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(54) Device for joining a rotating leaf to a fixed wall

(57) A device for joining a rotating leaf to a fixed wall comprises at least one pair of elements (1, 2) which are respectively fastened to a rotating leaf (5) and to a fixed wall (4), a first element (1) being integrally fastened to the leaf (5) and a second element (2) being rotatably fastened to the wall (4). The abovementioned elements (1, 2) are provided with means (3) for rigidly fastening them together, acting in the horizontal direction and consisting of a snap-engaging mechanism in which elastically deformable lugs (3a) integral with the second element (2) engage in a seat (3b) with a variable cross-section which is integral with the first element (1). A third element (6) provided with elastically deformable lugs (6a,6b) performs both locking of the two elements (1,2) and disengagement thereof.

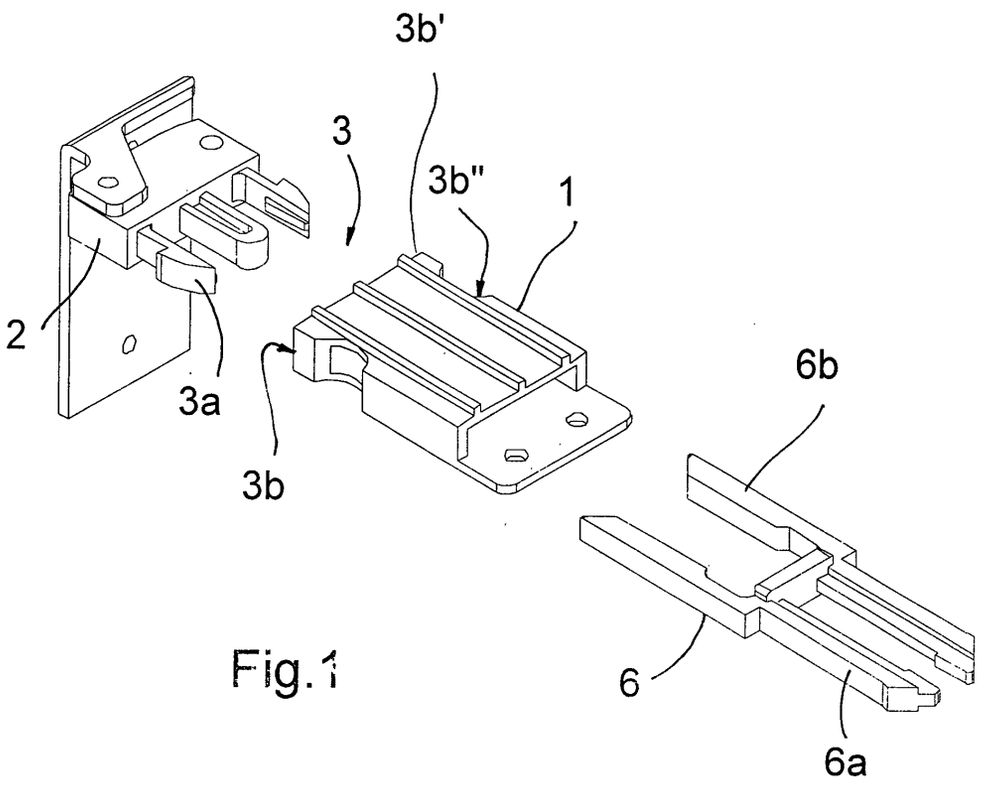

Fig.1

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Description

[0001] The present invention relates to a device for joining a rotating leaf to a fixed wall, which can be used for furniture, doors, windows and in other applications where there is a need to associate a pivoting element with a fixed support.

[0002] With particular reference to the use of the invention in the sector of doors and leaves, it may be stated that the devices customarily used to rotatably fasten these furnishing elements to the corresponding fixed supports - which may consist of wall fixtures or the main bodies of furniture units - consist of visible hinges of various kinds.

[0003] In the case of doors, for example, two or three pintles having a shape matching elements fixed to the leaves are generally mounted on the jambs so as to form hinges on which the leaf is able to rotate in order to open and close the door. In these cases, irrespective of the person supporting the male element and the female element of the hinge, installation of the leaf is performed by simultaneously positioning all the elements fixed to the leaves next to the pintles and causing them to engage with each other. It is obvious and often the case that this operation poses a certain amount of difficulty since it is required to align the elements of the hinges while the leaf is kept suspended from the ground. Moreover, the hinges are visible and therefore must be kept in good condition to avoid impairing the aesthetic appearance of the environment in which the door is situated.

