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Drab

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[54] **HANGER CLIP FOR SUSPENDED CEILINGS**

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[52] **U.S. Cl.** ..... **248/228,** 24/248 SB, 24/259 R

[51] **Int. Cl.** **F21s 1/02**

[58] **Field of Search** ..... 248/228, 58, 317, 248/226 C, 316 B; 24/248 SB, 259 R, 248 BC, 248 HE, 248 CR, 248 BJ

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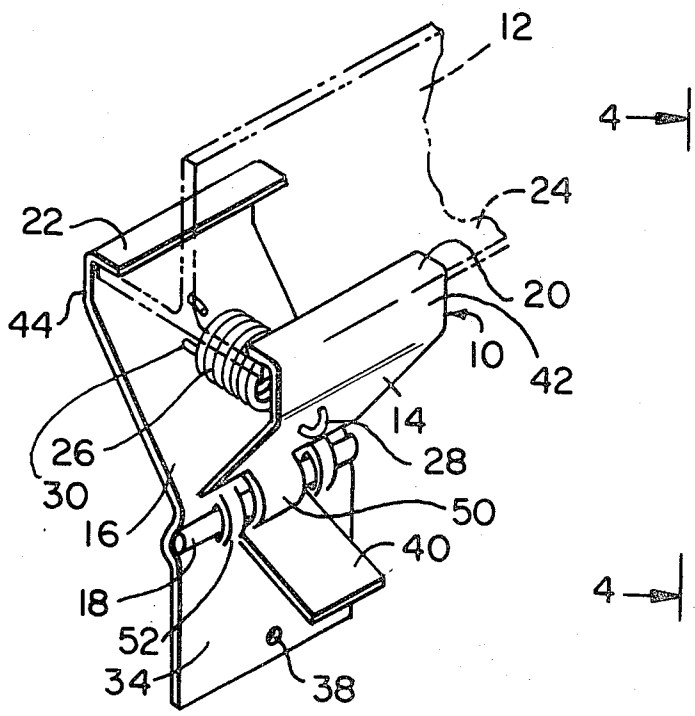
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[57] **ABSTRACT**

A hanger clip for use with suspended ceilings comprising a right arm and a left arm which are pivotally connected intermediate their length. The right and left arms each terminate upwardly in flanges for ceiling gripping purposes. The left arm terminates downwardly in a vertically aligned hanger portion and the right arm terminates downwardly in an operating arm for clip opening movement. A coil spring biases between the right and left arms intermediate the pivotal connection and the flanged ends to continuously bias the right and left arm flanges toward each other.

3 Claims, 4 Drawing Figures



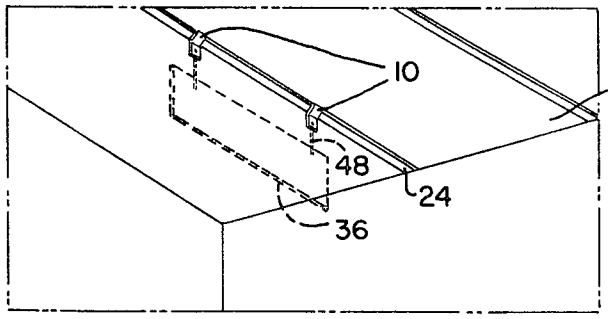
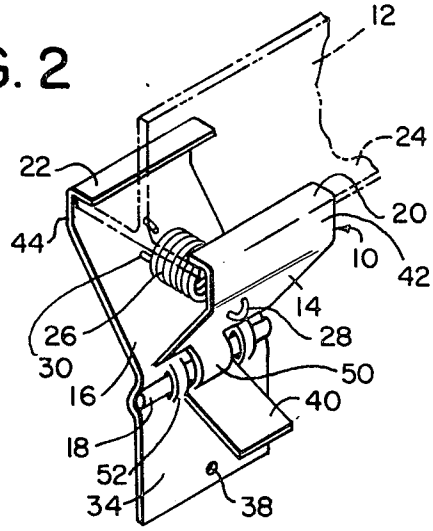


