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(54) FIXED BRACKET FOR CLAMPING TO A SQUARE BAR IN ARTICULATED-ARM AWNINGS

(57) A fixed bracket for clamping to a square bar in articulated-arm awnings relates to a piece intended to serve as a bracket and connecting link between the articulated arms of the awning and a square bar running parallel under the fabric winding shaft and is suitable for securing it to the wall, this bracket having the distinctive feature that it has a structural configuration and design specifically devised, preferably being a piece made by casting, to correct the tendency of the arms to drop with respect to said square bar and, as a result, resolve the drawbacks caused thereby in the awnings.

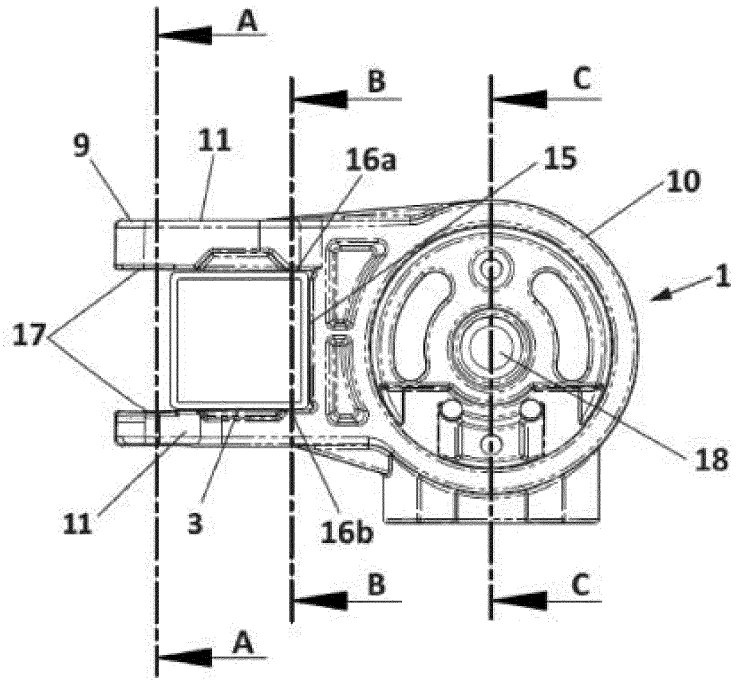

FIG. 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention, a fixed bracket for clamping to a square bar in articulated-arm awnings relates to a piece intended to serve as a bracket and connecting link between the articulated arms of the awning and a square bar running parallel under the fabric winding shaft and is suitable for securing it to the wall, this bracket having the distinctive feature that it has a structural configuration and design specifically devised, preferably being a piece made by casting, to correct the tendency of the arms to drop with respect to said square bar and, as a result, resolve the drawbacks caused thereby in the awnings.

[0002] The field of application of the present invention falls within the industrial sector devoted to the manufacture of awnings, focusing particularly on the area of invisible articulated-arm awnings and, more specifically, in the bracket systems thereof.

BACKGROUND OF THE INVENTION

[0003] When an articulated-arm awning is closed (with the canvas folded), the arms are theoretically aligned with each other, but in fact the arms usually drop, due to all of the following reasons:

- the weight of the suspended portion of the awning (arm plus load bar plus canvas),
- the clearances of the articulations,
- the considerable length of the arms, which means that a small drop angle causes the elbows to drop many centimetres, and
- the considerable length and resilience of the arm profiles, which causes quite a lot of bending when under load.

[0004] Moreover, the arm drop worsens due to the following reasons:

- the arms are in front of the square bar which is completely straight and supports the awning along the full width thereof, visually amplifying the dropped arm effect, and
- if the awning bracket is made by casting, and the mould also has the parting line in the centre (which is the most convenient from the mould manufacturing and use standpoint), then the bracket supporting faces on the square bar have a certain angle in the form of a gabled roof starting from the centre, which makes the bracket laterally and longitudinally unstable with respect to the square bar it rests upon. The brackets are not always made by casting; brackets made by extrusion are common, the supporting faces of which are parallel on the square bar, and they prevent this type of instability. However, the manufacturing cost thereof is higher.

[0005] In any case, the described arm drop brings about the following drawbacks:

- the pins in the load bar do not fulfil their role of retaining the arms, since they pass over the elbows, since they are dropped,
- Aesthetically bad impression, like a broken or incorrectly mounted awning, and
- in the case of a parting line in the centre, if the bracket piece is made by casting, the supporting surface on the square bar is reduced, contributing to the deformation thereof, and to the misalignment of the awning.

[0006] There have traditionally been two solutions to this problem known in the current state of the art:

- adding angular adjustment to the shaft linking the arm to the bracket thereof, through the lateral movement of an end of the rear shaft of the arm in an arm bracket housing, such as, for example, the one reflected in patents EP1767721/ES1057475U and ES1061705U; or making the rear arm axis eccentric at one end that alters the arm inclination as it rotates; or
- providing the rear piece of the arm with an inclination, so that the rotation axis and the profile are not perpendicular.

[0007] Therefore, aim of this invention is to provide the market with an alternative solution that prevents the awning arms from dropping by means of a new clamping bracket, which is preferably made by casting, and therefore has a cast piece.

DESCRIPTION OF THE INVENTION

[0008] The present invention, a fixed bracket for clamping to a square bar in articulated-arm awnings, relates to the bracket piece acting as a clamp of the first profile of the arm articulated to the horizontal bar that secures the awning to the wall and which has a square cross-section, according to claim 1.

[0009] The clamping brackets are usually formed by two different bracket types or pieces, a fixed bracket, which is the subject matter of the present invention, and which is directly secured to the square bar, and a mobile or rotating bracket, coupled to the fixed bracket, and to which the rear piece of an articulated arm is secured. The articulated arm is in turn formed by a rear profile and a front profile linked to each other by means of an elbow which enables the rotation of a profile with respect to the other. Specifically, the rear profile is linked by means of an intermediate piece to the rotating bracket which, by means of its activation, enables the two profiles to unfold, thus causing the awning to unfold.

[0010] Preferably, the fixed bracket, which is the subject matter of the present invention, consists of a piece made by casting and has different configurations, as required, although all of them include, in an end thereof, both parallel legs that determine an approximate C-shaped configuration which makes up the area thereof intended to receive the square bar, having in said area a series of distinctive features in the structural configuration thereof intended to correct the arm drop, and said fixed brackets in turn comprising a housing to couple the mobile bracket, so that the arm is parallel to the bar.

[0011] Specifically, and according to claim 1, the fixed bracket comprises one body with:

- a first front portion with a housing for securing the mobile bracket, said housing having a first axis in relation to which said mobile bracket rotates once coupled to the fixed bracket,
- a second rear portion, following the front portion, with two legs opposite each other, determining an inner gap between each other, with an approximate C-shaped configuration, to house the square bar, said gap being formed by a front face, a lower face and an upper face which include front, lower and upper supporting surfaces, respectively, said legs further comprising a tightening surface at the rear ends of the lower and upper faces, each upper and lower tightening surface comprising at least one hole with a common axis suitable for the insertion of a securing element, which coincides with said common axis, and prevents the square bar from coming out of the gap bringing the upper and lower faces of the legs closer to each other, such that:
- the common axis is perpendicular to the first axis,
- in a frontal rear view the common axis passes through the horizontal projection of the upper supporting surface and of the lower supporting surface of the respective upper and lower faces of the gap, and
- the supporting surfaces of the upper and lower faces are parallel and are inclined with respect to the first axis when the square bar is in the gap with said supporting surfaces in contact with the square bar by the action of the securing element.

[0012] Before their assembly on the square bar, the upper and lower supporting surfaces are parallel to each other, such that said parallelism is achieved when, after having mounted the fixed bracket on the square bar (with its four surfaces parallel in pairs) the securing element, which tends to bring the two upper and lower supporting surfaces closer together until the parallelism is achieved, is activated.