[0004] Moreover, in the case of leaves for furniture, this solution is not very popular since it is preferred that the hinges should not be visible from the exterior and that the leaves should not project from the profile of the furniture: for this purpose, spring hinges are frequently used, the elements of which hinges are rigidly fixed to the internal surface of the leaf and to the side of the furniture adjacent to the leaf.

[0005] These solutions, however, also have drawbacks: they take up space inside the furniture, reducing its working volume and involve long and laborious assembly and disassembly operations, with the use of tools and with the risk that replacement of the hinge may cause deterioration of the leaf or the side wall to which the hinge is fastened.

[0006] The object of the present invention, therefore, is to eliminate the abovementioned drawbacks.

[0007] The invention, as it is characterized by the claims, achieves its object by means of a snap-engaging mechanism acting in the horizontal direction.

[0008] The main advantage obtained by the present invention consists essentially in the fact that mounting and removal of the leaves is greatly simplified, without any risk of adversely affecting functioning of the leaf or the wall to which it is fastened. Moreover, owing to its relatively small dimensions, the invention may be housed in a concealed manner inside a suitable small-size recess formed in the edge of the leaf. Therefore, also from the point of view of aesthetics, the advantage which is achieved is that of obtaining a wall which, when the door or leaf is closed, is perfectly flat and without projections. Finally, this solution applied to the leaves of closed compartments does not involve any reduction in the volume.

[0009] Further advantages and characteristic features of the invention will emerge more clearly from the following detailed description provided with reference to the accompanying drawings which show a non-limiting example of embodiment thereof in which:

- Figure 1 shows a preferred embodiment of the invention in exploded form;
- Figure 2 shows two symmetrical perspective views of the invention during assembly;
- Figure 3 shows a front view of the invention during assembly;
- Figures 4 and 5 show a plan view and perspective view of the invention in two operating conditions;
- Figures 6 and 7 show views of the invention, similar to those shown in Figures 4 and 5, but from the bottom.

[0010] As can be seen from the figures, the invention relates to a device for joining a rotating leaf to a fixed wall. It comprises at least one pair of elements (1,2) fastened, respectively, to a rotating leaf (5) and to a fixed wall (4), along two facing sides (5a,4a): a first element (1) is integrally fastened to the leaf (5) and a second element (2) is rotatably fastened to the wall (4) and both are provided with means (3) for rigidly fastening them together, acting in the horizontal direction. As can be seen in Figure 1, the means (3) for performing rigid fastening together comprise elastically deformable lugs (3a) integral with the second element (2) and a seat (3b) with a variable cross-section, integral with the first element (1), so that deformation of the lugs (3a) allows snap-engagement thereof into the seat (3b). This occurs along a first narrow section (3b') of the seat (3b), while, along a second section (3b'') of the seat (3b), from where the material of the walls has been removed, elastic return of the lugs (3a) is permitted, thereby preventing them from coming out of the seat (3b).

[0011] The same Figure 1 also shows a third element (6) provided both with first elastically deformable lugs (6a), able to clamp the lugs (3a) of the second element (2) against the walls of the seat (3b) of the first element (1) and with second lugs (6b) able to force the lugs (3a) of the second element (2) so as to disengage them from the seat (3b) of the first element (1). Although not operationally convenient, the lugs (6a,6b) referred to above could also be associated with two different elements.

[0012] In order to facilitate guided insertion both of the lugs (3a) of the second element (2) and of the lugs (6a, 6b) of the third element (6), the seat (3b) of the first element (1) has ribs (7).

[0013] In a preferred constructional solution, as shown in the figures, the device comprises two pairs of elements (1,2) located at the opposite ends of the sides (5a,4a) along which the leaf (5) and the wall (4) are joined together. They are formed symmetrically with respect to the direction of mutual fastening, so that they can be used at both the ends of the sides (5a,4a) of the leaf (5) and the wall (4). Advantageously at least one of the ends of the side (5a) of the leaf (5) has, formed in it, a recess (8) inside which, once assembly has been performed, the device is housed in a concealed manner.

