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(54) **Fence and siding system**

(57) A fence includes at least two uprights (1) and a plurality of panels (2) extending one above the other substantially horizontally between the uprights. The uprights contain a longitudinal recess (3) receiving panel holding elements (4), each being adapted to hold and fix one or more panels in any of several angular positions.

A siding system for a building comprises a plurality of panel-like siding elements (20) having an upper and lower side as well as a front and back side. The upper side (21) is strip-shaped extending at the back side of the siding element. The lower side has a recess (22) adapted to receive the strip-shaped upper side. The back sides of the siding elements are provided with at least one cavity (23). A plurality of clips (25) are adapted to be attached to the building and are formed to snap into the cavity.

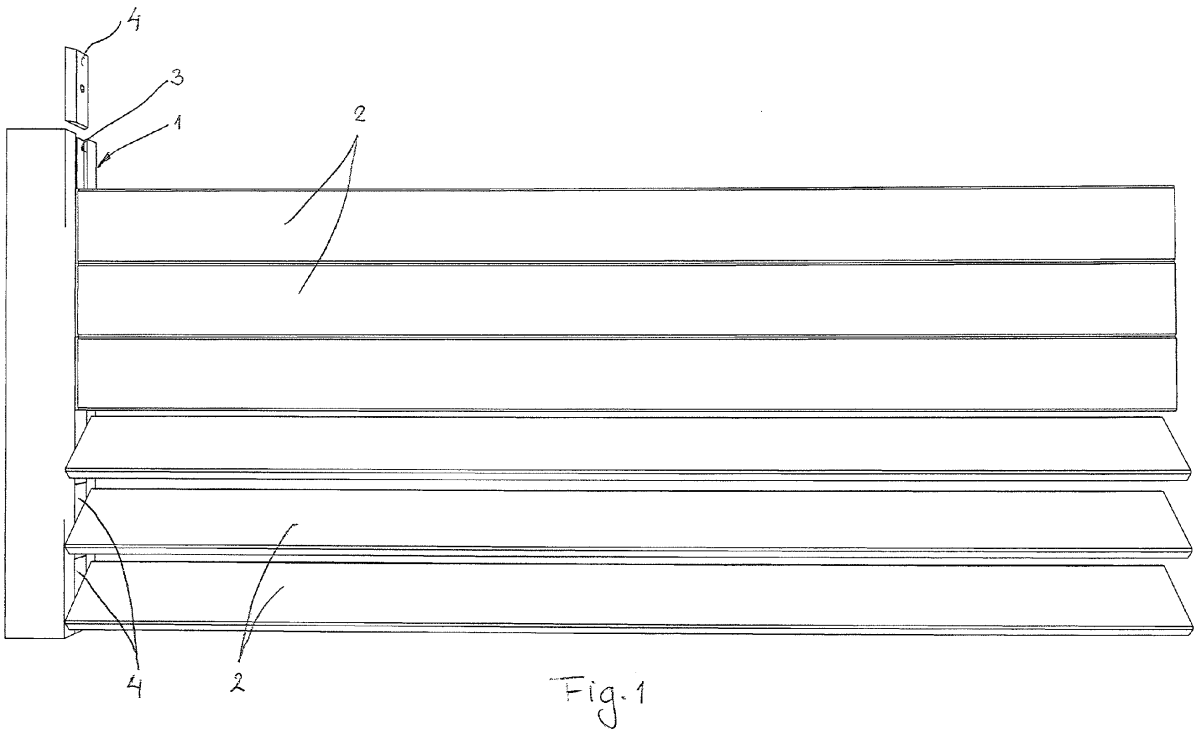

Fig. 1

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Description

[0001] The invention relates to a fence including at least two uprights and a plurality of panels extending one above the other substantially horizontally between the uprights, the panels may be made from plastic containing material, the uprights containing a longitudinal recess receiving panel holding elements.

[0002] Fences are known in several variations. WO 2010/125391, WO 2007/140516 and DE 20 2004 019 223 U1 show examples thereof. In one embodiment, the upright may receive different type of panel holding elements or intermediate members to hold the panels in different positions.

[0003] The present invention has as one of its objects to provide a fence which is modular and offers the user freedom to build a custom-made fence with standard modules.

[0004] According to one aspect, the holding elements are each adapted to hold and fix one or more panels in any of several angular positions.

[0005] By providing the holding elements with means to enable the panels to be positioned in different angular positions, the user is able to build the fence according to his/her own liking. Not only the panels between two adjacent uprights can be placed under different angles, also each section of panels between two uprights can be formed individually. So some of the panels between uprights can be placed vertically to form a closed wall, others could be placed under an angle with respect to the vertical so as to allow wind or light to pass through, but to hinder viewing through. Others could be placed horizontally, for example the ones near the ground or if viewing through is not a problem. Thus, the fence according to the invention is very flexible and user friendly. Generally, only one type of panel holding element is needed to hold the panels in different angular positions.

[0006] The panels and holding elements may for example include a pin-hole connection, the pins and holes might then have a fitting polygonal cross section. This is a very simple manner of allowing different angular positions of the panels. Octagonal cross sections may already provide sufficient different angular positions but more or less is possible of course.

[0007] The pins may be attached to the panels, and if the panels are extruded from plastic containing material, such as WPC (Wood Plastic Composite), each panel may have a longitudinal cavity therein adapted to receive a rod protruding from at least one and preferably from both ends of the panel to form said pins.

[0008] In this embodiment, the rod has a double function. It not only forms the mounting pins at the ends of the panels, but it is also able to function as a bending or warping resistant element for the panels, which assists in obtaining a high quality appearance of the fence.

[0009] In one embodiment, the rod is made from aluminium, which is preferably extruded. Such rod can be made both lightweight and rigid, especially if it is hollow and comprises at least one rib extending substantially perpendicularly to the main plane of the respective panel. This structure increases bending resistance considerably. If the panels are made by extrusion, the rod might be inserted into the panel if the panel is still warm, which facilitates insertion of the rod. If the rod and cavity are polygonal, the rod is automatically locked against rotation around its longitudinal axis. As an alternative, the rod may be made from plastic or from stainless steel.

[0010] In an alternative embodiment, each pin is part of an insert attached to one of the ends of the panels. Such embodiment can be used if there is no need for additional bending resistance in the panels.

[0011] The holding elements may each have a main body and a sleeve-like protrusion, the hole extending through the main body and the sleeve-like protrusion. In this way, the insertion length of the pin in the holding element can be increased without need for much additional material.

[0012] To increase stability of the fence, at least one of the panels, preferably the upper panel, is secured to the opposite uprights so as to resist pulling forces. This improves the coherence of the whole fence because the panels not only prevent the uprights from moving towards each other, but also from moving away from each other.

[0013] The invention also includes a kit for building a fence, comprising at least two uprights including a longitudinal recess, a plurality of panels extruded from plastic containing material and having two ends, each panel having a longitudinal cavity between the two ends and receiving therein a bending resistant rod protruding from both ends of the respective panel to form pins, and holding elements fitting into the longitudinal recess and each adapted to receive one of the pins of one of the panels.

[0014] According to another aspect, the invention also provides a siding system for a building, comprising a plurality of panel-like siding elements having an upper and lower side as well as a front and back side, the upper side being strip-shaped and extending at the back side of the siding element, the lower back side having a recess adapted to receive the strip-shaped upper side, the back side of the siding elements being provided with at least one cavity between the upper and lower sides, and a plurality of clips adapted to be attached to the building and formed to snap into the cavity of the siding elements.

[0015] Due to this structure, not only the mounting of the siding elements is easy, but it is also possible to demount individual siding elements by pulling the siding element away from the clip(s) and then sliding this siding element downwardly away from the overlying siding element until the strip-shaped upper side thereof is removed from the bottom recess of the overlying siding element.

[0016] The cross-section of the clips may be substantially U-or C-shaped having curved elastic legs, for example shaped like segments of a ring, the cavity in the siding elements having a narrow entrance to allow snapping-in of the clips and to hold the clips. In this manner,

the force needed to mount a siding element to a clip is much smaller than the force needed to dismount it, so that easy mounting is combined with solid attachment, while still being able to dismount the element using additional force.

[0017] The siding elements are preferably extruded from plastic containing material, such as WPC or engineered polymer. However, the siding elements might also be manufactured from stainless steel or wood.

[0018] Further details and advantages of the invention will be explained with reference to the drawings showing exemplary embodiments of the invention.

Fig. 1 is a schematic perspective view of a part of a fence according the invention.

Fig. 2 is an enlarged perspective view of detail II in Fig. 1.

Fig. 3 is a schematic perspective view of a part of another fence showing possible angular orientations of the panels between the uprights.

Fig. 4 is an enlarged perspective plan view of the fence of Fig. 1.

Fig. 5 is an enlarged perspective plan view of the upright as used in the fence of Fig. 1.

Fig. 6 is a side view of a horizontally positioned panel and corresponding panel holding element as used in the fence of Fig. 1.

