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(54) Adjustable frame device

(57) A adjustable frame device, provided with an elongated and almost rectilinear first element (2) for a mean to be fixed to a wall, comprises second threaded means (4) mutually screwed to first threaded means (3)

connected to the first element (2), while the second threaded means (4) match the wall.

The appropriate mutual rotation of the threaded means (3, 4) cause the spacing apart or the approaching of the first element (2) in respect to the wall.

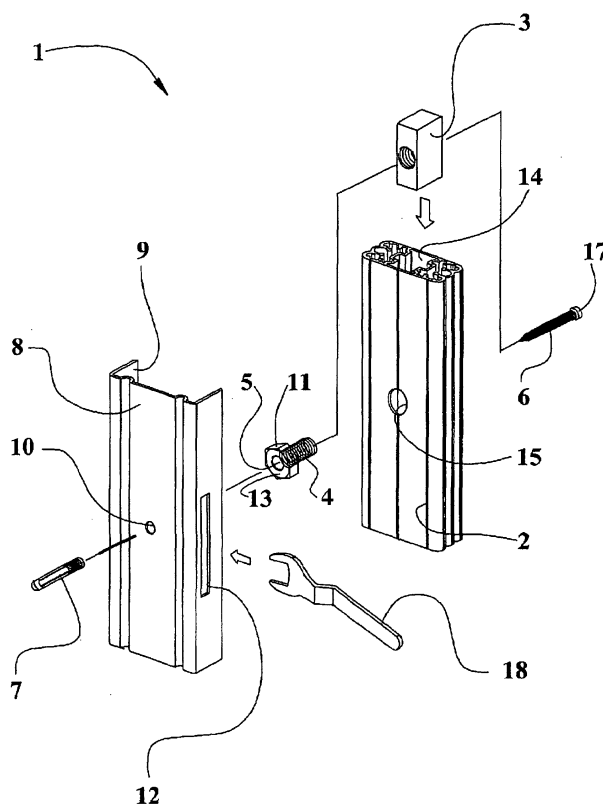


FIG.1

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Description

[0001] The present invention refers to an adjustable frame device particularly fit for fixing doors, windows, shutters, grates, curtains and the like to walls, for windows, doors openings and the like also of inaccurate or irregular sizes.

[0002] There are known frames fit to be fixed on the edges of a wall bordering an opening of windows, doors and the like, for instance to support, to guide and to fix grates, windows, doors and the like.

[0003] Generally, said known frames require masonry works for adapting the opening and/or comprise complicated and not very practical fixing means for the wall.

[0004] Further drawback of said known devices consists in that they require a lot of time for the correct installation and that, sometimes, in case of wrong or inaccurate installation, they are very difficult to be removed and/or to be adjusted after the installation.

[0005] An object of the present invention is to propose a frame device fit for the installation of windows, doors, ceilings, walls etc., adjustable in simple and fast manner.

[0006] Other object is to propose a device that can be adjusted also after the installation.

[0007] Further object is to propose a device that can be installed and adjusted even by not specialized operator.

[0008] Other object is to propose a device with wide adjustment range for adapting to very irregular and/or inaccurate openings or walls.

[0009] The characteristics of the invention are highlighted in the following with particular reference to the enclosed drawings, in which:

- figure 1 shows a partial axonometric and exploded view of the device of the present invention;
- figures 2 and 3 show transversal section views of the installed device of figure 1 in respective extreme adjustment conditions and in which some parts are removed away;
- figure 4 shows a section view of the device in figure 1 installed and fixed to a wall;
- figure 5 shows a side view of a variant of a second threaded mean of the device of figure 1;
- figure 6 shows an axial view of the second threaded mean of figure 5.

[0010] With reference to the figures 1 - 4, the numeral 1 indicates the adjustable frame device of the present invention provided with a set of first elements 2 of elongated shape and almost rectilinear, fit to constitute the frame to be fixed to the window or door opening on the wall and fit to support a mean to be fixed to the wall such as an extendable grate, a shutter, or the like, for the opening closure.

