ABSTRACT

A conventional lay-in panel suspended ceiling system is provided with a hold-down structure which will prevent the ceiling panels from being accidentally dislodged from the ceiling suspension system. The hold-down structure is made so that it may still permit ready access to the area above the ceiling panels. Specifically, the invention is directed to a releasable locking structure which locks the hold-down structure to the suspension system.

4 Claims, 2 Drawing Figures
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HOLD-DOWN STRUCTURE FOR ACCESSIBLE CEILING PANEL ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention is directed to a suspended ceiling system and, more particularly, to a suspended ceiling system which has a hold-down structure for keeping ceiling panels in position, but yet is still capable of permitting access to the area behind the ceiling panels.

2. Description of the Prior Art

U.S. Pat. No. 2,667,667 discloses the use of a structure 24 which has spring fingers 28 and 30 functioning as a ceiling panel hold-down structure to keep a ceiling panel in position in the suspended ceiling system. U.S. Pat. No. 3,640,042 discloses a similar structure wherein element 24 will function to hold the ceiling panels in position.

U.S. Pat. No. 2,999,278 discloses a structure similar to that of the invention herein wherein the structure is utilized to hold insulation in position.

The problem with most prior art structures which hold ceiling panels or like items in position is that these prior art structures securely hold the panel in position and provide no way for releasing the holding force so that the panel can be selectively removed to provide access to the area behind the panel. The provision of a hold-down which will provide easy access to the area behind the panel is the purpose of the structure of the invention herein.

SUMMARY OF THE INVENTION

The invention consists of three parts. A conventional T-shaped runner structure spans lengthwise of the back of a ceiling panel. On the ends of the T runner there are provided two sliding clips which engage the flange of the T runner in a manner that permits the clips to slide along the length of the T runner. The clips are shaped to loop around the edge of the ceiling panel and to have a tab to engage with the bottom flange of the main runners of the suspended ceiling system for holding the panel in position. With the ceiling panels being about 1/4 inch shorter than the distance between two adjacent main runner web spacings, the clips can be slid along the axis of the T runner with sufficient movement for disengaging the tab from the main runner. This then permits access to the area above the ceiling panel.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. I is a cross-sectional view of a ceiling system with the invention therein; and

FIG. II is a cross-sectional view of the structure of FIG. I, taken along line A-A of FIG. I.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. I of the drawing there is shown basically a conventional ceiling system wherein at least two main runner structures 2 are utilized to support a ceiling panel 4 in position. The main runner structure is composed of a vertical web 6 and a horizontal flange 8. On the horizontal flanges 8 of two adjacent main runner structures 2 there rests the ceiling panel 4. As can easily be seen in FIG. I, the ends 10 of the ceiling panel 4 rest upon the horizontal flange structures 8 of the two main runners 2. This above structure is a conventional suspended ceiling system. The disadvantage of the above structure is that the ceiling panel 4 can be accidentally struck, blown, or in some other way impelled upward and, if twisted out of its horizontal plane, could slip out from its normal resting place on the adjacent horizontal flanges 8.

In order to prevent the accidental dislodgment of the panel 4 from the suspended ceiling system, there is provided a hold-down structure 12 which will be in back of the ceiling panel 4 and retain the ceiling panel in position resting upon the horizontal flanges 8. The hold-down structure 12 consists of three parts. The first part 14 is a T runner or body member. The cross section of the structure is basically shown in FIG. II. This T runner 14 will span the back of the ceiling panel; that is, it runs between two adjacent main runner structures 2. On each end of the T runner there are provided sliding clips 16. These clips have a body portion 18 which in cross section is best shown in FIG. II. The body portion has ends which wrap around the edges of the horizontal flange 20 of the T runner 14. This thus permits the clips to be held on the horizontal flange of the T runners and slide along the horizontal flange of the T runners.

Each clip then has an end 22 which extends down parallel with the vertical web of the main runner structure, across the horizontal flange of the main runner structure, and terminates in a tab portion 24 which loops around the edge of the horizontal flange 8 of the main runner structures. The tab structures 24, by hooking around the edge of the horizontal flanges, will thus hold the sliding clip and, therefore, the T runner 14 in position relative to the main runner structure. By the fact that the hold-down structure 12 extends across the back of the ceiling panel 4, the ceiling panel 4 is thus locked on the main runner structure and cannot be pushed readily out of its position resting upon the horizontal flanges 8 of the main runner structures 2. It is noted that the ceiling panel 4 is cut slightly shorter than the spacing between the vertical webs 6 of two adjacent runner members. Note that there is a space 26 and a space 28 between the ends of the ceiling board 4 and the portion 22 of the sliding clips 16. Due to this spacing, it is possible for the sliding clips to be moved towards the end of the ceiling panel 4 and thus release the tab 24 from the edge of the horizontal flange 8 of the main runner structure. This will now permit both the ceiling board 4 and hold-down structure 12 to be raised upwardly and, therefore, permit access to the area behind the suspended ceiling system.

It is obvious that the tab structure 24 could be made of spring steel material with the ability to resiliently grasp the edge of the horizontal flange 8 of the main runner structure. Other means are possible in order to assure a more positive holding action of the sliding clip to the main runner flange 8. It is obvious that the T runner need not be of the specific shape shown, but could be of almost any shape as long as it will permit the sliding clips to slide somewhat on the ends of the T runner structure. It is also obvious that the invention herein could be used with adjacent cross T runners if they were so arranged to support the ceiling boards. Therefore, the term "main runner" is meant to cover any runners supporting ceiling boards.

What is claimed is:

1. A suspended ceiling system wherein there is provided at least two main runner structures of inverted T shape having a web portion and a horizontal flange portion, a ceiling panel resting upon the horizontal flanges
3,889,435

of two adjacent main runner structures, said ceiling panel having a front side, a back side and four ends, the improvement comprising a hold-down means positioned on the back side of the ceiling panel opposite from the front side of the ceiling panel resting upon the horizontal flanges of the main runner structures, said hold-down means not providing support to the ceiling panel ends, said hold-down means having clips on the ends thereof and being locked to the main runner structures to secure the hold-down means from movement so that the ceiling panel is held in position against the horizontal flanges of the main runner structures, and means of releasing the locking relationship of the clips of the hold-down means to the main runner structures so that the hold-down means and ceiling panel may be removed from the horizontal flanges of the main runner structures, and said means releasing the locking relationship being actuated from a position on the front side of the ceiling panel which rests upon the main runner horizontal flanges.

2. The combination of claim 1 wherein the hold-down means is composed of a body member which spans approximately the dimension of the ceiling panel between the two adjacent main runner structures and the hold-down means has sliding clips on the ends of the body member for engaging the main runner structures to lock the hold-down means to the main runner structures.

3. The combination of claim 2 wherein the body member of the hold-down means has a flange which is engaged by a portion of the sliding clips to permit the sliding clips to be slidably moved along the body member, a portion of each sliding clip passes around the end of the ceiling panel and engages the horizontal flange of the main runner structure to lock the sliding clip against movement perpendicular to the flange of the main runner structure.

4. The combination of claim 3 wherein there is a spacing between the end of the ceiling panel and the sliding clip so that the sliding clip may be moved along the axis of the body member of the hold-down means in a direction towards the end of the ceiling panel so that the sliding clip will be released from its locking engagement with the horizontal flange of the main runner structure.

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