Fig. 7 is an enlarged perspective of a part of a rod as used in the panel of Fig. 6.

Fig. 8 is a perspective view of another embodiment of a panel for use in the fence of Fig. 1.

Fig. 9 is an enlarged perspective view of an insert and pin for use in the panel of Fig. 8.

Fig. 10 is a perspective view of a siding system showing 3 siding elements in mounted condition.

Fig. 11 is a perspective view of the siding system of Fig. 10 from another end and with the siding elements slightly moved horizontally away from each other.

Fig. 12 is an enlarged perspective side view of a part of a siding element as used in the siding system of Fig. 10.

Fig. 13 is an enlarged perspective view of a clip as used in the siding system according to Fig. 10.

Fig. 14 is a perspective side view of another embodiment of a siding element and clip for use in a siding system.

[0019] The drawings and in first instance Figs. 1 - 3 show a part of a fence or other boundary wall. The main parts of this fence are: at least two uprights 1 (only one is shown in the drawings) and a plurality of panels 2 extending one above the other substantially horizontally between the uprights 2. The uprights contain a longitudinal (so vertical in the upright position) recess 3 receiving panel holding elements 4 each being adapted to hold and fix one or more panels - in this case one panel 2 - in any of several angular positions. In Fig. 1, the upper three panels 2 are positioned with their main plane vertically, whereas the bottom three panels 2 are positioned at an angle to the vertical, in this case at 45°. Fig. 3 shows a fence having a larger number of panels 2, which in this case are oriented at various different angles.

[0020] Figs. 4 and 5 show the shape of the upright 1 in more detail. The upright as shown is extruded from aluminium or an aluminium alloy, although other materials and other production methods are conceivable of course. Opposite sides of the square upright 1 are provided with the recess 3. Other uprights 1 may have recesses 3 on two adjacent sides if an upright 1 is used in the corner of a fence, and also uprights with recesses 3 on four sides are possible. The upright may then be used universally for different situations in a single fence, or even at a crossing of several fences. The uprights 1 may also have other cross sections, so that the angle between the recesses (and therewith the plan view angle between the panel sections) is different from 90° or 180°. One or two perpendicular stiffening ribs may be provided in the interior of the uprights 1.

[0021] Each recess 3 includes an outer portion 5 having a dovetail-shaped cross section and an inner portion 6 having a rectangular cross section. The dovetail is such that panel holding elements 4 that have a fitting cross section is held within the recess 3 by the walls, in this case the inclined walls converging outwardly towards each other. The inner portion 6 of the recess 3 is provided to receive a sleeve-shaped protrusion 7 of the panel holding element 4. This sleeve-shaped protrusion 7 surrounds a hole 8 that also extends through the main body of the panel holding element 4. The panel holding element 4 can be made from injection moulded plastic, for example nylon, or from metal. The panel holding element 4 may also be constructed without sleeve-shaped protrusion 7.

[0022] Fig. 6 and 7 show that hole 8 in panel holding element 4 (Fig. 6) is provided to receive a pin 9 at each end of each panel 2. In this embodiment, the pins 9 on both ends of the panel 2 are part of an aluminium hollow rod 10 (Fig. 7) extending through the whole panel 2 and projection from opposite ends. For this purpose, each panel 2, which is made by extrusion from WPC, comprises a cavity 11 extending the whole length of the panel. The panel 2 includes more longitudinal cavities 12, so that the weight of the panels 2 can be kept low, while the hollow rod 10 affords additional bending strength to the panel 2. For this purpose, the extruded rod 10 comprises a stiffening bridge or rib 10' extending perpendicularly to the main plane of the panel 2 to be most effective in preventing bending or warping of the panel 2. The rod 10 may also comprise two perpendicular ribs or no ribs.

[0023] The pins 9 fit into the holes 8, such that the pins may be positioned in the holes 8 in different angular positions, in this case eight positions as the outer surface of the pins and the inner surface of the holes 8 are octagonal. The cross sections of the pins 9 and holes 8 do not have to be equal, as long as the pins 9 fit into the

holes. The pins 9 may thus also have for example a star-shaped cross section, points of the star fitting in the corners of the polygonal hole 8. The panel holding elements 4 may also be constructed without sleeve-shaped protrusion 7, which allows a bit more movement of the pins 9 in the holes 8 when the panels 2 deform under wind load.

[0024] As mentioned, the panels 2 can be made of a (partly) recycled material, such as WPC. This WPC may for example include 65% natural wood or bamboo fiber, such as from recycled wood or other natural sources, 25% polymer, such as polypropylene, and 10% of additives like colourings, UV protectors, antifouling agent and the like. When the hollow panels are made by extrusion, the walls thereof (inner and/or outer) are preferably of similar thickness to obtain uniform solidification thereby prevention deformation of the panel due to internal stresses. The rod 10 is preferably inserted into the cavity 11 of the panel 2 when it is not yet cooled after extrusion, so that the rod can easily be inserted. Some movement between the rod 10 and the panel 2 remains possible so that the panel 2 can thermally expand with respect to the rod 10.

[0025] The panels may for example be 1500 mm long, 100 mm wide and 15 mm thick with a wall thickness of 4 mm. The pins may project 25 mm from the panels. The uprights may be 2750 mm long, of which the bottom 750 mm are intended to be buried in the ground. All kinds of variations in dimensions, materials and shapes are conceivable. Normally, the panels will have a woody appearance, and may have a completely rectangular cross section, or with bevelled edges. However, one or more panels in a section may, for example, be made from transparent material, such as plastic or glass. The panels may also consist of a frame (for example of aluminium) filled with gauzy material, glass or other ornamental designs. There may also be provided strips between the panels to decorate the fence. The strips may be made from aluminium, stainless steel, transparent or non-transparent plastic etc. and have a height of for example 5 - 20 mm.

[0026] The fence may be built from the kit parts as follows. First, the uprights 1 are driven into the soil. Generally the spacing between the uprights will be slightly larger (a few mm's) than the length of the panels 2 in order to have some play for the panels to extend under thermal influences. Stops will be inserted into the recesses 3 in the uprights 1 and will be fixed (by a screw or the like) in the required position, so that the panel holding elements 4 will come to rest in the recesses 3 in the uprights 1 at the desired height. Two panel holding elements 4 will be attached to one of the panels 2 in the desired angular position and then the panel holding elements 4 will be lowered into the respective recesses 3. This is repeated for all panels 2 until the uprights 1 are filled with panel holding elements 4. The pins 9 of the upper panel 2 may be fixed to the respective panel holding elements 4 to prevent their removal. This will set the spacing between the upper ends of the adjacent uprights 1, as the upper panel 2 will resist tension forces exerted by the uprights 1. This will be especially the case if the pins 9 are part of the continuous rod 10. Generally, a cover will be placed and fixed on top of the uprights 1 to finish the look thereof and to prevent removal of the panel holding elements 4. Further uprights 1 can be positioned on one or both sides of the uprights already placed and panels can be placed in the desired angular position until the fence is complete.

[0027] Fig. 8 and 9 show a variation of the panel 2 and pins 9. In this case the pins 9 are part of an insert 13, generally made of plastic, for example injection moulded nylon. The insert 13 can be positioned in one of the cavities 12. The panels 2 in this embodiment have three such longitudinal rectangular cavities 12, and the insert 12 will normally be inserted into the middle cavity 12. The inserts 13 can have a strong fit within the cavity 12, or can be fixed by glue or the like. The inserts only extend along a small part of the length of the panel 2, just sufficient to obtain a stable attachment to the panel 2. The pin 9 can be solid or can be sleeve-shaped, as shown. Insertion of the pins 9 into the panel holding elements 4 is similar to that of the former embodiment.

[0028] Combinations are the two embodiments are possible. The last embodiment may be combined with the first one, so that the inserts 13 are adapted to be inserted into cavity 11. A rod of aluminium or other material may still be positioned within the cavity 11 and extend only in a central part (for example 90 cm) or along substantially the complete length. In the second embodiment, an aluminium rod can have the cross section of one of the cavities 12 and be inserted therein.

[0029] Fig. 10 - 14 show two embodiments of a siding system for a wall of a building, like a house. The siding system comprises a plurality of panel-like siding elements 20, which might be produced by extruding plastic containing material like WPC. However, it is also conceivable to construct the siding elements from wood, or even from metal, such as stainless steel. The siding elements will then be formed from plate-shaped material.

[0030] This siding elements 20 have an upper and lower side as well as a front and back side (as seen in the position of use on a vertical wall). The upper side is shaped like a strip 21 extending at the back side of the siding element, i.e. where the siding element will be mounted against the wall. The lower side of the siding element 20 has a recess 22 also positioned at and open to the back side of the element 20 and adapted to receive the strip 21 at the upper side of an underlying siding element 20, as is shown in Figs. 10 and 11. The back side of the siding elements 20 is provided with at least one cavity 23 between the upper and lower sides.

