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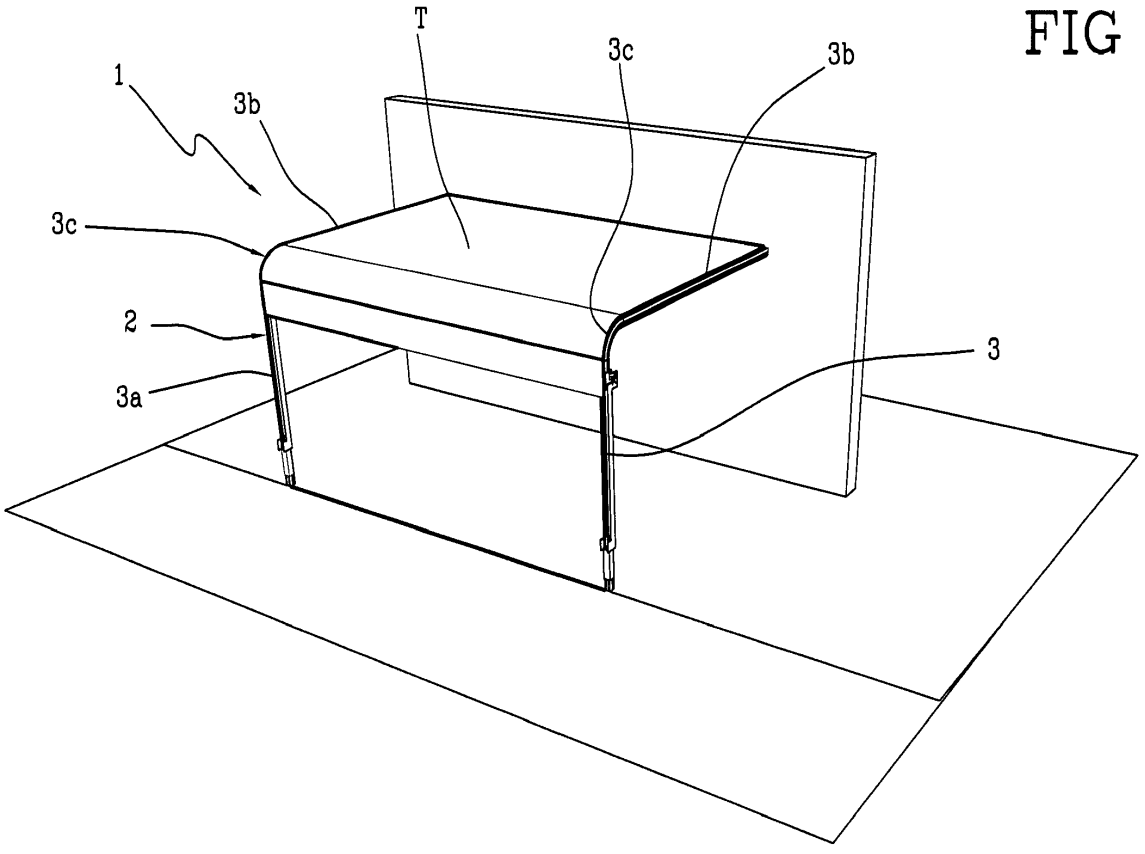
(54) **Structure for moving awnings**

(57) A structure (1) for moving awnings comprises a supporting frame (2) comprising a pair of guides (3) forming a sliding path for the awning (T), a carriage , connectable to one end of the awning (T) and coupled to the guides (3) for sliding along the sliding path formed by the guides (3), and movement means (4), operatively associated with the supporting frame (2) for intercepting the carriage and moving it away from the sliding path thus varying the way in which the awning (T) lies.

FIG 1



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Description

[0001] This invention relates to a structure for moving awnings, in particular exterior awnings.

[0002] In particular, the invention is also applicable to existing awnings of the traditional type, commonly known as "garden" awnings.

[0003] "Garden" awnings are usually used in areas requiring both overhead cover and front cover, for example balconies, large terraces or areas set up for use as bars, restaurants, commercial premises in general which use outdoor display areas. Garden awnings usually abut a wall, projecting forwards as far as necessary thanks to aluminium guides equipped with sliding channels which allow a special carriage to guide the fabric during the downstroke and return upstroke. Connected to the guide there is a curve, also equipped with channels. It is to the curve that a guiding column is connected, descending vertically and so allowing the fabric to cover the front part of the area.

[0004] Awnings of this type are limited because they can only cover a maximum area with fixed extension, since the positioning and fixing of the vertical columns defines a non-modifiable maximum perimeter of the cover. Therefore, the type of awning described above does not allow, if necessary, coverage of areas adjacent to the above-mentioned maximum perimeter. Such a requirement would call for substitution of the awning with another having larger dimensions, or installation of a second awning.

[0005] In this context, the technical purpose which forms the basis of this invention is to provide a structure for moving awnings that overcomes the above-mentioned disadvantages of the prior art.

[0006] In particular, this invention has for an aim to provide a structure for moving awnings which offers a high level of operating flexibility and, in particular, when necessary can also be adapted for covering areas adjacent to the outer perimeter defined by the vertical columns.

[0007] The technical purpose indicated and the aim specified are substantially achieved by a structure for moving awnings with the features described in one or more of the appended claims.

[0008] Further features and advantages of this invention are more apparent from the non-limiting description which follows of a preferred, non-limiting embodiment of a structure for moving awnings as illustrated in the accompanying drawings, in which:

- Figure 1 is a perspective view of a structure for moving awnings made according to this invention, in a first operating configuration;
- Figure 2 is a perspective view of the structure of Figure 1 in a second operating configuration;
- Figure 3 is a side view of an upright of the structure of Figure 1 in the first operating configuration;
- Figure 4 is a side view of an upright of the structure of Figure 1 in a plurality of second operating configurations;
- Figure 5 is a perspective view of a detail of the structure of Figure 1 in a not mounted configuration;
- Figure 6 is a perspective view of the detail of Figure 5 in a mounted configuration;
- Figure 7 is a perspective view of the detail of Figure 6 in the mounted configuration and with some parts cut away in order to better illustrate others;
- Figure 8 is a perspective view of an awning supporting arm which is part of the structure of Figure 1;
- Figure 9 is a perspective view of an upright of the structure of Figure 1 in a first operating configuration;
- Figure 10 is a perspective view of the upright of Figure 9 in a second operating configuration;
- Figure 11 is a perspective view of the upright of Figure 9 in a third operating configuration;
- Figure 12 is a perspective view of a detail of the supporting arm of Figure 8.

[0009] With reference to the accompanying drawings, the numeral 1 denotes in its entirety a structure for moving awnings according to this invention.

[0010] For the purposes of this description, the term "awning" refers to a generic tarpaulin positioned so that it covers an area and suitable for protecting against the weather (sun, rain, etc.).

[0011] The structure 1 is positioned so that it covers an area which, in Figures 1 and 2, is rectangular.

[0012] The structure 1 comprises a supporting frame 2 for an awning 100, the supporting frame 2 comprising a pair of guides 3 forming a sliding path for the awning.

[0013] The guides 3 are made in metal profiles suitably shaped to form a predetermined number of channels having dimensions suitable for performing the normal functions of guide for the carriage (according to a known type of operation).

[0014] Each guide 3 comprises a first stretch 3a forming an upright and designed to be angled substantially vertically, a second stretch 3b forming a crosspiece and positioned transversally to the first stretch 3a, and a connecting element 3c connecting the first and second stretches 3a, 3b in such a way that the first and second stretches 3a, 3b and the angular connecting element 3c form a continuous guide.

[0015] The crosspiece 3b supports the stretch of the awning "T" forming the upper covering for the area and the front of the crosspiece rests on the respective upright 3a while the back is fixed to a vertical wall. The crosspiece 3b may be positioned horizontally or it may lie at an angle.

