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(54) **SUPPORT BRACKET FOR EQUIPMENT, IN PARTICULAR AIR CONDITIONING UNITS**

(57) A support bracket for equipment, in particular air conditioning units, comprises a first and a second bracket portion (2, 3) arranged respectively for anchoring the bracket to a wall and for supporting and fixing the equipment to the bracket, the first and the second portion being coupled together in an articulated manner about an axis of articulation and also arranged so as to take an L-shaped configuration suitable for supporting the equipment. Between the first and second bracket portion (2, 3) articulation means (5) are provided, with which these bracket portions can be displaced between a first, non-operating condition in which one is folded back on the other with reduced transverse overall dimensions and a second, operating condition in which the bracket portions extend substantially perpendicular to one another, the first and second bracket portions (2, 3) being arranged in a pre-mounted configuration by means of an articulation pin (6), provided between respective ends (2b, 3b) of the bracket portions (2, 3) so that the operating condition of the bracket (1) is achieved solely by extending one of the bracket portions substantially perpendicular to the other, about the axis of articulation, the first and second bracket portions (2, 3) as well as the articulation pin (6) being made entirely of thermoplastic material.

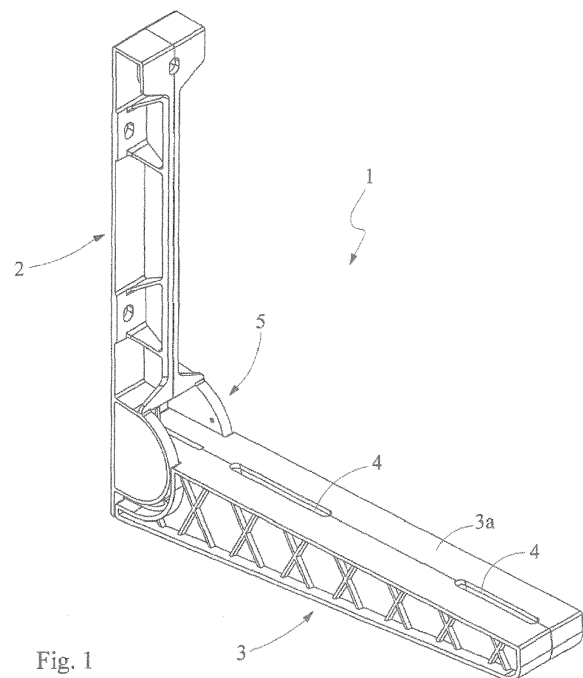


Fig. 1

Description

[0001] The present invention relates to a support bracket for equipment, in particular air conditioning units, having the features mentioned in the precharacterising clause of the main claim no 1.

[0002] The invention falls particularly, but not exclusively, within the domain of bracket-type fixing devices for supporting exchanger units of air conditioning plant.

[0003] In this domain, it is known that heat exchanger units, which are used in air conditioning plant and which provide a feed to diffusers included in the setting of buildings to be air-conditioned, must be placed and supported outside buildings or, at any rate, deployed in positions so as to communicate with the outside. It is also typical for the configuration of buildings to require these exchangers to be hung on the exterior walls of buildings or interior walls close to balconies and windows that face out of a building, so as to allow heat exchange between warm air and cold air in the exchanger.

[0004] To fix these exchangers to exterior walls or interior walls, it is a matter of common knowledge to use L-shaped brackets large enough to be suitably robust, a pair of these brackets normally being sufficient, fixed either directly to the walls, or to guides that are in turn fixed to the walls, for example with plug-type fixing systems.

[0005] These brackets are also provided with seatings for inserting fixing screws by which the equipment is secured to said brackets.

[0006] The mounting of brackets of the type indicated can entail some limitations that the invention proposes to deal with and resolve advantageously.

[0007] A first known type provides for the brackets to be made in a final, preformed L-shape, this type not being particularly convenient because of the space occupied during transport and storage operations.

[0008] There are also known brackets in which the sides making up the bracket are made separate, so as to reduce the space occupied in transport and storage, but which require the installer to assemble them before installation. This operation, which is onerous in any case because it takes time in addition to the time needed to install the bracket on the wall, can be carried out by using screws or other similar relevant fixing systems.

[0009] Another type of bracket is also known, providing for a pre-installation condition in which the two wings of the bracket are hinged together by a locking screw, which does, however, need to be tightened in order to finalise the configuration of the bracket, extended in an L-shape and ready for installation on a wall.

[0010] If the bracket is prepared as two separate wings that can be assembled by hinging together without requiring a different, separate articulation pin (known from the production of the Applicant itself), the installer still has to assemble them prior to the operation of fixing to a wall.

[0011] These brackets are then traditionally made of a metal material, a material that, while on the one hand

ensuring lightness and sufficient mechanical strength for the loads applied, does on the other hand expose the bracket to the action of atmospheric agents that inevitably damage it over time, for example through corrosion.

[0012] The main purpose of the invention is to provide a support bracket for equipment, in particular air conditioning units, structurally and functionally designed to overcome the limitations set out with reference to the prior art mentioned. Another purpose is that of providing a support bracket that is easy to transport and occupies little space, and at the same time is easy to configure in the extended, operating condition, so as to make it convenient and speedy for the installer to handle in the fitting operations, often carried out at a substantial height, which can therefore prove rather awkward and tiring for the installer. This aim and others that will appear clearly below are achieved by the invention by means of a support bracket of the aforementioned type, produced according to the following claims.

[0013] Other features and advantages of the invention will be more clearly apparent from the following detailed description of a preferred exemplary embodiment thereof, illustrated by way of non-restrictive indication with reference to the attached drawings, in which:

- Fig. 1 is a perspective view of a support bracket produced according to the present invention,
- Fig. 2 and 2A are further perspective views of the support bracket of the invention in respective extended and folded conditions,
- Fig. 3 is an exploded perspective view of the bracket in the preceding figures,
- Fig. 4 to 6 are partial perspective views on an enlarged scale of respective details of the bracket according to the invention,
- Fig. 7 is a perspective view, on an enlarged scale and in partial section, of a detail of the bracket in the preceding figures,
- Fig. 8 is a perspective view of one of the two main components that form the bracket according to the invention,
- Fig. 9 is a view in side elevation of the bracket component in Fig. 8;
- Fig. 10 is a view in section along the line X-X in Fig. 9,
- Fig. 11 is a plan view of the component in Fig. 8,
- Fig. 12 is a view in section along the line XII-XII in Fig. 11,
- Fig. 13 is a perspective view of the other of the two main components that form the bracket in the preceding figures,
- Fig. 14 is a plan view from above of the bracket component shown in Fig. 13,
- Fig. 15 is a view in section along the line XV-XV in Fig. 14,
- Fig. 16 is a view in section along the line XVI-XVI in Fig. 14,
- Fig. 17 is a view in side elevation of the component in Fig. 13,

- Fig. 18 is a perspective view, in partial section and on an enlarged scale, of a detail in Fig. 7.

[0014] With reference to the figures mentioned, 1 denotes, as a whole, a support bracket for equipment, typically air conditioning units (not shown), produced according to the present invention.

[0015] Normally provision is made to arrange a pair of brackets 1 parallel to each other, and set apart from each other by a suitable predefined relative distance, to define the superficial portions for supporting and fixing the equipment.

[0016] The bracket 1 comprises a first and a second portion, indicated respectively as 2 and 3, which are articulated to each other, at the concurrent ends 2b, 3b thereof, about an axis of articulation, and arranged so as to take a substantially L-shaped configuration, suitable for performing the function of supporting the equipment.

[0017] Each of the portions 2 and 3 of the bracket extends in a prevailing direction of longitudinal extension, the first portion 2 having a surface 2a intended for supporting and anchoring it to the wall, i.e. fixing to fixing guides (not shown) secured to a wall, the second portion 3 having a surface portion 3a for supporting and fixing the equipment, for example by screws or similar clamping means. For this purpose, through-slots 4 are provided in the surface portion 3 for engaging the clamping screws.

