United States Patent [19]

Catallozzi

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[45] **Nov. 19, 1974**

[54] **FIXTURE SUPPORT**

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Related U.S. Application Data

[63] Continuation of Ser. No. 150,385, June 7, 1971, abandoned.

[52] **U.S. Cl.** **52/706,** 52/28, 204/317

[51] **Int. Cl.** **E04b 5/00**

[58] **Field of Search** ..... 248/317, 342, 467, 205; 52/28, 39, 704, 706; 24/DIG. 11; 206/46 H

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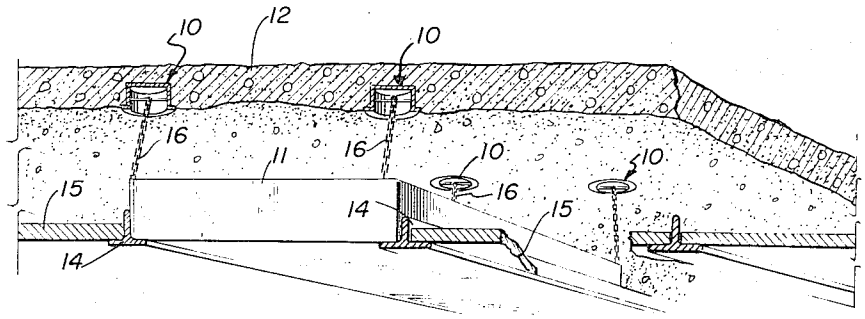
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[57] **ABSTRACT**

A fixture support for use with a concrete ceiling, the support having a main body with a tubular portion through which a bar extends laterally a substantial distance.

4 Claims, 7 Drawing Figures



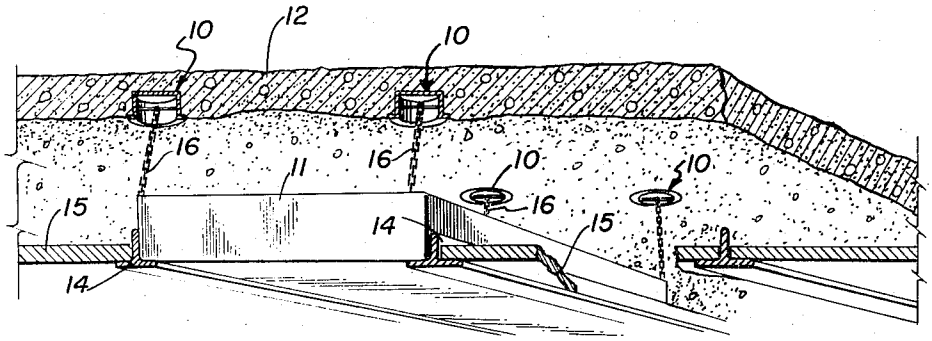


FIG. 1

FIG. 2

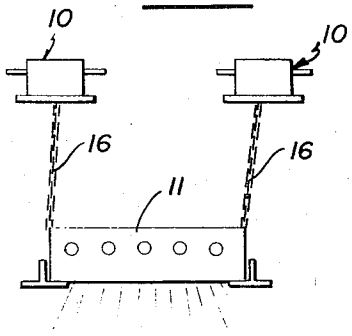
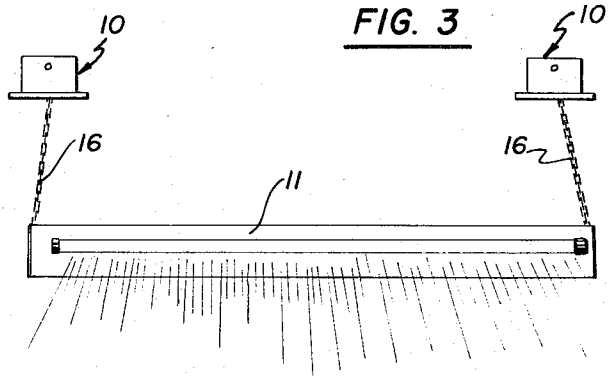


