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(54) Fastening system comprising metal blinds and a metal plate

(57) The object of this invention is a fastening system comprising metal blinds among the fastening systems used in business premises, offices and similar that use metal plates together with additional pieces as fundamental parts. This invention features the special configuration of the pieces in the fastening system and the interaction between them such that an effective fastening is obtained which prevents the blind from being raised even when tampered with. The fastening system has a metal plate containing a series of holes into which studs are fixed and protruding metal rods housed in holes in the metal blind.

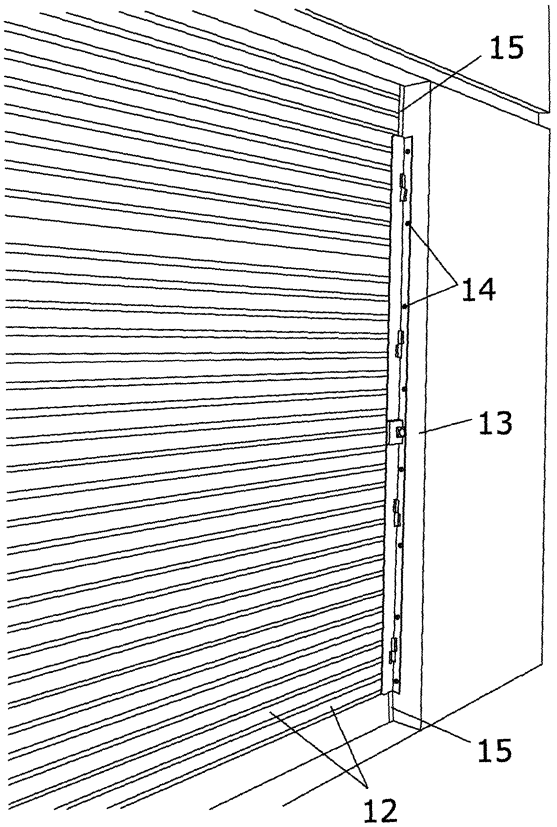

FIG.5

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Description

OBJECT OF THE INVENTION

[0001] The object of this invention is a system for fastening metal blinds among the fastening systems used in business premises, offices and similar that use metal plates together with additional pieces as fundamental parts.

[0002] This invention features the special configuration of the pieces in the fastening system and the interaction between them such that an effective fastening is obtained which prevents the blind from being raised even when tampered with.

[0003] The fastening system has a metal plate containing a series of holes into which studs are fixed and protruding metal rods housed in holes in the metal blind.

BACKGROUND TO THE INVENTION

[0004] Until now, fastening systems for metal blinds have the disadvantage that if the system for fastening using a horizontal cut over the lock is tampered with, the blind can be raised from the cut upward, allowing the entry of light and thus providing a view of the interior and exterior of the premises.

[0005] Because of all this, the object of this invention is to develop a fastening system for metal blinds that forms a protective system and if broken, prevents the blind from being raised and therefore the entry of light to the interior of the premises.

DESCRIPTION OF THE INVENTION

[0006] The fastening system that forms the subject of the invention is a metal plate that works together with a series of studs.

[0007] The metal plates have holes through which the end of a stud passes. The plates also have a series of protruding metal rods, arranged uniformly, that engage in corresponding holes in the blind.

[0008] In a first configuration, the holes in the metal plates align with those in the metal blind so that a stud passes through both.

[0009] The layout of the holes and of the end of the stud passing through them works so that once the stud is fixed by a padlock, it cannot be extracted.

[0010] The high security padlock is fixed to one of the ends of the stud using a hole in the stud.

[0011] The holes in the metal plate are the frontal projection of the end of the stud passing through them. Once the stud has passed through the holes in the plate and in the blinds, it is turned through 90° and blocked using the padlock.

[0012] Given the closeness of the padlock to the wall, it is impossible to rotate the padlock and stud together, so that the stud cannot be removed. To strengthen the impossibility of rotating the stud and padlock, the metal plate has protruding wedges that prevent this action.

[0013] As a means of reinforcement, the metal plate also has a series of regularly arranged protruding metal rods that are placed to match holes in the metal blind so that during the installation process they lodge in the holes.

[0014] As an additional improvement, in order to avoid having to fit the metal plate to the blind each time it is closed, the metal plate is provided with hinges as a means of fixing it to the wall with hinges.

[0015] This fastening system for metal blinds is preferably used in blinds in which the guide protrudes from the façade since they are systems for installation passing through the guide and blind at the same time. If there is no guide to be passed through, the fastening system functions in the same way but is less safe.

[0016] To continue to develop fastening systems for metal blinds, there is another method using the special layout of various pieces that make up the fastening system: an angular piece of a length that matches that of the blind of metal vanes to which is welded a hexahedron with a hole drilled in the centre of its length and inside its vanes and semi-pieces of the hinge arranged along this angular piece, as shown, in sufficient number as to prevent the unwanted rotation of two bars housed in the inside angle of the angular piece and aligned consecutively as well as spacers between it and the hexahedron to allow them to rotate.

