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Hoffman

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[54] SUPPORT HANGER FOR INTERIOR LIGHTING FIXTURE

[75] Inventor: **Kenneth C. Hoffman,** Vicksburg, Miss.

[73] Assignee: **Westinghouse Electric Corporation,** Pittsburgh, Pa.

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[51] **Int. Cl.**.....**F21r 3/02**

[58] **Field of Search**.....248/201, 342, 343, 27, 214; 240/73 BC, 78 H, 78 HA; 52/28, 39

[56] **References Cited**

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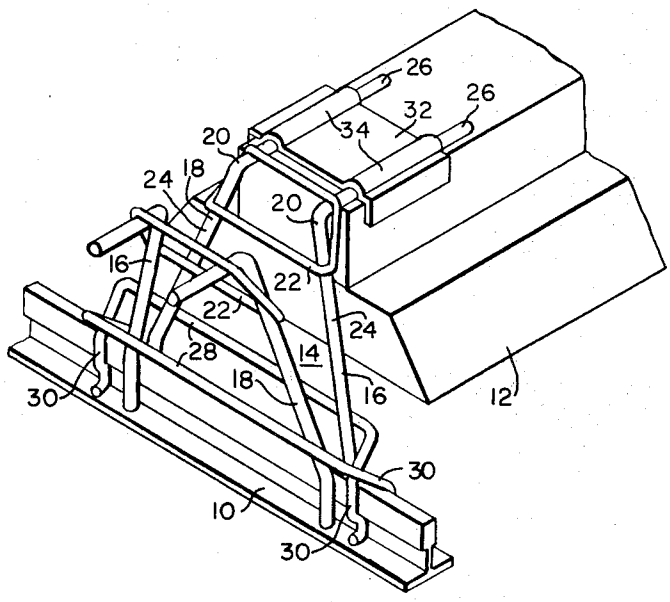
Primary Examiner—J. Franklin Foss

Attorney—A. T. Stratton, W. D. Palmer and Blair Studebaker

[57] **ABSTRACT**

A support hanger for mounting and supporting each end of an interior lighting fixture well above the ceiling supporting frame, in a vaulted type ceiling. The support hanger includes a pair of upstanding, converging, substantially inverted L-shaped members joined at their upper bend by a cross brace and joined adjacent the bottom ends by an offset, elongated, inverted U-shaped cross brace. The downwardly directed fingers of the elongated, inverted U-shaped cross brace coact with the bottom ends of the inverted L-shaped members to mount the hanger on the ceiling support T-bars while the horizontally projecting ends of the inverted L-shaped members engage a bracket on the luminaire to thereby support the luminaire above the ceiling level.

