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(71) Applicant: **GSG INTERNATIONAL S.p.A.**
40054 Budrio (Bologna) (IT)

(72) Inventor: **Lambertini, Marco**
40068 San Lazzaro di Savena (Bologna) (IT)

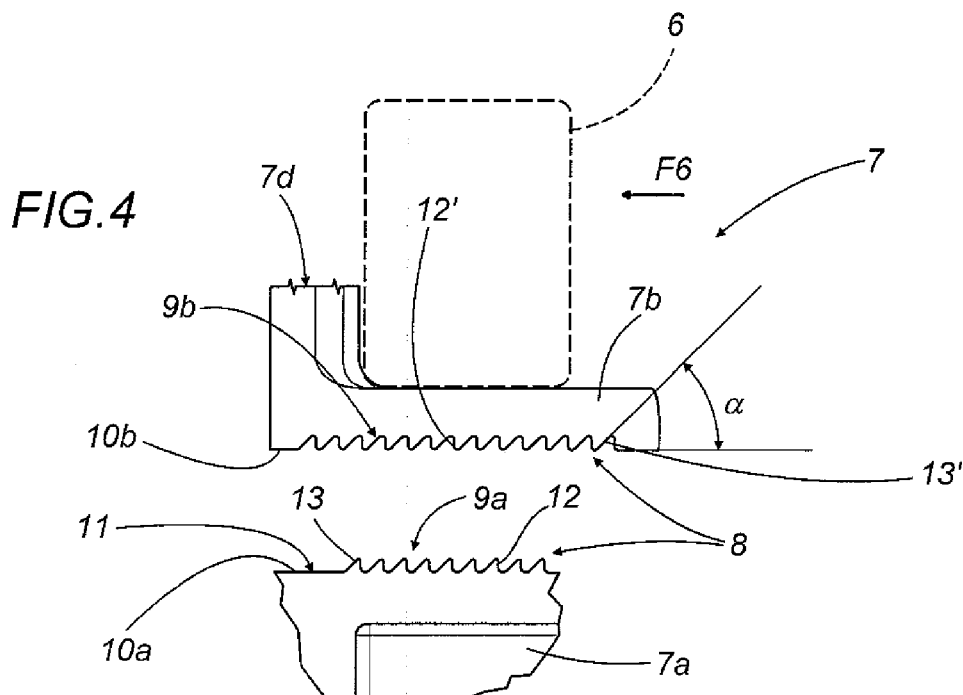
(74) Representative: **Lanzoni, Luciano**
Via Goito 18
40126 Bologna (IT)

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(54) **Side-hung or turn-and-tilt door or window comprising a striker device**

(57) A door or window (1) comprises closing means (6, 7) divided into a movable part comprising at least one boss (6) located on an operating rod (5) and a fixed part comprising at least one striker element (7) composed of a base plate (7a) associated with a second vertical member (2b) of a fixed frame (2) and a slider (7b) having a part (7d) that protrudes perpendicularly from the plate

(7a) in order to abut the closing boss (6); the slider (7b) being adjustable through respective means (8,14) interposed between the slider (7b) and the plate (7a), the fastening and adjustment means (8,14) comprise a respective toothed section (9a,9b) to adopt a plurality of discrete positions inside a groove (11) made in the plate (7a).



Description

[0001] This invention relates to a door or window, in particular a traditional side-hung or a tilt and turn door or window.

[0002] Doors and windows of this type, with frames made of metal, PVC or PVC and wood, essentially comprise, in a standard non-limiting configuration:

- a fixed frame;
- a mobile frame or sash, hinged, on a first vertical member, to a respective first vertical member of the fixed frame;
- a control handle mounted on the second vertical member of the mobile frame;
- at least one operating rod positioned slidably in a groove made in the second vertical member and connected to and controlled by the control handle in such a way as to slide in both directions within the groove to define at least one open configuration and a closed configuration of the door/window;
- closing means divided into a movable part associated with, and protruding from the groove and designed to oppose a fixed part comprising respective abutment means located on the second vertical member of the fixed frame in order to define the closed configuration.

[0003] In particular, the movable part may comprise pins or bosses associated with the rod, while the abutment means are usually divided into two parts each: a plate and an L-shaped slider for abutting the boss by means of the protrusion on the L shape, which is perpendicular to the rest of the slider.

[0004] The plate can be securely screwed to the second fixed vertical member, while the slider can be slid along a groove in the plate and, once it has reached the correct position, can be fixed in place using a screw.

[0005] To increase the closing pressure in these doors and windows, that is to say, the contact pressure between slider and boss (for example when the weather strips are worn and the pressure of the fixed frame on the mobile frame must be increased), it is possible to operate on one or both of the items just described.

[0006] The bosses can be turned about their axes since they are eccentrically shaped.

