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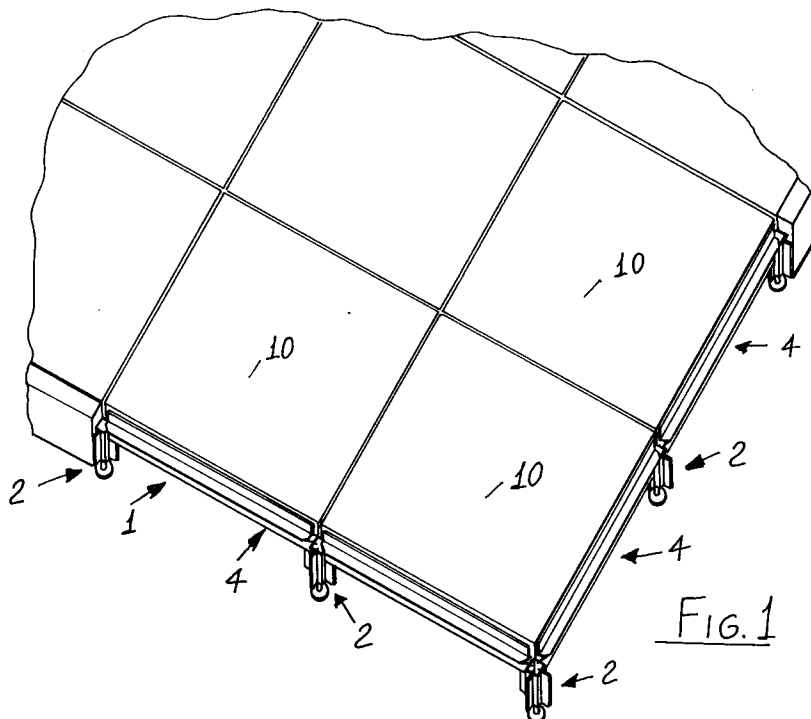
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I-20122 Milano (IT)(54) **Supporting framework for making suspended floors, scaffoldings and the like.**

(57) The present invention relates to a supporting framework (1) for making suspended floors, scaffoldings and the like, characterized in that it comprises a plurality of uprights (2), having a respective adjustable height bearing foot, and a plurality of cross-

pieces (4), each of which can be engaged, by its longitudinal ends, with two uprights (2), spaced from one another so as to provide a perimetrical support for one side of the plate-like elements (10) of the floor.

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BACKGROUND OF THE INVENTION

The present invention relates to a supporting framework for making suspended floors, scaffoldings and the like.

As is known, for making suspended floors, scaffoldings and the like there are at present used supporting constructions which are supported on the floor slab and are provided with supporting crosspieces for the plate-like elements of the floor to be made, such as, for example, plates, tiles or the like.

In their assembled condition, the crosspieces provide a net construction the meshes of which have a size which corresponds to the size of the unit plate-like element of the floor to be made.

Each "mesh" is provided with supporting elements, thereon there are arranged the plate-like elements of the floor.

In making these supporting frameworks, an accuracy problem must be solved, relating to the accuracy of the location of the construction, mainly in those cases in which, as it frequently occurs, the floor slab supporting the supporting construction or framework is not perfectly flat.

In these cases, it is necessary to arrange, between the framework and the underlying floor slabs, compensating elements, of suitable thickness, adapted to compensate possible depressions of the floor slab.

As it should be apparent, this greatly increases the installation time and, accordingly, the floor making cost.

In several cases, moreover, as the floor slab is very uneven, it is practically impossible to lay the supporting construction without a preliminary leveling of the floor slab.

Moreover, the assembling of the several elements constituting the supporting framework requires a very high accuracy, in order to prevent an uneven laying of the plate-like elements constituting the floor.

With the available supporting frameworks, such an accuracy can not be obtained and it is frequently necessary to perform complex adjusting operations during the installation of the floor.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to overcome the above disclosed drawbacks, by providing a supporting framework, for suspended floors, scaffoldings and the like, which can be installed in a very easy and quick way, also on uneven floor slabs.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a supporting framework for floors which is

specifically adapted to compensate unevenness of the floor slab, thereby assuring a perfect levelness of the floor being made.