[0013] When the upper supporting surface and the lower supporting surface are in contact with the square bar due to the action of the securing element, that is, the fixed bracket is installed on said square bar, which is inserted between the legs of said fixed bracket, an angle between the first axis and the upper supporting surface is formed that is greater than 0° and less than or equal to 3°. Likewise, and in this same situation, that is, the fixed bracket being installed on the square bar, an angle between the common axis and the upper supporting surface is formed that is greater than 90° and less than or equal to 93°.

[0014] Since we are preferably dealing with a cast piece, the parting line of the mould runs along the centre of the piece throughout the entire contour thereof, although this is not compulsory, since this is usually the most advantageous for cast pieces, except for the area that comes into contact with the square bar, that is, the gap determined by the C-shaped legs. In this gap, said parting line preferably has a series of bends in the form of inclines and slopes, which are specifically designed so that the axis of the mobile or rotating bracket, which coincides with the axis of the housing for this purpose in the fixed bracket, to which the intermediate securing piece of the arm is coupled, is slightly inclined with respect to the axis of the square bar, compensating with said inclination the arm drop of the awning such that the latter is parallel to the square bar and, therefore, also parallel to the winding shaft and to the load bar obviously when said awning is folded.

[0015] Specifically, said parting line has, on the vertical surface of the separation gap between the C-shaped legs of the fixed bracket, front face, an outline of broken lines of several sections, such that said fixed bracket rests on the front face of the square bar with no movements or instability, due to the fact that it does not rest on a straight vertical line, but on said sections of the parting line, which are not aligned. Said front face is divided by a sloped closing line. Each half of the front face forms an angle of between 0.5° and 3° with the upper or lower faces. The virtual supporting plane that forms the sloped closing line is perpendicular to the upper and lower planes.

[0016] The foregoing is added to the two upper and lower faces, parallel and opposite each other when under the action of the securing element, of the C-shaped legs of the fixed bracket that is coupled to the bar, and parallel to the upper and lower surfaces of the square bar, taking advantage of the draft angles of the fixed bracket, with which the fixed bracket rests on the upper and lower horizontal surfaces of the square bar maintaining the parallelism between the supporting surfaces of the legs and the square bar. In order to prevent the arm of the awning, when folded, from being inclined with respect to the square bar due to, as mentioned above, the weight of the arm itself and the mechanical connections between the different components of the arm, the housing of the fixed bracket where the mobile bracket to which the arm of the awning is coupled is located, has an axis, which coincides with the rotation axis of the mobile bracket, and which has an inclination with respect to the aforementioned upper and lower supporting surfaces of the gap of the fixed bracket and, therefore, also with respect to the upper and lower surfaces of the square bar.

[0017] Likewise, it is important to note that the oppos-

ing supporting surfaces of the upper and lower legs of the fixed bracket occupy almost the entire extension of the face thereof, approximately between 60 % and 80 % of the total surface of the upper and lower faces, due to the bent configuration with inclines and slopes of the parting line, each leg being able to include a second flat surface, shorter in length, and inclined with respect to the previous one, said second flat surfaces also being parallel to each other.

[0018] Thus, the horizontal and vertical movement or instability on the square bar is eliminated, and an inclination that compensates the clearances and resiliencies is created, leaving the arm approximately horizontal and parallel to said surfaces. And all this without raising the cost of the piece, given that there is no weight increase or a big increase in the mould complexity, and neither is it necessary to add additional adjustment mechanisms in the fixed or mobile bracket, to compensate the aforementioned arm inclination of the awning.

[0019] The advantage of this bracket is that the solution provided thereby does not increase the cost of the product, something which happens if, in addition to the fixed bracket, inclination adjustment for closed arms are added as is the case in other systems. Furthermore, it is easier to install, since it makes the act of adjusting the inclination of the closed arms unnecessary.

[0020] Optionally, the attachment may be complemented by a rear extrusion flange, which is interposed between the square bar and the securing elements which are inserted in the holes arranged on the tightening surfaces at the rear ends of the upper and lower faces of the legs of the fixed bracket, thereby reducing the pressure on the square bar, and preventing deformations.

DESCRIPTION OF THE DRAWINGS

[0021] In order to complement the description of the invention and to contribute to a better understanding of the features of the invention, a set of figures is included by way of illustrative and non-limiting examples.

Figure 1 shows a side view of an exemplary fixed bracket according to the invention located on a square bar.

Figure 2 shows a top view of the bracket of figure 1.

Figure 3 shows a cross-section of the bracket of figure 1 according to line C-C.

Figure 4 shows a cross-section of the bracket of figure 1 according to line A-A.

Figure 5 shows a cross-section of the bracket of figure 1 according to line B-B.

Figure 6 shows a side view of an alternative example of fixed bracket according to the invention located on a square bar.

Figure 7 shows a top view of the bracket of figure 1.

Figure 8 shows a cross-section of the bracket of figure 1 according to line C-C.

Figure 9 shows a cross-section of the bracket of figure 1 according to line A-A.

Figure 10 shows a cross-section of the bracket of figure 1 according to line B-B.

Figure 11 shows a perspective view of an exemplary fixed clamping bracket with a coupled mobile bracket, which is the subject matter of the invention, in which the main portions and elements it comprises and which characterise it may be seen, where one may observe the configuration and arrangement thereof.

Figure 12 shows a perspective view of an alternative example of the fixed clamping bracket without a mobile bracket being coupled, which is the subject matter of the invention, in which the main portions and elements it comprises and which characterise it may be seen, where one may observe the configuration and arrangement thereof.

Figure 13 shows an elevational view of the exemplary fixed bracket, according to the invention, shown in the previous figure, in which one may very clearly see the outline of the mould parting line it has, as well as the supporting areas of the opposite surfaces of the legs.

Figure 14 shows a side view of figure 11 in which the fixed bracket is installed on a square bar.

Figure 15 shows a top view of figure 14.

Figure 16 shows a side view of figure 12 in which the fixed bracket is installed on a square bar.

Figure 17 shows a top view of figure 16.

Figures 18 shows a frontal view of an awning structure of the state of the art, where the arm inclination with respect to the support bar may be seen.

Figure 19 shows a frontal view of an awning structure where an exemplary clamping bracket is incorporated, which is the subject matter of the invention, where one may see the correcting effect produced on the arm with no inclination with respect to the square bar.

Figure 20 shows a cross-section of the awning structure according to figure 19 by the mobile or rotating clamping bracket of the awning arm.

Figure 21 shows a side view of the awning structure of figure 19 in which the different components thereof are seen.

PREFERRED EMBODIMENT OF THE INVENTION

[0022] As may be seen in said figures, they represent two alternative fixed brackets. A first alternative shown in figures 1 to 5, 11, 14, 15, 20 and 21, and a second alternative shown in figures 6 to 10, 12, 13, 16 and 17. Figures 18 and 19 are valid as an example of application of both fixed brackets according to the invention.

[0023] According to said figures, and common to both examples of the invention, the clamping bracket of the awning arm comprises a fixed bracket (1) and a mobile or rotating bracket (6) coupled to a housing (18) arranged in the fixed bracket (1) and which rotates with respect to a first rotation axis (b). Said mobile bracket (6) is specif-

ically coupled to the front portion of the fixed bracket (1), where the housing (18) is provided. The awning generally comprises a winding element (4), a load bar (5) and a clamping bracket (1) of the articulated the arms (2) of the awning, such that the assembly rests or is secured on a square bar (3) by means of legs (11) arranged in the rear portion of the fixed bracket (1) determining a space with a C-shaped configuration. The square bar (3) is secured, by means of a securing element (7), to a surface (P), which is usually vertical. Said bar (3) is horizontal and the upper and lower faces thereof are horizontal. When it acts upon the winding element (4), the articulated arm (2), formed by a rear profile, linked to the mobile bracket (6) by means of an intermediate piece, and a front profile linked by an elbow, is unfolded pulling the load bar (5) and, therefore, unrolling the awning. The fixed bracket (1) remains secured to the bar (3) by means of at least two securing elements, preferably screws (19), which pass through the ends of the legs (11) of the fixed bracket (1) according to a common axis (7).

