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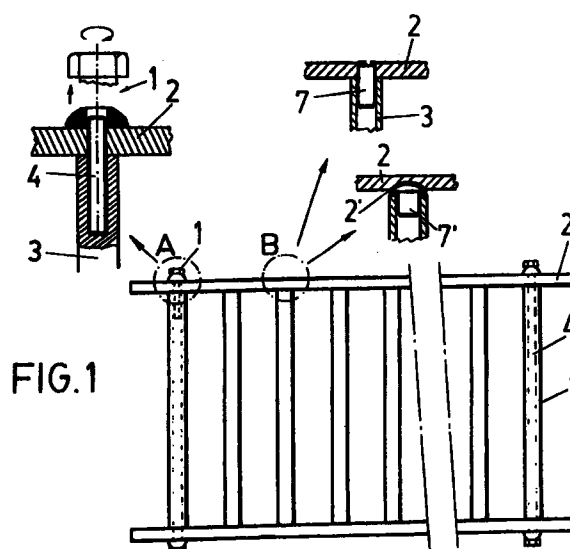
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(54) **MOUNTABLE GRID FOR WINDOWS, FENCES AND THE LIKE**

(57) The grid is comprised of plates (2) and tubes (3, 4) or bars (12, 18, 33, 34, 35) which can be coupled perpendicularly by respective connection means, as well as means for fixing the plate (2) to the wall for installing it to a window, or for its installation as a fence with the plate (2) anchored to the ground. A rod (4) is incorporated inside the tube (3) and extends beyond its extremities and traverses the plates (2) against which they are adjusted by means of breakable head nuts (1) by tightening the nut up to a tightening torque which causes the hexagonal head to break.



**FIG.1**

**EP 0 921 264 A1**

## Description

### OBJECT OF THE INVENTION

[0001] The invention which is herewith defended consists of a do-it-yourself mounting grille conceived for assembly on windows, fences and the like.

[0002] The object of the invention is a grille configured by various mounting elements, consisting of thick flat bars and tubes or bars placed perpendicularly arranged, of equal thickness, as well as additionally including threaded rods or profiles as stiffening and joining means between tubes and flat bars, considering the possibility of using break head nuts.

[0003] Likewise, an object of the invention is that the grilles include means of attachment to the strengthening element of the building to be applied on windows, the flat bars also being used on fences as right hand feet.

### BACKGROUND OF THE INVENTION

[0004] Grilles constituted by standardised elements in modulated dimensions are previously known.

[0005] Specifically, Utility Model 1034506 entitled "Profiles for the construction of grilles and other door and window closures" belong to the same applicant, which describes elements which constitute the grille, said dimensioning being stepped to preset measures, in such a manner that the user may construct his own grille, after selecting the parts with appropriate length, the next and nearest length, so that he may cut the excess ends with a saw and next, integrally assemble the same.

[0006] The development of a modular grille for application on windows, fences and the like, by using a series of constructive elements with easily assembled joining means makes the invention which is herewith described, feasible.

### DESCRIPTION OF THE INVENTION

[0007] The present invention refers to do-it-yourself mounting grille for assembly on windows, fences and the like, which is very easily transported and presents simplicity of the means necessary for its assembly in situ.

[0008] The claimed grille is provided with longitudinal components and transversal components with standard measures, ready for forming the grille by the simple integral joining of said groups, using in a possible embodiment, break head nuts.

[0009] The object of this invention is constituted by the indistinctly horizontal or vertical arrangement of the elements which make up the grille, as well as its construction by means of flat bars and tubes or bars, in a possible embodiment including in one of said tubes, a threaded rod which crosses at its ends, various flat bars to which it is joined by means of break head nuts.

[0010] The tubes may be assembled according to different embodiments, considering in one possible embodiment, inserting the screw heads inside the tube ends, and that their threaded bodies project and insert through an orifice of the flat bar to which the tube is joined with the help of a break head nut.

[0011] Another solution consists in that the tubes be provided with screws fixed to their ends, which are joined to the flat bars in the same manner, or else may be provided with a screw at one end, with the other end free for insertion inside a lug projecting from the other flat bar.

[0012] Another possibility consists in the use of solid bars instead of tubes, contemplating that the bar may be perforated on its intermediate zone so that attachment parts may couple to the flat bars.

[0013] If bars are used, inserting them by their ends on orifices performed in the flat bars and subsequently joining them by means of profiles, may be resorted to.

[0014] Likewise, it must be pointed out, that the grille includes wall coupling means, which consists of an angle iron screwed to one of the flat bars and to the wall, which may or may not finish off with a ripped end, open towards its sides, or else may consist of a small coupling plate on the flat bar which ends at a ripped end, open towards its sides.

[0015] In the application of grilles for fences, the flat bars of the grilles shall be placed as right hand feet of the construction, advantageously anchored to the ground, contemplating that a part of the tubes configure horizontal fence spars joined to the flat bar by means of attachment nuts, providing, that the adjacent flat bars be joined by means of a bushing which covers said attachment nuts between colinear horizontal tubes.

[0016] In the case of being used as a fence, it is provided that the grille include defence means placed on the upper horizontal tube to which it is screwed.

### DESCRIPTION OF THE DRAWINGS

[0017] In order to complement the description which is being carried out, and with the object of facilitating a better and easier understanding of the characteristics of the invention, the present Specification is enclosed, forming integral part of the same, with a set of drawings in which, with illustrative and never limitative character, the following has been represented:

Figure 1 shows the grille which is the object of this invention, in which two details of different joining means between the tubes and the flat bars can be observed.

Figure 2 shows different means of joining the grille to the window for its attachment to the strengthening element of the building.

Figure 3 shows a grille for use as a fence.