Another object of the present invention is to provide such a supporting framework which comprises a reduced number of component elements which can be assembled in a very quick and accurate way.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a supporting framework, for making suspended floors, scaffoldings and the like, characterized in that said framework comprises a plurality of uprights, each having an adjustable height bearing foot member, and a plurality of crosspieces, each of which can be engaged, at its end portions, with one of said uprights, spaced from one another, in order to provide a perimetrical support for a side of the plate-like elements of the floor.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the supporting framework according to the present invention, will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive embodiment thereof, which is illustrated, by way of an indicative, but not limitative, example, in the figures of the accompanying drawings, where:

Figure 1 is a perspective view illustrating a portion of the suspended floor supported by its supporting framework or construction;

Figure 2 illustrates an enlarged detail of Figure 1;

Figure 3 is a perspective view illustrating an upright having two crosspieces supporting a floor plate-like element;

Figure 4 is a top plan view illustrating an upright having two crosspieces;

Figure 5 is a further top plan view illustrating an upright having four crosspieces;

Figure 6 illustrates the connection of an upright and a crosspiece, as cross-sectioned through a plane passing through the longitudinal axis of the upright;

Figure 7 is an elevation side view illustrating an upright including a plurality of crosspieces one of which is cross sectioned through a vertical plane;

Figure 8 is a perspective view illustrating a portion of the supporting framework, near an upright thereof, including stiffening bracket elements;

Figures 9 and 10 are cross-sectional views of uprights included in the subject framework;

Figure 11 is a cross-sectional view of a cross-piece;

Figure 12 is a perspective view illustrating a stiffening bracket;

and

Figure 13 is a top plan view, on an enlarged scale, of a stiffening bracket.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the figures of the accompanying drawings, the supporting framework according to the present invention, which has been generally indicated at the reference number 1, comprises a plurality of uprights 2 including each an adjustable height bearing foot member 3, and a plurality of crosspieces 4 which can be engaged, at their end portions, with the uprights 2.

More specifically, each upright 2 is provided with an upright body 4 formed by an extruded section member, comprising a hollow square cross-section, as well as four flat wings 5 extending outside of said body 4 at the symmetry axes of the extruded section.

The bearing or supporting foot member 3, as shown, is provided with a cylindric bottom, including a threaded rod 6 which is axially extended inside the upright 2 and is connected with a screw element formed in a block 7 affixed inside the body of the related upright 2.

The end portion of the rod 6 engaged inside the body of the upright 2, is provided with a recessed exagonal seat 8 which can be accessed from the top end of the upright, in order to allow the foot member 3 to turn about its axis, with respect to the upright, in order to provide a variation of the height of the assembly constituted by the upright 2 and bearing foot member 3.

Preferably the crosspieces 4 are also formed by extruded section members, having a pair of side wings 9 which are substantially coplanar, and being provided for supporting two plate-like elements 10 forming the floor, said plate-like elements 10 being arranged one near the other, and at least a bottom wing or leg 11 including a seat 12 which can be engaged with one of the wings 5 of the uprights 2.

Moreover, each crosspiece is also provided with a top leg 13, arranged between the two side legs 9, and extending, for the overall length of the crosspiece 4, in a plane which is substantially perpendicular to the plane defined by the legs or wings 9.

The side legs 9 are connected, at their free end portions, with the underlaying bottom wing 11, through a shelf-like portion 14.

The longitudinal end portions of the side legs or wings 9 of the crosspieces 4 are beveled at

45°, so as to prevent the crosspieces from interfering against one another as they are mounted on the wings 5 of the uprights.

As the spacing between the uprights is comparatively large, and a deflection of the crosspieces 4 is desired, stiffening brackets 15 can be used, adapted to be associated with the wings 5 of the uprights and supporting the crosspieces 4.

In this case, it is possible to provide uprights 2a including wings 5 which, at the free end portions thereof, are provided with guide enlarged portions 5a, to be engaged in corresponding T-shape recesses 17, formed at the end portions of the stiffening brackets 15 to be connected with the wings 5a.

The crosspieces 4, as well as the stiffening brackets 15 can be connected to the uprights 2, 2a by means of set screws 16.

The construction of the disclosed supporting framework is very simple, since, after having assembled the crosspieces 4 and uprights 2 or 2a and having arranged the framework on the floor slab, it is possible to quickly adjust the height of the several uprights so as to cause the crosspieces 4 to be perfectly flush with respect to one another and ready for receiving the plate-like elements 10 of the floor.

Either during or after the laying of the floor, moreover, one can easily adjust the previously made levelling, by causing the bearing foot member 3 to simply turn, said foot member being accessed easily from the top end portion of the upright 2.

From the above disclosure and the figures of the accompanying drawings, it should be apparent that the supporting framework according to the invention fully achieves the intended aim and objects.

In particular, the fact is to be pointed out that the disclosed supporting framework can be also easily and quickly layed on uneven floor slabs, without the use of adjusting blocks.

Moreover, since the subject supporting framework is made of modular extruded section members properly cut to size, the framework is very accurate and has a very reduced cost.

