

May 18, 1943

E. F. GUTH

2,319,732

LIGHTING FIXTURE

Filed Nov. 5, 1941

3 Sheets-Sheet 1

FIG. 1.

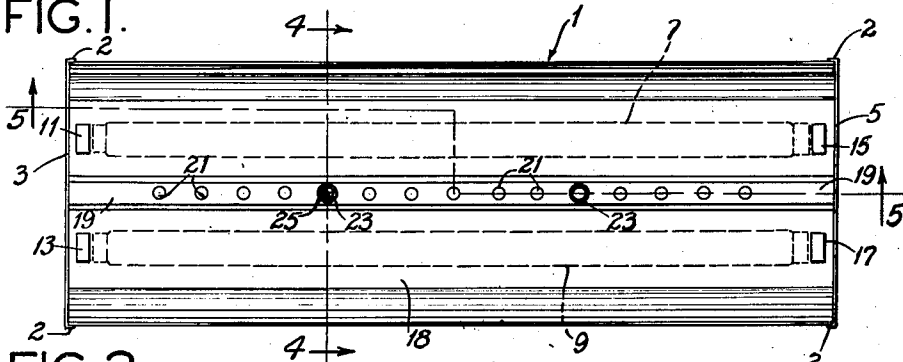


FIG. 2.

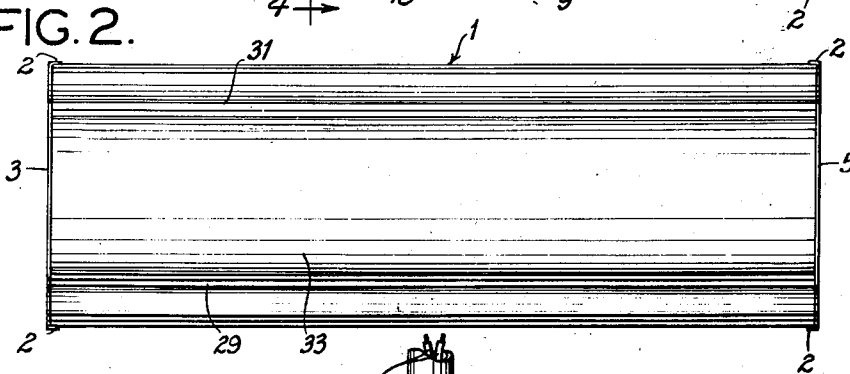


FIG. 4.

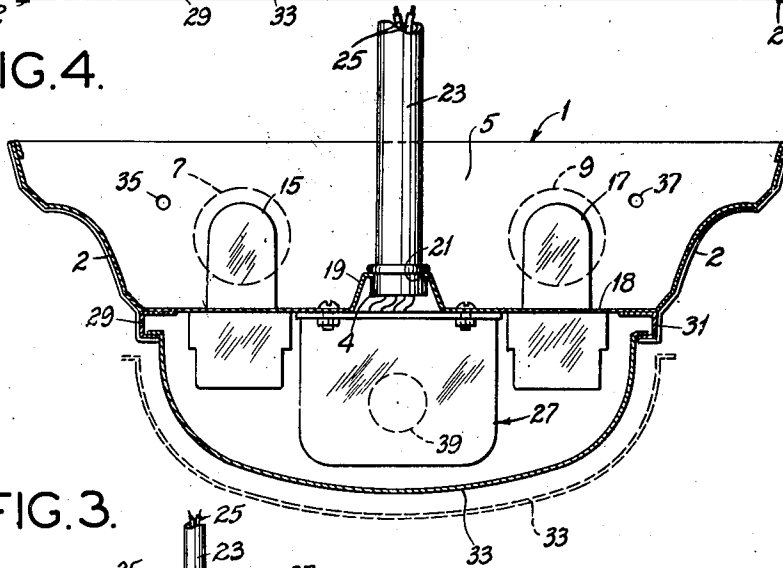
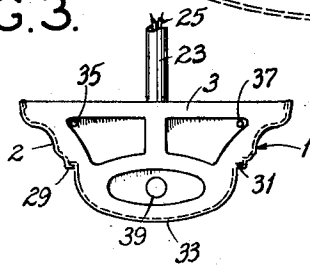


FIG. 3.



