

Nov. 28, 1950

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2,532,023

LUMINAIRE FOR ELONGATE TUBULAR LAMPS COMPRISING
TELESCOPED EXTENSIBLE SECTIONS

Filed March 18, 1949

2 Sheets-Sheet 2

FIG. 2.

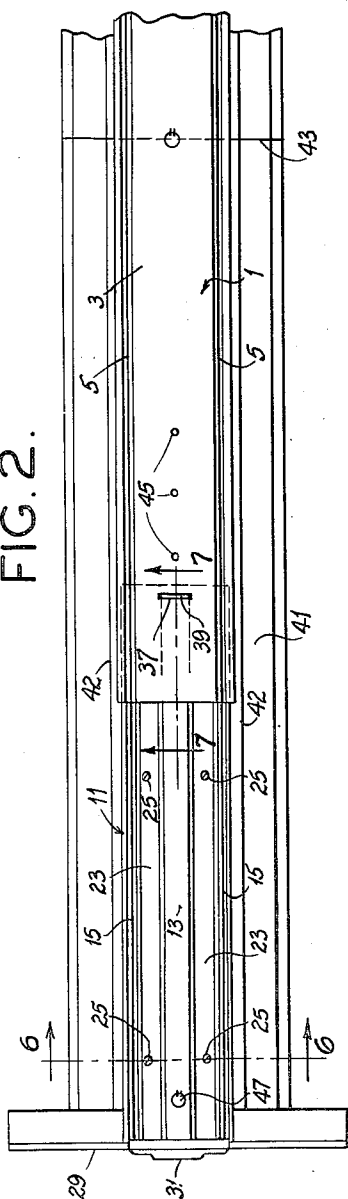


FIG. 6.

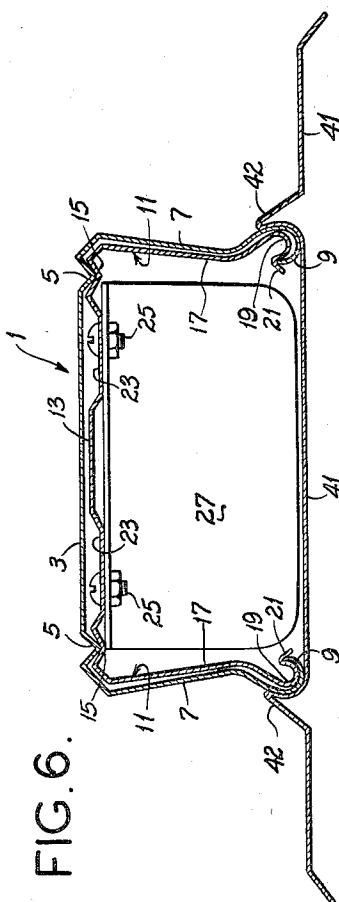
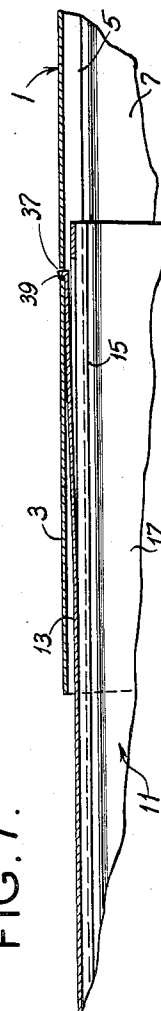


FIG. 7.



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UNITED STATES PATENT OFFICE

2,532,023

LUMINAIRE FOR ELONGATE TUBULAR
LAMPS COMPRISING TELESCOPED
EXTENSIBLE SECTIONSEdwin F. Guth, Jr., Ladue, Mo., assignor to The
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Application March 18, 1949, Serial No. 82,216

5 Claims. (Cl. 240—51.11)

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This invention relates to luminaires, and with regard to certain more specific features to fluorescent lamp fixtures forming luminaires.

Among the several objects of the invention may be noted the provision of a luminaire type of fluorescent lamp fixture which may be manufactured, stored, packaged and shipped in convenient short lengths; the provision of a fixture of the class described having a short, rigid telescopic form for convenient shipment in small boxes, but which may quickly be extended for mounting; and the provision of a fixture of the class described which will be acceptably rigid when extended and installed and which will have a good appearance. Other objects will be in part apparent 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 one of various possible embodiments of the invention is illustrated,

Fig. 1 is a perspective view showing my new fixture as installed, including its lamps;

Fig. 2 is a fragmentary half plan view of Fig. 1;

Fig. 3 is a view similar to Fig. 1 but showing the lamps and certain reflectors removed;

Fig. 4 is a view similar to Fig. 3, showing parts telescoped together for shipment.

Fig. 5 is a perspective view of one of two reflectors;

Fig. 6 is an enlarged diagrammatic cross section taken on line 6—6 of Fig. 2; and

Fig. 7 is an enlarged cross section taken on line 7—7 of Fig. 2.