6 Claims, 3 Drawing Figures



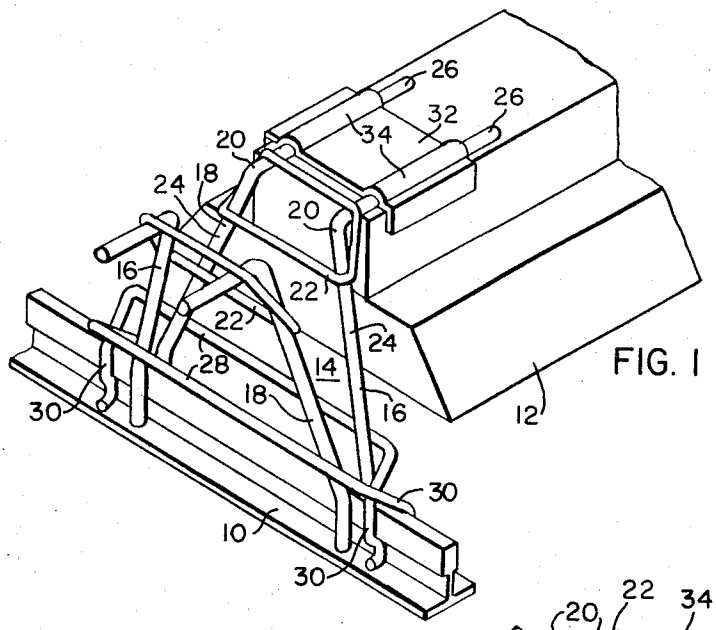


FIG. 1

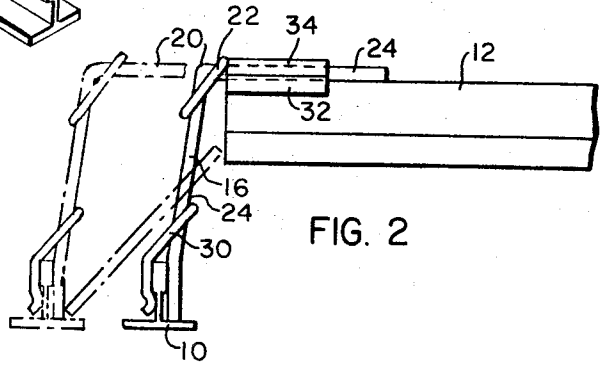


FIG. 2

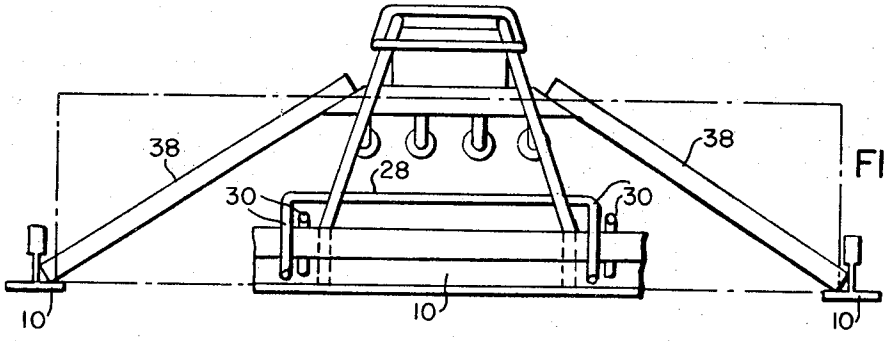


FIG. 3

SUPPORT HANGER FOR INTERIOR LIGHTING FIXTURE

BACKGROUND OF THE INVENTION

This invention relates to lighting fixture supports and more particularly to a support hanger for mounting and supporting an interior lighting fixture in a vaulted type modular ceiling system.

For many years, commercial buildings, particularly office buildings, have employed the modular type acoustical drop ceiling which includes a supporting framework of runners generally in the form of T-bars. The ceiling which generally includes acoustic tile and periodically along the ceiling, a lighting fixture are supported directly on the framework to give the ceiling a flat planar appearance throughout. More recently, the concept of a vaulted, acoustic ceiling has been employed for aesthetic as well as functional reasons. These ceilings are supported from a framework of support runners similar to that employed in the conventional drop ceiling with either intermittent or all of the modules being designed in the form of a recessed or vaulted configuration.

An early example of the vaulted type modular ceiling system is disclosed in Alexieff U.S. Pat. No. 3,321,877. The Alexieff patent also discloses one method by which lighting fixtures can be mounted within the valuted modular ceiling system.

U.S. Pat. No. 3,509,668 to Ollinger et al also discloses a method of mounting a luminaire at the top or apex of a vaulted ceiling system.

The majority of the prior art lighting fixture support mechanisms for supporting the fluorescent luminaire in a vaulted ceiling involve elaborate, rigid sheet metal-type supports which are inflexible with regard to luminaire size, employ a substantial amount of expensive materials and require sophisticated forming equipment and hence, relatively high manufacturing costs. One other drawback of the prior art systems is that a single support runner or T-bar cannot support linearly aligned lighting fixtures in adjacent modules. The prior art mounting supports utilize a substantial portion of the area of the support runner or T-bar for supporting one fixture in one module and leave little or no room on the T-bar for use by a second mounting support for a second fluorescent luminaire in an adjacent module. This is particularly true when an attempt is made to linearly align lighting fixtures in adjacent vault modules.

SUMMARY OF THE INVENTION

The support hanger for mounting and supporting an interior lighting fixture in a valuted modular ceiling system of this invention is formed from standard size steel rods which are formed and joined together with simple manufacturing techniques. The support hanger is adapted to receive varying size lighting fixtures because of its adjustable features, and more importantly, is constructed to facilitate the linear alignment and support of lighting fixtures in adjacent vaulted modules.