[0031] In this embodiment, the cavity 23 is formed in a rib 24 formed on the back side of the siding element 20 which is slightly bulged there so that the rib surface is substantially planar with the back surface of the strip 21. The cavity 23 has a substantially circular cross section with the circle crossing or touching the rear surface of the rib 24 such that a rounded narrow entrance 25 is

formed, which entrance is narrower than the radius of the circle and wider than half the radius. The edges of the entrance 25 flare slightly. The cavity may be lined with a for example nylon or a metal, for example aluminium or stainless steel, lining, providing such rigidity that less (WPC) material is needed to form the siding element 20. The cavity 23 is adapted to receive one or a plurality of clips 26 adapted to be attached to the wall of the building (for example by screwing through a screw hole 27 in the body 28 of the clip). The clips 26 are formed to snap into the cavity 23 of the siding elements 20. For this purpose, the cross-section of the clips 26 is U- or C-shaped having curved elastic legs 29 formed on the body 28.

[0032] In the embodiment shown, the legs 29 are shaped like the segments of a circular ring which fit tightly against the wall of the cavity 23. The entrance of the cavity is shaped such (flared) that the legs 29 of the clip 26 are easily pushed toward each other to reduce the cross section of the clip 26 in order to move the legs 29 through the narrow entrance 27 until the widest part of the clip 26 has passed the entrance 27 and the clip 26 will snap into the cavity 23. Removing the clip 26 from the cavity 23 will require larger forces compared to the forces to push the legs 29 toward each other do not engage the legs near their free ends but near the body 28, so that the momentum on the legs 29 is much smaller and higher forces are needed to push the legs 29 toward each other. This means that mounting the siding elements 20 is easier than removing them. The distance between the free ends of the legs 29 should preferably be sufficient to allow inward bending of the legs 29 to be moved through the entrance 27 of the cavity 23.

[0033] Nonetheless, the system has a great advantage that the siding elements 20 are formed such that they allow individual removal. The only thing required for removal is pulling the respective siding element 20 off of the clip 26 or clips with which it is mounted to the wall and sliding and pivoting it away such that the strip 21 at the upper side of the siding element 20 is moved out of the recess 22 of the overhanging siding element 20. The strip 21 and/or recess 22 is shaped so as to allow such movement of the siding element 20, while the elasticity of the material of the siding elements 20 may also help. If a siding element 20 must be replaced, a new siding element will be placed the other way around, i.e. by moving the strip 21 into the recess 22 and then pressing the cavity 23 over the clip 26 or clips attached to the wall. The recess 22 at the lower side of the siding element 20 will then again cover the strip 21 of the underlying siding element 20. The upper siding element 20 will be mounted with its strip 21 in a recess of a special mounting element. This mounting element may also consist of a special siding element 20 comprising only the lower portion including the rib 24 (with cavity 23) and the material defining the recess 22.

[0034] The siding elements 20 may be a few meters long, while the clips 26 will generally be a few centimetres long, such as 30 mm. Clips 26 may be placed with a spacing of around 30 cm. Clips 26 may be grouped vertically, i.e. clips for siding elements 20 lying one above the other must be spaced regularly, and to guarantee a correct spacing clips 26 spaced in vertical direction may be interconnected for the total height or a part of the height of the respective wall. Of course, it is also conceivable to interconnect clips 26 in horizontal direction, and a combination of such interconnections would be possible as well.

[0035] Fig. 14 shows a second embodiment of the siding system. The clip 26 is equal to that of the former embodiment, but the siding element 20 is different in shape, especially the internal shape thereof. The siding element 20 is again made by extrusion of plastic containing material like WPC, but now the rib 23 and the strip 21 are connected by a back wall 30. Several cavities 31 are formed internally of the siding element to save material and avoid formation of large material concentrations which would lead to uneven cooling and resulting deformation or internal stresses after extrusion. However, this siding element 20 may also be made solid, i.e. without cavities 31.

[0036] The front side of the siding element will generally have a wood imitating surface, i.e. colour and/or texture, but of course, other designs are conceivable, for example to imitate brickwork.

[0037] The invention is not limited to the embodiments described above and shown in the drawings which may be varied in different manners within the scope of the appended claims. For example, it is possible to form the pins on the panel holding elements which are inserted in the desired angular position into cavities of the panels during assembly of the fence. The panel holding elements and panels will generally be designed to obtain at least three different angular positions of the panels, but four, six, eight, twelve etc. positions are possible as well. In stead of discrete angular positions, it is in principle also possible to have a system of continuous individual variation of the angular positions of the various panels with a locking member, for example a locking screw locking a round pin in a round hole, to lock the panel in the desired position, but normally such continuous variation will not be required. Panel holding elements may be combined to obtain one or a few panel holding elements for all panels attached to one side of the upright. If individual panel holding elements are used, the height thereof may be different (smaller) to obtain an overlap of panels if they are positioned at an angle different from vertical.

Claims

1. Fence including at least two uprights and a plurality of panels extending one above the other substantially horizontally between the uprights, the uprights containing a longitudinal recess receiving panel holding elements each being adapted to hold and fix one or more panels in any of several angular posi-

tions.

2. Fence according to claim 1, wherein the panels and holding elements include a pin-hole connection.

3. Fence according to claim 2, wherein the pins and holes have a fitting polygonal cross section.

4. Fence according to claim 2 or 3, wherein the pins are attached to the panels.

5. Fence according to claim 4, wherein the panels being extruded from plastic containing material, such as WPC, each panel may have a longitudinal cavity therein adapted to receive a rod protruding from at least one and preferably from both ends of the panel to form said pins.

6. Fence according to claim 5, wherein the rod is made from aluminium, which is preferably extruded.

7. Fence according to claim 5 or 6, wherein the rod is hollow and comprises at least one rib extending substantially perpendicularly to the main plane of the respective panel.

8. Fence according to claim 4, wherein each pin is part of an insert attached to one of the ends of the panels.

9. Fence according to one claims 4 - 8, wherein the holding elements each have a main body and a sleeve-like protrusion, the hole extending through the main body and the sleeve-like protrusion.

10. Fence according to any of the preceding claims, wherein at least one of the panels, preferably the upper panel, is secured to the opposite uprights so as to resist pulling forces.

11. Kit for building a fence, comprising at least two uprights including a longitudinal recess, a plurality of panels extruded from plastic containing material and having two ends, each panel having a longitudinal cavity between the two ends and receiving therein a bending resistant rod protruding from both ends of the respective panel to form pins, and holding elements fitting into the longitudinal recess and each adapted to receive one of the pins of one of the panels.

12. Siding system for a building, comprising a plurality of panel-like siding elements having an upper and lower side as well as a front and back side, the upper side being strip-shaped extending at the back side of the siding element, the lower side having a recess adapted to receive the strip-shaped upper side, the back side of the siding elements being provided with at least one cavity between the upper and lower sides, and a plurality of clips adapted to be attached to the building and formed to snap into the cavity of the siding elements.

13. Siding system according to claim 12, wherein the cross-section of the clips is U-shaped having curved elastic legs, the cavity in the siding elements having a narrow entrance to allow snapping-in of the clips and to hold the clips.

14. Siding system according to claim 13, wherein the legs of the U-shaped clips are shaped like the segments of a circular ring.

15. Siding system according to any of claims 12 - 14, wherein the siding elements are extruded from plastic containing material.

