Feb. 10, 1948. H. L. GOEBEL 2,435,679

REFLECTOR ASSEMBLY

Filed Jan. 24, 1944

Fig. 1

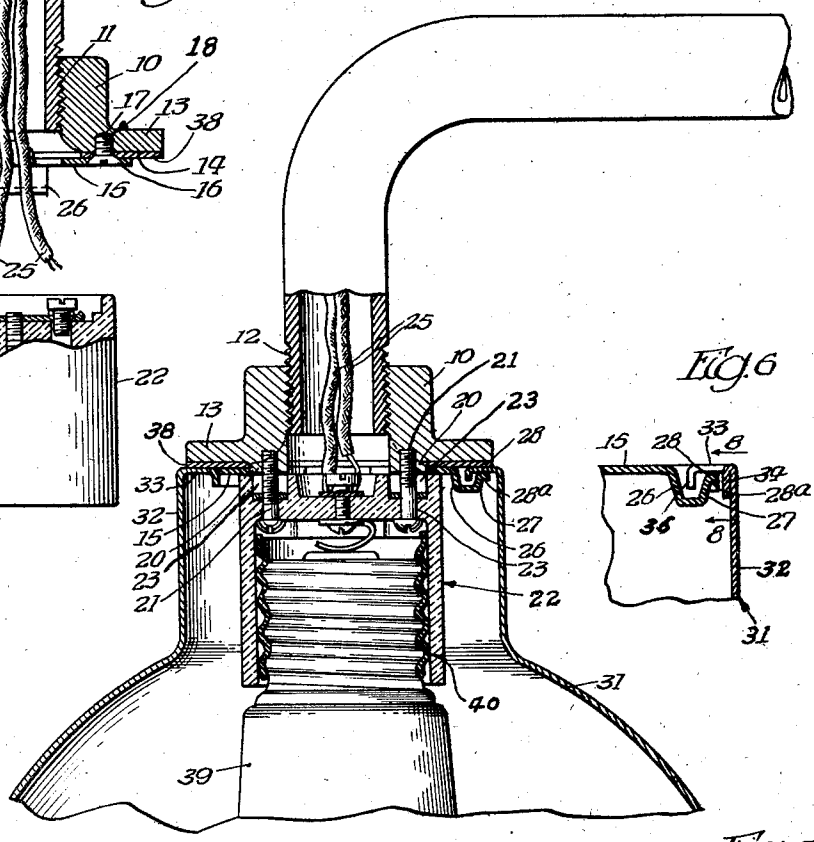


Fig. 2

Fig. 3

Fig. 6

Fig. 4

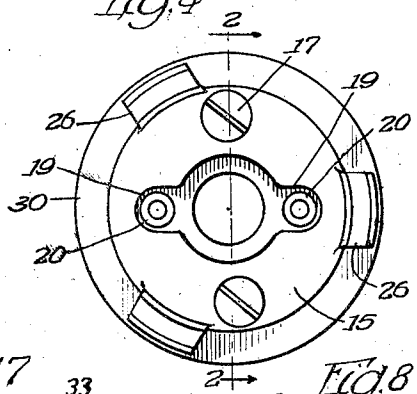


Fig. 5

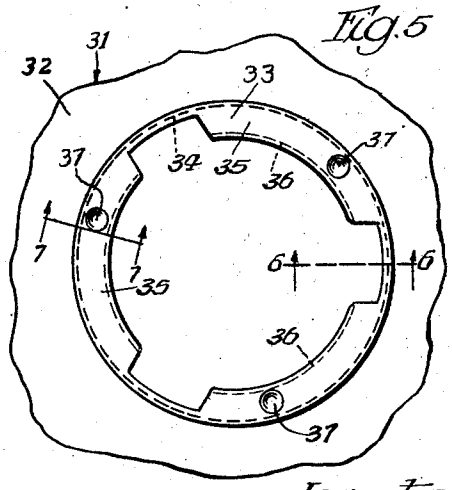


Fig. 7

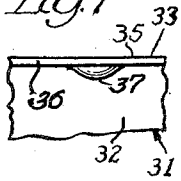
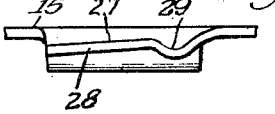


