Aug. 24, 1943. P. S. STRANG 2,327,568

LIGHTING FIXTURE

Filed July 15, 1941

Fig. 1.

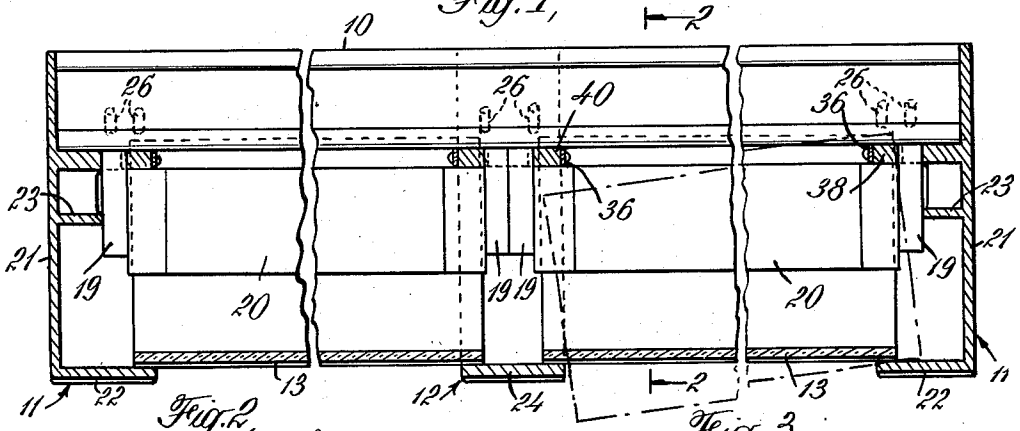


Fig. 2.

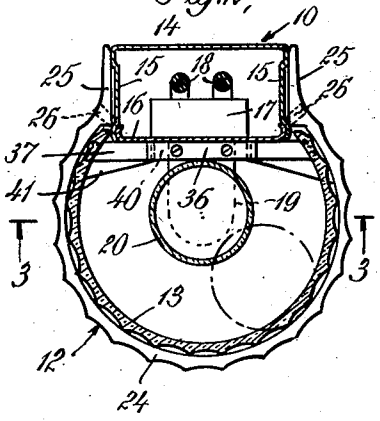


Fig. 3.

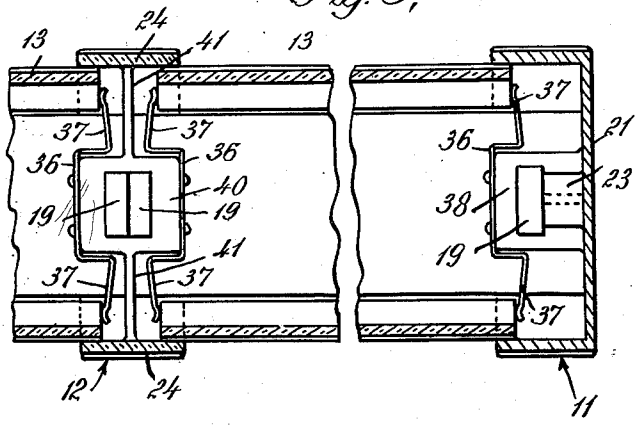


Fig. 4.

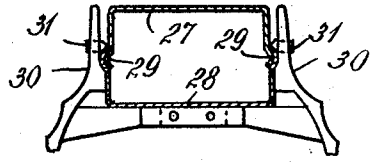
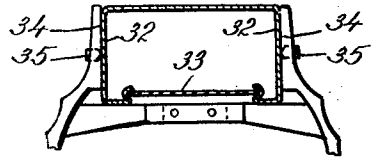


Fig. 5.



INVENTOR
Perry S. Strang
BY
Pennie Davis Marvin & Edmonds
ATTORNEYS

Patented Aug. 24, 1943 2,327,568

UNITED STATES PATENT OFFICE

2,327,568

LIGHTING FIXTURE

Perry S. Strang, West Hartford, Conn., assignor to The Wiremold Company, a corporation of Connecticut

Application July 15, 1941, Serial No. 402,451

4 Claims. (Cl. 240—78)

This invention relates to lighting fixtures of the character in which tubular lamps are employed, and has for its principal object to provide a fitting by means of which such lighting fixtures may be made from standard forms of wiring conduit.