[0018] Between the first and second portion 2, 3 of the bracket, articulation means are provided, with the overall label 5, by means of which the bracket portions 2 and 3 can be displaced reciprocally between a first, non-operating condition in which they are folded back on one another (Fig. 2A) and a second, operating condition in which said bracket portions extend perpendicular to one another (Fig. 2). The folded condition is differentiated by reduced overall transverse dimensions, improving the transportability and storage of the bracket, whereas the extended, L-shaped condition represents the operating condition suitable for performing the support function.

[0019] According to another significant feature of the invention, the bracket portions 2 and 3 are further arranged in a pre-mounted configuration by means of an articulation pin, labelled as 6, provided between respective and concurrent ends 2b and 3b of said portions, so that the aforesaid operating condition of the bracket is achieved solely by extending one of the bracket portions perpendicular to the other, about the axis of articulation defined by the pin.

[0020] In combination with the aforesaid characteristic it is further provided that the first and second bracket portion 2, 3, as well as the articulation pin 6 are all made entirely of thermoplastic material. Advantageously, it is preferable to choose as plastics material a polyamide, preferably reinforced with glass fibres in order to ensure that the bracket has suitable characteristics of resistance to the loads to be supported. The bracket portions 2, 3 are designed to be produced by injection moulding in a plastics material mould.

[0021] The articulation means 5 comprise at the concurrent ends 2b, 3b of the corresponding bracket portions 2, 3, respectively a first and a second articulation element, articulated to one another by the pin 6.

[0022] The first articulation element is fork-shaped and has a pair of opposite appendages 7 standing parallel and set apart and each having a respective cut-out 8, said cut-outs being arranged coaxially to one another in the axial direction of the pin 6.

[0023] The second articulation element is provided on the bracket portion 3 and is defined by a part 9 of said portion 3, at the end 3b, a transverse through-hole 10 being provided in the part 9.

[0024] The part 9 is capable of being interposed between the appendages 7, the hole 10 being in axial alignment with the cut-outs 8, so that the pin 6 is accommodated in, and engaged with, both the hole 10 (rotatable engagement) and the opposite cut-out 8 (rotatable and sliding engagement), thus producing articulated coupling between the first and the second bracket portion 2, 3 about said pin.

[0025] The pin 6 is held axially between the appendages 7 by a head 6a of the pin abutting against one of the appendages 7 and by a stop ring 6b (for example a Seeger ring) mounted on the opposite end of the pin, abutting against the other appendage 7 (Fig. 3).

[0026] In greater detail, each of said cut-outs 8 comprises a first and a second cut-out segment, with a rectilinear slotted shape, indicated as 8a and 8b, extending reciprocally and angled to each other, within which the pin 6 is guided slidably and rotatably, so as to allow relative movement in rotation/translation between the bracket portions 2, 3, as will become apparent below.

[0027] The first segment of cut-out 8a, having a smaller longitudinal dimension than the second segment 8b, extends in the longitudinal direction of the bracket portion 2, and is prolonged into the second segment at a relative angle of substantially around 90°, such that said second segment 8b extends transversely to the longitudinal direction of the bracket portion 2.

[0028] The end of each cut-out 8, placed in the segment 8a, has a profile with a circular course capable of surrounding the pin 6, and holding it with a small amount of play, in the operating condition of the bracket (Fig. 2). From this position, the pin 6 can be displaced, in a rotation/translation movement between the bracket portions, so as to be guided within the cut-out 8, until it reaches the opposite end, in the segment 8b, this positioning allowing relative separation between the bracket portions, suitable for positioning the bracket portions folded over one another (Fig. 2A), avoiding any interference generated by the transverse volume of the bracket portion 2 in the articulation movement about the pin 6.

[0029] The reference numeral 7a indicates the outer contour edges of the appendages 7, having a curved profile, a corresponding curved profile being formed in respective recesses 11, made in an opposite position in the bracket portion 3 and suitable for accommodating the

appendages 7 within them, at least partially, after the articulated coupling between the bracket portions. The curved profiles allow freedom of relative articulation movement by the bracket portions, also ensuring that the appendages 7 remain accommodated within the surface edge in the respective recesses 11, without protruding from the transverse volume of the bracket portions 3.

[0030] The reference numeral 12 also marks respective covering elements, intended to be fitted to the appendages 7, on the lateral parts opposite the bracket portion 2 (the function is to hide the articulation pin 6 from view, improving aesthetic appearance). The covering elements 12 are preferably fixed to the respective appendages 7 by pressing a plurality of projections 12a (constructed from the covering element) so as to engage in respective holes 12b provided on the appendages 7 (Fig. 3).

[0031] A cavity 13 is provided centrally in the part 9 of the bracket portion 3, said cavity being shaped as a slit extending transverse to the axis of articulation, which is delimited in the direction of the axis by a pair of opposite solid walls 13a, 13b, parallel and set apart from one another.

[0032] From the surfaces of the walls opposite those facing the cavity 13, respective tubular sleeve-type formations 14 are constructed, coaxial to one another and jointly defining the through-hole 10 in the part 9. Stiffening ribs for each sleeve-type formation, all indicated as 15, are arranged radially extending from the respective walls 13a, 13b, in a radial direction relative to the axis of the hole 10. The reference numeral 16 indicates a stiffening rib for the bracket portion 2, which lies interposed between, and equidistant from, the opposite appendages, 7 and whose shape and transverse thickness are chosen such that said rib is engaged, with at least partial positive engagement and slight interference, in the cavity 13, following the relative movement in rotation/translation of the bracket portions, from the folded condition to that in which the extended, operating condition is reached. In this position, the relative engagement between rib 16 and cavity 13 allows the rigidity of the bracket to be increased, with greater resistance to stress, particularly torsional stress induced by the presence of the equipment when it rests on the pair of support brackets.

[0033] Preferably the stiffening rib 16 is made in the form of a thin, elongated, plate-shaped fin, which lies in the median plane of symmetry of the bracket portion 2 (pointing transversely to the axis of articulation).

[0034] The bracket 1 further comprises means and counter-means for locking through slot-wise insertion, placed between the first and the second bracket portion, which are arranged to hold said portions reciprocally in the operating condition of the bracket, when they extend perpendicular to one another.

[0035] Said means and counter-means comprise a projection 18 protruding from the end 3b of the bracket portion 3 and a seating 19 made at the end 2a of the portion 2, capable of reciprocal slot-wise coupling after

the projection is inserted into the seating.

[0036] More particularly, the projection 18 is made from a body with a T-shaped cross section, whose wings 18a, b, projecting laterally, are capable of abutting against respective shoulder surfaces 19a,b made in the seating 19. Said seating is made in the shape of a cut-out through the thickness of the bracket portion 2, placed in a centred position on the median plane of symmetry thereof, at the end 2b. A first portion of said cut-out is wide enough to allow the projection 18 to pass through it into a second portion of the cut-out, contiguous to the first, the opposite shoulder surfaces 19a,b being provided such that the projection 18, once inserted into the first portion of the cut-out and displaced by axial sliding into the second portion of cut-out, stays held slotted into the seating with the wings 18a,b abutting against the shoulder surfaces 19a,b. Obviously, the projection can be disengaged from the seating with a contrary movement.

[0037] It should be noted that the movement of inserting the projection 18 into the seating 19 is done by guided sliding of the pin 6 into the opposite cut-outs 8, and in particular along the respective segments 8a thereof. Fig. 5 shows the position reached in a first guided movement, in which the pin 6 is brought into correspondence with the connecting zone between the segments 8a, 8b of the corresponding cut-out 8, in which position the projection 18 is able to go through the seating 19, passing through the first portion of the cut-out. From this position, with a second guided movement of the pin 6 along the segment 8a of the respective cut-outs 8, the projection 18 is inserted, with axial sliding, into the second, lower portion of the seating 19, reaching the position in Fig. 6, in which the wings 18a,b of the projection remain abutting against the shoulder surfaces 19a,b, causing the two bracket portions to be interlocked, preventing any relative rotational movement between them about the axis of articulation. In this condition, in which the bracket portions extend in a perpendicular direction, their relative locking through the projection being inserted into the seating advantageously makes it easier for the installer to handle the bracket in the mounting phases, preventing it from reclosing accidentally.

