March 13, 1962 E. H. GOLKO 3,025,391

FLUORESCENT LIGHTING FIXTURE

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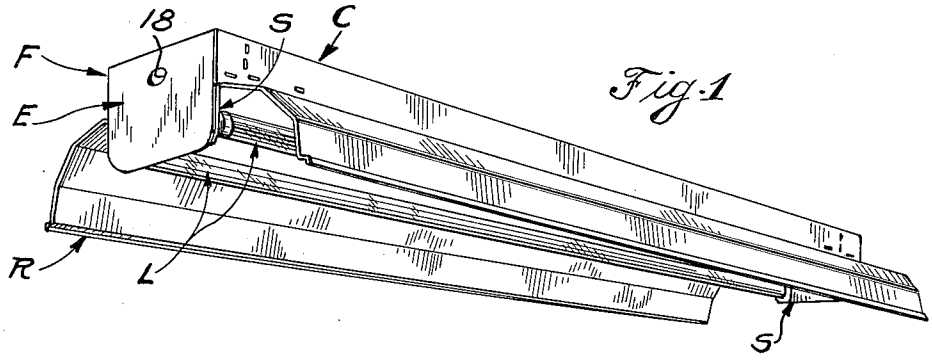


Fig. 1

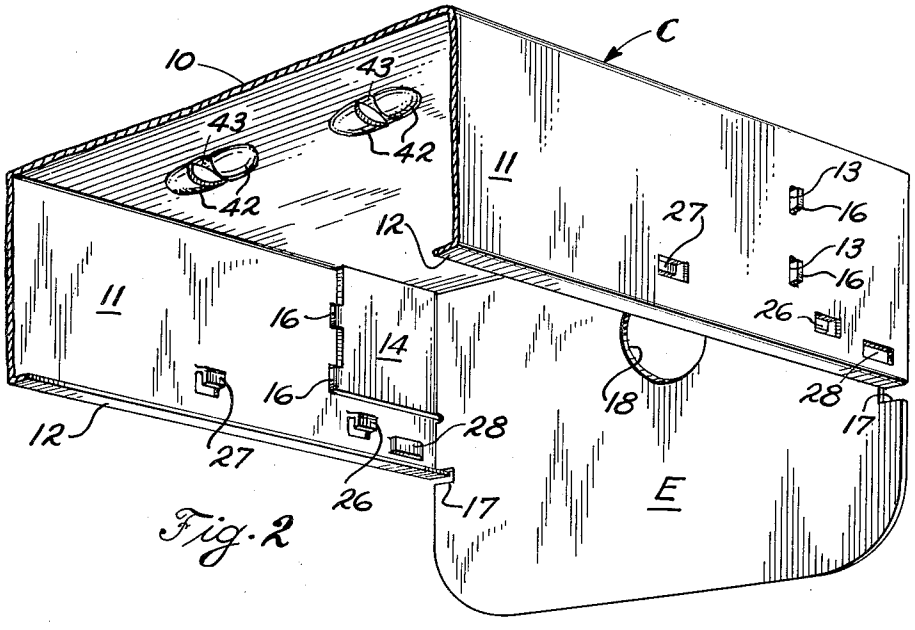


Fig. 2

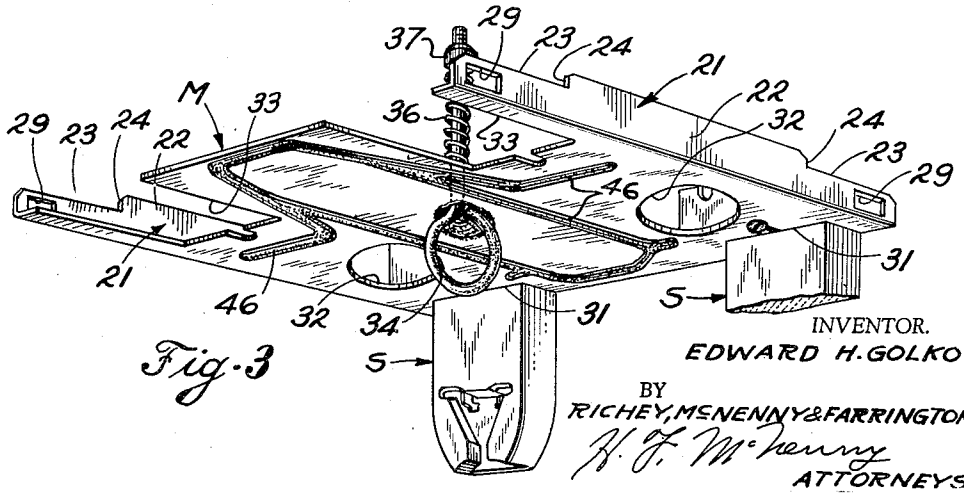


Fig. 3

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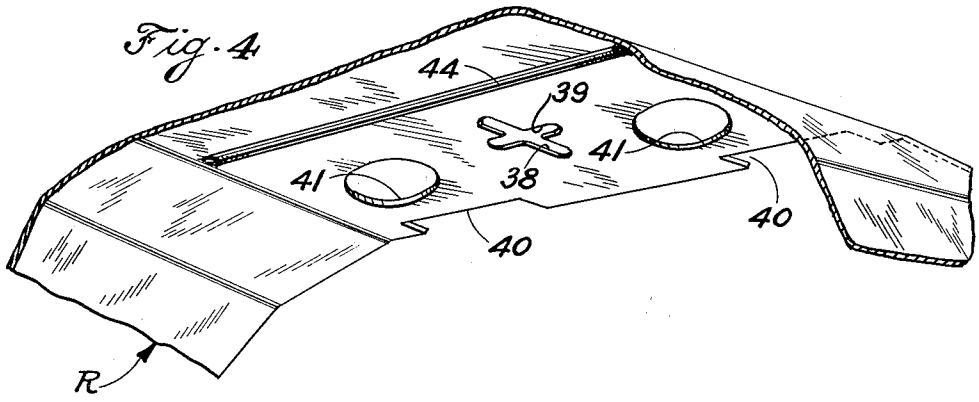
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Fig. 4



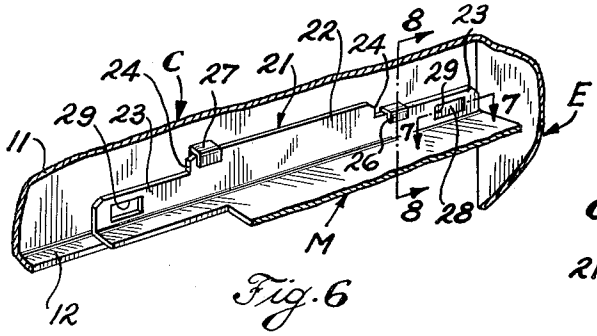
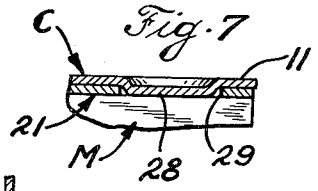


Fig. 6

Fig. 7



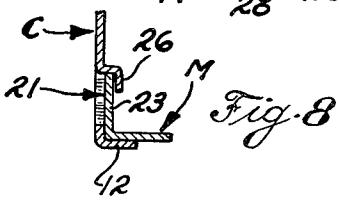


Fig. 8

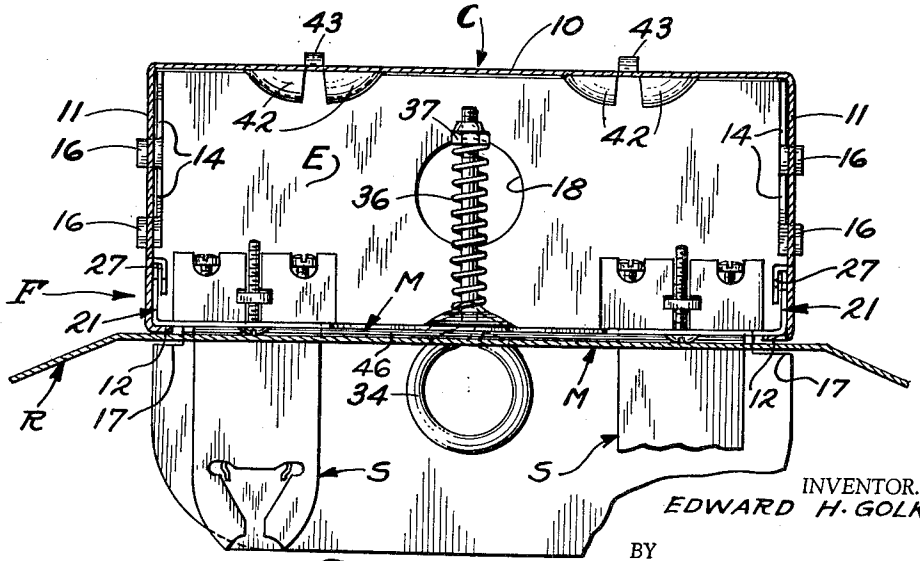


Fig. 5

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FLUORESCENT LIGHTING FIXTURE

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4 Claims. (Cl. 240—51.11)

This invention relates to fluorescent lighting fixtures of the type having one or more elongated fluorescent lamps, a channel and end plate assembly forming the basic structural support for the fixture and a reflector. The improvements of this invention relate to the cooperation of what will be termed "mounting plates" and the basic channel assembly. The mounting plates carry the socket or sockets for fluorescent lamps and also provide means for attachment and support of the reflector.