[0014] Assembly is performed in a relatively simple manner, as can be seen from Figure 2: the second elements (2) are first fastened to the stationary wall on pivots, while the first elements (1) are fixed to the leaf (5) inside the specially prepared recess (8). Once the elements (1,2) are positioned so as to be facing each other, they are moved towards each other in a straight line until they snap-engage one inside the other. Finally, the third element (6) is applied, so as to ensure locking thereof.

[0015] The invention thus conceived may be subject to numerous modifications and variants, all falling within the scope of the inventive idea. Moreover, all the details may be replaced by technically equivalent elements.

[0016] In practice, obviously modifications and/or improvements which nevertheless fall within the scope of the following claims are possible.

Claims

1. Device for joining a rotating leaf to a fixed wall, comprising at least one pair of elements (1,2) which are respectively fastened to a rotating leaf (5) and to a fixed wall (4), **characterized in that** a first element (1) is integrally fastened to the leaf (5) and a second element (2) is rotatably fastened to a wall (4), said elements (1,2) being provided with means (3) for rigidly fastening them together.

2. Device according to Claim 1, **characterized in that** said means (3) for performing rigid fastening together act in the horizontal direction.

3. Device according to Claim 1 or 2, **characterized in that** said means (3) for performing rigid fastening together comprise elastically deformable lugs (3a) integral with the second element (2) and a seat (3b) with a variable cross-section which is integral with the first element (1), so that a deformation of the lugs (3a) allows insertion thereof into the seat (3b), along a first narrow section (3b'), while, along a second section (3b'') of the seat (3b), elastic return of the lugs (3a) is permitted, preventing them from coming out of the seat (3b).

4. Device according to Claim 3, **characterized in that** it comprises at least a third element (6) provided with its own elastically deformable lugs (6a) able to clamp the lugs (3a) of the second element (2) against the walls of the seat (3b) of the first element (1).

5. Device according to Claim 3, **characterized in that** it comprises at least a third element (6) provided with its own lugs (6b) able to force the lugs (3a) of the second element (2) so as to disengage them from the seat (3b) of the first element (1).

6. Device according to Claim 4 or 5, **characterized in that** said third element (6) is provided both with first elastically deformable lugs (6a) able to clamp the lugs (3a) of the second element (2) against the walls of the seat (3b) and with second lugs (6b) able to force the lugs (3a) of the second element (2) so as to disengage them from the seat (3b) of the first element (1).

7. Device according to any one of the preceding claims, **characterized in that** the seat (3b) of the first element (1) has ribs (7) able to guide both the lugs (3a) of the second element (2) and the lugs (6a, 6b) of the third element (6).

8. Device according to one of the preceding claims, **characterized in that** it comprises two pairs of elements (1,2) located at the opposite ends of the sides (5a,4a) along which the leaf (5) and the wall (4) are joined together.

9. Device according to Claim 8, **characterized in that** said elements (1,2) are formed symmetrically with respect to the direction of mutual fastening, so that they can be used at both ends of the sides (5a,4a) of the leaf (5) and the wall (4).

10. Device according to one of the preceding claims, **characterized in that** it envisages a recess (8) which is formed in at least one of the ends of the side (5a) of the leaf (5) and inside which it is housed in a concealed manner.