[0038] In this position, the operating condition of the bracket is also achieved, in which the configuration taken is suitable for supporting the loads generated by the weight of the equipment supported. It should be noted that in this condition the ends 2b, 3b of the brackets are in relative contact with respective surfaces of the portions 2, 3, so as to transfer and discharge the stresses as appropriate from the portion 2 to the portion 3 of the bracket.

[0039] With reference to Fig. 18, the articulation pin 6 has a lobed-type cross-section, preferably defined by four longitudinal channels, all indicated as 6a, suitable for giving the pin 6 a cross shape in cross section, with four lobes of a shape and pitch which is regular among each other. This shape is particularly advantageous in a thermoplastic material in the preselected dimensions for the bracket of the invention, because it makes it possible

to oppose deformation and/or differentiated withdrawal in the phase of moulding the plastics material from which the pin is made.

[0040] The invention thus achieves the aims proposed, overcoming the limitations demonstrated with reference to known solutions, achieving the stated advantages.

[0041] A main advantage lies in the fact that the bracket of the invention results in a combination of an extremely light structure (all components are made of plastics material) combined with suitable strength of the bracket to resist stresses induced by the loads supported, improved convenience in use, in both the transport and storage phases (with bracket portions folded) and the operating, support condition (bracket with portions extended in a perpendicular direction), together with improved ease and speed of preparing the bracket in the installation phase, connected with the condition of pre-mounting the bracket portions with the articulation pin.

[0042] Another advantage is that the support bracket according to the invention does not require special equipment and/or tools for clamping and securing, when it changes from the folded condition to the extended, working condition.

Claims

1. Support bracket for equipment, in particular air conditioning units, comprising a first and a second bracket portion (2, 3) arranged respectively for anchoring the bracket to a wall and for supporting and fixing the equipment to the bracket, said first and second portion being coupled together in an articulated manner about an axis of articulation and also arranged so as to have an L-shaped configuration suitable for supporting the equipment, **characterised in that** between said first and second bracket portion (2, 3) articulation means (5) are provided, by means of which said bracket portions can be displaced between a first, non-operating condition in which they are folded one on top of the other with reduced overall transverse dimensions and a second, operating condition in which the bracket portions extend substantially perpendicularly to one another, **in that** said first and second bracket portions (2, 3) are arranged in a pre-mounted configuration by means of an articulation pin (6), provided between respective ends (2b, 3b) of said bracket portions (2, 3) so that said operating condition of the bracket (1) is achieved solely by extending one of the bracket portions perpendicularly to the other about the axis of articulation, and **in that** the first and second bracket portions (2, 3) as well as the articulation pin (6) are made entirely of thermoplastics material.
2. Support bracket according to claim 1, wherein said articulation means comprise a first articulation ele-

ment on one of said portions, which first articulation element is fork-shaped and has opposite attachments (7) each bearing a respective cut-out (8), said cut-outs (8) being coaxial so that the articulation pin (6) can be engaged, and a second articulation element provided on the other bracket portion, which is capable of being interposed between said attachments (7) and bears a through-hole (10) capable of rotatably engaging with said pin (6), so as to produce the articulation movement between the first and second bracket portion (2, 3) about the axis of articulation, each of said cut-outs (8) comprising a first and a second cut-out segment (8a, 8b) extending reciprocally and at an angle to one another, within which said pin (6) is slidably and rotatably guided so as to allow relative movement in rotation/translation between said bracket portions (2, 3).

3. Support bracket according to claim 2, wherein said cut-out segments (8a, 8b) have a rectilinear shape and are at a substantial angle of approximately 90° to one another.
4. Support bracket according to claim 3, wherein, in said first segment (8a), one end of each cut-out (8) has a circular profile for receiving and holding the pin (6) in the operating condition of the bracket, the pin (6) being engaged with the opposite end of the cut-out (8), in the second segment (8b), so as to allow relative displacement between the bracket portions (2, 3) in the non-operating condition, in which said bracket portions are folded back on each other.
5. Support bracket according to any one of claims 2 to 4, wherein the second articulation element comprises a cavity (13) extending transversely to the axis of articulation and is capable of being engaged, with at least partial positive engagement and slight interference, by a stiffening rib (16) erected between the attachments (7) of the first articulation element, said rib (16) extending so as to remain engaged in said cavity (13) after the relative movement in rotation/translation of the bracket portions (2, 3) from the non-operating condition to the operating condition.
6. Support bracket according to claim 5, wherein said cavity (13) is defined, transversely to the axis of articulation, by a pair of solid walls (13a, b) which are parallel and spaced apart and are formed in the second bracket portion (3).
7. Support bracket according to either claim 5 or claim 6, wherein said rib (16) is provided in the first bracket portion (2) and is in the shape of a thin, elongated, plate-shaped fin and also lies in the median plane of symmetry of said first bracket portion (2), which plane points transversely to the axis of articulation.

8. Support bracket according to one or more of the preceding claims, comprising means and counter-means for locking by means of slot-wise insertion between the first (2) and the second bracket portion (3), to hold the bracket (1) in said second operating condition. 5
9. Support bracket according to claim 8, wherein said means and counter-means comprise a projection (18) protruding from one of the bracket portions and a seating (19) made in the other portion, capable of reciprocal slot-like coupling after the projection (18) has been inserted into the seating (19). 10
10. Support bracket according to claim 9, wherein said projection (18) is provided as a body with a T-shaped cross section, the sideways protruding wings (18a, b) of which are capable of abutting respective shoulder surfaces (19a, b) of the seating (19) as a consequence of a movement of inserting the projection into the seating, such that said bracket portions (2, 3) are held in an extended position, in contrast with the relative rotational movement between said bracket portions. 15
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11. Support bracket according to claim 10, wherein the movement of inserting the projection (18) into the seating (19) is performed by guiding the pin (6) to slide along the first segment (8a) of each cut-out (8) towards the end of said segment (8a) in which the pin is accommodated (6). 30