[0007] The abutment means, on the other hand, can be adjusted by releasing the slider and moving it along the groove in the plate.

[0008] To be able to provide well-defined and distinct adjustment positions on the above-mentioned door or window, the coupling between plate and base is accomplished by means of rough surfaces having triangular ridges that mate face to face.

[0009] The shape of the ridges is usually acute angled (for example with teeth that are triangular in cross section): this coupling is very precise and allows adjustments in the order of a few tenths of a millimetre but has the

disadvantage of not being very resistant to the stresses caused by continuous contact with the boss.

[0010] Over time, therefore, the stress caused by the boss tends to push the slider, making it slip along the base in the opposite direction. This in turn causes a change in the closing pressure which must be kept under constant control and requires periodic adjustments which are expensive and time consuming.

[0011] Failure to do this will eventually lead to a door/window with an ineffective weather seal or with unwanted or problematic slackness in the closed configuration.

[0012] This invention therefore has for an aim to overcome the above mentioned disadvantages by providing a door or window having closing means whose structural characteristics are such as to allow it to be adjusted precisely and to hold the adjustment over time, thus reducing the risk of door/window looseness.

[0013] Another aim of the invention is to obtain this precise and stable adjustment without substantially changing the basic components and structure of the door/window.

[0014] According to the invention, this aim is achieved by a door or window, in particular a side-hung or a tilt and turn door or window, comprising the technical characteristics described in one or more of the appended claims.

[0015] The technical features of the invention, with reference to the above aims, are clearly described in the claims below and its advantages are more apparent from the detailed description which follows, with reference to the accompanying drawings which illustrate a preferred non-limiting example embodiment of the invention, and in which:

- Figure 1 is a schematic front view of a door/window according to the invention;
- Figures 2 and 3 illustrate a striker device applicable to the door/window of Figure 1 in an exploded perspective view and in an assembled perspective view, respectively;
- Figure 4 shows a detail from Figure 3 in a schematic side view with some parts cut away to better illustrate others.

[0016] With reference to the accompanying drawings, in particular Figure 1, the door or window according to the invention, denoted in its entirety by the reference numeral 1, may have a frame made of metal, PVC or PVC and wood and may be a traditional side-hung or a tilt and turn door or window of well known type (and all of whose components are not therefore illustrated in detail).

[0017] These doors or windows 1 basically comprise at least the following:

- a fixed frame 2;
- a mobile frame 3, or sash, hinged, on a first vertical member 3a, to a respective first vertical member 2a of the fixed frame 2 by means of known hinges CR;
- a control element 4 (usually a customary handle) lo-

cated on a second vertical member 3b of the mobile frame 3;

- at least one operating rod 5 positioned slidably along the second mobile vertical member 3b (usually in a customary groove, not illustrated, in the profile of the mobile frame 3) and made to slide in both directions by the handle 4 in such a way as to define at least one open configuration and one closed configuration of the door or window 1;
- closing means 6, divided into a movable part associated with, and protruding from, the rod 5 and designed to abut a fixed part comprising respective striker elements 7 located on a second vertical member 2b of the fixed frame 2 in order to define the closed configuration.

[0018] In particular the movable part of the closing means may comprise pins or bosses 6 (shown in Figures 1 and 4) associated with, and protruding from, the rod 5, and movable as one with the rod 5.

[0019] As regards the fixed part, that is to say, the striker elements 7, each of these comprises a base plate 7a and a slider 7b (see Figures 2 and 3).

[0020] The base plate 7a is fastened to the second vertical member 2b of the fixed frame 2 by screw means 15 at a fixed predetermined position and has a groove 11 for slidably housing the slider 7b.

[0021] The slider 7b constitutes the striker element proper which abuts against the respective closing boss 6.

[0022] Thus, the slider 7b has an L shape so that a part of it 7d protrudes perpendicularly and at least partly from the plate 7a in order to form a wall for abutting the boss 6 when the latter is moved by the rod 5 towards the closed position.

[0023] Further, the slider 7b can be fastened and adjusted, through respective interposed means 8, 14 between the slider 7b itself and the plate 7a, along an axis Y transversal to the longitudinal extension of the second, fixed vertical member 2b.

[0024] The fastening and adjustment means 8, 14 comprise (see also Figure 4) a respective toothed section 9a, 9b on each of the first and second reciprocal contact surfaces 10a, 10b between the slider 7b and the groove 11, which can be coupled to each other to allow the slider 7b to adopt a plurality of discrete positions inside the groove 11.

[0025] More specifically, in cross section, one of the reciprocal contact walls 12, 12' of the profile of each toothed section 9a, 9b extends perpendicularly to the groove 11.

[0026] The other contact surface 13, 13' of each toothed section 9a, 9b, on the other hand, is inclined in such a way as to make an acute angle α with the horizontal surface of the groove 11.

