



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
14.12.2011 Bulletin 2011/50

(51) Int Cl.:
E04C 1/42 (2006.01)

(21) Application number: **10738227.7**

(86) International application number:
PCT/ES2010/000047

(22) Date of filing: **04.02.2010**

(87) International publication number:
WO 2010/089431 (12.08.2010 Gazette 2010/32)

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

(72) Inventors:
• **SÁNCHEZ GIMENO, Jorge Augusto**
50008 Zaragoza (ES)
• **PASTOR ZALDÍVAR, Alejandro Javier**
50008 Zaragoza (ES)

(30) Priority: **05.02.2009 ES 200900191 U**
03.07.2009 ES 200930243 U

(74) Representative: **Schäfer, Matthias W.**
Patentanwalt
Schwanseestrasse 43
81549 München (DE)

(71) Applicant: **Vetroclick, S.I.**
50008 Zaragoza (ES)

(54) **DEVICE FOR MOUNTING GLASS BRICKS**

(57) The invention relates to a device for mounting glass bricks (2) of the type used in construction, **characterised in that** it is based on positioning a preferably-plastic section (1, 11, 26) on the sides of the brick that are to be joined to other bricks (2) and joining the aforementioned sections (1, 11, 26) to the sections (1, 11, 26) of the adjacent bricks (2) using a double-armed, cross-

shaped element (3, 13, 27). The invention is advantageous in that the connection system between the plastic sections (1, 11, 26) positioned against the sides of the bricks (2) and the cross elements (3, 13, 27) is produced simply and quickly by means of simple insertion, thereby enabling the user to mount the bricks, dispensing with the need for labour and, consequently, reducing costs.

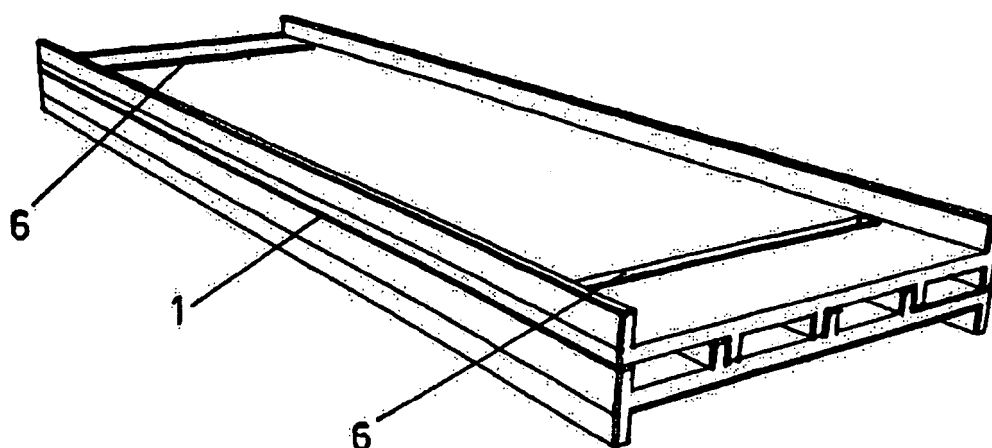


Fig. 1

Description

Object of the invention

[0001] The present invention relates, as the title of this description indicates, to a device for mounting glass bricks, which are the type of glass bricks that are mounted for use in the construction of enclosure walls and partition walls, as well as for floors, and which can be mounted by means of cement or similar, or by means of separating elements between them, so that the device disclosed is based on positioning a general elongated double H-section profile, preferably plastic, in relation to the sides that are to be joined to other bricks, said plastic profiles being joined to the profiles of the abutting bricks by means of a double-armed, cross-shaped element.

Field of application

[0002] The present document describes a device for mounting glass bricks, said glass bricks being of different tones and for use in the construction of enclosure walls and partition walls, as well as floors, providing an aesthetic appearance suited to the environment, and being used, in particular, for decorative as well as construction purposes.

Background of the invention

[0003] As is known, the construction and decorative characteristics of glass bricks mean that they are used both in the construction of enclosure walls and in the construction of partition walls as well as in the construction of floors, acting as a constructive and decorative element.

[0004] The mounting and fixing of glass bricks can be carried out by using construction materials such as cement or likewise, or it can be carried out in accordance with modular units using different practical embodiments.

[0005] Hence, the modular unit can be defined by a wooden frame in which gaps are formed into which the respective glass bricks are placed in such a way that on the perimeter of each gap and on its free side, recesses have been made to insert vinyl strips to fix in place the glass brick placed in it.

[0006] We can also mention patent ES 2143185 T3 in which a procedure is described for the construction of vertical walls and/or floors with glass bricks, consisting of a retaining structure for the four sides of each glass brick, defined by wooden elements linked together and joined to the brick by means of an elastic element, in such a way that said wooden elements are provided with semi-circular section grooves into which are fitted vertical and horizontal bars that constitute the frame.

[0007] Likewise, we can refer to document ES 1052066 U which describes a perfected aluminium partition wall with glass blocks, which is formed by a structure of long and short profiles that define gaps for the bricks,

set in a casing that is embedded in an outer frame.

[0008] Finally, mention can be made to document ES 1054174, which describes a modular unit for mounting glass bricks, being formed by connected vertical and horizontal panels that define a plurality of gaps into which the corresponding glass bricks are placed, so that the panels have two recesses, depending on the two sections of different widths into which profiles are fitted with an inserted laminar seal, whose profiles, that are slightly wider than those of the panels, act as retaining elements for the glass bricks.

[0009] Lastly we can consider patent document ES 2143185 that describes a "procedure for the construction of vertical walls that uses glass bricks and a modular element that can be erected using the procedure", being based on several wooden elements placed at the sides of the glass brick, with the insertion of an elastic element, such as resin, in such a way that said wooden elements present a tongue-and-groove coupling and have grooves in which the respective rods are placed, by way of a metal frame.

Description of the invention

[0010] The present document describes a device for mounting glass bricks, which are the type of bricks that are used in the construction of enclosure walls and partition walls, as well as for floors, and which can be mounted by means of cement or similar, or by means of separating elements between them, so that the device disclosed is based on positioning an elongated double H-section profile, preferably plastic, in relation to the sides that are to be joined to other bricks, said plastic profiles being joined to the profiles of the adjacent bricks by means of a double-armed, cross-shaped element.

[0011] For this purpose, the profile abutting the lateral sides of the glass bricks to be joined to other glass bricks has, on either side of its web or on its side walls, certain opportune interlocking means, preferably in the form of tabs or toothing which enable it to be fixed at each end with the double-armed, cross-shaped element, which also is endowed with the corresponding interlocking means on the four double arms that form the cross, enabling attachment to four profiles.

[0012] A preferred embodiment of the invention is envisaged in which the said cross-shaped elements are formed from four identical parts, each one of their arms being defined by a pair of parallel lugs ending in an arrowhead. The abutting profile presents transverse recesses near to its ends on both sides of its web. At the connection of the cross-shaped element with the profiles that converge on it, the corresponding profile fits between the pair of lugs that form the arms, and the arrowhead end fits into the corresponding transverse recesses of the profile to be fixed in place.

[0013] An alternative initial embodiment is also envisaged in which the said cross-shaped elements are formed by a single piece and, centrally, at its double arms

and between them, there is a small thickened portion which extends externally, in the manner of two lugs, with a very small space between said thickened portions, whilst the lateral sides of the double arms have a toothed configuration.

[0014] In this case the abutting profile presents, at the ends of the inner faces of its flanges, toothings, and between the said end toothings of each of the inner faces of its flanges it has a pair of similar toothings. Furthermore, in the centre of its web and coinciding with the toothings on the inner face of its flanges, it presents, on both faces, recesses that form a very shallow intermediate base and, laterally to said recesses it has two cuts near to the toothings on the inner faces of its flanges.

[0015] Furthermore, both faces of the web of the profile have tubular protuberances, placed pairwise, in a central position relative to their transverse axis, which on their free base are flush with the free side of the flanges and which, are endowed centrally with an orifice which enables the profile to be fixed to the wall or floor.

[0016] In mounting the device, the web of the general elongated H-section profile fits between the corresponding double arm of the connecting cross-shaped element and the toothings on its side faces fits the corresponding toothings on the inner face of its flanges, said operation being facilitated by the slight flexibility provided by the lateral cuts in its web

[0017] Furthermore, the intermediate base formed by the longitudinal central recesses on both faces of the general elongated H-section profile, lies between the central protuberances that exist between each double arm and the protuberances are located on said recesses.

[0018] For the purpose of optimising its production, the general elongated H-section profile can be divided along its middle part into two halves in order to allow different sized glass bricks to be mounted.

[0019] A second alternative embodiment is also envisaged in which the said cross-shaped elements are formed by a single piece formed by a solid central nucleus from which the four double arms emerge, each two being separated by an angle of 90° and each one of the double arms being formed by two parallel walls which, at the end furthest away from the centre nucleus, are finished off by two right-angled parts oriented inwards forming a small groove between them, by way of tabs.

[0020] In this case the abutting profile presents, on both faces of its web, transverse recesses, preferably 4, with two tabs, also transverse. The central part has another additional transverse recess which is wider than the previous ones, that enables the profile to be divided along its middle part into two equal halves to allow different sized glass bricks to be mounted. The transverse recesses endowed with two tabs, are opportunely located so that, when the profile is divided, the two resulting semi-profiles are equivalent and symmetrical.

[0021] Furthermore, both faces of the web of the profile have tubular protuberances, placed pairwise, in a central position relative to their transverse axis, which on their

free base are flush with the free side of the flanges and which, are endowed centrally with an orifice that enables the profile to be fixed to the wall or floor. The side walls of the profile have a chamfered finish at the top and bottom. Likewise the ends of the web of the profile have a chamfered finish.

[0022] When connecting, the chamfered edge of the web of the profile permits the insertion, through the groove formed by the edges of the parallel walls, of the cross-shaped arm, forcing the parallel walls to open out and then to interlock in the aforementioned tabs of the transverse recesses.

[0023] This device provides a series of considerable advantages over those attachment devices or techniques currently known and available, amongst which we can highlight the advantage that attachment between the plastic sections abutted to the sides of the bricks and the cross elements is carried out simply and quickly by inserting them manually, without the aid of any tools, forming the whole wall, enabling the selfsame user to do the work without any need of skilled labour and thus allowing important economic savings.

[0024] Another important advantage is that, in this way, the device is based on connecting of parts according to two unique configurations, providing economic savings in terms of production costs given that only a small number of moulds are required.

[0025] To add to the following description and to facilitate a better understanding of the characteristics of the invention, the present document is accompanied by a set of drawings, with figures that include but are not limited to the most characteristic details of the invention.

