

[54] **CEILING SUSPENSION SYSTEM**

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[58] Field of Search52/78, 74, 498, 484, 222, 278, 52/494

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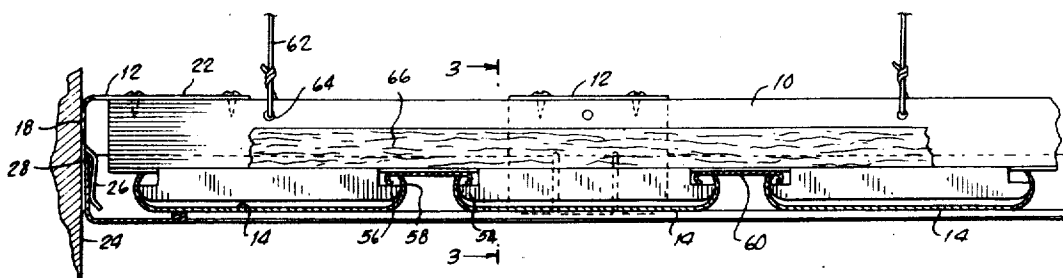
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[57] **ABSTRACT**

A ceiling suspension system comprising a plurality of stringers having panel receiving and holding slots. The stringers are supported at opposite ends by wall carried trim brackets. Closure strips may be used to close the gap between adjoining panels. Panels having in-turned edges are seated in the stringer slots. Each trim bracket has a resilient tongue in one wall thereof for receiving and holding an edge trim member. In addition, the trim brackets restrict the lateral movement of the stringer and aid in the alignment of the panels.

2 Claims, 8 Drawing Figures



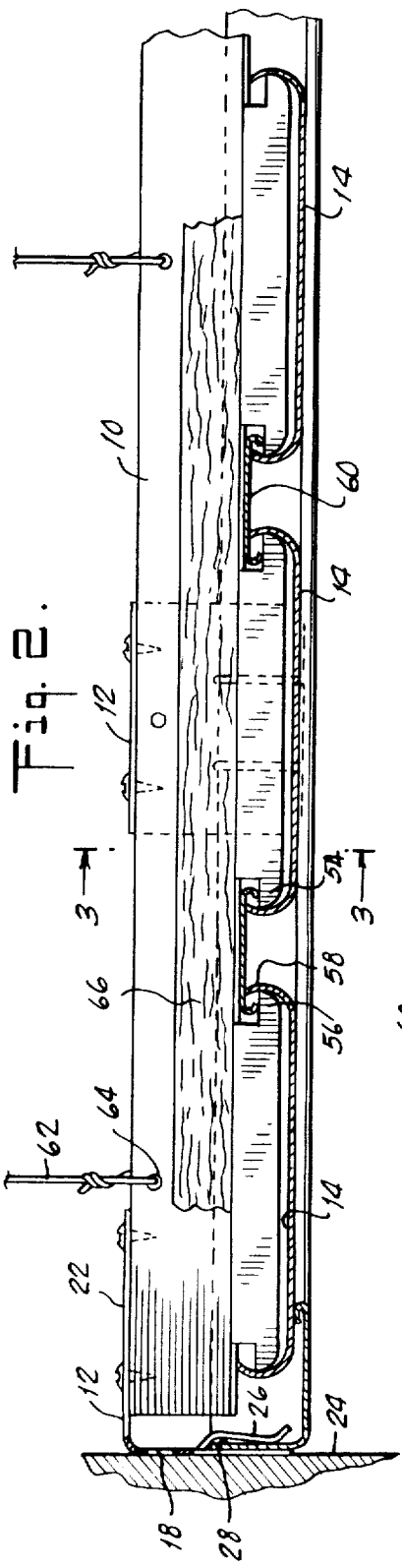


Fig. 2.