[0016] Connected to the guides 3 there is a carriage (not visible in the accompanying drawings) of the known type, which slides along the sliding path formed by the guides 3 and to which the front edge of the awning "T" is fixed. In that way, the carriage is a guiding element for the front edge of the awning "T" along the guides guide 3.

[0017] On the other side the awning "T" may be connected to winding means (not illustrated), for example a

manual or motor-driven winder.

[0018] The movement of the awning "T" is such that it only allows only overhead coverage of the area or a segment of it (where the carriage remains on the crosspieces 3b), or also front coverage (where the carriage engages with the uprights 3a), the latter case being illustrated in Figure 1.

[0019] Advantageously, the structure 1 comprises movement means 4, operatively associated with the supporting structure 1 for intercepting the carriage and moving it away from the sliding path normally formed by the guides 3, thus varying the way in which the awning "T" lies (Figure 2).

[0020] In particular, the movement means 4 cause the carriage to exit the corresponding sliding channels of the guides 3. The movement means then cause a carriage frontal movement, away from the surface initially covered by the awning "T", so as to increase the surface area covered by the structure 1.

[0021] In other words, the movement means 4 are designed to cause a final configuration of the awning "T" with the carriage projecting from the uprights 3a and no longer directly supported by them, covering an additional area in front of the uprights 3a.

[0022] In the embodiment illustrated, the movement means 4 comprise a pair of supporting arms 5, each associated with a respective guide 3 and mobile relative to the guide 3 between a first position (Figure 3) for picking up the carriage from the guide 3 and at least one second position (Figure 4) in which it positions the carriage in a position away from the guide 3.

[0023] In more detail, each arm 5 is hinged to the respective guide 3 (preferably to the upright 3a) and can rotate about a fixed axis "X" to adopt the above-mentioned positions.

[0024] Preferably, each supporting arm 5 is designed to adopt a plurality of second positions angularly rotated relative to the first position and angularly distributed about the axis "X".

[0025] Each supporting arm 5 is applied to the respective guide 3 by means of a fixing unit 6 which may be stably connected, preferably removably, to the guide 3 (in particular to the upright 3a).

[0026] Figures 5 to 7 show the fixing unit 6 in detail.

[0027] The fixing unit 6 comprises a pair of plates 6a which can be associated in an adjustable way, allowing their application on guides 3 having different dimensions. The plates 6a are designed to engage with the opposite lateral walls of the guide 3 and can be stably fixed to the guide 3 using threaded elements 6b which tighten on clamping plates 6c that can be inserted in special channels made in the guide 3 profile.

[0028] Each plate comprises a support 6d for housing a pin 6e which, in conjunction with a similar pin 6e mounted on the other plate 6, defines the above-mentioned axis "X" of rotation of the supporting arm 5.

[0029] The fixing unit 6 is shaped in such a way that it does not interfere with the movement of the carriage along the guide 3. In particular, the fixing unit 6 can surround the guide 3 on three sides, leaving free the front portion used for carriage sliding.

[0030] Figure 6 shows in detail the connection of the supporting arm 5 to the fixing unit 6. In particular, the supporting arm 5 is fitted, at its first end 5a, with a pair of bushings 7 which are aligned with each other and designed to rotatably engage with the above-mentioned pins 6e.

[0031] Preferably, on the outside of the bushings 7 there are indentations 8 (Figures 6 and 7) which can engage with a stop element 9, or "pawl", which allows the bushings 7 to rotate in one direction (for lifting of the supporting arm 5) while it prevents the bushings from rotating in the direction for lowering the supporting arm 5 at said indentations 8.

[0032] Manually disengaging the pawl 9 (in particular, lifting it, considering the embodiment illustrated in Figures 5 to 7) in any case allows the supporting arm 5 freedom of rotation in both directions to be restored.

[0033] Figure 8 shows in detail the shape of the supporting arm 5.

[0034] The supporting arm 5 is straight and preferably comprises a pair of parallel plate-shaped elements 10 having the same main direction of extension and between them forming a free space 11 designed to be occupied by the respective guide 3 in such a way that the supporting arm 5 can adopt a position in which it is at least partly superposed on the guide (Figure 3).

[0035] Advantageously, each supporting arm 5 comprises, at the other end 5b opposite the first end 5a, a receiving portion 12 forming a stretch of the respective guide 3 in such a way that when the carriage reaches said stretch of the guide 13, the carriage can be moved away from the guide 3 by movement of the supporting arms 5.

[0036] In more detail, as is also shown in Figures 9 to 11, each guide 3 (preferably each upright 3a) comprises a gap stretch 13 substantially shaped to match the receiving portion 12. The gap stretch 13 may therefore engage with the receiving portion 12, in particular when the supporting arm 5 is across the guide 2, for restoring the continuity of the guide 3. Therefore, the carriage can pass from the guide 3 to the receiving portion 12 without any alteration of its motion and, once it has reached the receiving portion 12, movement of the supporting arm 5 allows the carriage to be moved away from the guide 3 so as to vary the configuration of the awning "T".

[0037] As a result, each supporting arm 5, in its first position, holds the receiving portion 12 at the gap stretch 13 completing the guide 3 whilst, in the second positions, it holds the receiving portion 12 in an area away from (and raised relative to) the gap stretch 13.

[0038] As shown in Figure 8, the receiving portion 12 is supported by a supporting plate 14 positioned at the second end 5b of the supporting arm 5 and which extends between the two plate-shaped elements 10 perpendicularly to them.

[0039] To increase the strength of the guide stretch 3 where the gap is located, it is possible to use a reinforcing element (not illustrated in the accompanying drawings) which can be applied to the guide 3 at the gap stretch 13, for example insertable in a channel made in the profile forming the guide 3.

[0040] Preferably, a covering element 15 is used, slidably mounted on the guide 3 for covering the above-mentioned gap stretch 13 and having a main direction of extension which is parallel with a direction of sliding of the covering element 15 on the guide 3. The covering element 15 is mobile between a first position (Figure 9) in which it completely covers the gap stretch 13 and a second position (Figure 11) in which it at least partly, preferably completely, uncovers the gap stretch 13, allowing the receiving portion 12 movement through the gap stretch 13 (Figure 10). According to a particularly advantageous aspect of the invention, the plate-shaped elements 10 comprise, on respective surfaces which are opposite each other and towards the free space 11, one or more centring projections 16 designed to engage by resting with corresponding lateral walls of the respective guide 3 for centring the supporting arm 5 on the guide 3 as the supporting arm 5 is moved towards the guide 3.

[0041] The centring projections 16 have a curved shape, preferably convex and even more preferably having the shape of an arc of a circle. In that way, as the supporting arm 5 is moved towards the guide 3, the centring projections 16 act as "chutes", gradually engaging with the outer profile of the guide 3 and centring the supporting arm 5 on it.

[0042] Preferably, to provide even more gradual guiding of the supporting arm 5 on the respective guide 3, the centring projections 16 have different dimensions. Larger ones engage with the guide 3 first (therefore, are closest to the axis "X"). The others get smaller moving away from the axis "X".

[0043] Advantageously, the hinging axis "X" of the supporting arm 5 is off centre relative to the respective guide 3, and in particular is positioned in the direction of the area normally covered by the crosspieces 3b (that is to say, opposite the area towards which the cover is to be extended). In this way, pulling on the awning lifts the supporting arm 5.

[0044] Moreover, advantageously, the above-mentioned awning "T" winding means may be used to also form means for lifting the supporting arms 5. In fact, thanks to the off centre position of the axis "X" relative to the respective guide 3, the pulling force applied by the awning "T" winding means (directed along the sliding path identified by the guides 3) is off centre relative to the axis "X" and therefore can develop a lifting action on the supporting arm 5.