Brief description of the designs

[0026]

Figure 1 - shows a perspective view, in its preferred embodiment, of a profile abutting one face of a glass brick in its connection to another glass brick, it being possible to observe its general elongated H-section with transverse recesses near to the free end of its web.

Figure 2 - shows a perspective view, in its preferred embodiment, of a cross-shaped element for the connection of the profiles abutting the side faces of the glass bricks to be joined, it being possible to observe the arms, formed by pairs of parallel arrowhead lugs.

Figure 3 - shows a perspective view, in its preferred embodiment, of the four identical parts forming a cross-shaped element, prior to it being mounted, two parts being abutted by the central protuberance on one of its faces and the other two parts abutted by the pair of parallel protuberances on its other face, its mounting being carried out by moving them in relation to the voids formed between the protuber-

ances on both faces.

Figure 4 - shows, in the preferred embodiment, a front view, side elevation view and plan view of a part forming the cross-shaped element, in accordance with a practical execution version in which the pairs of lugs constituting its arms are defined by two sections.

Figure 5 - shows a perspective view, in the preferred embodiment, of the way in which the cross-shaped element and a profile fit together, it being possible to observe that the profile will fit between a pair of parallel lugs and the arrowhead ends will fit into the transverse recesses of the web of the profile.

Figure 6 - shows, in the preferred embodiment, a schematic view of the way to mount a cross-shaped element, it being possible to observe that the sections abutting the glass bricks to be joined, converge at its arms.

Figure 7 - shows a perspective view, in the first alternative embodiment, of a section abutting one face of a glass brick at its connection to another glass brick, it being possible to observe its general elongated H-section, being endowed with toothing on the inner face of its flanges, whilst on its web it displays various recesses in a central longitudinal position, on both faces and laterally to them, it displays various cuts that coincide with the toothing on its flanges.

Figure 8 - shows a first perspective view, in the first alternative embodiment, of a cross-shaped element that joins the general elongated H-section profile abutting the side faces of the glass bricks to be joined, it being possible to observe the double arms with their lateral sides having a toothed configuration.

Figure 9 - shows a second perspective view, in the first alternative embodiment, of the previous figure, it being possible to observe that, centrally, the double arms have a thickened portion that extends externally, in the manner of lugs.

Figure 10 - shows a perspective view, in the first alternative embodiment, of the way in which the cross-shaped element fits together with the elongated T-section profile, it being possible to observe that the web of the elongated T-section profile will fit between the double arms of the cross-shaped element, the toothing of its lateral sides fitting to the toothing on the inner face of its flanges.

Figure 11 - shows, in the first alternative embodiment, a schematic view of the way in which a cross-shaped element is mounted, it being possible to ob-

serve that the general elongated H-section profiles abutting the glass bricks to be joined, converge between its double arms.

Figure 12 - shows a perspective view, in the second alternative embodiment, of a coupling section.

Figure 13 - shows a plan view, in the second alternative embodiment, of a coupling section.

Figure 14 - shows a perspective view, in the second alternative embodiment, of a cross-shaped element

Figure 15 - shows a profile view, in the second alternative embodiment, of a cross-shaped element.

Figure 16 - shows a perspective view, in the second alternative embodiment, of a profile coupled to a cross-shaped element.

Figure 17 - shows a plan view, in the second alternative embodiment, of a profile coupled to a cross-shaped element.

Figure 18 - shows a profile view, in the second alternative embodiment, of a profile coupled to a cross-shaped element.

Description of some preferred embodiments

[0027] In view of the commented figures and in accordance with the numbering adopted, it can be observed that the device consists of:

[0028] A general elongated H-section profile (1,11,26), and;

[0029] A cross-shaped element (3,13,27) with double arms,

[0030] So that the profile (1,11,26) remains abutting the two lateral sides of the glass brick (2) to be mounted and joined and the said profiles (1,11,26) remain joined to identical profiles (1,11,26), that converge at the same vertex of the abutted glass bricks (2) to be mounted by the cross-shaped element (3,13,27).

[0031] In this way, between the two glass bricks (2) abutted on one of their faces, a profile (1,11,26) is placed and said profiles (1,11,26) join to similar profiles (1,11,26) arranged orthogonally and converging on one of their ends.

[0032] In a preferred embodiment, the profile (1) abutting the lateral sides of the glass bricks (2) to be joined to other glass bricks (2), has transverse recesses (6) near to the ends, on both faces of its web. At the same time, the cross-shaped elements (3) are formed by four identical parts (7), connected pairwise in parallel and joined orthogonally, which, when connected, form the four arms defined by the pair of parallel lugs (4) with arrowhead (5) ends.

[0033] At the connection of the cross-shaped element

(3) with the profiles (1) converging on it, said profiles (1) fit between the pair of parallel lugs (4) forming the arms, in such a way that the arrowhead (5) end of the pair of parallel lugs (4) fits into the respective transverse recesses (6) of the profile (1) to be fixed in place.

[0034] The identical parts (7), connected pairwise in parallel and joined orthogonally, which, when connected, form the four arms defined by the pair of parallel lugs (4) with arrowhead (5) ends, are formed by a small strip with arrowhead(5) ends, whilst centrally, relative to one of their faces they have a central protuberance (8) and on their opposite face they have a pair of parallel protuberances (9), at a slight distance from the central protuberance (8), having, between the protuberances on both faces, a void (10) which is half their length.

[0035] In figure 3 of the designs, it can be observed that to form the cross-shaped element (3), firstly two parts (7) are abutted relative to the central protuberance (8) and another two parts (7) are abutted relative to the pair of parallel protuberances (9) in order to, secondly, displace both pairs orthogonally through the voids (10) to form the cross-shaped element (3) as shown in the figure (2) of the designs.

[0036] Thus, the cross-shaped element (3) is formed by four parts (7) of an identical structure, allowing one single manufacturing mould to be used, which represents an important advantage.

[0037] In figure 5 of the designs it can be observed that a profile (1) is going to fit between a pair of lugs (4) so that the arrowhead (5) end will fit into the recesses (6) of the faces of the web of the general elongated H-section profile (1).

[0038] Furthermore, in a practical embodiment it can be observed that the pair of lugs (4) can be formed by two sections instead of one single section, so that the length of the recesses (6) will be equivalent to that of the arrowhead (5) ends of the lugs (4).

[0039] In figure 6 of the designs we can observe that, when mounting a wall using the glass bricks (2), between the abutted faces of the glass bricks (2) to be joined, there is a profile (1) and the profiles (1), orthogonally pairwise, which converge at one vertex, joined to a cross-shaped element (3) in such a way that the four profiles (1) will fit into the four pairs of parallel lugs (4) and attachment occurs by inserting the arrowhead (5) ends in the corresponding recesses (6) on both faces of the web of the general elongated H-section profile (1).

[0040] A first alternative embodiment is envisaged in which the general elongated H-section profiles (11), are joined by a cross-shaped element (13) with double arms (14), whose double arms present a toothed configuration (17) of their lateral sides.

[0041] The profile (11) displays, on the inner face of its flanges (15) and at its ends, a series of toothing (18) and, amongst these, displays a further pair of similar toothing (18).

[0042] Furthermore, the general elongated H-section profile (11), presents on both faces, in a central position

longitudinal to its web (19) and coinciding with the toothing (18) of the inner face of its flanges (15), several recesses (20), with a rectangular plan, which form a very shallow intermediate base (21) and, laterally, to said recesses (20) it presents two cuts (22), similar to the recesses (20) and near to the respective toothing (18) of the inner face of its flanges (15).

[0043] In addition, on both faces of the web (19) of the general elongated H-section profile (11) there are tubular protuberances (23) provided in their centre with an orifice (16), which, on their free base are flush with the free side of their flanges (15), so that the corresponding screws to fix them to the floor or wall are placed relative to them, preventing the profile (11) from deforming.

[0044] In a practical embodiment of the invention, the general elongated H-section profile (11) presents four tubular protuberances (23) on each of the faces of its web (19), being placed pairwise, in a centred position relative to its transverse axis.

[0045] The cross-shaped elements (13), present, in a position centred to their double arms (14), two thickened portions (24) which extend towards the exterior, by way of lugs (25), between which there is a very small space.

[0046] The external prolongations, by way of lugs (25), of the central thickened portions (24) of the double arms (14) of the cross-shaped element (13) are detachable, enabling their adaptability to different glass bricks (2).

[0047] In mounting the device, the web (19) of the general elongated H-section profile (11) fits between the corresponding double arm (14) of the connecting cross-shaped element (13) and the toothing (17) on its lateral sides fits the respective toothing (18) of the inner face of its flanges (15), said operation being facilitated by the slight flexibility provided by the lateral cuts (22) in its web, given that, in this way the fitting together of the lateral toothing (17) of the corresponding double arm (14) and the respective toothing (18) of the inner face of the flanges (15) is facilitated.

[0048] Furthermore, the small intermediate base (21) formed by the central longitudinal recesses (20) fits between the protuberances (24) of the double arms (14) and, in turn, said protuberances fit into the recesses (20), enabling a static attachment to be achieved, preventing any possible movements or displacements between them, both horizontally and vertically.

[0049] For the purpose of optimising manufacture of the general elongated H-section profile (11), it may itself be divided along its middle part into two halves to allow glass bricks of different sizes to be mounted. This execution is facilitated by the intermediate toothing (18) on the inner face of its flanges, the centre recesses (20) of its web (19) and the intermediate lateral cuts (22), to allow the halves obtained to be joined to the corresponding cross-shaped elements (23).

[0050] Figure 10 of the designs shows the way in which a profile (11) is joined to an element (13) by inserting the web (19) between the double arms (14) and having, between the protuberances (24), the very shallow interme-

diate base (11) defined by the recesses (20), whilst the protuberances (24) fit into the recesses (20).

[0051] Furthermore, when the profile (11) and the element (13) are joined together, the toothed sides (17) engage with the corresponding end toothing (18) on the inner faces of the flanges (15), so that, to facilitate their passage, the lateral cuts (22) endow the end toothing (18) with a slight flexibility.

[0052] A second alternative embodiment is also envisaged in which the cross-shaped elements (27) are formed by a single piece determined by a solid central nucleus (35) from which the four double arms emerge, each two being separated by an angle of 90°, and each one of the double arms being formed by two parallel walls (34) which, at the end furthest away from the centre nucleus, are finished off by two right-angled parts (36) oriented inwards forming a small groove between them, by way of tabs.

