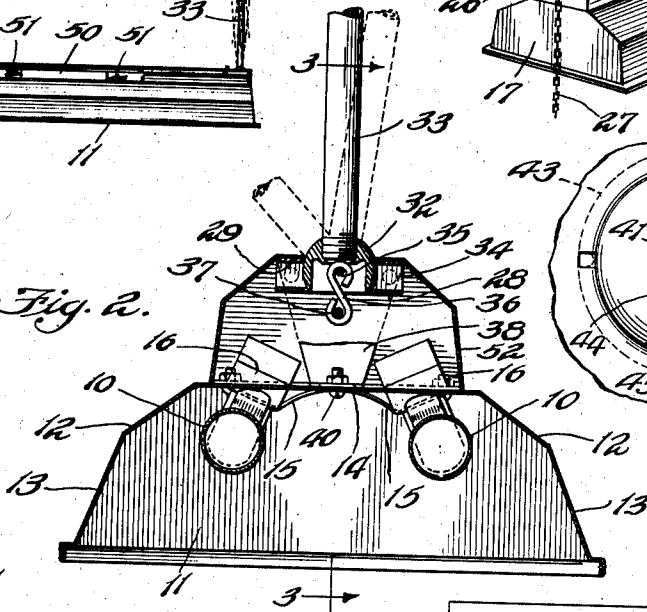


Fig. 4.

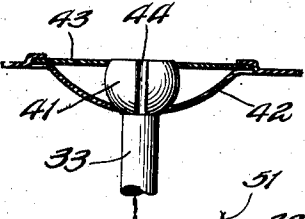


Fig. 5.

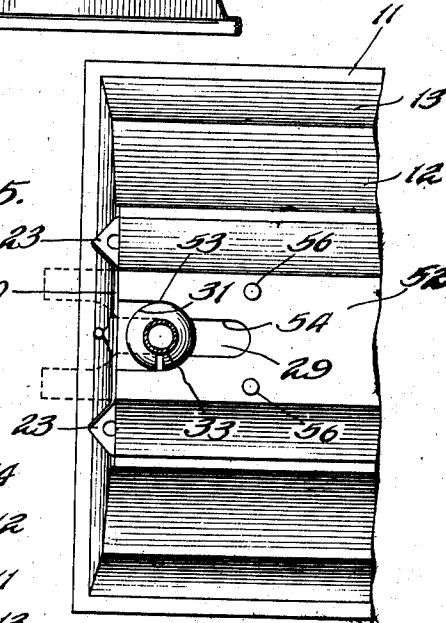
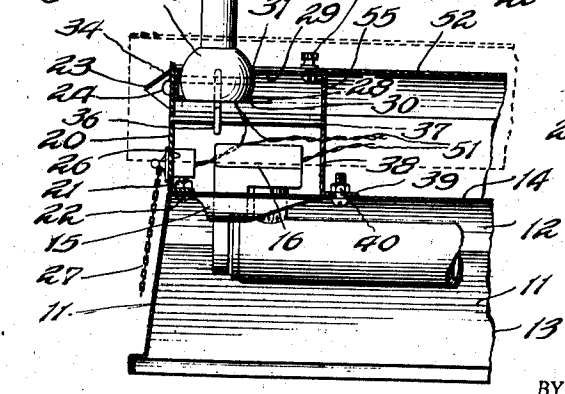


Fig. 3.



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UNITED STATES PATENT OFFICE

2,299,870

ELECTRIC FIXTURE

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11 Claims. (Cl. 240—78)

This invention relates in general to an electric fixture but has more particular reference to a fixture for tubular lamps of the direct horizontal type.

An important object of the invention is in the provision of a fixture of this type provided with a removable cover hood in which the weight of the fixture is carried by supports attached to the reflector, and not by the cover hood.

A further object of the invention is in the provision of tubular means for supporting the reflector to swing endwise or laterally in a limited universal movement, thereby allowing it to yield upon a striking movement in either direction.

A further object of the invention is in the provision of a supporting mounting which need not be spaced the same distance at the top of the supports as it is at the connection of the supports with the reflector.

A still further object of the invention is in the provision of a hood removable separately from the fixture without taking down or dismantling the other parts of the fixture whereby the wiring is freely accessible.

A further object of the invention is in the provision of a supporting end plate at either end to which a supporting chain may be attached.