FIG. 1

FIG. 2



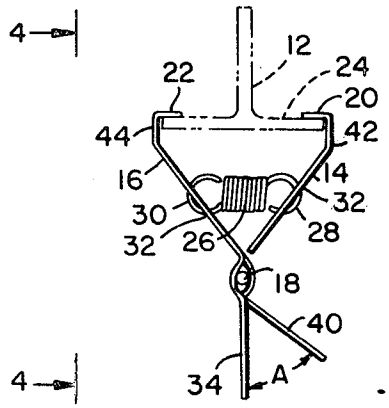


FIG. 3

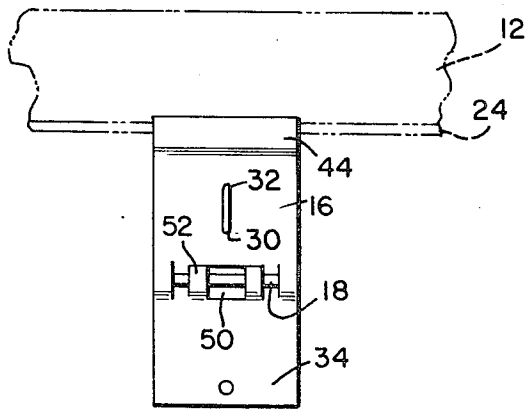


FIG. 4

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HANGER CLIP FOR SUSPENDED CEILINGS

BACKGROUND OF THE INVENTION

The present invention relates generally to the field of spring clip devices, and more particularly, is directed to a hanger clip for suspended ceilings.

It is common practice in constructing buildings which are designed primarily for office and similar to employ conventional structure members in accordance with local building codes and other construction regulations. Beneath the ceiling structural members, in order to inexpensively and decoratively treat the ceiling construction members, it is now common practice to employ suspended ceilings to shield pipes, conduits, ductwork and other mechanical building services which are normally run exposed beneath the structural ceiling slab. Inasmuch as it is quite often necessary to reach the mechanical building systems for maintenance, repair of alterations after the building is in use, most types of suspended ceilings presently being utilized employ means to easily reach the mechanical services which are shielded by the suspended ceiling construction. Such presently available ceiling systems usually include a grid work comprising elongate, light metal Tee bars arranged in spaced rows which are usually spaced approximately two feet apart. In some suspended ceiling designs, cross rows of elongate Tee bars are also employed. The Tee bars are suspended from the structural ceiling by means of wires or other fasteners and are hung with the Tee head positioned downwardly to act as a flange to receive and retain decorative, acoustical title panels therein. The decorative, acoustical tile panels removably suspend between adjacent rows of Tee bars and simply rest upon the flanged Tee heads in a readily installable and removable manner leaving the Tee heads of the elongate grids exposed at the junctions between adjacent ceiling panels.

It is presently the common practice to build large office working areas without separation to accommodate various divisions of large companies such as accounting, clerical, drafting and the like. Because of the large areas generally provided, it is usually necessary to devise some type of system for indicating the various subdivisions within the overall operation. Accordingly, some type of sign is generally employed. Because of the large expanses of office space normally provided, there are usually few, if any, walls or other permanent portions of the structure upon which to affix the necessary signs. To a large extent, employees have been known to improvise and to use any readily available method to identify the various sub-sections such as by hanging improvised signs from the ceiling gridwork. The present methods result in time consuming practices and unprofessional appearing work areas.

SUMMARY OF THE INVENTION

The present invention relates generally to hanger clips, and more particularly is directed to a novel hanger clip for suspended ceilings, finding particular utility in supporting members such as signs from the grid system of suspended ceiling construction.

The hanger clip of the present invention incorporates an extremely inexpensive clip for removably affixing to suspended ceiling constructions. It is the purpose of the clip to provide a mechanical connection which is readily adjustable and removable when used with suspended ceiling constructions for hanging any object

which it is desired to support from the ceiling. The clip has slim design so as to avoid displacement of the ceiling acoustical tile panels when the clip is in place. The design is readily interchangeable between all types of suspended ceilings and is simple, fast and readily adjustable when in use.

The hanger clip of the present invention incorporates a right arm and a left arm which are pivotally connected and the pivot connection positions intermediate the ends of the arms. The arms terminate upwardly in flanged ends for gripping the bars of suspended ceiling construction. A spring affixes to the right and left arms intermediate the flanged ends and the pivotal connection and biases the flanged ends together for ceiling grid connection purposes. The arms terminate downwardly from the pivotal connection in means provided to support a hanging member such as a sign and also in means to urge the flanged ends apart against the bias of the coil spring. The hanger clip provides an inexpensive, easily installed and finished appearing device for office sign hanging purposes. It is therefore an object of the present invention to provide a novel hanger clip for suspended ceilings that is universal in application with suspended ceilings of many designs and constructions.

