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

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GRILLE MONTABLE POUR FENETRES, CLOTURES ET OBJETS ANALOGUES

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EP 0 921 264 B1

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 ES-U-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.

[0007] It is known the way for joining horizontal bars and vertical ones as the ones disclosed in US 5609002, FR 2496153, GB 1155090, DE U9102356, US 2877989 patents. Basically the way for fastening horizontal and vertical bars is based either in the use of nuts and screws which pass through both bars or based on the used of vertical bars whose ends are recessed being threaded for being used in collaboration with nuts. In our invention we propose a different way for fastening both horizontal and vertical bars where the vertical bars do not pass through the horizontal ones so both horizontal and vertical bars are provided with cooperative means for joining both bars. Using a through stem or spherical head screw both joined to the horizontal bar by means of welding, or by means of insertion of the vertical bar into the horizontal one, having this last one perforations with confronted wings.

DESCRIPTION OF THE INVENTION

[0008] The present invention as defined in claim 1 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.

[0009] 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.

[0010] 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.

[0011] 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.

[0012] 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.

[0013] 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.

[0014] 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.

[0015] 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.

[0016] 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.

[0017] 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.

[0018] It is known in the state of the art different ways for conforming a mounting grille for windows and fences such the ones described in the US 4667935, EP 494387 and US 5609002. The ways described in such patents present a common feature, the vertical bars pass

through holes done in the horizontal bars, which additionally could employ some screw for a better fastening. Now we propose different ways for fastening vertical and horizontal bars where the vertical bars do not pass through any hole or perforation done in the horizontal bars, so it has been necessary to develop ways for fastening where the ends of the vertical bars are attach to the flat bars without passing through any hole, as the vertical bars finish in the flat bars.

[0019] So the objective of the present invention is to develop ways of fastening between the ends of the vertical bars and the horizontal ones, without passing through any hole.

DESCRIPTION OF THE DRAWINGS

[0020] 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

[0021] In view of the described figures, a preferred embodiment of the do-it-yourself mounting grille is herewith 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.

[0022] 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.

[0023] 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.

[0024] 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.

[0025] In another embodiment, which does not form part of the invention it is contemplated, that the tubes (3) be provided at their ends with various inserted head screws (13).

[0026] 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.

[0027] Other bars (18) have perforations (19). for the insertion of joining means with attachment parts (20) which immobilise the flat bars (2).

[0028] 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).

[0029] In another possible option, which form part of the embodiment of the invention 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).

[0030] 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).

[0031] 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).

[0032] 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).

[0033] The different attachment means of the grille to the wall of figure 2 which do not form part of the embodiment of the invention 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.

[0034] The angle iron (5) may include a free end (5'), ripped and open like claws.

[0035] 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.

[0036] 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).

[0037] The grille contemplates the inclusion of defences (10) screwed to one of the tubes (3) which constitute an upper fence spar.

[0038] 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.

[0039] 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.

[0040] 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 within the scope of the claims.

Claims

1. Mounting grille for windows and fences constituted by horizontally and vertically extending flat bars or tubes or bars, perpendicularly coupled by corresponding joining means, including attachment means of the flat bar to the wall for assembly on the window, and for assembly as a fence with the flat bar anchored to the ground **characterized in that** the joining means of the tubes to the flat bar (2) protrude from the flat bar (2) and consist of a through stem (7) or a spherical head screw (7') inserted in a spherical recess (2') of the flat bar, said stem and screw being joined to the flat bar by welding, or the joining means of the tubes to the flat bar comprise a through rod which is arranged within the tube, the protruding ends of the through rod crossing the flat bar (2) or the joining means are formed by inserting the vertical bar in orifices defined in the horizontal bars the cross section of the orifices coinciding with the vertical bar (3) cross section and by using horizontally extending union profiles (26) which encompass said horizontal bars and which link a group of vertical bars (33) by their upper ends and by their lower ends with flat horizontal bars or joining the vertical bars and flat horizontal bars by providing the vertical bars (35) at their ends with a blind boss (30) adapted for the insertion of a screw (32) which crosses the orifice (27) of the flat horizontal bar (2).

2. Mounting grille for windows and fences according to claim 1, where the through rod which crosses the flat bar projects by its ends and crosses the flat bars, against which they fit by means of break head nuts (1) until the torque applied on them breaks their hexagonal head.

