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LIGHTING FIXTURE CONSTRUCTION

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2 Sheets-Sheet 2

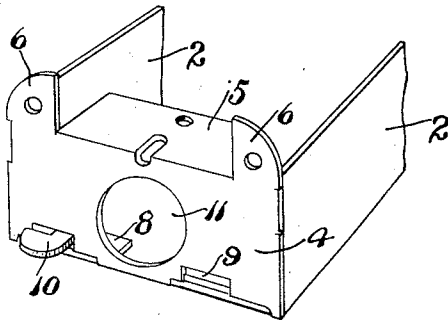


Fig. 6.

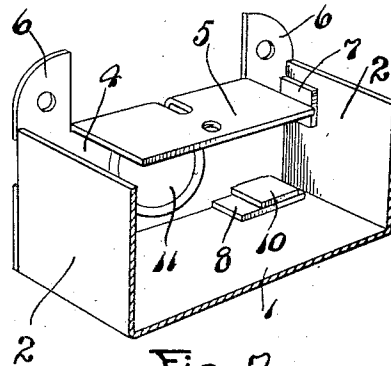


Fig. 7.

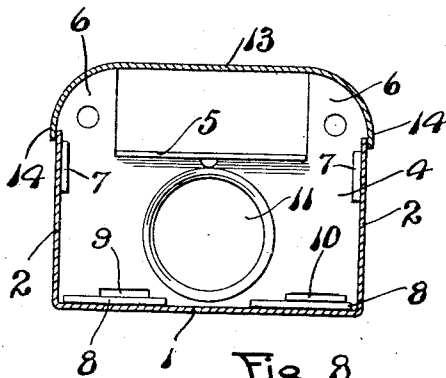


Fig. 8.

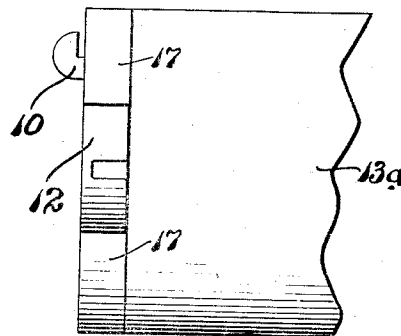


Fig. 9.

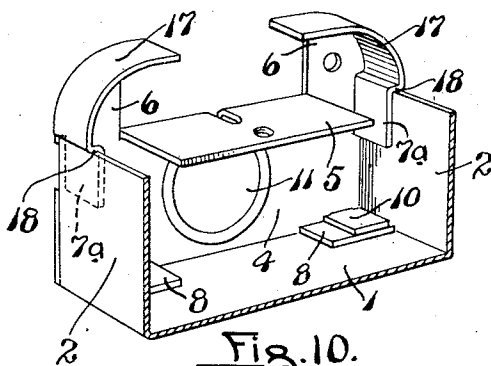


Fig. 10.

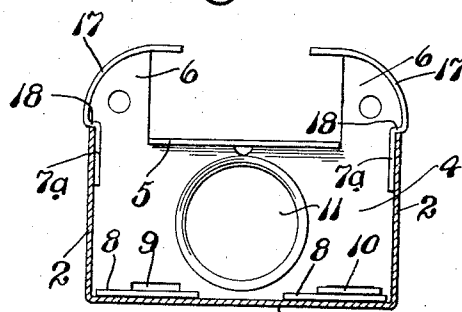


Fig. 11.

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LIGHTING FIXTURE CONSTRUCTION

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5 Claims. (Cl. 240—1)

This invention relates to lighting fixtures of the type and character disclosed in my pending application for patent, Serial No. 272,309, filed May 8, 1939. The present invention is concerned with novel improvements in structure relating to the housing structure for choke coil box, wires and spaced apart socket members, an elongated fluorescent lighting tube being detachably held upon and between two end socket members, one at each end of a unit of the fixture. Lighting in different environments may require different over-all lengths of the lighting installations and with my invention basic units of a predetermined length are provided with a means for very quickly and readily detachably connecting said units end to end when a length greater than a single unit is desired. The present invention is also concerned with an especially practical, simple, economical and effective construction for the detachable end to end connection of two or more lighting units, each of which carries a lighting tube.

An understanding of the invention and the improvements which have been made may be had from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a perspective view illustrating a complete unit and with a second unit partially shown in alignment therewith as when two of the units are connected together.

Fig. 2 is a fragmentary vertical section through the two units in end to end connection.

Fig. 3 is a fragmentary plan view of the two base members of the unit before application of the covers and with the light tube holding sockets omitted.

Fig. 4 is a fragmentary section showing the manner of detachable hooking together of two units in end to end relationship, the units being separated.

Fig. 5 is a similar view after the units have been connected.