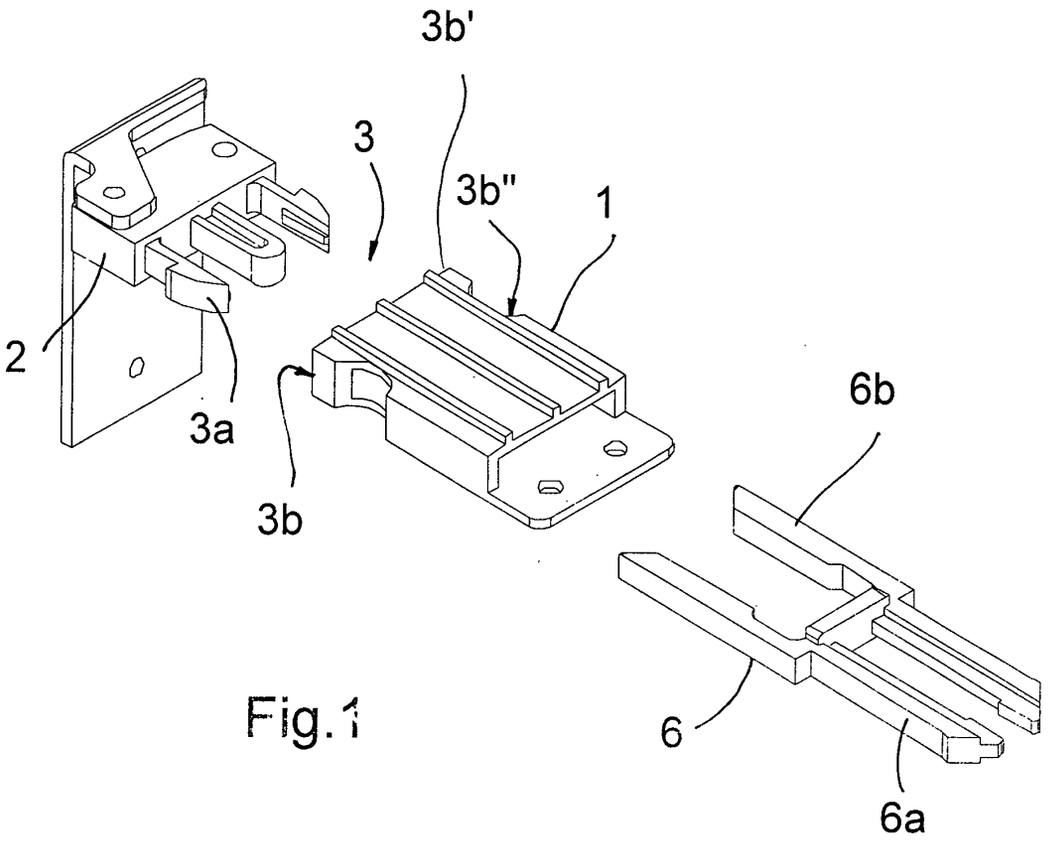

Fig.1

