UNITED STATES PATENT OFFICE

2,545,124

FIXTURE HANGER FOR OUTLET BOXES

Nils A. Tornblom, Chicago, Ill., assignor to Apple- ton Electric Company, a corporation of Illinois

Application March 17, 1945, Serial No. 583,333

8 Claims. (Cl. 248—343)

When long lighting fixtures, particularly those of the fluorescent type, are to be suspended from a ceiling, it is necessary not only to make sure that they will be horizontal, but also that they will not turn or swing about a vertical axis. This can be accomplished by employing suspending chains or the like, spaced apart at their upper ends where they are attached to the ceiling and at their lower ends that are attached to the fixture. Since lighting fixtures are commonly hung from outlet boxes in the ceilings, various expedients have herefore been used or proposed to permit this to be done with fixtures of the type to which I have just referred. None of these prior devices, for one reason or another, has been found to be entirely satisfactory, and the present invention has for its object to produce a simple and novel hanger means that shall overcome the difficulties herefore experienced in this field.

In one prior supporting arrangement the cover for the open under side of the outlet box in the ceiling is provided with oppositely disposed, laterally projecting arms to the free ends of which the chains for suspending the lighting fixture are attached. This necessitates the taking down of the lighting fixture when access to the interior of the box is desired. One of the objects of the present invention is to make it possible to provide an ordinary outlet box with suitable hanger arms without requiring such arms to be disturbed in order that the box may be opened.

A further object of the present invention is to mount in the outlet box the usual receptacle into which a cord leading to the lighting fixture may be plugged, as well as a controlling switch, in such manner that the initial wiring may be done with the hanger and even the fixture, if desired, in place.

A further object of the present invention is to provide a wide range of adjustment of the lighting fixture angularly of the vertical axis and, further, to permit substantial adjustments of that kind to be made at any time in a simple manner and without the use of any tool.

A further object of the present invention is to make it possible to operate the switch conveniently without creating any tendency to swinging movements in the fixture.

A further object is to make it possible to use receptacles of different sizes and permit either to extend through a central hole in the box cover without leaving any free space in the hole around the small receptacles.

The various features of novelty whereby my invention is characterized will hereafter be pointed out with particularity in the claims; but, for a full understanding of the invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, where-

Figure 1 is a side elevation of a lighting fixture suspended from an outlet box in accordance with the present invention, a ceiling fragment being shown in section;

Fig. 2 is an end view of the assembly, with the ceiling again shown in section;

Fig. 3 is a bottom plan view of the outlet box with its attachments; Fig. 4 is a section on line 4—4 of Fig. 3, but on a larger scale, just as Fig. 3 is on a larger scale than Figs. 1 and 2; Fig. 5 is a bottom plan view of the assembly shown in Fig. 4, with the cover removed; Fig. 6 is a section on line 6—6 of Fig. 4, showing the switch operating lever in two positions, in full and broken lines, respectively; and Fig. 7 is a view similar to Fig. 3, illustrating the use of a receptacle that is larger and of different shape than that appearing in Fig. 3.

Referring to the drawings, 1 represents a long, narrow lighting fixture to the top of which are connected two chains 2 for suspending the same in a horizontal position; the fixture being also provided with a cord or cable 3 having on its free end a plug 4 adapted to be engaged with a suitable receptacle to supply energizing current.

This is old construction, the particular design illustrated being intended only to serve as an example of the kind of fixtures to be supported.

In the ceiling A below which the fixture is to be hung is an outlet box 5, open on the under side. Underlying the box is a hanger, preferably a sheet metal stamping, comprising a central section 6 in the form of an open frame substantially larger than the box end so as to give it strength and still leave the opening in the same large, together with two arms 7 extending therefrom in opposite directions. The whole is stiffened by the presence of a trough-shaped rib 8 almost surrounding the opening in the frame and having branches 9 radiating therefrom into the arms 7. The hanger is attached to the box by means of screws 10 passing through arc-shaped slots 11 in the hanger and into the usual ears 12 in the box; these ears being the ones to which the ordinary cover is fastened. The free ends of the arms 7 are bent down and are provided at the tips with transverse fingers 14 each of which has a row of seats, conveniently in the form of notches 15.
distributed along their upper edges. The ends of these fingers are preferably turned up, as indicated at 16, to transform them into wide, shallow hooks.

Some of the metal displaced to form the large central opening in the hanger is bent laterally at opposite sides of this opening to produce L-shaped brackets 17. The horizontal arms of which are spaced a considerable distance outwardly from that face of the hanger which is on the bottom in the assembly at the ceiling. Screws 18 pass through the horizontal arms of the brackets 15 and 19 to which the plug 4 is complementary. The brackets are tall enough to hold the receptacle almost clear of the box. A piece is partially severed from the frame portion of the hanger at a point ninety degrees from each of the arms 7 and is bent laterally to project on the same side as the brackets to produce an ear 26 near the edge of the frame. On the inner side of this ear is a suitable switch 21 having a nipple 22 that passes through a hole in the ear and has thereon, outside of the ear, a nut 24 between which and the switch proper, the ear is clamped. The switch is of the type that has a wobbling actuator 25 engaged with the outer end of the nipple. To this actuator I attach a long slender arm or lever 26 which extends horizontally when the switch is closed and tends constantly to remain in that position. A suitable pull cord is attached to the free end of the actuating lever as indicated at 27 in Fig. 2.