The support hanger of this invention includes a pair of upstanding, converging, inverted L-shaped members joined at their upper angle by a loop-type cross brace. The inverted L-shaped members are joined adjacent their bottom ends by an offset, elongated, inverted U-shaped cross brace which includes downwardly directed fingers which coact with the bottom ends of the inverted L-shaped members to mount the hanger on a ceiling support bar while the horizontally projecting ends of the inverted L-shaped members extend into and engage a bracket on the luminaire housing to thereby support the luminaire above the ceiling level.

BRIEF DESCRIPTION OF THE DRAWING

Particular features, and many of the attendant advantages of the support hanger of this invention will become more readily apparent and better understood as the following detailed description is considered in connection with the accompanying drawing in which:

FIG. 1 is a perspective view illustrating a pair of support hangers for supporting adjacent lighting fixtures;

FIG. 2 is a side elevational view of a single support hanger of this invention; and

FIG. 3 is a front elevational view of the support hanger of this invention employed in a vaulted, modular ceiling system.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in detail to the drawings, wherein like reference characters represent like parts throughout the several views, there is illustrated in FIG. 1 a perspective view of the lighting fixture support hanger of this invention. In the majority of ceiling systems of the modular, drop type, supported from a main ceiling well above the drop ceiling, a framework or grid of support members is generally, initially installed. The inverted T-bar has become a common shape for the metal runners employed in the modular ceiling system because it provides two horizontal ledges on each side of a vertically rising, centered, rigid, strength imparting member. Such a T-bar member **10** is employed to support both the modular panels and the lighting fixtures in a typical modular ceiling system whether that ceiling system be of the planar or vaulted type. In the illustration of FIG. **1**, the T-bar **10** is employed to support an interior lighting fixture **12** through the support bracket of this invention generally designated **14**.

The support hanger **14** principally includes a pair of upstanding, converging, inverted L-shaped rods **16** and **18** joined together adjacent their elbows or bends **20** by a cross brace **22** which may be in the form of a rod bent into a trapezoidal configuration as illustrated in FIGS. **1** and **2**. Alternatively these upper cross-braces may be formed from one or more cross bars connecting the two inverted L-shaped rods and separate angle rods between the upstanding portions **24** of the L-shaped members and their horizontal extensions **26**. Adjacent the bottom of the L-shaped rods **16** and **18**, they are joined together by a second cross brace which is in the form of a curved, elongated, inverted U-shaped member **28** having downwardly extending finger portions **30**. As will be apparent from FIGS. **1** and **3**, the bottom cross brace is attached to the main support rods **16** and **18** asymmetrically. This offset relationship of the cross brace **28** with the main support rods **16** and **18** provides the facility for aligning lighting fixtures in a linear relationship in adjacent ceiling modules since the downwardly extending fingers **30** of one support hanger will not interfere with the downwardly extend-

ing fingers 30 of the other support hanger when the inverted Leshaped rods 16 and 18 of adjacent support hangers are linearly aligned.

In order to accommodate the support hanger of this invention an interior fluorescent luminaire must be provided with a support bracket 32 which may be welded or otherwise secured to the top of the luminaire housing. The bracket 32 includes a pair of parallel rod receiving channels 34 therein which are adapted to receive the horizontally extending ends 26 of the rods 16 and 18. As will be readily apparent, this interconnection between the support hanger 14 and the fluorescent lighting fixture 12, allows for a substantial amount of flexibility in both aligning the fixture within the module and with respect to the different sizes of ceiling modules within which the support hanger can support a lighting fixture. As illustrated in phantom in FIG. 2, it will be seen that the support hanger can be moved a substantial distance to the left and still maintain the luminaire in the same position within the ceiling module.

Referring now to FIG. 3, it will be seen how the vaulted ceiling is completed. Acoustic ceiling panels 38 supported by other T-bars 10 running perpendicular to those supporting the lighting fixture are permitted to lay along the upper sides of the fixture 12 to close off the sides of the module and provide the vault affect. End panels as illustrated in phantom in FIGS. 2 and 3, may then be disposed along the T-bars 10 supporting the lighting fixture and permitted to lie against the ends of the lighting fixture to close off the ends of the vaulted ceiling.