Fig. 8



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REFLECTOR ASSEMBLY

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8 Claims. (Cl. 240—1.43)

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This invention relates in general to a reflector assembly for electric lighting fixtures and more particularly to an assembly in which a lamp socket may be conveniently and expeditiously connected with an electrical outlet and the reflector may be readily mounted and locked in position and, with equal facility, unlocked and demounted.

An object of this invention is to provide compact, safe, simple and efficient means for quickly and securely mounting and locking a reflector in position on a lighting fixture with provision for unlocking and detaching it with like facility.

A further object of the invention is to provide means in such an assembly for facilitating the connection of a lamp socket with an electrical outlet and avoiding the exposure of loose conductors in such an outlet preliminary to the connection of the socket.

Other objects of this invention include the provision of novel means for mounting and securing a reflector in position on a lighting fixture and for detaching it therefrom without sparking incident to the breaking of an electrical circuit, thus avoiding the hazard of fire and explosion, particularly in buildings where explosive materials are stored or explosive gases accumulate.

Additional objects, advantages and capabilities inherent to this invention will be readily apparent from the description thereof which follows.

This invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embodiment of the invention, it is to be understood that the same are susceptible of modification and change without departing from the spirit of the invention.

The accompanying drawings illustrate a selected embodiment of the invention, and the views therein are as follows:

Fig. 1 is a fragmentary side view, partially in section, of a lighting installation including a reflector assembly embodying the invention;

Fig. 2 is a detail sectional view of a portion of the invention shown in Fig. 1, taken along the line 2—2 of Fig. 4;

Fig. 3 is a detail view, partially in section, of another portion of the device shown in Fig. 1;

Fig. 4 is an inverted plan view of a portion of the invention shown in Fig. 2;

Fig. 5 is a fragmentary plan view of a portion of the invention shown in Fig. 1;

Fig. 6 is an enlarged detail sectional view along the line 6—6 of Fig. 5;

Fig. 7 is an enlarged detail sectional view along the line 7—7 of Fig. 5; and

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Fig. 6 is an enlarged detail sectional view along the line 8—8 of Fig. 6.

The particular assembly herein disclosed for the purpose of illustrating the invention comprises a base or support 10, generally hexagonal in form and having a central threaded opening 11 adapted to be threaded on a correspondingly threaded end of a conduit 12, Fig. 2. The support 10 has an annular flange 13 having a flat surface 14 adapted to receive a generally annular plate 15 in abutting coaxial relation. The plate 15 is provided with openings 16 for receiving screws 17 which are seated in corresponding threaded openings 18 in the said flange. The plate 15 is also provided with spaced cut-away portions 19, Fig. 4, arranged to receive spaced bosses 20 provided on the support 10 and having threaded openings therein for receiving screws 21, Fig. 1, which are provided for securing to the support the lamp socket assembly 22, Figs. 1 and 3. In order to facilitate the connection of the lamp socket assembly with the support and an electrical outlet, enabling a substantial saving of time in wiring over the usual practice, the lamp socket assembly 22 is provided with spaced openings 23 for receiving the screws 21 and is also provided with electrical connections in the form of spaced screws 24 Fig. 3, and conventional cooperating conductor parts for receiving the conductors 25 carried by the conduit 12.