[0011] The device 1 comprises, for each first element, at least a couple of first threaded means 3 and at least a couple of second threaded means 4, fit to be mutually

screwed.

[0012] Each first threaded mean 3 is connected to the respective first element 2 and each second threaded mean 4 matches the wall. The mutual rotation of the threaded means 3, 4 cause the spacing apart or the approaching of the first element 2 in respect to the wall.

[0013] The first threaded means 3 are female screws, each of them is engaged by a respective second threaded means 4 screw bolt shaped and provided with a passing through cavity 5 for a screw 6 of an anchor mean 7 fit to be fixed to the wall.

[0014] The second threaded means 4 of each first element 2 match the wall through a second element 8 of elongated shape and having a seat 9 to house, at least partially, the first element 2.

[0015] The first element 2 has a transversal section of approximately rectangular shape and the second element 8 has a transversal section approximately "C" shaped and it has a plurality of passing through holes 10, each of them is fit for the screw 6 for the anchor mean 7.

[0016] In the preferred embodiment the passing through cavity 5 of each second threaded mean 4 is smooth and cylindrical.

[0017] Each first threaded mean 3 is female screw type of approximately parallelepiped shape and is housed in a longitudinal hollow seat 14 of the respective first element 2 in order to be blocked in rotation in respect to the this latter.

[0018] The first threaded means 3 has e an end seat 16 for a head 17 of the respective screw 6 of the anchor mean 7.

[0019] Each second threaded mean 4 has a respective rotation mean 11 and engages the female screw of each first threaded mean 3 through a connection hole 15 of the first element 2.

[0020] Each rotation mean 11 is mainly constituted by a hexagonal head of transversal driving type, matching the second element 8 and drivable through a slot 12 of this latter. The hexagonal head of each rotation mean 11 has a flange 13 fit to match the second element 8.

[0021] The operation of the device 1 provide that, when each anchor mean 7 is inserted in the related hole carried out in the wall, firstly the first threaded means 3 is screwed to the second threaded means 4, then the first element 2 is inserted into the seat 9 of the second element 8 and then, the screw 6 is inserted into the passing hollow 5 of each second threaded mean 4 until said screw 6 is engaged with the anchor mean 7.

[0022] Therefore, the operator can engage the hexagonal head of each rotation mean 11, through the slot 12, by means of the spanner 18 to match the flange 13 with the second element 8. The appropriate rotation of said hexagonal head determines the mutual rotation of the threaded means 3, 4 causing the spacing apart or the approaching of the first element 2 in respect to the wall.

[0023] In this way, the operator can adjust as needed, in simple and efficient manner, the mutual distance be-

tween the first element 2 and the second element 8 of the device 1 without removing the screw 6 from the anchor mean 7. Once the correct mutual position is reached, the insertion of the screw 6 into the anchor mean 7 provokes the mutual blockage of the first element 2 to second element 8 and this latter to the wall.

[0024] Figure 5 shows a variant of the device of the present invention in which the end of the second threaded mean 4 opposite to the rotation mean 11, in other word opposite to the wall, is provided with a head of axial driving type 19, for instance a hexagonal concave broach for Allen spanner, drivable through an opening of the face of the first element 2 opposite to the wall.

[0025] The operation of the variation of the device of figure 5 provides that initially the screws 6 are not inserted in the anchor mean 7. A first distance adjustment between the first 2 and the second elements 8 is obtained, engaging through a respective opening of the face of the first element 2 opposite to the wall an Allen spanner in each of the broach heads 19 and rotating opportunely each of the second threaded means 4. Then the rotation of the second threaded means 4 by means of the Allen spanner determine the correct spacing or approaching of the first element 2 in respect to the wall. After the first adjustment by the Allen spanner, the screws 6 are inserted through the passing through cavity 5 into the anchors 7 without tightening to allow the final adjustment which is carried out by engaging the spanner 18 through the slots 12 with the hexagonal head of each rotation mean 11 and rotating each second threaded mean 4 until said rotation is obtained.

