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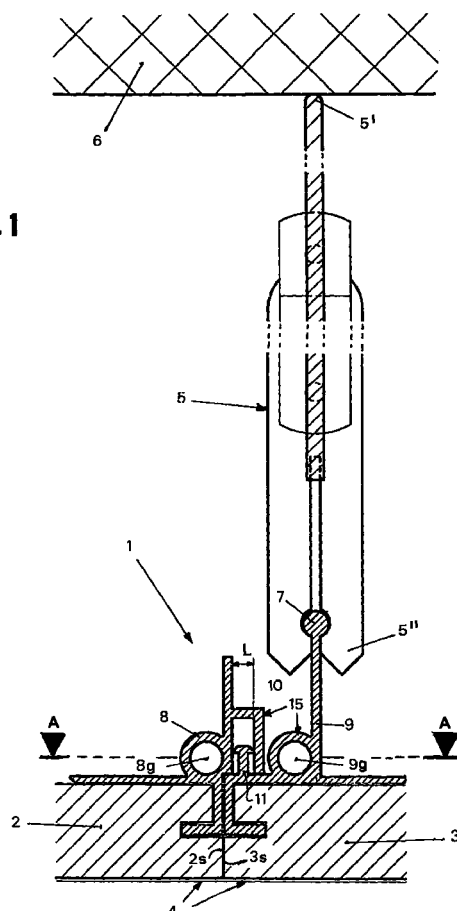
Remarks:

A request for correction of references in figure 1 has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

(54) **Means for connecting the panels of a suspended ceiling to their supporting members**

(57) A description is given of a means (1) for connecting the panels (2,3) of a flat horizontal deck (4) to the supporting members (5) fixed at one end (5') to a surface (6) parallel to the said flat horizontal deck (4), the said connecting means (1) terminating in the direction of the said surface with a projecting part (7) connectable to the free end (5'') of the said supporting members (5). The said connecting means (1) consists of a joint (15) formed by two sections (8,9) that are fixable along the adjacent edges (2q, 3q) of two consecutive panels (2,3), these two sections (8,9) being provided with means (10,11) for joining them and preventing relative movement between them in a direction perpendicular to the said adjacent edges (2q, 3q), and with holes (8g, 9g) parallel to the longitudinal axis of the said joint (15) and to the said panels (2,3) for the insertion of dowels or pins (14,16) projecting out of these to a defined distance.

FIG.1



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Description

[0001] The present invention relates to the joinery and building trades, and more specifically to the sectors of these concerned with the creation of such things as suspended ceilings made of gypsum, wood or man-made materials.

[0002] As is known, a suspended ceiling consists of a number of adjacent parallel rows of panels running alongside each other, and the panels are supported by supporting members connected at one end to the panels themselves and at the other to the floor or roof above.

[0003] Intermediate means were then devised to allow connection between the said panels and supporting members, the principal purpose of these intermediate connecting means being to facilitate and rationalize the operations of installing the suspended ceiling.

[0004] Often, however, because of inevitable imprecisions either in the construction of the various components or in the process of installing them, irregularities are found in the positioning of adjacent panels, with a consequent unsatisfactory result from the point of view of appearance and quality, due to irregular lining-up, imperfect horizontality of the suspended ceiling, etc.

[0005] To overcome these problems, the inventor of the present invention has devised a means for connecting the panels forming a flat horizontal deck to their supporting members such that the mere process of assembling it necessarily results in perfect alignment and perfect planarity of all the panels constituting the said deck (usually a suspended ceiling).

[0006] The subject of the present invention is therefore a means for connecting the panels of a flat horizontal deck to the supporting members as defined by the preamble of the attached Claim 1 and characterized by the characterizing part of the same claim.

[0007] A preferred example of an embodiment of the connecting means of the invention will now be described in detail, reference also being made to the attached drawings, which show:

- in Figure 1 the cross section through a segment of suspended ceiling composed of two consecutive panels fixed to a supporting member by a connecting means according to the invention; and
- in Figure 2 a partial plan view of two parallel rows each consisting of two consecutive panels with a connecting means according to the invention cut longitudinally on a plane parallel to the panels.