Figure 4 shows a grille for use as a fence, observing a stepped joining detail between different grille modules placed at different levels.

Figure 5 shows a grille which is provided with tubes having a screw at one end which crosses a flat bar to which it is joined by means of a nut and is coupled at its opposite end into a lug which projects from the other flat bar.

Figure 6 shows two variants of tubes as alternatives to the previous one.

Figure 7 shows a solid bar with one recessed end and another end with a screw for coupling in the flat bars.

Figure 8 shows an exploded view of the coupling of flat bars to a doubly perforated bar by means of attachment parts.

Figure 9 shows a side view of the grille with flat bar perforated for the insertion of bars linked with the help of profiles.

Figure 10 shows a detailed view of the union between bar, flat bar and profile of the previous figure

Figure 11 shows a detailed view of the union between the bar with perimetral recess, flat bar and profile.

Figure 12 shows a plan view of the flat bar with different shapes of the orifice with coupled bars.

Figure 13 shows a view of the simple union between bar and flat bar by means of a screw.

#### PREFERRED EMBODIMENT OF THE INVENTION

[0018] In view of the described figures, a preferred embodiment of the do-it-yourself mounting grille is here-with described, which is mainly found constituted by flat bars (2) and tubes (3), (4), or bars (12), (18), (33), (34), (35) perpendicularly coupled by corresponding joining means and which is applicable for assembly on windows or fences.

[0019] In one possible embodiment, the tube (3) internally includes a through rod (4) which projects by its ends and crosses the flat bars (2), against which they fit by means of break head nuts (1) until the torque applied on the same breaks its hexagonal head.

[0020] The rods (4) may be included in the tubes (3) of the end side of the grille, as well as in other intermediate tubes (3) of the grille when advised by the length of the grille.

[0021] Detail A of figure 1 shows the attachment

between tube (3) and flat bar (2) by means of a break head nut (1) whilst detail B shows two variants of tube (3) attachment to the flat bars (2), either by means of a pivot (7) or through screw, joined to the flat bar (2) by means of welding or else by means of a spherical head screw (7') inserted in a spherical slot (2') of the flat bar (2) to which it is joined by welding.

[0022] In another embodiment, it is contemplated, that the tubes (3) be provided at their ends with various inserted head screws (13).

[0023] On the other hand, in order to adapt the length of the profiles to the grille dimensions, it is considered including another type of tube (14) which is equipped with a screw (15) at one of its ends, capable of being cut at the other end to adjust its length, before inserting it in lugs (16) defined on the flat bars (2), as well as being provided with perforations (17) through which the reinforcement bars may be inserted.

[0024] Other bars (18) have perforations (19) for the insertion of joining means with attachment parts (20) which immobilise the flat bars (2).

[0025] The inclusion of solid bars (12) instead of tubes (3) is contemplated, which are equipped with recessed ends with screws crossing corresponding flat bars (2) to which they are fixed by means of break head nuts (1).

[0026] In another possible option, there is resource to the inclusion of orifices (27) on the flat bars (2), adapted for seating the ends of bars (33), additionally provided with profiles (26) which show a rectangular cross section with lower longitudinal groove (31) defined between confronted wings (29) coupling on the flat bar (2).

[0027] It is contemplated, that the orifices (27) of the flat bar (2) be through orifices and that they coincide in their shape, with the section of the bars (33).

[0028] The grilles may likewise include bars (34) which are provided with a perimetral recess (28) near their ends to house the ends of confronted wings (29) of the union profile (26).

[0029] In another possible embodiment, a bar (35) is available which is provided at its ends with a blind boss (30), adapted for inserting a screw (32) with break head which previously crosses the orifices (27) of the flat bar (2).

[0030] The different attachment means of the grille to the wall of figure 2 consist of an angle iron (5) which includes a hole (21) with threaded nut (22) inside for insertion of a torque screw which ties down on the flat bar (2), and which is provided with perforations (6) on the previous orthogonal area for screwing to the wall.

[0031] The angle iron (5) may include a free end (5'), ripped and open like claws.

[0032] Other attachment means may consist of a small plate (23) which includes, a hole (24) with an internal threaded nut (25) for insertion of a torque screw which ties down on the flat bar (2), and an end (23'), equally ripped and open as attachment claws.

[0033] In the application of grilles for fences, the flat bars (2) are arranged anchored to the ground and are to

be found in pairs with the help of bushings (9) covering the joining nuts (1) between the flat bars (2) and the tubes (3).

[0034] The grille contemplates the inclusion of defences (10) screwed to one of the tubes (3) which constitute an upper fence spar.

[0035] The flat bar (2) may additionally include ripped perforations (11) in which the bushings (9) are introduced which integrate the adjacent flat bars when the ground is sloped.

[0036] This description is not made more extensive with the understanding that any expert in this Art may have sufficient information to understand the scope of the invention and the advantages derived from the same as well as how to proceed to reproduce the same.

[0037] It is understood that, if the essentials of the invention are not altered, both the variations in the materials as in the shape, size and arrangement of the elements are capable of variation characterised within the same.

[0038] The terms used during the description and the meaning of the same shall always be considered in a non limitative manner.