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

The longer fluorescent lamp fixtures (for example, 8 feet or so long) for several reasons are expensive. First, the long sheet metal parts are difficult to handle during manufacture, particularly in connection with welding machinery and the like, used to perform operations thereon. In their long lengths, they are expensive to store in warehouses and are difficult to ship, requiring long and sturdy cartons which will sufficiently stiffen the fixtures so that they do not bend out of shape from the loads imposed by the rather heavy attached choke coil ballast equipment. By means of the present invention, the fixtures are made up of extensible telescoping sections

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which are easily individually handled during manufacture and which may be telescoped together into short lengths to make a more compact and rigid assembly for warehousing and shipment, requiring smaller cartons, but which when extended and installed present a rigid construction of fine appearance.

Referring now more particularly to the drawings, there is shown at numeral 1 a central guide element having a generally inverted U-shape shown in Fig. 6. In particular, this guide element comprises a flat top 3 formed with downwardly bent ridges 5, and side walls 7 the lower edges of which are inwardly hooked as at 9, the whole being composed of sheet metal which has springy characteristics. At numerals 11 are shown slide members having tops 13 in which are upper grooves 15 (for sliding cooperation with the ridges 5); and which have side walls 17 and hooked lower margins 19. These margins 19 include grooved edges 21 for a sliding cooperation with the hooks 9. The parts 1 and 11 are sized and shaped as above described, so that there is a springy sliding engagement between the hooks 9 and grooves 21, and also between the grooves 15 and ridges 5, without any clearance but without excessive friction. The result is that the slides 11 have closely guided telescoping movement with the guide 1, without excessive friction.

The top 13 of each slide 11 is depressed as shown at 23 for the reception of fasteners 25 for attaching within each slide a choke coil ballast element 27. On the outer ends of the slides 11 are fastened, as by welding, end plates 29 which carry trimming 31 and the sockets 33 for the tubular lamps 35 to be employed when the fixture is installed, as shown in Fig. 1. Accurate spacing between the sockets 33 is predetermined when the slides are extended by means of catch stops constituted by slots 37 at opposite ends of the guide 1, adapted to be engaged by tongues 39 on the inner ends of the slides.

At numerals 41 are shown a pair of sheet metal or sheet plastic reflector plates, or diffusers (depending upon the material), the lengths of which are approximately half of the fixture length when extended. The cross sections of these are best shown in Fig. 6, which shows that they include curved snap-on lips 42 by means of which they may be snapped into position on the hooks 9 and 19 of the members 1 and 11, respectively. The metal of the members 1 and 11 is thin enough and there is sufficient flexibility in the snap-on lips 42 so that the snap-holding action is effective along the entire lengths of the reflectors 41.

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Thus they hold partly to the guide 1 and partly to the slides 11. They abut centrally as shown at 43.

From the above it will be clear that each guide 1, slide 11 and reflector plate 41 may be manufactured separately. Each has a length which is much less than the length of the fixture when installed. This makes them much more convenient to handle in the factory than if the fixture were made in one piece of the installed length. For example, in connection with the slides 11, it is much more convenient to bring them into position at a welder for attaching the trim plates 29 and trim 31 than if the whole fixture needed to be handled at such machines. In storage, the parts are much more convenient to arrange either separately or by telescoping the members 1 and 11 into the short form shown in Fig. 4. In this Fig. 4 condition of the fixture, the reflectors 41 are removed. For shipment, the Fig. 4 short assembly is employed, this being placed in a carton along with separated reflectors 41. The electrical ballast members 27 at this time are attached. These are quite heavy, weighing for example about 14 pounds apiece; hence the advantage of the stiffening against twist afforded by the short telescoped arrangement of Fig. 4 will be apparent. A lighter carton may therefore be used than if the fixture were made in one long piece. The other advantages of a short carton require no further emphasis.

To install the fixture, it is only necessary to draw out the slides 11 from their telescoped position of Fig. 4 to the position of Fig. 3. When the tongues 39 engage the slots 21, the installed length is predetermined, so that the lamps 35 (say 8 feet long) may be accepted.

However, before the lamps are installed, the reflectors 41 are snapped from below into position on the guide 1 and a slide 11. Since the sheet metal of parts 1 and 11 is relatively thin, these reflectors 41 have a gripping action on the slides 11 as well as on the guide 1. Finally, the lamps 35 are installed, with the result shown in Fig. 1.

Mounting may be accomplished either from a conventional ceiling plate (not shown) by means of bolts in holes 45 (Fig. 2), or from conventional suspension tubes (not shown) cooperating with holes 47. It will be understood that mounting is carried out after extending parts 1 and 11 and before application of the reflectors 41 and lamps 35, so that the holes are properly spaced and so that access may be had to the bolts or tubes for the holes.

It will be obvious that although the above description discloses a three-section telescoping unit, the invention may be carried out in either two, or more than three sections.

Several points of importance, not already emphasized, should be noted. Among these are the zigzag contours of the side walls 7 and 17 of the guide 1 and slides 11, respectively. This zigzag effect is in part due to the shapes of the hooks 9 and 19. The result is a certain amount of vertical resiliency between the sliding contacts at 5, 15 and 9, 21. This factor, taken in connection with the fact that the guide 1 and slides 11 do not substantially engage one another otherwise than at the contacts 5, 15 and 9, 21, accounts for the ease with which telescoping may be accomplished without sacrifice of stiffness of the structure when extended. Substantial rigidity when extended is important in order that twisting effects shall not be applied to the relatively fragile tubular fluorescent lamps. It

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may also be observed that the reflectors 41, which are sprung onto the guide 1 and slides 11, form overlapping stiffeners in the installed condition of the fixture.