[0008] Turning firstly to Figure 1, this shows a supporting member 5 of known type, projecting from the surface of a floor or roof above 6, to which it is connected at its end 5' by methods that are likewise known.

[0009] In the case illustrated, the other end 5'' of the supporting member 5 is shaped into a spring fork

designed to connect onto a complementary enlargement present on a projecting part 7 of a connecting member 1 fixed to the panels that are to be suspended. In the present state of the art, each connecting member is fixed to one panel only, which is supported by it.

[0010] In the embodiment depicted, however, the connecting member 1 according to the invention can be seen to consist of a joint 15 formed by two sections 8,9 fixed along the adjacent edges 2q, 3q of two consecutive panels 2,3.

[0011] The said two sections 8,9 are provided with means for locking them together transversely, which thus prevent the two panels 2,3, once assembled, from moving with respect to each other in a direction perpendicular to their adjacent edges 2q,3q.

[0012] These means, which may vary in their shape and in their design, consist, in the illustrative embodiment in question, of a vertical slot 10, open face down, on one 8 of said sections, into which is inserted a shaped flange 11 formed on the other section 9 and having a cross section with a maximum thickness equal to the width L of this slot 10 (less a very small clearance indispensable for assembling).

[0013] The two panels 2,3 thus remain firmly locked in their position which corresponds to precise mating of their edges 2q, 3q.

[0014] Parallel to the longitudinal axis of each section 8, 9 there is also, formed in these, a hole 8g, 9g suitable for the insertion therein of dowels or pins 14, 16 which project out of these by a defined distance.

[0015] As illustrated in Figure 2, the said projecting part of each dowel or pin 14, 16, when the suspended ceiling 4 is installed, is fully inserted into the corresponding holes of other joints 15' attached to another row of consecutive panels 2', 3' arranged parallel to the first panels.

[0016] This also gives precise axial positioning of the different joints 15, 15' lined up with each other, and as a consequence the suspended ceiling 4 or deck is perfectly planar, the whole assembly having an excellent mechanical strength which prevents movement of the panels in a direction perpendicular to the deck in the case of accidental impact.

[0017] It should be pointed out that, when a joint 15 is connected to a pair of panels 2,3 that terminate with one edge against a wall 12, threaded pins 15 may advantageously be used. These are screwed into the corresponding holes 8g, 9g to an appropriate distance so that their projecting ends press against the wall 12 and exert a desired securing force against the latter.

[0018] A connecting means produced in accordance with the present invention can be used equally satisfactorily to support panels made of gypsum, wood or man-made materials.

[0019] The shape of its component parts may also be modified to give different embodiments from that described above so as to suit individual design requirements. These embodiments will obviously still come

within the scope of the protection conferred by the present application if based upon the teachings expressed in the attached Claim 1.