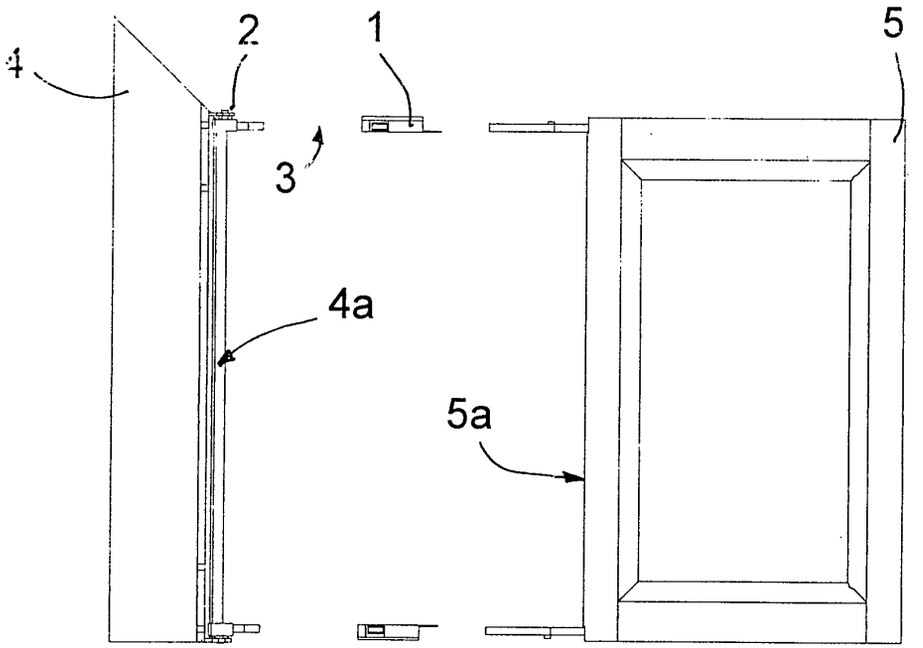

Fig.3

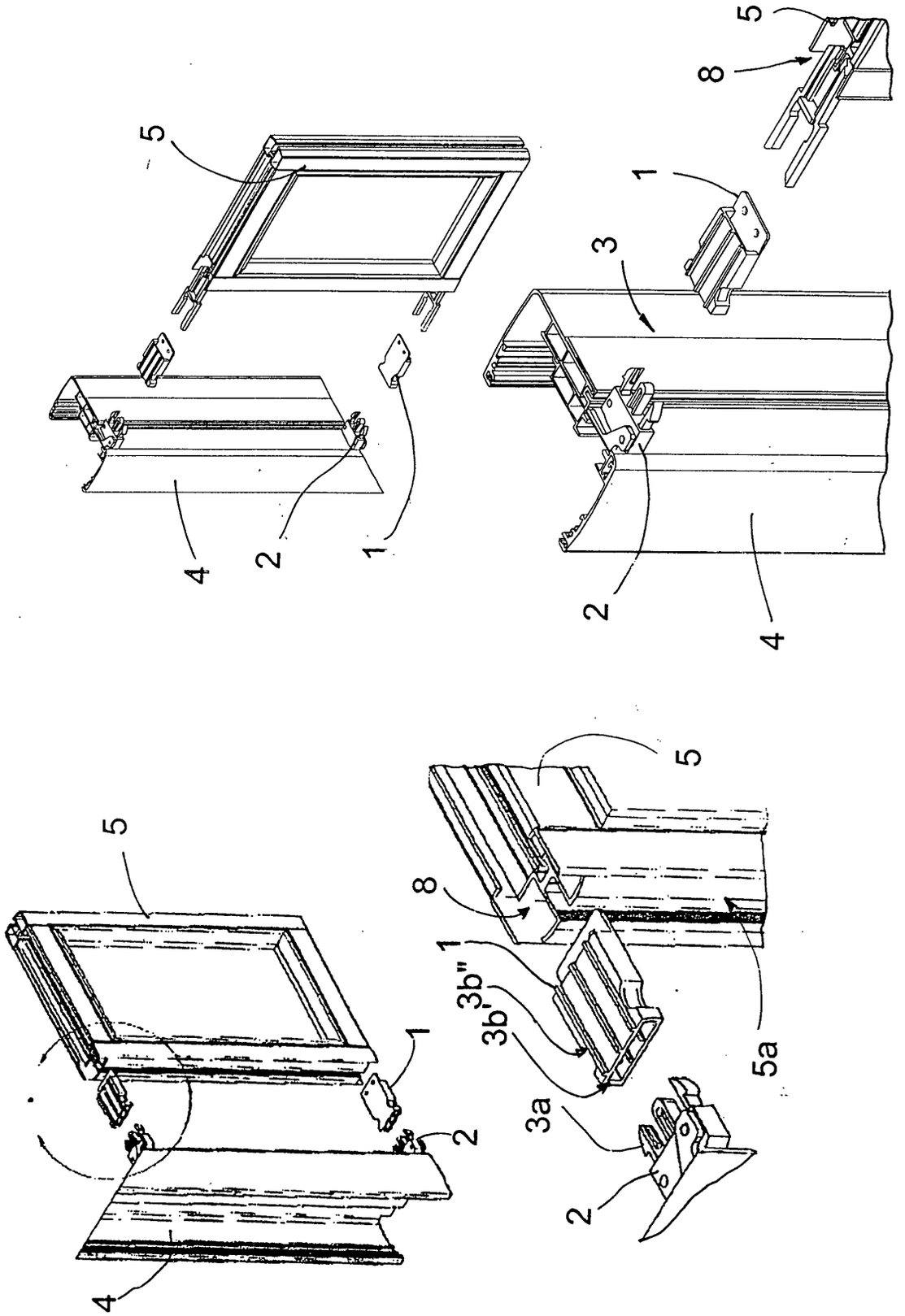