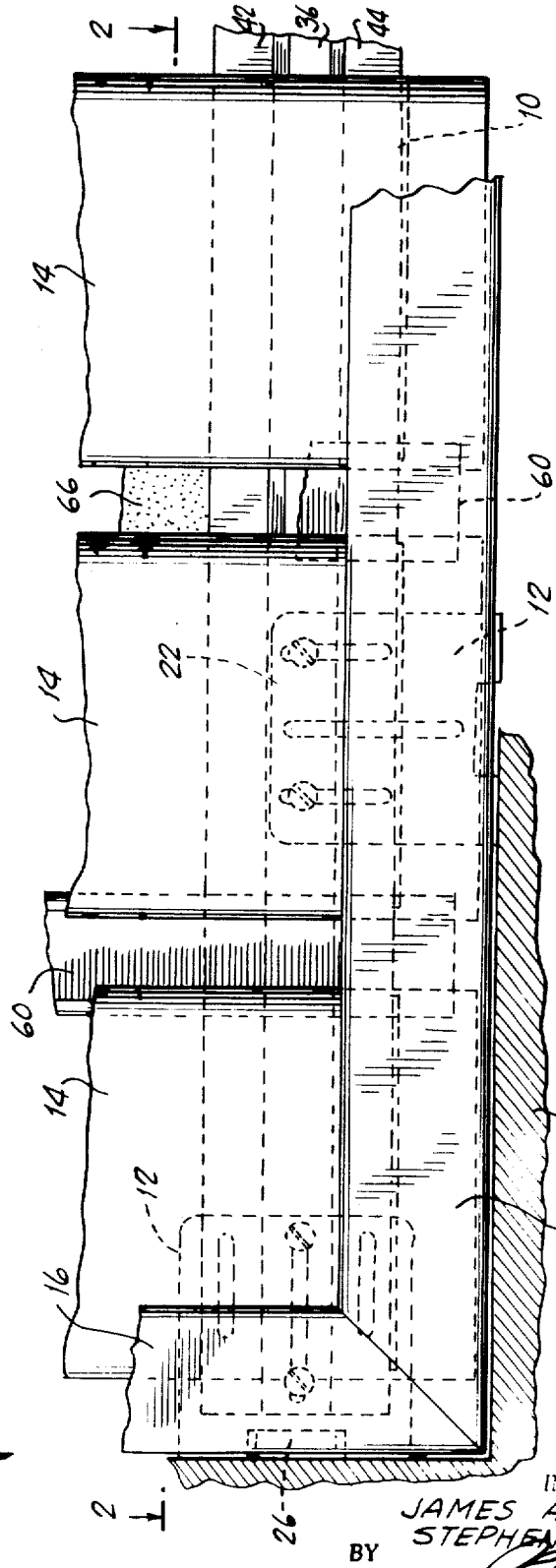


Fig. 1.

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Fig. 3.