[0045] To promote said action, the receiving portion 12 is equipped with locking means designed to fix the carriage to the receiving portion 12, in such a way that the recall action applied by the awning "T" on the carriage is transmitted to the supporting arm 5.

[0046] As shown in Figure 12, the locking means are preferably made with a hole 17 in the profile stretch of the guide 3 forming the receiving portion 12 and a peg 18 which is put in place by the user once the carriage has gone past the through-hole 17, in that way obstructing the return upstroke of the carriage driven by the recall action of the awning "T" and promoting extraction of the receiving portion 12 from the gap stretch 13, starting lifting of the supporting arm 5.

[0047] In a preferred embodiment and as shown in Figure 4, each supporting arm 5 may adopt any angle within a maximum angular range of approximately 90° from the vertical position in Figure 3. The position may be determined as required by stopping awning winding and, therefore, interrupting the supporting arm 5 upstroke. Preferably, there may be locking means acting between each supporting arm 5 and the respective fixing unit 6, for stopping rotation of the supporting arm 5 at predetermined angles, for example at intervals of approximately 30° (illustrated in Figure 4 together with the vertical alignment with the guide 3 upright 3a).

[0048] As shown in Figure 6, said locking means may be made using a suitable peg 19 which can be inserted in three through-holes 19, so that it is possible to lock the supporting arm 5 in three different positions, each separated from the others by 30°. Advantageously, this invention may also be applied to existing structures for moving awnings.

[0049] In particular, application of the invention to existing structures requires simple modifications which are illustrated below.

[0050] Having prepared a traditional frame for supporting an awning, that is to say, comprising a pair of guides forming a sliding path for the awning and a carriage, which can be connected to one end of the awning and coupled to the guides for sliding along the sliding path formed by the guides, each guide is cut in such a way as to remove a stretch of the guide, making a guide gap stretch.

[0051] In more detail, each guide 3 is cut at the desired point, depending on the extent of the front projection to be given to the structure 1, by removing only the part of the guide relative to the sliding channel to which the carriage is connected.

[0052] Then, a respective supporting arm is applied to each guide. The arm comprises a first end hinged to the guide and, at the other end of the supporting arm, the stretch of guide previously cut is stably applied, so that the supporting arm is rotatably mobile relative to the guide between a first position, adjacent to the guide and in which said stretch of the guide is positioned at the gap stretch, and at least one second position, in which the cut stretch of the guide is positioned away from the gap stretch.

[0053] Guide cutting to remove the above-mentioned stretch is performed at the desired height above the ground, which depends on the extension of the cover to be produced. Said extension therefore also affects the

length of the supporting arms and/or the point at which they are hinged to the guides.

[0054] The above-mentioned modification may be made using a kit specially provided for said modification.

[0055] According to a preferred embodiment, the modification kit comprises:

- at least one fixing unit 6 stably connectable, preferably in a removable fashion, to a guide 3 of an existing structure 1 for moving awnings "T"; and
- at least one supporting arm 5 comprising a first end 5a connectable by hinging to the fixing unit 6 and a second end 5b, opposite the first end 5a, comprising a cavity shaped in such a way as to house a piece of the guide 3.

[0056] The supporting arm 5 supplied in the kit is formed, at its central portion between the two ends 5a, 5b, by a pair of parallel plate-shaped elements 10 having the same main direction of extension and between them forming a free space 11 designed to be occupied by the guide 3, in such a way that the supporting arm can adopt a position in which it is at least partly superposed on the guide (Figure 3).

[0057] The kit also comprises, for each plate-shaped element 10, one or more centring contact elements 16 applicable to the plate-shaped elements 10 on surfaces of the plate-shaped elements designed to be opposite each other for forming, once applied to the plate-shaped elements 10, projections designed for centring the supporting arm 5 on the guide 3 as the supporting arm 5 is moved towards the guide 3. Preferably, the kit comprises centring contact elements 16 having different dimensions, for adapting the supporting arm 5 to guides 3 of different sizes, in particular with different transversal dimensions.

[0058] The invention achieves the aims set by overcoming the above-mentioned disadvantages of the prior art.

[0059] The structure according to the invention allows the possibility of moving the front part of the awning outwards, with obvious advantages in terms of use.

[0060] For example, in the case of application on a balcony, rotation of the supporting arm through an angular travel of 90° allows the front part of the awning to be moved away, thus facilitating the view of the outside if installed on balconies, or increasing the covered surface area if used on the ground.

[0061] The possibility of applying the invention to existing structures also allows the functions of the old structures to be maintained unchanged, adding other operating possibilities which considerably increase the possibilities for use.

[0062] Moreover, the modification to be made to the existing structure is fast and simple and does not required the substitution of structural components. Instead, it can be carried out using a suitable modification kit.

Claims

1. A structure for moving awnings, comprising:

   - a supporting frame (2) for an awning (T), the supporting frame (2) comprising a pair of guides (3) forming a sliding path for the awning (T);
   - a carriage, connectable to one end of an awning (T) and coupled to the guides (3) for sliding along the sliding path formed by the guides (3);

   characterised in that it comprises movement means (4), operatively associated with the supporting structure (1) for intercepting the carriage and moving it away from the sliding path, thus varying the way in which the awning (T) lies.

2. The structure according to claim 1, wherein the movement means (4) comprise a pair of supporting arms (5), each associated with a respective guide (3) and mobile relative to the guide (3) between a first position for picking up the carriage from the guide (3) and at least one second position in which it positions the carriage in a position away from the guide (3).

3. The structure according to claim 2, wherein each supporting arm (5) comprises a receiving portion (12) forming a stretch of the respective guide (3) in such a way that the carriage, while sliding on the guides (3), reaches the receiving portion (12) and can be moved away from the guides (3) by means of movement of the supporting arms (5).

4. The structure according to claim 3, wherein each supporting arm (5) comprises a first end (5a) hinged to the respective guide (3) and a second end (5b), opposite the first end (5a), to which the receiving portion (12) is fixed.

5. The structure according to claim 3 or 4, wherein each supporting arm (5) is hinged to the respective guide (3) about a hinging axis (X) which is off centre relative to the respective guide (3) in such way that a pulling action applied on the awning (T) causes lifting of the supporting arm (5).

6. The structure according to claim 4 or 5, also comprising awning (T) winding means, the winding means also forming means for lifting the supporting arms (5), designed to lift the supporting arms (5) by means of a recall force applied to the awning (5).

7. The structure according to any of the claims from 4 to 6, also comprising, for each guide (3), a fixing unit (6) stably connected, preferably in a removable fashion, to the guide (3) and hinged to the first end (5a) of the respective supporting arm (5).

8. The structure according to any of the foregoing claims from 2 to 7, wherein each guide (3) comprises a first stretch (3a) forming an upright of the supporting frame (2) and designed to be angled substantially vertically, a second stretch (3b) forming a crosspiece of the supporting frame (2) and positioned transversally to the first stretch (3a), and a connecting element (3c) connecting the first and second stretches (3a, 3b) in such a way that the first and second stretches (3a, 3b) and the connecting element (3c) form a continuous guide (3), preferably each supporting arm (5) being applied to the first stretch (3a) of the respective guide (3).

9. The structure according to any of the claims from 3 to 7, wherein each guide (3) comprises a gap stretch (13) substantially shaped to match the receiving portion (12) and able to engage with the receiving portion (12) for restoring the continuity of the guide (3).

10. The structure according to claim 9, also comprising a covering element (15), slidably mounted on the guide (3) for covering the gap stretch (13) and having a main direction of extension parallel with a direction of sliding of the covering element (15) on the guide (3), the covering element (15) being mobile between a first position in which it completely covers the gap stretch (13) and a second position in which it at least partly, preferably completely, uncovers the gap stretch (13).