[0024] The fixed bracket (1), which is the subject matter of the invention, comprises, in the two shown configurations thereof, a body with:

- a first front portion with a housing (18) to secure the mobile bracket (6), said housing (18) comprising a first axis (b) with respect to which such mobile bracket (6) rotates once coupled to the fixed bracket (1),
- a second rear portion, following the front portion, with two legs (11) opposite each other, determining an inner gap (12) between each other to house the square bar (3), said gap (12) being formed by a front face, a lower face and an upper face including front (15), lower (16a) and upper (16b) supporting surfaces, respectively, said legs (1) further comprising a tightening surface (17) at the rear ends of the lower and upper faces, each upper and lower tightening surface (17) comprising at least one hole (9) with a common axis (t) suitable for the insertion of a securing element (19), which coincides with said common axis (t) and, prevents the square bar (3) from coming out of the gap (12) bringing the upper and lower faces of the legs (11) closer to each other, such that:
    - the common axis (t) is perpendicular to the first axis (b),
    - in a frontal rear view, according to figures 5 and 10, the common axis (t) passes through the horizontal projection of the upper supporting surface (16a) and of the lower supporting surface (16b) of the respective upper and lower faces of the gap (12), and
    - the supporting surfaces of the upper (16a) and lower (16b) faces are parallel and are inclined with respect to the first axis (b), when the square bar (3) is in the gap (12) with said supporting surfaces (16a, 16b) in contact with the square bar (3) by the action of the securing element (19).

[0025] As mentioned above, the fixed bracket (1) consists of a piece (1) made by casting intended to secure the rear profile of the articulated arm (2) to the square bar (3) in the structure of an awning (4), by means of an intermediate piece. The fixed bracket (1) has a body (10) with a variable configuration, as required, to be secured to said profile of the bar (3), which includes, in the rear portion thereof, both parallel legs (11) which arise, in an approximate C-shape configuration, determining a square gap (12) which coincides with the square cross-section of the square bar (3) to which the fixed bracket (1) is coupled. Said legs (11) have holes (9) in the rear ends of the legs for the insertion of securing elements, preferably screws (19) that run along a common axis (t) and enable said fixed bracket (1) to be secured to the bar (3).

[0026] In said fixed bracket (1), as may be seen in figure 13, the parting line (13) of the mould preferably runs along the centre plane (represented in said figure 13 by an line referenced as (14)) thereof throughout the entire contour thereof except on the surfaces that determine the aforementioned gap (12) forming the legs (11) and which is the contact area with the square bar (3), where said parting line (13) has a series of bends in the form of inclines and slopes.

[0027] Likewise, said fixed bracket (1) comprises a housing (17), which may be a through housing, and where the mobile or rotating bracket (6), to which the articulated arms of the awning are fastened, are coupled. The axis (b) of said housing coincides with the rotation axis of the mobile bracket (6) and forms an angle, that is, it is not parallel, with the upper (16b) and lower (16a) supporting surfaces of the legs (11), as well as the upper and lower surfaces of the square bar (3), when the fixed bracket (1) is installed on said bar (3). Said angle is variable, greater than 0° and less than 4°, and preferably between 0.5° and 3°, depending on the dimensions of the arm and on the bracket thereof. With this angle, the inclination of the articulated arm is corrected when it is folded, compensating the movements due to the weight and the succession of mechanisms and couplings between the components arranged between the fixed bracket (1) and the end of the articulated arm (2).

[0028] Likewise, and complementarily, the common axis (t) and the upper supporting surface (16a), when the square bar (3) is in the gap (12) with said supporting surfaces (16a, 16b) in contact with the square bar (3) by the action of the securing element (19), form with respect to each other an angle that is greater than 90° and less than or equal to 93°.

[0029] Specifically, the parting line (13) of the mould in the piece (1), on the vertical bottom surface (15) of the gap (12) that separates both legs (1), has an outline of broken lines in several sections, such that it does not run vertically aligned to coincide with the centre plane (14), so that the fixed bracket (1) in said bottom surface (15) rests on the front face of the square bar (3) through said sections that are not aligned and unstable, since it does

not rest on a vertical straight line, but on those sections of the parting line, which are not aligned.

[0030] Preferably, on the vertical bottom surface (15) of the gap (12) it is envisaged that the parting line (13) of the mould has, at least, a lower vertical section (13a) on a side of said surface, a diagonal section (13b) which takes it to the opposite side, and an upper vertical section (13c), with which both areas (15a) divided by said sections are determined.

[0031] At the same time, the two opposite sides of the legs (11) of the fixed bracket (1) have the lower (16a) and upper (16b) horizontal supporting surfaces of the gap (12) between which the bar (3) is coupled, respectively resting on the upper and lower face or surface of said bar (3). Said supporting surfaces (16) of the legs (11) are parallel to each other, at least for the most part, and also parallel to the upper and lower surfaces of the square bar (3), when the square bar (3) is in the gap (12) with said supporting surfaces (16a, 16b) in contact with the square bar (3) by the action of the securing element (19). Thus, said horizontal supporting surfaces (16) have the inclination angle with respect to the axis (b) of the mobile bracket (6).

[0032] Likewise, said supporting surfaces (16) are not exactly perpendicular to said centre plane (14), whereby the piece (1) rests on the surface of the upper and lower horizontal faces of the square bar (3) assuming said inclination, as may be seen in figure 7 where the bar has been represented by means of imaginary dotted lines. The holes (9) where the screws (19) are inserted are arranged on the upper and lower tightening surfaces (17) of the legs (11) of the fixed bracket (1), such that when said screws (19) are performing their tightening task, they run along a common axis (t).

[0033] Moreover, these horizontal supporting surfaces (16) of the parallel and opposing faces of the upper and lower legs (11) of the piece (1), occupy almost the entire extension thereof, between 60 % and 80 %, due to the fact that the parting line (13) runs thereon in the respective lateral and opposite ends thereof, as it follows the previously described bent sections of the vertical bottom surface (15), this aspect also being clearly visible in figure 12.

[0034] Lastly, at the ends of the legs (11), the parting line (13) of the mould has an inclined section (13d) to regain its position in the centre plane (14) when the square bar (3) is removed from the coupling area and remains in said centre plane (14) in the entire remaining contour of the piece.

[0035] The example of figures 1 to 5, 11, 14, 15, 20 and 21, show a fixed bracket comprising two tightening elements or screws (19) while the second alternative shown in figures 6 to 10, 12, 13, 16 and 17, only shows a single tightening element or screw (19). These tightening elements (19) obviously work together with nuts or similar that secure the fastening position of the fixed bracket (1) to the bar (3).

Claims

1. A fixed bracket (1) for clamping to a square bar (3) in articulated-arm awnings (2), to secure the profile of the articulated arm (2) to the square bar (3) by means of a mobile bracket (6) coupled to the fixed bracket (1) by means of a rotating joint, and said fixed bracket (1) comprising a body with:

   - a first front portion with a housing (18) to secure the mobile bracket (6), said housing (18) having a first axis (b) with respect to which said mobile bracket (6) rotates once coupled to the fixed bracket (1),
   - a second rear portion, following the front portion, with two legs (11) opposite each other, determining an inner gap (12) between each other to house the square bar (3), said gap (12) being formed by a front face, a lower face and an upper face including front (15), lower (16a) and upper (16b) supporting surfaces (15), respectively, said legs (11) further comprising a tightening surface (17) at the rear ends of the lower and upper faces, each upper and lower tightening surface (17) comprising at least one hole (9) with a common axis (t) suitable for the insertion of a securing element (19), which coincides with said common axis (t) and, prevents the square bar (3) from coming out of the gap (12) bringing the upper and lower faces of the legs (11) closer to each other, and **characterised in that**
   - the common axis (t) is perpendicular to the first axis (b),
   - in a frontal rear view (FIG 5 and FIG 10) the common axis (t) passes through the horizontal projection of the upper supporting surface (16a) and of the lower supporting surface (16b) of the respective upper and lower faces of the gap (12), and
   - the supporting surfaces of the upper (16a) and lower (16b) faces are parallel and are inclined with respect to the first axis (b), when the square bar (3) is in the gap (12) with said supporting surfaces (16a, 16b) in contact with the square bar (3) by the action of the securing element (19).