Tubular-lamp lighting fixtures, such as are used for fluorescent lamps, are generally made specially and are therefore relatively expensive. By means of the fitting which the present invention provides, it is possible to make neat and attractive tubular-lamp lighting fixtures using standard sizes and shapes of relatively inexpensive wiring conduits or raceway. The only parts necessary to produce such a lighting fixture, in addition to the fittings of the invention, are a suitable length of standard wiring conduit in which the lamp receptacles and necessary wiring equipment are mounted, and a standard translucent glass or other lamp housing.

Fittings according to the invention comprise a generally U-shaped flange terminating in bosses adapted to bear against the side walls of a wire-carrying channel, such, for example, as a length of standard wiring conduit or raceway. The flange of the fitting is of such size and shape as to be adapted to receive and support the end portion of a generally U-shaped translucent tubular lamp housing. Set screws are mounted in the bosses on the fitting flange for engagement with the channel side walls to lock the fitting to the channel.

Advantageously resilient means are mounted within the fitting for resisting lengthwise movement of a lamp housing supported thereby. Such resilient means serve to prevent accidental dislodgment of the lamp housing from the normal position in which it is supported by the fitting flanges. Such resilient means may comprise a spring fastened to a bracket mounted in the fitting and secured thereto. The spring may have resilient arms extending from the bracket toward the flange, or otherwise arranged so as to engage yieldingly with the end of the lamp housing to resist lengthwise movement thereof.

The bracket may be formed with an opening through which may protrude the projecting portion of a lamp receptacle mounted in the channel, whereby the fitting may be located easily in proper relation to the lamp receptacle, and whereby also the projecting portion of the lamp receptacle is given additional mechanical support.

If the fitting is to be used as an end fitting at the end of the lighting fixture, it is formed with an end closure plate to which the flange is secured, and to which the bracket and spring or other resilient means for resisting lengthwise movement of a lamp housing also may be secured. If the fitting is to be used as a mullion at a point between the ends of the completed fixture, as where a pair of lamp receptacles are mounted to support tubular lamps in end-to-end relation, then the flange constitutes the main body portion of the fitting. A bracket on which are supported springs to engage with and to resist lengthwise movement of the tubular lamp housing may be secured to the mullion flange by suitable connecting means.

The invention will be better understood from the following description considered in connection with the accompanying drawing; in which

Fig. 1 is a side view of a lighting fixture formed with the new fittings, the fittings being shown in longitudinal vertical section;

Fig. 2 is a cross section through the fixture taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary longitudinal horizontal section through the lighting fixture taken substantially along the line 3—3 of Fig. 2, but with the tubular lamp removed; and

Figs. 4 and 5 are fragmentary views of the new fitting showing modified forms of bosses for different standard forms of wiring conduit.

The lighting fixture shown in Fig. 1 is formed of a wire-carrying channel 10, end fittings 11 and a mullion 12 constructed in accordance with the invention, and a pair of translucent glass lamp housings 13. The wire-carrying channel 10 is a conventional wiring conduit or raceway of any suitable standard cross-sectional size and shape, cut to the length of the lighting fixture. As best shown in Fig. 2, this conduit comprises a channel having a bottom wall 14 and side walls 15, fitted with a cover 16. The bases 17 of receptacles of the type employed with tubular fluorescent lamps are shown mounted within the channel 10, and are connected in the usual manner by wires 18 to a source of electric current and to any necessary electrical equipment (such as fluorescent lamp auxiliaries, which also may be mounted in the channel). Protruding portions 19 of the receptacles project through the channel cover 16 to permit mounting of tubular lamps 20 outside the channel.

The end fittings 11 each comprise an end closure plate 21 and a flange 22 secured thereto. The flange 22 is shown formed with ornamental flutes (matching corresponding ornamental flutes formed on the lamp housings 13). The

closure plate 21 of the end fittings also may be suitably ornamented, thereby providing attractive closed ends for the fixture. As shown in the drawing, the closure plates 21 each are provided with an inwardly projecting rib structure 23, which provides mechanical support to back up the protruding portions 19 of the lamp receptacles.

The mullion 12 comprises a flange 24 similar in size and shape to the flanges 22 of the end fittings, and shown similarly provided with ornamental flutes. The size and shape of the mullion flange 24 and the end fitting flanges 22 is such that the end portions of the generally U-shaped translucent lamp housings 13 may be inserted therein and supported thereby.