Edwin F. Guth
Inventor
Haynes and Koenig
Attorneys

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E. F. GUTH

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FIG. 5.

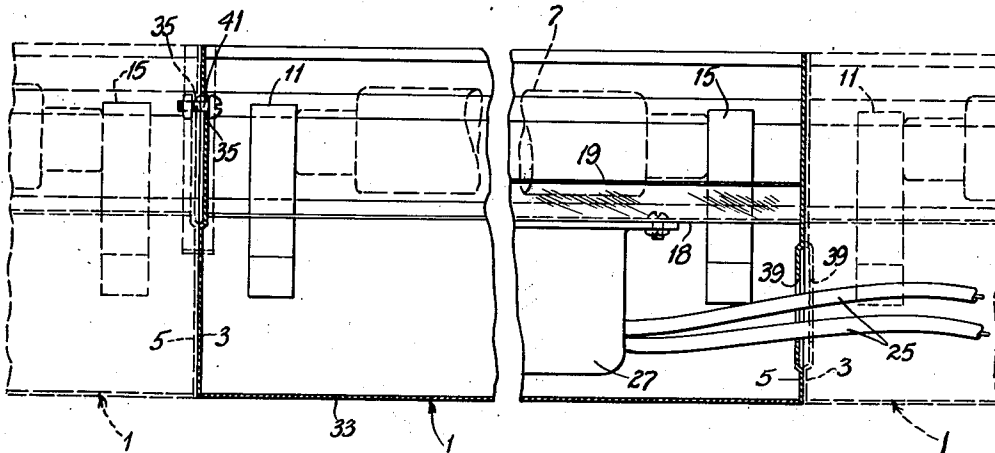


FIG. 6.

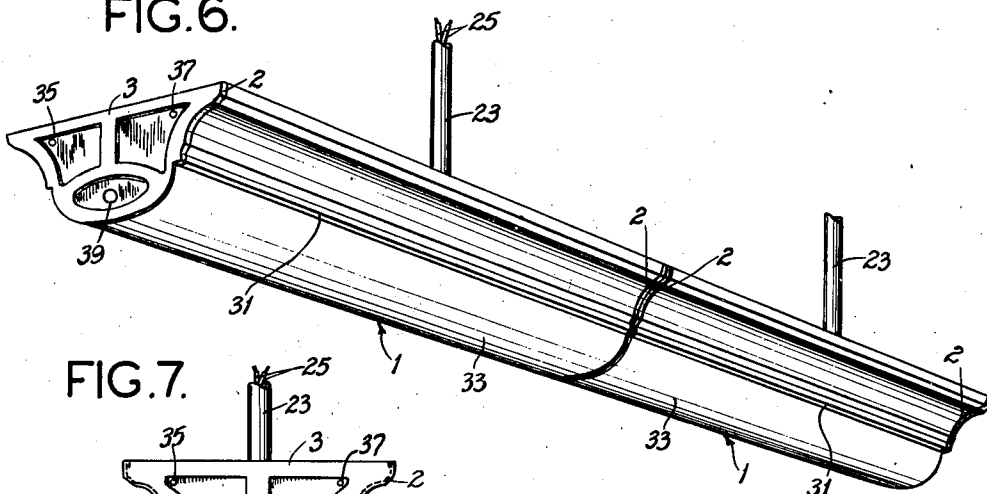
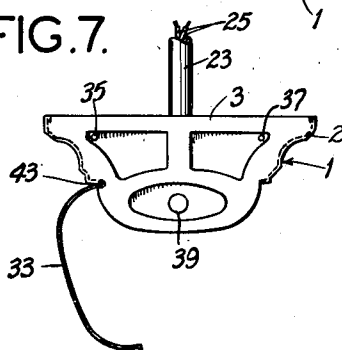


FIG. 7.



Edwin F. Guth
Inventor
Haynes and Koenig
Attorneys

May 18, 1943

E. F. GUTH

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FIG. 8.