Other and further objects of the invention will appear hereinafter, the preferred invention being illustrated in the accompanying drawing, in which

Fig. 1 is a side elevation of a fixture of this type supported at both ends by rigid stems and swivel joints at the top and bottom;

Fig. 2 is a sectional view of one end of the fixture as taken on line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 2 showing the swivel supporting means at one end of the fixture;

Fig. 4 is a sectional detail showing the swivel connection with the supporting or outlet box at the upper end of the supporting stem;

Fig. 4A is a plan view of the outlet box from the under side of Fig. 4;

Fig. 5 shows a top view of one end of the fixture; and

Fig. 6 is a perspective illustrating one end of the fixture supported by a chain.

For installing the more recent type of tubular lamps or fluorescent tube fixtures, the tube mountings and the reflectors, particularly for a twin unit type of fixture is substantially standard, but the installation and supporting of an elongated fixture of this type presents certain difficulties and problems which the present invention overcomes.

In the present invention the fixture is supported by a rigid stem at each end having a swivel connection at the top and bottom so that the fixture will swing in any direction if engaged or struck to afford protection against such shocks, the end support extends to the reflector in which the lamp units are mounted rather than to a cover at the upper side of the reflector and the cover itself is fitted between the end supports so that it is readily removable for access to the end fittings and the switch, terminal, and transformer connections which are ordinarily concealed and enclosed by the cover.

Referring now more particularly to the drawing, a pair of tubular lighting units 10 are shown mounted in a reflector 11 preferably rectangular in shape with inclined sides 12 and 13 for reflecting purposes and with a flat bottom 14 except at the ends where a distorted and perforated portion 15 provides a support for the lighting tube end fittings 16 which disposes them at an angle to each other and to a central line between them as shown more clearly in Fig. 3, so that the lamps will be disposed apart in the reflector and the fittings more closely together in the space above the supporting bottom.

At each end of the fixture extending above the fittings 16 is a metal end plate 20 which is also called a guard and a guard plate, having an inwardly-turned flange 21 secured to the up-turned bottom of the reflector by fastening bolts 22 and having its upper corners 23 bent outwardly and the bent portions provided with perforations 24 so that a fixture chain 25 or a similar support may be optionally attached thereto if desired. In this end plate a pull switch 26 may be installed having an operating knob at the outside engaged by a pull cord or chain 27 extending below the fixture for convenient access thereto.

Attached to the inside of the mounting or guard plate 20 at each end of the fixture is a swivel mounting comprising a plate bent to provide spaced portions 28 and 29 having perforations 30 and 31 respectively therein for movably seating and containing a hollow spherical segment fitting 32 therein into which one end of a rigid stem or conduit pipe 33 is threaded. A connecting portion 34 of the plate which spaces the portions 28 and 29 apart is rigidly connected by soldering, brazing, spot-welding, or by other suitable fastenings, to the upper portion of the guard or end plate 20 and the fitting 32 is capable of an angular swinging movement in any direction limited by the engagement of the inserted pipe 33 with the upper edge of the opening 31.

To limit the rotation of the fitting 32 a cross pin 35 is inserted through the sides of the fitting which is engaged by one eye of an S link 36, the other eye loosely engaging a cross pin 37 extending from the guard or end plate 20 at one end to and through a downwardly bent extension 38 from the plate portion 29 which has a flange 39 at the bottom secured by a fastening device 40 to the central bottom portion 14 of the reflector thus substantially enclosing and protecting the fixture terminal fittings 16. At the other end of the stem as shown more clearly by Fig. 4 is a similar spherical fitting 41 into which the stem 33 is threaded, mounted for limited rotation in an outlet box top 42 which has a perforated disc 43 for maintaining the fitting 41 in place and the fitting has a groove 44 engaging with a projection 45 of the cover plate to limit the rotative movement of the fitting and of the stem 33 at this end of the stem.

Thus each supporting stem 33 is mounted for limited swinging movement at the top and also at the bottom so that the fitting thus supported may swing freely in any direction to an angular extent limited by the engagement of the connected stems with the perforations through which they extend. This also permits the supports represented by the cover plates 42 and supporting canopies 46 therefor to be spaced apart a greater or less distance than the actual spacing of the supports at the ends of the reflector itself so that if the ceiling or other means to which the supporting canopies are attached do not line up vertically with the supports at the ends of the fixture reflector, the supporting stems 33 may be inclined toward or away from each other at the bottom in order to make up the difference. For lighting fixtures of this type a transformer 50 is usually supplied which is connected directly to the fixture itself and this may be located directly upon the up-turned bottom 14 of the reflector between the end supports having conductors 51 which extend from a suitable source of supply through one of the conduit pipes or tubes 33 and to the switch 26 and the lamp terminals for properly connecting them to receive current from the transformer.