[0026] The definitive blockage of the first element 2 to the second element 8, and then to the wall, is carried out by means of the tightening of each screw 6 in its proper anchor mean 7.

[0027] The invention furthermore provides that the holes 10 of the second element 8 and the connection holes 15 of the first element 2 can be shaped as longitudinally elongated slots in respect to the elements 2, 8 to allow the fixing to the plugs also in case of vertical moves of the respective holes to wall, for instance due to the presence of metal or area without grips in the wall, or in case of execution errors of said holes for anchors.

[0028] An advantage of the present invention is to provide a frame device fit to install the window, the doors, the ceilings, the wall etc., adjustable in simple and fast manner.

[0029] Other advantage is to provide an adjustable device also after the installation, which can be installed and adjusted also by not specialized operator.

[0030] Further advantage is to provide a device having a wide adjustment range for adapting the frame to very irregular and/or inaccurate openings or walls.

Claims

1. Adjustable frame device provided with at least a first

element (2) of elongated shape and almost rectilinear, for a mean to be fixed to walls; said device (1) being **characterized in that** it comprises at least a first threaded mean (3) and at least a second threaded mean (4), fit for mutual screwing, the at least a first threaded mean (3) connected to the at least a first element (2) and the at least a second threaded mean (4) matching the wall; the mutual rotation of the threaded means (3, 4) causing the spacing apart or allowing the approaching of the at least a first element (2) in respect to the wall.

2. Device according to claim 1 **characterized in that** it comprises a set of first elements (2) to each of them is fixed a plurality of first female screw threaded means (3) each being engaged by a respective second bolt threaded means (4) provided of a passing through cavity (5) for a screw (6) of an anchor mean (7) for fixing to the wall.

3. Device according to claim 2 **characterized in that** the second threaded means (4) of each first element (2) match the wall through a second element (8) elongated shaped and almost faced to the corresponding first element (2).

4. Device according to claim 3 **characterized in that** the second element (8) includes a seat (9) to house, at least partially, the first element (2).

5. Device according to claim 4 **characterized in that** the first element (2) has a transversal section approximately rectangular shaped and the second element (8) has a transversal section approximately "C" shaped.

6. Device according to the claim 3 **characterized in that** the second element (8) includes a plurality of respective passing through holes (10) each of them being fit for a screw (6) of an anchor mean (7).

7. Device according to claim 2 **characterized in that** the passing through cavity (5) of each second threaded mean (4) is smooth.

8. Device according to claim 2 **characterized in that** each first threaded mean (3) is blocked in rotation in respect to the respective first element (2) and each second threaded mean (4) has a respective rotation mean (11).

9. Device according to claim 2 **characterized in that** the first female screw threaded means (3) are approximately parallelepiped shaped and they are housed in a longitudinal hollow seat (14) of the respective first element (2) and that the second threaded means (4) engage the female screws of the first threaded means (3) through respective connection

holes (15) carried out on the respective first element (2).

10. Device according to claim 2 **characterized in that** the first female screw threaded means (3) includes an end seat (16) for a head (17) of the respective screw (6) for the anchor mean (7). 5
11. Device according to claims 3 and 8 **characterized in that** each rotation mean (11) is mainly constituted by a hexagonal head of transversal driving type, matching a second element (8) and drivable through a slot (12) of this latter. 10
12. Device according to claim 11 **characterized in that** the hexagonal head of each rotation mean (11) includes a flange (13) fit for matching the second element (8). 15
13. Device according to claims 6 and 9 **characterized in that** the holes (10) of the second element (8) and the connection holes (15) of the first element (2) are slot shaped and longitudinally elongated in respect to the elements (2, 8). 20
- 25
14. Device according to any one of the preceding claims **characterized in that** the end of the second threaded mean (4) opposite to the wall is provided of a head of axial driving type (19) drivable through an opening of the face of the first element (2) opposite to the wall. 30