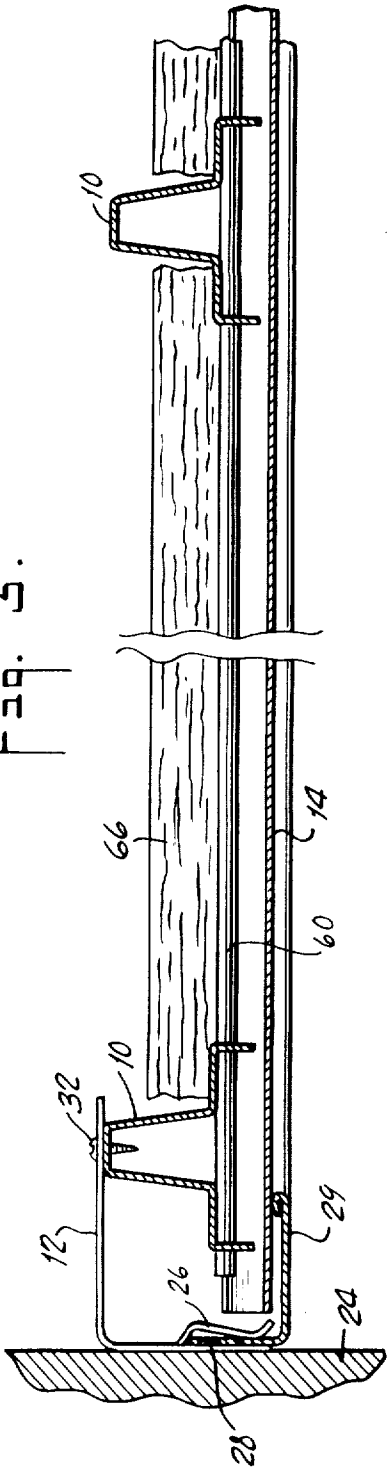
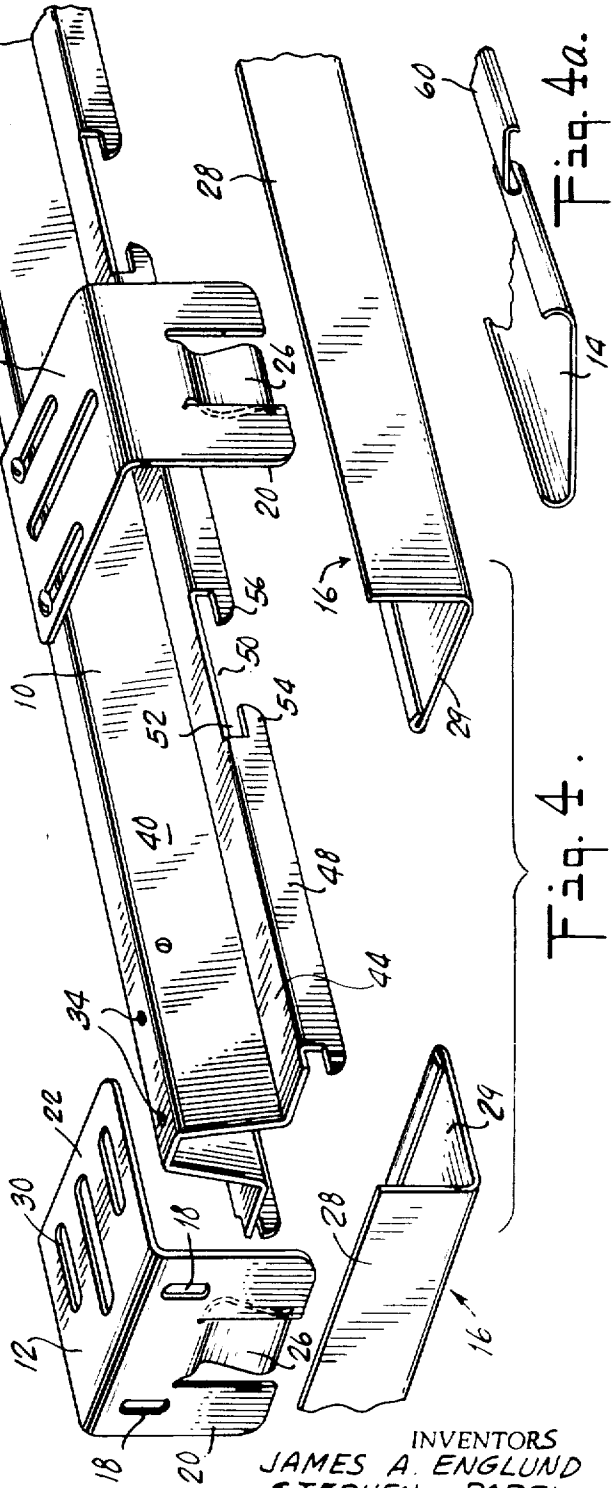


Fig. 4.



