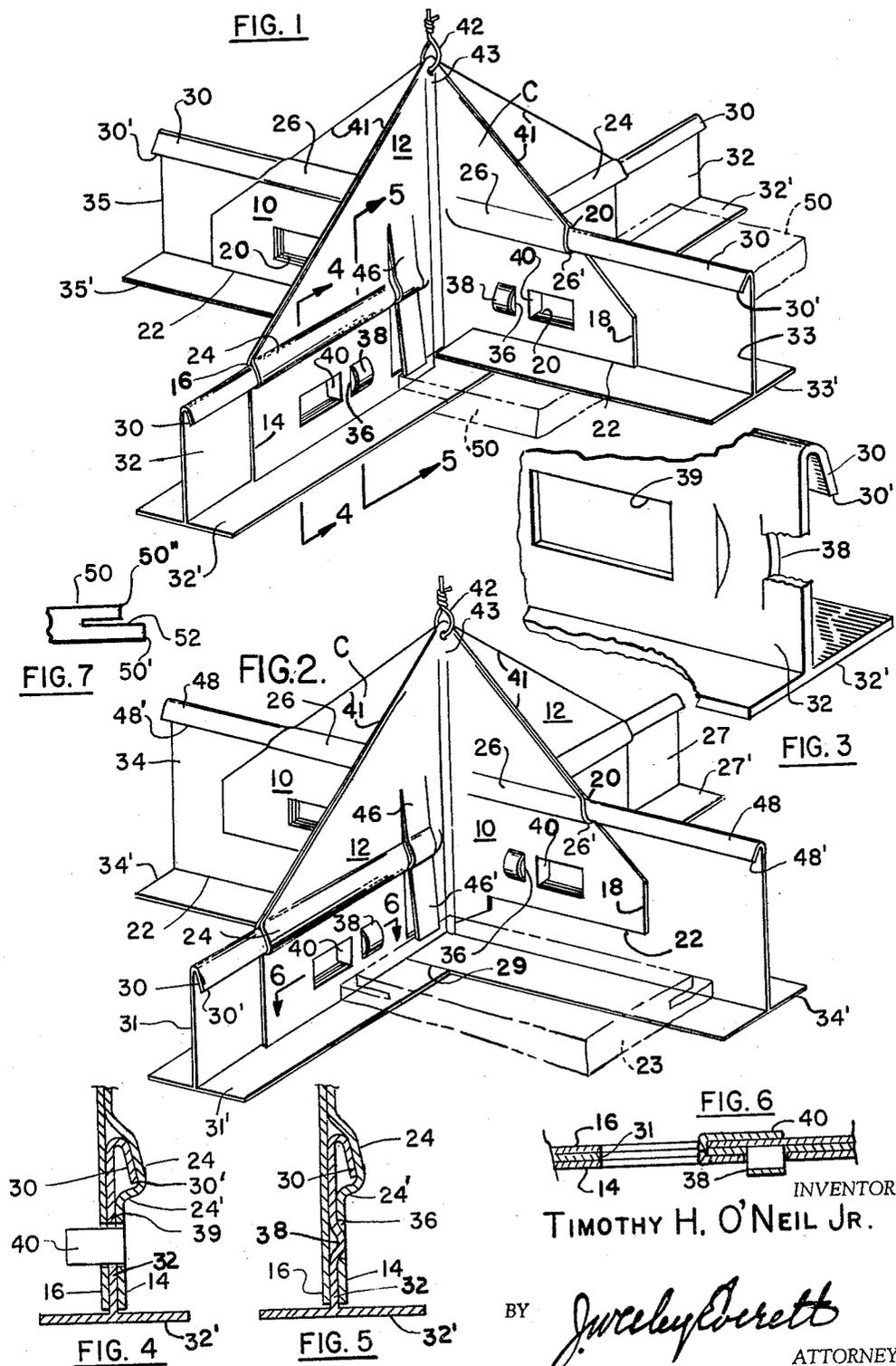


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BEAM AND TIE SUPPORT
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BEAM AND TIE SUPPORT
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The present invention relates to a combination beam and tie clip unit for supporting off-set ceilings.

One object of the invention is to provide a clip that may be formed from a single piece of material.

Another object of the invention is to provide a structure in which the beams and ties may be snapped into place, eliminating bolts, rivets, etc. and having means for locking the beam and tie members to the clip.