3. Mounting grille for windows and fences according to claim 1, **characterized in that** the way of fastening the vertical (33) and horizontal bars (2) is based on the use of union profiles (26) which present a rectangular cross section with a lower longitudinal groove (31) defined between confronted wings (29) which couple on the flat bar, the latter being provided with orifices (27) in which the ends of the vertical bars (3) are coupled, contemplating to this effect, that orifices (27) of the flat bars (2) be through orifices and coincide in their shape with the vertical bar (3) cross section.

4. Mounting grille for windows and fences according to claim 3, **characterized in that** vertical bars (34) include a perimetral recess (28) near their ends to house the ends of confronted wings (29) of the union profile (26).

Patentansprüche

1. Einbaugitter für Fenster und Zäune, das aus waagerechten und senkrechten ausziehbaren flachen Stäben oder Rohren oder Stäben besteht, die senkrecht durch entsprechende Verbindungselemente miteinander verbunden werden, eingeschlossen Befestigungselemente des flachen Stabs an die Wand zum Anbringen an dem Fenster und zum Anbringen als Zaun mit einem flachen Stab, der im Boden verankert wird, **dadurch gekennzeichnet, dass** die Verbindungselemente der Rohre mit den flachen Stäben (2) über den flachen Stab (2) hinausragen und aus einem durchgehenden Schaft (7) oder einer Rundkopfschraube (7') bestehen, die in eine runde Aussparung (2') in dem flachen Stab eingeführt wird, wobei der besagte Schaft und die Schraube an dem flachen Stab angeschweisst werden oder die Verbindungselemente der Rohre mit dem flachen Stab umfassen eine durchgehende Stange, die sich innerhalb des Rohrs befindet, wobei die vorstehenden Enden der durchgehenden Stange den flachen Stab (2) durchkreuzen oder die Verbindungselemente gebildet werden, indem die senkrechten Stäbe in Öffnungen eingeführt werden, die in den waagerechten Stange ausgebildet sind, wobei der Querschnitt der Öffnungen mit dem Querschnitt des senkrechten Stabs (3) übereinstimmt und indem Profile (26) von waagerecht ausziehbaren Verbindungen, die besagte waagerechte Stäbe umfassen, verwendet werden und die eine Anordnung von senkrechten Stäben (33) mittels ihrer oberen Enden und ihrer oberen Enden mit flachen waagerechten Stäben oder die senkrechten Stäbe und die waagerechten Stäbe verbindet, indem sie die senkrechten Stäbe (35) an ihren Enden mit einer Blindnocke (30) ausstattet, die für das Einführen einer Schraube (32) angepasst ist, die die Öffnung (27) des flachen waagerechten Stabs (2) durchquert.

2. Einbaugitter für Fenster und Zäune gemäss Anspruch 1, wobei die durchgehende Stange, die den flachen Stab durchquert, an ihren Enden auskragt und die flachen Stäbe durchquert, an die sie mittels Muttern (1), deren Kopf bricht, angepasst wird, bis das angewendete Anzugsmoment deren sechskantigen Kopf bricht.

3. Einbaugitter für Fenster und Zäune gemäss Anspruch 1, **dadurch gekennzeichnet, dass** die Art, die senkrechten (33) und waagerechten (2) Stäbe zu befestigen, auf dem Gebrauch von Verbindungsprofilen (26) beruht, die einen rechteckigen Querschnitt aufweisen, mit einer unteren länglichen Fuge (31), die zwischen gegenüberliegenden Auskragungen (29) ausgebildet ist, die an dem flachen Stab befestigt werden, wobei letzterer über Öffnungen (27) verfügt, an denen die Enden der senkrechten Stäbe (3) befestigt werden, wobei zu diesem Zweck beachtet werden muss, dass die Öffnungen (27) der flachen Stäbe (2) durchgehende Öffnungen sind und in ihrer Form mit dem Querschnitt des senkrechten Stabs (3) übereinstimmen.

4. Einbaugitter für Fenster und Zäune gemäss Anspruch 3, **dadurch gekennzeichnet, dass** die senkrechten Stäbe (34) eine umfängliche Aussparung (28) nahe ihrer Enden aufweisen, um die Enden der sich gegenüberliegenden Auskragungen (29) der Verbindungsprofile aufzunehmen (26).