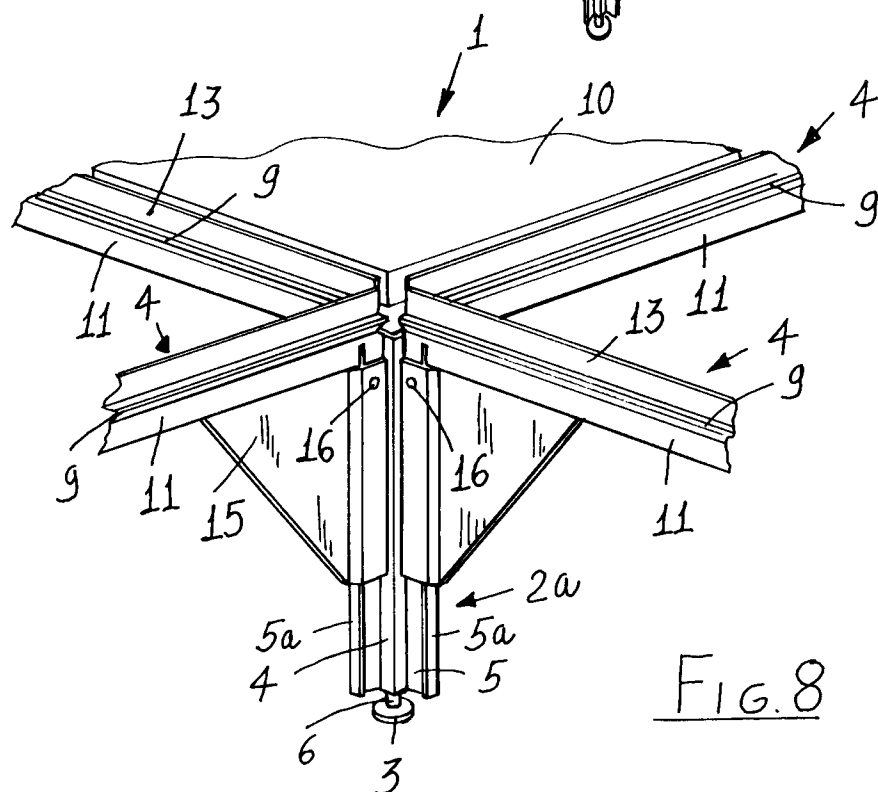
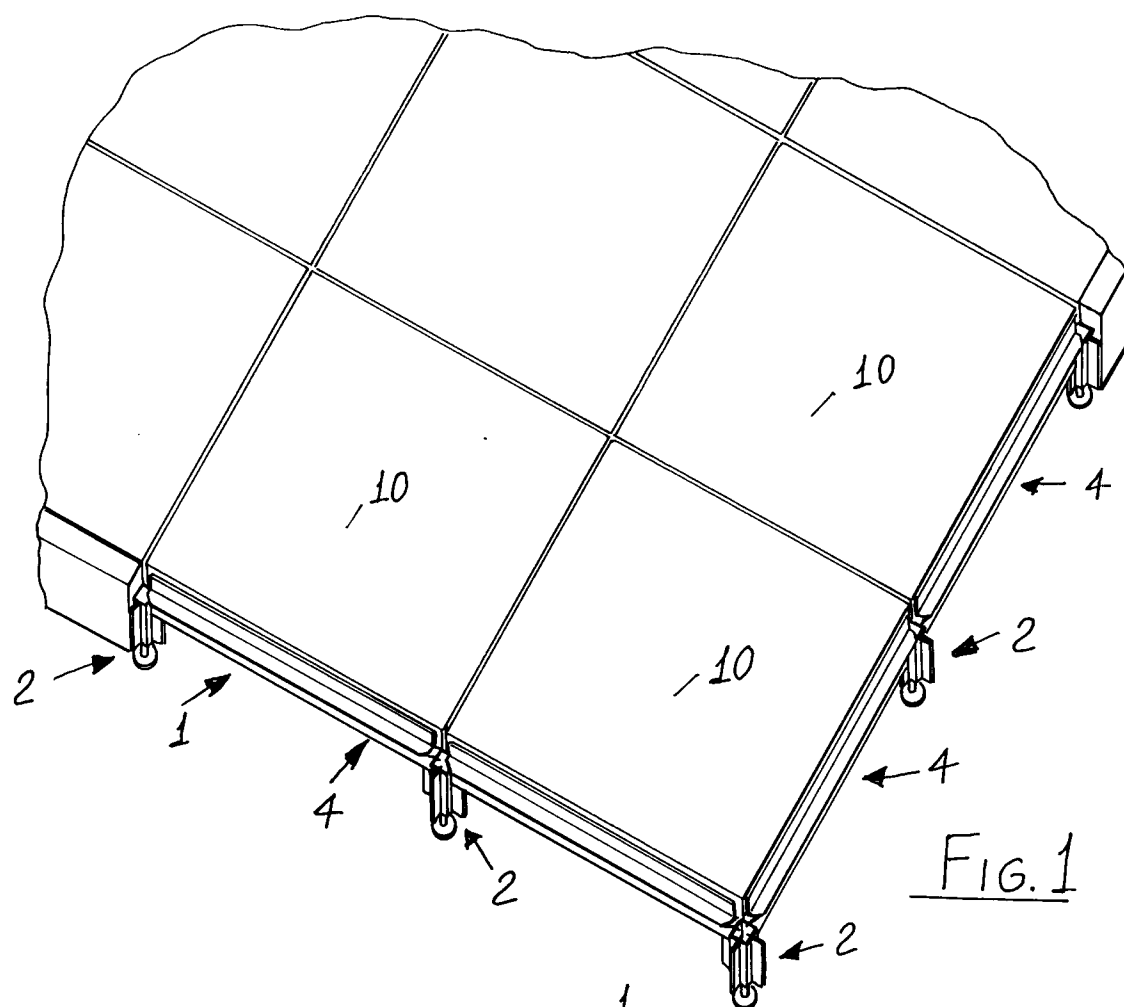
While the invention has been disclosed and illustrated with reference to a preferred embodiment thereof, it should be apparent that the disclosed embodiment is susceptible to several modifications and variations all of which will come within the spirit and scope of the appended claims.