#### Claims

1. Mounting grille for windows, fences and the like, of the do-it-yourself type which is essentially characterised in that it is constituted by flat bars (2) and tubes (13, (14), or bars (12), (18), (33), (34), (35) perpendicularly couplable by corresponding joining means, as well as including attachment means of the flat bar (2) to the wall for assembly on the window, and for assembly as a fence with the flat bar (2) anchored to the ground.
2. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the joining means of the tubes (3) to the flat bar (2) of the grille consist of a through stem (7), joined to the flat bar (2) by means of welding.
3. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the attachment means of the tubes (3) to the flat bar (2) of the grille, consist of a spherical head screw (7') inserted in a spherical recess (2') of the flat bar (2) to which it is joined by means of welding.
4. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the tube (3) internally includes a through rod (4) which projects by its ends and crosses the flat bars (2), against which they fit by means of break head nuts (1) until the torque applied on them breaks their hexagonal head.
5. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the attachment means of the flat bar (2) to the wall consist of an angle iron (5) which includes a hole (21) with an internal threaded nut (22) for inserting a torque screw which ties down in the flat bar (2), and which is provided with perforations (6) in the previous orthogonal area for screwing to the wall.
6. Mounting grille for windows, fences and the like, according to claim 5, characterised in that the angle iron (5) includes a free ripped end (5') and open like claws.
7. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the attachment means of the flat bar (2) to the wall consist of a small plate (23) which includes a hole (24) with an internal threaded nut (25) for inserting a torque screw which ties down in the flat bar (2) and an equally ripped end (23') and likewise open as attachment claws.
8. Mounting grille for windows, fences and the like, according to claim 1, characterised in that in its application for fences, the flat bars (2) are arranged anchored to the ground and are paired off with other flat bars (2) with the help of bushings (9) which cover the break head nuts (1) joining the flat bars (2) to the tubes (3).
9. Mounting grille for windows, fences and the like, according to claims 1 and 8, characterised in that it includes defences (10) screwed to one of the tubes (3) which constitute an upper spar of the fence.
10. Mounting grille for windows, fences and the like, according to claims 1 and 8, characterised in that the flat bar (2) includes ripped perforations (11) in which the bushings (9) are inserted integrating the adjacent flat bars (2) of the different grilles.
11. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is provided with tubes (3) provided with various inserted head screws (13) at its ends.
12. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is provided with tubes (14) which are provided with a screw (15) at one of its ends, cutting the other for length adjustment, prior to its insertion in lugs (16) defined on the flat bars (2), as well as having perforations (17) through which reinforcement bars may be introduced.
13. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is provided with bars (18) with perforations (19) for insert-

ing joining means which link attachment and support parts (20) to the bars (18) immobilising the flat bars (2).

14. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is included with solid bars (12), with recessed and threaded ends, passing through corresponding flat bars (2) and attached by means of break head nuts (1). 5 10
15. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it includes union profiles (26) which link a group of bars (33) by the upper ends and by their lower ends with flat bars (2), said joining profiles (26) presenting a rectangular cross section with lower longitudinal groove (31) defined between confronted wings (29) which couple on the flat bar (2), the flat bar (2) being provided with orifices (27) in which the ends of bars (3) are coupled, contemplating to this effect, that the orifices (27) of the flat bars (2) be through orifices and coincide in their shape with the bar (3) cross section. 15 20 25
16. Mounting grille for windows, fences and the like, according to claims 1 and 15, characterised in that the bars (34) include a perimetral recess (28) near their ends to house the ends of confronted wings (29) of the union profile (26). 30
17. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the bars (35) are provided at their ends with a blind boss (30) adapted for the insertion of a screw (1) which previously crosses the orifice (27) of the flat bar (2). 35

#### Amended claims under Art. 19.1 PCT

[received by the International Office on the 24<sup>th</sup> August, 1998 (24\_08\_98); claim 1 amended; other claims do not change (4 pages)] 40

1. Mounting grille for windows, fences and the like, of the do-it-yourself type, and of those which are provided with profiles partially comprehending others, as well as those which are provided with tubular profiles included in other like ones, essentially characterised in that it is constituted by flat bars (2) and tubes (3), (14) or bars (12), (18), (33), (34), (35) perpendicularly couplable by corresponding joining means, as well as including attachment means of the flat bar (2) to the wall for its assembly on windows, and for assembly as a fence with the flat bar (2) anchored to the floor. 45 50 55

2. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the join-

ing means of the tubes (3) to the flat bar (2) of the grille consist of a through stem (7), joined to the flat bar (2) by means of welding.

3. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the attachment means of the tubes (3) to the flat bar (2) of the grille, consist of a spherical head screw (7') inserted in a spherical recess (2') of the flat bar (2) to which it is joined by means of welding.

4. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the tube (3) internally includes a through rod (4) which projects by its ends and crosses the flat bars (2), against which they fit by means of break head nuts (1) until the torque applied on them breaks their hexagonal head.

5. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the attachment means of the flat bar (2) to the wall consist of an angle iron (5) which includes a hole (21) with an internal threaded nut (22) for inserting a torque screw which ties down in the flat bar (2), and which is provided with perforations (6) in the previous orthogonal area for screwing to the wall.

6. Mounting grille for windows, fences and the like, according to claim 5, characterised in that the angle iron (5) includes a free ripped end (5') and open like claws.

7. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the attachment means of the flat bar (2) to the wall consist of a small plate (23) which includes a hole (24) with an internal threaded nut (25) for inserting a torque screw which ties down in the flat bar (2) and an equally ripped end (23') and likewise open as attachment claws.

8. Mounting grille for windows, fences and the like, according to claim 1, characterised in that in its application for fences, the flat bars (2) are arranged anchored to the ground and are paired off with other flat bars (2) with the help of bushings (9) which cover the break head nuts (1) joining the flat bars (2) to the tubes (3).

9. Mounting grille for windows, fences and the like, according to claims 1 and 8, characterised in that it includes defences (10) screwed to one of the tubes (3) which constitute an upper spar of the fence.

10. Mounting grille for windows, fences and the like, according to claims 1 and 8, characterised in that the flat bar (2) includes ripped perforations (11) in

which the bushings (9) are inserted integrating the adjacent flat bars (2) of the different grilles.

11. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is provided with tubes (3) provided with various inserted head screws (13) at its ends. 5

12. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is provided with tubes (14) which are provided with a screw (15) at one of its ends, cutting the other for length adjustment, prior to its insertion in lugs (16) defined on the flat bars (2), as well as having perforations (17) through which reinforcement bars may be introduced. 10 15

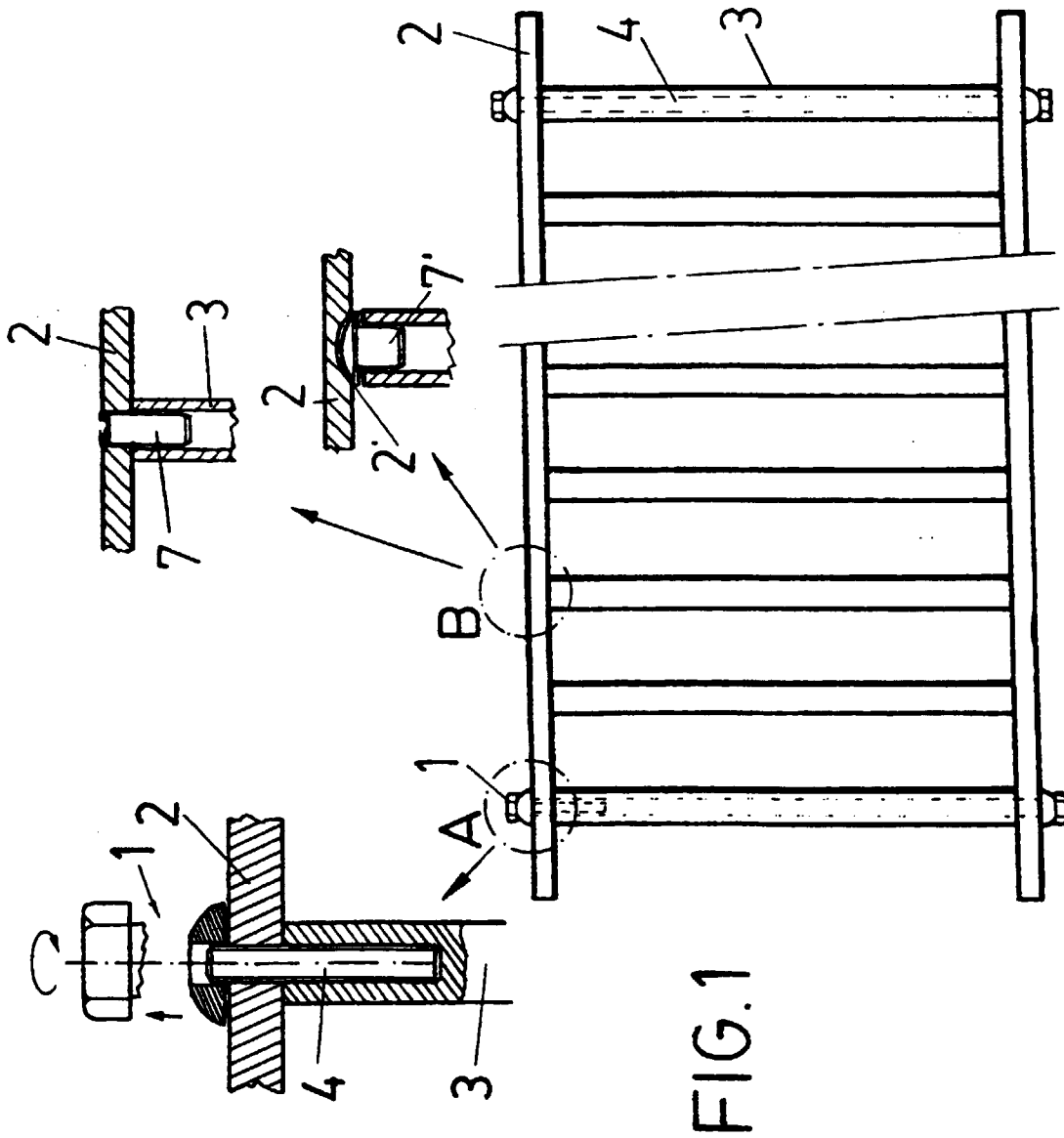
13. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is provided with bars (18) with perforations (19) for inserting joining means which link attachment and support parts (20) to the bars (18) immobilizing the flat bars (2). 20

14. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it is included with solid bars (12), with recessed and threaded ends, passing through corresponding flat bars (2) and attached by means of break head nuts (1). 25 30

15. Mounting grille for windows, fences and the like, according to claim 1, characterised in that it includes union profiles (26) which link a group of bars (33) by the upper ends and by their lower ends with flat bars (2), said joining profiles (26) presenting a rectangular cross section with lower longitudinal groove (31) defined between confronted wings (29) which couple on the flat bar (2), the flat bar (2) being provided with orifices (27) in which the ends of bars (3) are coupled, contemplating to this effect, that the orifices (27) of the flat bars (2) be through orifices and coincide in their shape with the bar (3) cross section. 35 40 45

16. Mounting grille for windows, fences and the like, according to claims 1 and 15, characterised in that the bars (34) include a perimetral recess (28) near their ends to house the ends of confronted wings (29) of the union profile (26). 50

17. Mounting grille for windows, fences and the like, according to claim 1, characterised in that the bars (35) are provided at their ends with a blind boss (30) adapted for the insertion of a screw (1) which previously crosses the orifice (27) of the flat bar (2). 55