Revendications

1. Grille de montage pour fenêtres et clôtures constituée de plats ou de tubes ou de barres s'étendant horizontalement ou verticalement, accouplés perpendiculairement par des moyens d'union correspondants, y compris des moyens de fixation du plat au mur pour l'assemblage sur la fenêtre, et pour l'assemblage sous forme d'une clôture avec le plat ancré à terre **caractérisée en ce que** les moyens d'union des tubes au plat (2) font saillie à partir du plat (2) et ils consistent en une tige traversante (7) ou une vis à tête sphérique (7') insérée dans un évidement sphérique (2') du plat, ladite tige et ladite vis étant unies au plat par soudure, ou les moyens d'union des tubes au plat comprennent une barre traversante qui est disposée à l'intérieur du tube, les extrémités en vol à faux de la barre traversante qui traversent le plat (2) ou les moyens d'union sont formées en insérant la barre verticale dans des orifices définis dans les barres horizontales, la section transversale des orifices coïncidant avec section transversale de la barre verticale (3), et en utilisant des profilés d'union (26) qui s'étendent horizontalement, lesquels entourent lesdites barres horizontales et unissent un groupe de barres verticales (33) par leurs extrémités supérieures et par leurs extrémités inférieures avec des plats horizontaux ou en unissant les barres verticales et les plats horizontaux en pourvoyant les barres verticales (35) à leurs extrémités, d'un bossage borgne (30) adapté pour l'insertion d'une vis (32) qui traverse l'orifice (27) du plat horizontal (2).

2. Grille de montage pour fenêtres et clôtures selon la revendication 1, dans laquelle la barre traversante qui traverse le plat saillit de ses extrémités et traverse les plats, contre lesquels elles sont montées au moyen d'écrous à tête fendue (1) jusqu'à ce que le couple appliqué sur ceux-ci casse leur tête hexagonale.

3. Grille de montage pour fenêtre et clôtures selon la

revendication 1, **caractérisée en ce que** la manière de fixer les barres verticales (33) et les plats horizontaux (2) est basée sur l'utilisation de profilés d'union (26) qui présentent une section transversale rectangulaire avec une rainure longitudinale inférieure (31) définie entre les ailes en regard (29) qui s'accouplent sur le plat, ce dernier étant pourvu d'orifices (27) dans lesquels les extrémités des barres verticales (3) sont accouplées, en contemplant à cet effet, que les orifices (27) des plats (2) se trouvent à travers les orifices et coïncident en forme avec la section transversale de la barre verticale (3).

4. Grille de montage pour fenêtres et clôtures selon la revendication 3, **caractérisé en ce que** les barres verticales (34) incluent un évidemment périmétral (28) près de leurs extrémités pour loger les extrémités des ailes en regard (29) du profilé d'union (26).