The plate 15 is provided with peripheral, angular flange portions 26, each of which has a reverse angular flange portion 27, Fig. 6, provided with an angulated edge 28, Figs. 6 and 8, including an out-turned portion 28a, Fig. 6, and a cut-away or recessed portion 29, Fig. 8, disposed in spaced relation with the periphery 30, Fig. 4, of the plate for lockingly receiving corresponding portions of a shade or reflector 31, Fig. 1. The angulation of the edge 28 and the spacing of the flange portion 27, as shown in Fig. 8, are such as to provide a tapering latch receiving space intermediate the edge and the adjacent surface of the annular portion of the plate.

The reflector 31 has a tubular end portion 32 adapted to receive the socket 22. The inturned angular flange portion 33 is provided adjacent the outer extremity of the tubular portion 32 of the reflector. The flange portion 33 is provided with circumferentially spaced in-struck portions 34. The intermediate flange or latch portions 35 have angulated inturned edges 36 receivable within the space intermediate the flange portions 26 and 27 of the plate 15, and these edges 36 are pro-

vided with circumferentially spaced indented portions 37.

The parts 34, 35, 36 and 37 on the reflector 31 are arranged and conformed correspondingly with the parts 26, 27, 28 and 29 of the plate 15 so that the flange portions 26 may be received in the spaces adjacent the in-struck portions 34, and upon rotating the reflector in a given direction, the inturned edges 36 of the intermediate flange or latch portions 35 of the reflector will be received in the spaces intermediate the flange portions 26 and 27, and the indented portions 37 will be received in the cut-away or recessed portions 29 in locking engagement therewith, the angularity of the edges 28 being such that the edges will serve as stops frictionally engaging corresponding portions 37 of the reflector to prevent further rotation of the reflector. An annular gasket 38, preferably of insulating material, may be provided on the support 10 intermediate the surface 14 and the adjacent end portion of the reflector.

When the reflector is locked in position in the manner described, a lamp 39 may be secured in position as shown in Fig. 1, the socket assembly 22 including a threaded ferrule 40 for receiving a correspondingly threaded portion of the lamp. Upon removal of the lamp, the reflector may be unlocked and removed from the support by reversing the steps by which it was secured in position thereon.

The invention has the advantage of avoiding explosions in factories, laboratories, warehouses and other buildings where combustible gases and explosive materials are stored or accumulate due to sparking incident to the breaking of an electrical circuit, such as frequently happens where reflector assembly structures are employed which provide for simultaneous removal of the reflector and lamp. In the case of the present invention, the circuit is broken by removal of the lamp preliminary to the removal of the reflector. Thus the circuit is broken while the lamp is being disconnected and before its withdrawal from the socket, with the result that any sparking which may occur is confined within the socket and shielded by the adjacent portion of the lamp from contact with the surrounding atmosphere.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A reflector assembly comprising a support including an electrical outlet, a plate fastened to the support, a lamp socket mounted on the support in electrical communication with the outlet, a reflector, and co-operative means on the plate and the reflector for removably securing the reflector in operative position on the plate in co-operative spaced relation with the socket, the said cooperative means comprising spaced peripheral angular flange portions on the plate, each flange portion including a reverse flange portion arranged in angular spaced relation with the said angular flange portion and having an angulated edge with a cut-away portion therein disposed in spaced relation with the periphery of the plate, and an annular end portion on the reflector adapted to receive the socket and provided with an inturned angular flange portion, the inturned angular flange portion having circumferentially spaced indented portions and in-struck portions circumferentially spaced in relation to the indented portions, the in-struck portions being arranged to provide spaces for receiving the angular flange portions of the plate, the portions of the inturned flange portion intermediate the in-struck portions having angulated edges, and the parts being conformed and arranged to operate whereby the angular flange portions of the plate may be received in the said spaces for relative rotation of the reflector and plate and when so received and upon such rotation the angulated edges of the reflector will be received intermediate the angular flange portions and the reverse angular flange portions of the said plate and the indented portions will lockingly engage the cut-away portions of the plate to secure the reflector in operative position in relation to the support.