2. The fixed bracket (1), according to claim 1, **characterised in that** the first axis (b) and the upper supporting surface (16a), when the square bar (3) is in the gap (12) with said supporting surfaces (16a, 16b) in contact with the square bar (3) by the action of the securing element (19), form with respect to each other an angle greater than 0° and less than or equal to 3°.

3. The fixed bracket (1), according to claim 1, **characterised in that** the common axis (t) and the upper supporting surface (16a), when the square bar (3) is

in the gap (12) with said supporting surfaces (16a, 16b) in contact with the square bar (3) by the action of the securing element (19), form with respect to each other an angle greater than 90° and less than or equal to 93°.

4. The bracket (1), according to claim 1, **characterised in that** it is formed by a piece (1) made by casting and has a parting line (13) of said mould that runs along the centre plane (14) of the piece throughout the entire contour thereof, except on the faces that determine the gap (12) forming the legs (11) and determining the contact surface with the square bar (3), where said parting line (13) has a series of bends in the form of inclines and slopes.

5. The bracket, according to claim 4, **characterised in that** the parting line (13) of the mould on the piece (1), on the front face (15) of the gap (12) that separates both legs, has an outline of broken lines in several sections that are not vertically aligned to coincide with the centre plane (14).

6. The bracket, according to claim 5, **characterised in that** on the front face (15) of the gap (12), the parting line (13) of the mould has, at least, a lower vertical section (13a) on a side of said surface, a diagonal section (13b) which takes it to the opposite side, and an upper vertical section (13c), determining both areas (15a) divided by said section, forming the possible front supporting surfaces of the bar in the gap determined by both legs.

7. The bracket, according to claim 1, **characterised in that** the supporting surfaces (16) of the upper and lower legs (11), occupy almost the entire extension of the legs (11).

8. The bracket, according to any of the claims 4 to 6, **characterised in that**, at the ends of the legs (11), the parting line (13) of the mould has an inclined section (13d) in order to regain its position in the centre plane (14) when removed from the contact surface with the square bar (3) and remains in said centre plane (14) in the entire remaining contour of the piece.