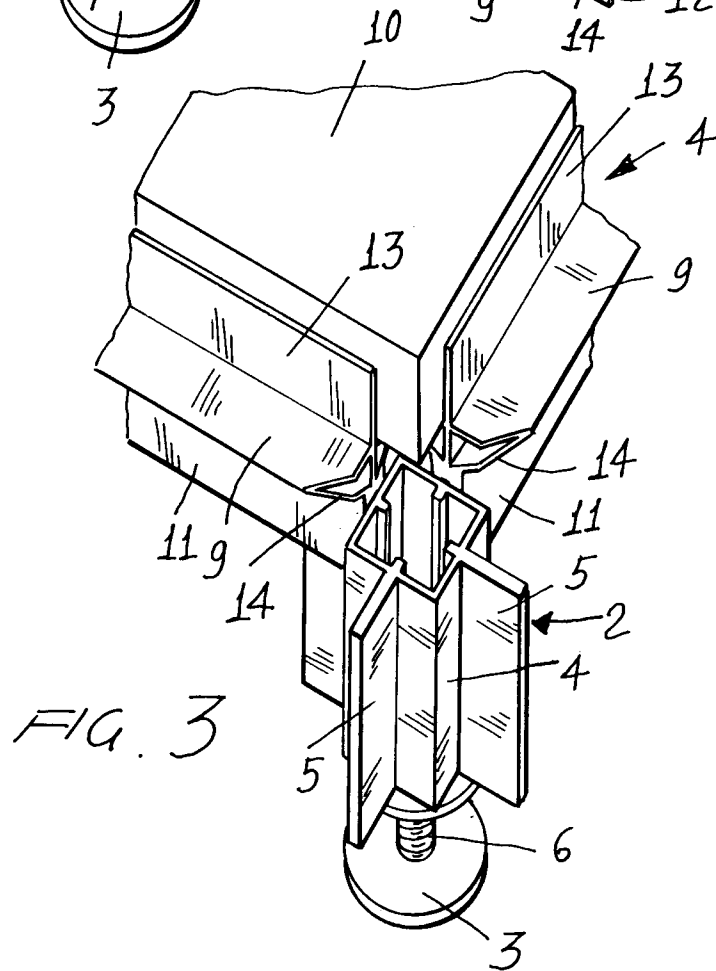
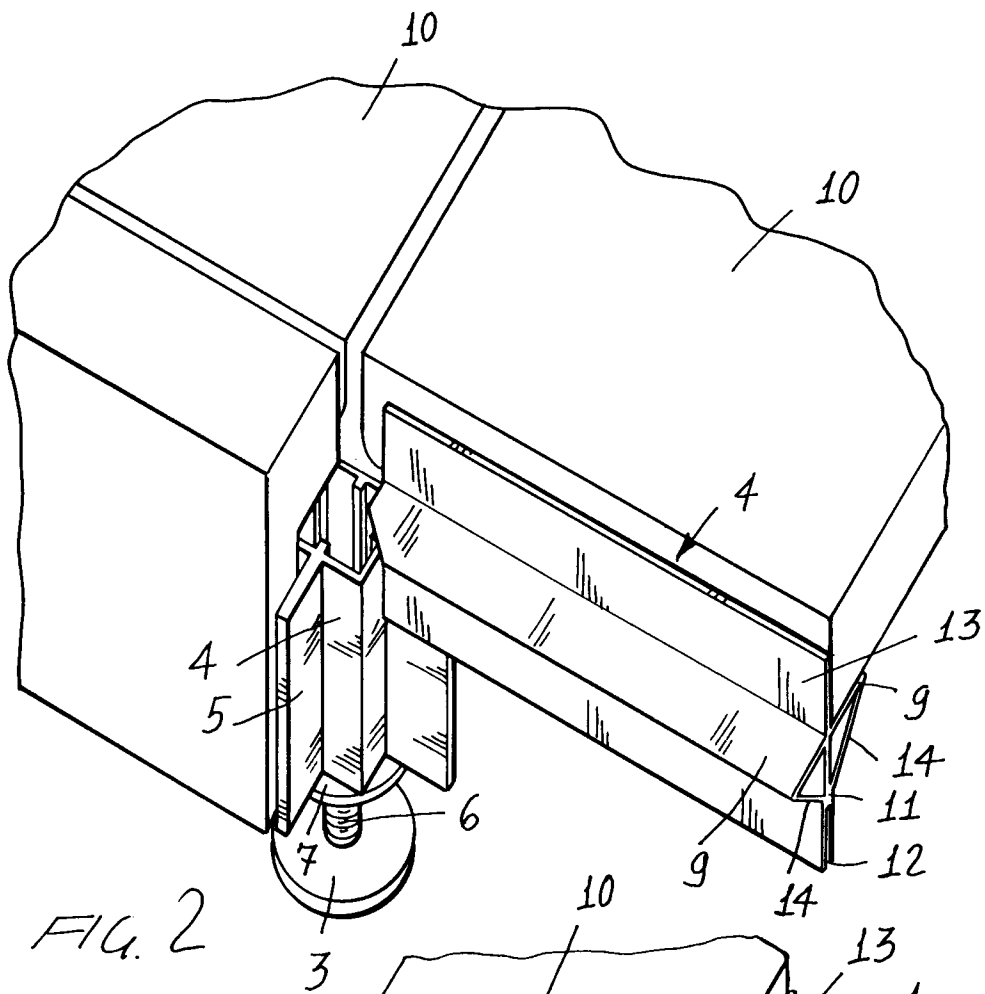
Claims