In the appended claims, the term beads is employed for defining the hook-shaped character of the elongate lower edges of the walls 7 and 17. Thus the lower edges of the guide 1 and slides 11 have the double functions of forming beads for springingly receiving the lips 42, and for sliding engagement with one another to effect telescoping.

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. A luminaire for elongate tubular fluorescent and similar lamps, comprising an elongate slide member of generally hollow inverted U-shape, lamp ballast equipment mounted in said slide member, an elongate guide member also of hollow inverted U-shape adapted internally to receive one end of the slide member in telescoping relation, supporting end plates carrying lamp sockets, said end plates being supported from said members, latching means cooperating between the slide and guide members adapted to predetermine their extended positions, said slide member being movable with respect to said guide member from an extended latched position wherein the lamp sockets are spaced apart a distance adapted to accept the lamps and in the absence of lamps to an unlatched telescoped position wherein the lamp ballast equipment is contained within the telescoped slide and guide members.

2. A luminaire for elongate tubular fluorescent and similar lamps, comprising an elongate slide member of generally hollow inverted U-shape, lamp ballast equipment mounted in said slide member, an elongate guide member also of hollow inverted U-shape adapted internally to receive one end of the slide member in telescoping relation, supporting end members carrying lamp sockets below the lower edges of the U-shapes, said end plates being supported from said members, latching means cooperating between the slide and guide members adapted to predetermine their extended positions, said slide member being movable with respect to said guide member from an extended latched position wherein the lamp sockets are spaced apart a distance adapted to accept the lamps, and in the absence of lamps to a retracted telescoped position wherein the lamp ballast equipment is contained within the telescoped slide and guide members, said slide and guide members being formed at the lower edges of their U-shapes as beads, and a reflector plate of flexible sheet form having snap-on devices adapted to be snapped on from below to the beads of the slide and guide members in a position above said lamps.

3. A luminaire for elongate tubular fluorescent and similar lamps comprising two elongate endwise slide members of generally hollow inverted U-shape, lamp ballast equipment units mounted in at least one of said slide members, an intermediate elongate guide member also of hollow inverted U-shape adapted internally to receive respectively in telescoping relation at each oppo-

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site end a slide member, supporting end members which are respectively attached to the outer ends of the slide members and carrying lamp sockets, latching means cooperating between the respective slide members and the guide member adapted to predetermine the extended positions of the slide members relative to the guide member, said slide members being movable with respect to said guide member from extended latched positions wherein the lamp sockets are spaced apart a distance adapted to accept the lamps, and in the absence of lamps to retracted telescoping positions in the guide member wherein they abut one another and wherein the lamp ballast equipment unit is contained within telescoped slide and guide members.

4. A luminaire for elongate tubular fluorescent and similar lamps comprising two elongate slide members of generally hollow inverted U-shape, a lamp ballast equipment unit mounted in at least one of said slide members, an intermediate elongate guide member also of hollow inverted U-shape adapted internally respectively to receive at each opposite end a slide member in telescoping relation, supporting end members carrying lamp sockets respectively attached to the outer ends of the slide members, latching means cooperating between the respective slide members and the guide member adapted to predetermine the extended positions of the slide members relative to the guide member, said slide members being movable with respect to said guide member from extended latched positions wherein the lamp sockets are spaced apart a distance adapted to accept the lamps, and in the absence of lamps to retracted telescoping positions in the guide member wherein they abut one another and wherein a lamp ballast equipment unit is contained within telescoped slide and guide members, said slide and guide members being formed at the lower edges of their U-shapes as beads, and at least one reflector plate of flexible sheet material having snap-on means adapted to be snapped onto the beads of the slide and guide members when extended.

5. A luminaire for elongate tubular fluorescent and similar lamps comprising two elongate sheet

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metal slide members of generally hollow inverted U-shape, a lamp ballast equipment unit mounted in each of said slide members, a central elongate sheet metal guide member also of hollow inverted U-shape adapted at opposite ends internally to receive the respective slide members in telescoping relation, supporting end plates which are respectively attached to the outer ends of the slide members and carrying lamp sockets below the lower edges of the U-shapes, latching means cooperating between the respective slide members and the guide member adapted to predetermine the extended positions of the slide members relative to the guide member, said slide members being movable with respect to said guide member from extended latched positions wherein the lamp sockets are spaced apart a distance adapted to accept the lamps and in the absence of lamps to retracted telescoping positions in the guide member wherein they abut one another and wherein the lamp ballast equipment units are contained within telescoped slide and guide members, said slide and guide members being formed at the lower edges of their U-shapes as beads, and a pair of reflector plates of flexible sheet material having snap-on lips adapted to be snapped onto the beads of the slide and guide members, said reflector plates being located above the lamps, abutting centrally within the confines of the guide member and extending substantially to the end members.

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