Fig. 2

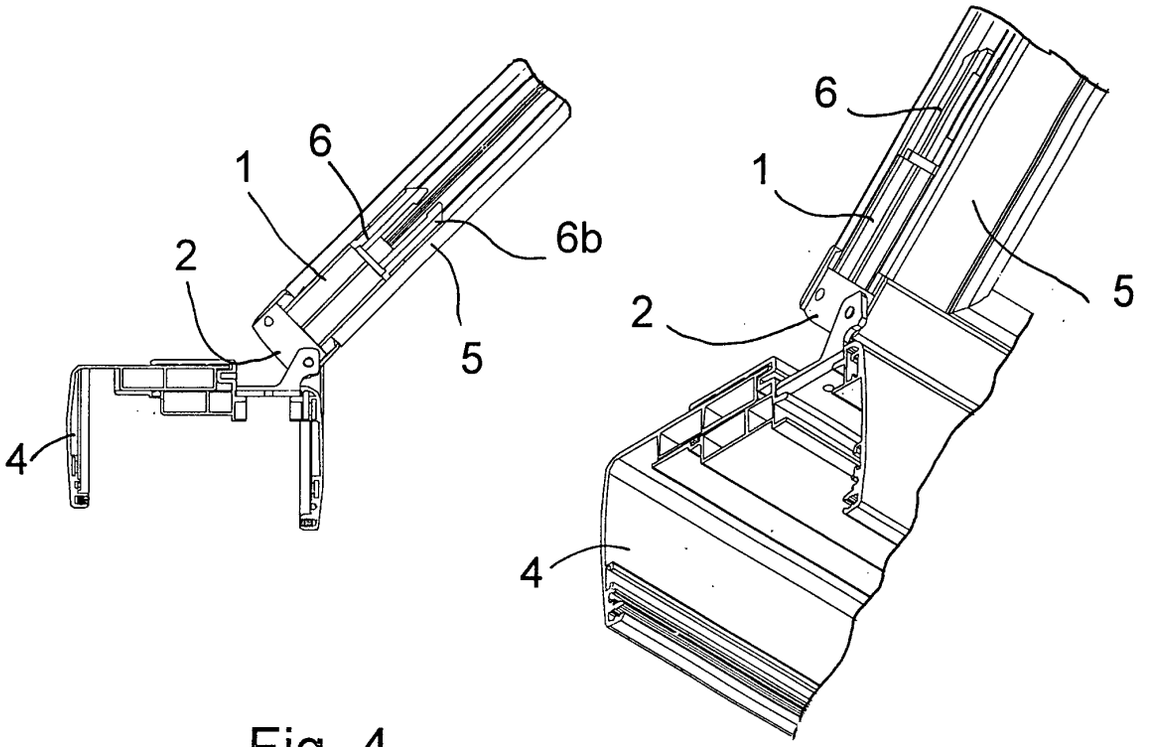

Fig. 4