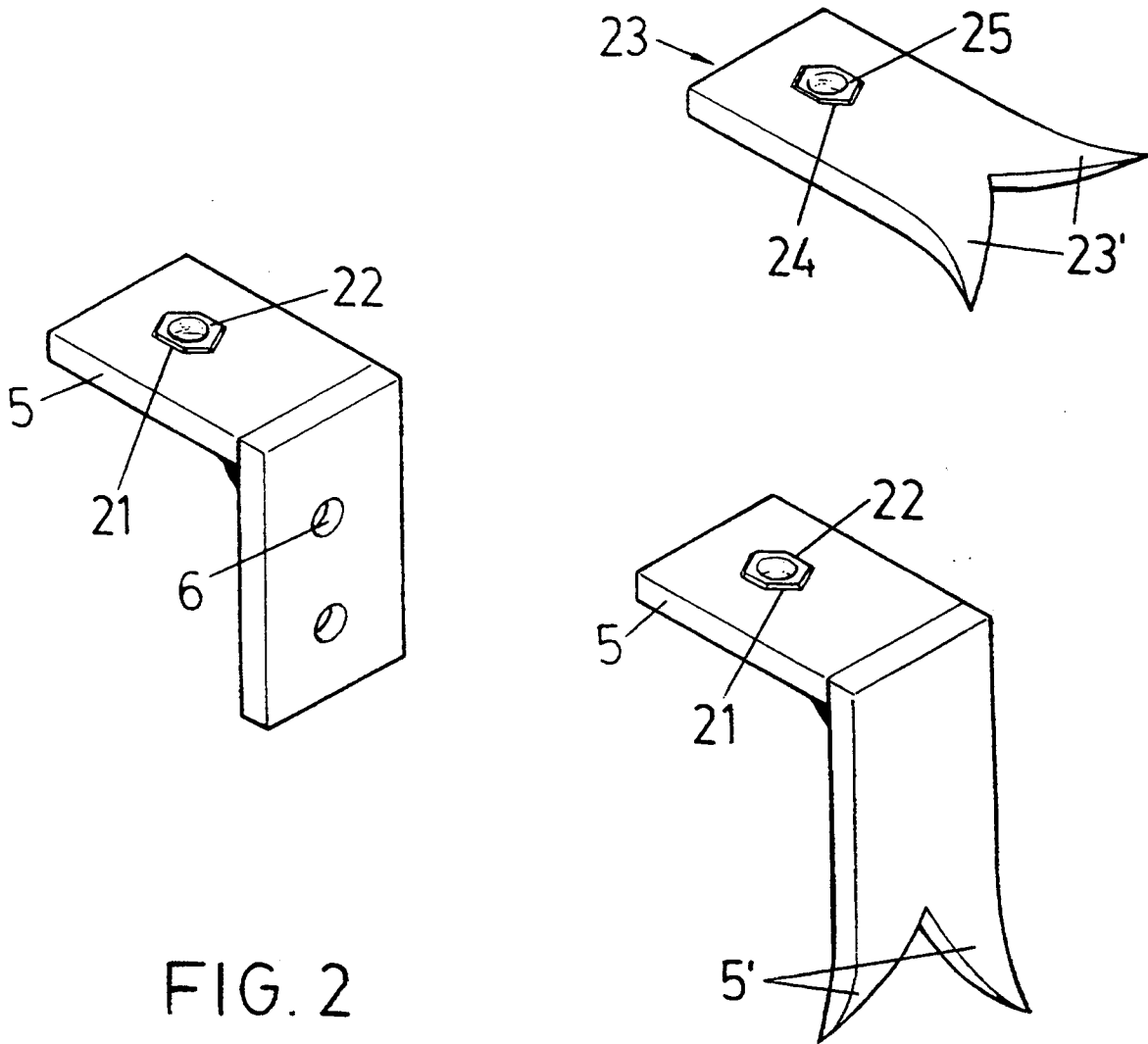
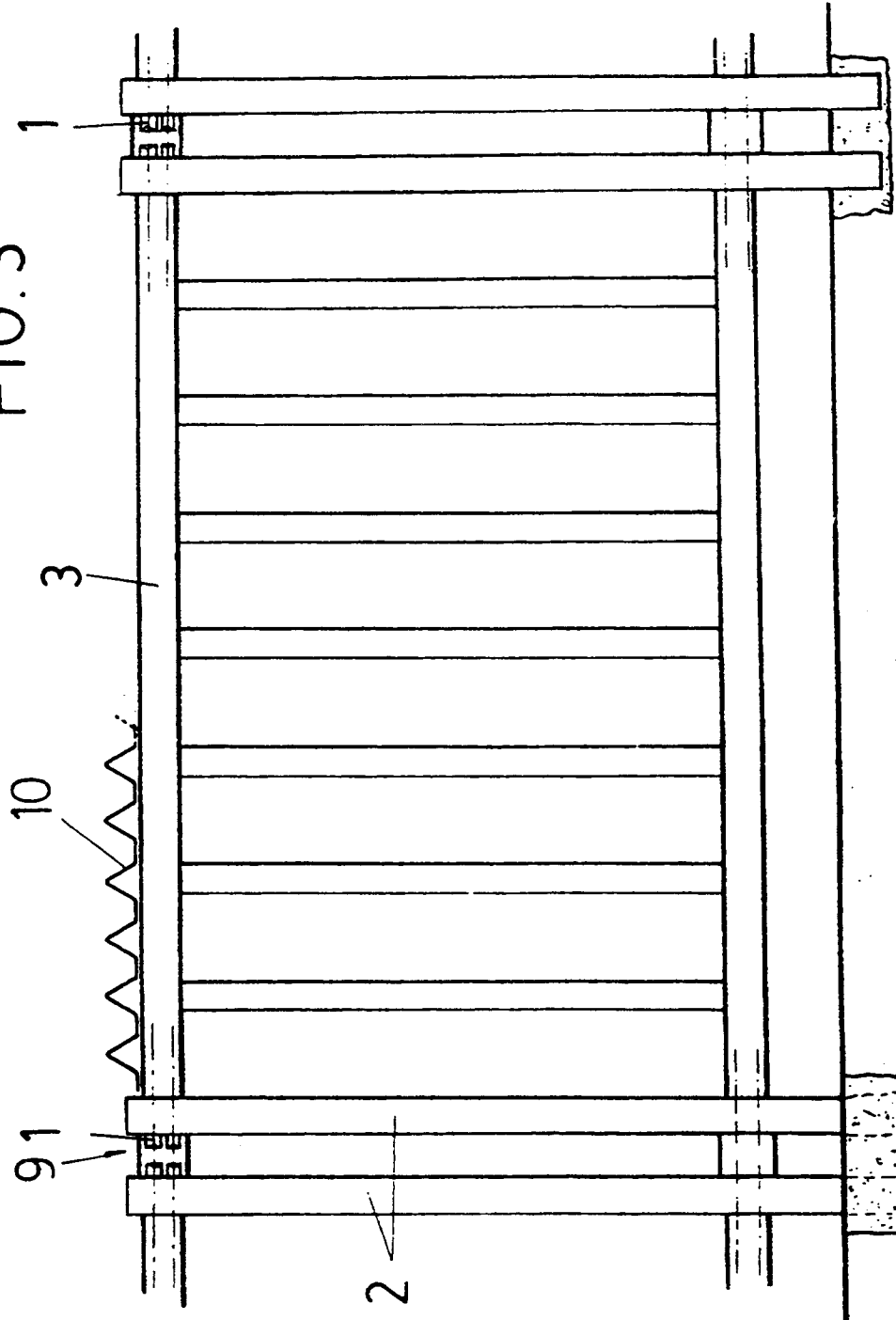