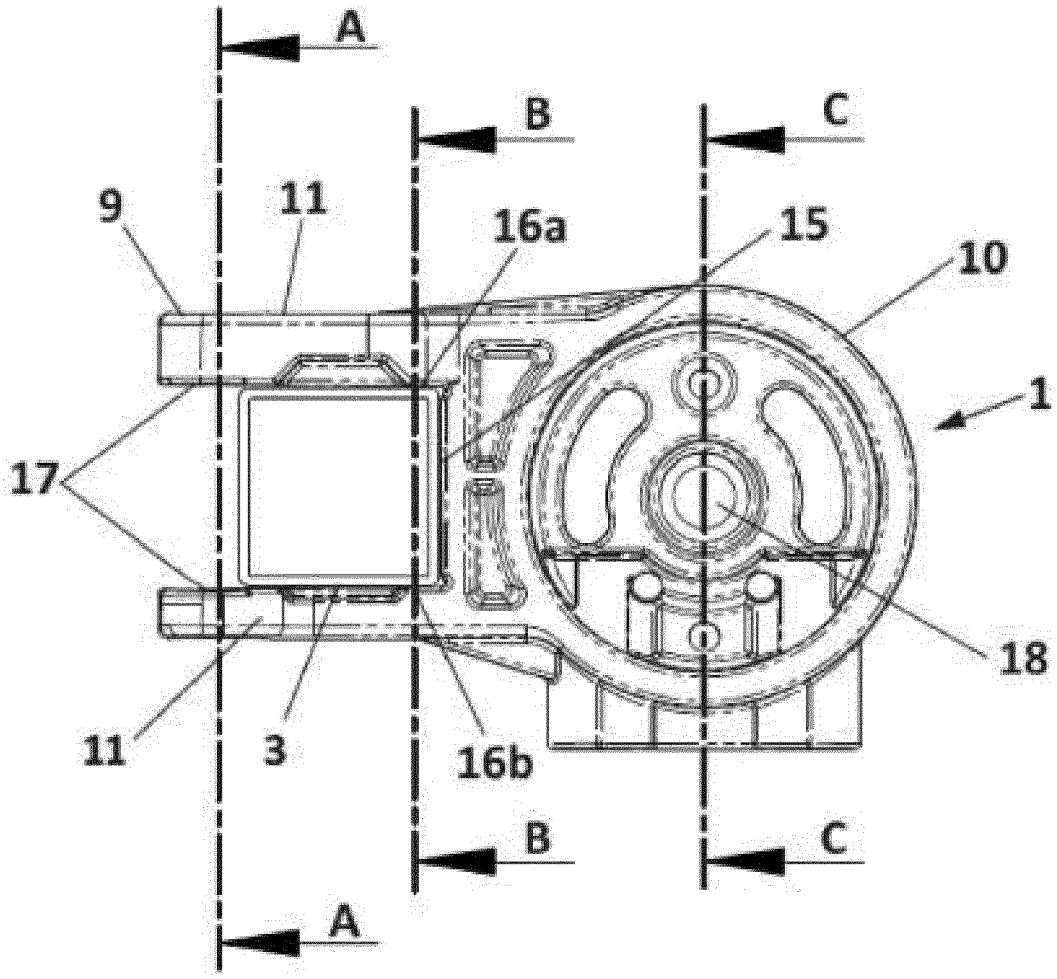

FIG. 1

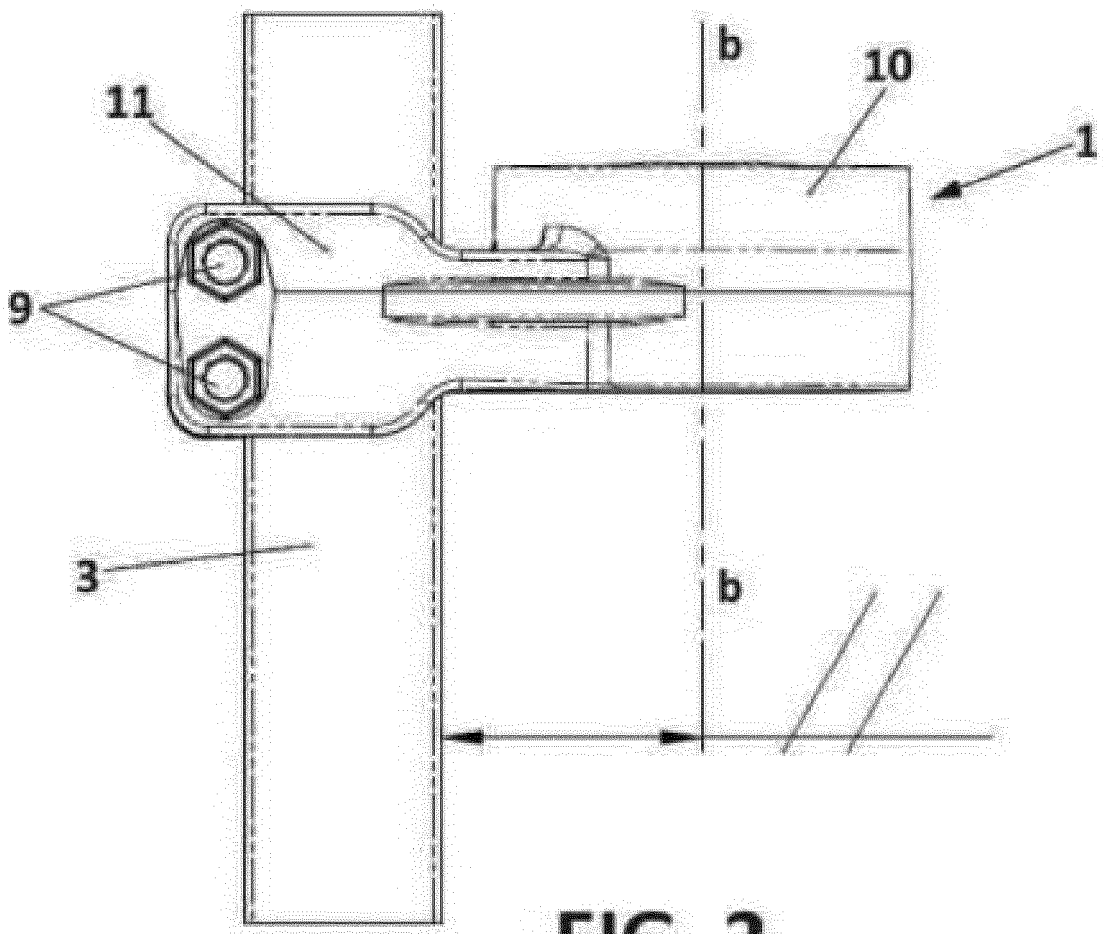

FIG. 2

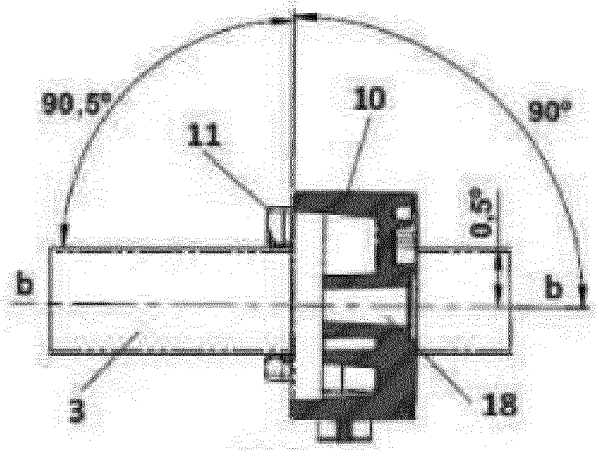

FIG. 3
C-C

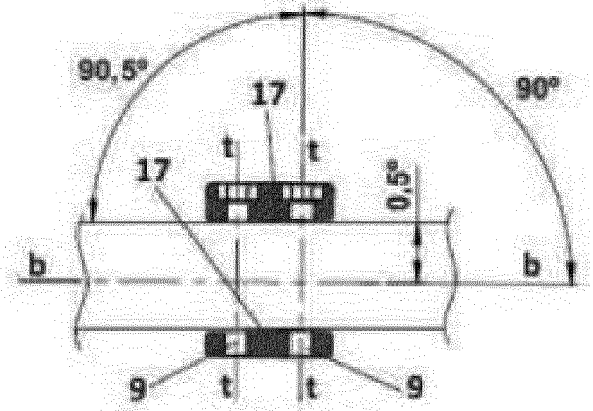

FIG. 4
D-D

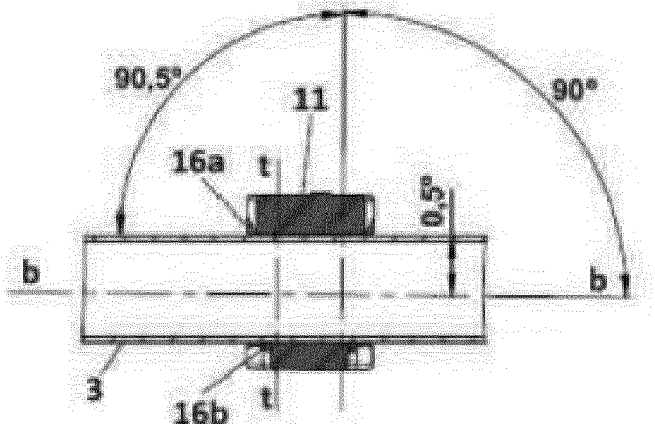

FIG. 5
B-B

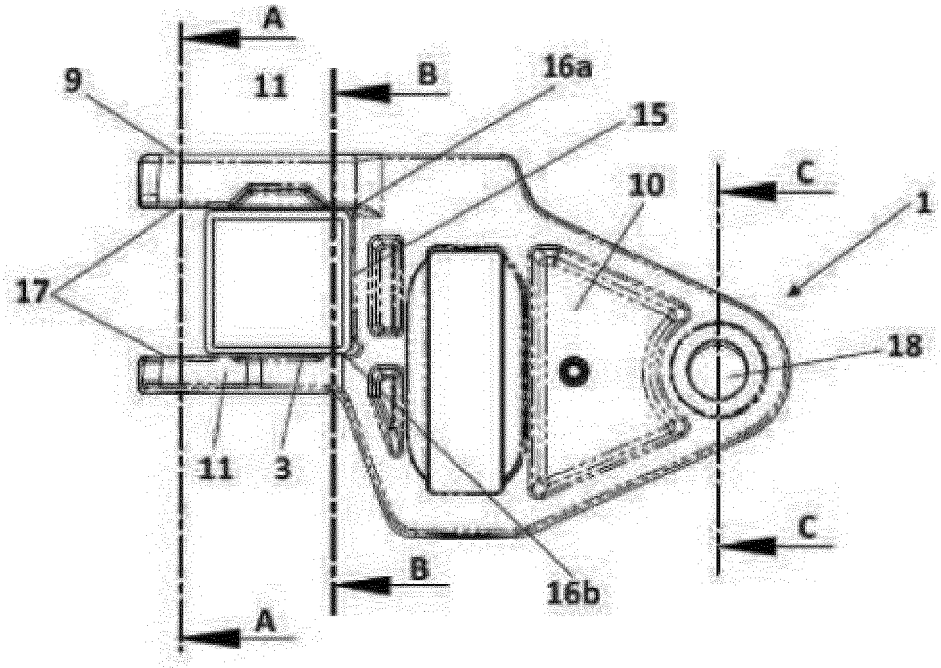

FIG. 6

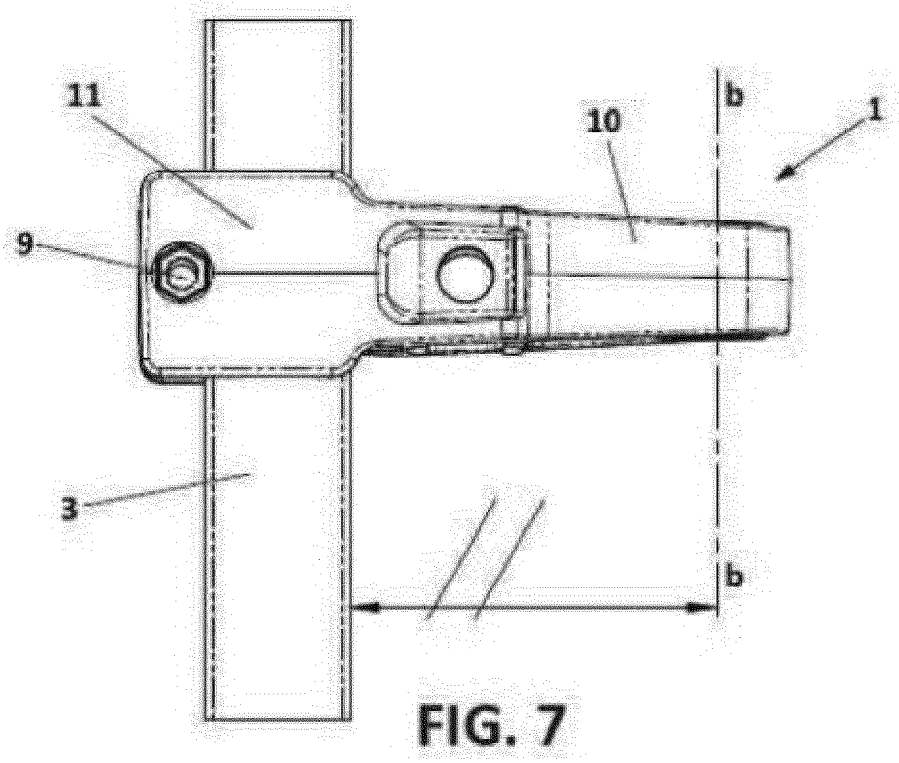

FIG. 7

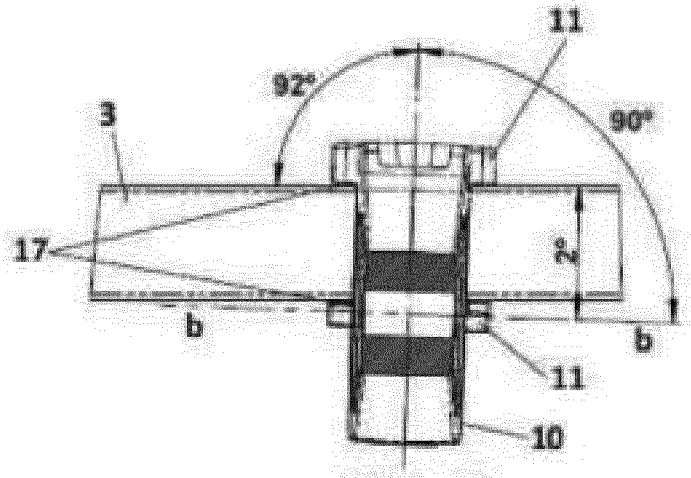

FIG. 8

C-C

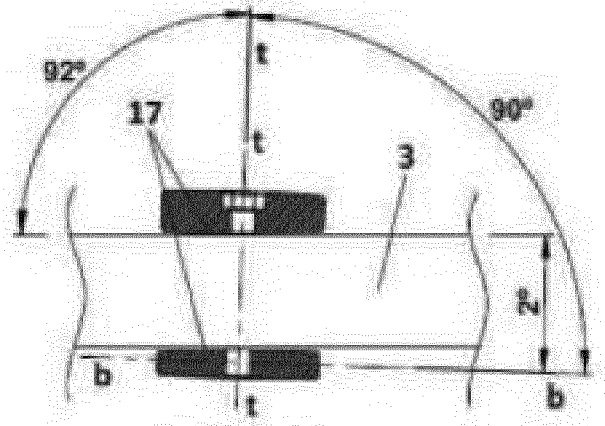

FIG. 9

A-A

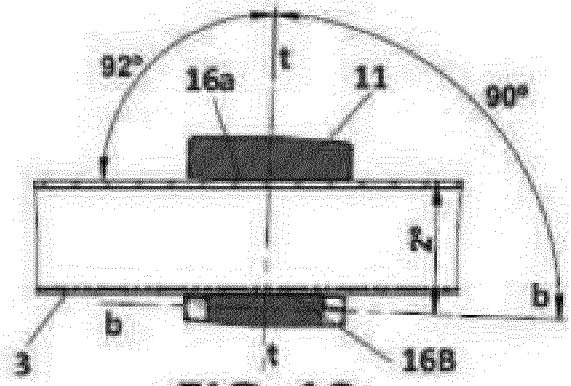

FIG. 10

B-B

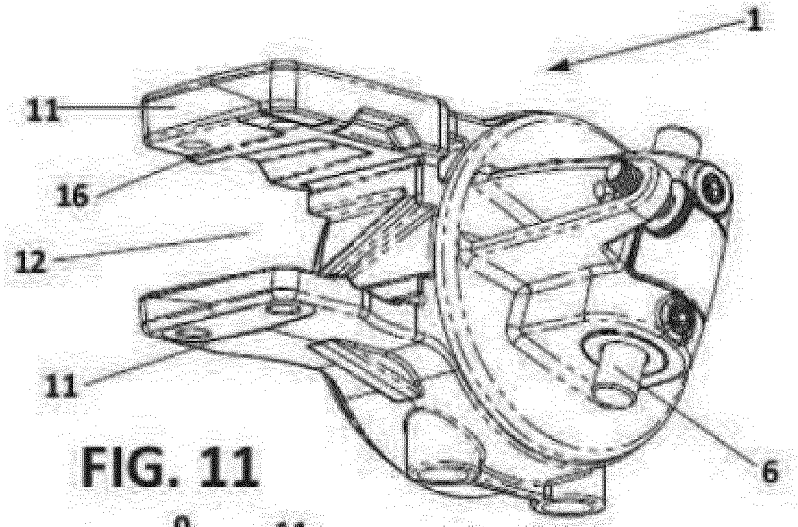

FIG. 11

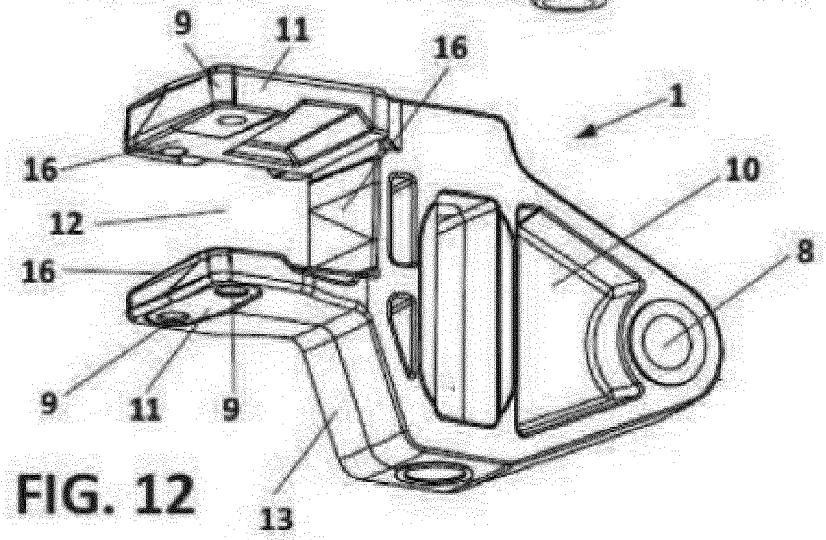

FIG. 12

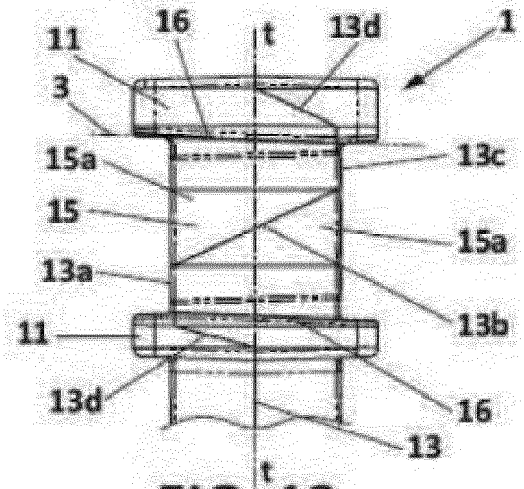