[0017] For this, these two bars in turn have the remaining semi-pieces of the hinge welded to them, this bar being previously fitted to prevent contact with the semi-hinge welded to the inside of the angular piece.

[0018] There is also a series of spigots inserted in holes for aligning the vanes near to their ends throughout the length of the blind so that the angular piece is joined by one of its wings to a fixed part of the building, such as the wall.

[0019] In this case, the wing next to it is fixed to the wall with conical-headed bolts that allow the full rotation of the bar inside the angular piece while the other wing of the angular piece fits into the blind guide in its external wing.

[0020] This special construction of the assembly allows the shaft of a conventional prismatic padlock to pass through the hole in the hexahedron, fixing the bars both at this end and by the hinges, up to the limit of protection provided by the farthest hexahedron, thus making the fastening tamperproof.

[0021] Another development of the invention is the special layout of various pieces forming the fastening system: a double metal plate of the same length as that of the blind of metal vanes, such that the outer side of both has a drilled hexahedron welded to it in its centre and semi-pieces of hinges overlapping and welded to this upper bar, in sufficient number so as to prevent the unwanted rotation of the two bars, which are longitudinally symmetrical and with central gaps that separate them from the hexahedron, allowing them to rotate.

These two smaller bars therefore have the other semi-pieces of the hinge welded to them in turn.

[0022] These smaller bars are also fitted with a series of spigots inserted in holes for doubly aligning the vanes near their opposite ends and in a co-planar layout and that can reach the full length of the blind so that the external metal plate on which they hinge is bolted to another, equal metal plate inside the central guide in the pillar between both blinds.

[0023] This special construction of the assembly allows the shaft of a conventional prismatic padlock to pass through the hole in the hexahedron, fixing the metal plates both by this end and by the hinges up to the limit of protection provided by the farthest hexahedron, thus making the fastening tamperproof.

DESCRIPTION OF DRAWINGS

[0024] This description is complemented with a set of plans illustrating the preferred example and not limiting the invention.

Figure 1. Shows front and side perspective views of the metal plate used.

Figure 2. Shows a perspective view of the metal stud used in the system for fastening metal blinds.

Figure 3. Shows perspective and front views of the metal plate used when fixed to one of the walls where the blind guide is located.

Figure 4. Shows a perspective view and cross-section of the assembly in the case of an angular piece.

Figure 5. Shows the angular security system installed in a closed blind.

Figure 6. Shows a perspective view and cross-section of the assembly with the hinged bars at the start of closing position in the case of two metal plates.

Figure 7. Shows the security system installed in a closed double blind.

PREFERRED UNDERTAKING OF THE INVENTION

[0025] Given the figures mentioned above, the following describes a preferred undertaking of the invention and an explanation of the drawings.

[0026] Figure 1 shows the metal plate (1). The metal plate (1) has a rectangular shape and a series of holes (2) through which a stud (4) can pass (see Figure 2).

[0027] The metal plate (1) has a series of rods (3) welded to the metal plate. These rods are located on the face nearest the metal blind and prevent any movement of the assembly itself, giving it greater rigidity.

[0028] To achieve the above, the metal blind has a series of holes matching the protruding metal rods (3) on the metal plate so that the rods (3) fit into the holes.

[0029] Once fixed, the stud/padlock assembly is prevented from rotating by the nearness of the wall and by wedges (8) protruding outwards from the metal plate that prevent the assembly from rotating.

[0030] Figure 2 shows the stud (4) used with a protruding rod (4.2) on the free end of which are spigots (4.3) arranged transversely. It also has a hole (4.1) through which the padlock passes.

[0031] The layout of the holes (2) matches the frontal projection of the end of the stud (4) that passes through it.

[0032] Once the stud is inserted in the holes (2) in the metal plate (1) and the matching ones in the metal blind, it rotates and a padlock is fitted to the hole (4.1). Given the closeness of the padlock to the wall, it is impossible to rotate the stud and free the assembly. This situation is reinforced by the layout of the protruding wedges (8) mentioned earlier that prevent the rotation of the padlock/stud assembly.

[0033] In order to have to continuously fit and remove the metal plate whenever the blind is opened and closed, the plate has been modified, providing a hinged plate (5) as shown in Figure 3.

[0034] This hinged plate (3) has a series of hinges (6) arranged regularly to match housings (5.1) to facilitate the folding of the plate (5).

[0035] Equally, the plate has a series of protruding metal rods (7) that fit into holes in the metal blind. It also has protruding wedges (8) that prevent the rotation of the padlock/stud assembly once fixed.

