

[54] **ELECTRICAL FIXTURE HANGER**

[76] Inventor: **Joseph J. Koziarz**, 5830 W. Leland Ave., Chicago, Ill. 60630

Primary Examiner—Price C. Faw, Jr.
Attorney—John J. Kowalik

[22] Filed: **Oct. 12, 1971**

[57] **ABSTRACT**

[21] Appl. No.: **188,364**

A support for an electrical fixture from a ceiling tile or ceiling wall structure of low tensile strength, comprising a junction box fitted between load spreading beams positioned to overlie the structure. A pair of bendable hanger straps are hooked over the beams and flank the box which is held with its lower edge flush with the ceiling surface. The straps are bent at their lower ends upwardly into the box under its lower edge, and thus hold the box with its lower edge aligned with the ceiling surface. A clamping foot is mounted on each hanger and presses against the top of the tile, and the box has big extensions which bear against the bottom of the tile.

[52] U.S. Cl.....52/28, 248/343

[51] Int. Cl.....E04g 17/18

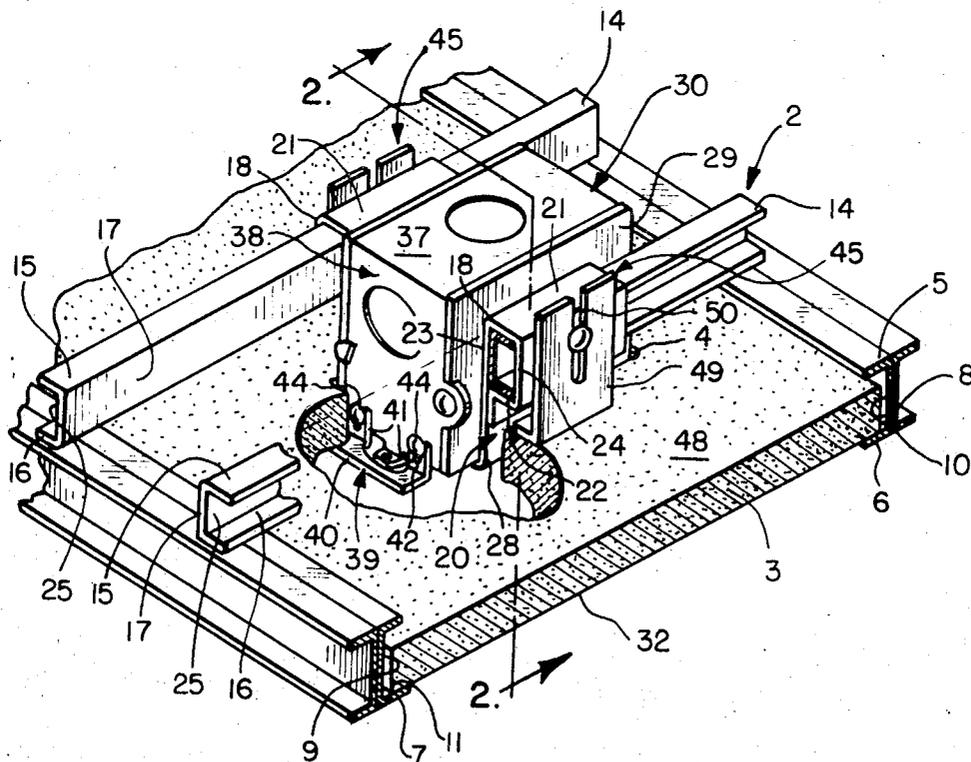
[58] Field of Search.....52/28, 39, 27, 173, 484;
248/343, 342

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10 Claims, 3 Drawing Figures



ELECTRICAL FIXTURE HANGER**DISCUSSION OF THE PRIOR ART**

In practice, it has been extremely difficult to mount electrical supports from ceiling tile. Extensive support structure above such tile has had to be provided, and the tile served merely as a facade. Frequently, fixtures have had to be mounted in the center of such tile, and if the preliminary bracing above the tile had not been anticipated, makeshift structures have been provided which would hinder adequate servicing and repair of the structure.

SUMMARY OF THE INVENTION

This invention is directed to a novel, simple and effective device which facilitates mounting of electrical connections and the like from ceiling tile and the like, although not necessarily restricted thereto.

The invention contemplates the provision of a support structure which comprises hangers bendable into a junction box for holding the box within a ceiling or wall aperture and which may be bent out to release the box.

A further object is to provide a novel support which is easy to apply and remove.

Another object is to provide a support from a ceiling tile which comprises means for tightening the junction box against the top and bottom sides of the tile to hold the box tightly in position.

These and other objects and advantages inherent in and encompassed by the invention will become more apparent from the specifications and the drawings, wherein:

FIG. 1 is a perspective view of the novel device from the top side thereof, showing its application to the ceiling tile;

FIG. 2 is an enlarged cross-sectional view taken substantially on line 2—2 of FIG. 1;

FIG. 3 is a side elevational view taken substantially on line 3—3 of FIG. 1.

DESCRIPTION OF THE INVENTION

The mounting structure generally designated 2 is shown applied to a cellulose or other composition acoustical tile 3 which has an aperture 4 formed therein.

The tile is of conventional type which is peripherally supported by a peripheral metal frame 5, comprising U-shaped frame members 6,7 providing grooves 8,9 nesting opposite edges 10 and 11 of the tile.

The frame 5 is suitably anchored to the joists, rafters or other building elements as well known in the art and form dividers between the tiles and releasably support the same.