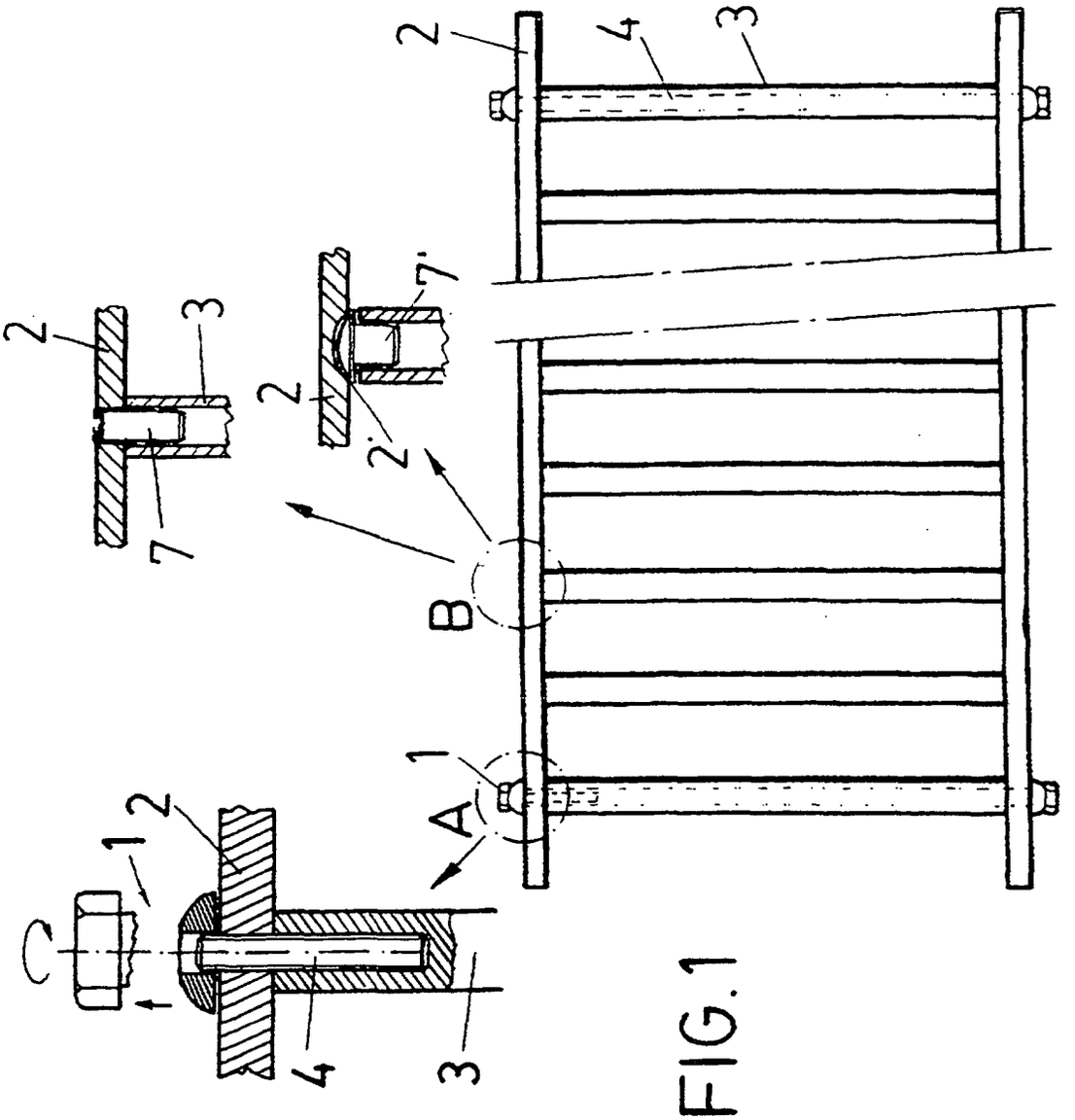
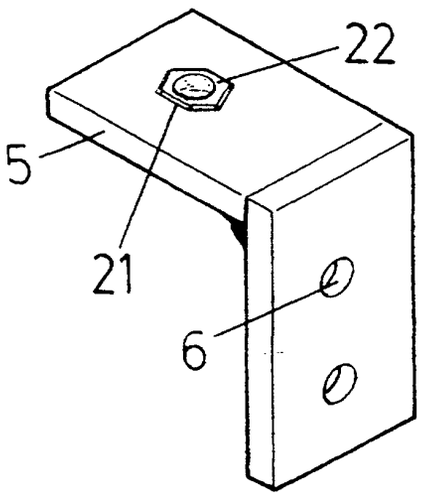
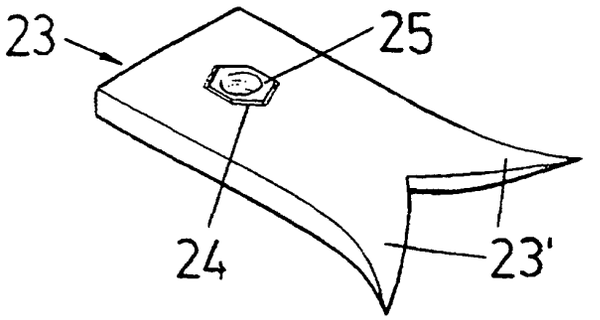