To mount a lighting fixture in a modular ceiling system of the vaulted type, a pair of support hangers 14 are employed at each end of the lighting fixture 12. The horizontally extending arms 26 of the support hangers are slipped into the channels 34 between the bracket 32 at the top of the fixture housing and the fixture housing and attached support hangers are raised into the ceiling opening until the bottom of the support rods 16 and 18 are above the plane of the ceiling framework T-bars 10. The support hangers are moved away from the lighting fixture body until the space between the gripping fingers 30 and the bottom of the support bars 16 and 18 overlie the vertically extending flange of the T-bar. The assembly is then lowered until the vertically extending flange on the T-bar is gripped between the gripping fingers 30 and the bottom portion of the inverted L-shaped rods. As will be seen in FIG. 2, the base or ends of the rods 16 and 18 sit on the horizontal flange of the T-bar and support the weight of the lighting fixture thereby. The lighting fixture 12 can be centered in the modular opening by moving the lighting fixture along the rods 26. As will be seen from FIG. 1, the finger gripping portion of the offset cross brace 28 can be manufactured to specific contours to coincide with a specific contour of a modular ceiling T-bar support system. Manufacture of the parts for the support hanger require only simple, rod bending equipment and a welding facility to manufacture the simple, support hanger of this invention.

A particular feature of this invention is the facility to mount lighting fixtures linearly in adjacent ceiling modules. The offset position of the elongated, inverted U-shaped cross brace permits the interdigitation of the gripping fingers of adjacent support hangers mounted at the same location on a single T-bar ceiling support. This interdigitation is graphically illustrated in both FIGS. 1 and 3.

As will be apparent from the foregoing, the simple support hanger of this invention for mounting interior lighting fixtures in a vaulted modular ceiling system can be fabricated from standard size steel rods and formed with simple manufacturing techniques. The hanger is designed to be compatible with the majority of the presently employed ceiling support systems and a luminaire can be mounted during construction of a ceiling without the assistance of additional tools.

What is claimed is:

1. A support hanger for mounting and supporting an end of an interior lighting fixture in a vaulted modular ceiling system which support hanger comprises:
   - a pair of upstanding converging inverted L-shaped members,
   - cross brace means joining said inverted L-shaped members adjacent the bend therein, and
   - a bottom cross brace connecting said inverted L-shaped members adjacent the bottom ends thereof, said bottom cross brace having an elongated, inverted U-shaped configuration with the downwardly directed end portions of said elongated inverted U-shaped cross brace being offset with respect to the bottom portion of said inverted L-shaped members.

2. A support hanger mounting system for mounting a lighting fixture in a vaulted modular ceiling system comprising:
   - a lighting fixture,
   - a pair of brackets mounted to the top side of said lighting fixture, said brackets including a pair of parallel channels therethrough;
   - a support hanger having a pair of horizontally extending rods disposed in said channels at each end of said luminaire, said support hangers including a pair of downwardly diverging support rods extending from the ends of said horizontal rods,
   - an inverted U-shaped cross brace joining said downwardly diverging support rods adjacent the bottoms thereof, the ends of said downwardly diverging support rods and the downwardly extending ends of said inverted U-shaped cross brace forming pairs of gripping fingers to mount said lighting fixture on the cross support bars of a vaulted modular ceiling.

3. The support hanger mounting system of claim 2 wherein said inverted U-shaped cross brace is secured to said downwardly diverging support rods at different distances from its ends.

4. A support hanger for mounting and supporting each end of an interior lighting fixture in a vaulted modular ceiling system, each support hanger comprising:
   - a pair of upstanding inverted L-shaped members;
   - cross brace means securing said inverted L-shaped members in spaced relationship adjacent the lower end thereof, said cross brace member having an elongated inverted U-shape including a horizontal portion and downwardly extending finger portions, said downwardly extending finger portions being spaced from the adjacent inverted L-shaped mem-

bers by different distances and forming pairs of gripping fingers therewith.

5. A support hanger according to claim 4 wherein a second cross brace is attached to both of said upstanding converging, inverted L-shaped member adjacent the bend therein.

6. A support hanger according to claim 5 wherein said second cross brace member has a trapezoidal configuration and is secured to each of said upstanding inverted L-shaped members on both their vertical and horizontal components.

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