It is a feature of the invention that the mounting plates are readily fitted to the channel during installation of the fixture and are so mounted as to restrain the side flanges of the channel against laterally outward deflection or bending. Thus, snap-in type end plates can be fitted to the channel which plates need not be themselves formed to prevent side flange deflection and such end plates are preferably of the kind disclosed and claimed in the co-pending appln. of Carl M. Moser, S.N. 697,764, filed November 19, 1957 and assigned to the John C. Virden Co., now Patent No. 2,934,184, issued April 26, 1960.

The end plates are inserted into the channel by slightly spreading the channel side flanges to clear inturned lips on the channel side flanges, with which the plates are slid toward the ends of the channel and are embraced by tongues formed on the channel side walls. Once in place this construction prevents spreading of the channel side flanges. The tongues and mounting plates also act as cooperating shoulder means to limit axial motion of the mounting plates so that the latter will assume a predetermined position in the channel whether or not there is an end plate at the mounting plates. Detent means restrain the mounting plates from axial dislodgement.

One of the purposes of the fixture of this invention is that of rendering the channel and mounting plate assembly "universal" in that a single set of fixture parts can be supplied which can be fitted to receive sockets for either of two types of fluorescent lamps. One common type of fluorescent lamp fits a rather "thin" socket and the starter is a separately mounted unit. Another common type of fluorescent lamp requires a thicker socket and no separate starter unit is needed. In accordance with this invention, the mounting plates have two sets of notches for receiving the sockets. The notch or notches at one end of the mounting plate are relatively shallow to receive the thinner type socket, whereas those at the other end are deeper to receive the thicker sockets. The aforesaid purpose of the invention is attained by structure rendering the mounting plates reversibly mounted in the channel, so that the electrician need only fit the desired type of sockets to the plates and slide them into the channel in the proper endwise relation.

The manner whereby one skilled in the art may practice the invention will be apparent from the following detailed description of a preferred embodiment thereof and the accompanying drawings.

In the drawings:

FIGURE 1 is a perspective view of an assembled fixture embodying the unit.

FIGURE 2 is a perspective view of one end of the channel with an end plate in place.

FIGURE 3 is a perspective view of a mounting plate for the same end of the fixture.

FIGURE 4 is a perspective view of a corresponding end of the reflector.

FIGURE 5 is a transverse section through the assembled fixture.

FIGURE 6 is a fragmentary perspective view showing a mounting plate and channel assembly.

FIGURE 7 is a section taken on 7—7 of FIGURE 6.

FIGURE 8 is a section taken on 8—8 of FIGURE 6.

The fixture F of the invention includes an elongated channel C, end plates E, a reflector R, combined socket and reflector mounting plates M, and fluorescent lamps L connected to sockets S. If desired, two or more channels C can be joined end to end as described in the aforesaid pending application, but a single channel carrying an end plate at each end is illustrated in FIGURE 1.

Referring to the fixture parts in more detail, channel C has a top, or mounting wall **10**, and side flanges **11** that terminate in laterally inturned lips, or narrow flanges **12**. The side flanges of the channel are pierced as at **13** (best seen in FIGURE 7) and the end plates E have flange-like ears **14** from which extend mounting tongues **16** that can be snapped into apertures **13** in the side flanges of the channel. In fact, the same end plate can be used to join channels for multiple length installations, all as described and claimed in the aforesaid pending appln. The end plate is notched at **17** to receive channel lips **12**. Details of the end plate mounting are not claimed in this application but it is to be noted that the end plate shown in association with the channel and mounting plate structure of the invention is a snap-in end plate so that lateral confinement of the channel side flanges is produced by the mounting plates, in accordance with this invention.