A further object of the invention is to provide a structure in which most of the fabrication may be done prior to the time the materials are moved to the job site.

Still another object of the invention is to provide a clip which is adapted for use in both a ceiling in which the beams are concealed and in a ceiling in which the beams are exposed.

While several objects of the invention have been set forth other objects including the uses and advantages of the clip will become more apparent as the nature of the invention is more fully disclosed including its novel design, combination, and arrangement of its several parts as illustrated in the accompanying illustrations and described in the following detailed description. In the drawings:

FIG. 1 is a perspective view of the clip unit showing a beam extending entirely through the clip and two tie members extending at right angles to the beam in which the heights of the beam and tie members are the same.

FIG. 2 is a perspective view of the clip unit similar to that shown in FIG. 1 in which the beam extends completely through the clip with a pair of tie members secured at right angles thereto. In this view the beam member is of greater vertical height than the tie members.

FIG. 3 is an enlarged fragmentary perspective view of one end of a tie member which is died out to be inserted into the clip unit.

FIG. 4 is a sectional view taken on the line 4-4 of FIG. 1.

FIG. 5 is a sectional view taken on the line 5-5 of FIG. 1.

FIG. 6 is a sectional view taken on line 6-6 of FIG. 1.

FIG. 7 is a fragmentary sectional view of one edge of one of the tile ceiling members showing the manner of attaching the tile to a beam in a closed system.

In referring to the drawings like numerals are used to designate like and similar parts throughout the several views.

The clip C is preferably formed from a flat piece of metal, and is formed into two vertical wall members 10 and 12 which intersect each other at right angles. Each wall is formed of two side members 14 and 16, and 18 and 20. These side wall members are so spaced apart as to form a slot therebetween of such width as to receive the vertical portion of the beam or tie member. Extending upwardly from the bottom edge of each vertical wall and parallel thereto are horizontal channels or beads 24 and 26. An example of these channels is shown in cross section in FIGS. 4 and 5 and are provided with an abrupt step at 24'. These steps are for engaging turn down beads or lips 30 and 48 formed on the upper edges of the members 27, 32, 33, 34 and 35. The edges of the wall members are open on the outer and bottom edges below the channel and are united along their upper edges

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41 above the bead, which will allow the clip to be snapped into place over the vertical center rib of both the beam and beam ties.

The wall 10 is shorter in height than wall 12, that is, its bottom edge is a horizontal plane extending above the bottom edge of wall 12. This is to provide for using a short vertical wall tie or beam member in wall 10, as shown in FIGURE 1 which allows room for the tiling to extend beneath the ties.

The walls of the clip are provided with small cut-out portions as shown at 36 for receiving a bumped out portion 38 formed in the beam and tie members, to prevent these members from being moved laterally relative to the clip. Both walls 10 and 12 are provided with a tab 40, which may be pressed through an opening 39 in the tie or beam member and bent down over the opposite surface of the wall as shown in FIG. 6 for locking the tie or beam member to the clip unit. The clip unit is also provided with a vertical tab 46 similar to the tab 40, which may be bent outwardly over the ceiling tile, or board to prevent lifting of the tile or board upwardly from the beams supporting the same.

The shape of the walls of the unit C is in the form of a triangle, the apex being at the top having adjacent the apex an aperture 43 through which a wire or support 42 is secured to support the unit to a structure supporting the offset ceiling.

The short pieces of beams and tie members are used for illustration only, as they are of course of greater length when in actual use, in fact, the beam members extend from one side to the other of some ceilings, or tie into other clips for wider ceilings.

In FIG. 1 there is illustrated what is known in the trade as, a concealed ceiling. In this illustration the member 32 is the supporting beam for the ceiling as shown at 50 which is in the form of acoustic tiling with an edge slot 52, as shown in FIG. 7. This beam extends entirely under the clip C, and the tie members 33 and 35 are clipped in the wall 10 on each side of the beam. The tiling when supported on the beams 32, as just described extends beneath the tie members 33 and 35. As the tie members 33 and 35 are of the same vertical height as the beam and the channel 26 is nearer the top of the clip than the channel 24, therefore, the lower surfaces of the lower horizontal portions 33' and 35' of the tie members are above the upper surface of the tiling 50 and do not interfere with the tiling being positioned on the beams 32. The lower edges 50' of the tiling are longer than the upper edges 50'' which will allow the lower edges to come together beneath the horizontal portion 32' and conceal the supporting beams.