FIG.1





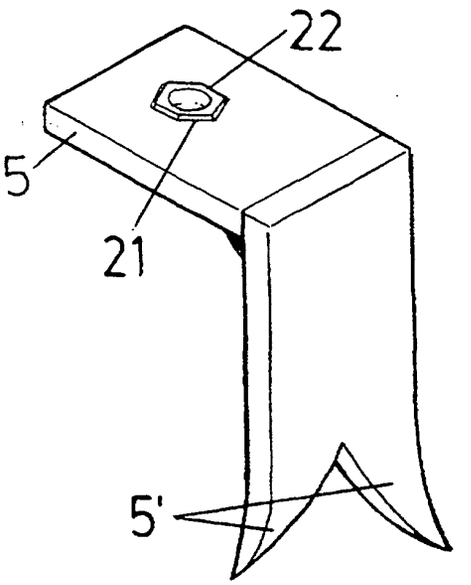
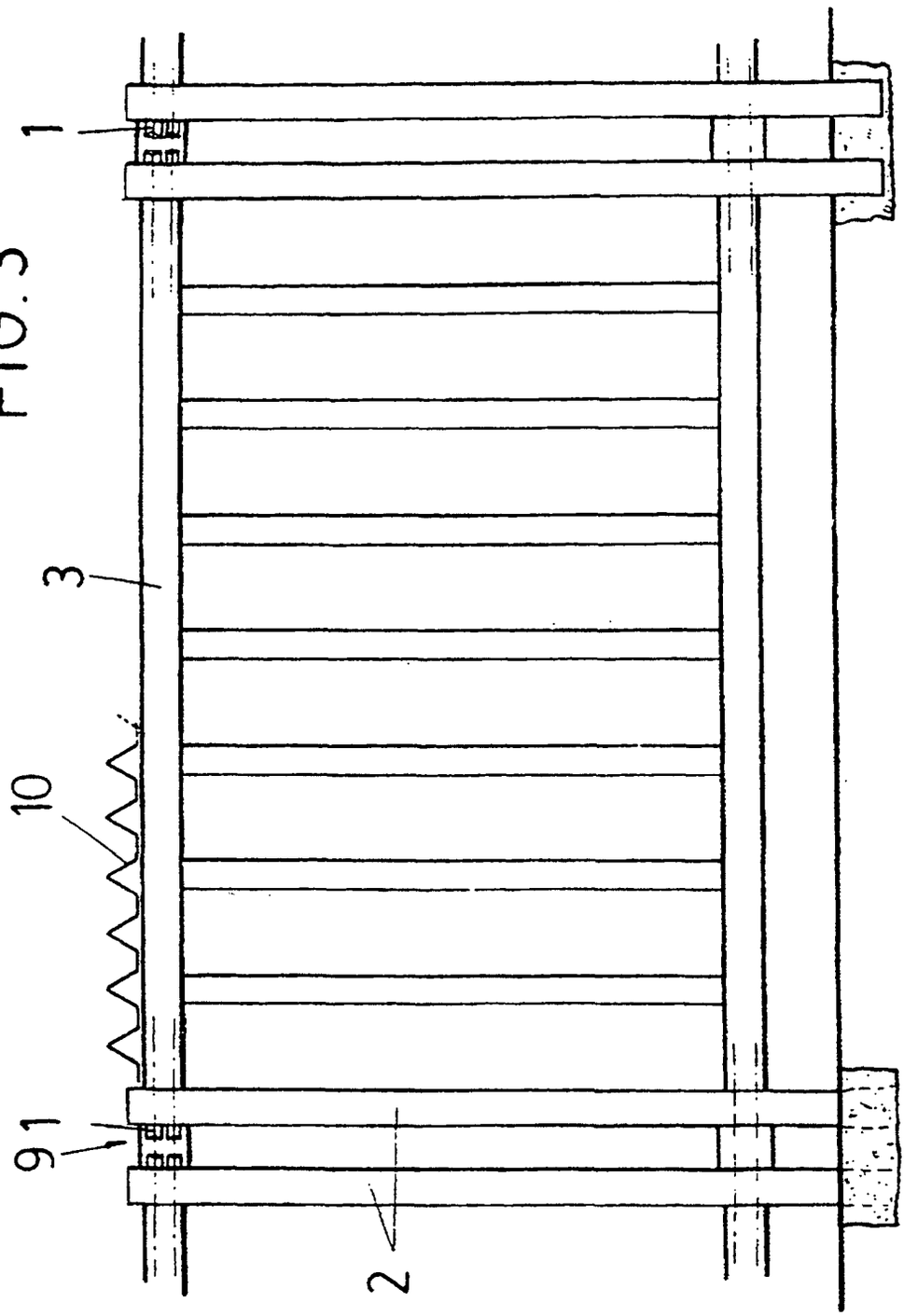