11. The structure according to claim 4, also comprising locking means (19, 20) acting between each supporting arm (5) and the respective guide (3) for stably locking the supporting arm (5) in at least one position rotated relative to the guide (3), preferably in a plurality of positions rotated to different degrees relative to the guide (3).

12. The structure according to claim 4, wherein each supporting arm (5) is formed, at its central portion between the two ends (5a, 5b), by a pair of parallel plate-shaped elements (10) having the same main direction of extension and between them forming a free space (11) designed to be occupied by the guide (3) in such a way that the supporting arm (5) can adopt a position in which it is at least partly superposed on the guide (3), and wherein the plate-shaped elements (10) comprise, on respective surfaces which are opposite each other and towards the free space (11), one or more centring projections (16) designed to engage by resting with corresponding lateral walls of the respective guide (3) for centring the supporting arm (5) on the guide (3) as the supporting arm (5) is moved towards the guide (3).

13. A kit for modifying a structure for moving awnings, the kit comprising:

- at least one fixing unit (6) stably connectable, preferably in a removable fashion, to a guide (3) of an existing structure (1) for moving awnings (T);
- at least one supporting arm (5) comprising a first end (5a) connectable by hinging to the fixing unit (6) and a second end (5b), opposite the first end (5a), comprising a cavity shaped in such a way as to house a piece of the guide (3), the supporting arm (5) being formed, at its central portion between the two ends (5a, 5b), by a pair of parallel plate-shaped elements (10) having the same main direction of extension and between them forming a free space (11) designed to be occupied by the guide (3) in such a way that the supporting arm (5) can adopt a position in which it is at least partly superposed on the guide (3).

14. The kit according to claim 13, also comprising, for each plate-shaped element (10), one or more centring contact elements (16) applicable to the plate-shaped elements (10) on surfaces of the plate-shaped elements (10) designed to be opposite each other for forming centring projections designed for centring the supporting arm (5) on the guide (3) as the supporting arm (5) is moved towards the guide (3); the kit preferably comprising centring contact elements (6) having different dimensions for implementing a gradual centring action for the supporting arm (5) on the respective guide (3).

15. A method for modifying a structure for moving awnings, comprising the steps of:

- preparing a supporting frame (2) for an awning (T), the supporting frame (2) comprising a pair of guides (3) forming a sliding path for the awning (T) and a carriage, connectable to one end of the awning (T) and coupled to the guides (3) for sliding along the sliding path formed by the guides (3);
- cutting each guide (3) in such a way as to remove a piece of guide from each guide, thereby creating a gap stretch (13) on each guide (3);
- applying to each guide (3) a respective supporting arm (5) whose first end (5a) is hinged to the guide (3);
- stably applying said stretch of guide (3) to a second end (5b), opposite the first end (5a), of the supporting arm (5) in such a way that the supporting arm (5) is rotatably mobile relative to the guide (3) between a first position, substantially aligned with the guide (3) and in which said piece of the guide is positioned at the gap stretch (13), and at least one second position, in which said piece of the guide is positioned away from the gap stretch (13).