FIG. 3



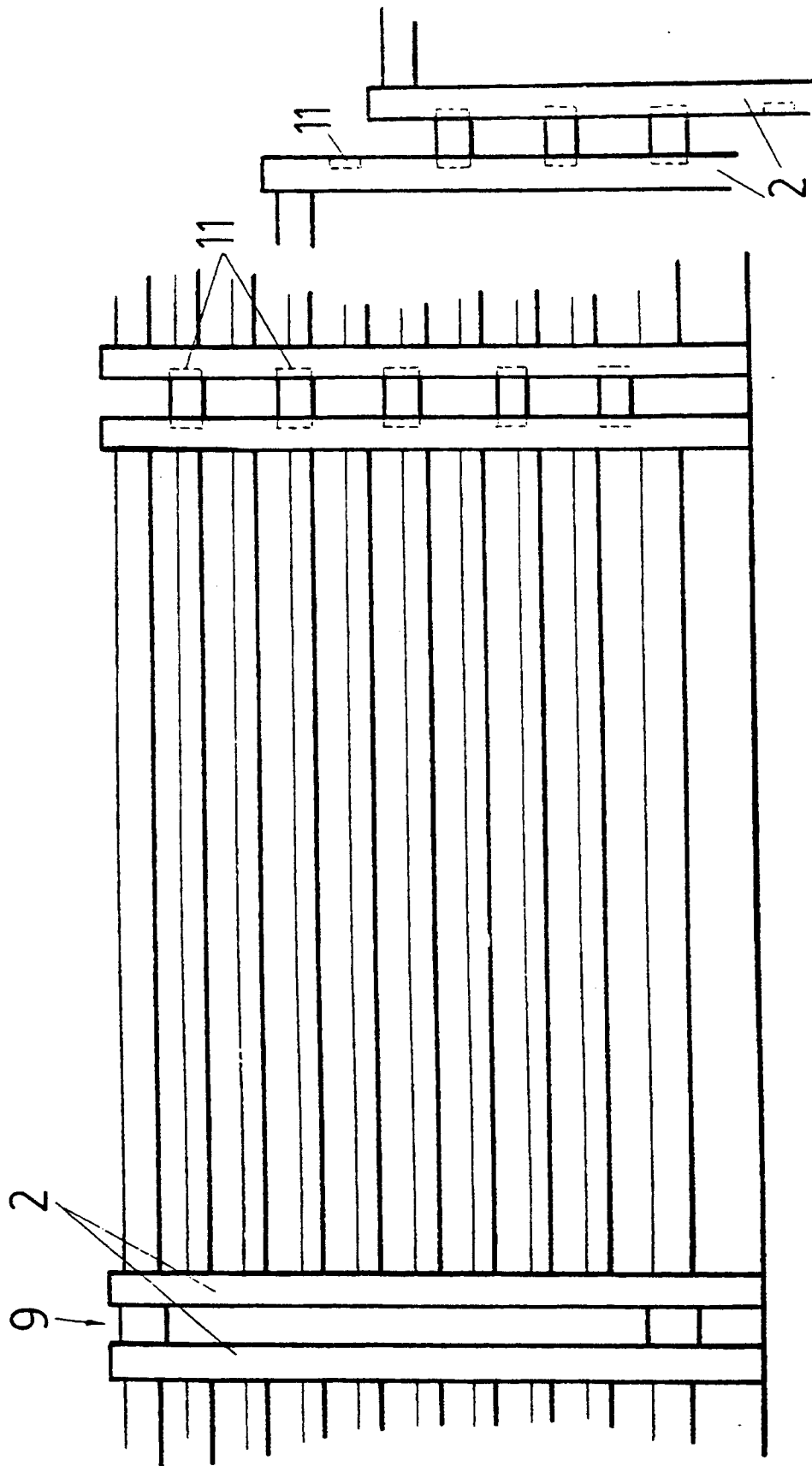


FIG.4

FIG.5

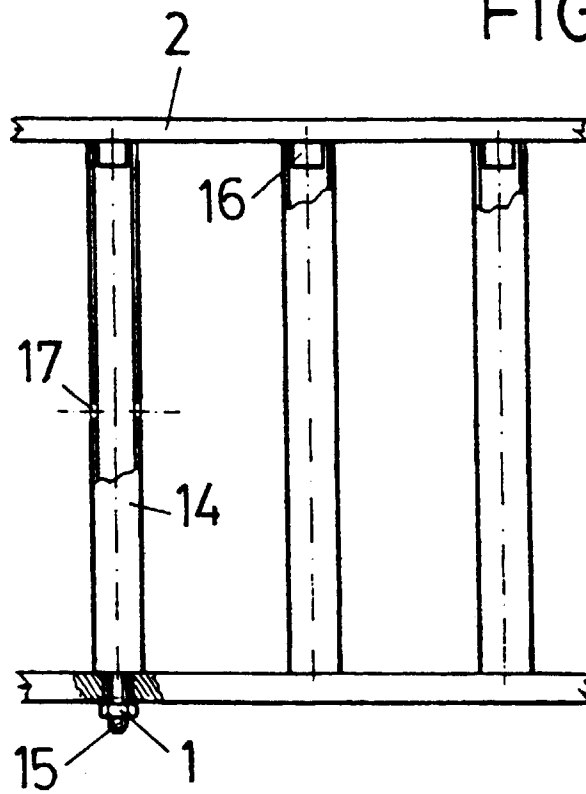
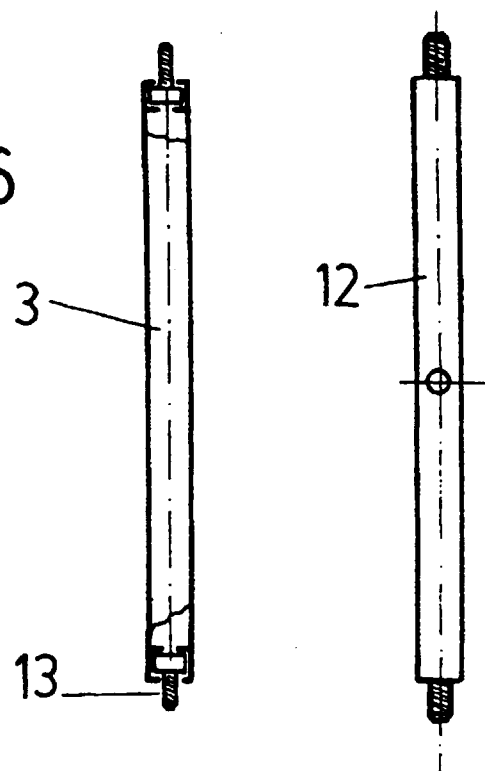