In order to enclose and protect the supports, fittings and transformer and to provide a suitable finish and enclosure for the parts of the fixture which would be otherwise exposed, a sheet metal cover or hood 52 is mounted or positioned on top of the reflector between the guard or end plates 20. It preferably comprises a sheet metal trough conforming in design to the reflector, open at the ends and fitting closely between the end plates 20, having a recess 53 opening from each end of a width and inner curvature substantially equal and matching with the opening 31 in the plate portion 29. Extending as a continuation from the inner end of each opening 53 is a recess 54 rounded at its inner end and conforming in shape and curvature to the size of the pipe or conduit 33. These openings 53, 54 are directly over the plate 29 and are filled or closed by the plate when the cover or hood is in proper position on the reflector. The hood is attached in place at each end by studs 55 secured to the plate portion 29 and extending through it and through appropriate holes in the cover with knurled nuts 56 threaded on the upper end of the studs for holding the cover in place.

To remove the cover for closing the wiring or fittings the nuts 56 are removed, one end of the cover is raised to free it from engagement with

its end plate, and the whole cover is moved endwise until the reduced recess 54 at this end embraces the pipe 33. At this time the other end of the cover is moved inwardly clear of the supporting stem and can be swung laterally free from the reflector and thereafter bodily removed. To re-seat the cover the action is just reversed.

With this construction a reflector may first be fitted with the lamp units and then the end plates with their attached mounting plates may be connected thereto or the lighting units may be installed after the fixture is hung in place, as the parts are all freely accessible by simply removing the cover or hood. When the fixture is installed it may swing lengthwise or transversely or the ends may swing in circles determined by the supporting tubes 33 and their swivel connections at top and bottom, but because of the engagement of the spherical members with the projection 45 at one end and the S link at the other end, these members will not become disengaged from the tube and conductors will not be twisted or damaged by such movement. If necessary or desirable to suspend either or both ends of the fixture by means of a chain instead of a fixed tube, the openings 53 and 54 will not be necessary as the chain is attached to the perforations of the corners 23 inside and clear of contact with the end of the cover so that it may be raised and removed by simply removing the fastening nuts 56. The movement permitted by the rigid conduit tubes 33 swiveled at both ends is the same as that permitted by a chain with a suitable support, but the tubular connection is stronger, it encloses any conductors, conforms more nearly to the appearance of a fixture of this kind and is desirable for modern industrial and commercial illumination.

I claim:

1. A lighting fixture comprising an elongated reflector, means for supporting it in a horizontal position comprising spaced hangers therefor, each hanger comprising a rigid pipe, a swivel connection at the upper end of the pipe, a swivel connection in the top of the reflector at the lower end of the pipe, and means comprising a hood extending between and engaging the lower swivel connections and supported by the reflector for covering the lower swivel connections and having a circular opening larger than each pipe for permitting a limited turning and swinging movement until said covering means is engaged by a pipe in its limiting position.

2. A lighting fixture comprising an elongated reflector, a rigid means at each end for supporting the reflector to swing a limited amount in any direction, said means comprising an end plate secured to and projecting upwardly from the reflector, a rigid pipe having a swivel connection at its upper end, a spherical fitting at its lower end and a bent plate having adjacent perforated portions in which the spherical member is rotatable, said plate being attached to the end plate and rigidly held thereby, and a hood extending between the pipes over the spherical fitting, the bent plate and the end plate and with recesses in the ends of the hood as wide as the pipes and allowing it to be moved endwise between the pipes to free one end for removal and replacement thereof.

3. In a lighting fixture, an elongated reflector for horizontal suspension, rigid means for supporting the reflector to swing a limited amount in any direction, lamp holders for lamps in the reflector supported on the outer side of the re-

flector bottom near the ends, end plates and guard plates secured to the reflector bottom and extending over the said holders, and a cover hood extending endwise of the reflector between the end plates and over the holders and guard plates with a recess at one end to receive said rigid means allowing the cover to move endwise and to free the cover from the rigid means at the other end.