Claims

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1. Means (1) for connecting the panels (2, 3) of a flat horizontal deck (4) to the supporting members (5) fixed at one end (5') to a flat surface (6) parallel to the said flat horizontal deck (4), the said connecting means (1) terminating in the direction of the said surface with a projecting part (7) connectable to the free end (5'') of the said supporting members (5), which means is characterized in that it consists of a joint (15) formed by two sections (8, 9) that are fixable along the adjacent edges (2q, 3q) of two consecutive panels (2, 3), these two sections (8, 9) being provided with means (10, 11) for joining them and preventing relative movement between them in a direction perpendicular to the said adjacent edges (2q, 3q), and with holes (8g, 9g) parallel to the longitudinal axis of the said joint (15) and to the said panels (2, 3) for the insertion of dowels or pins (14, 16) projecting out of these to a defined distance.
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2. Connecting means according to Claim 1, in which, in order to join the two adjacent edges (2q, 3q) of two consecutive panels (2, 3), the said two sections (8, 9) are provided, one with a vertical slot (10), open face down, and the other with a shaped upward flange (11) whose cross section has a maximum thickness equal to the width (L) of the said vertical slot (10).
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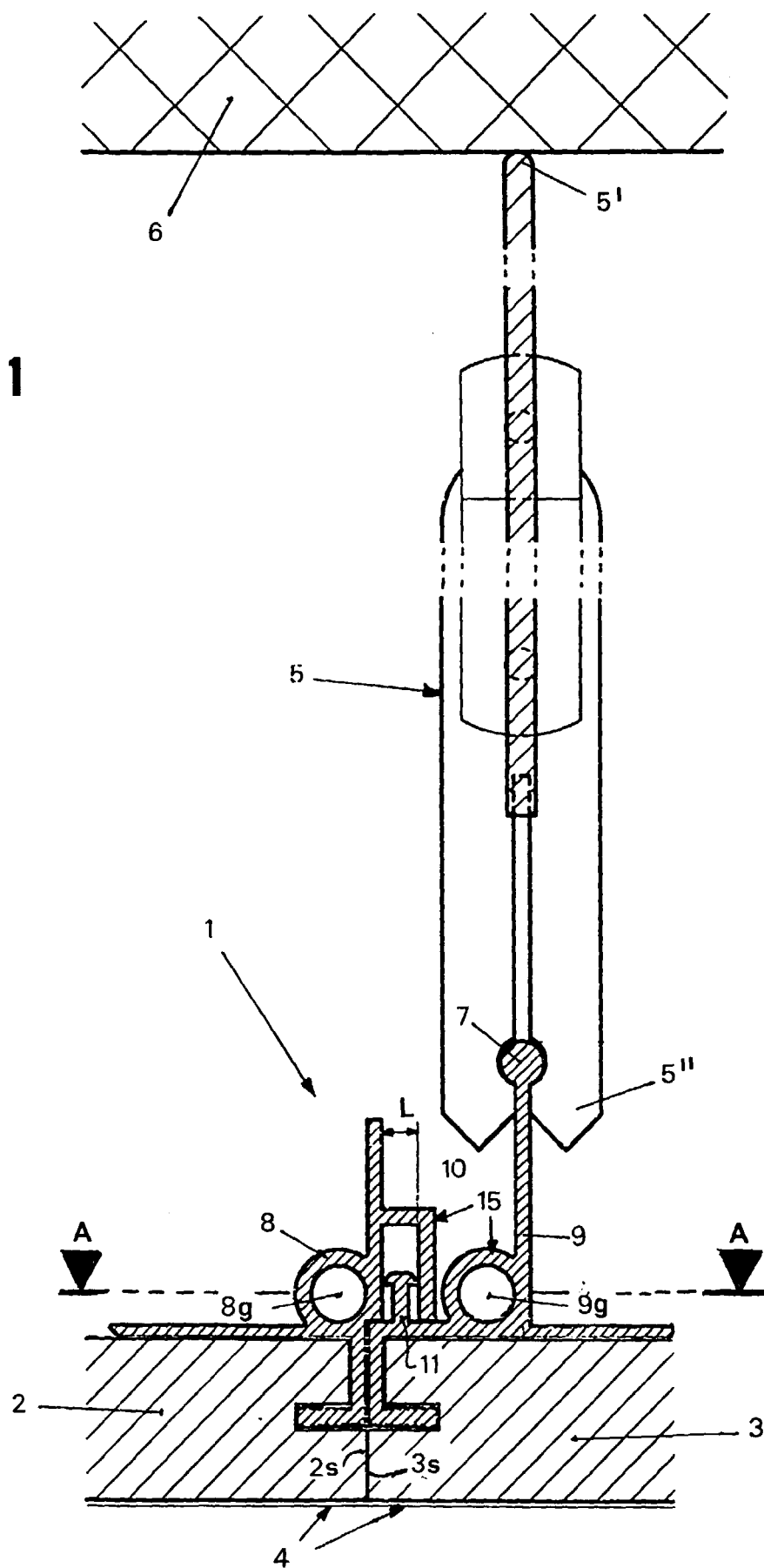
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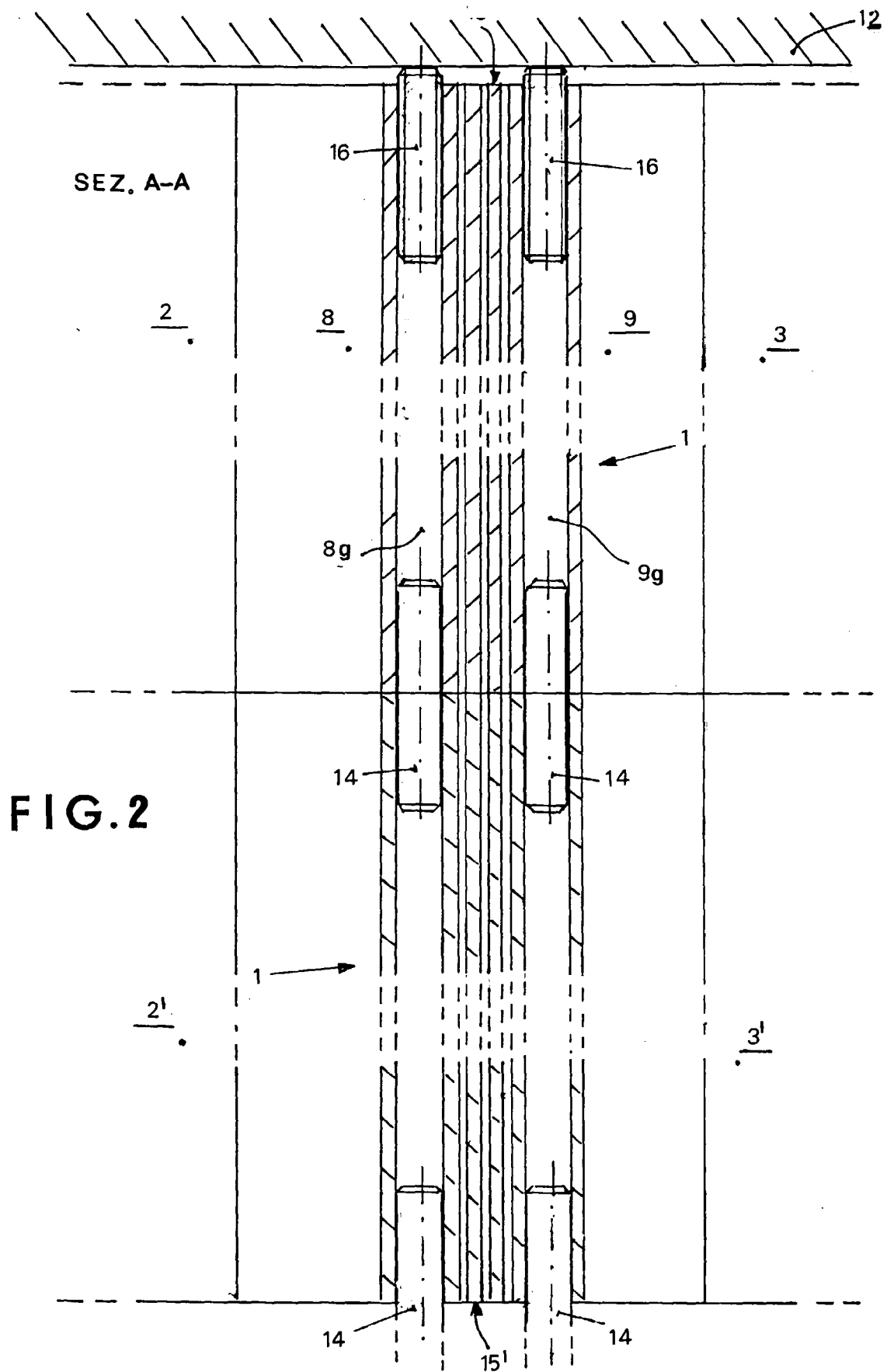
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FIG.1







European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 98 81 1092

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.6)
Y	AU 52548 64 A (GOYER, BOAZ) 8 June 1967 * page 5, paragraph 7 - page 7, paragraph 1 * * page 10, paragraph 2 * * figures 2,3,6,11 * ---	1,2	E04B9/28 E04B9/10 E04B9/06
Y	DE 19 95 158 U (SA FRANCAISE DU FERODO) 24 October 1968 * page 8, paragraph 2 - page 9, paragraph 1 * * page 11, paragraph 3 * * figures 2,5 * ---	1,2	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E04B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		31 March 1999	Hendrickx, X
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			

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 81 1092

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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31-03-1999

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