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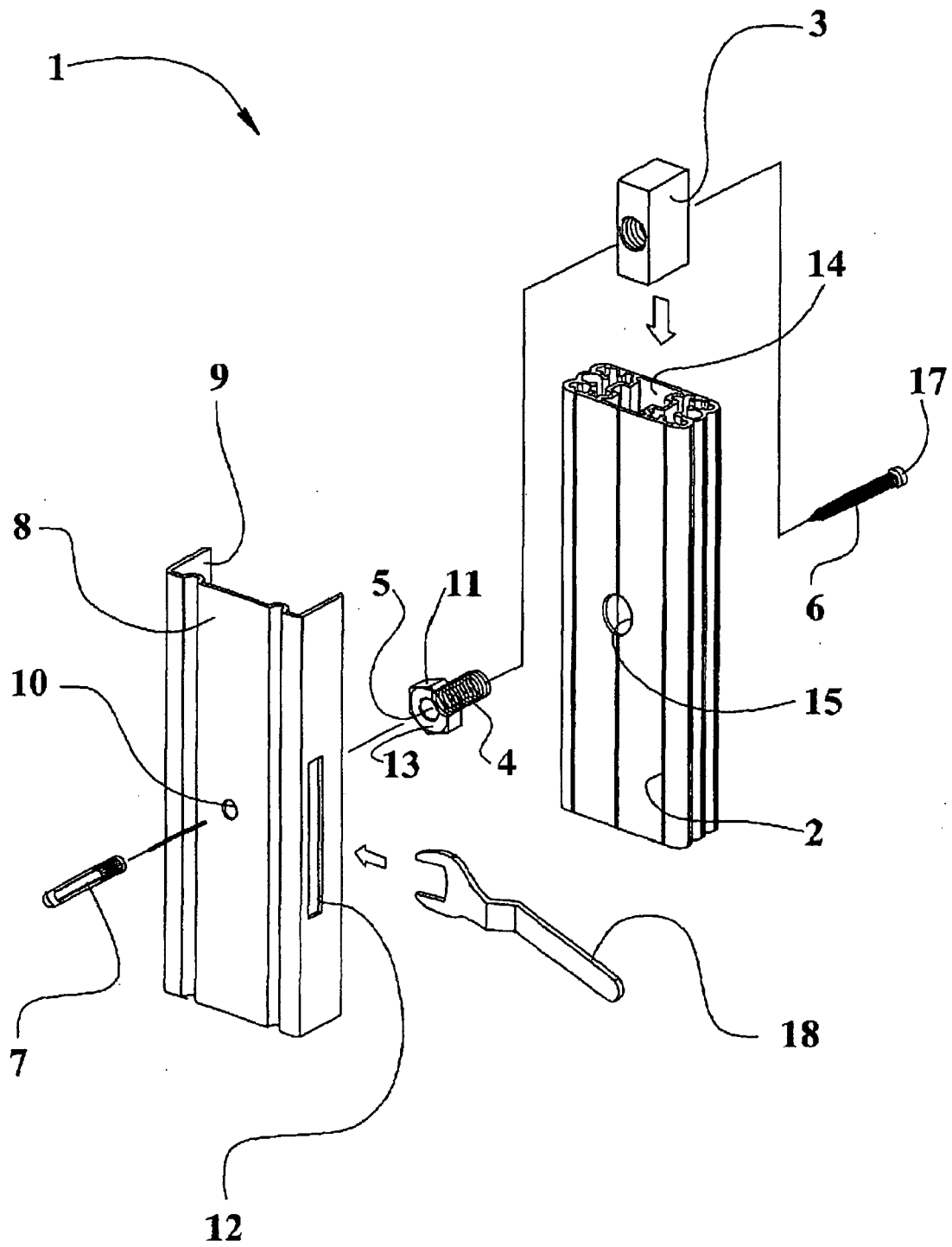