4. A lighting fixture for tube lamps having an elongated reflector for horizontal suspension, lamp holders for the tubes extending to the upper side of the reflector at the ends, an end plate and a guard extending therefrom over the lamp holders and secured to the upper side of the reflector, the guard having a top plate with a perforation therein, a swivel hanger comprising a rigid pipe with a ball fitting at the lower end within the guard and engaged by the opening, and a hood extending over the guards and against the end plates at the top of a reflector, a recess at each end of the hood extending around the ball fitting and an extension thereof to receive the pipe so that the hood can be raised and moved endwise in either direction in engagement with the pipe to free the opposite end from its pipe support, and means for securing the cover to the guard independent of the hanger so that it is free from supporting engagement with the hood.

5. A lighting fixture in accordance with claim 4 in which the openings in the ends of the hood for facilitating its attachment and removal without disturbing the hangers are closed when the hood is applied over the guards at the ends by the extending top plate of the guard.

6. A tube lamp lighting fixture having an elongated reflector for horizontal suspension, lamp holders for the tubes extending through the bottom of the reflector at the ends, an end support and guard for each end of the reflector, a lighting transformer for the tube lamps located on top of the reflector between the guards, a hood extending over the guards and the transformer at the top of the reflector, and swivel hangers for each end of the reflector comprising a rigid pipe with a hollow ball fitting at the end mounted in the guard and extending through the end of the hood and free to swing with respect to the guard to a limited angle in any direction until the pipe engages the hood.

7. A lighting fixture for horizontal tubular lamps comprising an elongated reflector which opens downwardly and a swivel support at each end of the reflector comprising a support plate secured to the bottom of the reflector at the end, a mounting extending inwardly therefrom having parallel spaced and perforated portions, a swivel hanger comprising a hollow truncated ball fitting rotatable in the perforations of the spaced portions, a supporting stem extending into the ball fitting and limiting its swinging or angular movement in any direction by its contact with the perforated portion, and means comprising a hood extending over and engaging the stem of the ball fitting for limiting its angular movement about the axis of the supporting stem when the stem engages the edge of the hood opening around it.

8. A lighting fixture for tube lamps compris-

ing an elongated reflector, lamp holders for the tube extending through the bottom of the reflector, an end support for each end of the reflector comprising an end plate extending upwardly therefrom with angular corners bent outwardly and perforated, a guard plate extending from the end plate inwardly and secured to the bottom of the reflector, a transformer mounted on top of the reflector between the end supports having electrical connections for the tube lamps, a cover hood extending over the guard plates and against the end plates overlapping the transformer and the circuit connectors for the lamps, means for separately securing the hood to the guard plates, and an additional rigid hanger for each end comprising a hollow pipe and a ball fitting mounted in an opening in the guard plate and extending freely through the hood at the same point and allowing the stem to swing relatively to the guard plate until the pipe engages the edge of the opening in the guard plate.

9. In a lighting fixture for horizontal tubular lamps, an elongated reflector for a horizontal position, mounting means for the lamps extending to the upper sides of the reflector at the ends thereof, an end support and guard at each end over said mounting means, a swivel hanger in the guard and an opening in the guard with a stem extending through the opening for engaging the hanger from the outside of the support, and cover means extending over and around the swivel hanger for engaging the stem and limiting the swinging movement of the hanger in all directions.

10. A lighting fixture for horizontal tubular lamps, comprising an elongated reflector for horizontal suspension at its ends, lamp holders for the lamps attached to the wall of the reflector, a support and guard extending over the lamp holders at each end, a cover hood extending over and between the end supports, and means forming a rigid swinging support at each end comprising a swivel fitting mounted in the guard for limited swiveling movement and an opening through the guard and cover hood to loosely receive a rigid stem inserted into the swivel fitting from the outside of the cover, the engagement of the stem with the opening of the hood limiting the swinging movement.

11. In a lighting fixture for horizontal tubular lamps, an elongated reflector, means for supporting the reflector in inverted horizontal position, said means comprising a supporting guard attached to each end of the reflector, a cover hood extending over and between the guards, the guards and hood having matching openings at each end, a swivel member mounted in each guard, means within the guard for limiting the turning and swiveling movement of the swivel member therein, the swivel member being positioned in the openings, and a rigid stem inserted into the member from the outer side of the cover hood but free from supporting engagement with the cover, the reflector thus supported being free to swing to a limited extent in any direction until the stem engages the edge of the opening of the hood through which it extends.

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