[0053] In this case the abutting profile (26) presents, on both faces of its web, transverse recesses (28), preferably 4, with two tabs (29), also transverse. The centre part has another additional transverse recess (30) which is wider than the previous ones, that enables the profile (26) to be divided along its middle part into two equal halves to allow different sized glass bricks (2) to be mounted. The transverse recesses (28) endowed with two tabs, are opportunely located so that, when the profile (26) is divided, the two resulting semi-profiles are equivalent and symmetrical.

[0054] Furthermore, both faces of the web of the profile (26) have tubular protuberances (31), placed pairwise, in a central position relative to its transverse axis, which, on their free base, are flush with the free side of the flanges and which are endowed centrally with an orifice (32), which enables the profile to be fixed to the wall or floor. The side walls of the profile (26) have a chamfered finish (33), at the top and bottom. Likewise the ends (37) of the web of the profile (26) have a chamfered finish.

[0055] When connecting, the chamfered end (37) of the web of the profile (26) permits the insertion, through the groove formed by the right-angled ends (36) of the parallel walls (34) of the cross-shaped arm (27), forcing the parallel walls (34) to open out and then to interlock in the aforementioned tabs (29) of the transverse recesses (28) of the profile (26), on both faces of the web.

[0056] Thus, in a simple and quick manual way, without the aid of any tools, the whole of the wall can be formed, allowing the selfsame user to carry out the work without needing skilled labour, which represents an important economic savings.

Claims

1. Device for mounting glass bricks, which are the type of glass bricks that are used in the construction of enclosure walls and partition walls, as well as for floors, and which can be mounted by means of ce-

ment or similar, or by means of separating elements between them, **characterised in that** the devices is formed by:

- a general elongated H-section profile (1,11,26), and;
- a cross-shaped element (3,13,27) with double arms,

so that the profile (1,11,26) remains abutted to the two lateral sides of the glass brick (2) to be mounted and joined and the said profiles (1,11,26) are joined to identical profiles (1,11,26) that converge at the same vertex of the abutted glass bricks (2) to be mounted, by the cross-shaped element (3,13,27).

2. Device for mounting glass bricks, according to claim 1, wherein the profile (1) abutting to the lateral sides of the glass bricks (2) to be joined to other glass bricks has, near to the ends, transverse recesses (6), on both faces of its web.
3. Device for mounting glass bricks, according to claim 1, wherein, the cross-shaped elements (3) are formed by four identical parts (7), connected pairwise in parallel and joined orthogonally, which, in their connection form the four arms defined by the pair of parallel lugs (4) with arrowhead (5) ends.
4. Device for mounting glass bricks, according to claim 1, wherein at the connection of the cross-shaped element (3) with the profiles (1) converging on it, the profiles (1) fit between the pair of parallel lugs (4) forming the arms and the arrowhead (5) end fits into the respective transverse recess (6) of the profile (1) to be fixed.
5. Device for mounting glass bricks, according to claims 1 and 3, wherein the identical parts (7), connected pairwise in parallel and joined orthogonally, which, at their connection form the four arms defined by the pair of parallel lugs (4) with arrowhead (5) ends, are formed by a small strip with arrowhead (5) ends, whilst centrally, relative to one of their faces they display a central protuberance (8) and on their opposite face they display a pair of parallel protuberances (9), at a slight distance from the central protuberance (8), having between the protuberances on both faces, a void (10) which is half their length.
6. Device for mounting glass bricks, according to claim 5, wherein, in the formation of the cross-shaped element (3), two of the parts (7) are connected by abutting its central protuberance (8), whilst the other two parts (7) are connected by its two parallel protuberances (9), its assembly being carried out by inserting, orthogonally, the pairs of parts into the voids (10) of the same.

7. Device for mounting glass bricks, according to claim 1, wherein, to a cross-shaped element (3) are joined four profiles (1), orthogonally pairwise, which converge at a vertex, fitting between the pairs of parallel lugs (4) and being fixed by inserting the arrowhead (5) ends in the corresponding recesses (6).
8. Device for mounting glass bricks, according to claim 1, wherein the general elongated H-section profile (11) of transverse section, abutting the lateral sides of the glass bricks (2) to be mounted, displays on the inner face of its flanges (15), a series of toothing (18), some toothing (18) being effected at its ends and between the toothing (18) at its ends there is a pair of similar intermediate toothing (18).
9. Device for mounting glass bricks, according to claim 8, wherein the general elongated H-section profile (11), presents on both faces, in a central position longitudinal to its web (19) and coinciding with the toothing (18) of the inner face of its flanges (15), several recesses (20), which form a very shallow intermediate base (21) and, laterally, to said recesses (20) it presents two cuts (22), near to the toothing (18) of the inner face of its flanges (15).
10. Device for mounting glass bricks, according to claim 8, wherein, on both faces of the web (19) of the general elongated H-section profile (11), there are tubular protuberances (23), provided with a central orifice (16) which, on their free base are flush with the free side of its flanges (15).
11. Device for mounting glass bricks, according to claims 8 and 10, wherein the general elongated H-section profile (11) has four tubular protuberances (23) on each one of the faces of its web (19), being arranged pairwise in a centred position relative to its transverse axis.
12. Device for mounting glass bricks, according to claim 8, wherein the cross-shaped elements (13) have double arms (14) on which, in a centred position, there are two thickened portions (24) which extend outwards, by way of lugs (25), between which there is a very small space.
13. Device for mounting glass bricks, according to claims 8 and 12, wherein the lateral sides of the double arms (14) of the cross-shaped element (13) have a toothed configuration (17).
14. Device for mounting glass bricks, according to claims 8, 12 and 13, wherein the external prolongations, by way of lugs (25), of the central thickened portions (24) of the double arms (14) of the cross-shaped element (13) are detachable.
15. Device for mounting bricks, according to claim 8, wherein the web (19) of the general elongated H-section (11) fits between the corresponding double arm (14) of the connecting cross-shaped element (13) and the toothing (17) of its lateral sides fits the respective toothing (18) of the inner face of its flanges (15).
16. Device for mounting glass bricks, according to claim 8, wherein the general elongated H-section profile (11), when divided along its middle part, joins glass bricks of different sizes.
17. Device for mounting glass bricks, according to claim 1, wherein the cross-shaped elements (27) are formed by a single piece determined by a solid central nucleus (35) from which the four double arms emerge, each two being separated by an angle of 90°, and each one of the double arms being formed by two parallel walls (34) which, at the end furthest away from the centre nucleus, are finished off by two right-angled parts (36) oriented inwards forming a small groove between them, by way of tabs.
18. Device for mounting glass bricks, according to claim 17, wherein the abutting profile (26) presents, on both faces of its web, transverse recesses (28), preferably 4, provided with two tabs (29), also transverse, another additional transverse recess (30), located in the central part and wider than the previous ones, which facilitates the division of the profile (26) along its middle part, into two equal halves to allow the mounting of glass bricks (2) of different sizes, and tubular protuberances (31), arranged pairwise in a centred position relative to its transverse axis, which, on their free base, are flush with the free side of its flanges and which, centrally, are provided with an orifice (32) that enables the profile to be fixed to the wall or floor.
19. Device for mounting glass bricks, according to claims 17 and 18, wherein the abutting profile (26) presents, on the side walls of the profile (26) a chamfered finish (33), at the top and bottom, and the ends (37) of the web of the profile (26) also display a chamfered finish.
20. Device for mounting glass bricks, according to claim 17, wherein, in connecting the chamfered finish end (37) of the web of the profile (26) it permits the insertion, through the groove formed by the right-angle ends (36) of the parallel walls (34) of the cross-shaped arm (27), forcing the parallel walls (34) to open out and then to interlock in the aforementioned tabs (29) of the transverse recesses (28) of the profile (26), on both faces of the web.