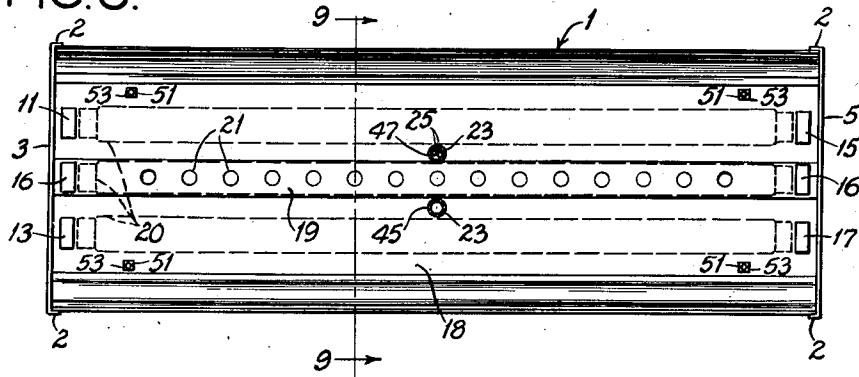
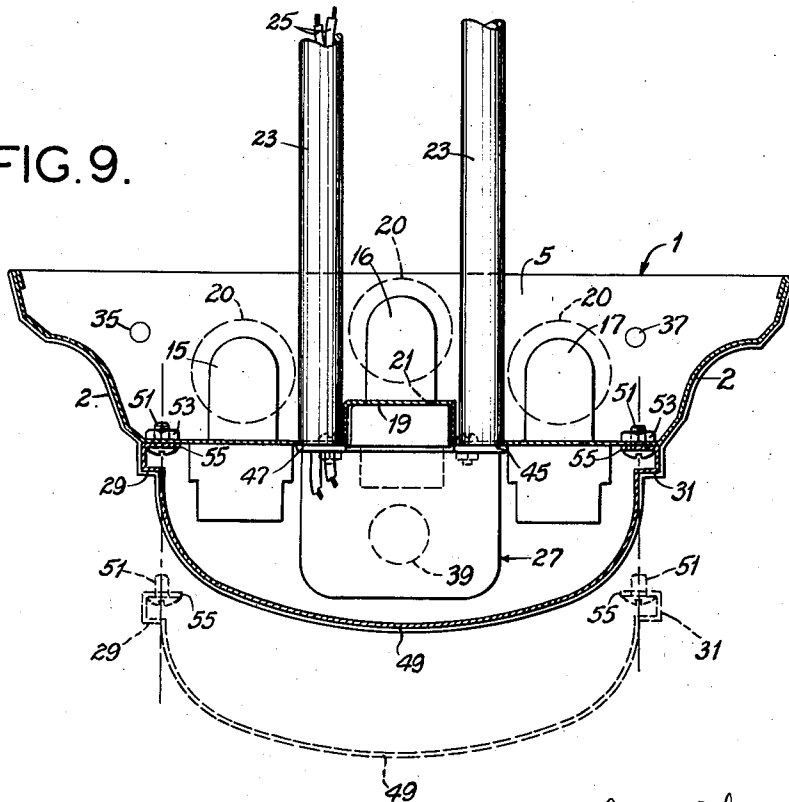


FIG. 9.



Edwin H. Guth
Inventor
Haynes and Koenig
Attorneys

UNITED STATES PATENT OFFICE

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LIGHTING FIXTURE

Edwin F. Guth, Florissant, Mo.

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7 Claims. (Cl. 240—78)

This invention relates to lighting fixtures, and more particularly to lighting fixtures for use with fluorescent lamps.

Among the objects of this invention are the provision of lighting fixtures for supporting fluorescent lamps; the provision of lighting fixtures which provide indirect illumination for use with fluorescent lamps; the provision of lighting fixtures of the class described which may be easily and quickly joined together to form a longer unitary lighting fixture; and the provision of a fixture of the class indicated which may be easily and economically constructed from a minimum number of parts. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which are illustrated several of various possible embodiments of the invention,

Fig. 1 is a top plan view of a single-section lighting fixture constructed in accordance with the present invention;

Fig. 2 is a bottom plan view of Fig. 1;

Fig. 3 is an end elevation of the lighting fixture of Fig. 1;

Fig. 4 is an enlarged section taken along the line 4—4 of Fig. 4;

Fig. 5 is a longitudinal section taken along the line 5—5 of Fig. 1 with fragments of two other attached identical units shown in dotted lines;

Fig. 6 is a perspective view showing two of the Fig. 1 fixture sections attached together;

Fig. 7 is an end elevation of an alternative embodiment;