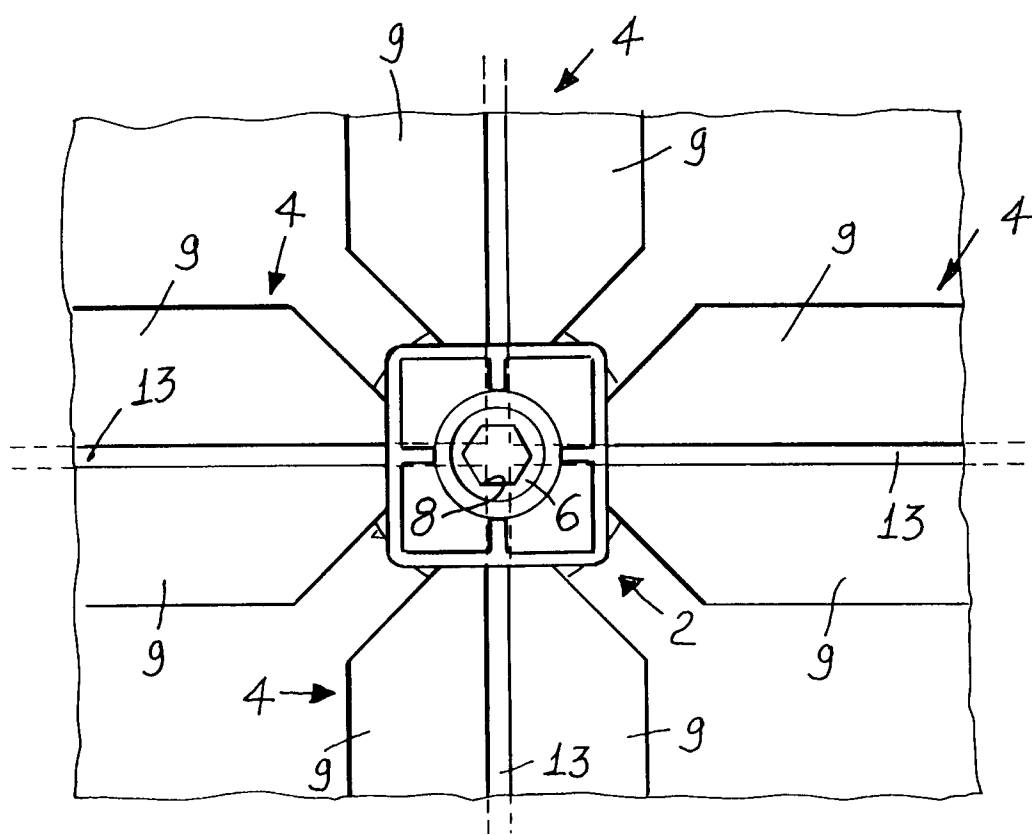
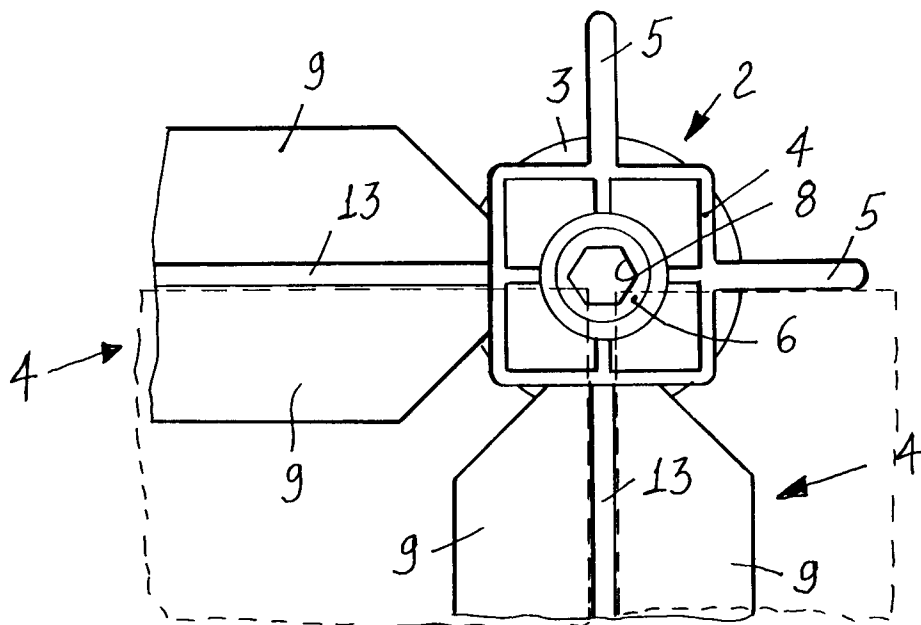
1. A supporting framework, for making suspended floors, scaffoldings and the like, characterized in that said framework comprises a plurality of uprights, each having an adjustable bearing