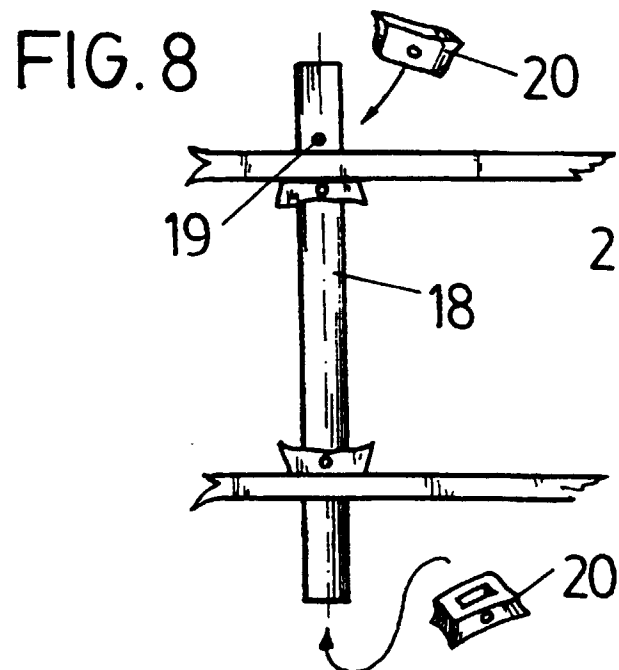
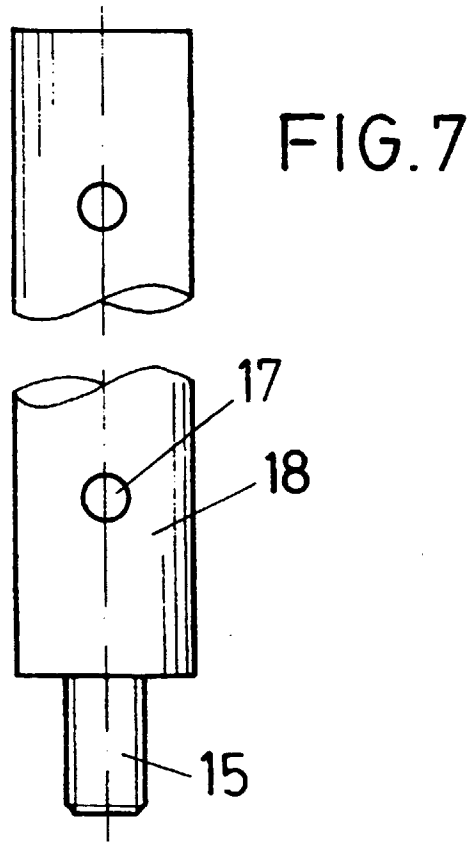
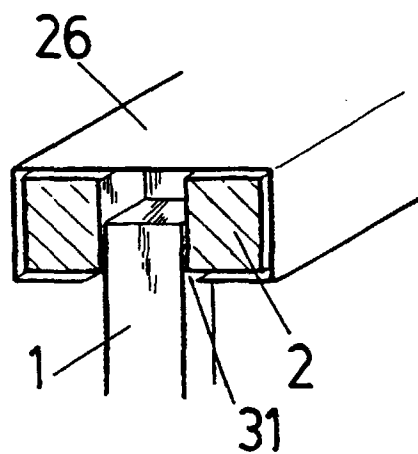
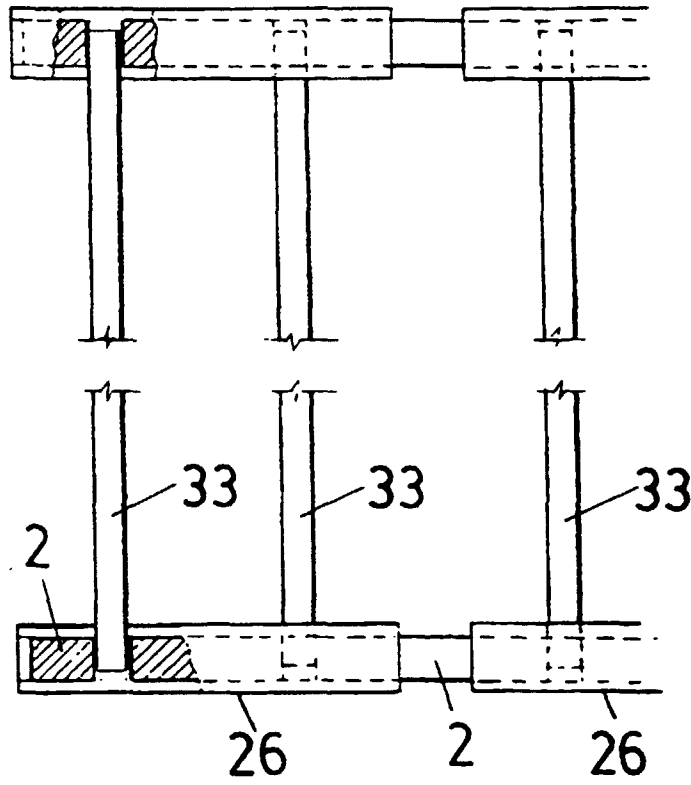