FIG. 2

FIG. 3



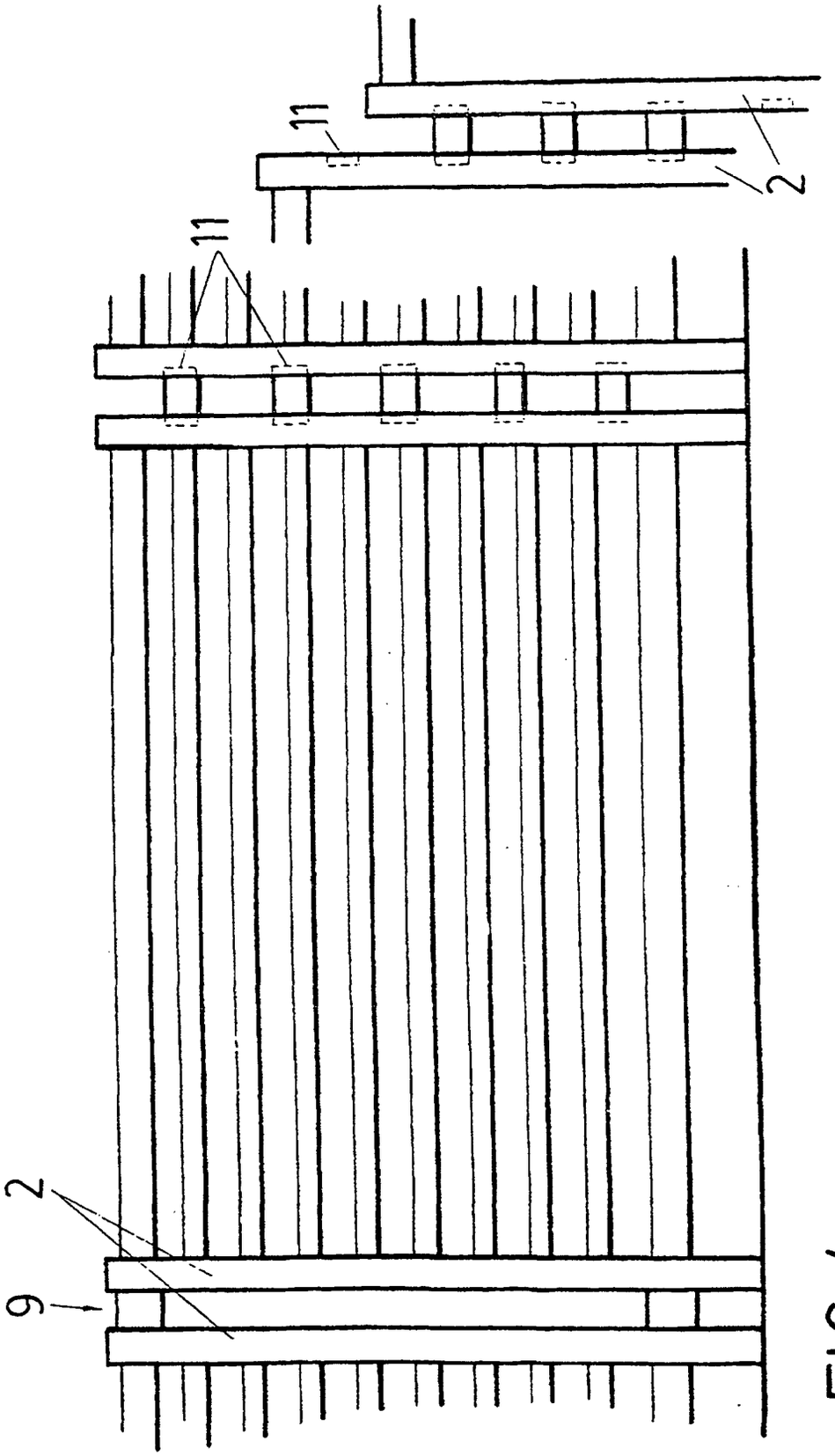


FIG.4

FIG.5

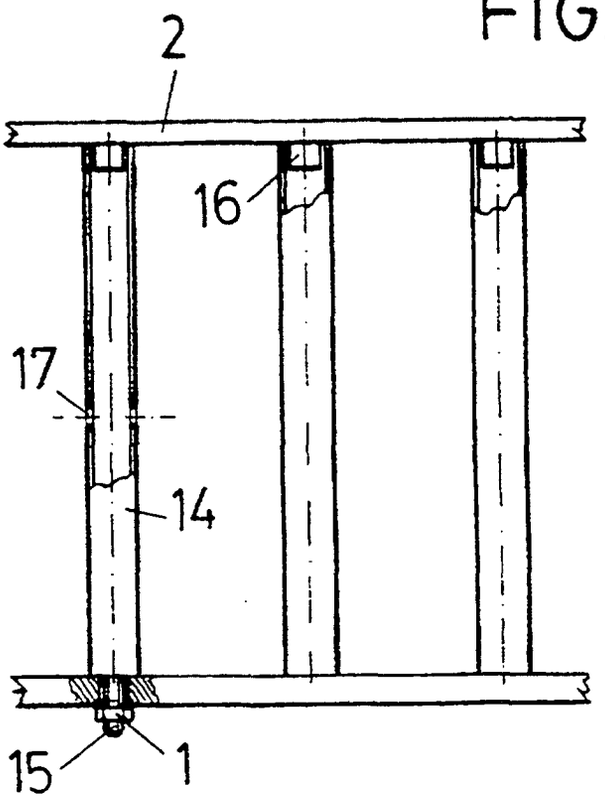