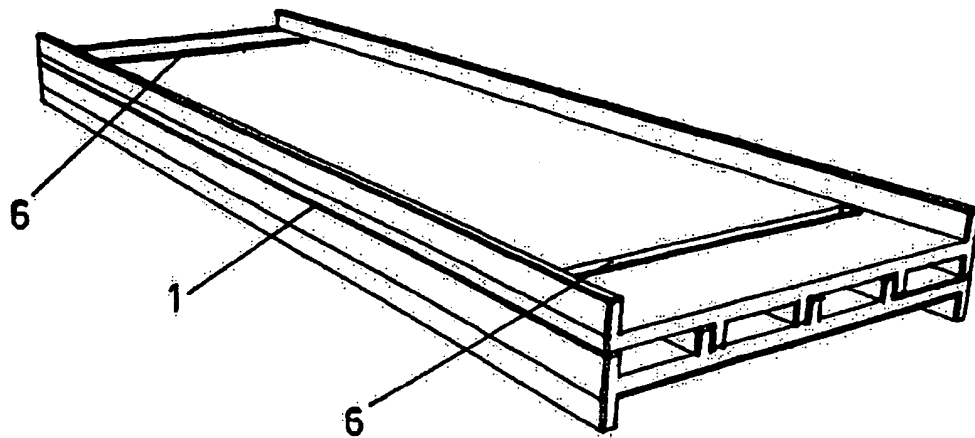


Fig. 1

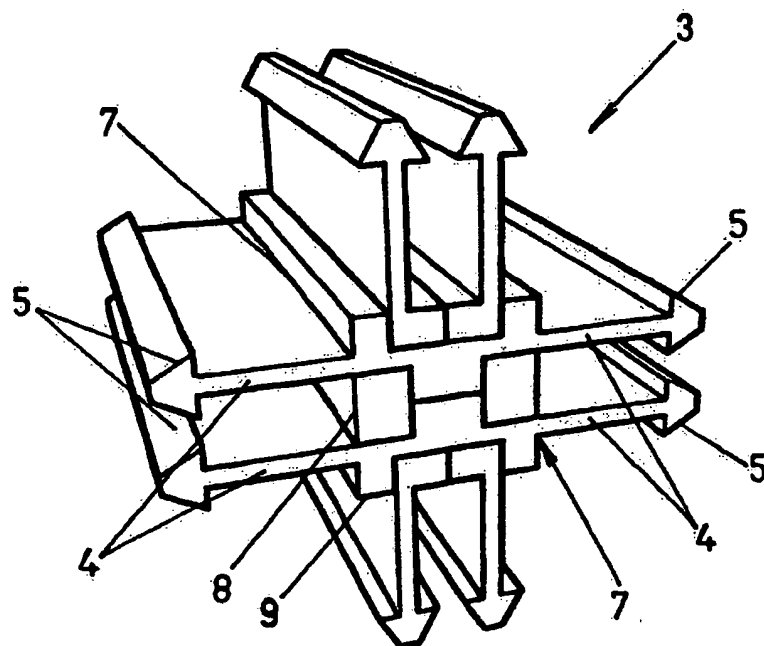


Fig. 2

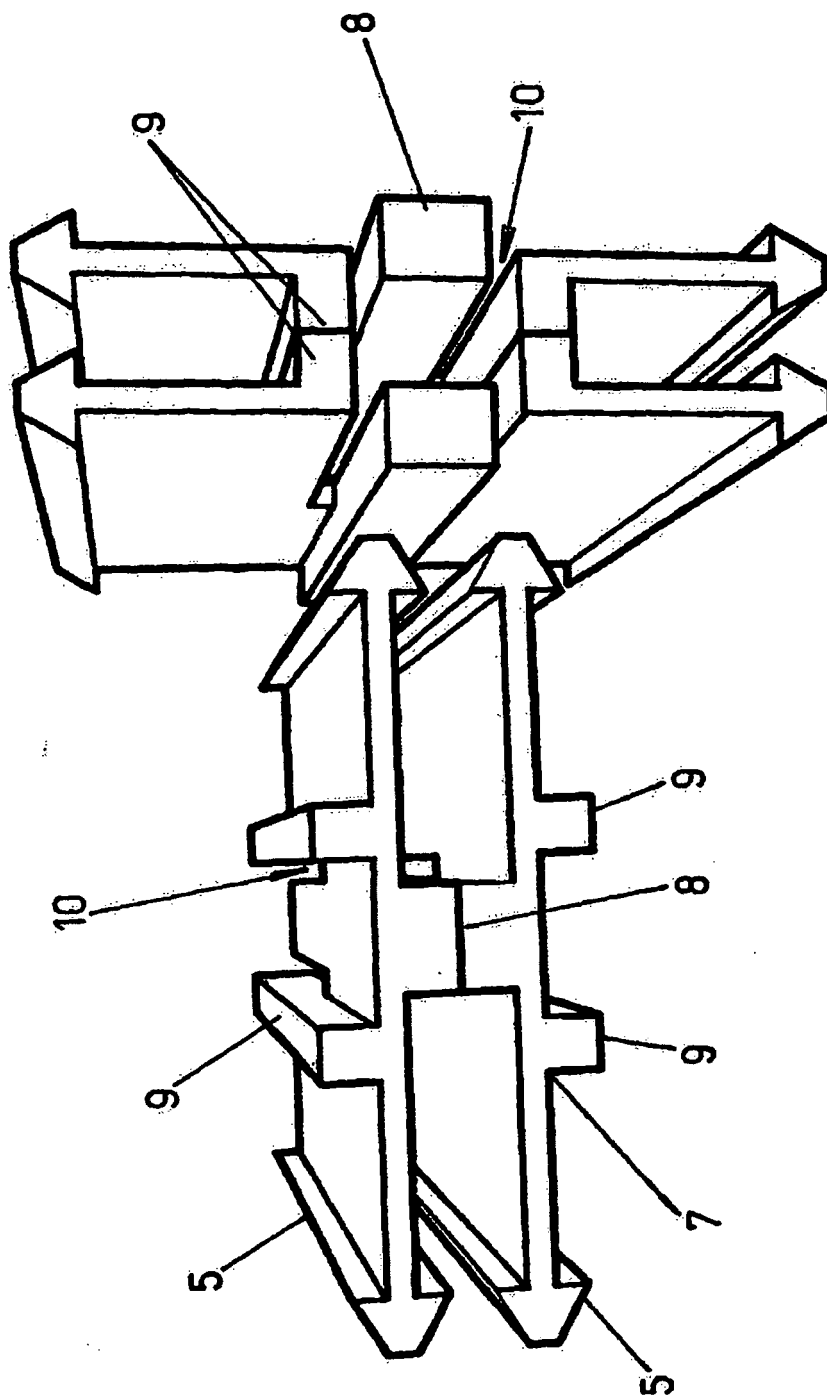


Fig. 3

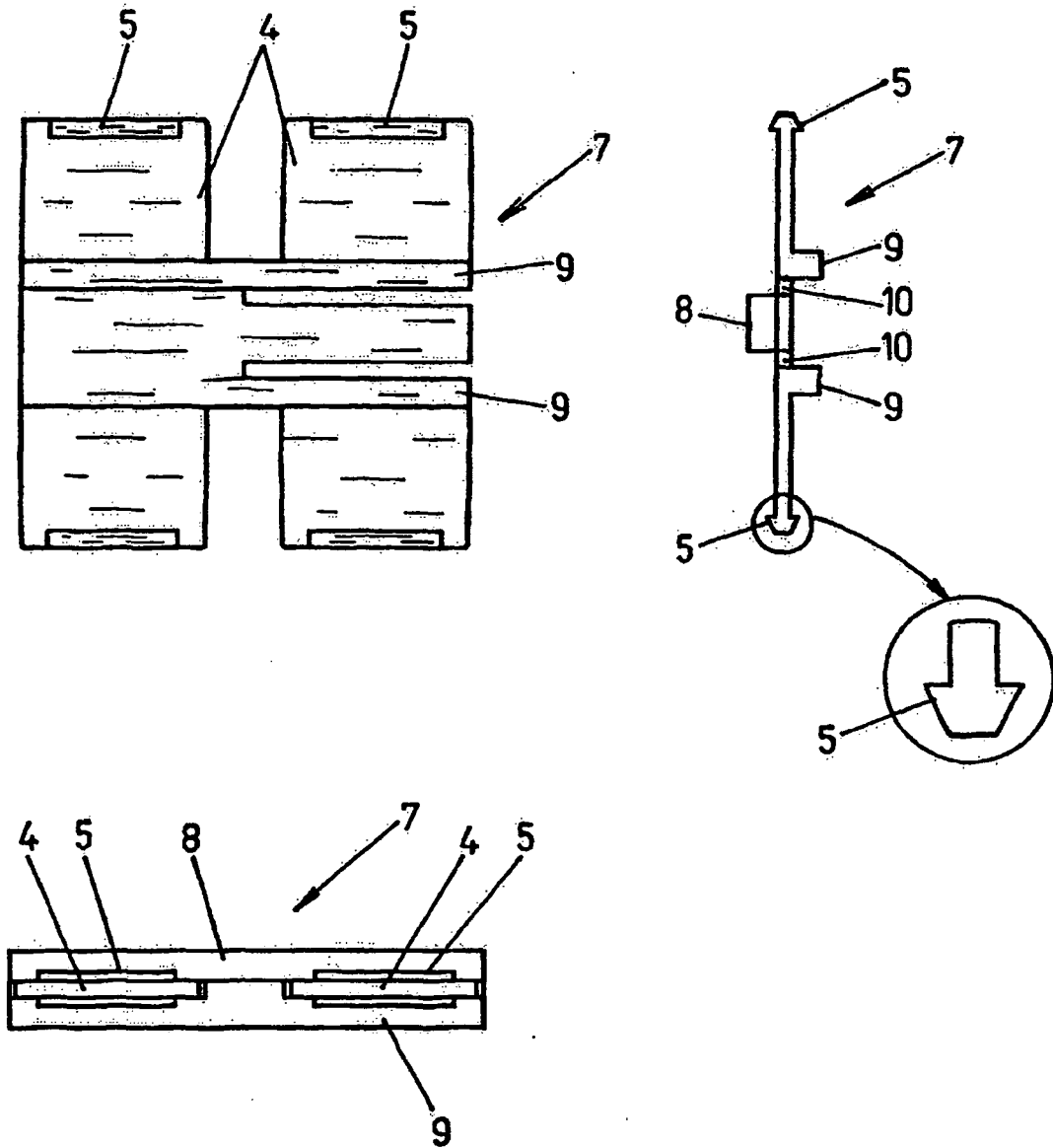


Fig. 4

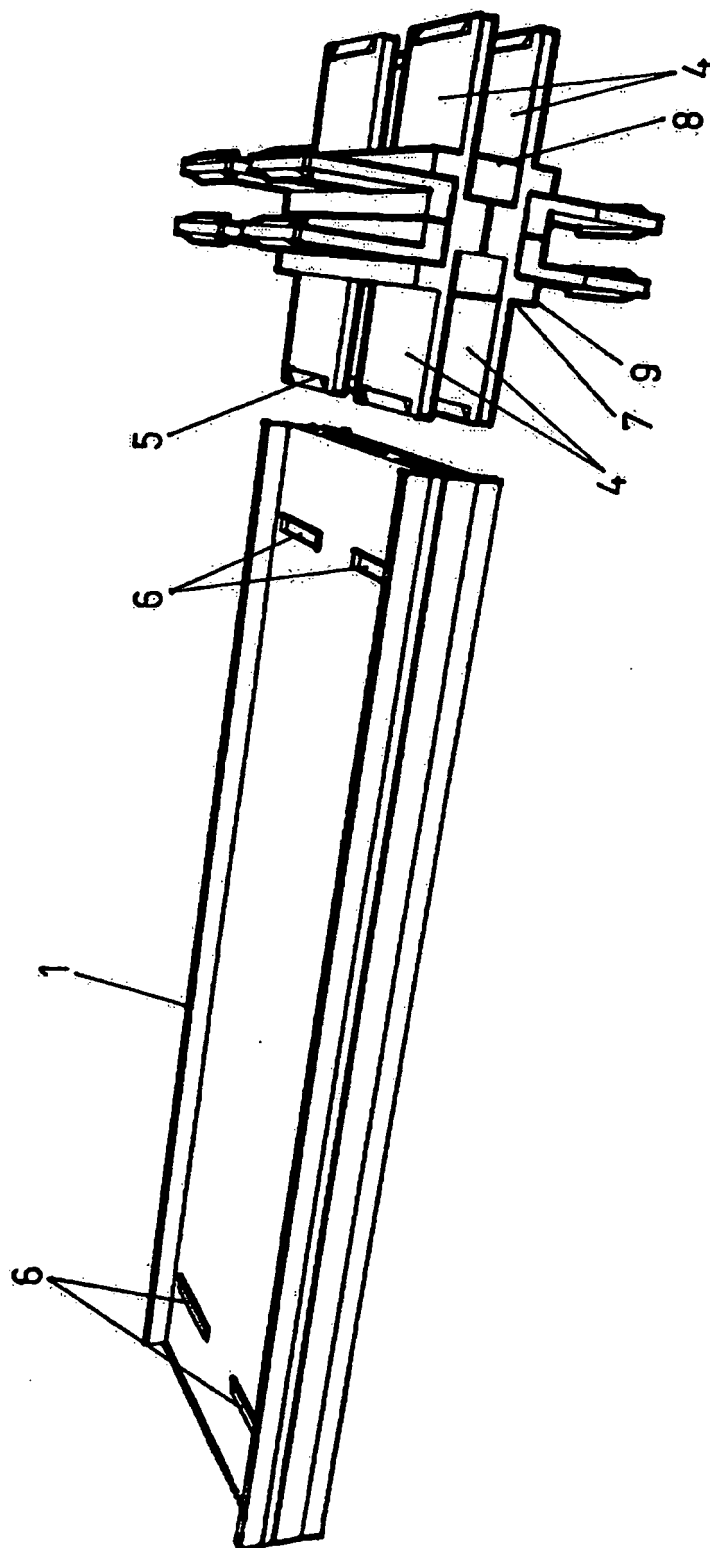


Fig. 5

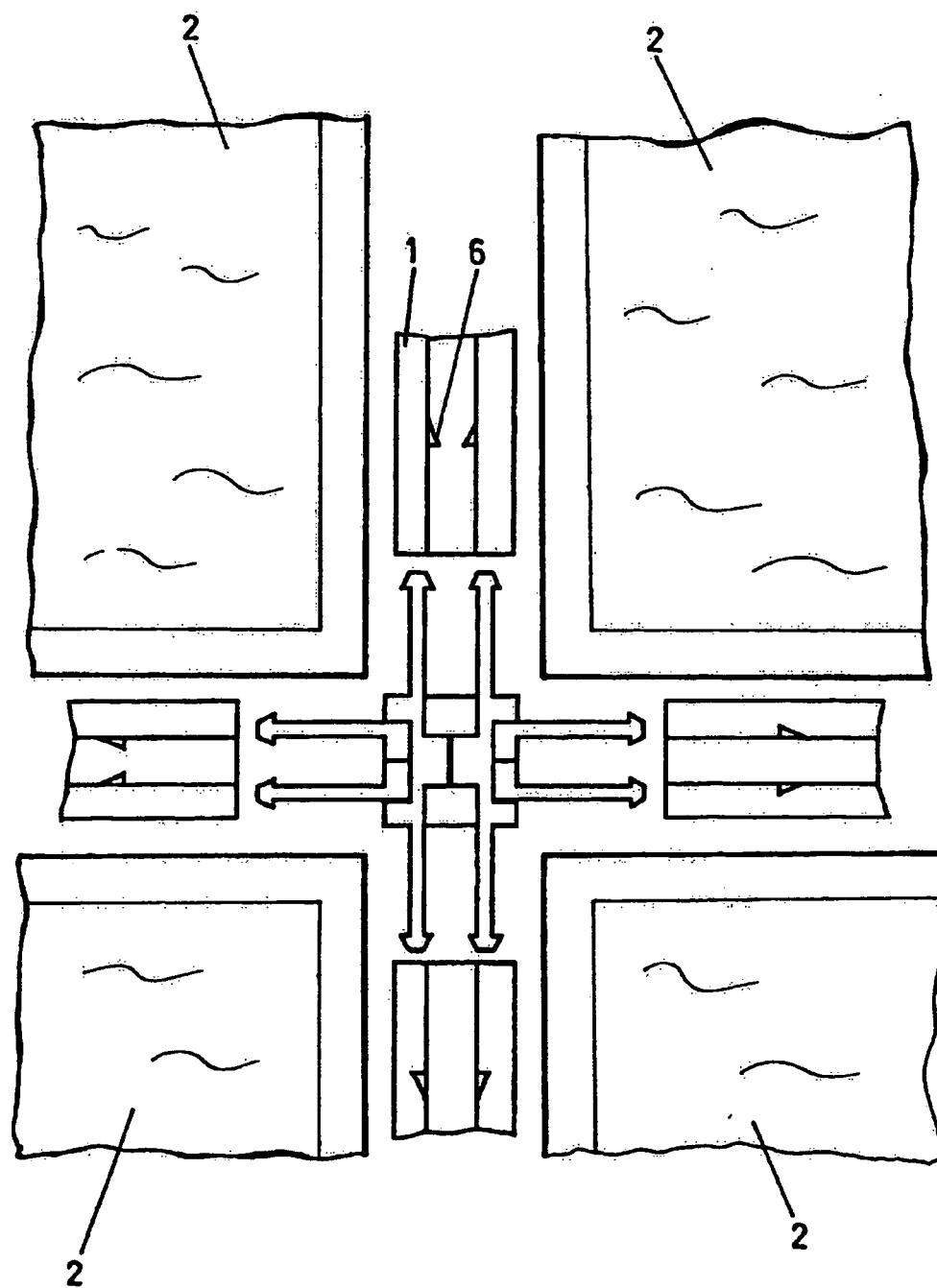


Fig. 6

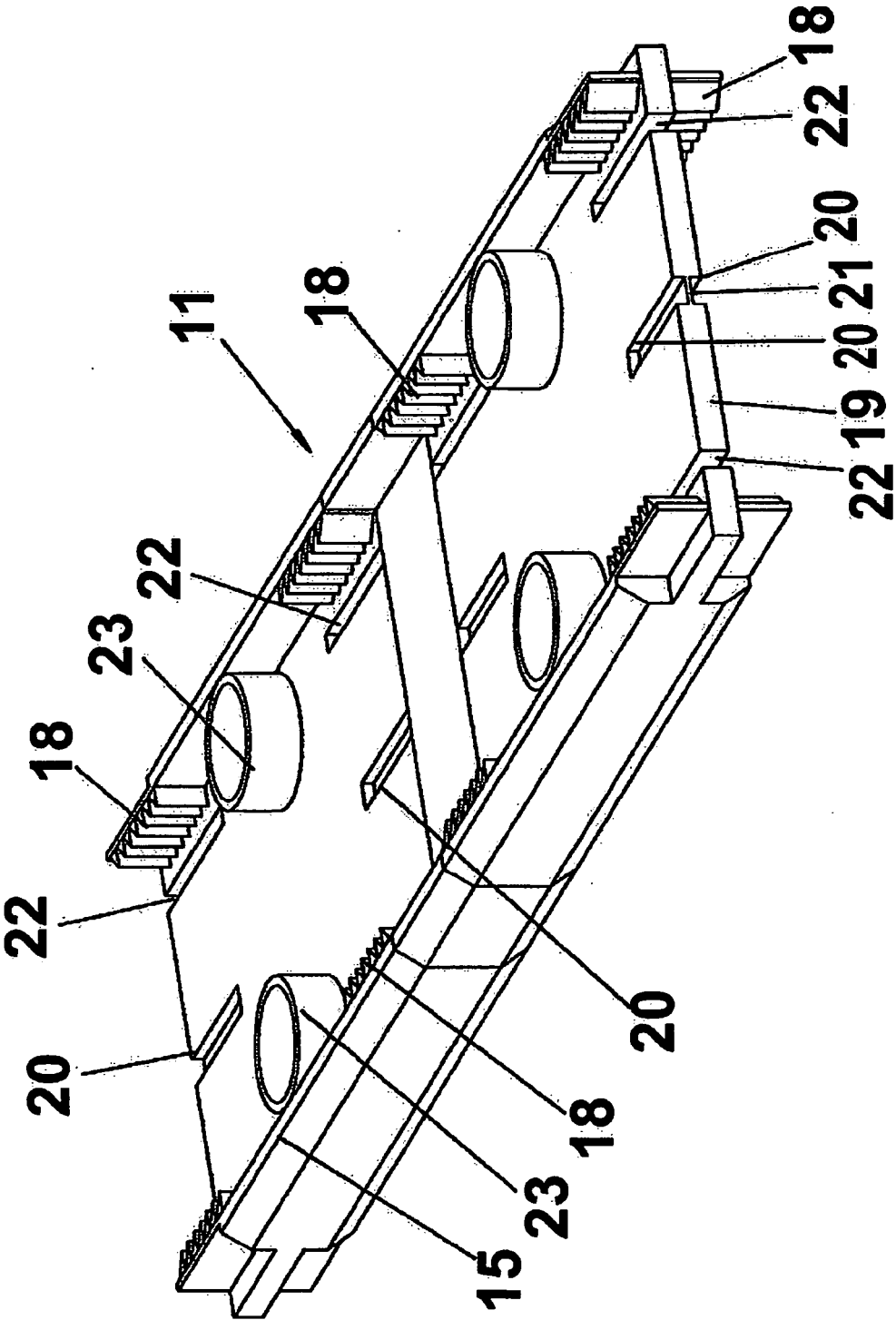


Fig. 7

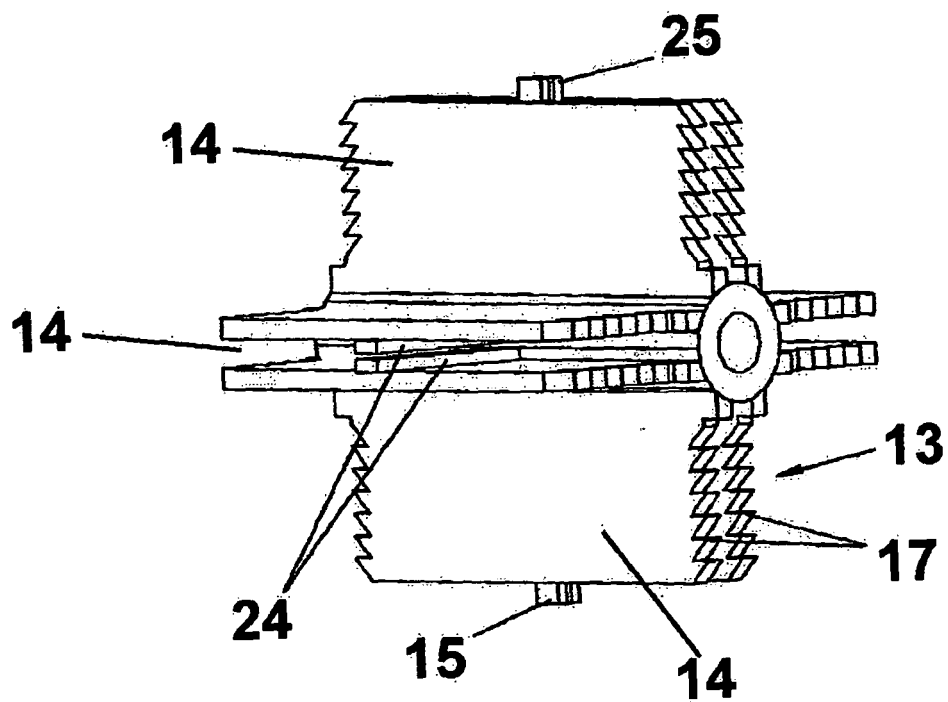


Fig. 8

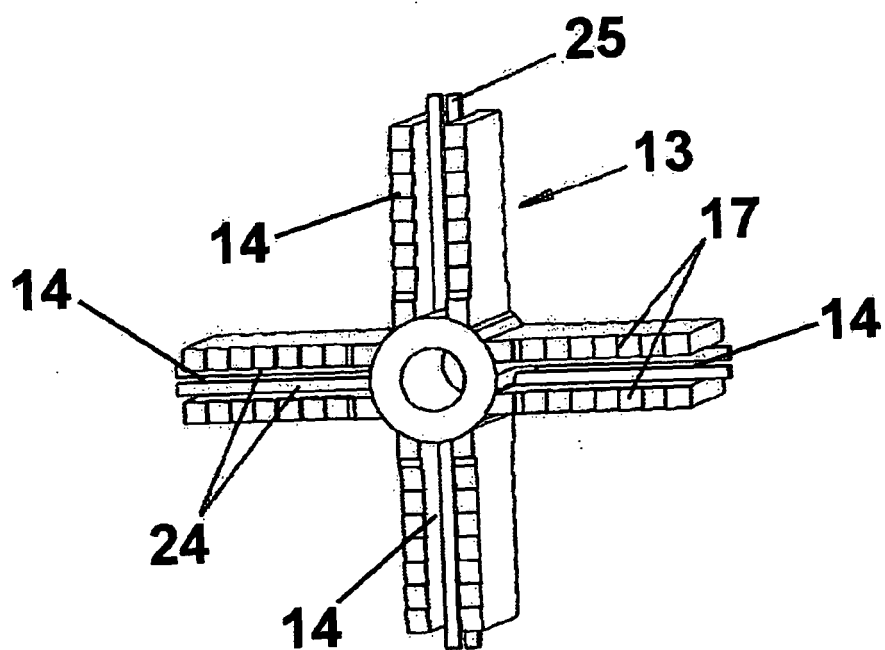


Fig. 9

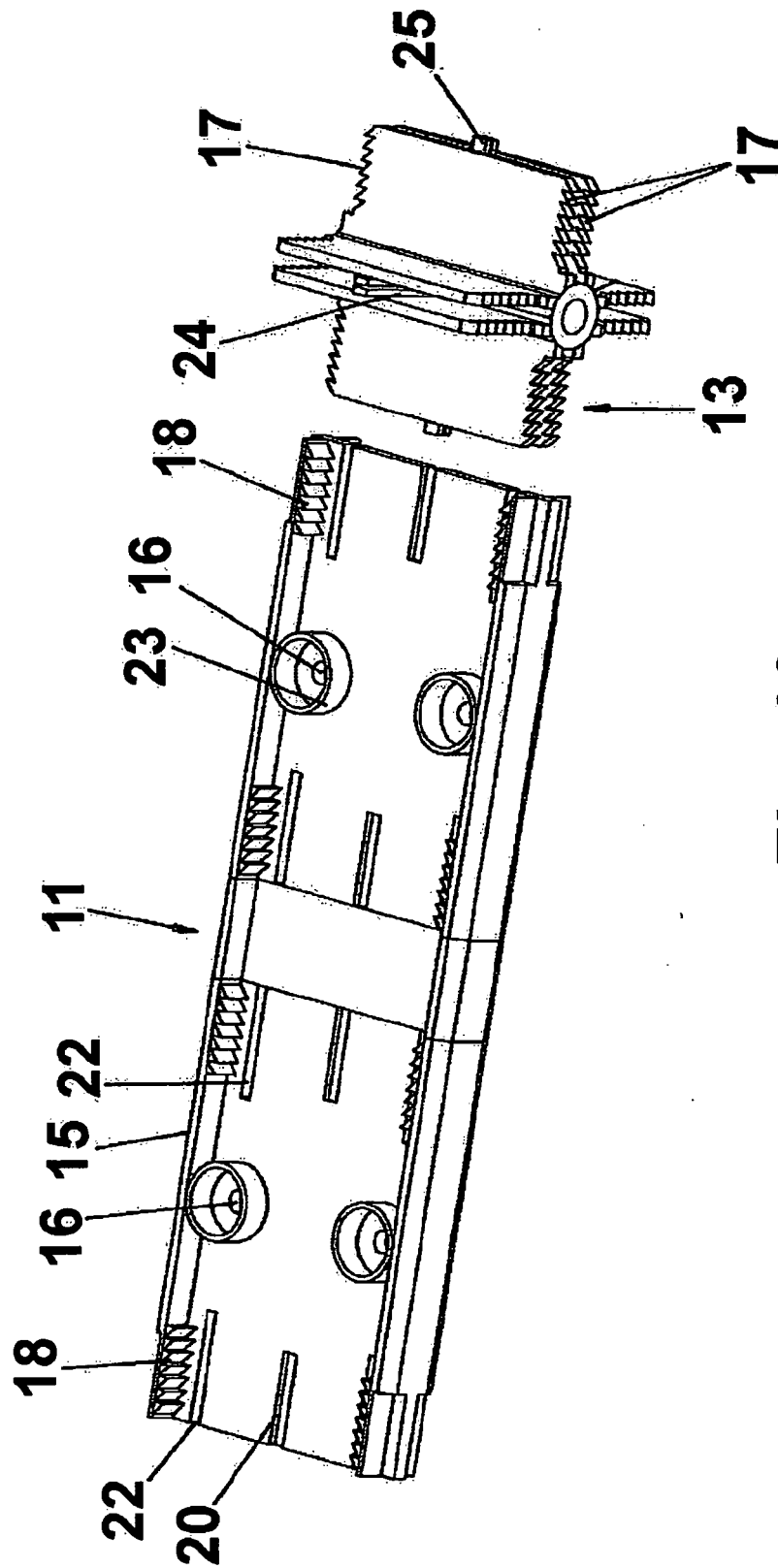


Fig. 10

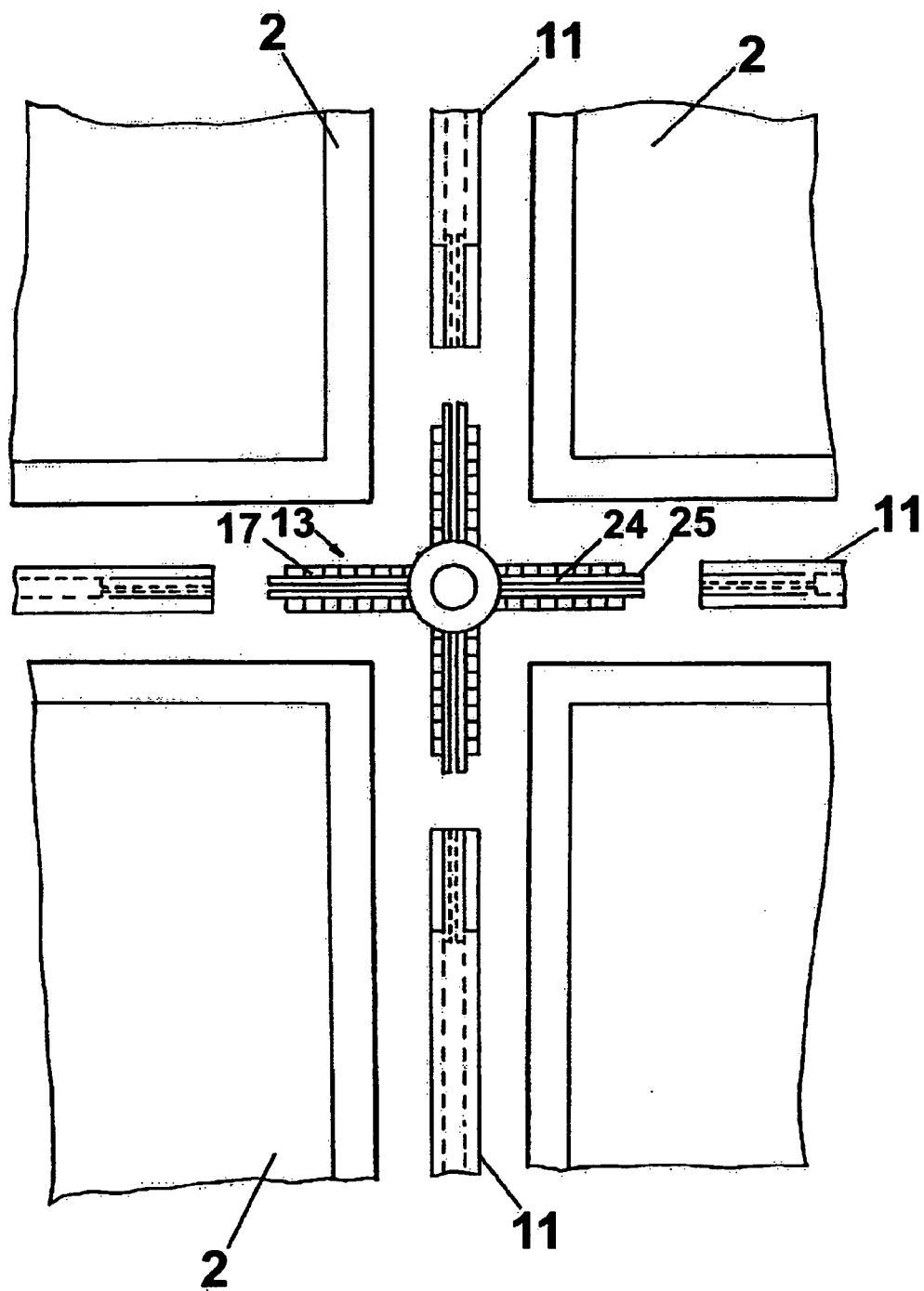


Fig. 11

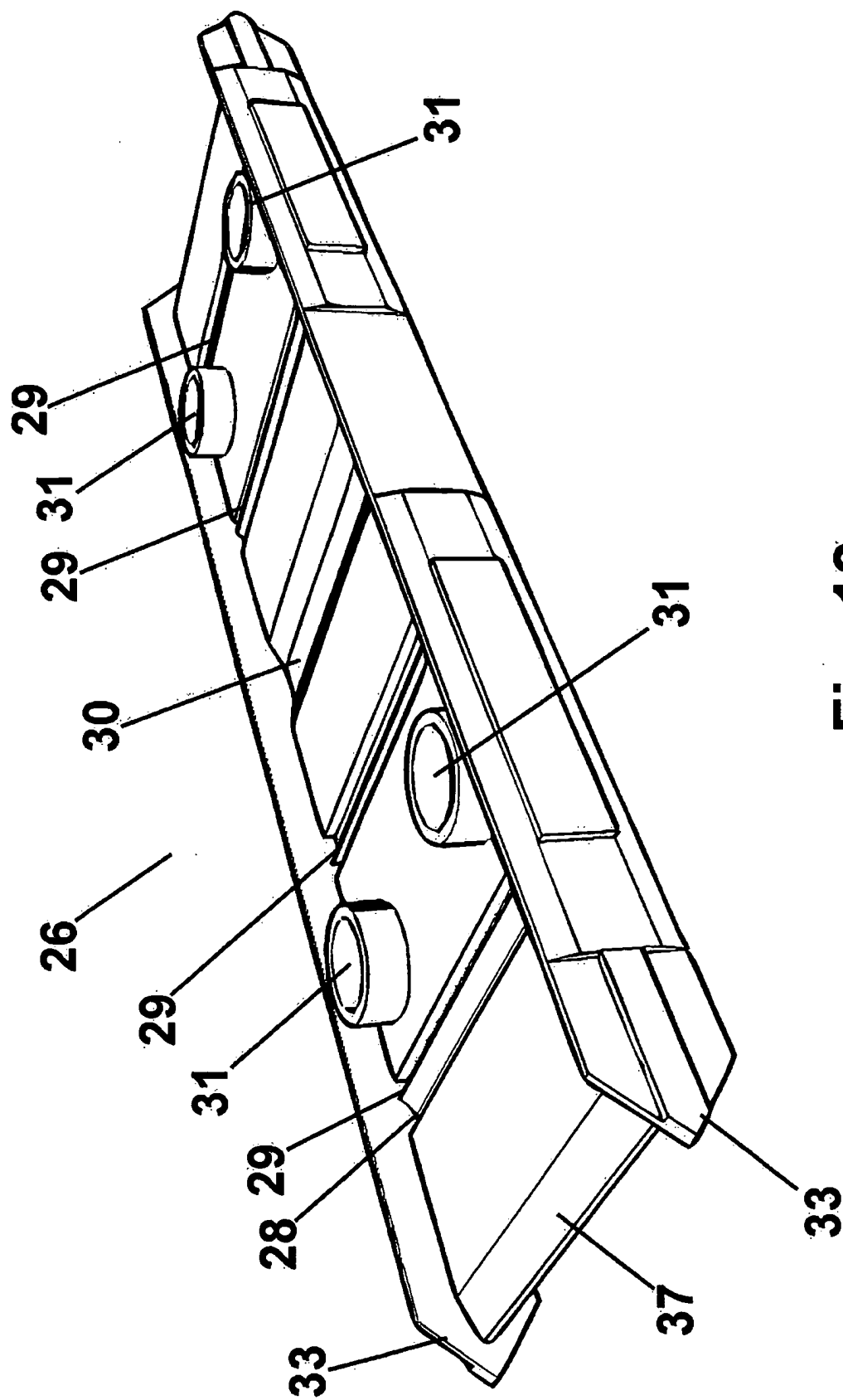


Fig. 12

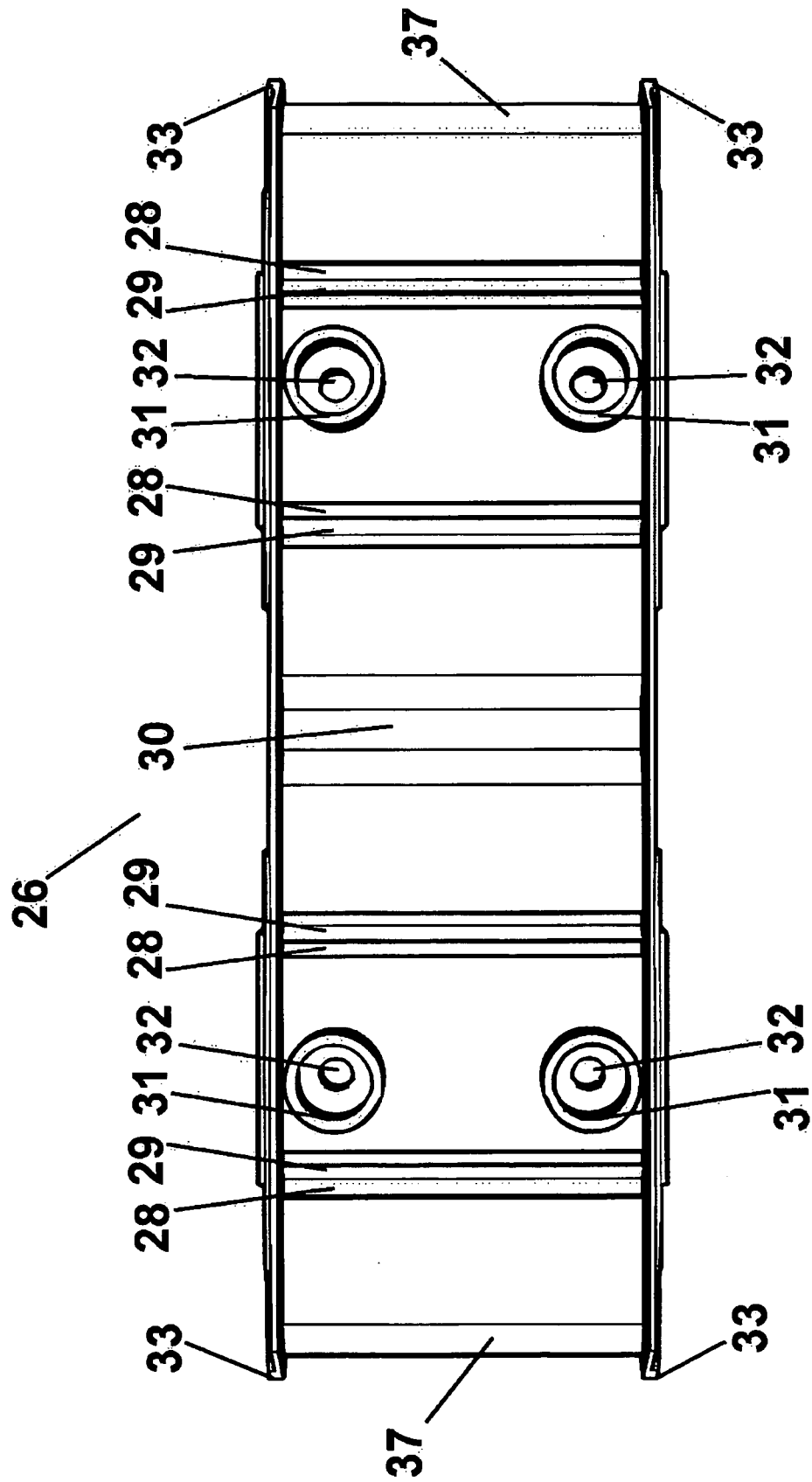


Fig. 13

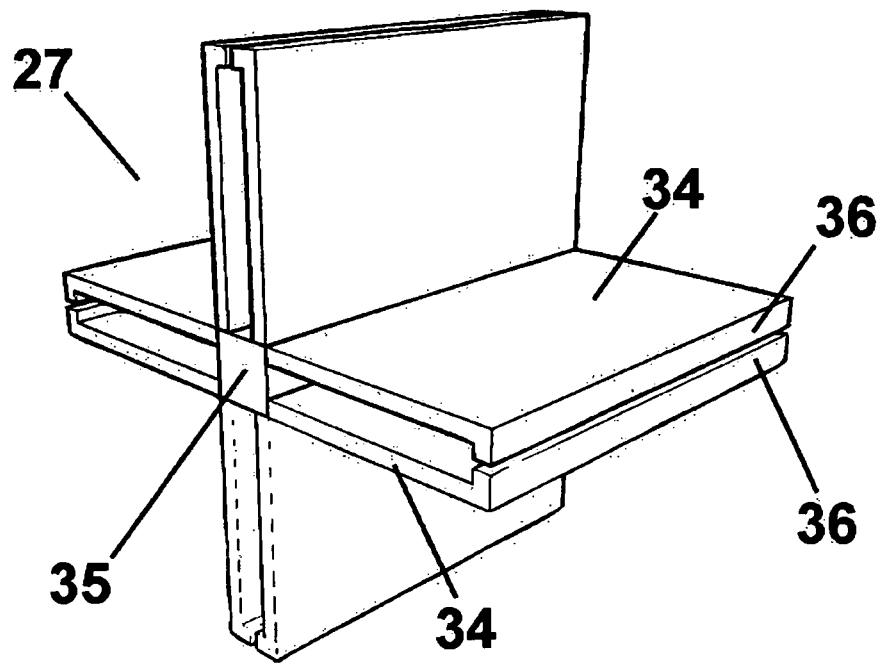


Fig. 14

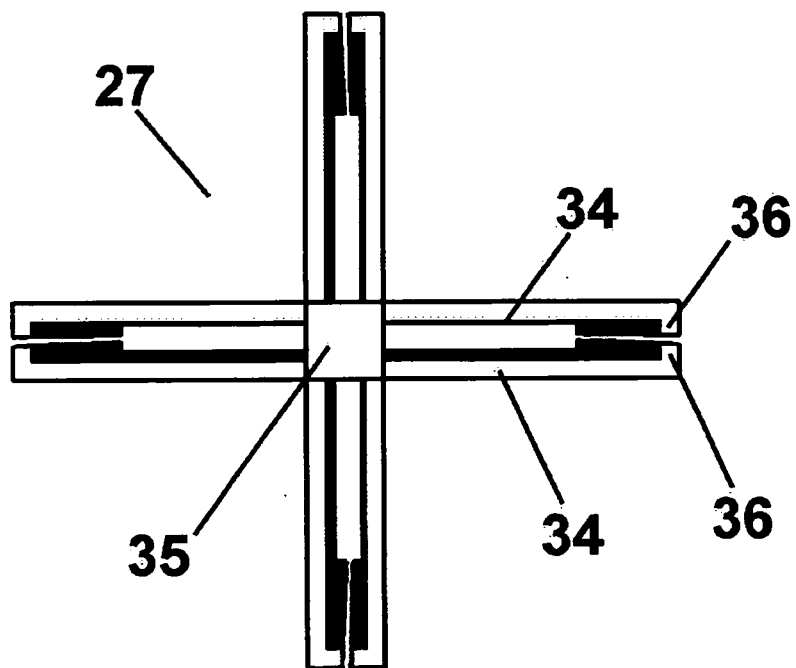
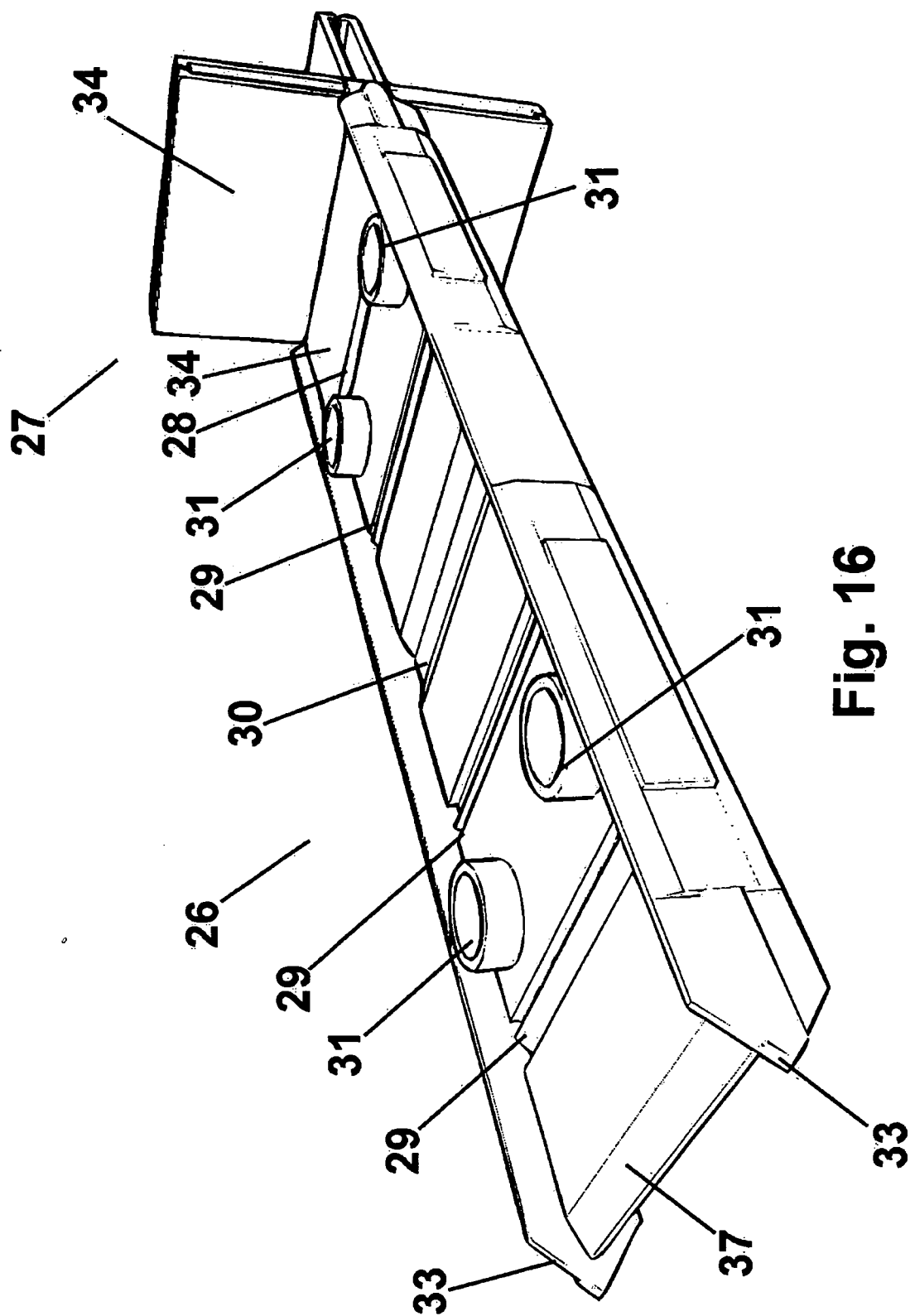


Fig. 15



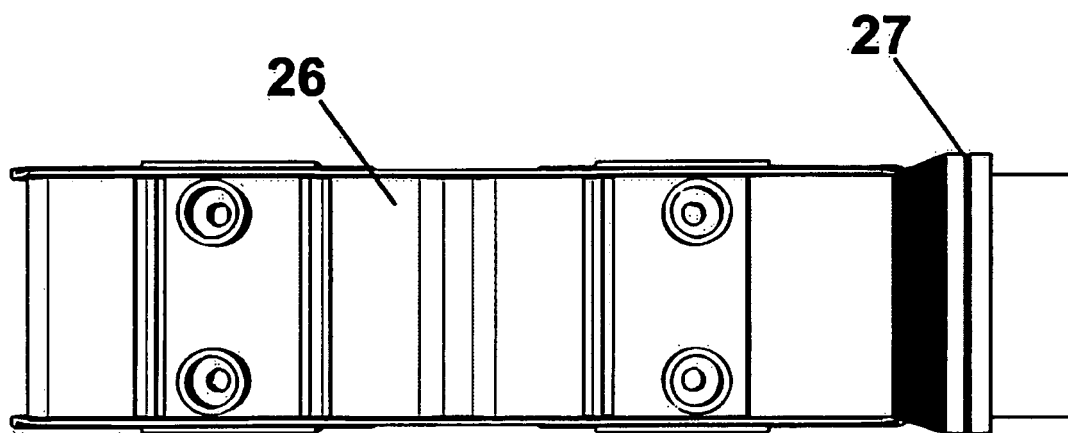


Fig. 17

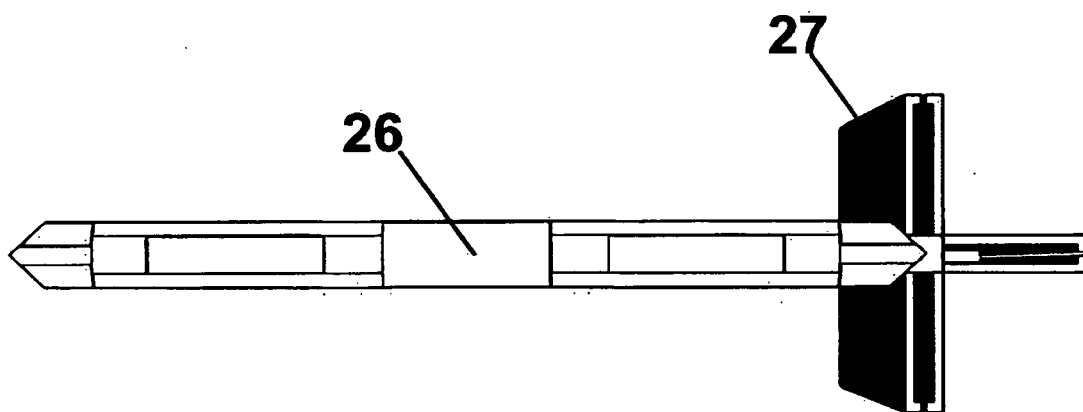


Fig. 18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2010/000047