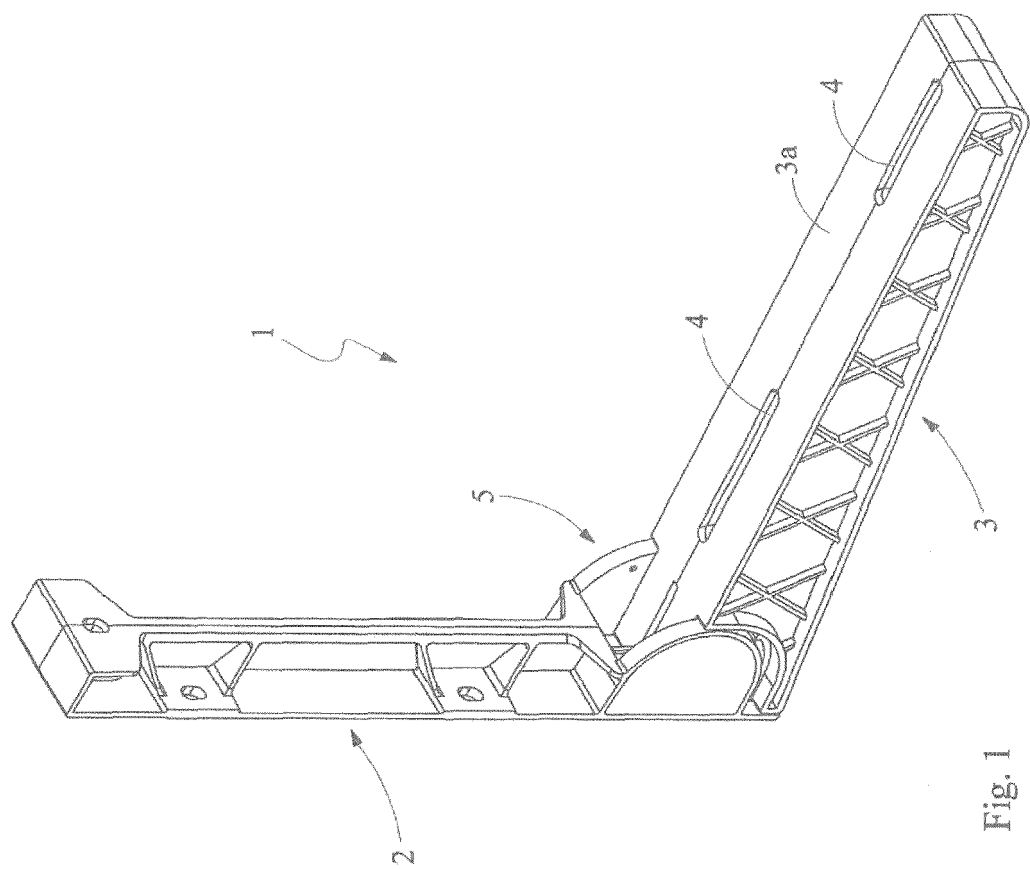
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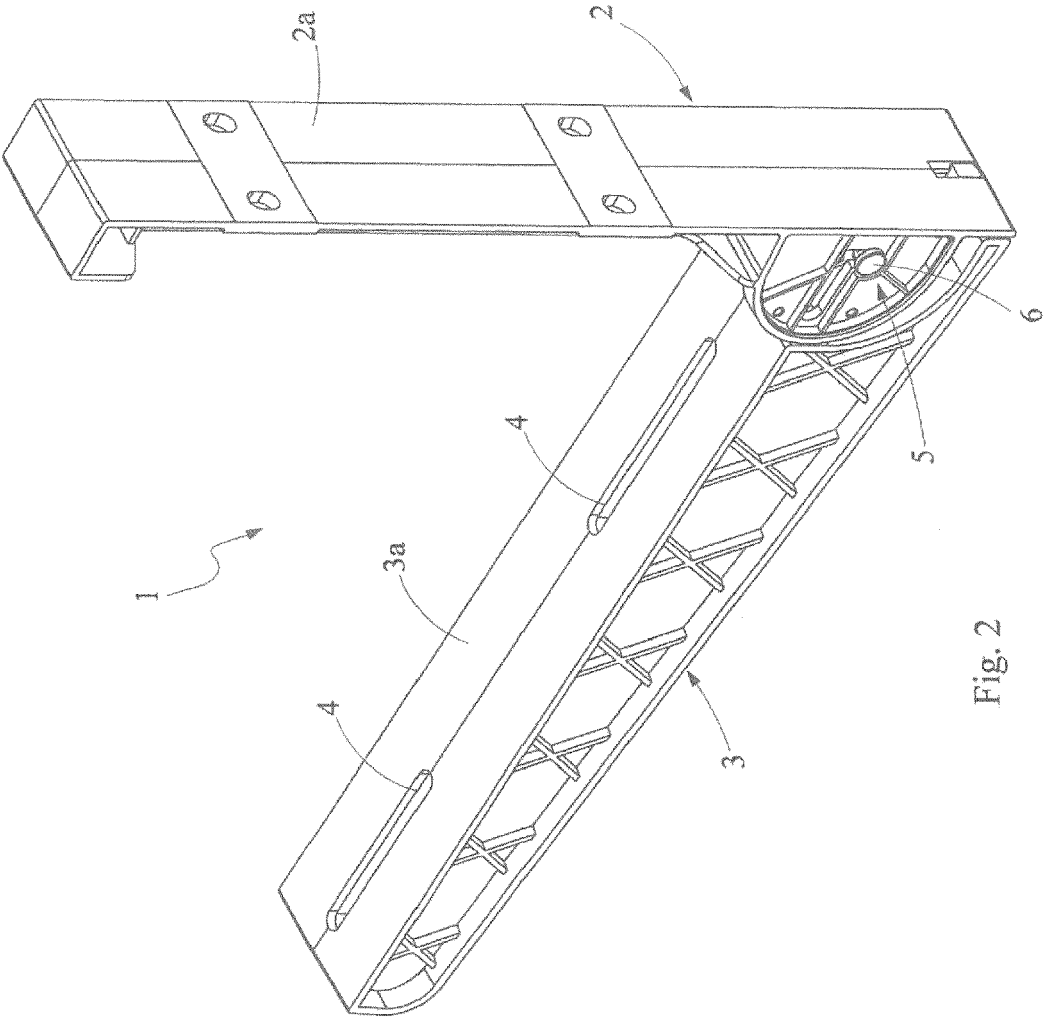