FIG 1

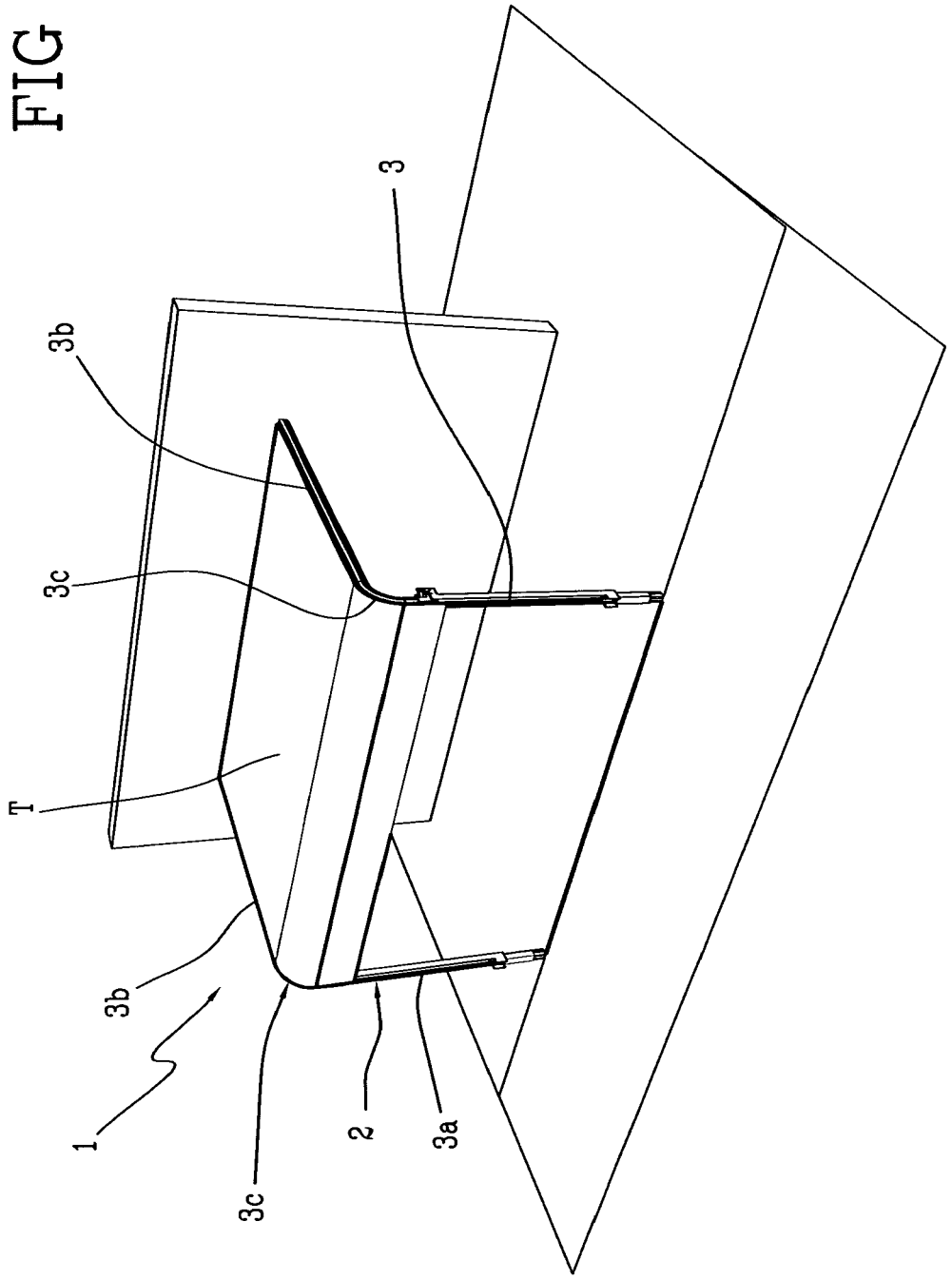

FIG 2

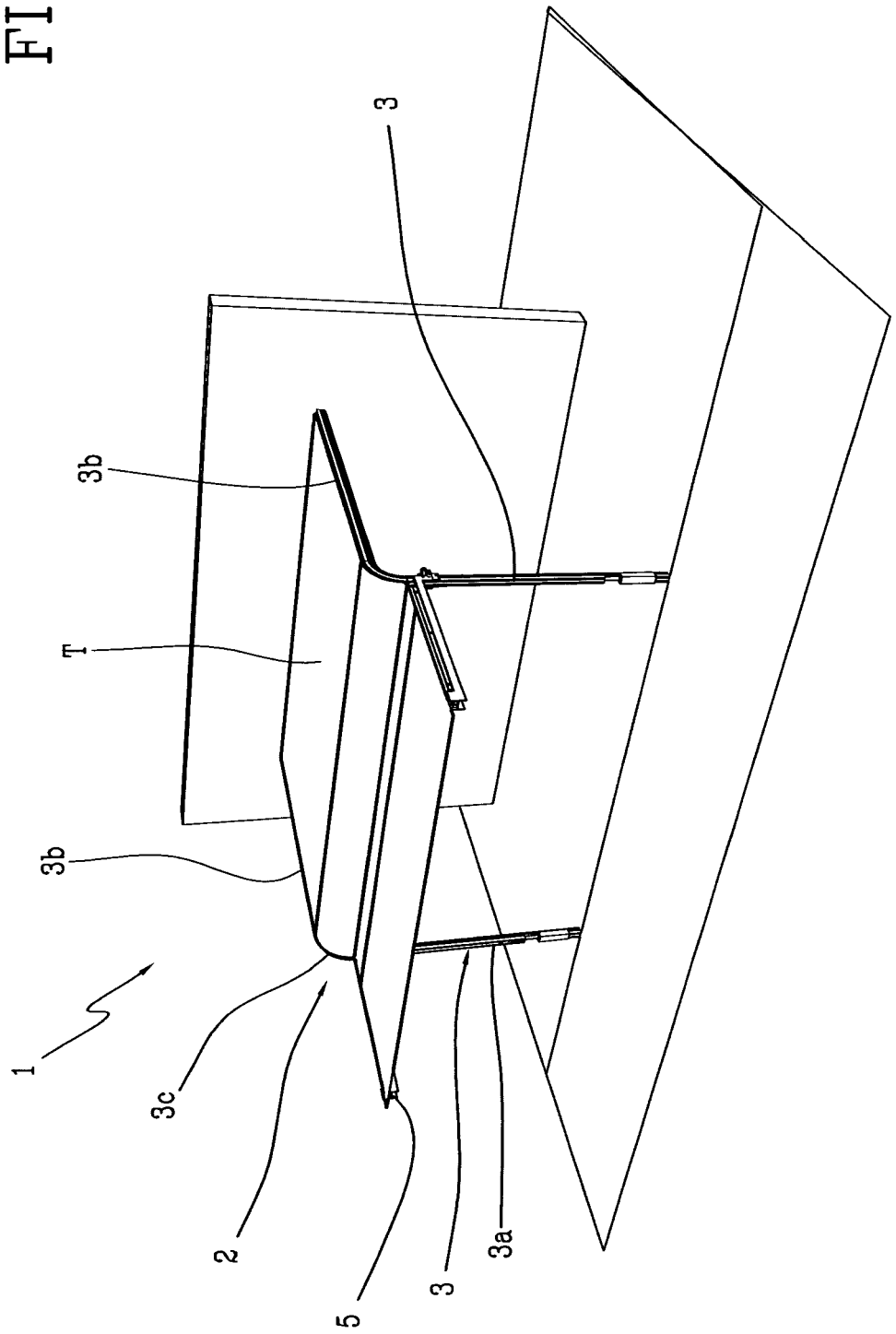

FIG 3

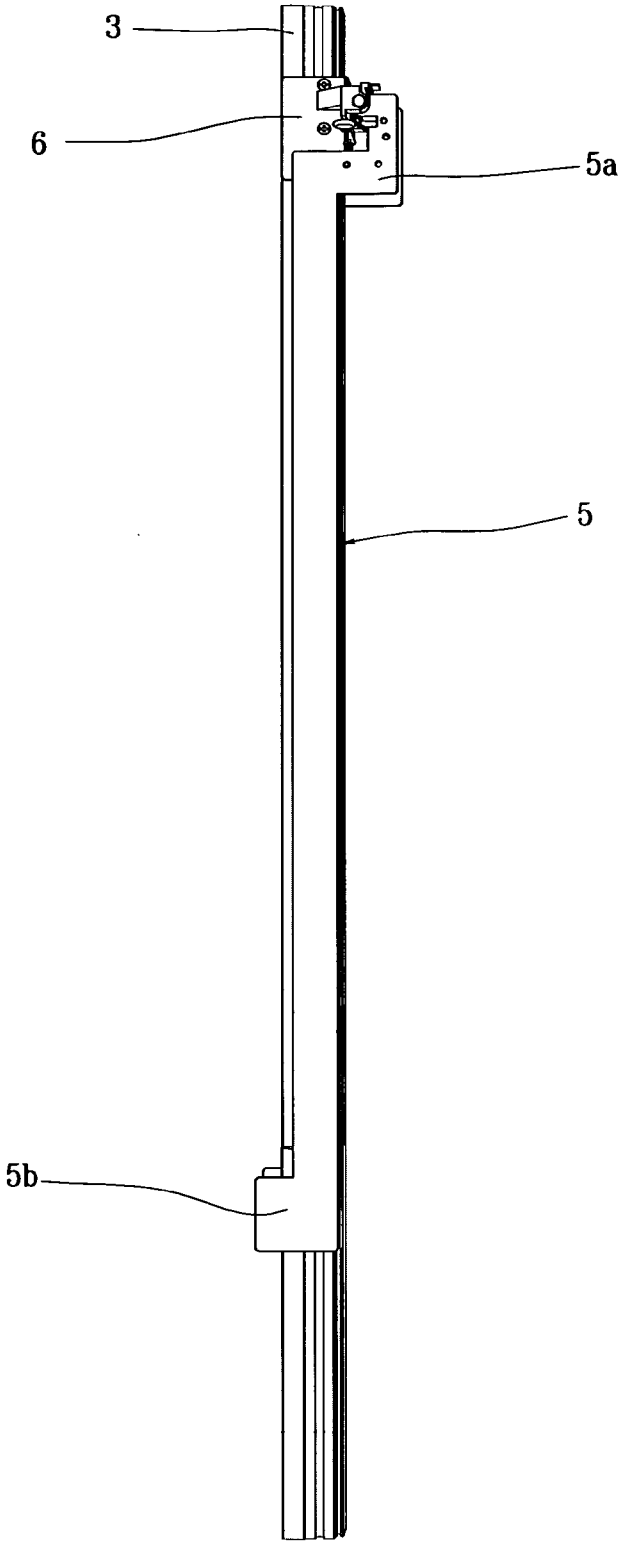