2. A reflector assembly comprising a support, a lamp socket mounted on the support, a holder mounted on the support in spaced relation with the socket, the holder comprising a generally annular plate having spaced peripheral angular flange portions, each flange portion including a reverse flange portion arranged in angular spaced relation with the said angular flange portion and having an angulated edge with a cut-away portion therein disposed in spaced relation with the periphery of the plate, and a reflector having an annular end portion adapted to receive the socket and provided with an inturned angular flange portion, the inturned flange portion having circumferentially spaced indented portions and in-struck portions circumferentially spaced in relation to the indented portions, the in-struck portions being arranged to provide spaces for receiving the angular flange portions of the plate, the portions of the inturned flange portion intermediate the in-struck portions having angulated edges, and the parts being conformed and arranged to operate whereby the angular flange portions of the plate may be received in the said spaces for relative rotation of the reflector and holder and when so received and upon such rotation the angulated edges of the reflector will be received intermediate the angular flange portions and the reverse angular flange portions of the holder and the indented portions will lockingly engage the cut-way portions of the holder to secure the reflector in operative position in relation to the holder.

3. A reflector assembly comprising a support, conductor means carried by the support, a lamp socket, and a reflector, co-operative means on the support and the socket for removably mounting the socket on the support, adjustable connector means on the socket for operatively connecting the conductor means and the socket, co-operative means on the support and the reflector for removably mounting the reflector on the support in spaced relation with the socket, the said first mentioned means comprising spaced bosses on the support and having threaded openings therein, and corresponding threaded means adjustably mounted on the socket and received in the threaded openings, and the said second mentioned means comprising a generally annular plate mounted on the support and having spaced peripheral angular flange portions, each flange portion including a reverse flange portion arranged in angular spaced relation with the said angular flange portion and having an angulated edge with a cut-away portion therein disposed in spaced relation with the periphery of the plate, the reflector having an annular end portion adapted to receive the socket and provided with an inturned angular flange portion, the inturned

flange portion having circumferentially spaced indented portions and in-struck portions circumferentially spaced in relation to the indented portions, the in-struck portions being arranged to provide spaces for receiving the angular flange portions of the plate, the portions of the inturned flange portion intermediate the in-struck portions having angulated edges, and the parts being conformed and arranged to operate whereby the angular flange portions of the plate may be received in the said spaces for relative rotation of the reflector and plate and when so received and upon such rotation the angulated edges of the reflector will be received intermediate the angular flange portions and the reverse angular flange portions of the said plate and the indented portions will lockingly engage the cut-away portions of the plate to secure the reflector in operative position in relation to the plate.

4. A reflector assembly comprising a support provided with an electrical outlet, a lamp socket disconnectibly mounted on the support in electrical communication with the outlet, a reflector, and co-operative means on the reflector and support for releasably securing the reflector to the support and in spaced relation with the socket comprising a generally annular plate mounted on the support and having spaced peripheral angular flange portions, each flange portion including a reverse flange portion arranged in angular spaced relation with the said angular flange portion and having an angulated edge with a cut-away portion therein disposed in spaced relation with the periphery of the plate, the reflector having an annular end portion adapted to receive the socket and provided with an inturned angular flange portion, the inturned flange portion having circumferentially spaced indented portions and in-struck portions circumferentially spaced in relation to the indented portions, the in-struck portions being arranged to provide spaces for receiving the angular flange portions of the plate, the portions of the inturned flange portion intermediate the in-struck portions having angulated edges, and the parts being conformed and arranged to operate whereby the angular flange portions of the plate may be received in the said spaces for relative rotation of the reflector and plate and when so received and upon such rotation the angulated edges of the reflector will be received intermediate the angular flange portions and the reverse angular flange portions of the plate and the indented portions will lockingly engage the cut-away portions of the plate to secure the reflector in operative position in relation to the support, the said angulated edges of the angular flange portions of the plate being inclined toward the adjacent surface of the plate and arranged for frictional engagement with the said indented portions so as to limit relative movement of the indented portions and the said edges.