FIG.1

FIG.2

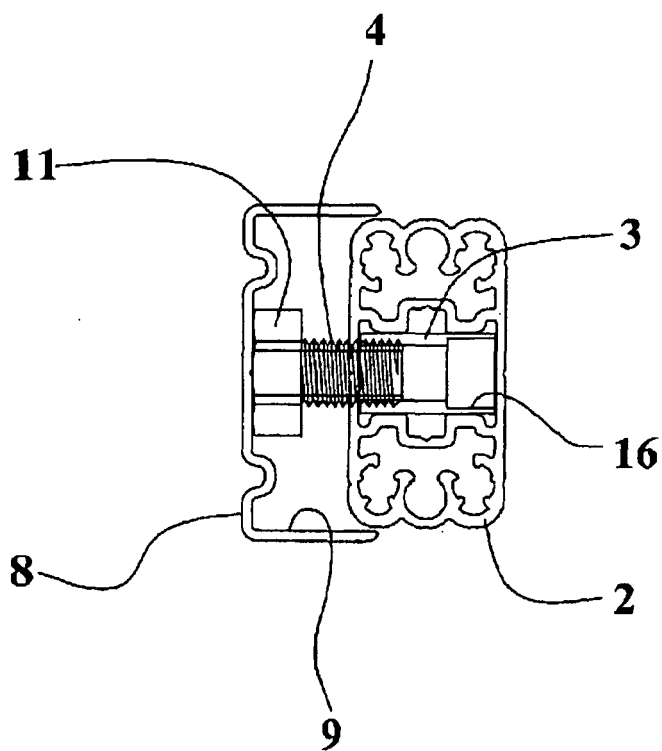
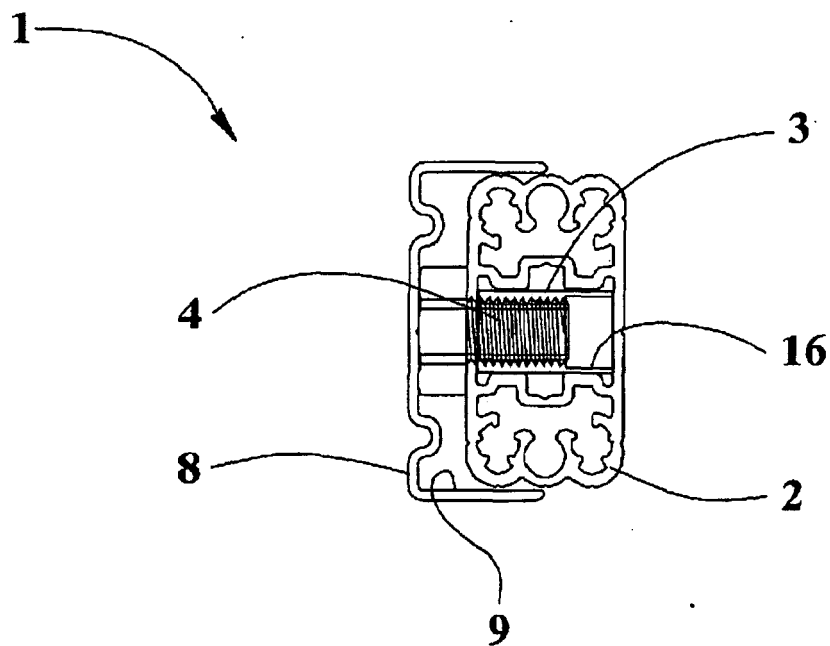