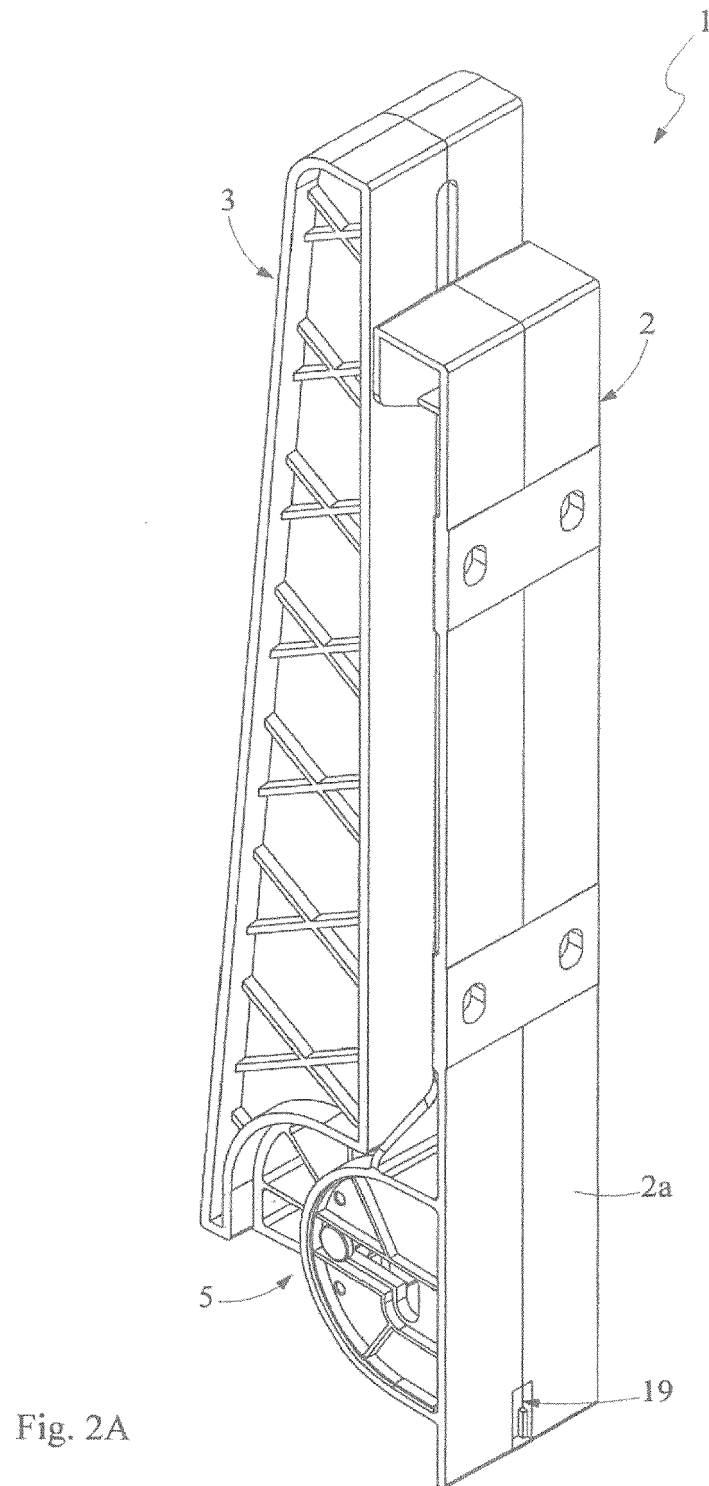
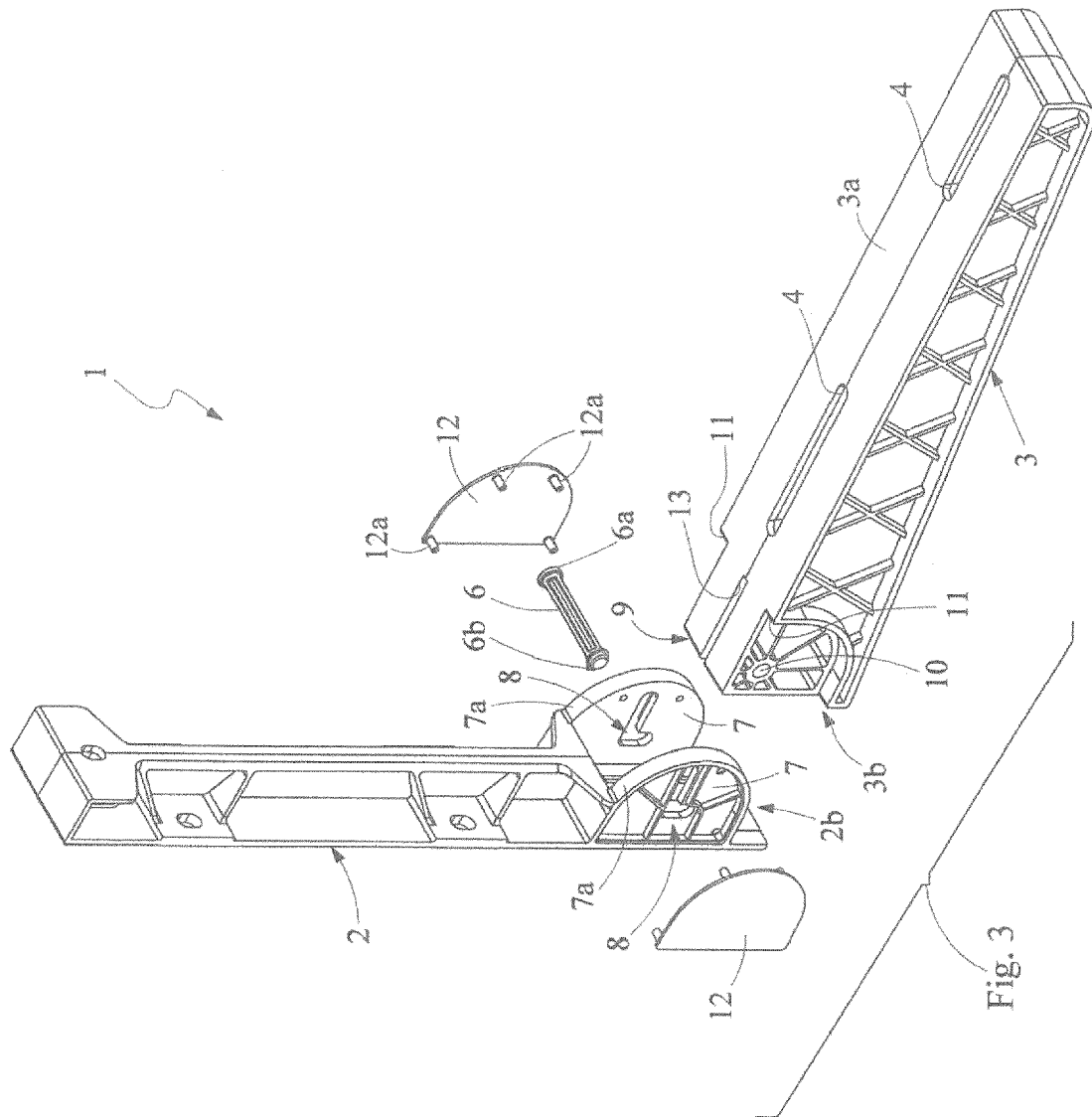
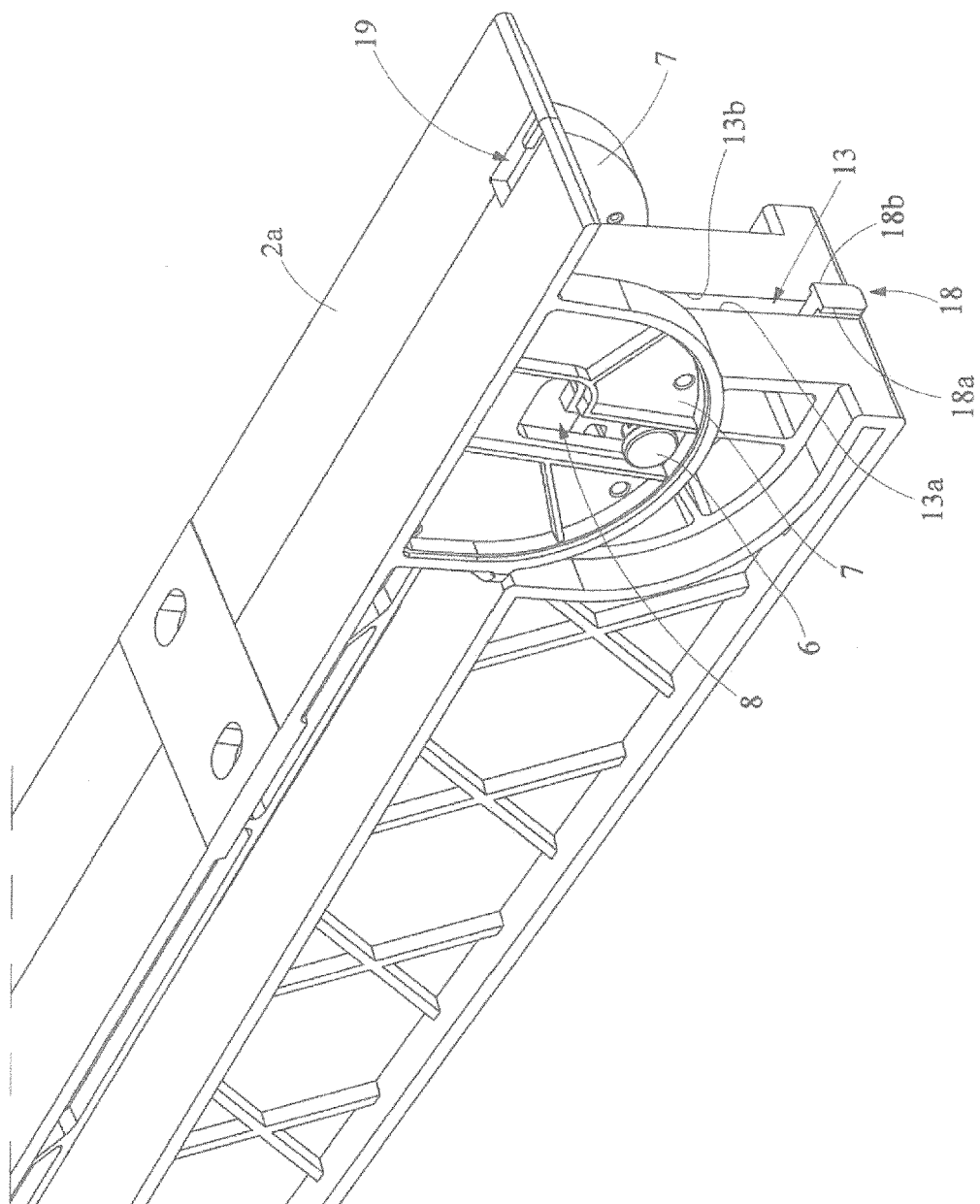