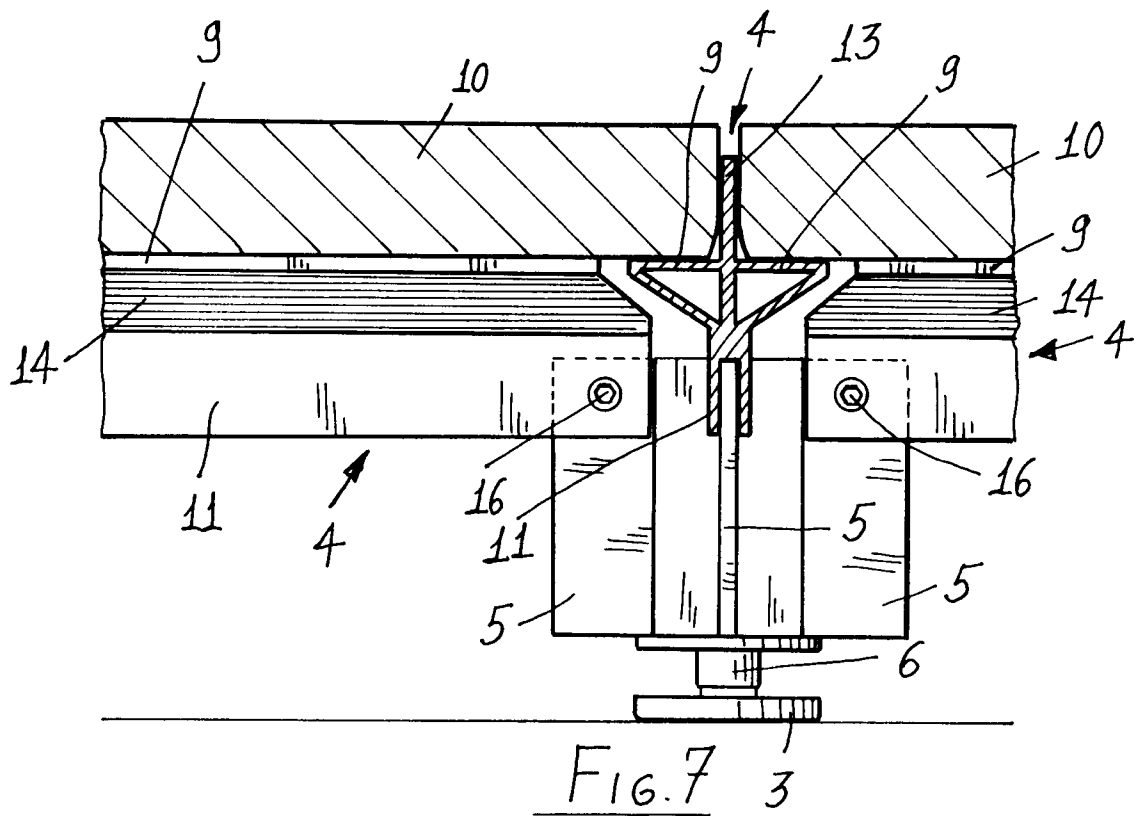
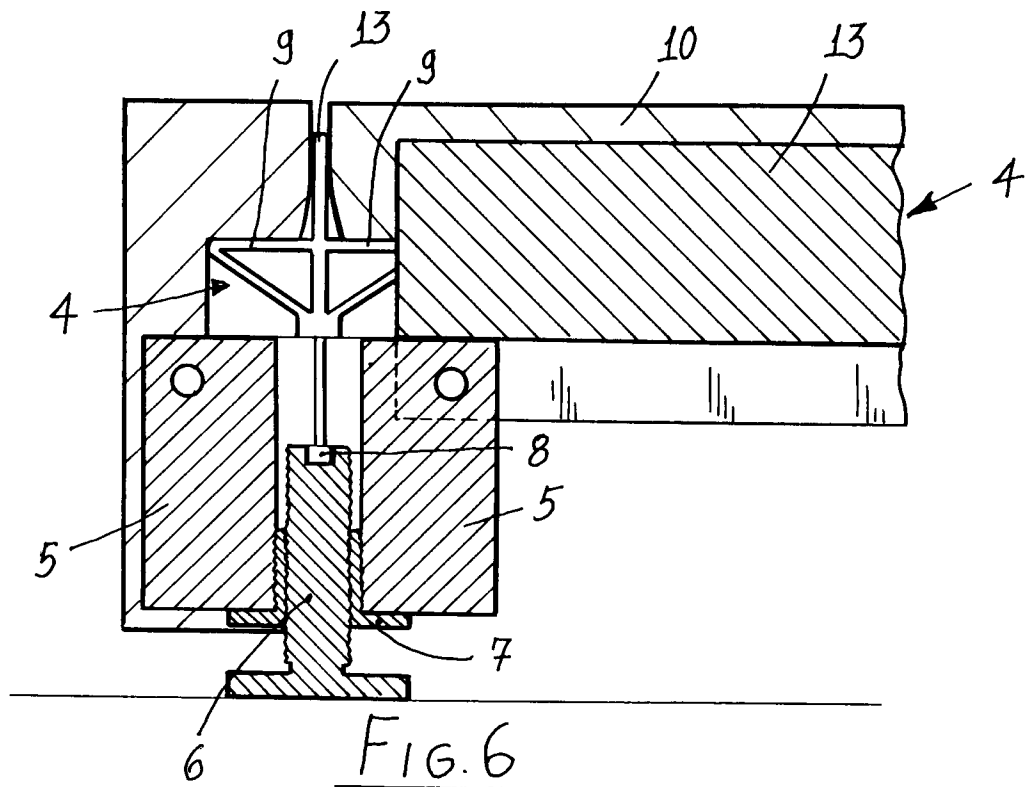
foot member, and a plurality of crosspieces, each of which can be engaged, at its end portions, with one of said uprights, spaced from one another, in order to provide a perimetrical support for a side of the plate-like elements of the floor. 5