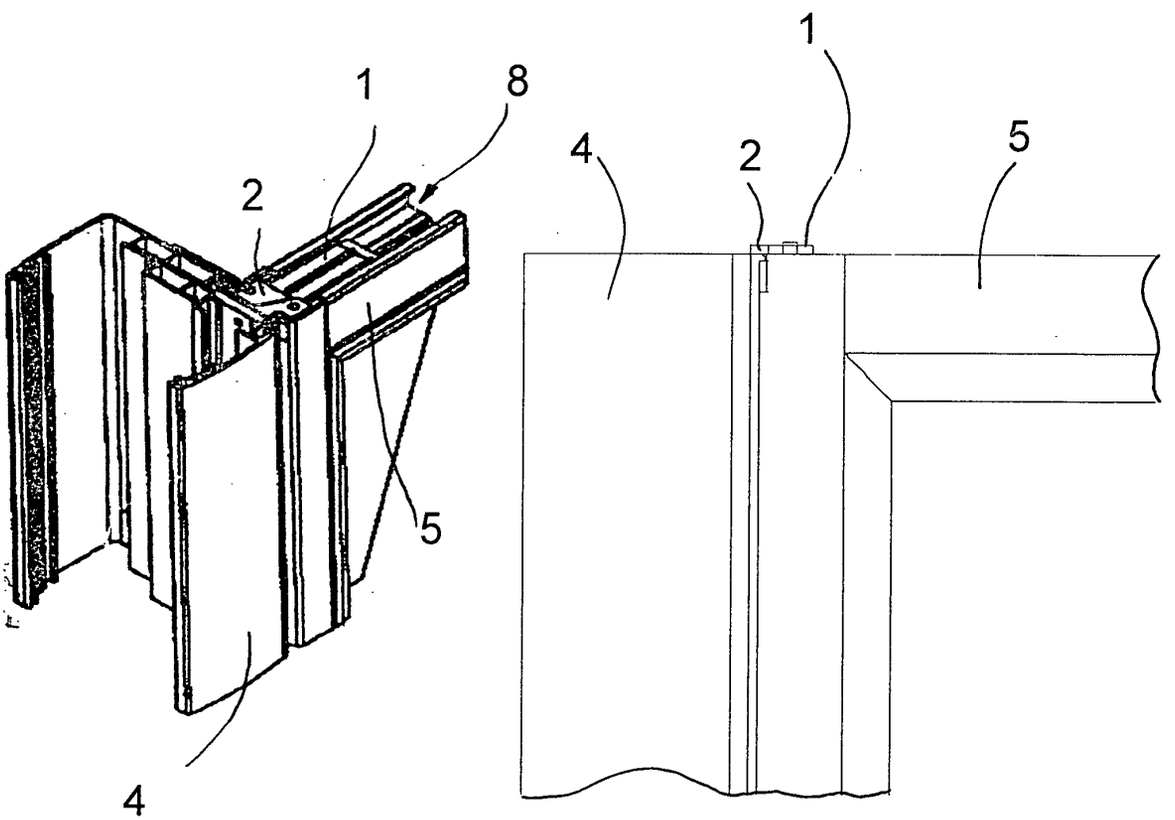

Fig. 5

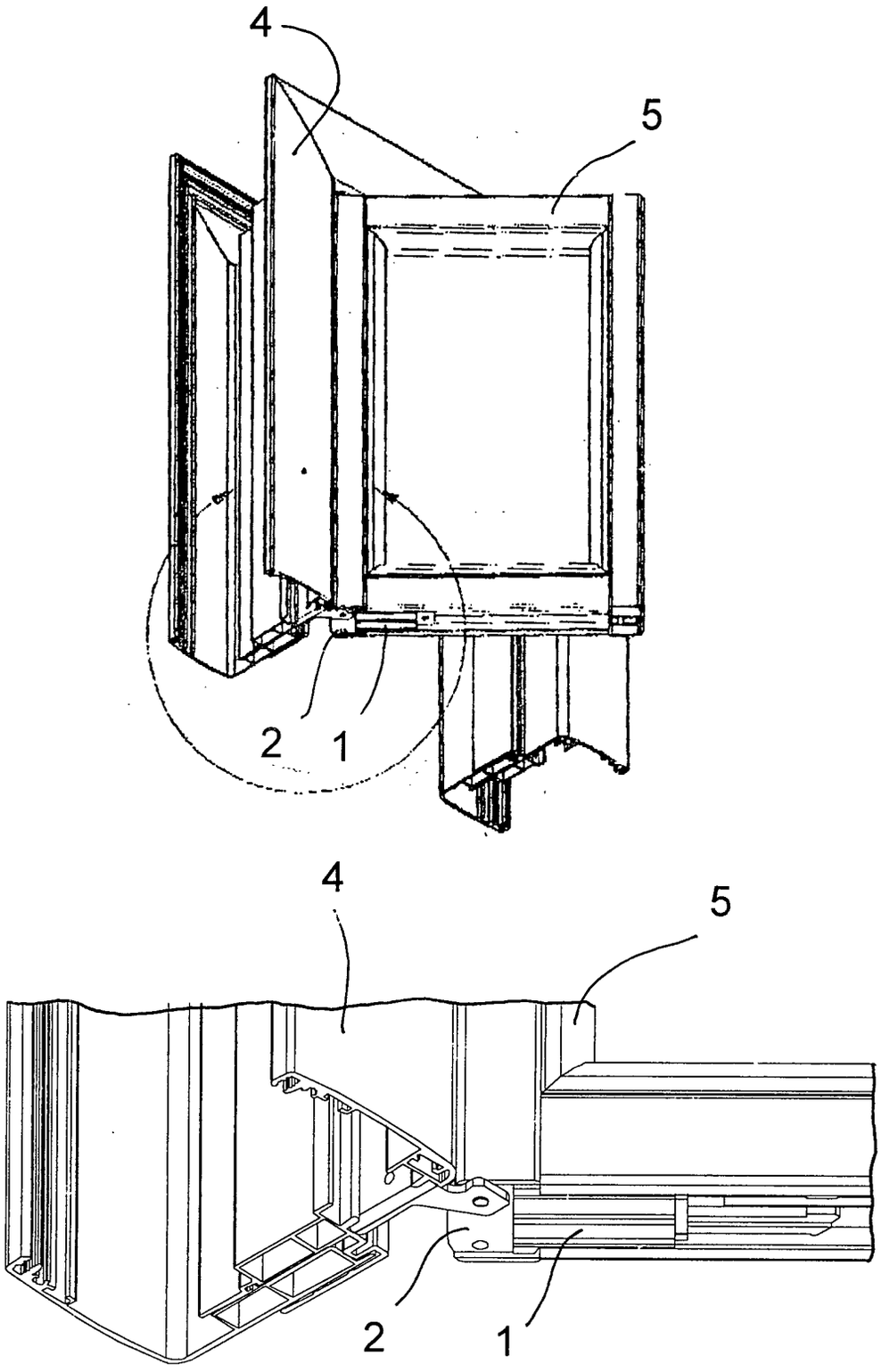