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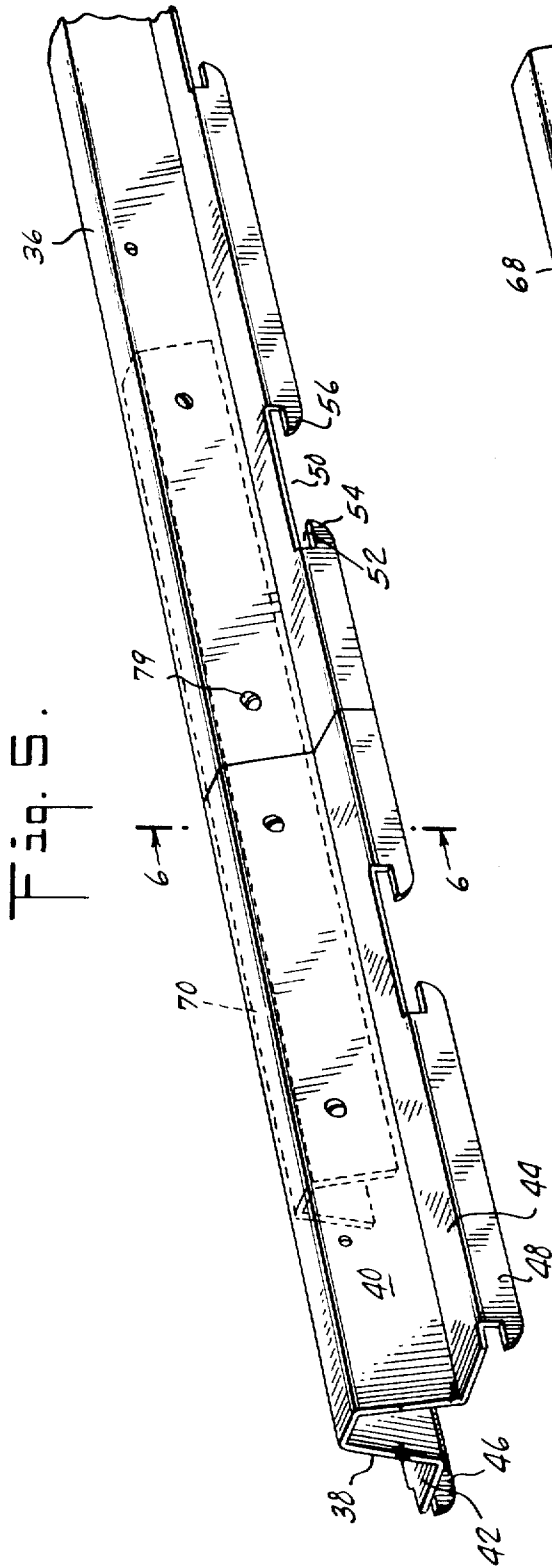


Fig. 5.

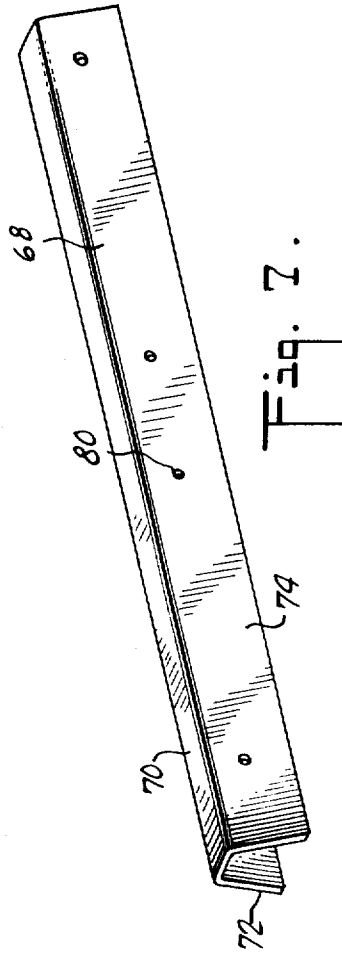


Fig. 7.

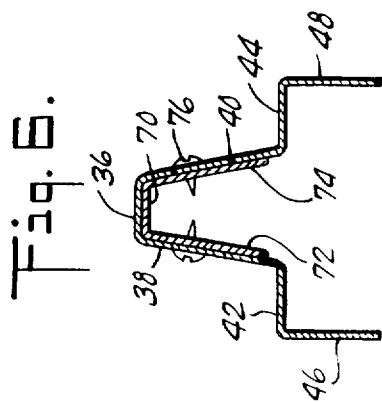


Fig. 6.