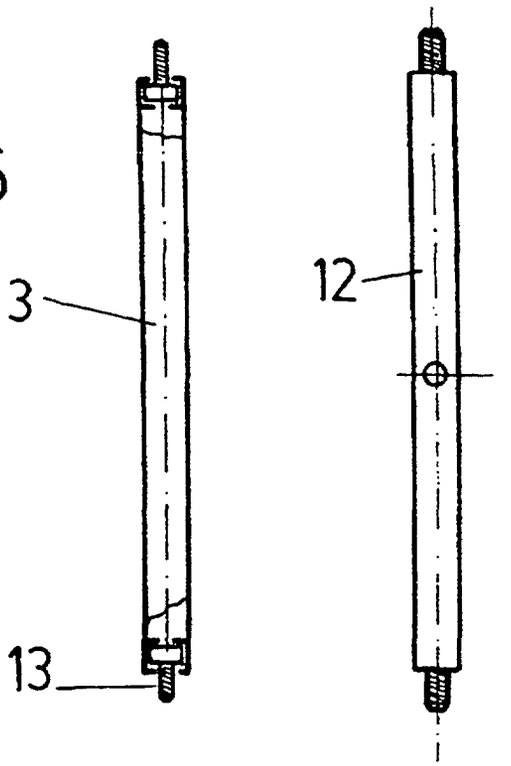


FIG.6



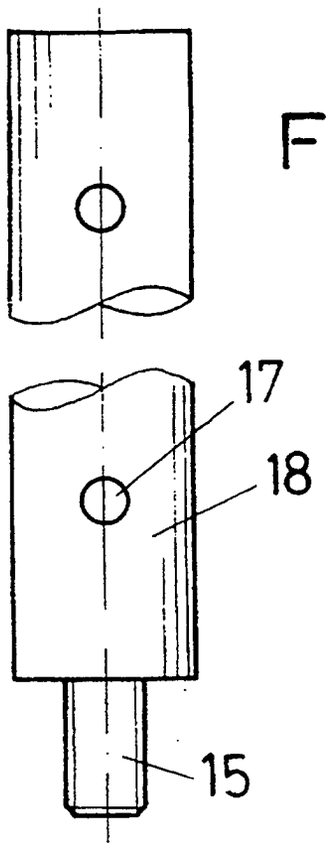
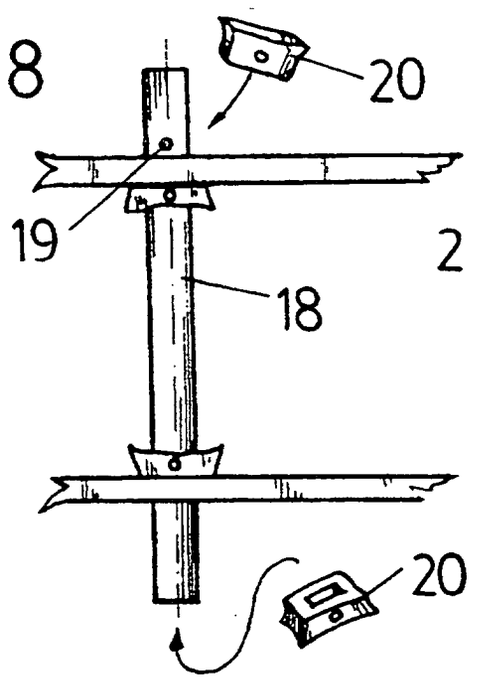