FIG 4

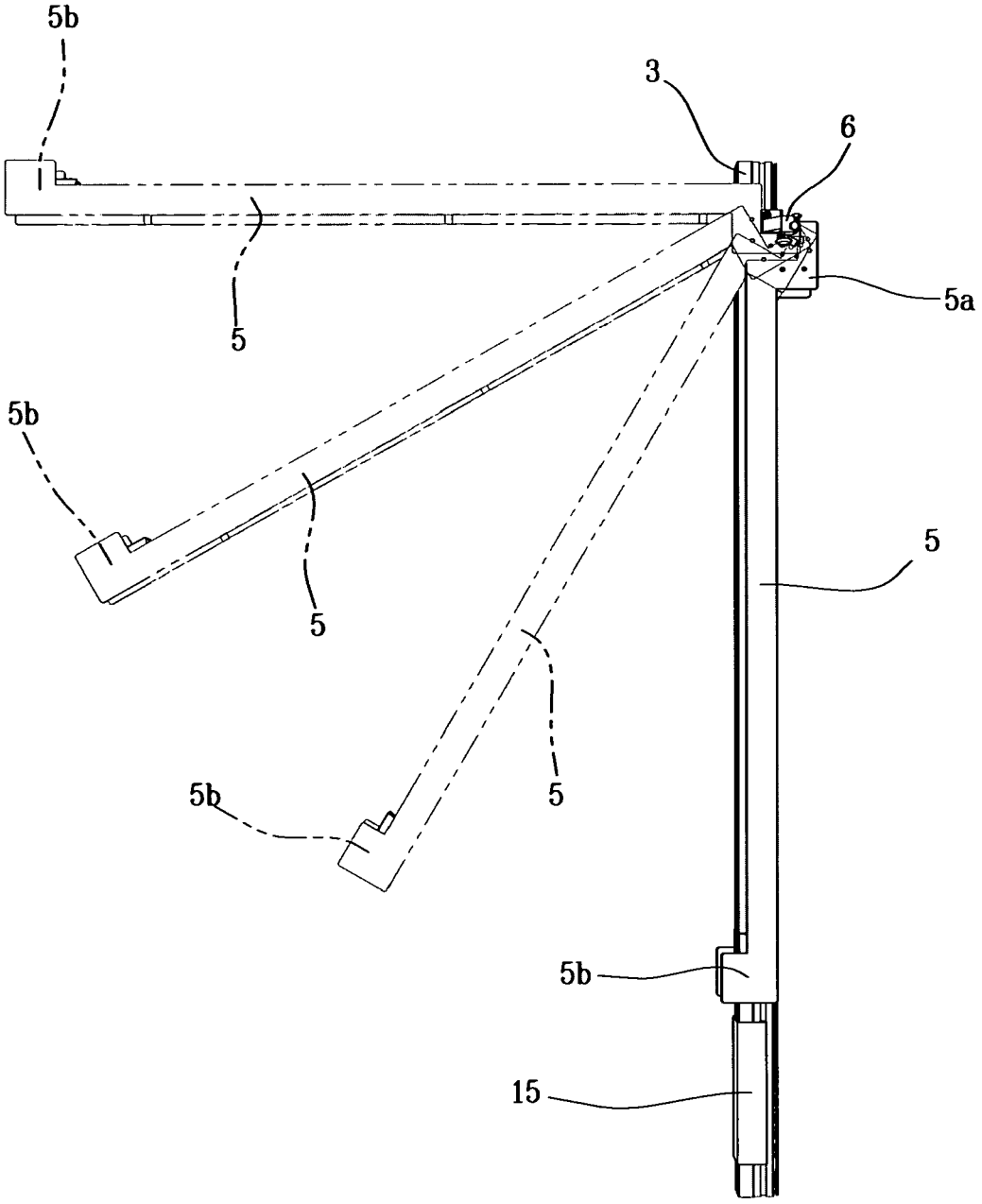

FIG 5

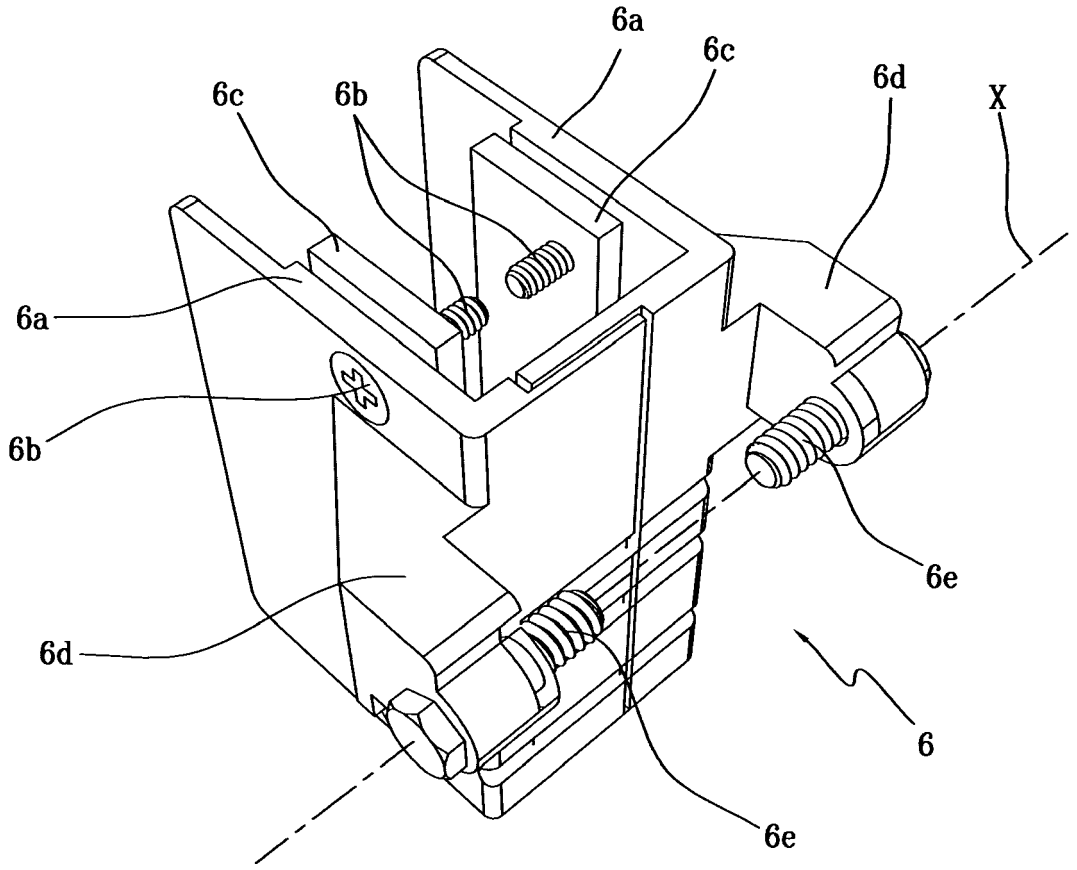

FIG 6

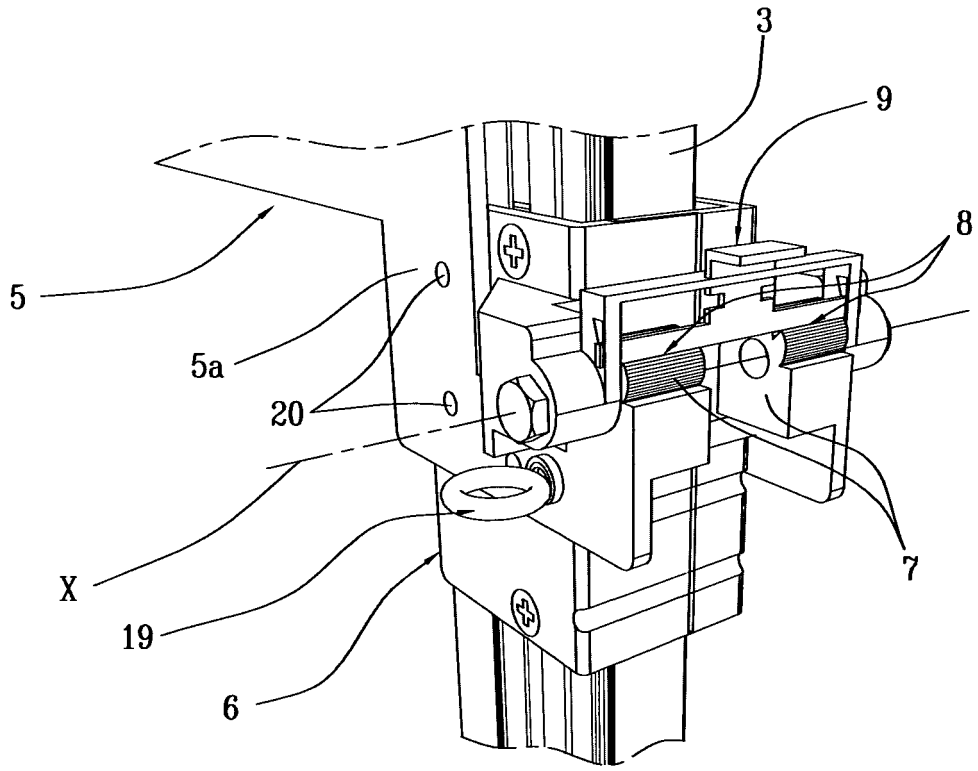