Fig. 2








 ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ
 БІЛІМ ЖӘНЕ ҒЫЛЫМ МИНИСТРЛІГІ

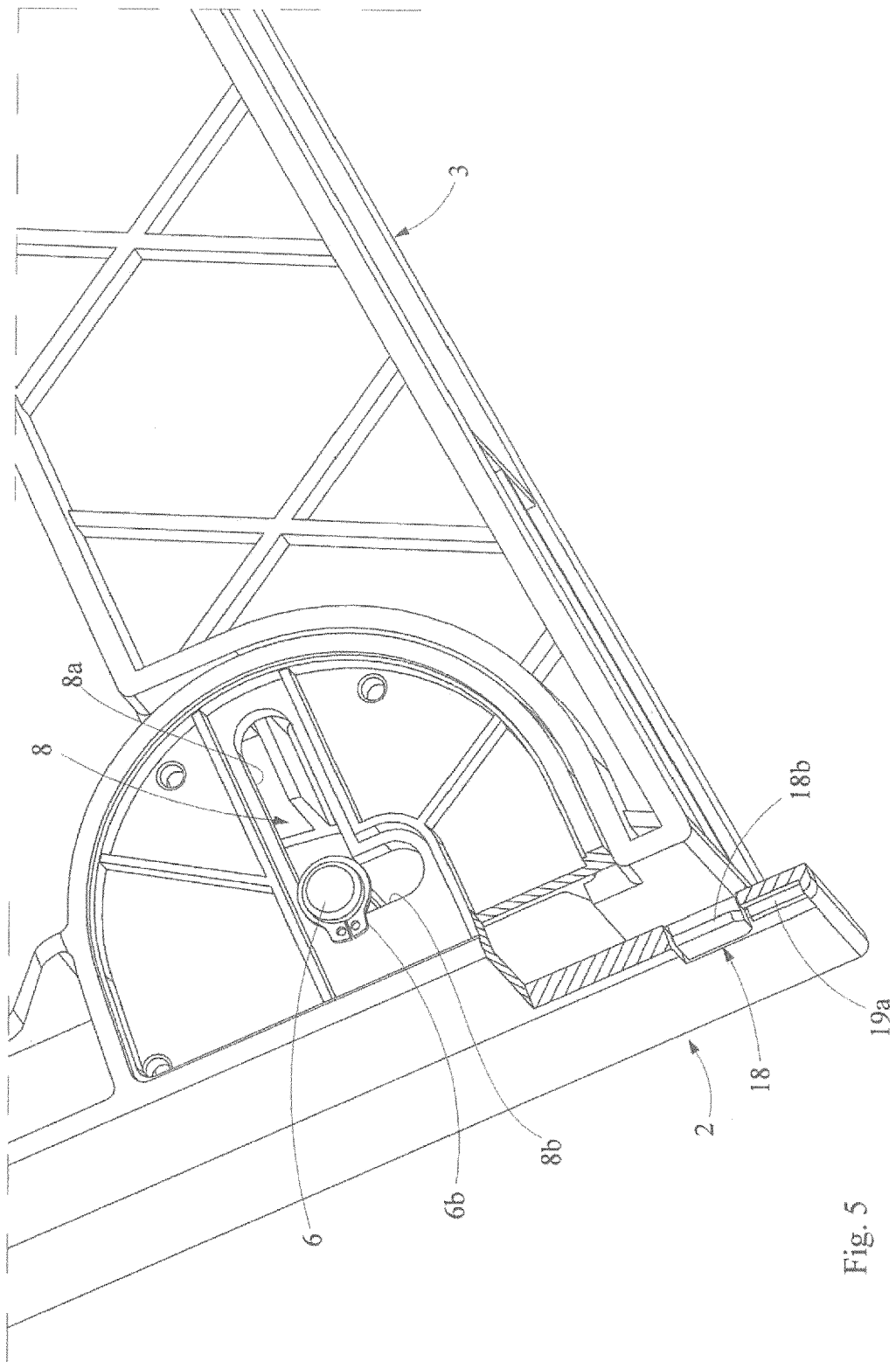


Fig. 5

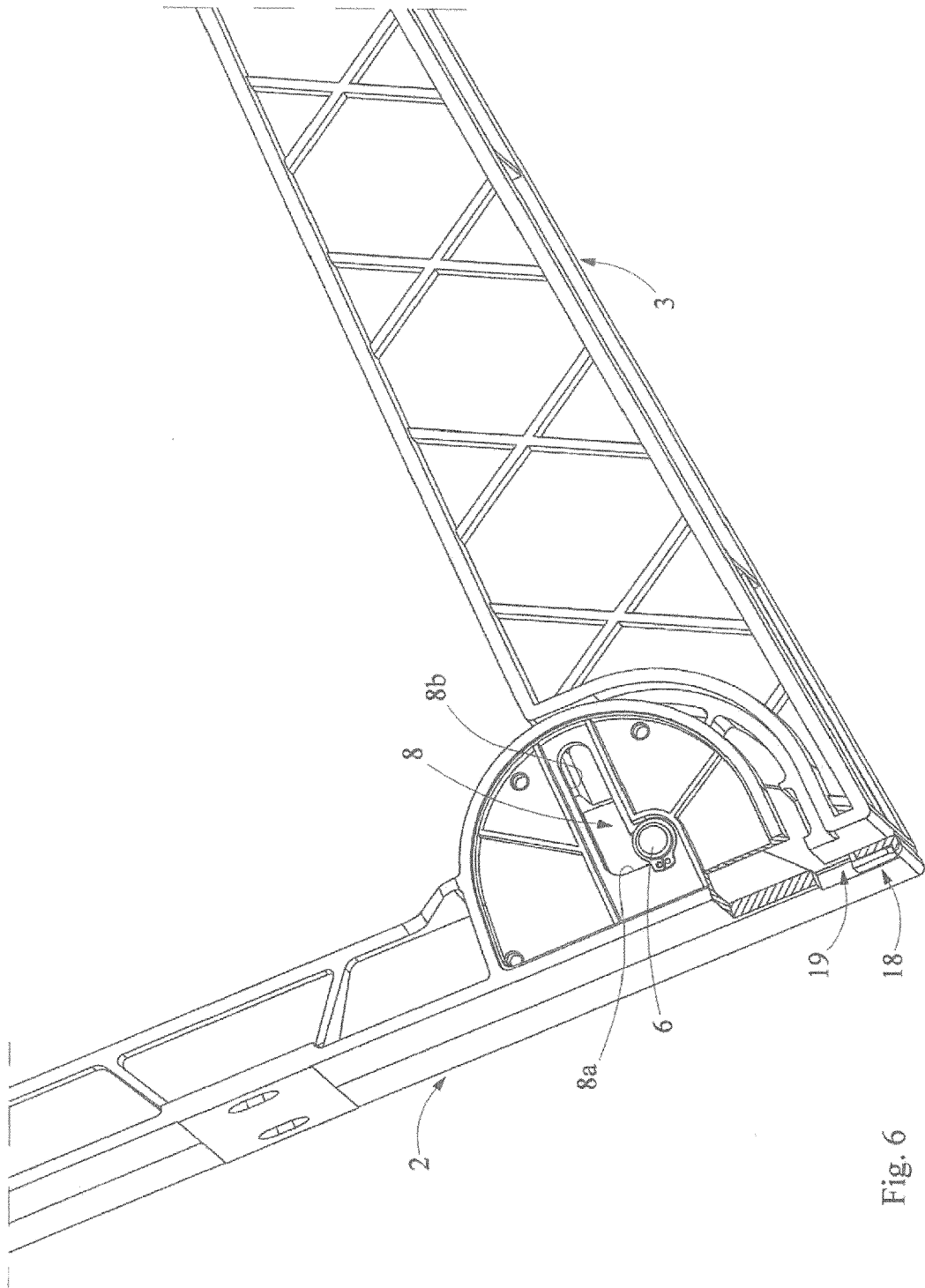


Fig. 6