[0036] To continue to develop fastening systems for metal blinds, there is another method using the special layout of various pieces that make up the fastening system featuring an angular piece (9) to which is welded a hexahedron (10) with a hole (10.1) for the insertion of a prismatic padlock (not shown) and consecutive aligned semi-hinges and two metal plates (11) which in turn have other complementary semi-hinges welded to them, with these previously-fitted metal plates (11) free of contact with the angular piece (9) during its rotation through 90°.

[0037] The metal plates (11) have a series of spigots (11.1) that are inserted in the vanes (12) so that the angular piece (9) is joined to a fixed part (13) of the building with conical-headed bolts (14) and fixed to the blind guide (15).

[0038] Another development of the invention has a double metal plate (16 and 17) so that the metal plate (16) has a hexahedron (18) with a hole (18.1) welded to it and semi-pieces of hinges of a sufficient number to prevent the unwanted rotation of two longitudinally symmetrical bars (19) to which the other semi-pieces of the hinges are welded and which have central gaps (19.1) that separate them from the hexahedron (18) and a series of spigots (19.2) passing through a series of gaps (16.1, 17.1) opposite the metal plates (16, 17) so that these metal plates (16, 17) are bolted together, leaving the central guide (20) in the pillar of both blinds in the middle.

[0039] The nature of this invention is not changed by variations in materials, shape, size and layout of its component parts and requires only its reproduction by an expert.

Claims

1. System for fastening metal blinds using a metal plate as used in business premises, offices and similar, **characterised in that** the system comprised a metal plate that works in collaboration with studs, the metal plate having holes in it through which the end of the stud passes, and with a series of protruding metal rods arranged regularly that engage in matching holes in the blind.

2. System for fastening metal blinds using a metal plate, as in claim 1, **characterised in that** there are holes in the metal blind matching the holes (2) in the metal plates (1).

3. System for fastening metal blinds using a metal plate, as in claim 1, **characterised in that** the stud (4) used in the fastening has a protruding rod (4.2) at one of its ends, the free end of which has spigots (4.3) arranged transversely while the stud at its other end has a hole (4.1) in it for fixing a padlock.

4. System for fastening metal blinds using a metal plate, as in the above claims, **characterised in that** the geometry of the hole (2) in the metal plate (1) matches the projection of the end of the stud (4) that passes through said hole.

5. System for fastening metal blinds using a metal plate, as in claim 3, **characterised in that** the metal plates (1) have lateral protruding wedges (8) that prevent the rotation of the stud (4).

6. System for fastening metal blinds using a metal plate, as in claim 1, **characterised in that** the metal plate (5) is hinged, being fixed to the wall by hinges (6) fixed to the metal plate itself (5), the metal plate (5) containing housings (5.1) where the hinges are fixed to allow the folding of the metal plate (5).

7. System for fastening metal blinds using a metal plate, as in any of the above claims, **characterised in that** the claimed fastening system in the case of metal blinds in which the guide protrudes from the façade are systems that pass through the blind and the guide simultaneously.

8. System for fastening metal blinds using a metal plate, as in claim 1, **characterised in that** there is an angular piece (9) to which a hexahedron (10) is welded, with a drilling (10.1) for a padlock as well as consecutive aligned semi-hinges (10.2) and two bars (11) to which in turn other complementary semi-hinges are welded, these bars (11) being previously engaged, freed of contact with the angular piece (9) in its rotation through 90° and equipped with a series of spigots (11.1) for insertion into the vanes (12).

9. System for fastening metal blinds using a metal plate, as in claim 8, **characterised in that** the angular piece (9) is joined to a fixed part (13) of the building with conical-headed bolts (14) and next to the blind guide (15).

10. System for fastening metal blinds using a metal plate, as in claim 1, **characterised by** a double metal plate (16 and 17) such that the plate (16) has a central hexahedron (18) welded to it with a drilling (18.1) and various semi-hinges while two symmetrical longitudinal bars (19) have the other semi-hinges welded to them and have central gaps (19.1) that separate them from the hexahedron (18) and have a series of spigots (19.2) passing through several gaps (16.1, 17.1) opposite the metal plates (16, 17), in which these metal plates (16, 17) are bolted together leaving the central guide (20) in the pillar between the blinds in the middle.