FIG. 3



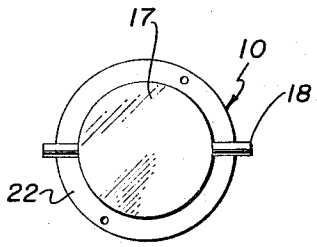


FIG. 4

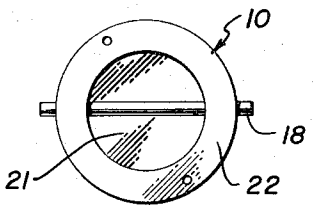


FIG. 5

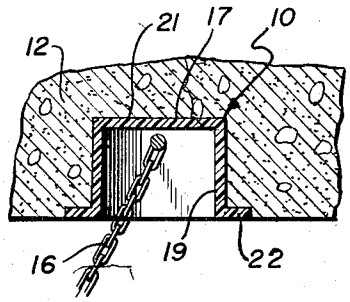


FIG. 7

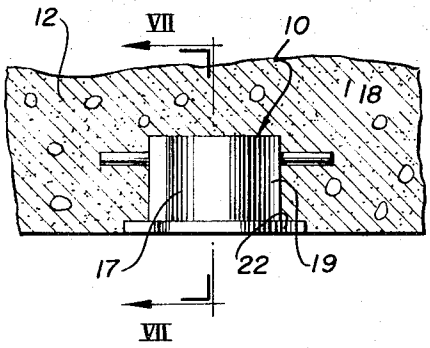


FIG. 6

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FIXTURE SUPPORT

This is a continuation of application Ser. No. 150,385 filed June 7, 1971 now abandoned.

BACKGROUND OF THE INVENTION

In modern building practice, it is common to form the floors of reinforced concrete, the underside of a floor constituting a ceiling for the room below it. The upper part of the room is provided with a so-called "drop" ceiling consisting of thin beams extending across the ceiling in a grid-like conformation and into which ceiling tile are dropped. At the same time, in the place of some of the tile, fluorescent light fixtures are provided which rest on the horizontal flanges of the beams. Because of the fragile nature of the drop ceiling beams and their extreme length, it is necessary to provide supplemental support for the fluorescent lights. This has been done by driving studs into the concrete floor or super-ceiling and running wires to the fluorescent fixtures. This is not only a dangerous and expensive operation, but the studs driven into concrete have a tendency to loosen up and do not provide adequate support. Furthermore, the operation of driving the studs takes place at a time in the building construction which is inconvenient. These and other difficulties experienced with the prior art devices have been obviated in a novel manner by the present invention.

It is, therefore, an outstanding object of the invention to provide a fixture support for use in a concrete building structure, which fixture is capable of carrying heavy loads for long periods of time without loosening.

Another object of this invention is the provision of a fixture support which is introduced into a concrete structure at the time that the concrete is poured, so that it does not involve a construction procedure which takes place when drop ceilings are being moved into place.

A further object of the present invention is the provision of a ceiling fixture which is inexpensive to manufacture, which is simple in construction, which is easy to install by unskilled labor, and which is capable of a long life of useful service without deterioration.

With these and other objects in view, as will be apparent to those skilled in the art, the invention resides in the combination of parts set forth in the specification and covered by the claims appended hereto.

SUMMARY OF THE INVENTION

In general, the invention consists of a fixture support adapted to be embedded in a concrete ceiling. It has a main body with a cylindrical tubular portion having an integral closure portion at one end and an outwardly extending flange at the other end. A bar extends transversely across the tubular portion at an intermediate portion thereof and extends externally thereof a substantial distance into the concrete.

More specifically, the tubular portion is formed of plastic and is circular in cross-section, while the periphery of the flange is a circle concentric to the tubular portion. A flexible element consisting of a chain or the like is attached at one end to the bar within the tubular portion of the main body and the other end is connected to the fluorescent light fixture resting on the beams of a drop ceiling.

BRIEF DESCRIPTION OF THE DRAWINGS

The character of the invention, however, may be best understood by reference to one of its structural forms, as illustrated by the accompanying drawings, in which:

FIG. 1 is a perspective view showing a plurality of the light fixtures constructed in accordance with the principles of the present invention in use with a light fixture,

FIG. 2 is an end view of the fixture supports and the light fixture,

FIG. 3 is a side view of the fixture supports and the light fixture,

FIG. 4 is a plan view of the fixture support,

FIG. 5 is a bottom view of the fixture support,

FIG. 6 is a side view of the fixture support showing it embedded in concrete, and

FIG. 7 is a sectional view of the fixture support taken on the line VII—VII of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIGS. **1, 2,** and **3,** which best show the general features of the invention, the fixture support, indicated generally by the reference numeral **10,** is shown in use supporting a fluorescent light fixture **11.** The fixture supports are embedded in a concrete flkoor **12** whose upper surface constitutes the floor of the building recess above and whose undersurface constitutes the super-ceiling of the building cavity or room below. Mounted below and spaced from the floor **12** is a drop ceiling **13** having beams **14** of T-shape on the horizontal flanges of which are placed ceiling tiles **15.** At intervals, the fluorescent light fixtures are also dropped into the beams and rest on the horizontal flanges of the beams. A flexible element **16** extends from each fixture support **10** to a corner of the light fixture **11.**