FIG. 13

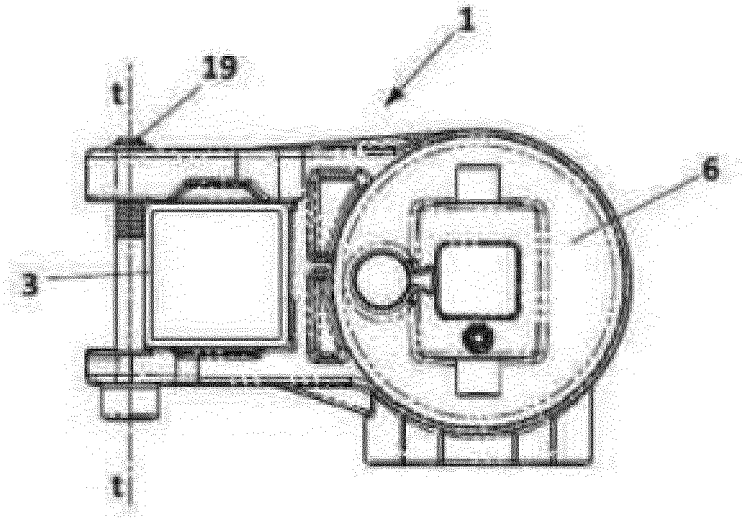

FIG. 14

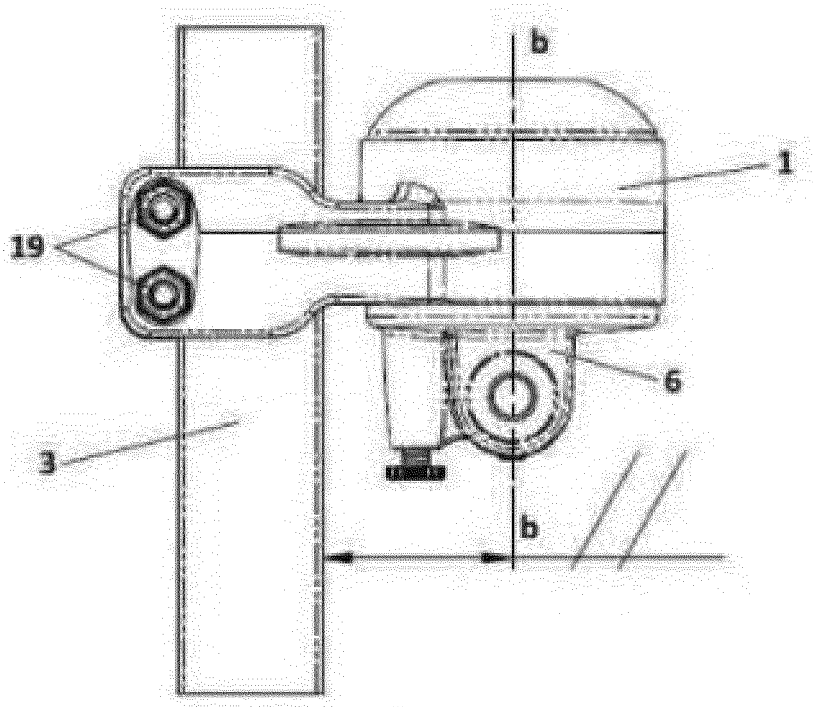

FIG. 15

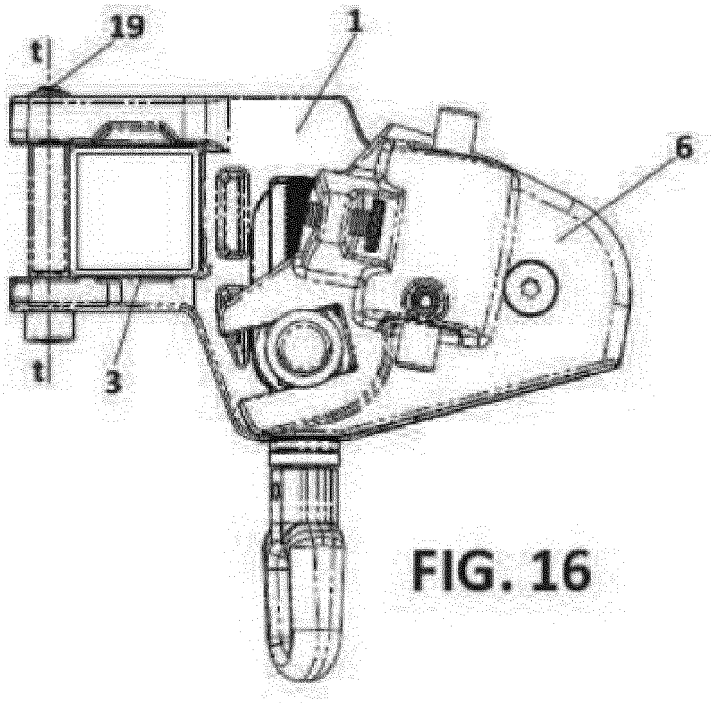

FIG. 16

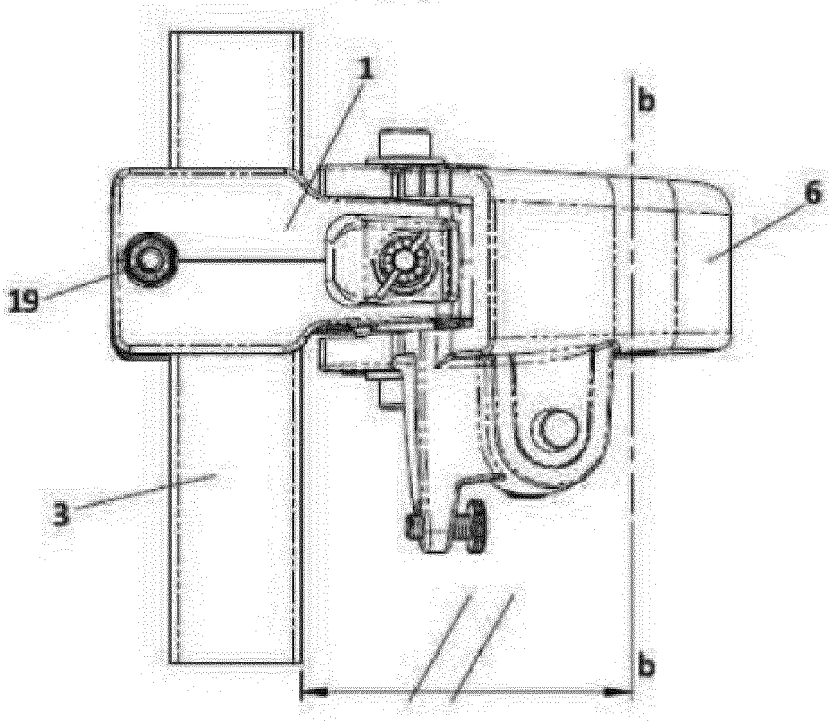

FIG. 17

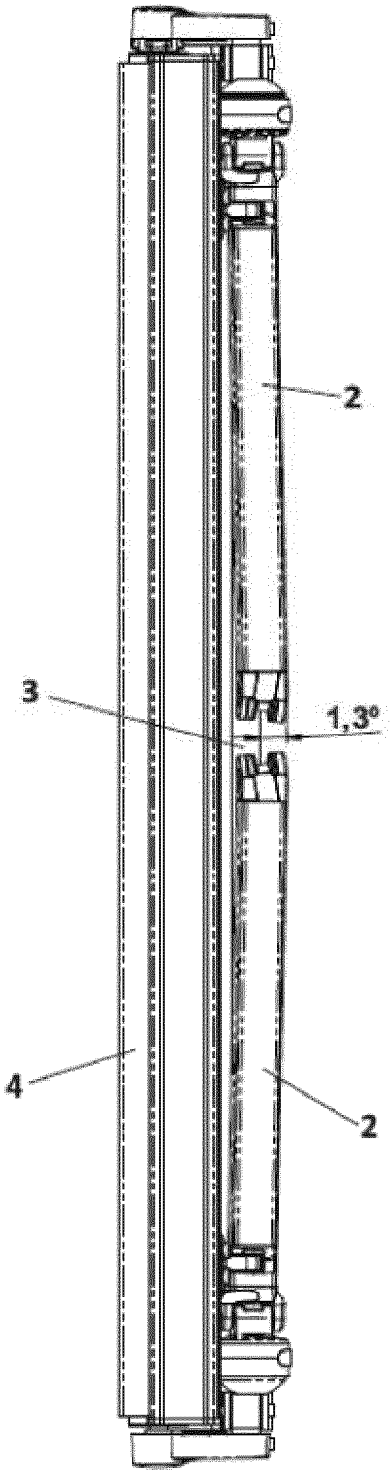

FIG. 18

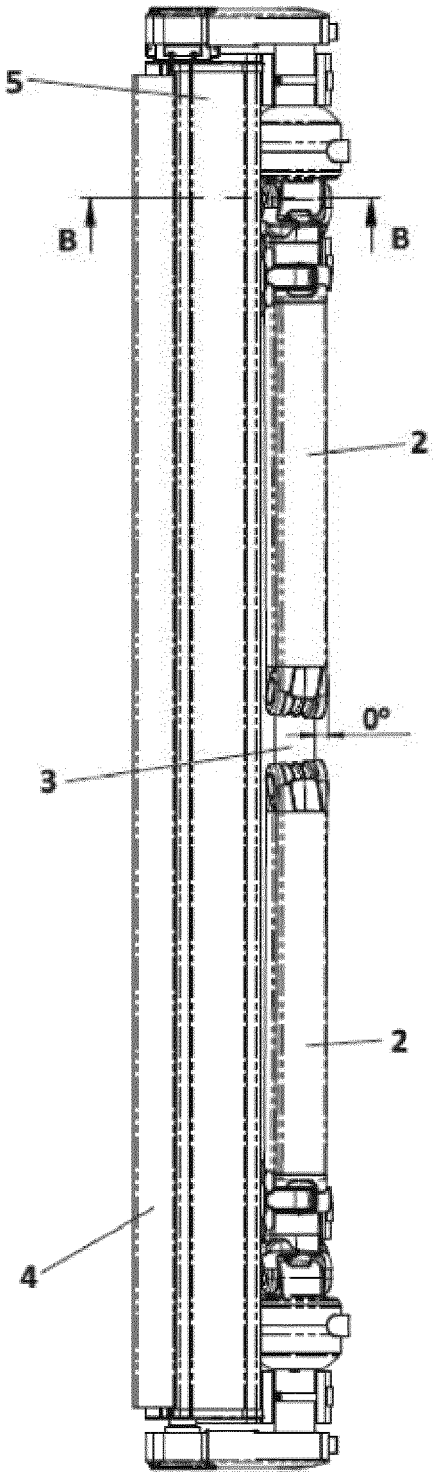

FIG. 19

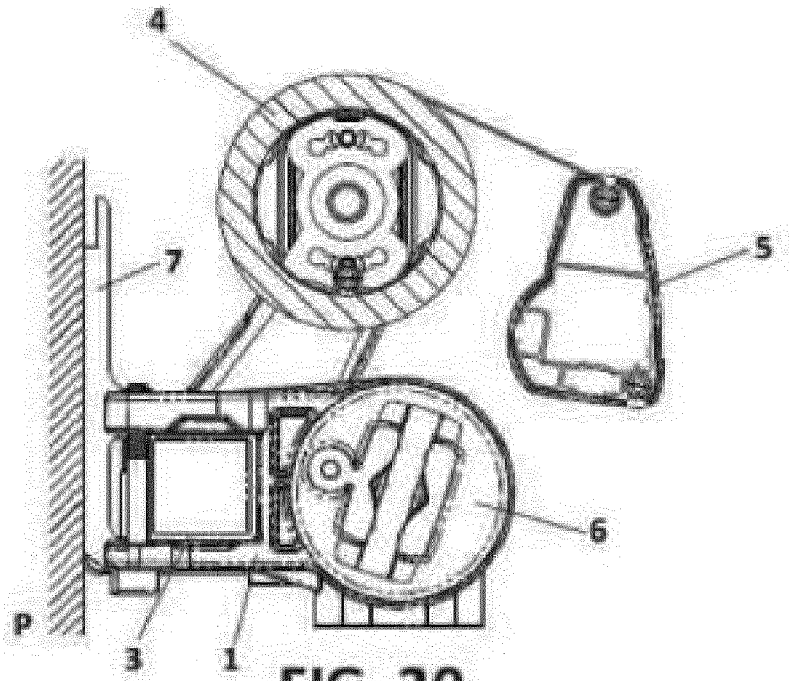

FIG. 20
B-B

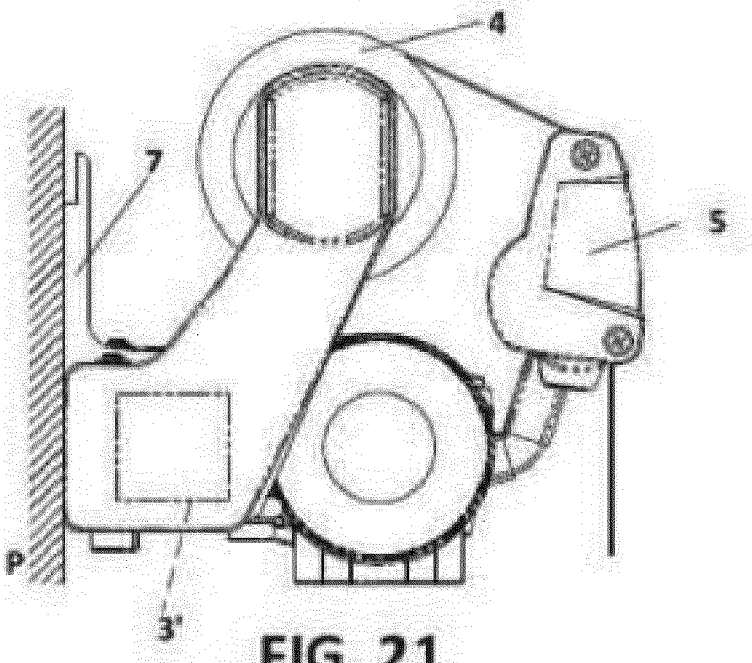

FIG. 21

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EUROPEAN SEARCH REPORT

Application Number
EP 16 38 2100

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	ES 1 065 987 U (LLAZA SA [ES]) 1 December 2007 (2007-12-01) * the whole document *	1-8	INV. E04F10/06