FIG.6







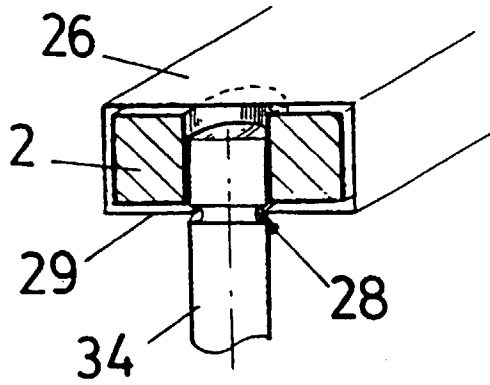


FIG.11

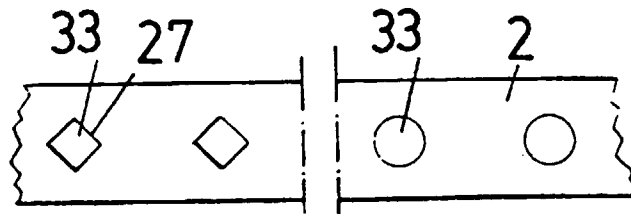


FIG.12

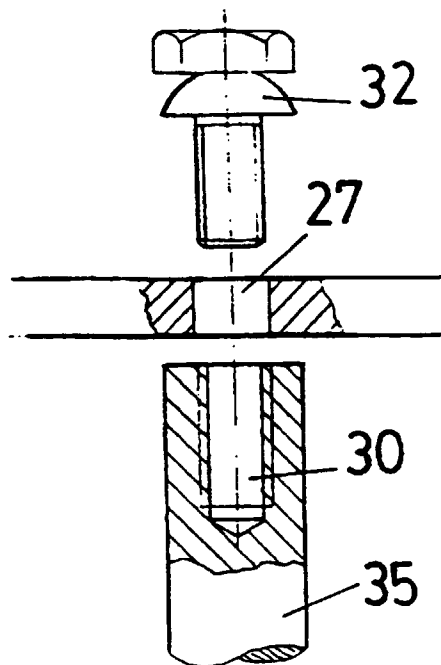


FIG.13

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/ES 98/0095

| A. CLASSIFICATION OF SUBJECT MATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                    |                                                    |
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| IPC 6 E06B9/01 E04H17/14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                    |                                                    |
| According to International Patent Classification (IPC) or to both national classification and IPC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                    |                                                    |
| B. FIELDS SEARCHED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                    |                                                    |
| Minimum documentation searched (classification system followed by classification symbols)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                    |                                                    |
| IPC 6 E06B E04H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                    |                                                    |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                    |                                                    |
| Electronic data base consulted during the international search (name of data base and, where practical, search terms used)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                    |                                                    |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                    |                                                    |
| Category *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No.                              |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | US 4 667 935 A (MOORE ROBERT S) 26 May 1987                                        | 1                                                  |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | see the whole document                                                             | 5,8,9,15                                           |
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| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                    |                                                    |
| * Special categories of cited documents :<br>"A" document defining the general state of the art which is not considered to be of particular relevance<br>"C" earlier document but published on or after the international filing date<br>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)<br>"O" document referring to an oral disclosure, use, exhibition or other means<br>"P" document published prior to the international filing date but later than the priority date claimed<br>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention<br>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art<br>"Z" document member of the same patent family |                                                                                    |                                                    |
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