It is another object of the present invention to provide a novel hanger clip for suspended ceilings that is simple in construction and extremely fast in application to many types of suspended ceilings.

It is another object of the present invention to provide a novel hanger clip for suspended ceilings that is capable of readily and strongly connecting to the grid bars of suspended ceilings for article hanging purposes.

It is another object of the present invention to provide a novel hanger clip for suspended ceilings that is of flat, slim design to provide a relatively strong, lightweight hanger that functions with existing suspended ceilings without displacement of the ceiling tiles.

It is another object of the present invention to provide a novel hanger clip for suspended ceilings that is inexpensive in manufacture, simple in design and trouble free when in use.

Other objects and a fuller understanding of the invention will be had by referring to the following description and claims of a preferred embodiment thereof, taken into conjunction with the accompanying drawings wherein like reference characters refer to similar parts throughout the several views and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a suspended ceiling construction with hanger clips in accordance with the present invention suspended therefrom.

FIG. 2 is an enlarged, perspective view of a hanger clip for suspended ceilings fabricated in accordance with the present invention. A portion of a ceiling tee bar is illustrated in phantom lines for purposes of association.

FIG. 3 is an end elevation view of the clip of FIG. 2.

FIG. 4 is a side elevational view of the hanger clip taken along Line 4—4 of FIG. 3, looking in the direction of the arrows.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Although specific terms are used in the following description for the sake of clarity, these terms are in-

tended to refer only to the particular structure of my invention selected for illustration in the drawings and are not intended to define or limit the scope of the invention.

Referring now to the drawing, I show in FIG. 2 a hanger clip 10 as applied to a Tee bar 12 of a conventional suspended ceiling construction. In the embodiment illustrated, the hanger clip 10 comprises a right arm 14 which pivotally connects with the left arm 16 for hanger securing purposes. The right and left arms 14, 16 respectively pivot about the pivot pin 18 in conventional manner, such as by incorporating pivot bearings 50, 52 pressed in the arm material. Each of the arms 14, 16 upwardly outwardly bend from the pivot pin 18 to form a hanger clip 10 of generally V-shaped, cross-sectional configuration. See FIG. 3. The right and left arms 14, 16 terminate upwardly in respective inwardly bent flanges 20, 22 which serve to lock upon the Tee head 24 of the ceiling grid Tee bar 12. Preferably, the right and left arms 14, 16 angularly outwardly incline from the pivot pin 18 at the same angle and terminate in the flanges 20, 22 which are similarly formed to the same general configuration. A coil spring 26 positions intermediate the pivot pin 18 and the flanged ends 20, 22 and has its ends 28, 30 respectively secured to the right and left arms 14, 16 in conventional manner such as by inserting through holes 32 punched through the arms 14, 16. The spring 26 serves to continuously bias the flanges 20, 22 together for grid Tee bar securing purposes as hereinafter more fully set forth.

The left arm 16 terminates downwardly from the pivot pin 18 in a vertically aligned hanger portion 34 which serves as the point of attachment for hanging any desired load such as a sign 36. The hanger portion 34 is punched or otherwise treated to provide a hole 38 to receive a string or wire 48 for sign hanging purposes. Usually, a hole of one-sixteenth of an inch in diameter will prove satisfactory for the service. The right arm 14 terminates below the pivot pin 18 in an operating arm 40 which bends about the pivot pin 18 beneath the upper portion of the arm 14 to form an acute angle A from the vertical. Thus, the operating arm 40 of the right arm 14 is angularly disposed from the hanger portion 34 of the left arm 16 by an angular displacement equal to the angle A.

By applying pressure of two fingers (not shown) to squeeze the operating arm 40 toward the hanger portion 34, the right and left arms 14, 16 will pivot about the pivot pin 18 and tend to open the space between the flanges 22, 24 against the bias of the coil spring 26. Release of the hanger portion 34 and operating arm 40 will permit the coil spring 26 to bias the respective flanges 20, 22 together. In the manner illustrated in FIGS. 2 and 3, should an object, for instance a Tee head 24 of a Tee bar 12 interpose between the flanges 20, 22, the Tee head 24 will prevent further inward movement of the flanges 20, 22 toward each other. In this case, the spring 26 biases the upper portions 42, 44 of the right and left arms 14, 16 into tight engagement with the sides of the Tee head 24 with the flanges 20, 22 positioned above the Tee head 24. Thus, relative downward movement of the hanger clip 10 with respect to the Tee bar 12 is prevented by the flanges and relatively heavy loads may be suspended at the hole 38 without causing the hanger clip 10 to disassociate from the Tee bar 12.