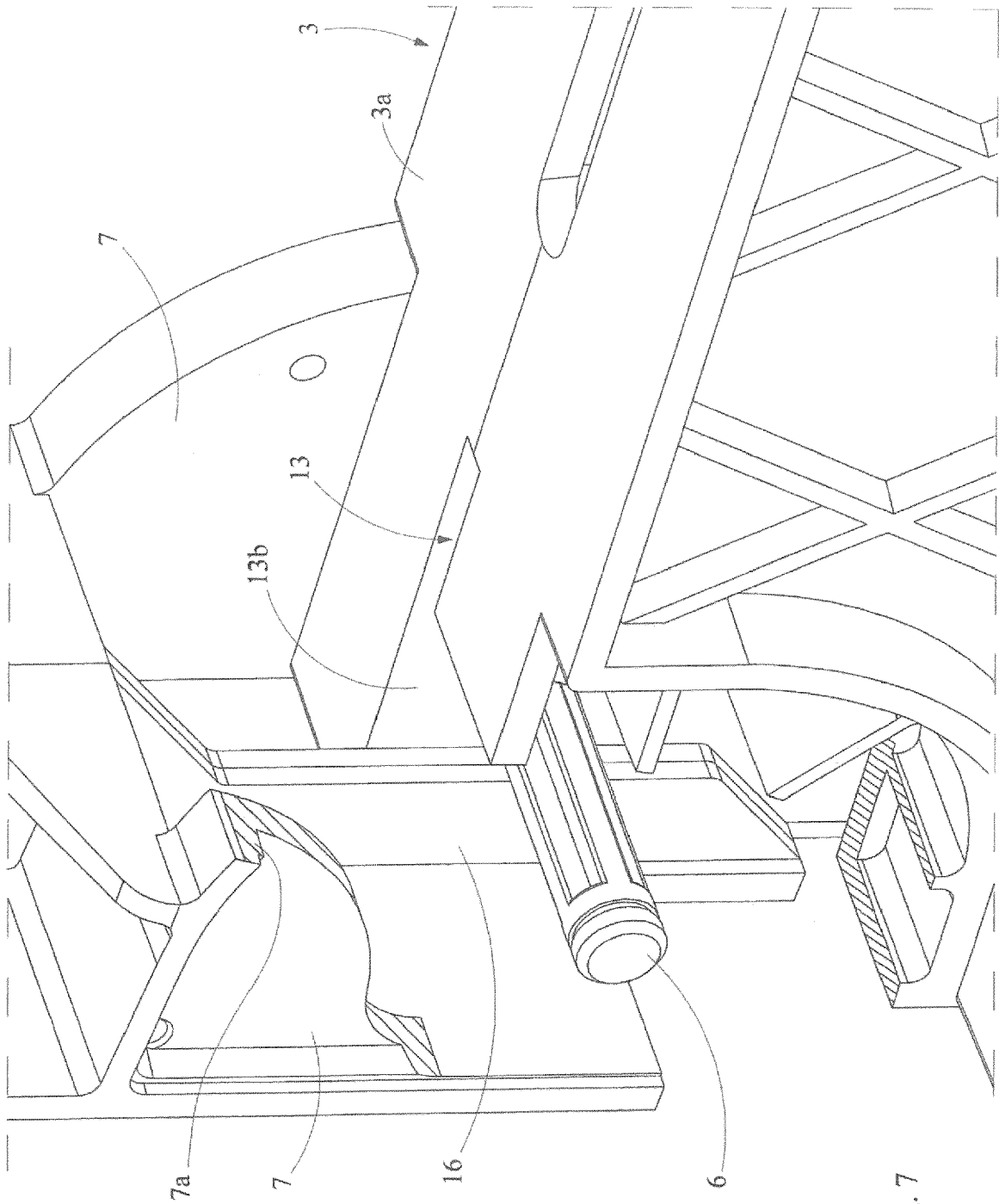
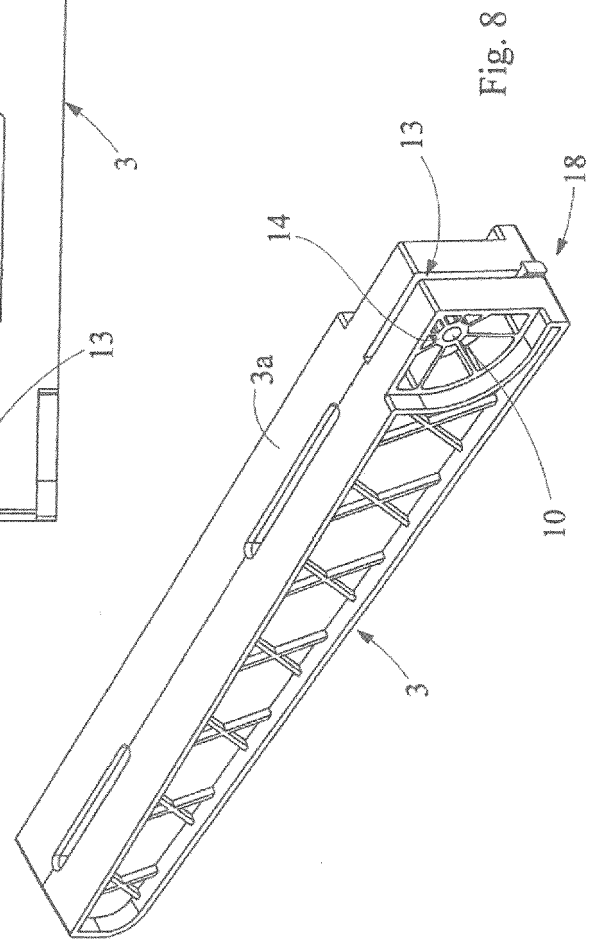
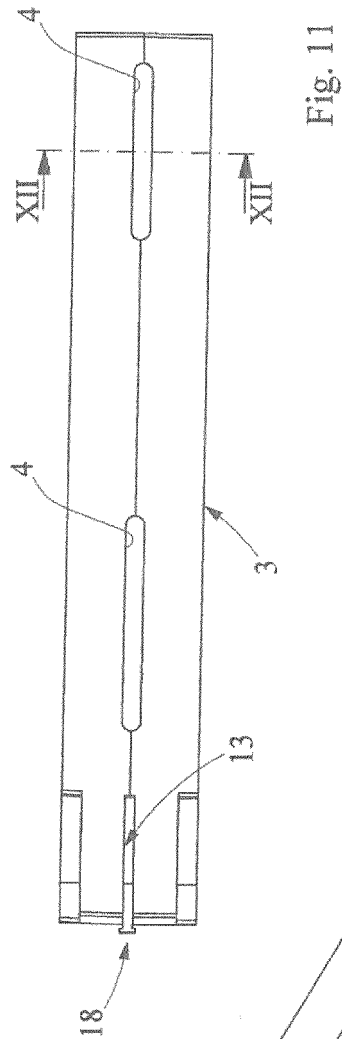
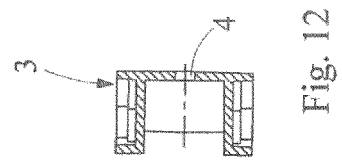
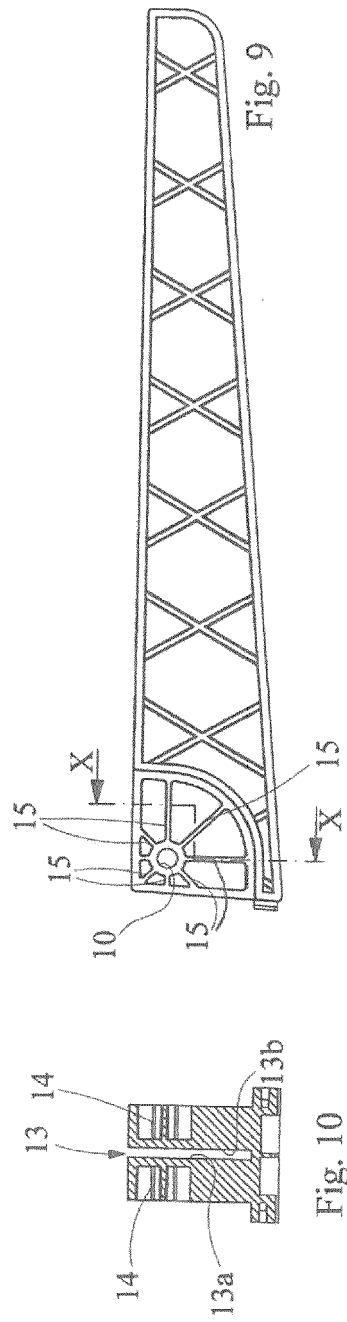