FIG 7

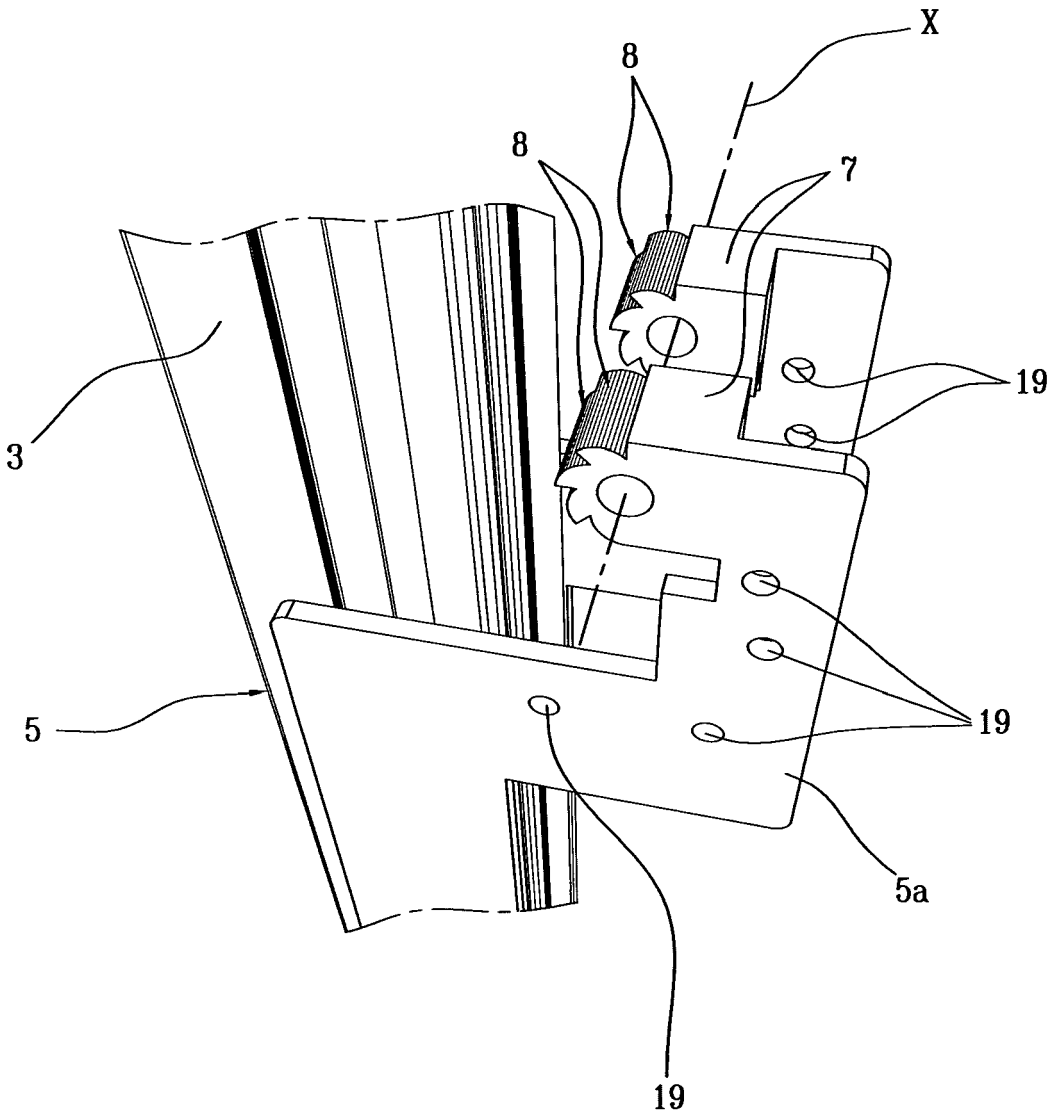

FIG 8

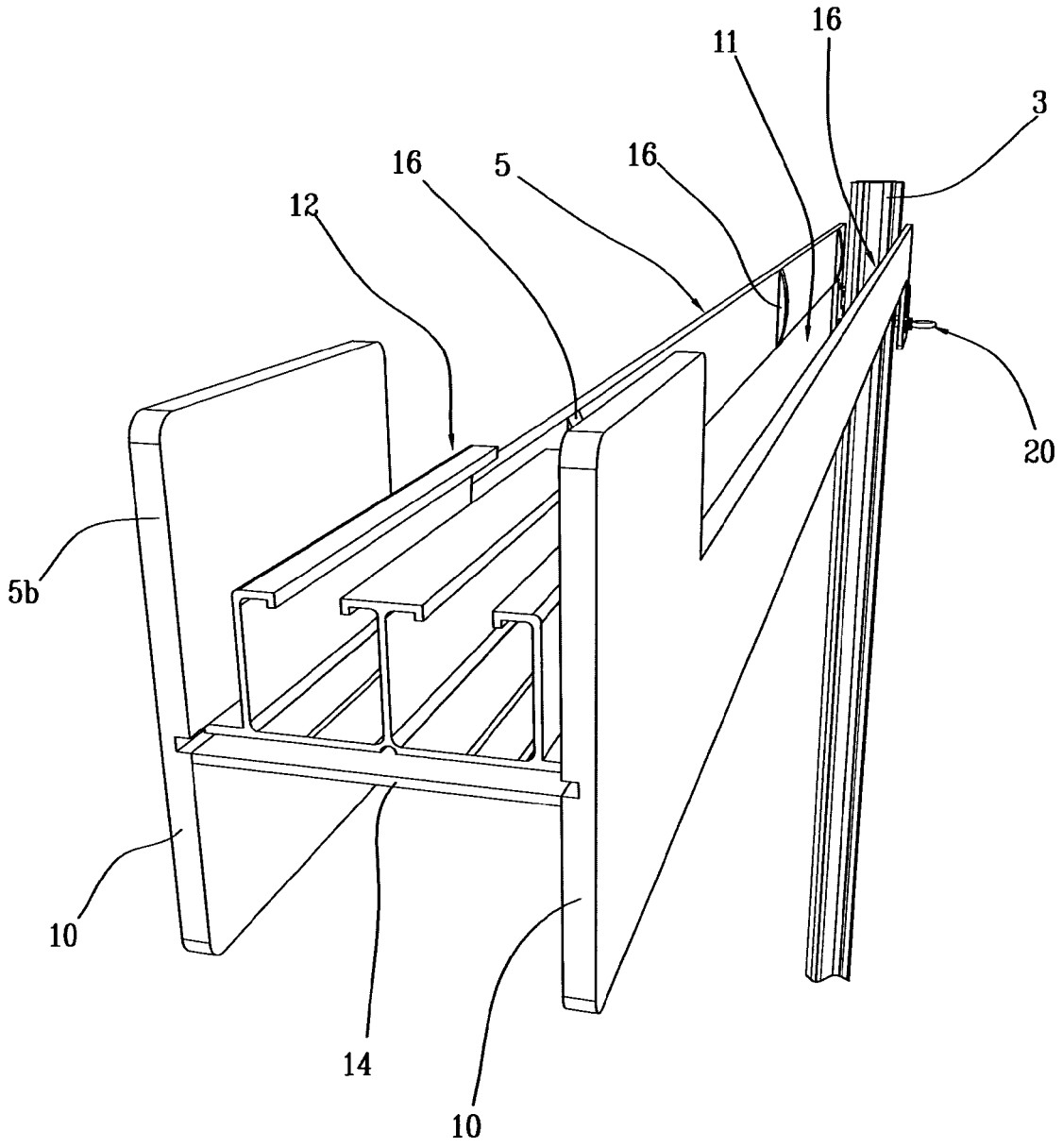

FIG 9