X	DE 102 16 478 A1 (SCHMITZ WERKE [DE]) 23 October 2003 (2003-10-23) * column 2, line 41 - line 46 * * column 3, line 2 - line 18; figures 1-3 * *	1-8	
X	DE 299 18 156 U1 (VOSS PAUL GMBH & CO [DE]) 24 February 2000 (2000-02-24) * page 6, line 14 - line 19 * * page 7, line 23 - line 25; figure 1 *	1-8	
A,D	EP 1 767 721 A1 (LLAZA SA [ES]) 28 March 2007 (2007-03-28) * the whole document *	1-8	

TECHNICAL FIELDS SEARCHED (IPC)
E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	18 November 2016	Afanasiev, Andrey

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18-11-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
ES 1065987 U	01-12-2007	ES 1065987 U	01-12-2007
		WO 2009027560 A1	05-03-2009
DE 10216478 A1	23-10-2003	NONE	
DE 29918156 U1	24-02-2000	AT 255195 T	15-12-2003
		AU 7524300 A	23-04-2001
		DE 29918156 U1	24-02-2000
		EP 1220968 A1	10-07-2002
		ES 2209992 T3	01-07-2004
		US 2003108259 A1	12-06-2003
		WO 0127409 A1	19-04-2001
EP 1767721 A1	28-03-2007	AT 465308 T	15-05-2010
		EP 1767721 A1	28-03-2007
		ES 1057475 U	01-08-2004
		ES 2342779 T3	14-07-2010
		WO 2005113915 A1	01-12-2005

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Patent documents cited in the description

- EP 1767721 A **[0006]**
- ES 1057475 U **[0006]**
- ES 1061705 U **[0006]**