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Wells

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[54] **CEILINGS FOR BUILDINGS**

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[51] **Int. Cl.** **E04b 1/24**

[58] **Field of Search** 52/648, 238, 694, 690, 52/262, 645, 263, 79, 289, 261, 272, 484, 475, 485, 745, 284, 236, 92, 93, 126

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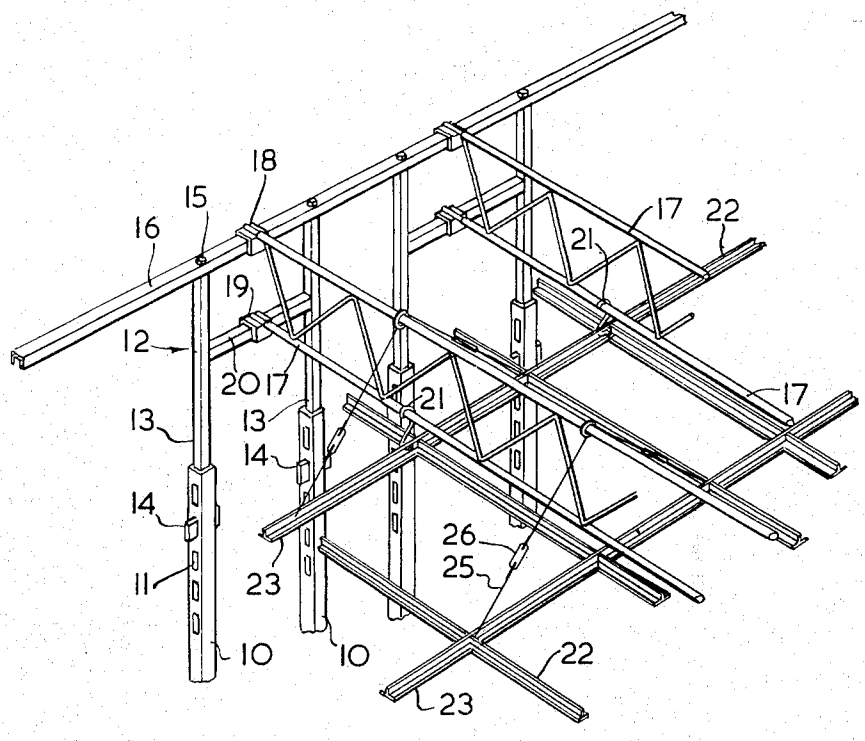
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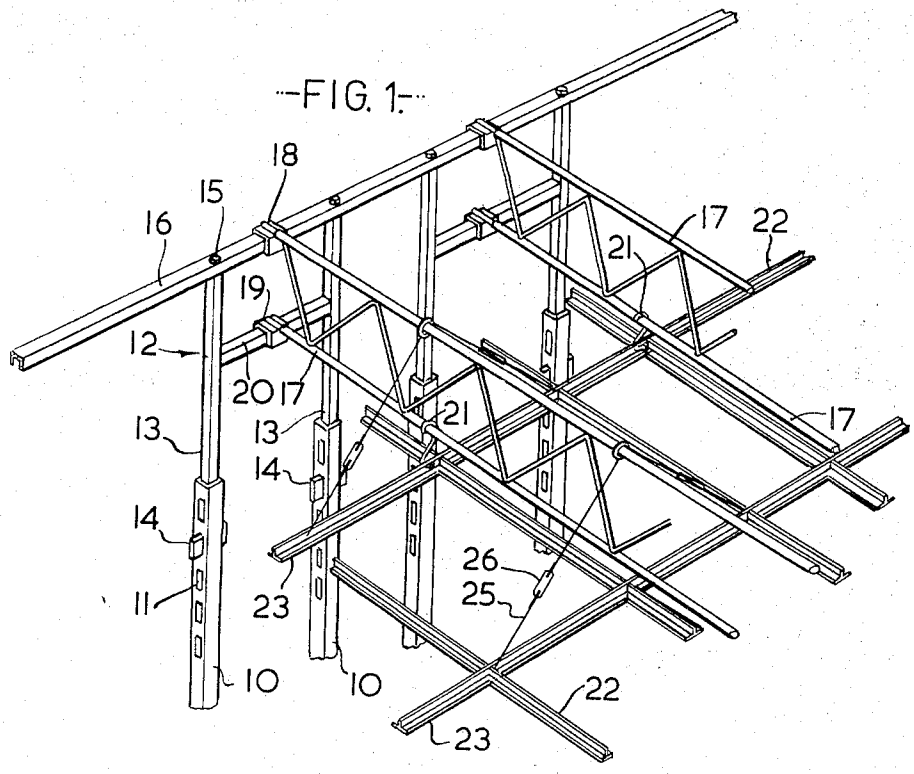
[57] **ABSTRACT**

A ceiling installation for a building comprises an assembly of uprights, which do not form an inherent part of the building structure, beams or girders carried by said uprights and a ceiling supported by said beams or girders. Conveniently the ceiling is suspended from the beams or girders. The uprights may also support wall lining panels and/or partitions for the building. The invention is particularly applicable to false ceilings for shops and offices.