Fig. 7



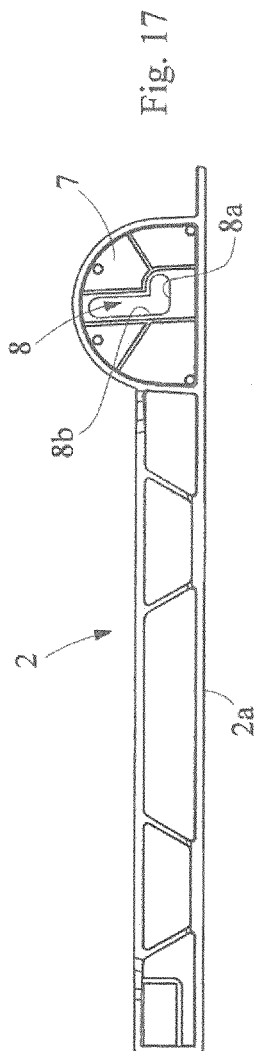


Fig. 17

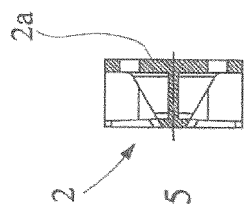


Fig. 15

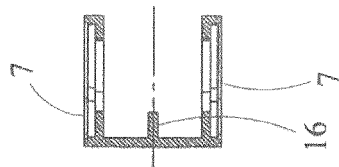


Fig. 16

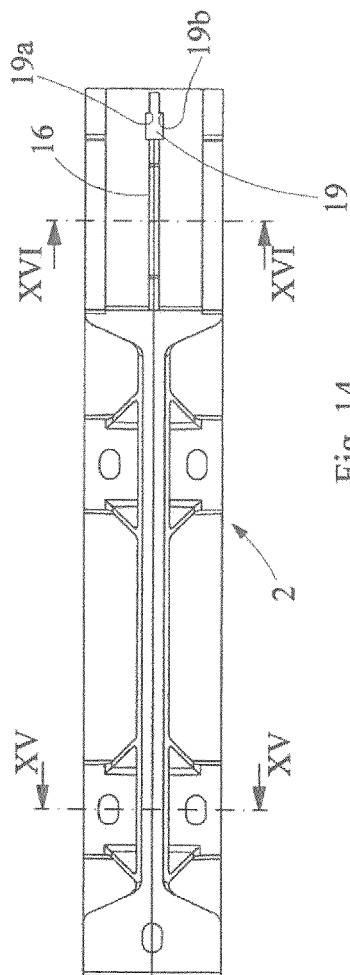


Fig. 14

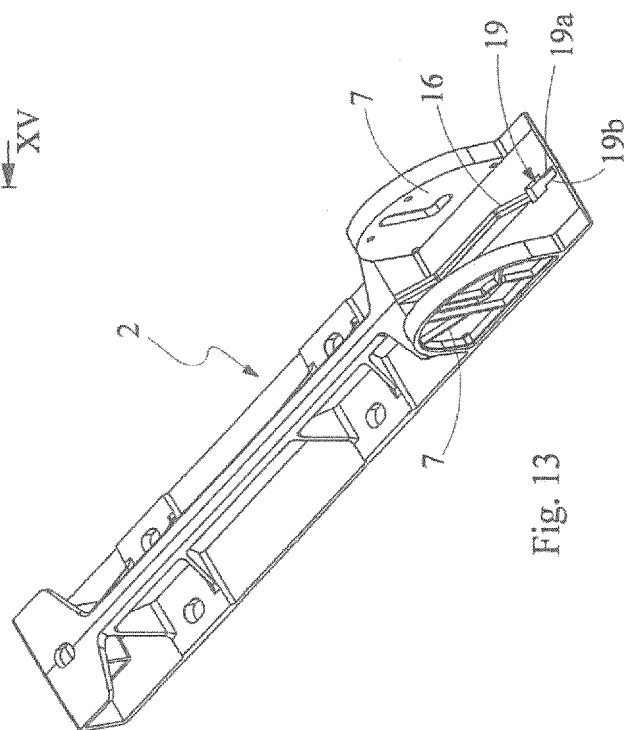


Fig. 13

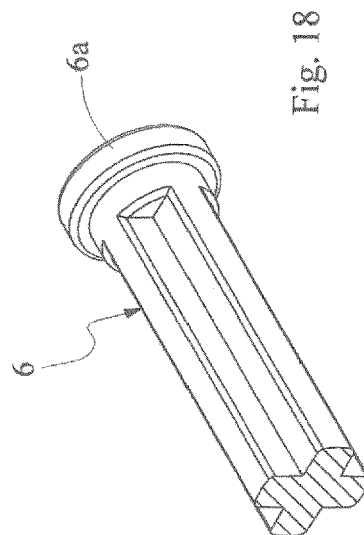


Fig. 18



EUROPEAN SEARCH REPORT

 Application Number
 EP 17 19 0076

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 2 369 248 A2 (CAPPELLARI 80 S R L [IT]) 28 September 2011 (2011-09-28)	1	INV. F24F13/32 F16M13/02
A	* paragraph [0042]; figures 5a-5d *	2-11	
X	JP 2001 182970 A (DAIKIN IND LTD; OK KIZAI KK) 6 July 2001 (2001-07-06)	1,10,11	
A	* abstract; figures 2-5 *	2-9	
X	JP 2002 349908 A (NISSEI METALS CO LTD) 4 December 2002 (2002-12-04)	1	
A	* abstract; figure 6 *	2-11	
X	JP 2004 212003 A (YASHIMA DENKO CO LTD) 29 July 2004 (2004-07-29)	1	
A	* abstract; figures 1,2,6 *	2-11	
X	JP H09 60792 A (KURASHIKI KAKO; O K KIZAI KK) 4 March 1997 (1997-03-04)	1	
A	* abstract; figures 1-3 *	2-11	
X	JP H11 118205 A (BAKUMA KOGYO KK) 30 April 1999 (1999-04-30)	1	TECHNICAL FIELDS SEARCHED (IPC) F24F A47B F16M
A	* abstract; figures 1-3 *	2-11	
X	JP 2006 308243 A (DAIKIN IND LTD; OK KIZAI INC) 9 November 2006 (2006-11-09)	1	
A	* abstract; figures 1-3 *	2-11	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 January 2018	Examiner Valenza, Davide
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)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 19 0076

5

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
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17-01-2018

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25

30

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45

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55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2369248 A2	28-09-2011	EP 2369248 A2	28-09-2011
		IT VR20100007 U1	23-09-2011
JP 2001182970 A	06-07-2001	JP 3488667 B2	19-01-2004
		JP 2001182970 A	06-07-2001
JP 2002349908 A	04-12-2002	JP 3430210 B2	28-07-2003
		JP 2002349908 A	04-12-2002
JP 2004212003 A	29-07-2004	NONE	
JP H0960792 A	04-03-1997	NONE	
JP H11118205 A	30-04-1999	JP 3067713 B2	24-07-2000
		JP H11118205 A	30-04-1999
JP 2006308243 A	09-11-2006	NONE	

EPO FORM P0459

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