2. A supporting framework, according to Claim 1, characterized in that each upright includes an upright body formed by an extruded section member having a hollow square cross-section and four wings which extend outside of said body, at the symmetry axes of said extruded section member, and being adapted to be engaged with said crosspieces. 10 15
3. A supporting framework, according to Claims 1 and 2, characterized in that said bearing foot member is provided with a bottom projecting from a longitudinal end of the upright body and being provided with a threaded rod which axially extends in said upright and being engaged with a nut screw provided on a block rigid with the body of the upright. 20 25
4. A supporting framework, according to one or more of the preceding claims, characterized in that the end of the bearing foot member arranged in the upright has a recessed hexagonal seat which can be accessed from the top end of the upright, in order to change the height of the assembly comprising the upright and bearing foot member. 30
5. A supporting framework, according to one or more of the preceding claims, characterized in that said crosspieces are formed by extruded section members having a pair of side legs adapted to support two floor adjoining plate-like elements and at least a bottom leg having a seat which can be engaged with one of the wings of the uprights. 35 40
6. A supporting framework, according to one or more of the preceding claims, characterized in that said crosspieces have a top leg which longitudinally extends between the pair of side legs. 45
7. A supporting framework, according to one or more of the preceding claims, characterized in that the wings of the uprights are provided, at their free end portions, with a guide enlarged portion for a stiffening bracket which can be associated with the upright and supporting at the bottom the crosspieces. 50 55