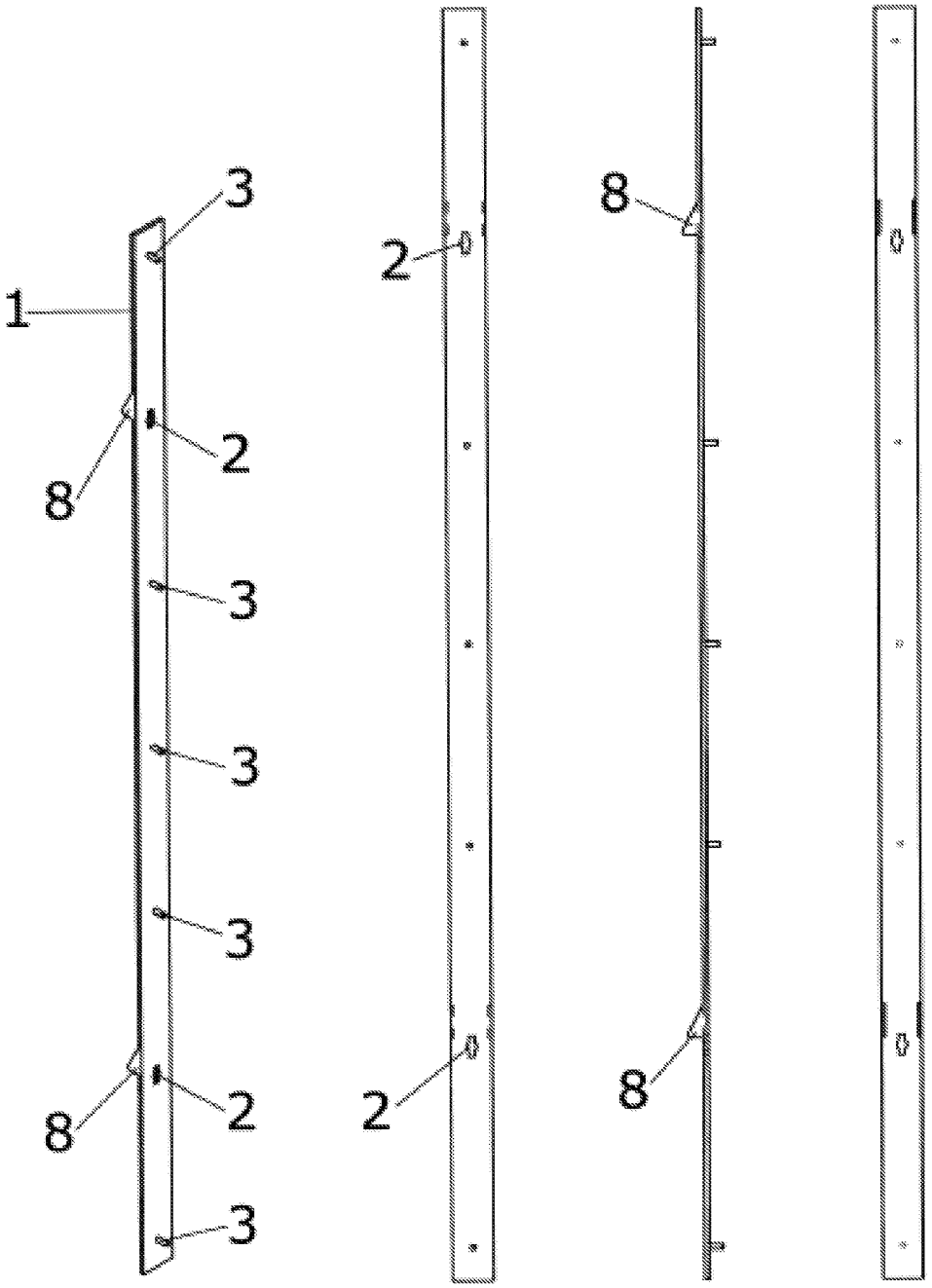
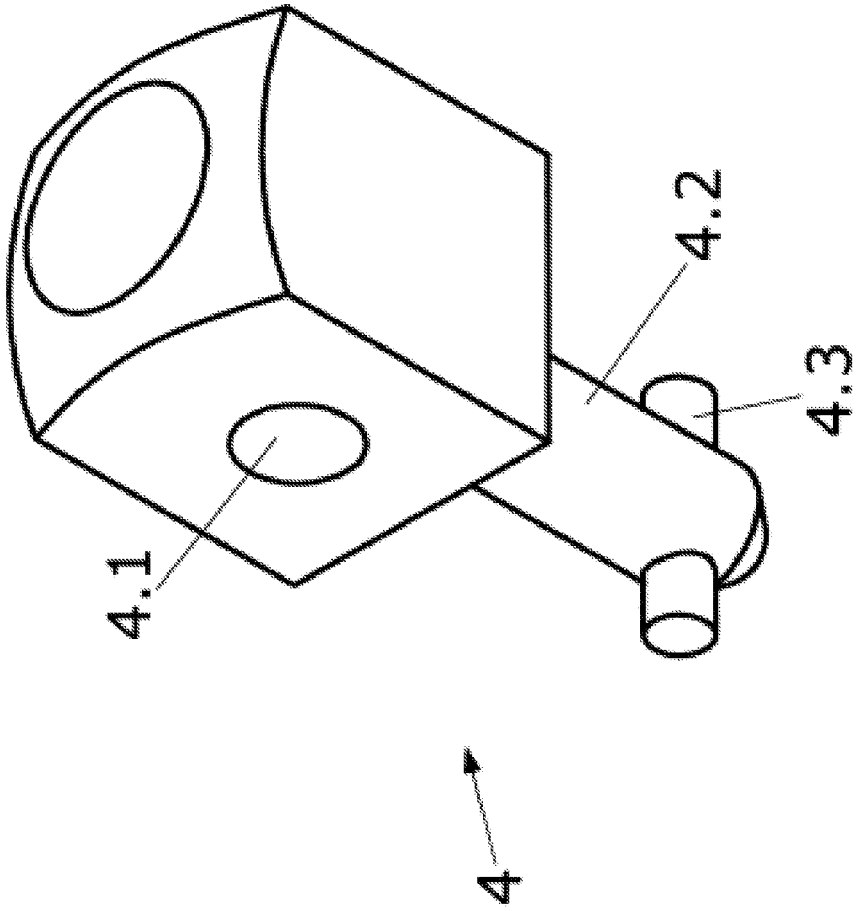