Fig. 6 is a fragmentary perspective of one end of the base member of the unit looking at the outside.

Fig. 7 is a similar view looking at the end portion of said base member at the inside.

Fig. 8 is a transverse section through a complete unit, the light tube holding socket being omitted.

Fig. 9 is a fragmentary plan view of the unit slightly modified at its end structure.

Fig. 10 is a view similar to Fig. 7 of an inner view of the modified end structure of the base member of the unit, and

Fig. 11 is a transverse section through said modified end structure of base member looking toward the end thereof.

Like reference characters refer to like parts in the different figures of the drawings.

The base member of the unit is made of sheet metal in channel form having a web 1 and spaced apart substantially parallel flanges 2 turned in the same direction at right angles therefrom at opposed side edges. This part of the structure is very simply and readily made on a sheet metal bending brake. For connecting a covering member therefor at the open side a post 3 (Fig. 2) is permanently riveted or otherwise securely connected to the web 1 and extends therefrom between the flanges 2, at its upper end being interiorly bored and threaded.

The ends of the channel are closed by separate sheet metal end members each made from a single plate of sheet metal and from the same dies. The end member 4 at its upper portion as shown in the drawings has a shelf or ledge 5 struck therefrom and turned inwardly at right angles between two upstanding ears 6. From the side edges of the plate 4 two ears 7 are turned inwardly at right angles and similarly from the lower edges two ears 8 properly positioned so that the ears 7 lie immediately within the inner sides of the flanges 2 and the ears 8 against the inner side of the web 1. The ears 7 and 8 are secured to the flanges 2 and web 1 by spot welding, preferably, or any other equivalent permanent connection.

Immediately above the bottom ears 8 slots 9 as shown (Fig. 8) are cut in the end member 4. A hook 10 extends through one of the slots 9 and has a part thereof lying over the adjacent ear 8 to which it is spot welded. Thus when one of the end plate members 4 is permanently connected at each end of the channel base member there will be two ledges 5 extending inwardly one at each end of the member, and at each end there will be one hook 10, the hook being open toward the adjacent side 2 of said base member (Fig. 4). The hooks 10 at opposite ends of the base member are at opposite sides thereof permitting said hooks to be inserted through the unfilled slots 9 of the end plates 4 of adjoining units thence moved laterally to bring the units in alignment and hook them together. The ears 6 on the contiguous end plate 4 have openings therein which will come into conjunction when the units are thus aligned and hook connected together. The plates 4 may also have a centrally located opening 11 therethrough as shown.

On each ledge 5 a socket member 12 of suitable insulating material is secured which extends outwardly, having means at its ends to receive the projecting pins of a conventional fluorescent lighting tube. Said tube is readily attached or detached being removed for replacement or for any inspection or repair of the wiring and choke coil box, which choke coil box is mounted upon and at the inner side of the web 1 of the channel base member.

A cover 13 of sheet metal is formed with curved flanges 14 and at its ends is notched for the passage of the projecting portions of the sockets 12. The curved side flanges 14 in practice reach to and telescope slightly over the edge portions of the flanges 2 (Fig. 8). A screw 15 passes through the cover 13 and into the upper end of the posts 3 (Fig. 2) securing the parts together. The ears 6 when two of the units are connected end to end are detachably connected by means of bolts 16 of a stove bolt character.

A modification of the end structure may be used eliminating the notches or openings in the ends of the cover 13 for the passage of the socket members 12. The structure of the end plates 4 is the same in all respects except the ears 7a are extended upwardly above the edges of the side flanges 2 and terminate in curved sections 17 conforming to the curvature of the side flanges 14 of the cover 13 so as to abut thereagainst when the cover is in place. The ears 7a, as shown in Fig. 10, and said terminal curved portions 17 are joined by substantially horizontal narrow ledges 18 which are bent outwardly so as to pass over the edges of the flanges 2.

It is evident that the base channel member consisting merely of a web 1 and two side flanges 2 is very quickly and readily formed and will not distort or buckle in forming. Similarly the cover 13 with its flanges 14 may be shaped and formed without buckling or kinking of the metal. The end plates 4 are made from the same dies while the hook 10 is a separate element produced rapidly in punch press operation. The assembly of the parts and the spot welding of the ears 7 and 8 to the flanges 2 and web 1 is rapidly and easily accomplished and there are no bends between the parts which in their production will cause kinking and buckling of the metal. This was a defect of my prior structure in which the end was integral with the web of the channel and in its formation to shape resulted many times in a transverse buckling of the channel web.