In order to use the device, any desired number of hanger clips 10 may be employed in conjunction with a suspended grid type ceiling 46 to suspend signs 36 and the like in a manner to permit easy visual observation. See FIG. 1. The hanger clip 10 affixes to the Tee bars 12 at the Tee heads 24 thereof for load carrying purposes. Inward finger pressure upon the respective hanger clip hanger portion 34 and operating arm 40 forces the right and left flanges 20, 22 apart against the bias of the coil spring 26 by reducing the angle A. The flanges 20, 22 position above the Tee head 24 and finger pressure upon the hanger portion 34 and operating arm 40 is then released to allow the bias of the coil spring 26 to pull the flanges 20, 22 together until the respective upper portions 42, 44 of the right and left arm 14, 16 contact the Tee head construction 24. See FIGS. 2 and 3. In this position, the coil spring 26 serves to lock the upper portions 42, 44 of the arms 14, 16 upon the Tee head 24 with the flanges 20, 22 positioned above the Tee head. A sign 36 or other hanging member then suspends from one or more hanger clips 10 by use of a wire 48 or other thin, flexible member which affixes to the sign 36 at one end thereof and to the hanger clip 10 at the other end thereof by inserting through the hole 38 in conventional manner.

Should it be desirable or necessary to change the location of a sign 36, all that is then necessary would be to simply squeeze the respective hanger portions 34 and operating arms 40 of the hanger clips 10 employed for the purpose until each hanger clip can be lifted clear of its associated Tee head 24. The sign 36 can then be relocated in any desired position and then rehung by simply squeezing the respective hanger portions and operating arms 34, 40 of the hanger clips 10 until the right and left flanges 20, 22 open wide enough to insert over the associated portions of the Tee head 24 in the new location.

I claim:

1. In a hanger clip construction for use with Tee bars of suspended ceiling constructions having a longitudinal axis wherein the Tee bar includes a horizontally disposed head which terminates laterally in opposed edges and upwardly in a substantially flat top, the combination of

A. a left arm including a first upper inclined section,
   1. said left arm inclined section terminating upwardly in an integral vertical, left upper portion,
   2. said left upper portion contacting one of the edges of the Tee bar head,
   3. said left upper portion terminating upwardly in a first inwardly bent flange,
   4. said first flange having a first downwardly facing bottom surface,
   5. the said first bottom surface contacting the top of the Tee bar head,
   6. said first upper inclined section terminating downwardly in a hanger portion,
      a. said hanger portion being vertically aligned,
      b. said hanger portion being provided with a hole for attaching objects to be hung;

B. a right arm including a second upper inclined section which intersects the said first inclined section,
   1. said second upper inclined section terminating upwardly in an integral, vertical, right upper portion,
   2. said right upper portion contacting the second of the Tee bar head edges,

3. said right upper portion terminating upwardly in a second inwardly bent flange

4. said second flange lying in the same horizontal plane as the first flange,
5. said second flange having a second downwardly facing bottom surface,
6. said second bottom surface contacting the top of the Tee bar head,
7. said second upper inclined section terminating downwardly in an operating arm,
   a. said operating arm bending about its junction with the second upper inclined section to form an acute angle with the vertical,
   b. said operating arm being angularly disposed from the hanger portion by an angular displacement equal to the acute angle;

C. pivotal means interconnecting the left arm and the right arm, said pivotal means including
1. a first pivot bearing pressed in the left arm,
   a. said first pivot bearing being positioned at the junction between the first upper inclined section and the hanger portion,
2. a second pivot bearing pressed in the right arm,
   a. said second pivot bearing being positioned at the junction between the second upper inclined section and the operating arm, and
3. a pivot pin inserted through the first and second pivot bearings;

D. and a spring biasing the first and second inwardly bent flanges together and having a first end and a second end,
1. the first end connecting to the first upper inclined section,
2. the second end connecting to the second upper inclined section whereby the left and right upper portions are urged into gripping contact with the edges of the Tee bar head and whereby the weight of the object supported by the hanger pulls the flanges into contact with the top surface of the Tee bar head.

2. The invention of claim 1 wherein the right and left upper portions are vertically disposed in spaced vertical planes.

3. The invention of claim 2 wherein the hanger portion vertically aligns with the longitudinal axis of the Tee bar.

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