The flange 24 of the mullion (and similarly the flanges 22 of the end fittings) terminate in bosses 25 adapted to bear against the side walls 15 of the wire-carrying channel 10, as best shown in Fig. 2. The bosses 25 are provided with set screws 26 which, when turned down, seat against the channel side walls and lock the fitting to the channel. In Fig. 2 the set screws 26 are shown in such position as to engage the channel side wall 15 immediately below an outwardly extending ridge with which the channel is provided. This location and arrangement of the set screws is advantageous, but other arrangements may be employed. For example, Figs. 4 and 5 show fittings having modified forms of bosses at the extremities of the fitting flange, provided with differently arranged set screws, for use in conjunction with other standard types of wiring conduits or raceways. In Fig. 4 the wire-carrying channel is formed from two channel elements 27 and 28 held together by a form of tongue and groove interlock 29. The bosses 30 on the fitting flange designed for use in conjunction with this type of channel are shaped to bear particularly against the side wall portion of the channel element 28, and the set screws 31 are so located as to engage with the channel side wall immediately adjacent the tongue and groove interlock between the channel elements. In Fig. 5 the standard form of conduit is one which comprises a channel element formed with straight side walls 32 and a cover 33 which may be snapped into position. The bosses 34 of the flange of the fitting designed for use in conjunction with this type of channel bear against the straight channel side walls 32, and pointed set screws 35 are employed to insure positive locking of the fitting to the channel.

Although set screws constitute especially satisfactory and easily used means for locking the fitting to the channel, it is understood that various other means may be employed for attaching the fitting to the channel.

The fittings (both end fitting and mullion) advantageously are provided with resilient means to resist longitudinal movement of the lamp housing 13 and prevent it from becoming accidentally dislodged from the position in which it is supported by the fitting flanges. The resilient means shown in the drawing (best seen in Fig. 3) comprise leaf springs 36 each having two resilient arms 37 arranged to bear against the ends of the lamp housings 13 when the lamp housings are positioned in and supported by the fitting flanges. The resilient spring arms 37 bear against each end of the lamp housing 13, resisting longitudinal movement of the lamp housing in either direction, and so tend to prevent the lamp housing from becoming accidentally dislodged from the position in which it is normally supported by the fitting flanges.

The leaf spring 36 on the end fitting is suitably secured by rivets or otherwise to a bracket 38, which in turn is secured to the closure plate 21. The bracket 38 is formed with an opening through which protrudes the projecting portion 19 of the end lamp receptacle. The bracket 38 thus aids in properly locating the end fitting 11 with respect to the lamp receptacle, and since the bracket embraces the projecting portion 19 of the receptacle, it provides a measure of mechanical support therefor.

The leaf springs 36 with which the mullion 12 is provided are secured one on each side of bracket 40 by means of rivets or otherwise. The bracket 40 is secured by connecting arms 41 to the mullion flange 24. The bracket 40 is provided with an opening through which the projecting portions 19 of lamp receptacles mounted back-to-back may protrude. The bracket 40 thus serves to locate the mullion 12 in proper relation with respect to the lamp receptacles, and further provides a measure of mechanical support for the projecting portions of the receptacles.

Although the leaf springs 36 are shown provided each with two resilient arms 37, it is of course understood that a greater number of such resilient arms extending from the bracket outwardly toward the flange may be provided. In general each spring should be formed with at least two resilient arms so as to insure a proper balance of spring forces on the lamp housing.

To insert the lamp housing into position for support by the fitting flanges, the housing is first tilted (as shown by the dotted lines of Fig. 1) and one end of the housing is forced into the flange of one of the fittings (the right-hand end fitting in the case illustrated in Fig. 1) against the pressure of the spring arms until the opposite end of the housing can be raised sufficiently to permit insertion into the other supporting flange. When the housing has been mounted in place, the springs pressing on each end tend to prevent it from becoming accidentally dislodged, but do not particularly interfere with intentional removal by a reversal of the procedure just described.