The support or mounting assembly 2 comprises a pair of laterally spaced generally parallel beams 14,14 which may be of U-shape in cross-section. The beams overlie or straddle the frame members 6,7 and are supported thereby. Each beam has top and bottom flanges 15 and 16 and a vertical interconnecting web 17.

Over each beam 14 is sleeved a loop 18 formed on the upper end of a metal, flat sheet steel strap or hanger 20. The loop 18 is of quadrilateral shape complementary to beam 14, and has top and bottom webs 21 and 22 and inner and outer side webs 23,24. Web 23 lays against the web 17 of the associated beam 14 and web

24 bridges the gap or groove 25 of the related beam 14. In the present instance the lower web 22 is provided with a depending inner edge flange 26 which is spot welded as at 27 to the extension leg 28 of the inner web 23 as best seen in FIG. 2.

The leg 28 lays flat against the outer side 29 of an adjacent side wall 31 of a junction box 30 which is complementary to and fitted in the opening 4 of the tile 3.

The legs 28 of the respective hangers are bifurcated at their lower ends and the furcations 29,29 extend below the ceiling surface 32 of the tile, and as best seen in FIG. 2 these furcations are bent under the lower edge 34 of the side walls of the box 30 as at 35 and are each turned upwardly against the inner face 36 of the related side wall 31. Thus the box is prevented from dropping out of the ceiling opening.

The box has a top wall 37 and end walls 38,38, and each end wall is provided with a clamp 39 which comprises a bottom horizontal flange 40 which hooks under the adjacent edge of the tile. The flange has a pair of upwardly extending bifurcated lugs 41,41. Each lug 41 provides an upward open slot 42 admitting a shank 43 of a screw threaded into an aperture in the adjacent end wall 38 of the junction box. The head 44 of each screw clamps the related lug 41 against the end wall 38 when the screw has been tightened after the clamp 39 has been adjusted to engage the ceiling surface.

The junction box is biased upwardly by a pair of vertically adjustable resilient tighteners of anti-sag devices 45, each comprising a lower foot portion 46 which extends parallel to the top 48 of the tile and presses thereupon. The foot portion is connected to an up-standing flat leg portion 49 which lays against the web 24 of the adjacent hanger loop. The leg 49 is bifurcated and has a vertically elongated slot 50 which admits the shank 51 of a self-tapping screw 52, the shank being threaded into a hole 53 in the adjacent loop web 24 and extending into the groove 25 of the adjacent beam 14. After the vertical height of leg portion 49 is determined and positioned, the screw 52 is tightened to clamp leg portion 49 against the engaging web 24. The position of the leg portion would normally be determined by measuring the distance from the bottoms of beams 14 plus thickness of web 22, to the ceiling top, and the tighteners would be appropriately secured to the hanger loops.

In order to assemble the device within a ceiling after the aperture 4 is cut out, the beams 14 are inserted through aperture 4 over the beam 6. The hanger loops are then sleeved the respective ends of beams 14 and slid to a position whereat the beams can be placed over the beams 6 and 7 and the hangers project out of the aperture 4. The box 30 is then inserted between the hangers and the legs 29,29 bent under the lower edges of the box. This causes the anti-sag devices to clamp the upper sides of the tile and the flange clamp 29 to butt against the lower side. The tighteners 45 also serve to resist the beams 14 from sliding lengthwise off their supports. The fixture or other connection is then inserted into the box and the cover plate (not shown) is connected to the end lugs 60 on the end walls 38 of the box as well understood.

It will be noted that preferred embodiment of the invention has been disclosed and that various other forms thereof will now become readily apparent to those

skilled in the art which come within the scope and spirit of the invention as set forth in the appended claims.

I claim:

1. A mounting for a junction box and the like on a building wall having a box-receiving aperture, elongated support means mounted behind the wall structure adjacent to the aperture, hanger means comprising an element having a sleeve portion at one end sleeved on the support means and slidable thereon lengthwise thereof and having a shank extendible from the sleeve portion for alignment with the aperture for extension therethrough, a junction box positioned in the aperture, said shank portion bendable about a wall edge of the box for retaining the box within the aperture.

2. The invention according to claim 1 and said sleeve portion having a section remote from the box, and a foot structure mounted on said section and adjustable to engage the interior of the wall structure.

3. The invention according to claim 1 wherein said wall structure comprises a ceiling tile with a peripheral frame, and said support means comprises beam means spanning said frame.

4. The invention according to claim 3 and said hanger means comprising a pair of said elements positioned with the shank portions embracing said box and said shanks being bent inwardly toward each other into the box, and means on the box projecting under the tile.

5. The invention according to claim 4 and said beam means being of U-section, and the sleeves comprising

wall segments spanning the open side of the U and a foot structure associated with each sleeve and having a leg slotted against the respective wall segment and adjustably secured thereto for movement toward and away with respect to the top of the ceiling tile.

6. The invention according to claim 5 and said beam means spaced apart to accommodate said box and supporting said elements in abutting relation to respective sides of the box, and said hanger means serving to limit the spread of the beam means and support of the box.

7. The invention according to claim 6 and each said element comprising a rectangular opening complementary to and closely fitting upon the associated beam means and slidable lengthwise on the beam means, and said fit serving to hold the hanger means from rotating with respect to the beam means.

8. The invention according to claim 1 and said element being formed of sheet steel and said shank portion having a narrow end portion to facilitate bending thereof.

9. The invention according to claim 1 and said elements and support means having complemental engagement transversely of the beam means and having close contact to prevent elongation of the element attendant to supporting and associated fixture.

10. The invention according to claim 9 and said hanger means comprising flat sheet steel elements, and means on the box and on the hanger elements for tightly embracing the wall structure therebetween.

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