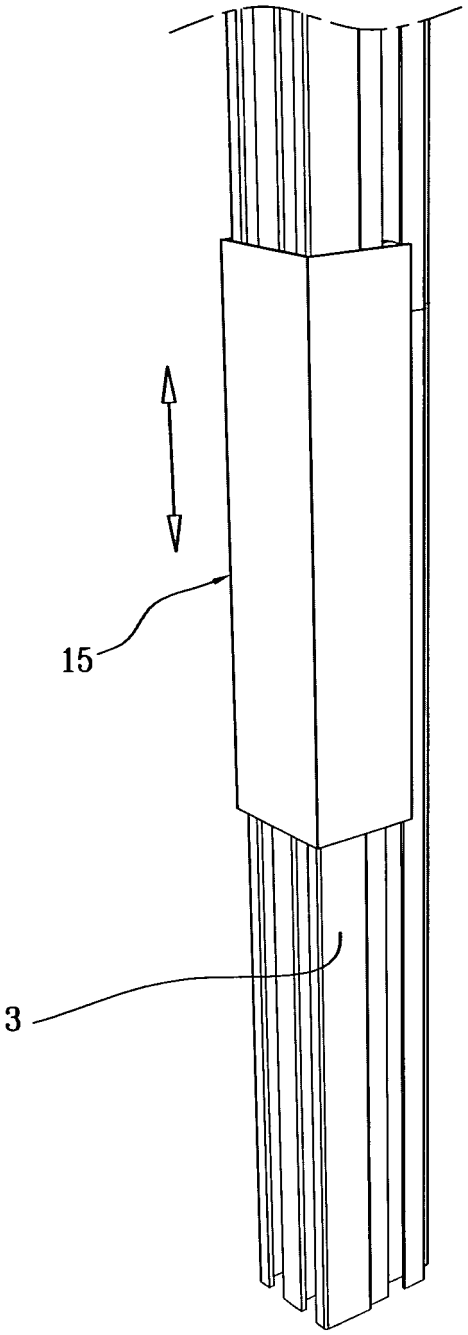

FIG 10

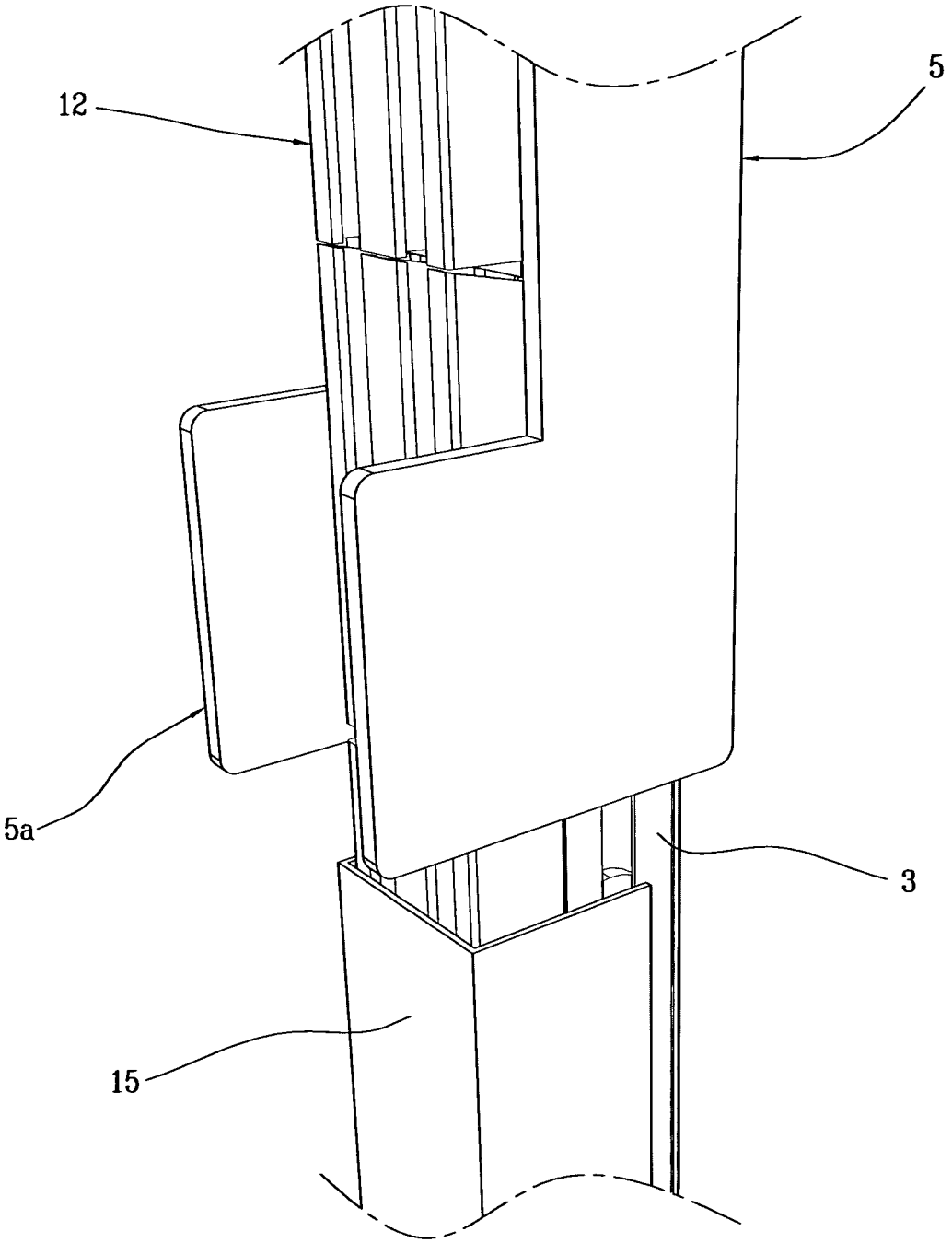

FIG 11

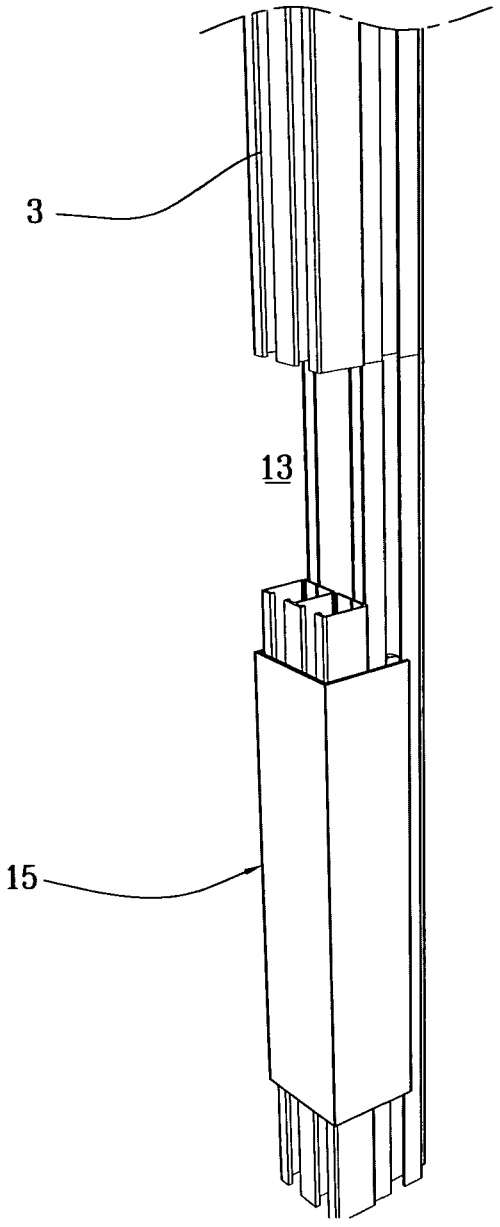

FIG 12