[0027] The angle α opens away from the protruding part 7d towards the end of the slider 7b opposite the protruding part 7d itself, that is to say, it extends away from the protruding part 7d: that is equivalent to the fact

that the inclination of the toothed sections 13, 13' faces the outside of the room where the door/window 1 is installed, that is to say, opposite to the opening direction of the mobile frame 3.

[0028] In short, in cross section, each toothed section 9a, 9b has a sawtoothed profile.

[0029] Further, the fastening and adjustment means comprise an element 14 (a screw in this case) for fastening the slider 7b in the groove 11 of the plate 7a after adjustment.

[0030] In practice, the adjustment of the slider 7b and, hence, of the protruding contact part 7d depends on the desired closing pressure on the door/window 1 that is to say, how far or close it is from/to the closing boss 6 in the closed position.

[0031] For this purpose, the slider 7b, has a slotted through housing 7c, while the groove 11 has a threaded through hole 11a for coupling to the fastening element 14.

[0032] Thus, the presence of sawtoothed sections 9a, 9b where the two mutually opposing walls are perpendicular to the fastening surface offers an undoubtedly higher resistance to external stresses, in particular those caused by contact with the boss 6 (see arrow F6) upon closure.

[0033] The door/window described above thus achieves the above mentioned aims thanks to the special shape of the fixed portion of the closing means which are equipped with a toothed section for adjusting and stabilizing the slider in such a way that the adjustment is precise and stable over time. Moreover, this is accomplished without radically changing the constructional architecture of the door or window and of the fixed part of the closing means.

[0034] The invention described above is susceptible of industrial application and may be modified and adapted in several ways without thereby departing from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A side-hung or tilt and turn opening door or window (1) comprising at least:
 - a fixed frame (2);
 - a mobile frame (3) hinged, on a first vertical member (3a), to a respective first vertical member (2a) of the fixed frame;
 - a control element (4) located on a second vertical member (3b) of the mobile frame (3);
 - at least one operating rod (5) positioned slidably along the second mobile vertical member (3b) and made to slide in both directions by the control element (4) in such a way as to define at least one open configuration and one closed configuration of the door or window (1);

- closing means comprising a movable part in the form of at least one pin (6) or boss associated with, and protruding from, the rod (5) and designed to abut a fixed part comprising respective striker elements (7) located on a second vertical member (2b) of the fixed frame (2) in order to define the closed configuration; each striker element (7) comprising:

- a base plate (7a) associated with the second vertical member (2b) of the fixed frame (2) and
- a slider (7b) having a part (7d) that protrudes perpendicularly from the plate (7a) in order to abut the closing boss (6); the slider (7b) being adjustable, through respective means (8, 14) interposed between the slider (7b) itself and the plate (7a), along an axis (Y) transversal to the longitudinal line along which the second, fixed vertical member (2b) extends; the door or window (1) being **characterized in that** each plate (7a) and slider (7b) have fastening and adjustment means (8, 14) comprising a respective toothed section (9a, 9b) on each of the first (10a) and the second (10b) reciprocal contact surface which can be coupled to each other to allow the slider (7b) to adopt a plurality of discrete positions inside a groove (11) made in the plate (7a); one of the reciprocal contact walls (12, 12') of the profile, in cross section, of each toothed section (9a, 9b) extending perpendicularly to the groove (11), and the other contact wall (13, 13') of each toothed section (9a, 9b) being inclined in such a way as to make an acute angle (α) with the horizontal surface of the groove (11), said angle (α) facing away from the protruding portion (7d) of the slider (7b), that is to say, opposite to the opening direction of the mobile frame (3).

2. The door or window according to claim 1, **characterized in that**, in cross section, the profile of each toothed section (9a, 9b) is sawtoothed.
3. The door or window according to claim 1, **characterized in that** the fastening and adjustment means comprise an element (14) for fastening the slider (7b) in the groove (11) of the plate (7a) once adjustment has been completed.