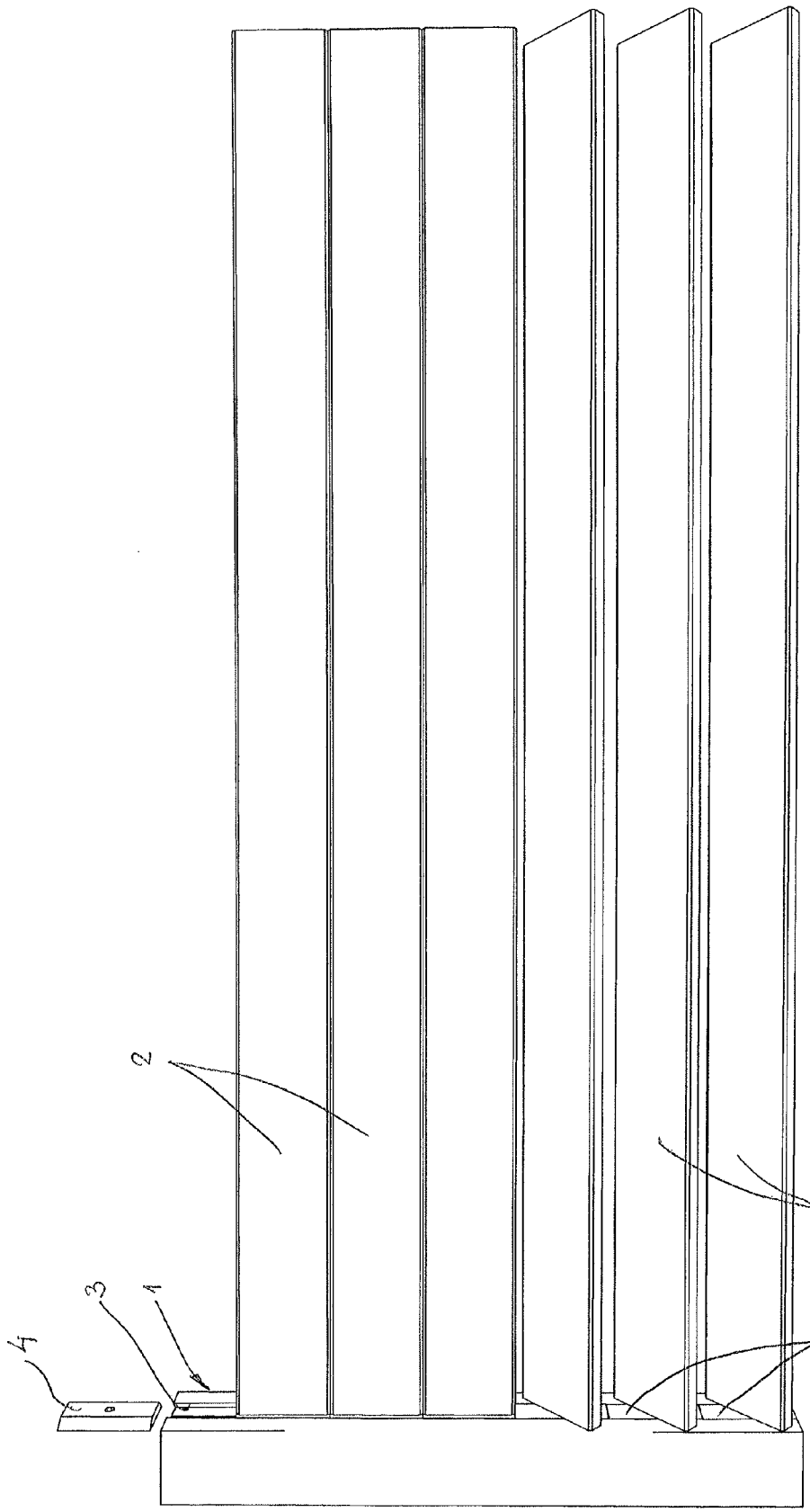

Fig. 1

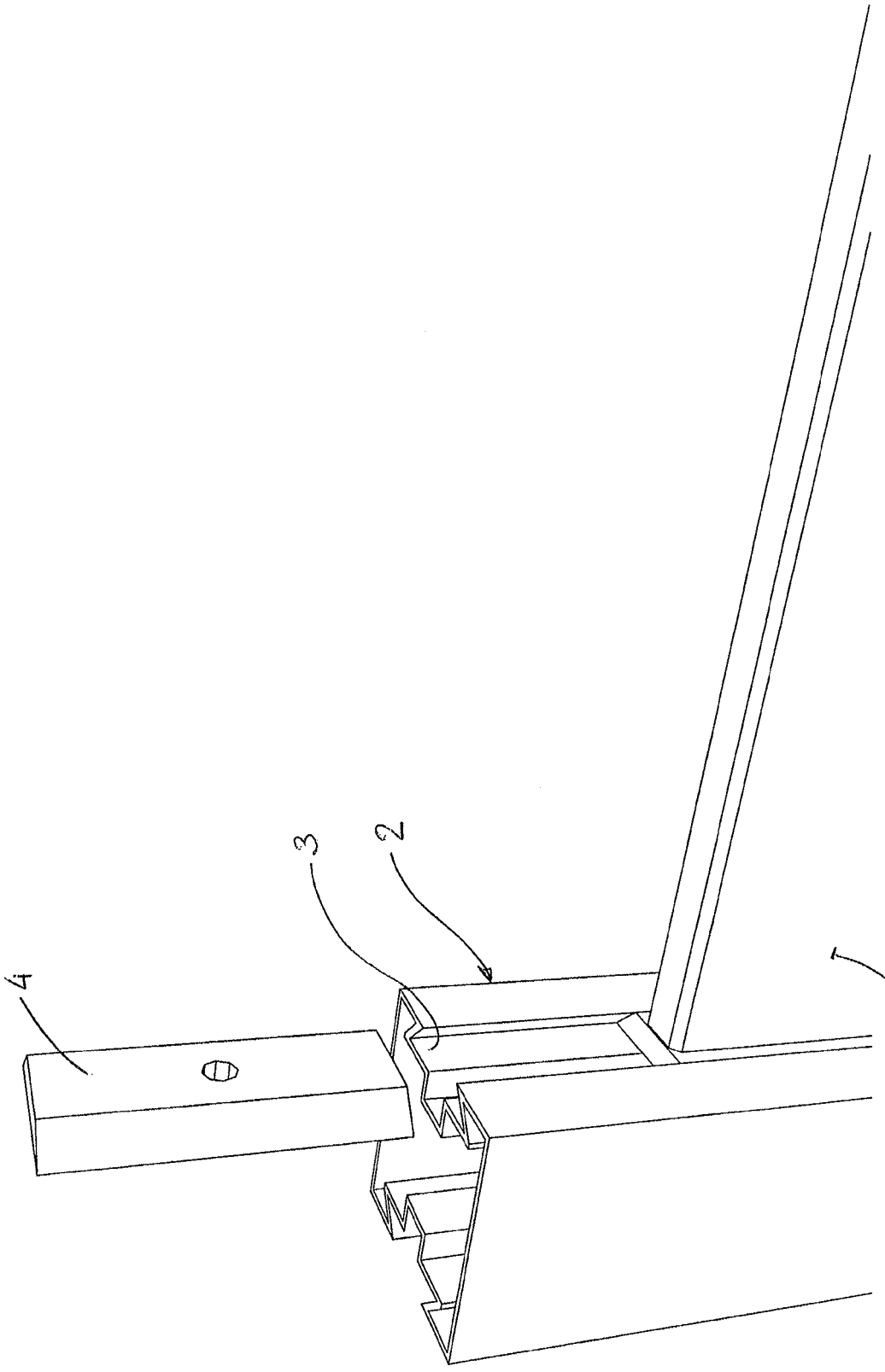

Fig. 2

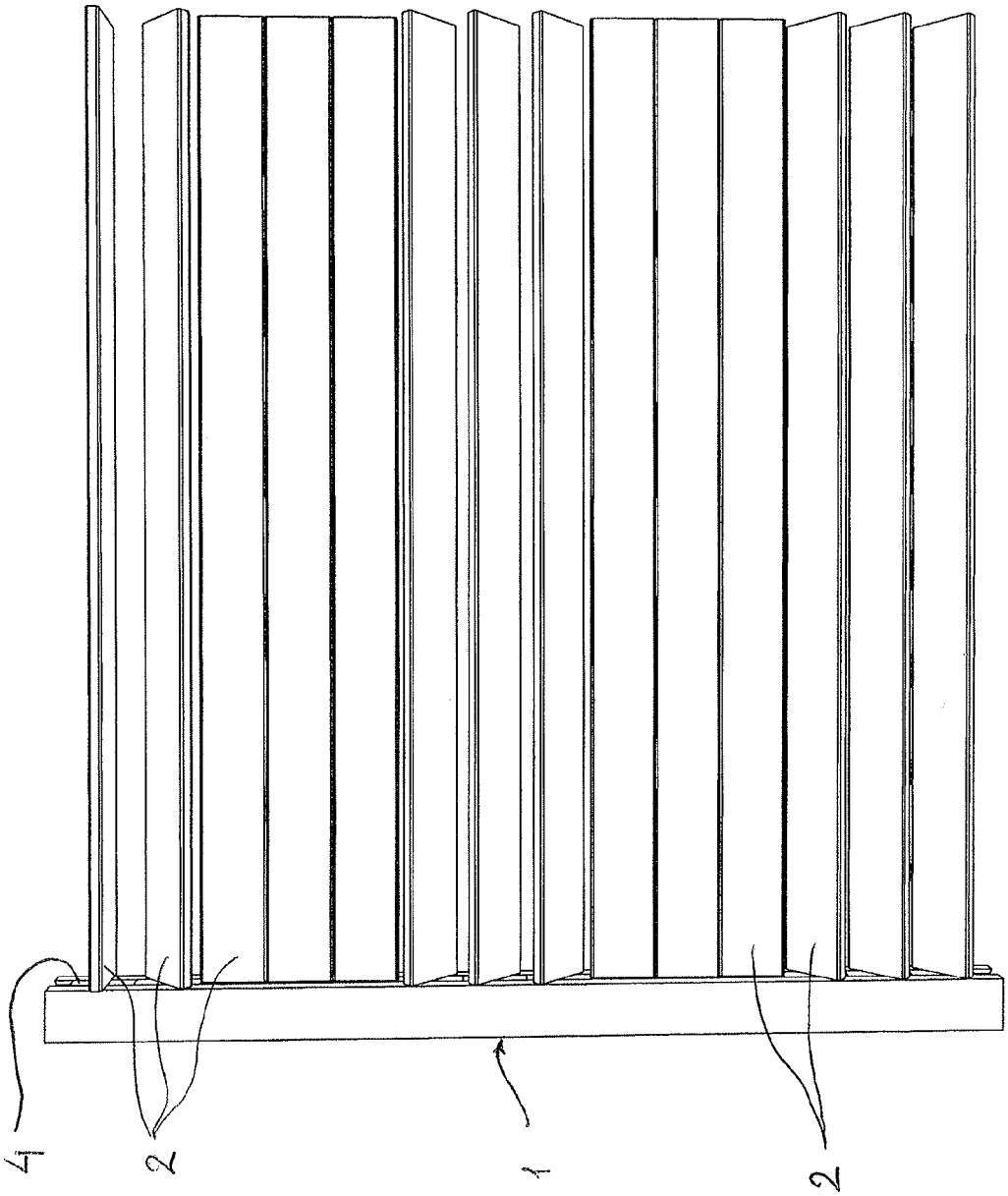

Fig. 3

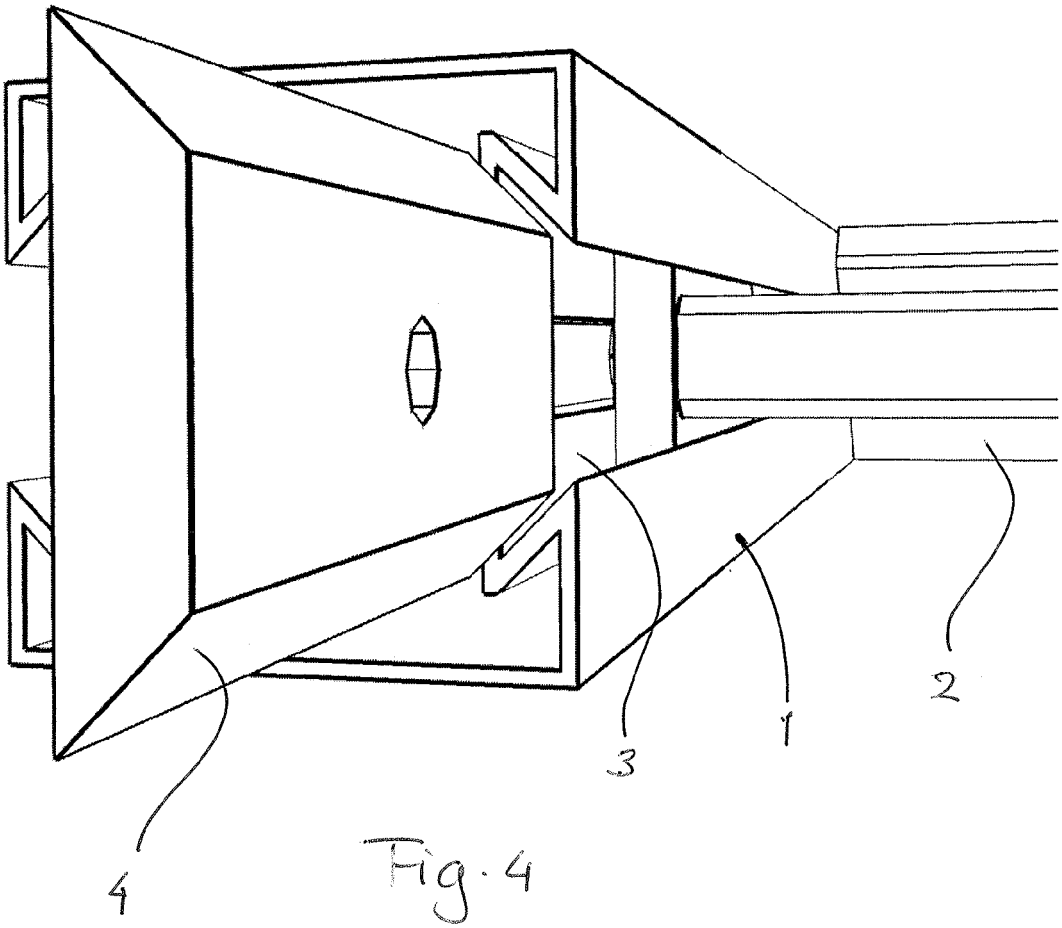

Fig. 4

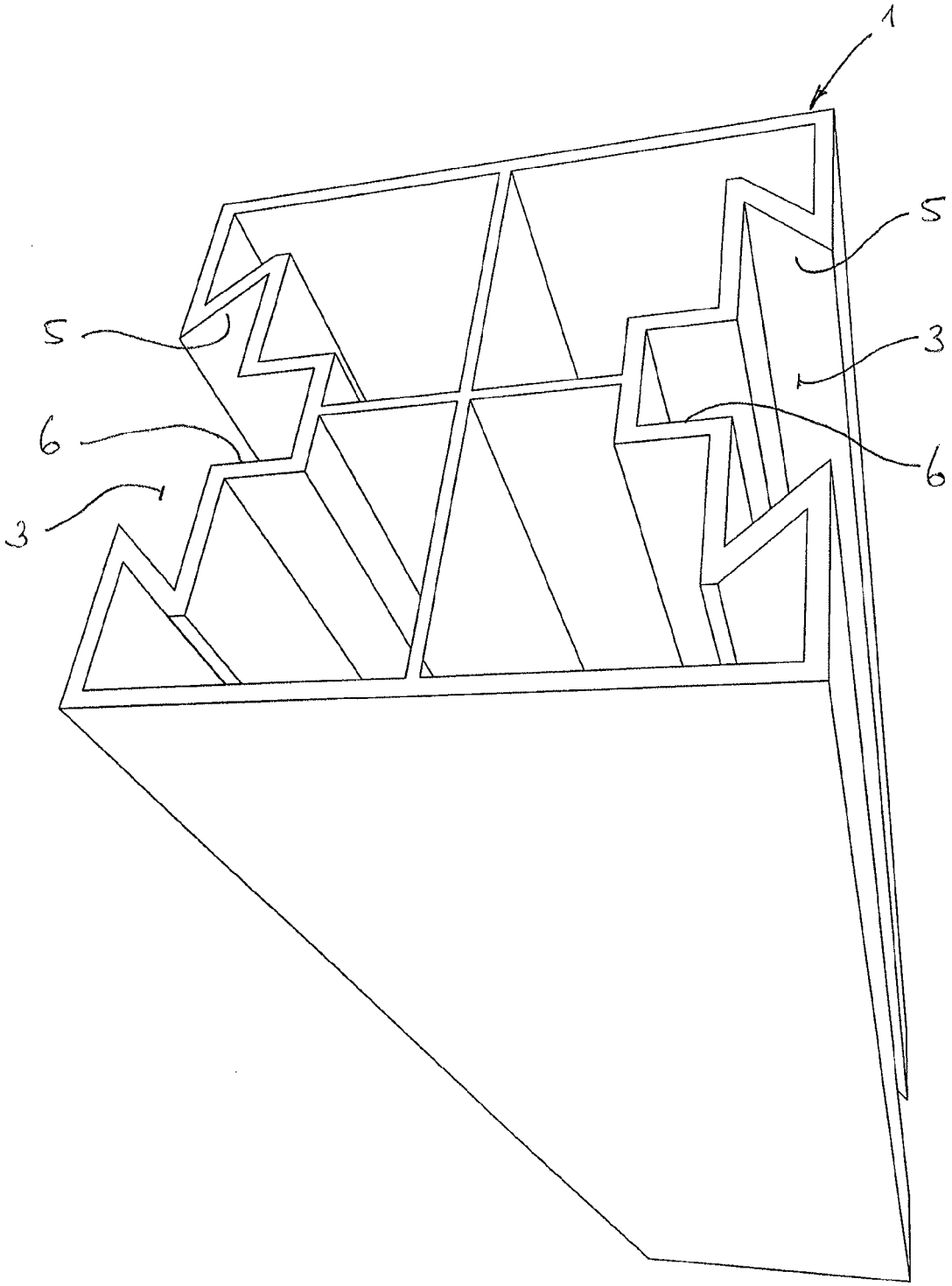

Fig. 5

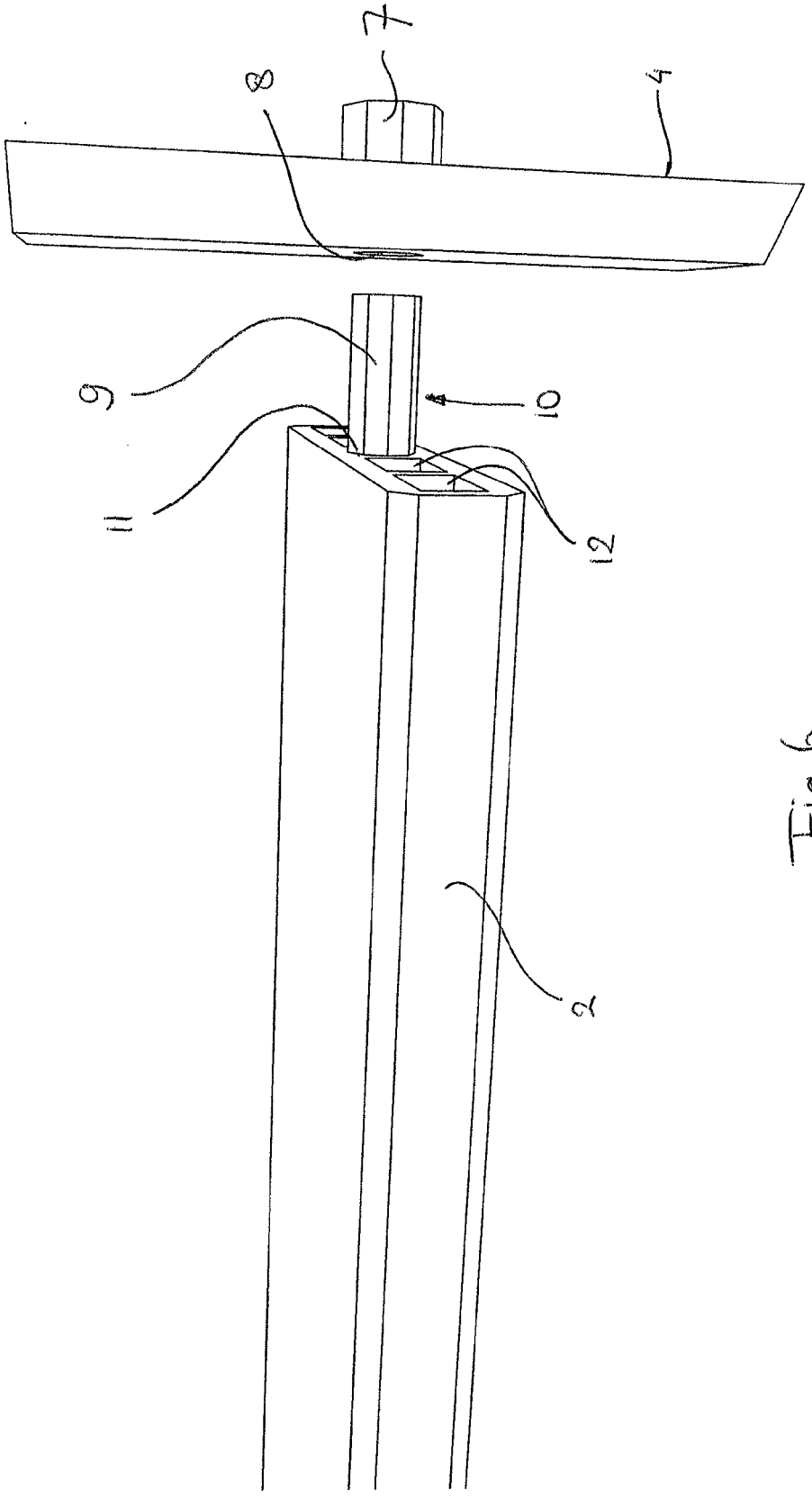

Fig. 6

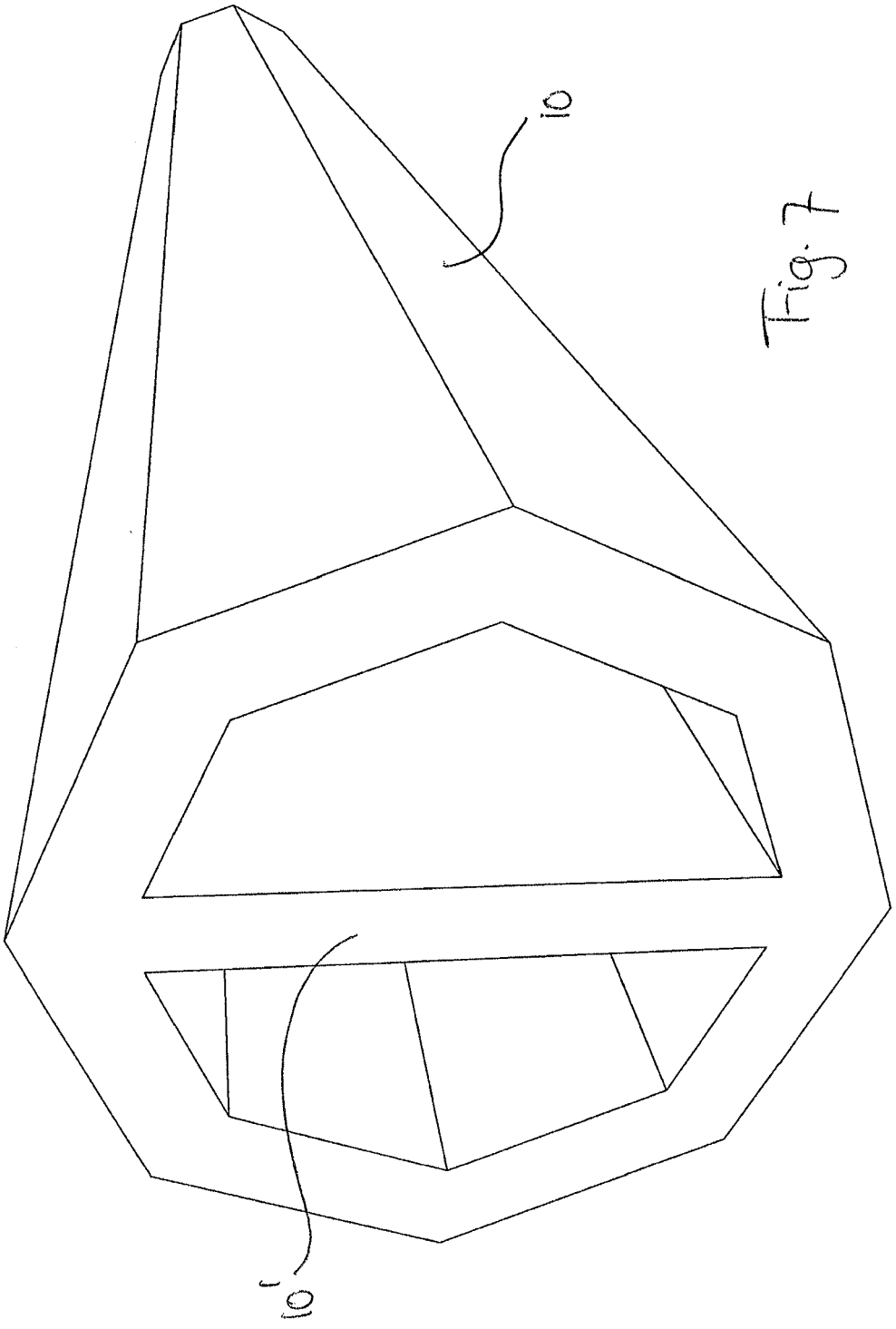

Fig. 7

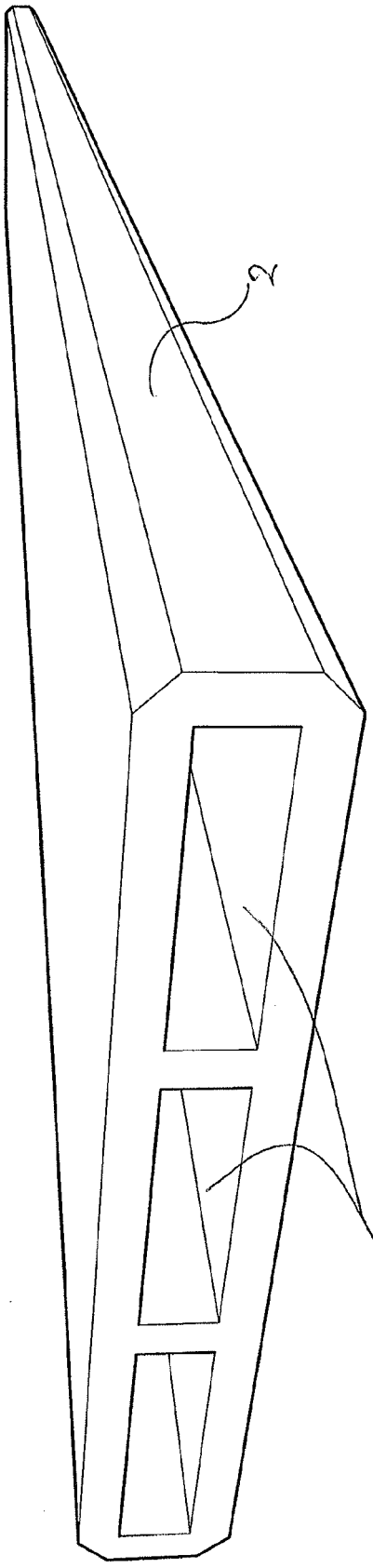

Fig. 8

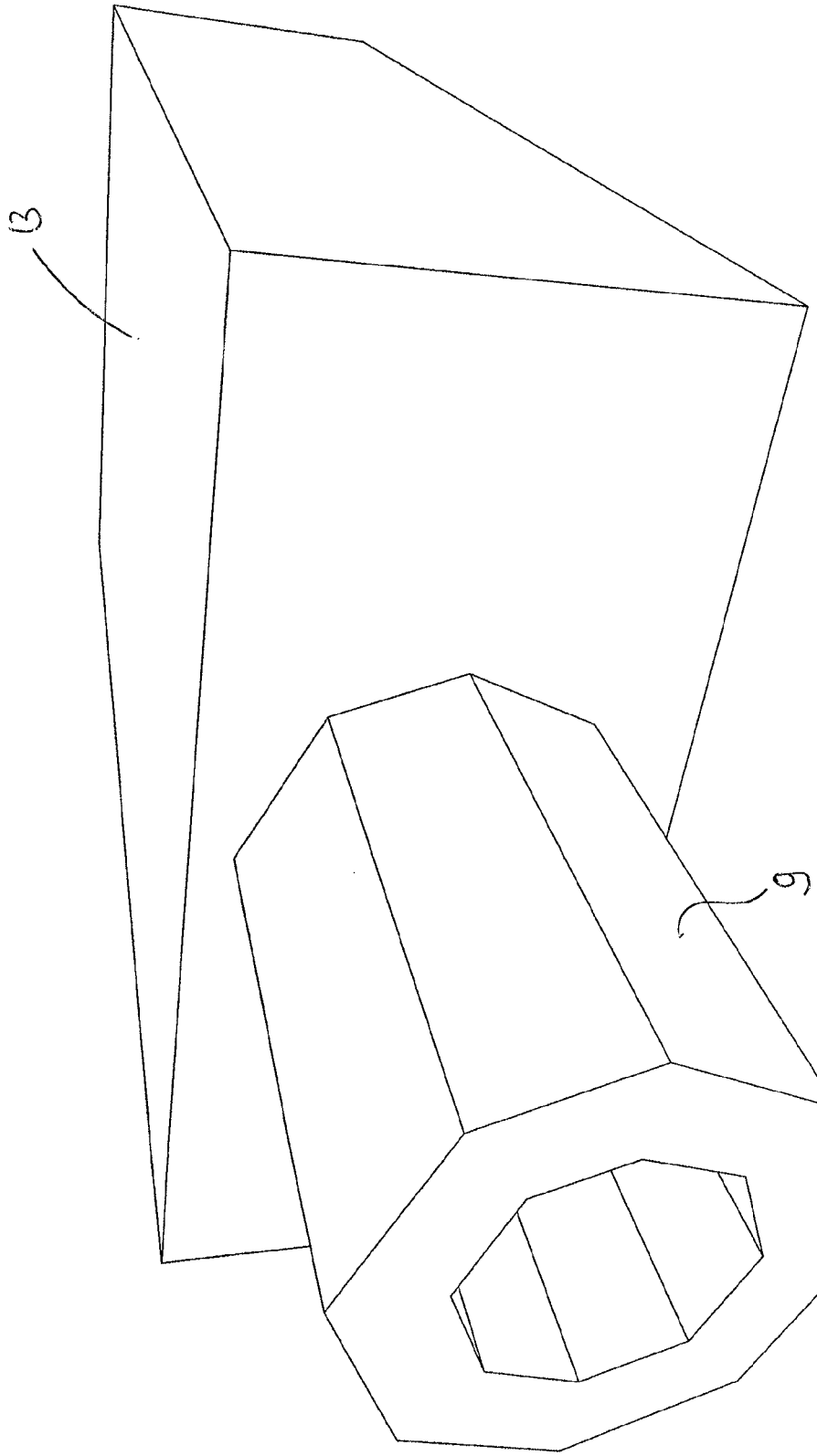

Fig. 9

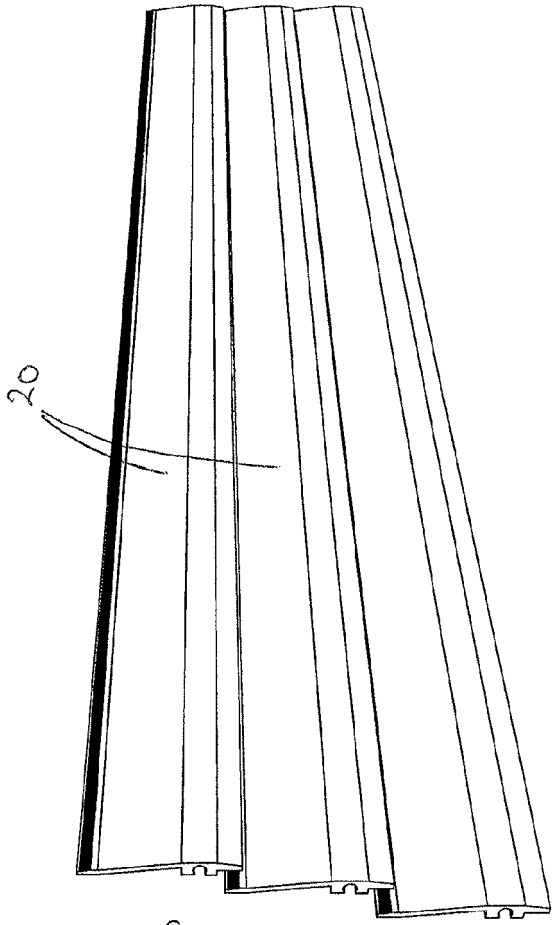