FIG. 7

FIG. 8



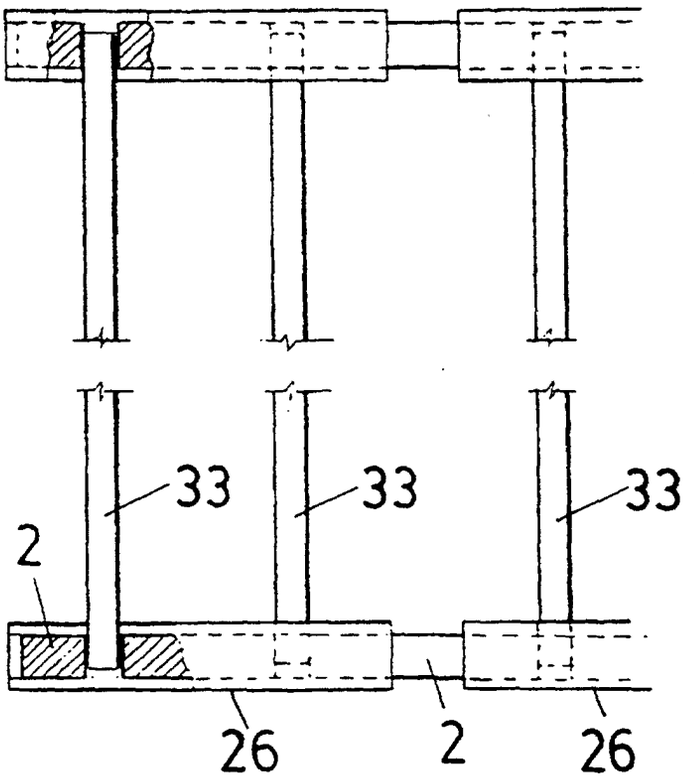


FIG.9

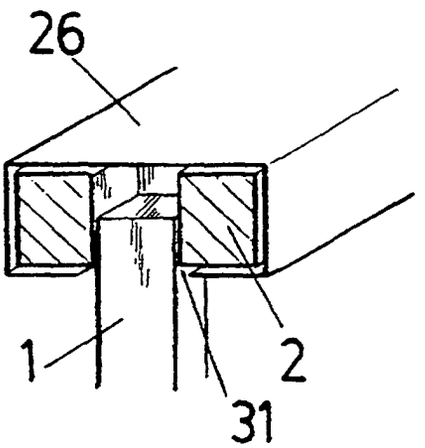


FIG.10

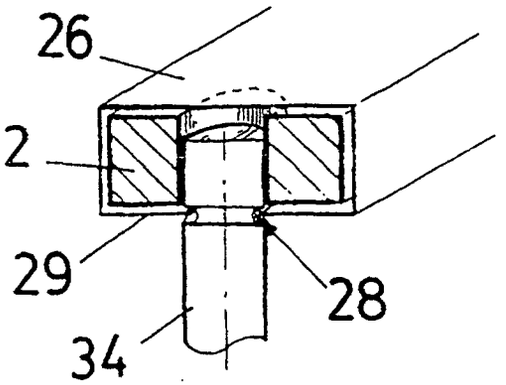


FIG.11

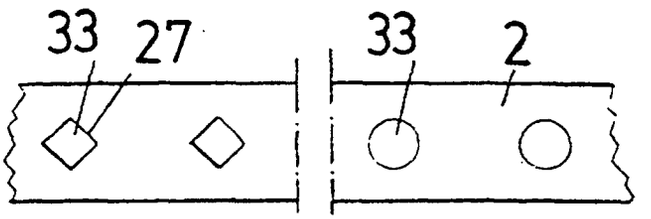


FIG.12

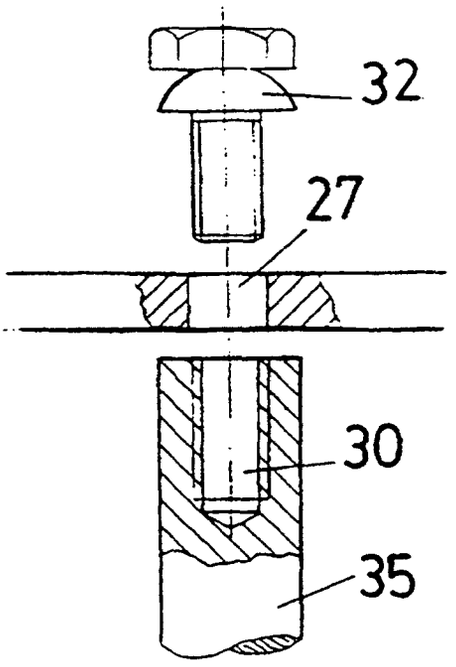


FIG.13