Fig. 8 is a top plan view of another alternative embodiment; and,

Fig. 9 is an enlarged section taken along line 9—9 of Fig. 8.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now to the drawings, numeral 1 indicates a reflector which is rectangular in plan and dished in section. End members 3 and 5 are permanently attached thereto, for example, by welding at flanges 2. Located within the structure are fluorescent lighting tubes 7 and 9 supported by electrode sockets 11, 13, 15 and 17 at either end. The sockets are supported on the bottom 18. The central section 19 of reflector 1 is

raised from its bottom 18. Formed in section 19 are a number of plugs 21. These plugs are segments of the reflector 1 which have almost been relieved from the section 19. A small segment of the circle is, however, left attached to the portion 19 so that the plugs will remain in place until knocked out to provide a place for a hanger stem 23. The provision of a plurality of these plugs 21 permits the location of one or more hanger stems wherever desired.

The stems or hangers 23 are, as shown in Fig. 4, hollow, so that wires 25 can be conducted there-through to supply current to the fluorescent tubes 7 and 9. Underneath the reflector bottom 18 is attached the necessary electrical equipment indicated generally at 27. This will comprise coils, etc. for the operation of the lamps.

Attached to the bottom of the reflector 1 are channel members 29 and 31. These form a shelf on which the edges of bottom cover 33 rests. Cover 33 is of resilient construction, and when removed from the fixture assumes the position shown in dotted lines in Fig. 4. Its resilience permits it to be easily sprung from and inserted into the channel members 29 and 31, the latter being shown in solid lines in Fig. 4.

End plates 3 and 5 are, as noted previously, attached only to the dished channel-shaped reflector 1 at flange 2. Trough-shaped depending cover 33 is held to the fixture only by channel members 29 and 31 and abuts the end members 3 and 5 for flush closure endwise. No flanges are necessary on the end members 3 and 5 where the bottom cover 33 abuts because substantially no light escapes through the bottom 18. The end plates 3 and 5 are formed with knockout circular sections 35, 37 and 39, for use in attaching a plurality of the fixtures together to form a unitary structure. This is shown particularly in Figs. 5 and 6. Removal of the knockout plugs 35 and 37 provides for insertion of stove bolts 41, or other convenient attaching means (see the left-hand portion of Fig. 5). Removal of knockout plug 39 provides space for wires 25 (see the right-hand end of Fig. 5). In this way current can be carried through a plurality of fixtures from a single hanger stem 23.

As indicated in Fig. 5, additional lighting fixtures can be attached to either side of a given fixture. In this way the length of the fixture can be extended indefinitely. Nevertheless, because the wires 25 can be extended through the openings provided by the removal of knockout plugs 39, only a single electrical outlet is required. Since the bottom cover 33 may be easily and

quickly removed from the structure, the assembly of a plurality of lighting fixtures consists merely in bolting them together, and running wires through the opening formed by the removal of knockout plugs 39. It can be accomplished easily by unskilled labor on the job.

Fig. 7 illustrates an alternative embodiment of the invention. Here bottom cover 33, instead of merely being held in position by its resilience, is hinged at one side 43 so that instead of being completely removable, it swings downwardly to permit access to the lower portions of the reflecting member. This eliminates one channel 29 as an attaching means, but channel 31 is retained so that the cover 33 is moved into position, or swung downwardly, merely by flexing it.

An alternative form of the invention is shown in Figs. 8 and 9. In these figures a fixture is illustrated having three fluorescent tubes 20, the central tube having sockets 16. One of the tubes is centrally located over the row of plugs 21 by means of which the fixture is customarily attached to the ceiling. Accordingly, two additional plugs 45 and 47 are provided between these fluorescent tubes so that the fixture may be attached to the ceiling.

The bottom cover 49 is in this instance attached by bolts 51 and nuts 53. The channel-shaped members 29 and 31 are, in this embodiment, made integral with the bottom cover. The heads of the bolts 51 are affixed to the turned-over portion 55 of bottom cover 49. Cooperating openings are drilled in the bottom 12. The bottom cover 49 in this construction need not be resilient, a fact which is indicated in Fig. 9. The bottom cover 49 is merely positioned below the holes drilled in the bottom 12 and then raised into position to be fastened with the nuts 53.