FIG. 1

FIG. 2



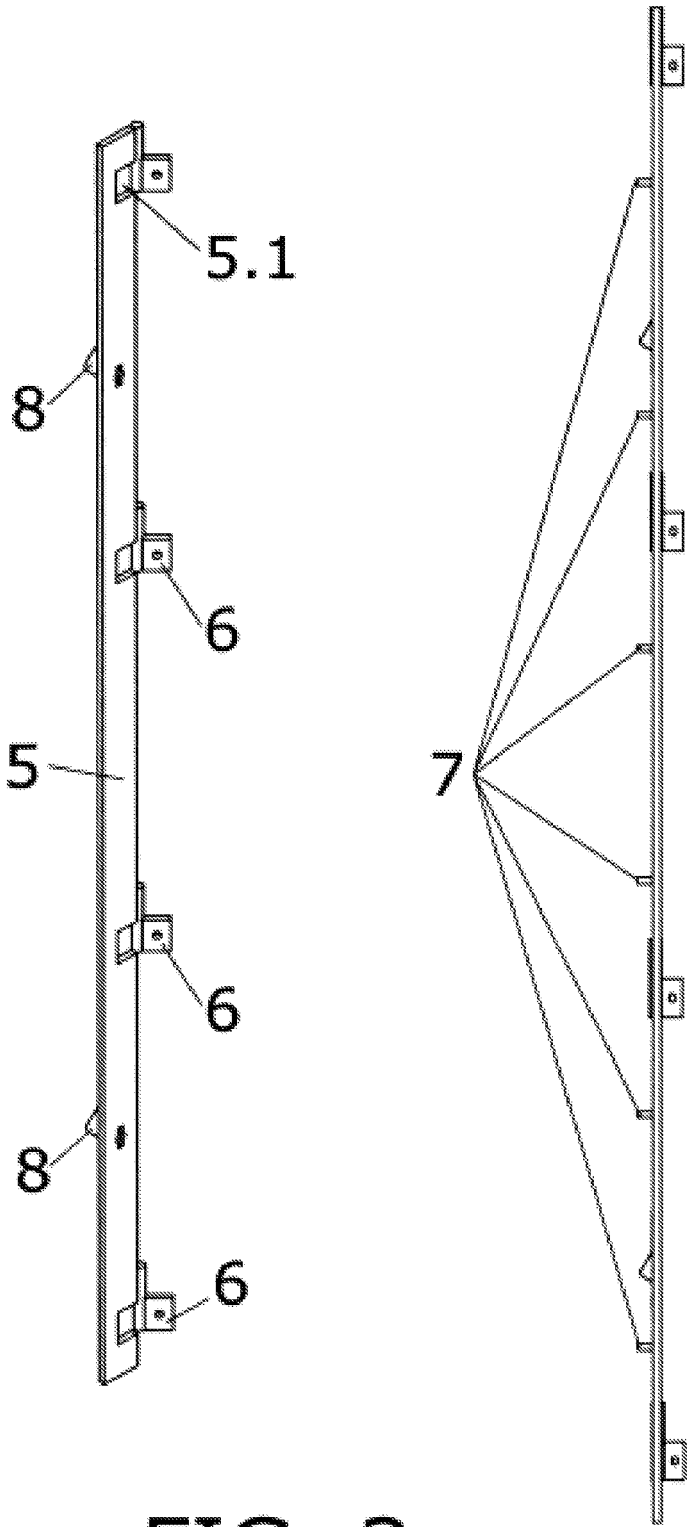


FIG. 3

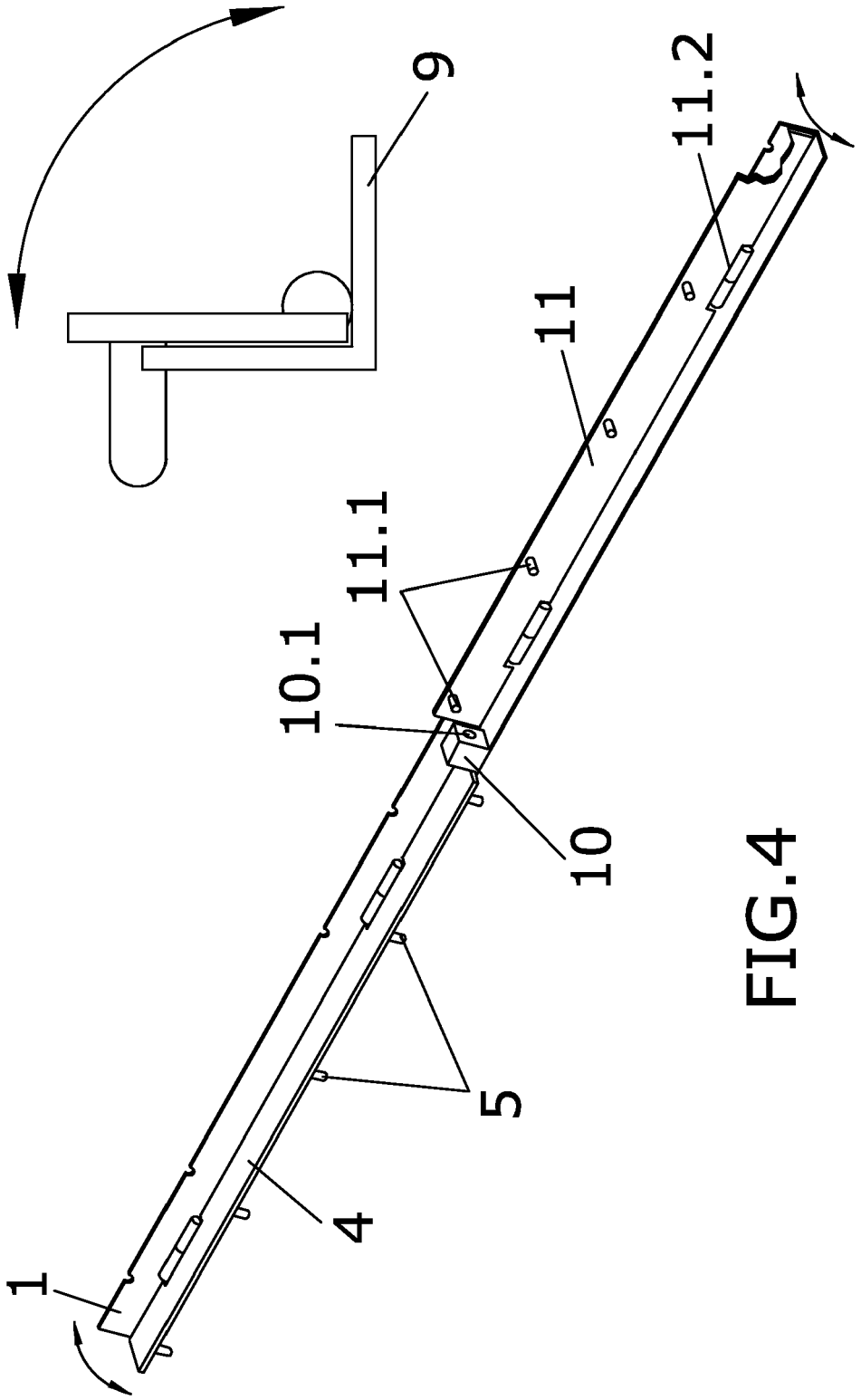


FIG.4