5. A reflector assembly comprising a support provided with an electrical outlet, a lamp socket disconnectibly mounted on the support in electrical communication with the outlet, a reflector, and co-operative means on the reflector and support for releasably securing the reflector to the support and in spaced relation with the socket comprising a generally annular plate mounted on the support and having spaced peripheral angular flange portions, each flange portion including a reverse flange portion arranged in angular spaced relation with the said angular flange portion and having an angulated edge with a cut-away portion therein disposed in spaced relation with the periphery of the plate, the reflector having an annular end portion adapted to receive the socket and provided with an inturned angular flange portion, the inturned flange portion having circumferentially spaced indented portions and in-struck portions circumferentially spaced in relation to the indented portions, the in-struck portions being arranged to provide spaces for receiving the angular flange portions of the plate, the portions of the inturned flange portion intermediate the in-struck portions having angulated edges, and the parts being conformed and arranged to operate whereby the angular flange portions of the plate may be received in the said spaces for relative rotation of the reflector and plate and when so received and upon such rotation the angulated edges of the reflector will be received intermediate the angular flange portions and the reverse angular flange portions of the plate and the indented portions will lockingly engage the cut-away portions of the plate to secure the reflector in operative position in relation to the support, the said angular flange portions of the plate including an outturned portion arranged for frictional engagement with an adjacent portion of the said in-struck portions of the reflector and thereby to enhance the security of the reflector in relation to the support.

6. A lamp socket and reflector assembly embodying a support, a plate member carried by the support, a lamp socket member, means connecting said socket member to said support for detachment therefrom independently of said plate, said plate member embodying circumferentially spaced channel-shaped portions, a portion of which forms an inclined surface having a recess therein, a shade provided with a tubular end, an inwardly projecting flange on said end, the periphery of the flange being shaped to provide a portion disposed at an angle to the body of the flange, there being circumferentially spaced openings extending through said flange and said angularly disposed portion, through which openings the said channel-shaped portions of said plate are adapted to pass, whereby upon rotation of the shade the said angularly disposed portions of said flange will pass into said channel-shaped portions, and means for limiting the rotative movement of said shade with respect to said socket member.

7. A lamp socket and reflector assembly embodying a support, a plate member carried by the support, a lamp socket member, means connecting said socket member to said support for detachment therefrom independently of said plate, said plate member embodying circumferentially spaced channel-shaped portions, a portion of which forms an inclined surface having a recess therein, a shade provided with a tubular end, an inwardly projecting flange on said end, the periphery of the flange being shaped to provide a portion disposed at an angle to the body of the flange, there being circumferentially spaced openings extending through said flange and said angularly disposed portion, through which openings the said channel-shaped portions of said plate are adapted to pass, whereby upon rotation of the shade the said angularly disposed portions of said flange will pass into said channel-shaped portions, means for limiting the rotative movement of said shade with respect to said socket member, the said means embodying a recess in one of the parts, and a detent or projection on another

of the parts, adapted to be seated in said recess.

8. A lamp socket and reflector assembly embodying a support, a plate member carried by the support, a lamp socket member, means connecting said socket member to said support for detachment therefrom independently of said plate, said plate member embodying circumferentially spaced channel-shaped portions, a portion of which forms an inclined surface having a recess therein, a shade provided with a tubular end, an inwardly projecting flange on said end, the periphery of the flange being shaped to provide a portion disposed at an angle to the body of the flange, there being circumferentially spaced openings extending through said flange and said angularly disposed portion, through which openings the said channel-shaped portions of said plate are adapted to pass, whereby upon rotation of the shade the said angularly disposed portions of said flange will pass into said channel-shaped portions, and means for limiting the rotative movement of said shade with respect to said socket member, the said tubular end of the said shade encompassing and being of an internal diameter substantially greater than the external diameter of said socket member.

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