A. CLASSIFICATION OF SUBJECT MATTER

E04C 1/42 (2006.01)

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)

E04C, E04B

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 practicable, search terms used)

INVENES,EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	US 5992111 A (WATERHOUSE et al.) 30.11.1999, column 3, line 54 - column 4, line 14; column 6, lines 20-32; figure 12.	1 4,7,8,15,17
Y A	US 2007193155 A1 (LEMERT et al.) 23.08.2007, paragraphs [0019,0029-0032]; figures 1,3,4.	1 19
A	US 2008134605 A1 (FRIESEN et al.) 12.06.2008, paragraphs [0049-0051,0056]; figures 1,2,6,11,12.	1,7,13
A	US 4959937 A (MAYER et al.) 02.10.1990, column 6, lines 5-11,42-64; figures 1A,3A-3C.	1,3
A	WO 9518278 A1 (LOFTUS & CO PTY LTD W ; GLASS BLOCK CONST AUST PTY LTD ;) 06.07.1995, page 12, lines 11-17;page 13, line 21 - page 17, line 1; figures 3,4,8,14.	1

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance.		
"E" earlier document but published on or after the international filing date		
"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)	"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
"O" document referring to an oral disclosure use, exhibition, or other means	"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 documents, such combination being obvious to a person skilled in the art
"P" document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search

22 June 2010 (22.06.2010)

Date of mailing of the international search report

(24/06/2010)

Name and mailing address of the ISA/
O.E.P.M.Paseo de la Castellana, 75 28071 Madrid, España.
Facsimile No. 34 91 3495304

Authorized officer

S. Fernández de Miguel

Telephone No. +34 91 349 54 37

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 2010/000047

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4458464 A (BORGHETTO et al.) 10.07.1984, figure 9.	1

Form PCT/ISA/210 (continuation of second sheet) (July 2009)