The mounting plate M that characterizes the preferred embodiment of the invention is formed with upstanding lips **21** which are not uniform in width but rather have wide portions **22** at the outer ends and inner, narrower portions **23**, thereby providing opposed axially facing shoulders **24**. The primary purpose of this construction is to provide a stop whereby the limiting position of the mounting plate M is determined independently of the presence or absence of an end plate.

To receive the end plate in a manner that confines the channel side flanges in the completed assembly, the channel side flanges have tongues struck therefrom as best seen in FIGURE 2, there being at each end of a channel a first pair of tongues **26** and a second pair **27** spaced a greater distance from the top wall of the channel than the spacing of the tongues **26**, as clearly seen in FIGURE 6. This spacing of the tongues **26, 27** corresponds to the width of mounting plate lip portions **23, 22** respectively, and the appropriate shoulder **24** on the mounting plate strikes the associated tongue **26** to limit axially outward motion of the mounting plate relative to the channel.

In order to provide a snap-in retaining action for the mounting plate in the channel, the channel has projections **28** pressed therefrom (FIGURES 2 and 6) which enter apertures **29** punched from the narrow lip portions **23** of the mounting plate. As seen in FIGURE 6 the detent arrangement and the shoulders **24** provide an axially symmetrical structure that makes it possible to assemble the mounting plate in either of its two possible endwise positions, thereby making possible achievement of one of the purposes of the invention which is that of supplying to the trade a single set of parts that can be selectively assembled to mount either of two standard type fluorescent lamps.

To further make possible the achievement of the aforesaid purpose of the invention, the mounting plate is constructed differently at its ends in that at one end a notch or notches **31** are provided to receive, as seen in FIGURE 3, lamp sockets S, which sockets are of the "thin" type that receive one type of fluorescent lamp. Also.

adjacent to each notch **31** is an aperture **32** for receiving the separate starter usually associated with the "thin" type socket. The other end of mounting plate M is formed differently to attain a purpose of the invention, in that here notches **33** are formed that are deeper than notches **31** for reception of a "thick" type of fluorescent lamp socket (not shown) that is standard for another type of fluorescent lamp. The detent apertures **29** and opposed shoulders **24** provide the same mounting action regardless of which set of notches **31** or **33** is selected for assembly at the end of the channel.

The mounting plate is fitted with a reflector retainer in the form of an eye bolt **34**, spring loaded by spring **36** that is backed up by nut **37** (FIGURES 3 and 5) and as best seen in FIGURE 4, the reflector has at each end a slot **38** for passing the head of the eye bolt. Bisecting slot **38** is a second and shorter transverse slot **39** that receives the head of the eye bolt after assembly and 90° rotation of the eye bolt from the position of FIGURE 3 to that of FIGURE 5.

As seen in FIGURE 4 the reflector is notched at **40** for receiving the sockets S and is punched at **41** for receiving a starter. This reflector is one made specifically for the "thin" type of socket S seen in FIGURE 3. If the "thick" type of socket is to be fitted, either the reflector must bear deeper notches **40** or as is preferred, different reflectors are supplied, but in either case the same mounting plates M can be used.

To provide for hanging or otherwise suspending the fixture, the channels are cupped as at **42** (FIGURES 2 and 5), leaving a cross strap **43** for receiving a chain link, etc. It is also desirable, but not necessary for the purposes of the invention to provide reinforcing ribs in the parts such as reflector ribs **44**, FIGURE 4, and mounting plate ribs **46**, FIGURE 3.

When assembling the fixture, the end plate or plates are inserted by spreading channel side flanges **11** so that lips **12** will be cleared. The mounting plates M can be slipped into the channel in a similar manner, or they may be canted into place. The mounting plates are not initially inserted at the channel ends but rather at an intermediate part of the channel, after which they are slid axially outwardly so that the mounting plate lips slide into the channel tongues (FIGURES 5, 6 and 8) until a shoulder **24** strikes a tongue **26** (FIGURE 6). At this point detent elements **28** and **29** are matched as clearly seen in FIGURE 7 and the assembly is ready to receive whichever type lamp fits the sockets proviously fitted to the mounting plates. The reflector is mounted by means of eye bolts **34** before the lamps are inserted as seen in FIGURE 5. Once the mounting plates are in their final position, the channel tongues restrain the channel sidewalls from spreading, so, for example, end plates that were snapped into position by spreading the channel side flanges will not become dislodged.