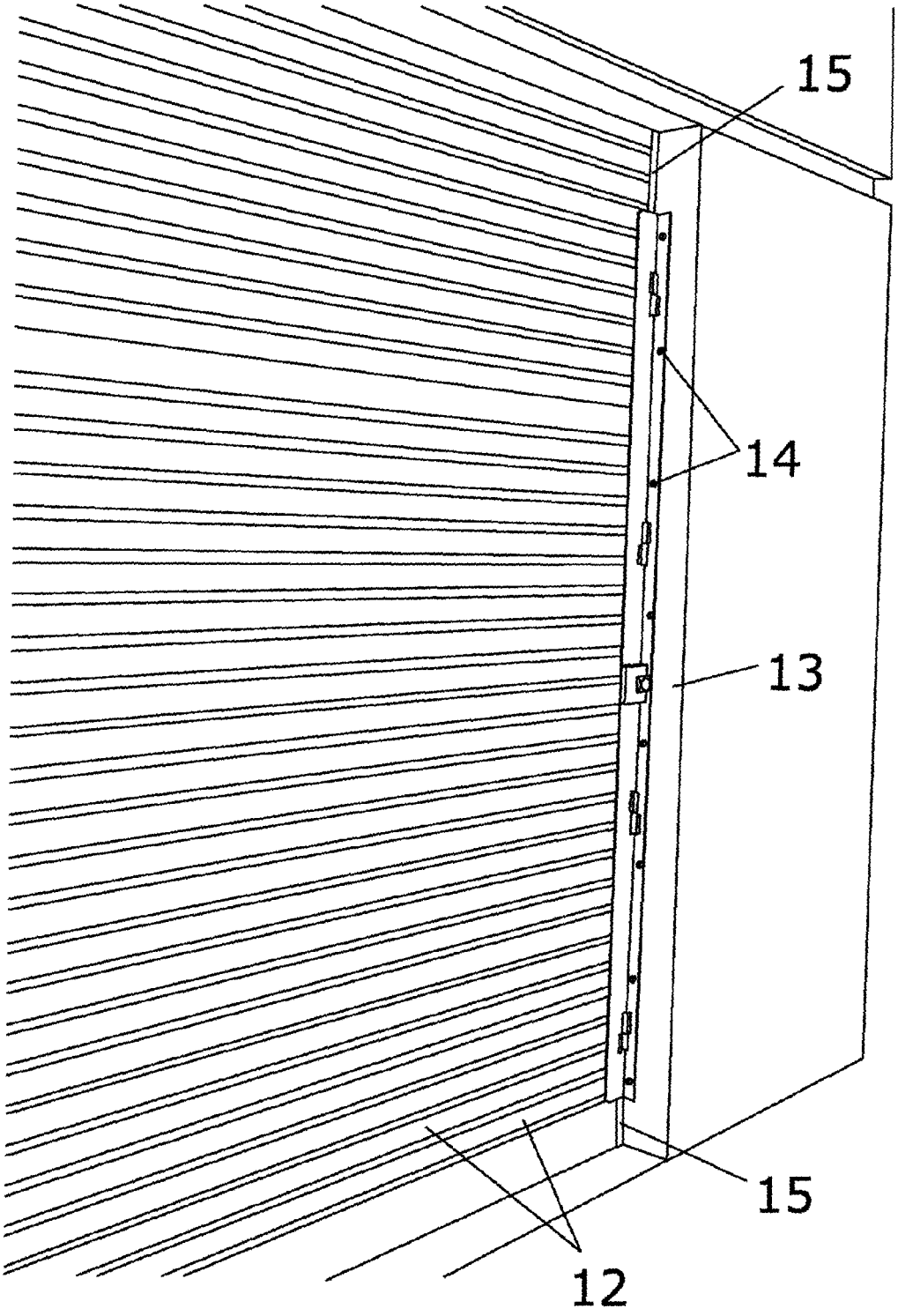


FIG.5

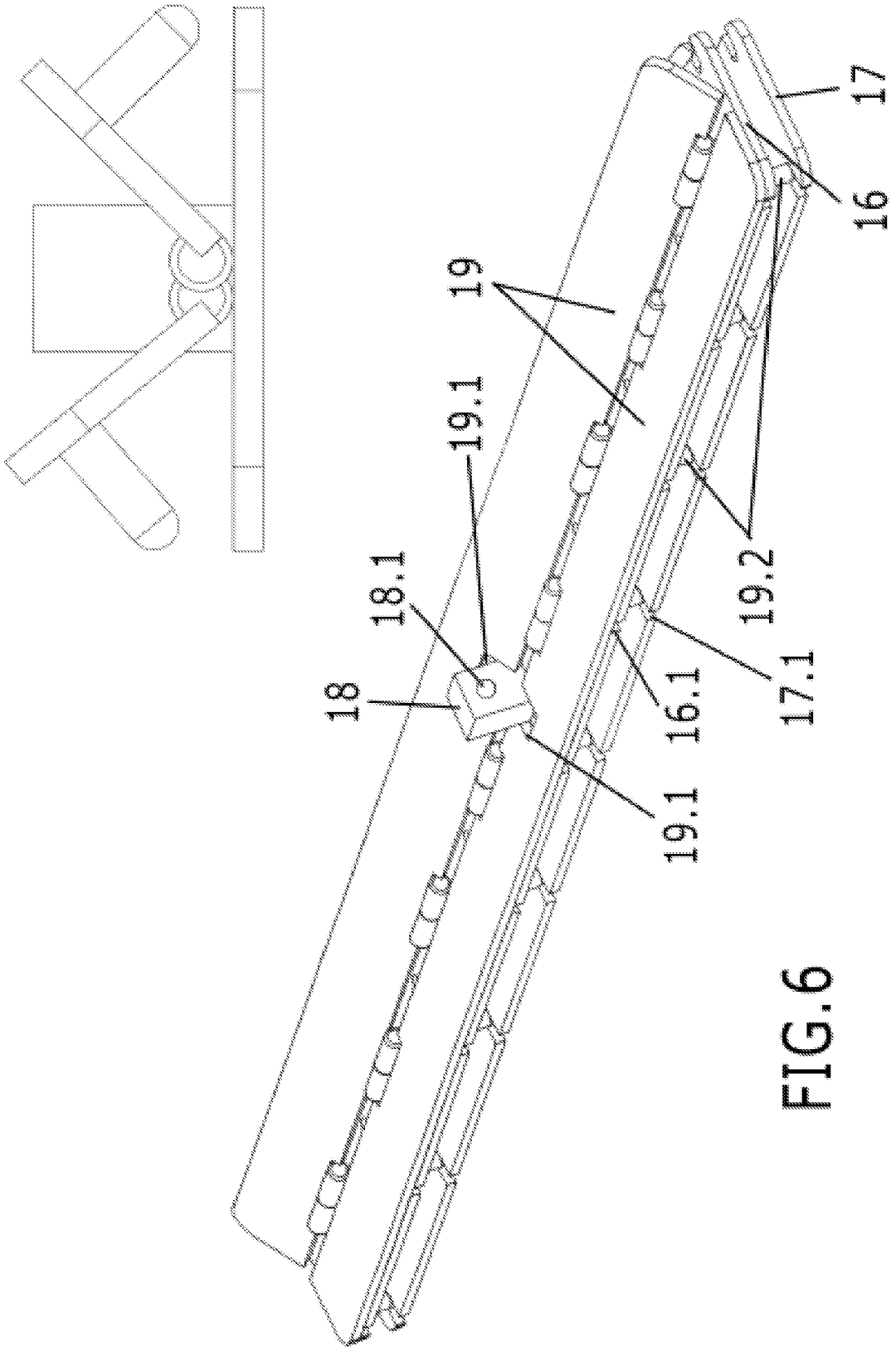


FIG.6

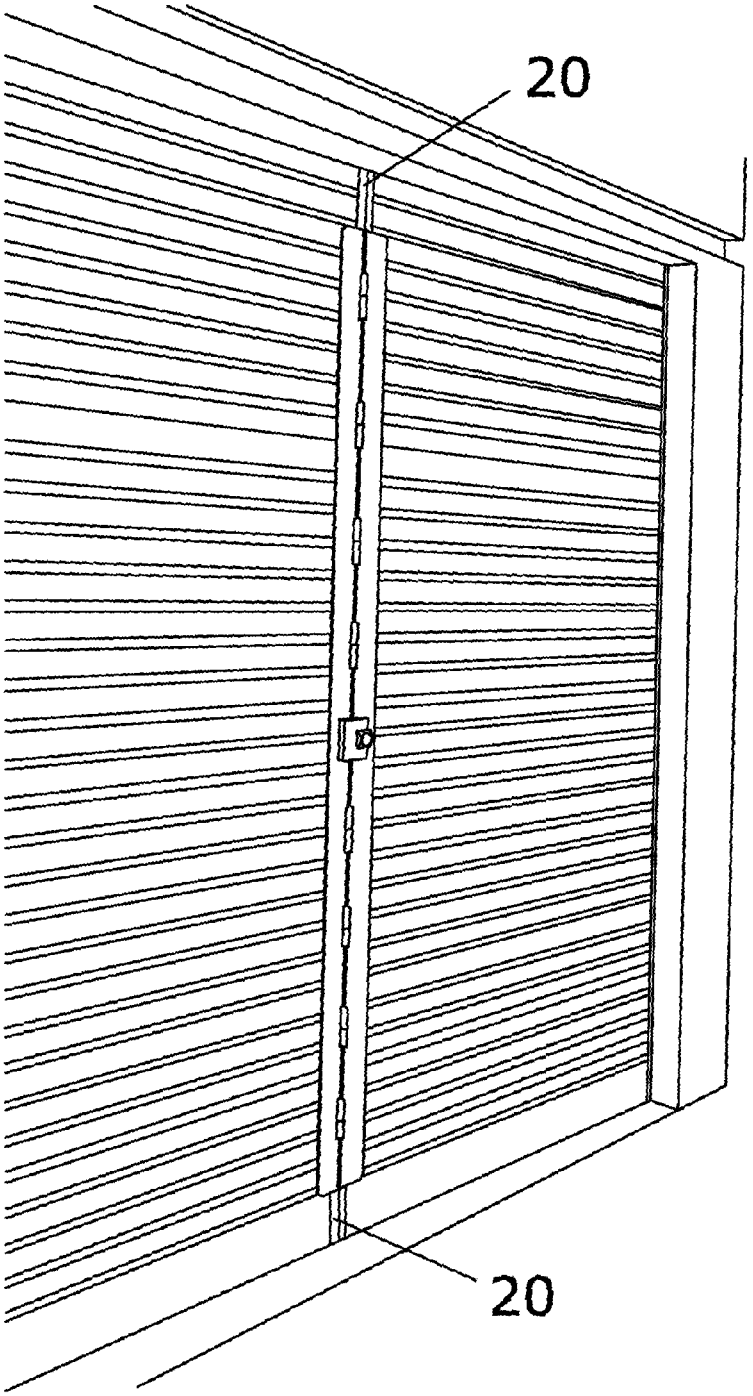


FIG.7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 38 1039

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	23 January 2006	Baath, S

CATEGORY OF CITED DOCUMENTS

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