Referring to FIGS. **4, 5, 6,** and **7,** it can be seen that the fixture support **10** consists of a main body **17** made of plastic (preferably by the injection molding method) and a bar **18** consisting of a length of steel rod. The main body is provided with a cylindrical tubular portion **19** having a circular cross-section and closed at one end by a flat integral closure **21** and provided at the other end with an outwardly-extending flange **22.** The periphery of the flange is circular and is concentric with the tubular portion **19.** The length of the bar **18** is such that it extends through the tubular portion **19** at an intermediate portion thereof and extends externally thereof a substantial distance, which distance is considerably greater than the distance that the flange **22** extends outwardly from the tubular portion.

The operation of the invention will now be readily understood in view of the above description. Before the floor **12** is poured, it is necessary to lay the form in the shape of a wooden plywood deck. Concrete is poured on this deck and this forms the undersurface of the floor **12.** Before the concrete is poured, however, the fixture supports **10** are laid on the upper surface of the deck and stapled in place to prevent them from moving around during the pouring of the concrete. If a metal form is used, they may be held in place by using sheet metal screws or a two-sides pressure-sensitive tape made for this purpose. The location of the supports on the surface of the form must be done somewhat carefully, since this determines their final location relative to the light fixtures.

In the preferred embodiment, the flexible element **16** is held inside of the main body **17** during shipping and handling by taping the open end of the main body. The tape is removed when the support is attached to the form. Concrete is then poured and, after the form has been removed, the flange **22** lies flush within the undersurface of the concrete floor **12.** The bar **18** is, of course, embedded in the concrete in the portions which extend outside of the main body and it serves to lock the main body in place in the concrete. The drop ceiling is then installed by installing the beams **14** and then dropping the fluorescent light fixtures **11** into the proper spaces beneath the fixture supports **10.** The flexible element **16** has fallen down in place ready to be attached to the fluorescent light. It is attached to the fluorescent light in such a way as to have a slight tension in it without, on the other hand, lifting it free of the horizontal flanges of the beams **14.** In other words, most of the weight of the fluorescent light fixture is removed from the beams and is supported by the flexible elements **16** and the fixture supports **10.**

It can be seen, then, that by this process it is possible to install the fixture supports during the time that the plywood form is being installed. This is done by the electricians after the carpenters have installed the forms. There is no need, therefore, to bring in especially licensed persons to shoot studs into the concrete after the forms have been removed and before the drop ceiling is installed. Also, considerable labor is saved since placing the studs in the concrete involves either running up and down ladders or a costly two-man operation on a staging. The present invention allows a one-man operation working down onto the plywood deck or form rather than overhead. The plastic material of which the main body is formed is not subject to corrosive action from the concrete and, of course, the bar **18** is selected large enough so that corrosion presents no problem. The present invention, therefore, provides a strong, permanent means of maintaining the weight of the fluorescent fixtures. When the term "fixture" is used, the intention is that it mean any structure that is to be suspended from the ceiling.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, however, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

The invention having been thus described, what is claimed as new and desired to secure by Letters Patent is:

1. A fixture support adapted to be attached to the upper surface of a concrete form so as to subsequently be embedded in a concrete ceiling poured on the form, comprising

a. a main body having a cylindrical tubular portion with an integral closure at a first closed end and an integral outwardly-extending flange at a second open end extending outwardly of the tubular portion,

b. a bar extending transversely across the tubular portion and extending externally thereof a substantially greater distance than the flange, the bar extending across the tubular portion at a position adjacent the closed end, and

c. an elongated, flexible element having a first end attached to the bar and a second end extendable well beyond the limits of the main body to a point a greater distance from the main body than any straight distance within the main body, the support including a closing means for attaching the entire flexible element within the main body until the body is attached to the form.

2. A fixture support as set forth in claim **1,** wherein the body is formed of a plastic which is chemically impervious to the action of the concrete ceiling.

3. A fixture support as set forth in claim **1,** wherein the tubular portion is a right circular cylinder and the flange extends radially a distance approximately one-fourth the diameter of the cylindrical tubular portion.

4. A fixture support as set forth in claim **1,** wherein the bar is steel.

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