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CEILING SUSPENSION SYSTEM

This invention relates to a ceiling suspension system which will hold a ceiling in place without the slightest danger of collapse, and yet one which is easily installed with a minimum of effort and without resorting to tools of special design.

Suspended ceilings are meeting with increasingly greater favor with architects, builders and tenants and it is therefore a primary purpose of the invention to provide a suspended ceiling design which can be easily and inexpensively installed by workmen of no more than ordinary skill.

The details and simplicity of the elements comprising the ceiling will become apparent from an examination of the drawings forming a part hereof and others will be even more clearly evident as the description thereof is read in conjunction with the drawings to which the description refers.

In said drawings like reference numerals indicate like parts, and:

FIG. 1 is a fragmentary elevational view of a ceiling section looking from below;

FIG. 2 is a cross-sectional view on line 2—2 of FIG. 1;

FIG. 3 is a cross-sectional view on line 3—3 of FIG. 2;

FIG. 4 is an exploded view in perspective of the principal elements comprising the ceiling structure;

FIG. 4a is a somewhat enlarged fragmentary perspective view of a panel element and a closure strip;

FIG. 5 is a perspective view of a stringer structure;

FIG. 6 is a cross-sectional view on line 6—6 of FIG. 5; and,

FIG. 7 is a perspective view of a stringer connecting splice.

The principal elements of the ceiling structure are the supporting stringers 10, the trim brackets 12, the panels 14 and the edge trim members 16.

It is intended that a plurality of stringers 10 be fixed to a wall in parallel relationship at equally spaced points in respect to each other. Thus in FIGS. 2 and 3 it is shown that trim brackets 12 are suitably attached to opposite walls of an enclosure such as a room. These are suitably attached to a wall by means of screws extending through screw holes 18 in a supporting leg 20 of the trim bracket. Each trim bracket has a horizontal flange 22 extending inwardly at a right angle to a wall surface 24 when they are properly installed.

The supporting leg 20 of the trim bracket has a tongue 26 which is formed in the lower portion of the supporting leg. The tongue is resilient and inwardly biased. This tongue is adapted to receive and secure an upstanding wall 28 of the edge trim member 16. The horizontal flange 22 of the trim bracket has a plurality of elongated apertures 30 therein. These apertures provide means for attaching the stringers 10 to the trim brackets as by means of screws 32 extending through one of the apertures 30 and into and through a hole 34 in the stringer.

The configuration of the stringer 10 is best shown in the perspective view thereof in FIG. 5. Each stringer has a base surface 36 from which extends oppositely disposed downwardly depending diverging side walls 38 and 40 which project away from the base substantially the same distance and at the same angle. The side wall 38 has an outwardly extending horizontal shoulder 42 while side wall 40 has a similar shoulder 44. The respective shoulders have downwardly extending flanges 28 and 48. Each flange has formed therein a plurality of elongated slots which in part extend through the free edge of the flanges. These slots extend along the length of the flanges and provide spaced mounting projections 54 and 56. The ends of each mounting projection are rounded and have an undercut 52 formed by an inset extension 52A of the slots 50. This forms at each end of the mounting projections an inwardly extending recess adapted to receive the inturned edges of a ceiling panel.

When the ceiling panels have been placed in position and particularly if they are somewhat spaced from each other as shown in FIGS. 1 and 2, a closure strip 60 may be used to span and close the gap between adjacent panels. Such structure affords the opportunity to produce particularly pleasing visual results in the ceiling structure since resort may be had to the use of panels of one color and a closure strip of a second color. These closure strips may also provide a weather seal for the

plenum area on outside installations. Closure strips 60, have been designed to fit within the notches 50, of the stringer 10 in such a way that they will be retained within these notches without becoming dislodged during the assembly of the panels 14 and the stringers 10. These closure strips 60, are allowed free lateral movement within the confines of the stringer notches 50, thereby allowing the inturned edges 58, of the panels 14 to grip the fingers 54 and 56 of the stringer slot without interference and allowing the panels 14 to position themselves in proper relation with the stringer 20 without undue pressure during assembly.