Although the lighting fixture is shown in Figs. 1 to 3 in a specific form having only one continuous line of tubular lamps, it is understood that modifications may be made to permit the use of two or more tubular lamps arranged substantially parallel to one another. It is also understood that the completed fixture may have more or less than the two end-to-end lamps shown in Fig. 1. If only one lamp is employed in the fixture, no mullion is necessary, but if two or more lamps are mounted end-to-end, it is advantageous to employ a mullion at each point where the ends of the lamps substantially abut.

Neat and attractive fittings of the character herein described may be made integrally by die-casting, but it is apparent that they may be made by other means, either integrally or from assembled parts, from any suitable material, either metallic or non-metallic.

I claim:

1. A lamp of the character described comprising a supporting member, end fittings comprising end closure plates having generally U-shaped flanges directed toward each other, an assembly of generally U-shaped translucent tubular lamp housings arranged in end-to-end relation, the outermost ends of the housings of said assembly

being received within and supported by the flanges of said end closure plates, at least one generally U-shaped member supporting adjacent ends of the lamp housings inwardly of the ends of the assembly, a bracket secured to the inside and transversely of said U-shaped member intermediate its side edges, springs secured to opposite faces of said bracket and extending therefrom to engage yieldingly with adjacent end portions of the lamp housings supported by said U-shaped member, to resist endwise movement of such housings in a direction toward said U-shaped member, a bracket secured to each end closure plate inwardly of its respective flange and extending from the same side of the end plate as the flange, and a spring secured to each bracket carried by the end plates and engaging yieldingly with the respective ends of the lamp housings supported by the brackets, to resist endwise movement of the housings toward said brackets.

2. A fitting for a tubular lamp assembly of the character described comprising a generally U-shaped flange the free ends of which terminate in bosses providing opposed channel-engaging surfaces in spaced substantially parallel planes and adapted to bear against the outer surfaces of the side walls of a wire-carrying channel, said flange being of such size and shape as to be adapted to receive and support the end portion of a generally U-shaped translucent tubular lamp housing, set screws mounted in the bosses on the flange for engagement with the channel side walls to lock the fitting to the channel, a generally rectangular bracket arranged within the fitting, the bracket being formed with an opening through which may protrude the projecting portion of a lamp receptacle mounted in the channel, means connecting the bracket to the fitting flange, and a leaf spring secured to the bracket and formed with at least two resilient arms extending from the bracket toward the flange, said resilient arms being adapted to engage with the end of a lamp housing supported by the fitting to resist lengthwise movement of such housing.

3. An end fitting for a tubular lamp assembly of the character described comprising an end closure plate, a generally U-shaped flange the free ends of which terminate in bosses providing opposed channel-engaging surfaces in spaced substantially parallel planes and adapted to bear against the outer surfaces of the side walls of a wire-carrying channel and secured to said closure plate adjacent the periphery thereof, said flange being of such size and shape as to be adapted to receive and support the end portion of a generally U-shaped translucent tubular lamp housing, set screws mounted in the bosses on the flange for engagement with the channel side walls to lock the fitting to the channel, a generally rectangular bracket secured to the closure plate and extending outwardly therefrom in the same direction as the flange, the bracket being formed with an opening through which may protrude the projecting portion of a lamp receptacle mounted in the channel, and a leaf spring secured to the bracket and formed with at least two resilient arms extending from the bracket toward the flange, said resilient arms being adapted to engage with the end of a lamp housing supported by the fitting to resist lengthwise movement of such housing.

4. A mullion for a tubular lamp assembly of the character described comprising a generally U-shaped flange the free ends of which terminate in bosses providing opposed channel-engaging surfaces in spaced substantially parallel planes and adapted to bear against the outer surfaces of the side walls of a wire-carrying channel, said flange being of such size and shape as to be adapted to receive and support the adjacent end portions of a pair of generally U-shaped translucent tubular lamp housings arranged in substantially end-to-end relationship, set screws mounted in the bosses on the flange for engagement with the channel side walls to lock the mullion to the channel, a generally rectangular bracket arranged within the mullion, the bracket being formed with an opening through which may protrude the projecting ends of an adjacent pair of lamp receptacles mounted in the channel, means connecting the bracket to the mullion flange, and leaf springs secured to the bracket one on each side thereof, each of said leaf springs being formed with at least two resilient arms extending from the bracket toward the flange and adapted to engage with the end of a lamp housing supported by the mullion in order to resist lengthwise movement of such housing.

PERRY S. STRANG.