EP 2 395 170 A1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2010/000047

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US 5992111 A	30.11.1999	CA 2195146 AC WO 9964697 A AU 7753698 A GB 2354269 AB AU 743139 B	15.07.1998 16.12.1999 30.12.1999 21.03.2001 17.01.2002
US 2007193155 A	23.08.2007	WO 03001090 A CA 2451435 A US 2003005655 A US 6675543 B EP 1404931 A EP 20020746620 US 2004144048 A	03.01.2003 03.01.2003 09.01.2003 13.01.2004 07.04.2004 21.06.2002 29.07.2004 29.07.2004 29.07.2004
US 2008134605 A	12.06.2008	CA 2570653 A	08.06.2008
US 4959937 A	02.10.1990	DE 3630934 A CN 86106093 A CN 1014439 B WO 8705961 A AU 7239687 A CN 87204836 U US 4774793 A EP 0301026 A EP 19870902892 BR 8707643 A AU 608220 B CA 1289718 C KR 920002872 B CA 1307898 C	01.10.1987 07.10.1987 23.10.1991 08.10.1987 20.10.1987 31.08.1988 04.10.1988 01.02.1989 10.03.1987 14.03.1989 28.03.1991 01.10.1991 06.04.1992 29.09.1992
WO 9518278 A	06.07.1995	CA 2180129 AC AU 1308095 A EP 0737264 AB EP 19950904366 NZ 277736 A CZ 9601925 A CZ 292496 B CN 1143400 A AU 680088 B MX 9500042 A SG 46418 A EG 20463 A US 5907937 A KR 100241591 B CN 1356443 A CN 1128909 C AT 239153 T ES 2201095 T	06.07.1995 17.07.1995 16.10.1996 22.12.1994 26.11.1996 12.02.1997 15.10.2003 19.02.1997 17.07.1997 31.10.1997 20.02.1998 31.05.1999 01.06.1999 01.02.2000 03.07.2002 26.11.2003 15.05.2003 16.03.2004

Form PCT/ISA/210 (patent family annex) (July 2009)

EP 2 395 170 A1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2010/000047

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
		IN 192353 A	10.04.2004
		DE 69432603 T	13.05.2004
US 4458464 A	10.07.1984	EP 0042065 AB	23.12.1981
		EP 19810103730	15.05.1981
		CA 1177661 A	13.11.1984
		IT 1136411 B	27.08.1986
			27.08.1986

Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- ES 2143185 T3 [0006]
- ES 1052066 U [0007]
- ES 1054174 [0008]
- ES 2143185 [0009]