Fig. 11

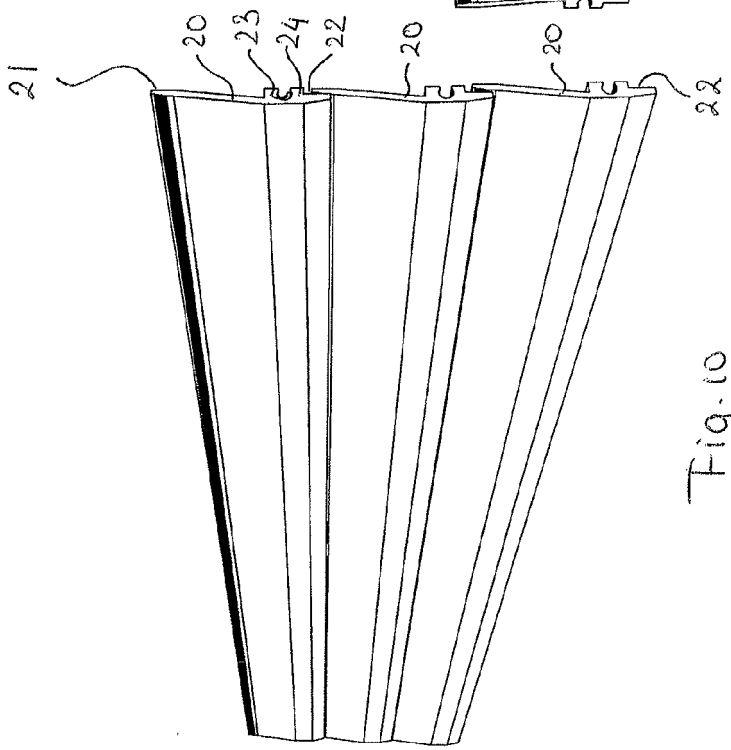

Fig. 10

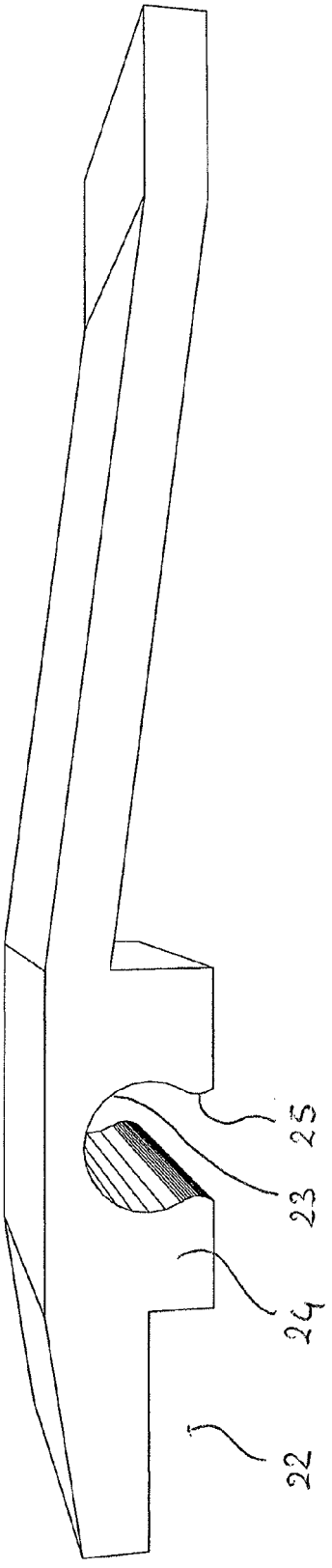

Fig. 12

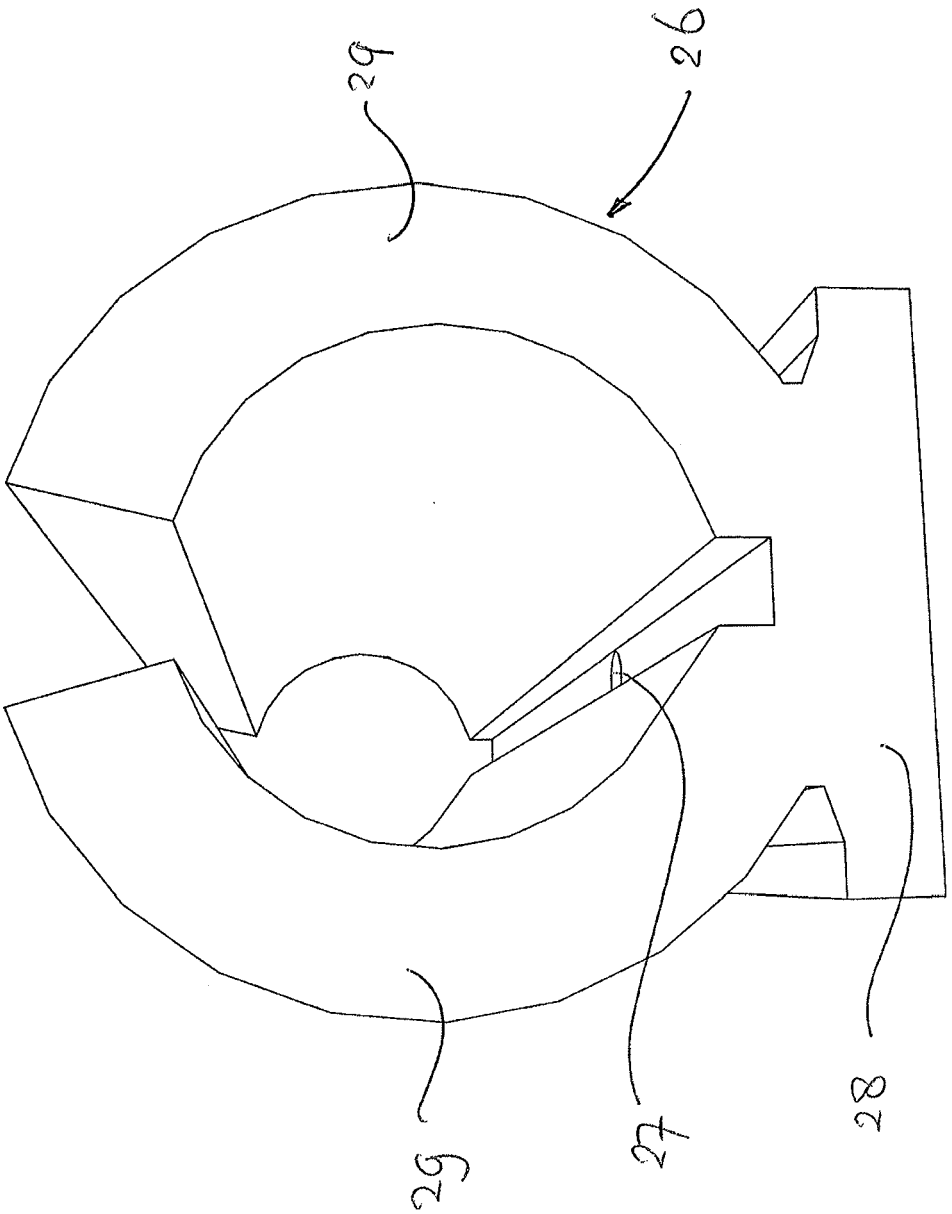

Fig. 13

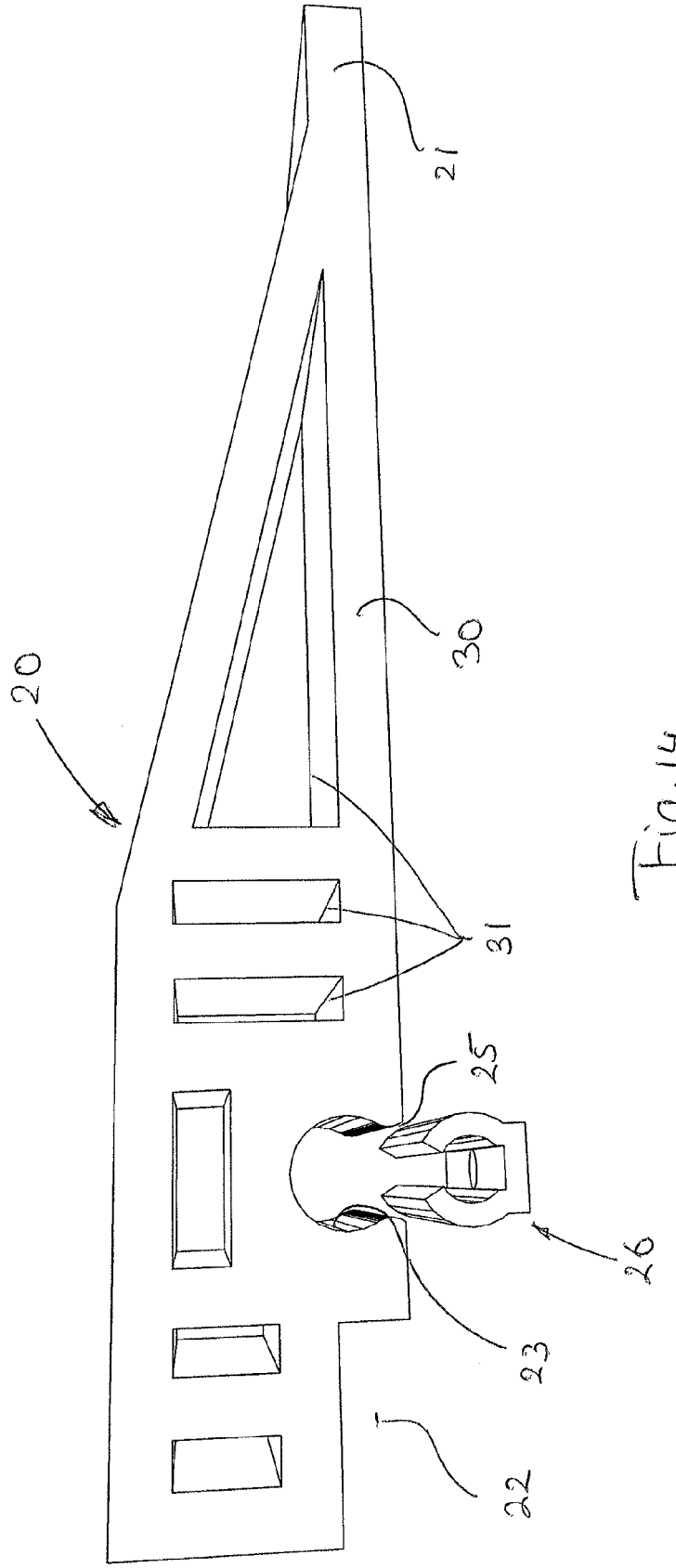

Fig. 14

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EUROPEAN SEARCH REPORT

Application Number
EP 13 15 7605

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y,D	DE 20 2004 019223 U1 (WINTER ALEXANDER [DE]) 21 April 2005 (2005-04-21)	11	ADD.