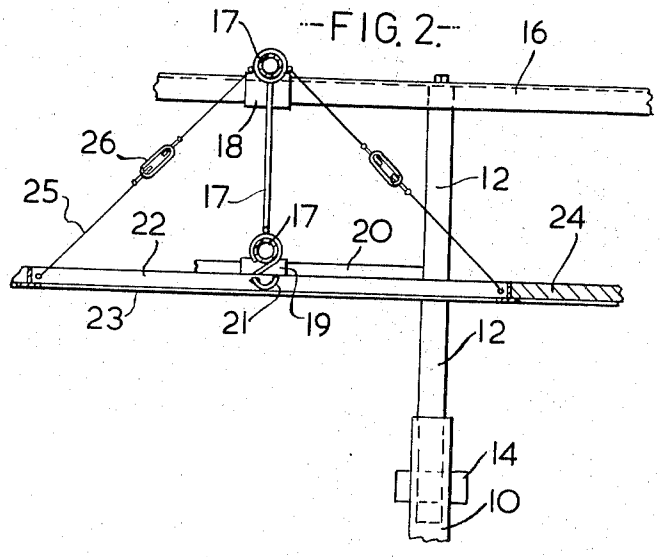
7 Claims, 2 Drawing Figures



--FIG. 1--


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--FIG. 2--


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CEILINGS FOR BUILDINGS

This invention is for improvements in or relating to ceilings for buildings and particularly, but not exclusively, false ceilings for shops and offices.

One object of the invention is to provide a method and means by which a false ceiling can easily and quickly be installed in a building without material use of a part of the building itself as a supporting means for the ceiling. This has several advantages which will be apparent from the following description.

According to the present invention there is provided an independent and self-supporting architectural interior for a building comprising first and second laterally spaced rows of uprights, H-shaped frames the lower ends of the legs of which are connected to the upper ends of neighbouring uprights of said rows of uprights, continuous horizontal members connected to the upper ends of said legs of said H-shaped frames of each row of uprights, a plurality of girders spanning the space between the rows of uprights, means connecting one end of a lower member and an adjacent end of an upper member of each of said girders to a cross-member of one of said H-shaped frames and to the horizontal member respectively of one row of uprights, means connecting the other ends of said lower and upper members of said girders to cross-members of opposite H-shaped frames and to the horizontal member of the other row of girders respectively, a framework for supporting ceiling panels, means suspending said framework from said girders and ceiling panels supported in said framework.

The expression "independent and self-supporting" where used in this Specification and in the claims is intended to mean that the architectural interior is independent of the building and does not rely on any part thereof for its support.

Conveniently the uprights are also designed to support wall lining panels and/or partitions for the building.

One particular embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

FIG. 1 is a fragmentary perspective view, and

FIG. 2 is a fragmentary longitudinal sectional view.

Referring to the drawings **10** indicates uprights rows of which are positioned, for example, along opposite walls of a building to be provided with a false ceiling. The uprights are of square, tubular, or channel section and have opposite walls provided with rows of aligned slots **11.**

Pairs of the uprights carry at their upper parts H-shaped frames **12** the legs **13** of which fit, spigot-and-socket fashion, into the uprights **10.** After the frames **12** have been located at the desired height they are held in position by keys **14** inserted through the slots **11,** said keys being notched so as to interlock with the uprights. It will be appreciated that the frames can be held in position by other stop means.

The frames **12** have bolted to their upper parts, by bolts **15,** horizontals **16** which extend along opposite sides of the building and are supported by a plurality of pairs of the uprights **10** and frames **12.**

The frames **12** and horizontals **16** support Warren-type girders **17** which, of course, extend across the building from one assembly of uprights **10,** frames **12**

and horizontal **16** to the other. The girders **17** have on their ends inverted U-shaped members **18** and **19** which fit respectively over the horizontals **16** and the horizontal members **20** of the frames **12.**

The Warren girders have suspended from them, by means of wire clips or hooks **21** a framework consisting of inverted T-section members **22** the horizontal flanges **23** of which carry the panels **24** of the false ceiling. Additionally there may be angle section members in the framework which form a surrounding frame for the false ceiling.

Wire rope ties **25** extend between the uppermost members of the Warren girders and the framework **22, 23** so as to brace the whole structure. Tensioning of the ties **25** may be effected by bottle-screws **26;** sliders or other forms of adjustors or tensioners may be used as alternatives.