What is claimed is:

1. A universal type fluorescent lighting assembly comprising an elongated open-ended channel having a top wall portion and side flanges depending from said top wall portion, laterally in-turned lips formed on said side flanges, end plates secured at the ends of said channel, reversibly mountable fluorescent lamp socket mounting plates disposed at the ends of said channel and supported by the lips on the side flanges of said channel, upstanding lips extending from the sides of each mounting plate adjacent said channel side flanges, a tongue on each side flange of said channel embracing said mounting plate lips to restrain spreading of said channel side flanges and retain the mounting plate against said channel side flange in-turned lips, a first notch extending inwardly from one end of said mounting plate for receiving a fluorescent lamp socket, a second, deeper notch extending inwardly from the other end of said mounting plate for receiving a thicker fluorescent lamp socket, detent means formed on said channel, and co-acting detent means formed on said mounting plate for engagement with said panel detent means, said co-acting detent means comprising detent means positioned symmetrically at opposite ends of said mounting plate so that the mounting plate can be mounted in either of two endwise positions in said channel.

2. A universal type fluorescent lighting assembly comprising an elongated open-ended channel having a top wall portion and side flanges depending from said top wall portion, laterally in-turned lips formed on said side flanges, end plates secured at the ends of said channel, reversibly mountable fluorescent lamp socket mounting plates disposed at the ends of said channel and supported by the lips on the side flanges of said channel, upstanding lips extending from the sides of each mounting plate adjacent said channel side flanges, a tongue on each side flange of said channel embracing said mounting plate lips to restrain spreading of said channel side flanges and retain the mounting plate against said channel side flange in-turned lips, a first notch extending inwardly from one end of said mounting plate for receiving a fluorescent lamp socket, a second, deeper notch extending inwardly from the other end of said mounting plate for receiving a thicker fluorescent lamp socket, a starter receiving aperture in said mounting plate adjacent the inner end of said first notch, detent means formed on said channel, and co-acting detent means formed on said mounting plate for engagement with said channel detent means, said co-acting detent means comprising detent means positioned symmetrically at opposite ends of said mounting plate so that the mounting plate can be mounted in either of two endwise positions in said channel.

3. A universal type fluorescent lighting assembly comprising an elongated open-ended channel having a top wall portion and side flanges depending from said top wall portion, laterally in-turned lips formed on said side flanges, end plates secured at the ends of said channel, reversibly mountable fluorescent lamp socket mounting plates disposed at the ends of said channel and supported by the lips on the side flanges of said channel, upstanding lips extending from the sides of each mounting plate adjacent said channel side flanges, two axially spaced tongues on each side flange of said channel embracing said mounting plate lips to restrain spreading of said channel side flanges and retain the mounting plate against said channel side flange in-turned lips, the tongues nearest each end plate being closer to the adjacent channel side flange lips than are the other tongues, said mounting plate lips each having a pair of oppositely facing shoulder means for abutting said other tongues, a first notch extending inwardly from one end of said mounting plate for receiving a fluorescent lamp socket, a second, deeper notch extending inwardly from the other end of said mounting plate for receiving a thicker fluorescent lamp socket, detent means formed on said channel, and co-acting detent means formed on said mounting plate for engagement with said channel detent means, said co-acting detent means comprising detent means positioned symmetrically at opposite ends of said mounting plate so that the mounting plate can be mounted in either of two endwise positions in said channel.

4. A universal type fluorescent lighting assembly comprising an elongated open-ended channel having a top wall portion and side flanges depending from said top wall portion, laterally in-turned lips formed on said side flanges, end plates secured at the ends of said channel, reversibly mountable fluorescent lamp socket mounting plates disposed at the ends of said channel and supported by the lips on the side flanges of said channel, upstanding lips extending from the sides of each mounting plate adjacent said channel side flanges, two axially spaced tongues on each side flange of said channel embracing said mounting plate lips to restrain spreading of said channel side flanges and retain the mounting plate against said channel side flange in-turned lips, the tongues nearest each end plate being closer to the adjacent channel side flange lips

than are the other tongues, said mounting plate lips each having a pair of oppositely facing shoulder means for abutting said other tongues, a first notch extending inwardly from one end of said mounting plate for receiving a fluorescent lamp socket, a second, deeper notch extending inwardly from the other end of said mounting plate for receiving a thicker fluorescent lamp socket, detent means formed on said channel, co-acting detent means formed on said mounting plate for engagement with said channel detent means, said co-acting detent means comprising detent means positioned symmetrically at opposite ends of said mounting plate so that the

mounting plate can be mounted in either of two endwise positions in said channel, and a starter receiving aperture in said mounting plate adjacent the inner end of said first notch.

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