The ease and certainty of the end to end connection of two or more units is obvious. The lighting unit may be mounted upon any suitable support by the passage of screws or other fastenings through the web 1 driven into the support, which may be overhead as a ceiling, or the top of a case or cabinet. It may be located against a vertical support or be secured to and extend above a horizontal base support. In all cases access to the interior of the unit is obtained by merely removing the lighting tube and then withdrawing the screw 15 which releases the cover, all of the interior wiring, covered portions of the sockets and the coil choke box or transformer being rendered accessible for examination and repair without removing the unit and taking it to a work bench for such purpose. The openings at 11 in the end plates 4 are for the passage of wiring when two or more of the units are connected together. It is to be understood that when a single unit is used the openings in the end plates need not be provided, and also that the end units

of any assembly or connection of units in alignment may have their end plates 4 without the openings 11.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a device of the class described, a sheet metal channel member having a web and spaced flanges one at each side of the web bent therefrom substantially at right angles, a plate at each end of the channel closing said ends thereof, said plate being of sheet metal and having ears turned inwardly at its side edges to lie against said flanges and other ears turned inwardly adjacent its inner edge to lie against said web, said ears being permanently secured to said web and flanges, said plate adjacent the open side of the channel having a horizontal ledge struck therefrom and turned inwardly to substantially parallel said web, leaving two spaced apart ears one adjacent each of said flanges which extend beyond said ledge and the free edges of said flanges, each of said ears having an arc shaped edge and each having an opening therethrough, said plate adjacent the web having two spaced slots substantially parallel to the web cut therethrough, one toward each flange of the channel member, and a hook of flat metal inserted from the inner side of each end plate through one of said slots, permanently secured to said sheet metal member and projecting outwardly beyond its associated end plate, as specified.

2. In a device of the class described, a channel member of sheet metal having an elongated web and a flange at each side edge turned substantially at right angles therefrom, an end member closing each end of the channel comprising, a plate of sheet metal provided at its edge adjacent the web with two spaced apart intumed ears lying against the web and at its side edges adjacent each flange with an intumed ear lying against each of said flanges, said ears having a permanent connection to said web and flanges and said ears connecting with the flanges being extended upwardly above said flanges and curved inwardly, said plate having a horizontal ledge turned inwardly at its intermediate portion between its side edges to substantially parallel the web providing ears, one at each side of the ledge which reach to and engage said curved extended portions of the flange connected ears.

3. In a device of the class described, a channel member of sheet metal having an elongated web and a flange at each side edge turned substantially at right angles therefrom, an end member closing each end of the channel comprising, a plate of sheet metal provided at its edge adjacent the web with two spaced apart intumed ears lying against the web and at its side edges adjacent each flange with an intumed ear lying against each of said flanges, said ears having a permanent connection to said web and flanges and said ears connecting with the flanges being extended upwardly above said flanges and curved inwardly, said plate having a horizontal ledge turned inwardly at its intermediate portion between its side edges to substantially parallel the web, providing ears, one at each side of the ledge which reach to and engage said curved extended portions of the flange connected ears, a cover of sheet metal in substantial parallelism with said web with curved side portions extending to and overlapping said free edges of the flanges of said chan-

nel, said cover at its ends abutting the edges of said curved upper extensions of said flange connected ears, and means for detachably securing the cover in place.

4. In a device of the class described, a channel member of sheet metal having an elongated web and a flange at each side edge turned substantially at right angles therefrom, an end member closing each end of the channel comprising, a plate of sheet metal provided at its edge adjacent the web with two spaced apart intumed ears lying against the web and at its side edges adjacent each flange with an intumed ear lying against each of said flanges, said ears having a permanent connection to said ears and flanges and said ears connected to the flanges being extended upwardly above said flanges and curved inwardly, said plate having a horizontal ledge turned inwardly at its intermediate portion between its side edges to substantially parallel the web, providing ears, one at each side of the ledge which reach to and engage said extended portions of the flange connected ears, a light tube holding socket secured to each of said ledges and extending away therefrom between said upwardly and inwardly curved extensions to said flange con-

nected ears, the thickness of said socket being substantially equal to the width of said extensions, and a cover for said channel member having its ends in substantially abutting engagement with said curved extensions and in substantially abutting engagement against the inner sides of the sockets.

5. In a device of the class described, a channel member of sheet metal having an elongated web and a flange at each side edge turned substantially at right angles therefrom, an end member closing each end of the channel and secured thereto, said end member comprising a plate of sheet metal having a horizontal ledge turned inwardly at its intermediate portion between its side edges leaving an upwardly projecting ear one at each side edge of said ledge, and members of sheet metal, one at each end of each of said flanges, each having a downwardly extending portion lying at and connected to the inner side of a flange and an upwardly and inwardly curved portion extending above said flanges, said upwardly and inwardly curved portions extending over the adjacent ledge and having free ends spaced a distance apart.

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