FIG.3

FIG.4

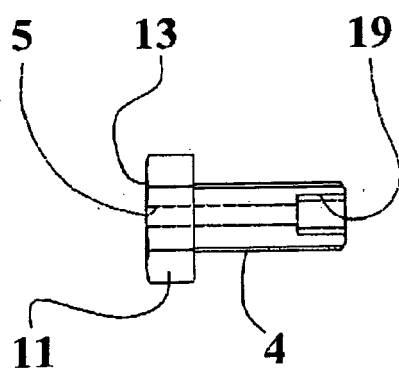
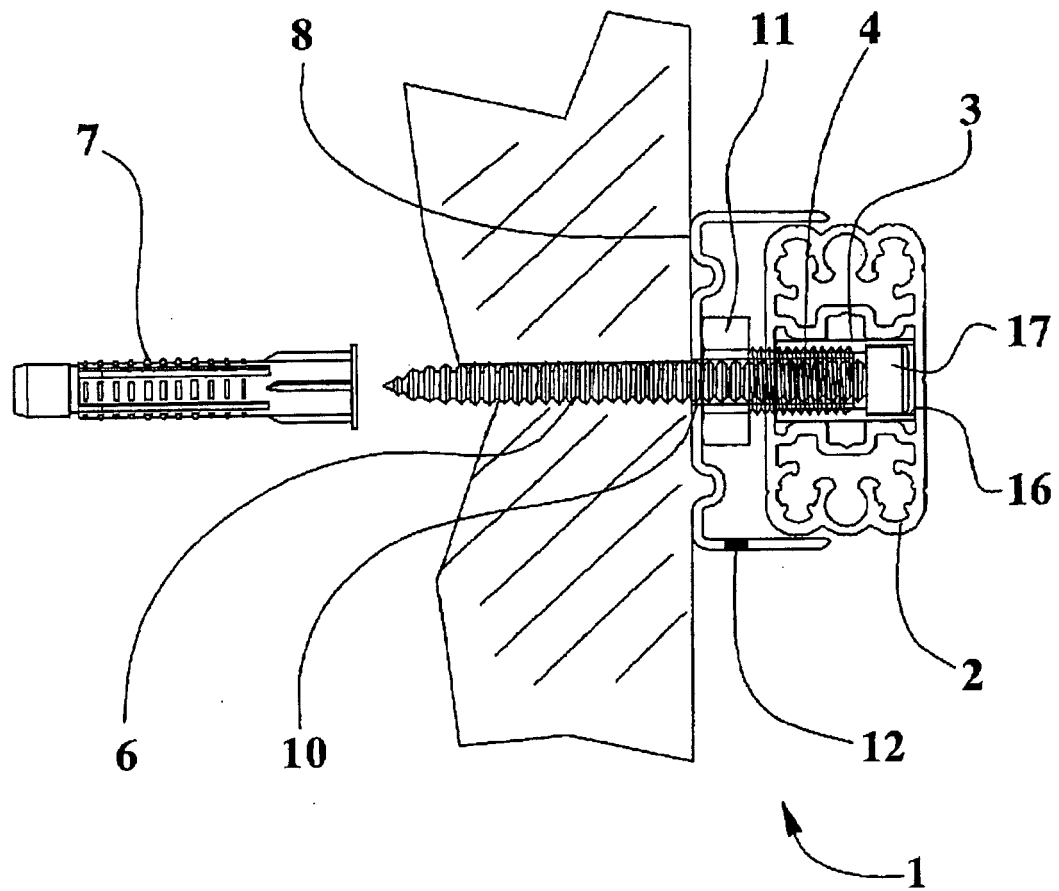


FIG.5

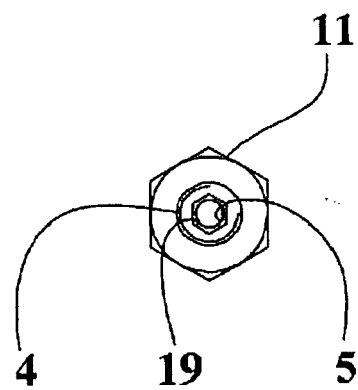


FIG.6