In the embodiment shown in Figs. 8 and 9 the bottom cover 49 is readily removable, since no flexing is required either in removal or application. Accordingly it may be quickly and easily removed. The nuts 53 are merely loosened and the bottom cover 49 allowed to drop away from the fixture.

It should be pointed out that in all of the embodiments of the invention removal of the lower cover 33 or 49 is required only infrequently. Such removal ordinarily occurs only during the installation operation and to correct some trouble which may occur in the wiring or in the coils or other ballast items which are located below the bottom 12.

The bolts 51 in the Figs. 8 and 9 embodiments are advantageously spot-welded to the bottom cover 49. Other methods of attachment may be substituted.

The interior of the reflector 1 is coated with a suitable reflecting surface, so that the light generated by tubes 7 and 9 which passes downwardly is reflected by reflector 1. By attaching hanger stem 23 to the ceiling, the device will be positioned so that substantially all of the light as viewed in a normal position is indirect light. Glare spots are eliminated, and a diffused light is obtained. Moreover, two or more of the present lighting structures can be attached together to form a long unitary structure. Such a structure can be mounted at any convenient place because of the plurality of plugs 21 provided, and requires only a single electrical outlet, since the wires 25 can be extended through the openings provided by the removal of knockout plugs 39. Flanged attachment of the end plates 3 and 5 only to the reflector 1 permits easy removal of

bottom cover 33, facilitating assembly of a plurality of units. The only acts necessary are removal of the knockout plugs 35, 37 and 39, and bolting together a plurality of units by means of stove bolts, or other easily available attaching means. Assembling, wiring, hanging, servicing, etc. are greatly facilitated by the present construction.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom and open upwardly and also open at its ends, a light unit in said channel, electrical apparatus serving said light unit attached to and located beneath said reflector, supporting means rising from the central section of said reflector for attachment to a ceiling, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, means for removably attaching the cover to the reflector, and end closure members for said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover.

2. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom and open upwardly and also open at its ends, a light unit in said channel, electrical apparatus serving said light unit attached to and located beneath said reflector, supporting means rising from the central section of said reflector for attachment to a ceiling, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, said reflector having flanges on each side thereof for receiving the edges of said depending cover in springing engagement therewith, and end closure members for said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover.

3. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom and open upwardly and also open at its ends, a light unit in said channel, electrical apparatus serving said light unit attached to and located beneath said reflector, supporting means rising from the central section of said reflector for attachment to a ceiling, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, said cover being hingedly attached to one side of said reflector, said reflector having a flange on the opposite side for reception of the other edge of the cover in springing engagement, and end closure members in said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover.

4. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom and open upwardly and also open at its ends,

a light unit in said channel, electrical apparatus serving said light unit attached to and located beneath said reflector, supporting means rising from the central section of said reflector for attachment to a ceiling, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, bolts attached to said cover, the edges of said reflector having openings to cooperate with said bolts for attaching said cover to said reflector, and end closure members for said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover.

5. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom with a central raised section and open outwardly and also open at its ends, said central section having knockout plugs for attachment of fixture supporting means, supporting means rising from the central section of said reflector for attachment to a ceiling, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, means for removably attaching the cover to the reflector, and end closure members for said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover.

6. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom and a central raised section and open upwardly and also open at its ends, said section carrying sockets supporting a light unit therebetween.

posts upon either side of said channel for attaching said fixture to a ceiling, electrical apparatus serving said light unit attached to and located beneath said reflector, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, means for removably attaching the cover to the reflector, and end closure members for said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover.

7. An indirect lighting fixture comprising a channel-shaped reflector having a solid bottom and open upwardly and also open at its ends, a light unit in said channel, electrical apparatus serving said light unit attached to and located beneath said reflector, supporting means rising from the central section of said reflector for attachment to a ceiling, a lower trough-shaped depending cover for said electrical apparatus removable for inspection of the electrical apparatus, means for removably attaching the cover to the reflector, and end closure members for said reflector and cover having means for attachment of same throughout the end regions of the reflector only and flat portions projecting downwardly for flush closure of the ends of said depending cover, said end closure members having knockout sections for attachment of a plurality of reflector channel units to form a continuous unitary structure, and a knockout section in said end members located below said reflector for electrically connecting a plurality of reflector channel units together.

EDWIN F. GUTH.