Fig. 6

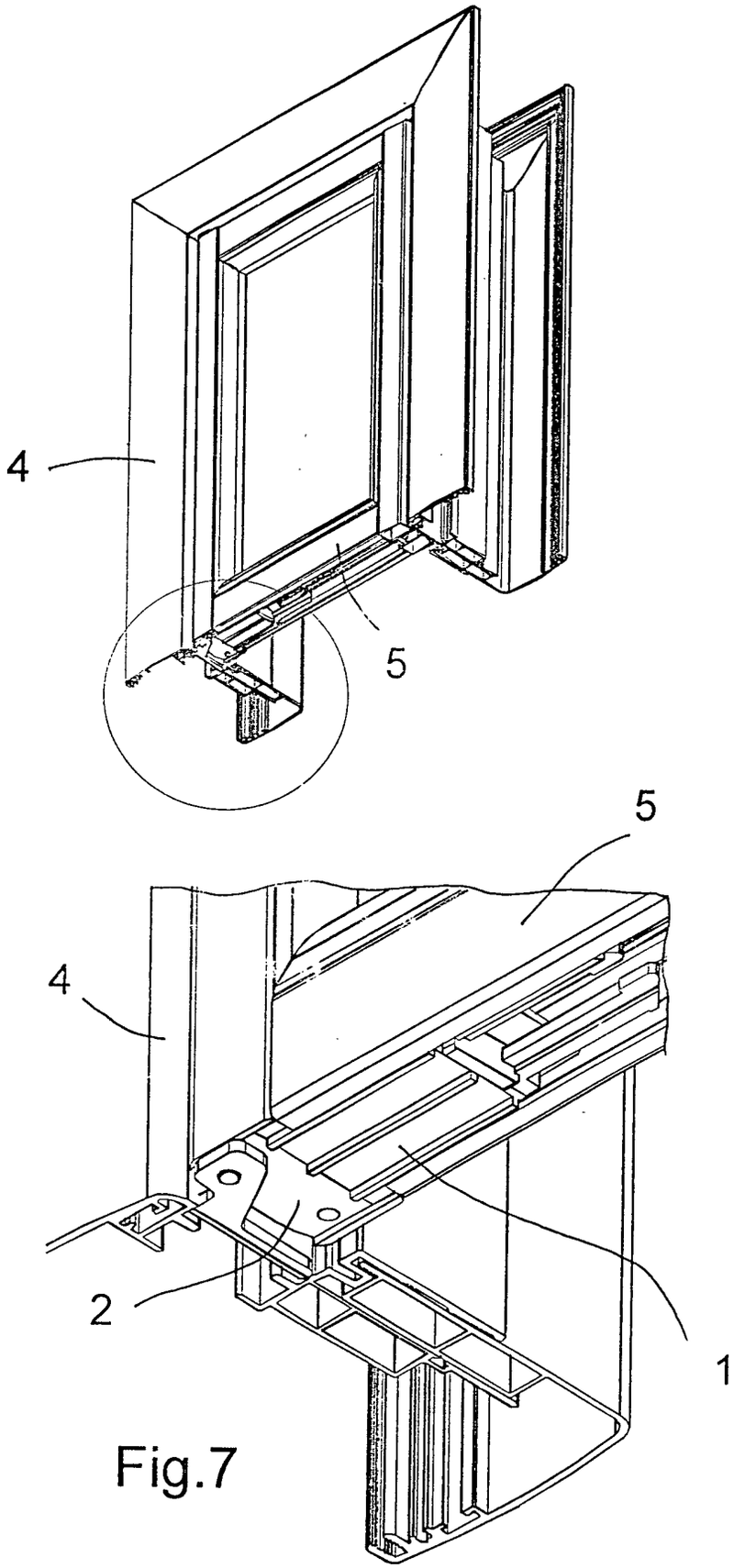

Fig.7