In FIG. 2 there is illustrated what is known in the trade as, an open system. The member 34 is the beam and is illustrated as having a greater vertical height than the two tie members 27 and 31 which are abutted against the beam as shown at 29. In this arrangement the horizontal edges 27', 31' and 34' of the beam and of the tie members are in the same plane, and in this instance the tiling or sheets are laid upon the upper surfaces of the portions 27', 31' and 34' as shown in dotted lines at 23 in FIG. 2. As the ceiling members 23 are supported on top of the beams and ties, the horizontal portions of the beams and ties are exposed. In this form the wind or vibration sometimes has a tendency to lift the ceiling units, and it is desirable to hold these ceiling units down in contact with their supporting elements, therefore, means are provided on the clip for holding them down. This hold down means is in the form of a tab 46 and is bent over as shown at 46' in contact with the upper surface of the ceiling unit 23.

The beams are generally referred to as the members

carrying the ceiling units in a closed system as shown in FIG. 1 and are the members that extend entirely through the clip unit; however, in the open system, as shown in FIG. 2, both the beam and tie members carry the ceiling. In this instance the member with the high vertical section is the beam and the abutting members 27 and 31 are the tie members, the tie members abut against the beam and support the beam against lateral movement.

In assembling the clips, beams, ties, etc. most of the cutting to length and fabrication of the beams and ties may be done before the material is moved to the job site. The ceiling area is laid out and the clip units are suspended in proper position. The beams are pressed upwardly into the slots between the wall members 14 and 16 until the turn down portion 30 or 48, as the case may be, is received into the channel 24 or 26 to the point where the edges 30' and 48' of the respective beams and tie members engage the lower portions of the channels 24' and 26', as illustrated for the edge 30' in FIGS. 4 and 5. The bulged portion 38 which is formed in both the beam and tie will fall within the cutout 36 of the clip to prevent the beam or tie from horizontal movement relative to the clip, and the tab 40 is swung through the opening 39 locking the side walls of the clip against moving the beam or tie downwardly out of the clip to prevent the releasing of the beam and tie members from the clip when they are assembled. If a closed system is to be set up, the beams and ties are of the same height as previously described, the tie members 33 and 35 in FIG. 1 are inserted in substantially the same manner.

This novel clip provides a very practical, economical and rigid construction and while a particular form has been illustrated and described in detail it is not intended as a limitation as the scope of the invention is best defined in the appended claims.

I claim:

1. A clip for securing a joint between an extended beam member and a tie beam member for a suspended ceiling, each of said beam members being of inverted T cross sectional form in which the vertical portion of the T is provided with an enlarged bead extending along its upper edge, the clip comprising, two vertically fixed walls intersecting each other at right angles, each wall comprising two adjacent parallel portions extending from the top to the bottom of the clip, the bottom edge of one wall being in a horizontal plane positioned above the bottom edge of the other wall, each wall having at least one continuous horizontal channel formed therein

throughout the entire length of the wall and at predetermined distances from their respective bottom edges and positioned intermediately of the top and bottom of the clip for receiving the beads carried by the beams, the channel in one wall being in a horizontal plane above the channel in the other wall, means carried by the said walls and positioned between the channels and their bottom edges for engaging the beams for holding the same against lateral movement relative to the clip and means for supporting the clip.

2. In a clip as claimed in claim 1 in which the clip is provided with means between the channel and the lower edge of the clip for locking together the opposite portions of the side walls of the clip for preventing the dislodgement of the beads from the channels.

3. In a clip as claimed in claim 2 in which the locking means comprise a tab formed from and carried by one of the side wall portions adapted to be passed through an opening in the beam and an opening in the opposite side wall portion, the tab being of such length as to extend entirely through the said openings and engage the opposite side wall portion.

4. In a clip as claimed in claim 1 in which the adjacent side portions of the walls of the clip are formed with a springing action against separation at least adjacent their bottom edges, whereby the vertical central sections of the beams including the beads may be moved upwardly between the lower portions of the side walls of the clip against the spring of the side wall portions until the bead against the spring in the clip, whereby the wall portions of the clip will spring back to grip the said vertical portion and bead of the beam member.

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