Cooperating with the hanger is a cover 28 in the form of a dish or pan about as large as the central section of the hanger and deep enough to be set against the under side of the hanger and form therewith and the box a housing for the receptacle and the switch, as well as the wiring in the box. The cover is secured by means of screws 29 that extend through the same and into the brackets 17. It will be seen that the receptacle 15 extends through a hole in the center of the cover and fits the hole so as to be held firmly against lateral displacement. This particular receptacle is a small one adapted to connect two wires in the cord 3 to wires coming into the box to deliver current. When a three wire connection is desired, as in the case of a cord containing a grounding wire for example, the hole in the cover is not large enough to allow the connection wires to pass through. To remedy this, I place the hole 30 for receptacle 19 in a knockout 31 which, when removed, leaves a larger hole. In Fig. 3 the knockout remains in the cover whereas, in Fig. 7 the three wire receptacle 32 occupies the hole left upon the removal of the knockout.

It should also be noted that the cover contains in the annular wall or flange a wide, deep notch 33 in registration with the nipple on switch 21, so that the nipple does not interfere with the application and removal of the cover.

In making an installation, the outlet box having been set in the ceiling, the hanger, with the receptacle and switch already attached, may be fastened to the box with its longitudinal axis arranged approximately parallel to the corresponding axis of the fixture when the fixture occupies its intended position. The free ends of the chains are then engaged with the hook fingers at the ends of the hanger; the bearing seats or notches in the fingers permitting the chains to be shifted along the fingers to effect the final adjustment of the fixture and then to be held against accidental displacement. It will be seen that the pull cord is suspended clear of the fixture because the actuating lever 26, which extends crosswise of the fixture, is long enough to attain this result; and, consequently, the fixture is not disturbed but remains stationary when the cord is pulled.

If the receptacle is of a size to fit into the hole in the cover knockout, then the cover need only be placed in position against the hanger and be fastened with the screws. In the case of a large receptacle, such as shown in Fig. 7, the knockout must be removed from the cover before the same can be applied.

It will be seen that when the cover is removed from the fittings at the ceiling, the outlet box is for all practical purposes open, even though the hanger is in place thereon. Consequently, it is a simple matter to make the necessary connections between the wires entering the box, the receptacle and the switch. Also, inspection, adjustment and repair can be carried out, after installation, simply by removing the cover and without disturbing the fixture.

While I have described and illustrated with particularity only a single preferred form of my invention, it is not to be limited to the exact details so illustrated and described; but intend to cover all forms and arrangements coming within the definitions of the invention constituting the appended claims.

I claim:

1. A combination with a box open at one side, of a hanger spanning said side and projecting in both directions beyond the box, means on the hanger to support a receptacle in an exposed position, and a box cover positioned outwardly from the hanger and having an opening in position to register with the receptacle.  

2. The combination with a box open on one side, of a hanger spanning said side and projecting in opposite directions therefrom, means on the hanger to support a receptacle, and a cover for said side arranged outwardly from the hanger and provided with a knockout in position to register with such receptacle, there being in the knockout a hole to receive the end of a small receptacle, and the knockout itself being large enough to leave a hole, upon removal thereof, adapted to receive an end of a large receptacle.

3. The combination with a box open on the under side, of a hanger spanning said side and projecting at both ends beyond the box, the central portion of the hanger being in the form of an open frame at least as large as the open side of the box to give ready access through the same to the interior of the box, means on the hanger to support a receptacle, and a cover for the opening in the frame and the receptacle, the cover containing an opening through which a part of the receptacle is exposed.

4. A structure as set forth in claim 3, wherein the receptacle is supported mainly outside of the box and the cover is designed to house the receptacle and its immediate supports.

5. The combination with an outlet box open on the under side, of a long hanger having a maximum width only slightly greater than the corresponding dimension of the box extending across said opening. The free ends of the chains are then engaged with the hook fingers at the ends of the hanger; the bearing seats or notches in the fingers permitting the chains to be shifted along the fingers to effect the final adjustment of the fixture and then to be held against accidental displacement. It will be seen that the pull cord is suspended clear of the fixture because the actuating lever 26, which extends crosswise of the fixture, is long enough to attain this result; and, consequently, the fixture is not disturbed but remains stationary when the cord is pulled.
er is adapted to support, the parts being so arranged that the lever lies transversely of the long axis of the hanger.

6. A hanger attachment for an outlet box to support a lighting fixture, which attachment comprises a central section, adapted to be secured over the open under side of such a box, and a pair of arms projecting in opposite directions from the central section, each arm having at its free end a laterally-extending flueger, and each flueger having in its upper edge a plurality of seats distributed along the same for receiving an element of a fixture supporting member and thereby afford means for adjusting a fixture.

7. A hanger for attachment to the open under side of an outlet box, comprising a central section in the form of an open frame and sections in the form of arms projecting in opposite directions from the frame, and brackets protruding from one face of the frame to support a receptacle.

8. A hanger for attachment to the open under side of an outlet box, comprising a central section to span said side and end sections in the form of arms projecting in opposite directions from the central section, said central section having an open center of large area to afford access to the interior of the box through the same, and brackets protruding from one face of the central section for supporting a receptacle mainly outside of the box when the hanger has its opposite face engaged with the box.

NILS A. TORNBLOM.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. 141,024</td>
<td>Meyer</td>
<td>Apr. 24, 1945</td>
</tr>
<tr>
<td>1,309,052</td>
<td>Worrell</td>
<td>July 8, 1919</td>
</tr>
<tr>
<td>1,568,279</td>
<td>Herskovitz</td>
<td>Jan. 5, 1926</td>
</tr>
<tr>
<td>1,623,587</td>
<td>Frederickson</td>
<td>Apr. 5, 1927</td>
</tr>
<tr>
<td>1,796,036</td>
<td>Mangin</td>
<td>Mar. 10, 1931</td>
</tr>
<tr>
<td>1,901,394</td>
<td>Glowacki</td>
<td>Mar. 14, 1933</td>
</tr>
</tbody>
</table>