A	* paragraphs [0003], [0014]; claim 1; figures 1,2 *	1-10	E04H17/14
A	DE 203 18 668 U1 (AEHLIG WOLFGANG [DE]; AEHLIG MARINA [DE]) 19 February 2004 (2004-02-19) * paragraph [0025]; claim 1; figures 1,2,3 *	1-10	
Y	US 4 160 343 A (HUBBARD JUNIUS P) 10 July 1979 (1979-07-10) * column 3, lines 61-67; figures 1,2,4 *	11	
A	GB 2 241 000 A (BAKER JOHN BAKER JOHN [GB]) 21 August 1991 (1991-08-21) * page 2, lines 25-27; figures 4,5 *	11	

TECHNICAL FIELDS SEARCHED (IPC)

E04H

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	22 August 2013	Rosborough, John

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

see additional sheet(s)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-11

A fence including at least two uprights and a plurality of horizontally arranged panels, the panels being fixable in the uprights (Claims 1-11).

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2. claims: 12-15

A siding system for a building, comprising a plurality of panel-like siding elements attachable to the building by a plurality of clips.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 15 7605

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-08-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202004019223 U1	21-04-2005	NONE	
DE 20318668 U1	19-02-2004	NONE	
US 4160343 A	10-07-1979	NONE	
GB 2241000 A	21-08-1991	NONE	

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2010125391 A **[0002]**
- WO 2007140516 A **[0002]**
- DE 202004019223 U1 **[0002]**