After the panels have been placed in position as described, the edge trim members 16 are put into position by sliding their upstanding walls 28 behind the tongues 26 of the trim brackets 12. It is contemplated that the edge trim members will extend about the entire perimeter of the ceiling. The edge trim members include a horizontal face wall 29 which may have a surface ornamentation corresponding to that of the face of the panels, or it may be in contrast thereto. In case of the edge trim members even another color may be resorted to for the production of a pleasing architectural appearance.

It has been described how the trim brackets 12 are used to support the stringers 10. However, additional suspending means may be employed, particularly if the stringers are of substantial length. In this latter case, suspending wires 62 may be attached at spaced points to the stringers by passing an end of the wire through holes 64 just below the base surface of the stringer and attaching the other end of such wires to an overhead structure.

Finally the shoulders 42 and 44 formed in the stringer structure may be utilized to aid in the support of certain types of lighting fixtures and/or air diffusers and/or accoustical or insulating material 66.

It may be necessary to use two or more longitudinally aligned stringers for a ceiling structure which is in excess of a convenient standard stringer length. In the latter case a number of stringers may be securely interconnected by use of a stringer connecting brace 68 such as that shown in FIG. 7. This brace has a spine 70 and outwardly diverging side walls 72 and 74 which complement the inner surfaces of the stringer spine 36 and its side walls 38 and 40, respectively. In order to join two stringers in end to end relation, ends of the stringers are abutted, the stringers connecting brace is inserted into the stringer as shown by the dash line in FIG. 5, and screws or rivets 76 are inserted through screw holes 78 near the stringer ends and through corresponding holes 80 in the stringer connecting brace.

The ceiling structure is well adapted to a structural modification which may be desirable. In FIG. 2 the ceiling panels 14 are just wide enough to extend between adjacent notches 50. Instead of so limiting the width of the panels, they may be made wider so as to extend between alternate notches instead of between adjacent notches, for example.

The details of the ceiling structure have been set forth as one exemplary form of the invention. It is, however, contemplated that various features of construction may assume different forms without departing from the scope of the invention.

We claim:

1. A ceiling suspension system for use in adjacent relation to a wall, comprising
 - a. a plurality of elongated panels having inturned longitudinal edges;
 - b. a plurality of elongated stringers each having an elongated upper base surface and a pair of side walls depending therefrom, each side wall having a plurality of downwardly opening slots with edges engageable by said inturned edges of said panels for securing said panels to said stringers;
 - c. said stringers extending horizontally in spaced parallel relation with the slots of adjacent stringers aligned; and
 - d. said panels extending horizontally transversely of and beneath said stringers with said inturned edges directed

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upwardly and engaging said stringer slot edges thereby securing said panels to said stringers as aforesaid to constitute a ceiling assembly;

- e. L-shaped edge trim members extending horizontally along the periphery of the ceiling assembly, each said edge trim member having a vertical flange disposed parallel to a wall and a horizontal flange formed integrally with and projecting from the lower margin of the vertical flange in underlying relation to the ceiling assembly for concealing the periphery of the ceiling assembly;
- f. a plurality of brackets disposed in horizontally spaced relation to each other along the periphery of the ceiling assembly, each of said brackets comprising
 - i. a horizontal leg overlying a portion of the upper base surface of one of said stringers;
 - ii. a vertical leg formed integrally with and projecting downwardly from said horizontal leg, said vertical leg

being in fixed attachment to a wall in flush relation thereto for supporting said one stringer on the wall; and
 iii. a resilient tongue formed integrally with said vertical leg and having a depending free end receiving and frictionally gripping the vertical flange of said edge trim member to support said edge trim member; and

g. means fixedly attaching said horizontal leg to said upper surface of said stringer for supporting said stringer by said bracket.

- 10 2. A system as defined in claim 1, wherein the horizontal leg of each of said trim brackets has a plurality of slots for receiving screws, said slots extending outwardly from said vertical leg in spaced parallel relation to each other for attachment of said bracket to said base surface by at least two screws when said bracket is oriented in either of two perpendicular directions relative to the long dimension of said base surface.

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