Conveniently the members **18** and **19** have a part which is fitted spigot-and-socket fashion into the ends of the Warren girders and anchored thereto by bolts or pins. Similarly, the Warren girders may be made in two or more longitudinal sections which are secured together spigot-and-socket fashion or by the use of ferrules or clips and bolts or pins.

It will be appreciated that there may be rows of uprights **10** with their associated frames **12** and horizontals **16** at spaced intervals across the building, the Warren girders being provided at spaced intervals along their length with members **18** and **19** to engage with such horizontals **16** and the members **20** of the frames **12.**

In addition to supporting the false ceiling the uprights **10** may be adapted to support wall lining panels and/or partitions for the building. For example, such wall lining panels or partitions may be fixed by means of screws to the uprights.

Since a wiring harness or separate cables can be installed before the false ceiling is assembled electrical wiring is simplified. The ceiling supporting structure or appropriate parts thereof will support such harness or cables which can be prefabricated.

Various forms of wire clips or hooks **21** can be used to vary the spacing between the false ceiling and its supporting structure. Since the wire clips or hooks **21** may be made short, individual ceiling panels can readily be removed and replaced or repositioned. In conventional forms of false ceiling suspended from an existing true ceiling the length of the suspensions gives too much play for the suspensions to be disengaged readily.

Expansion arising from temperature conditions of the false ceiling is provided for by the sliding of the clips or hooks **21** on the lower members of the Warren girders, by movement of the members **18** and **19** relatively to the ends of the Warren girders, due to their spigot-and-socket connection thereto, and by sliding of the members **18** and **19** along the members **16** and **20.**

As mentioned above the beams or Warren type girders **12** may consist of lengths secured together by a spigot-and-socket or other arrangement. It is convenient to have standardised lengths say **8'** long. Multiples of **8'** can be obtained by securing standardised lengths together. Any length in between said multiples can be obtained but cutting a standardised length.

It is preferred to use tubular space frames such as Warren girders for the horizontals, which extend across

the building, as these give the necessary combination of stiffness and light-weight.

Where the ceiling panels lie below the upper ends of the uprights **10** the edges of the panels may rest on angle members attached to the upright **10.** This gives a neat join between a wall lining or partition and a false ceiling. Where a false ceiling is required to be lower at some points than at others or inclined, the lengths of the hooks **21** may be adjusted accordingly.

The framework **22, 23** may be supported from the Warren girders other than by the lower tubular members of said girders.

A great advantage of the invention is the speed at which an office or shop can be refitted. The premises can be measured, plans can be drawn up, and the required services e.g. lighting, heating, fire detectors, sprinklers, etc. can be specified. All the necessary components can be prefabricated in readily transportable lengths. Installation can then take place by a single team of semi-skilled personnel assisted from time-to-time by electricians, plumbers etc. The premises can then be back in profit-earning employment in a short period.

I claim:

1. An independent and self-supporting architectural interior for a building comprising first and second laterally spaced rows of uprights, H-shaped frames the lower ends of the legs of which are connected to the upper ends of neighbouring uprights of said rows of uprights, continuous horizontal members connected to the upper ends of said legs of said H-shaped frames of each row of uprights, a plurality of girders spanning the space between the rows of uprights, means connecting one end of a lower member and an adjacent end of an upper member of each of said girders to a cross-member of one of said H-shaped frames and to the horizontal member respectively of one row of uprights, means connecting the other ends of said lower and upper members of said girders to cross-members of opposite H-shaped frames and to the horizontal member of the other row of girders respectively, a framework for supporting ceiling panels, means suspending said framework from said girders and ceiling panels supported in said framework.

2. An architectural interior as claimed in claim **1** wherein wall panels are supported by and between the uprights.

3. An architectural interior as claimed in claim **1** wherein the uprights have sockets at their upper parts to receive the legs of the H-shaped frames and are slotted at spaced intervals along their length and keys are inserted in said slots to secure the legs of the H-shaped frames.

4. An architectural interior as claimed in claim **1** wherein the ceiling-panel supporting framework is suspended by hooks from the lower members of the girders and wire rope ties extend from the upper members of the girders to said framework.

5. An architectural interior as claimed in claim **4** wherein means is provided in said wire rope ties for the tensioning thereof.

6. An architectural interior as claimed in claim **1** wherein the ends of the lower and upper members of the girders mate spigot-and-socket fashion with the means connecting them to the H-shaped frames and horizontal members.

7. An architectural interior as claimed in claim **1** wherein the means connecting the lower and upper members of the girders to the H-shaped frames and horizontal members are slidable horizontally on said frames and members.

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