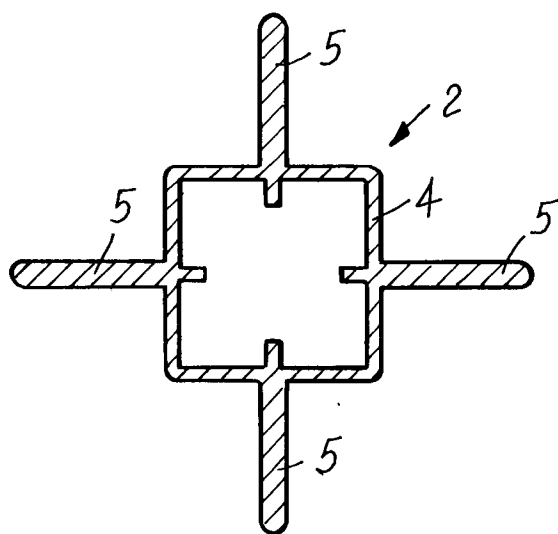


FIG. 9

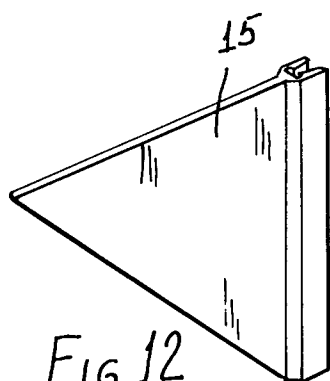


FIG. 12

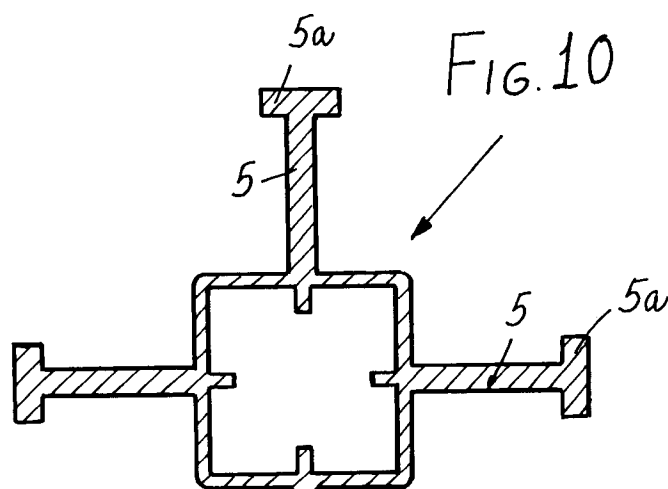


FIG. 10

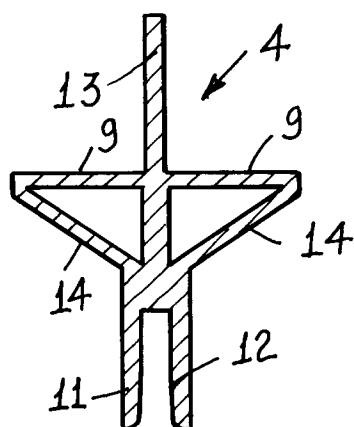


FIG. 11

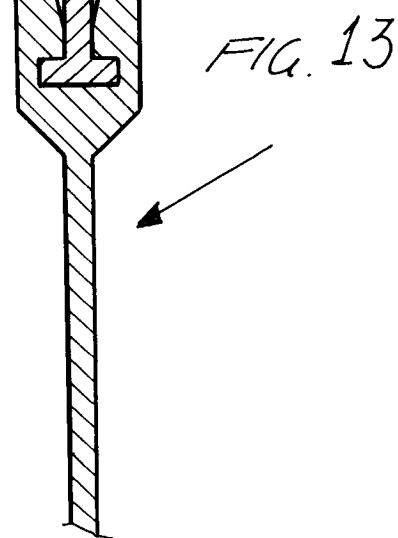


FIG. 13



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EUROPEAN SEARCH REPORT

Application Number

EP 92 83 0449

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X Y A	US-A-4 277 923 (REBENTISCH ET AL.) * column 3, line 32 - column 6, line 8; figures 1-9 * ---	1 3,4 2,5	E04F15/024
X A	US-A-4 085 557 (THARP) * column 1, line 62 - column 4, line 6; figures 2,4,5 * ---	1 2,5	
X A	DE-A-3 330 612 (BREITENBACH) * page 6, line 1 - line 28 * * claims 1,2; figures 1-5 * ---	1,6 2,5	
X A	CA-A-1 266 957 (DONN CANADA LTD. /LTÉE.) * page 2, line 17 - page 5, line 3; figures 1,2 * ---	1,6 2,5	
X A	FR-A-1 533 894 (LISKEY ALUMINIUM, INC.) * page 1, right column, line 1 - page 2, left column, line 29; figures 1,2 * ---	1 2,5	
Y A	FR-A-2 095 974 (RONALD WILLIAM STANLEY HARVEY) * page 7, line 31 - page 8, line 39 * * page 10, line 31 - page 11, line 7 * * page 12, line 37 - page 14, line 2; figures 1-4,9,10,15 * ---	3 1,4	TECHNICAL FIELDS SEARCHED (Int. Cl.5) E04F E04H
Y A	DE-A-4 021 963 (LINDNER AG) * column 1, line 63 - column 2, line 62; figures 1-3 * -----	4 1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 JUNE 1993	Examiner AYITER J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	