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FIG.1

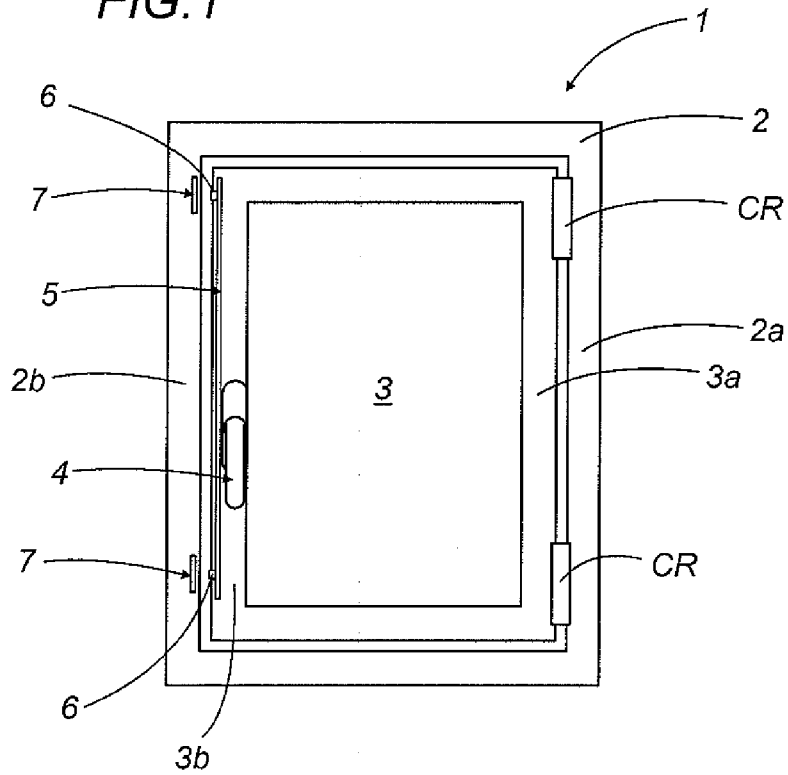


FIG.2

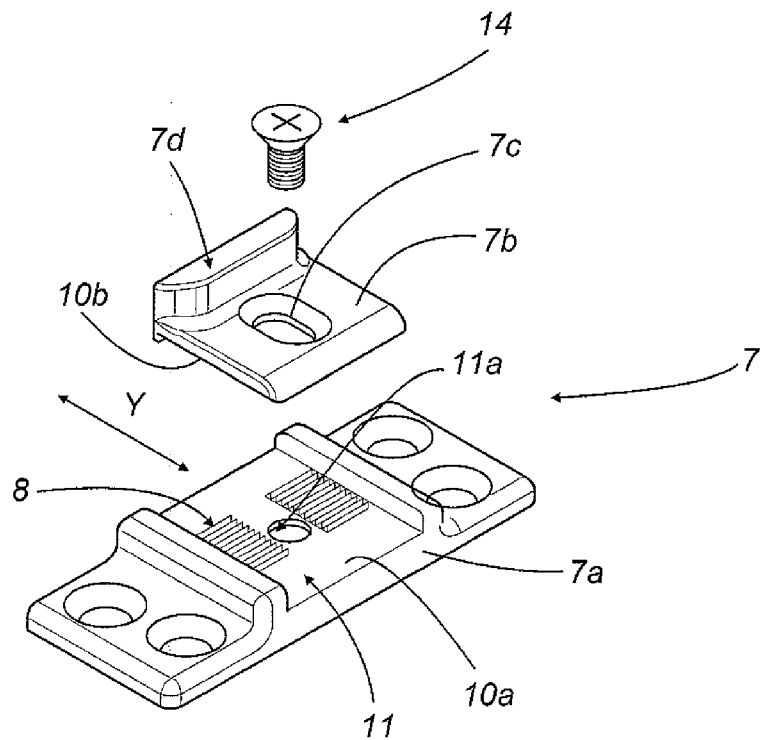


FIG.3

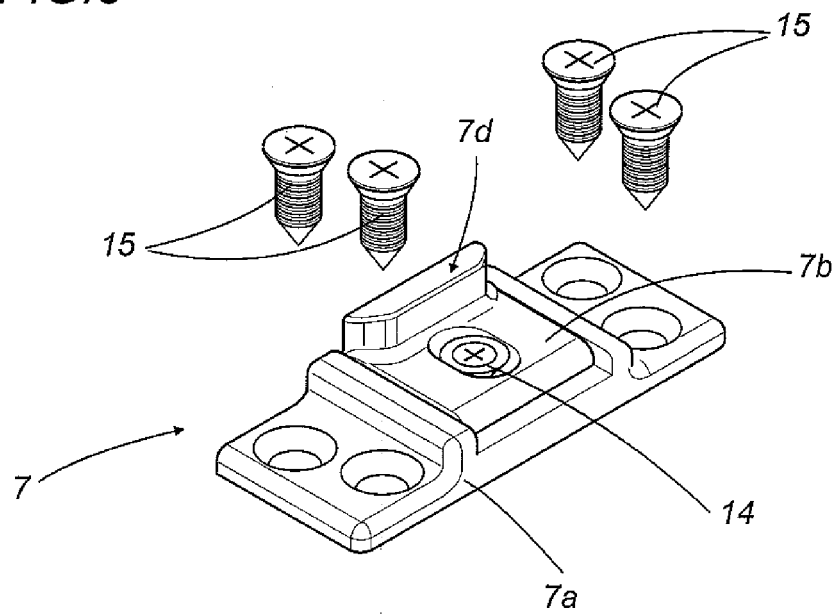
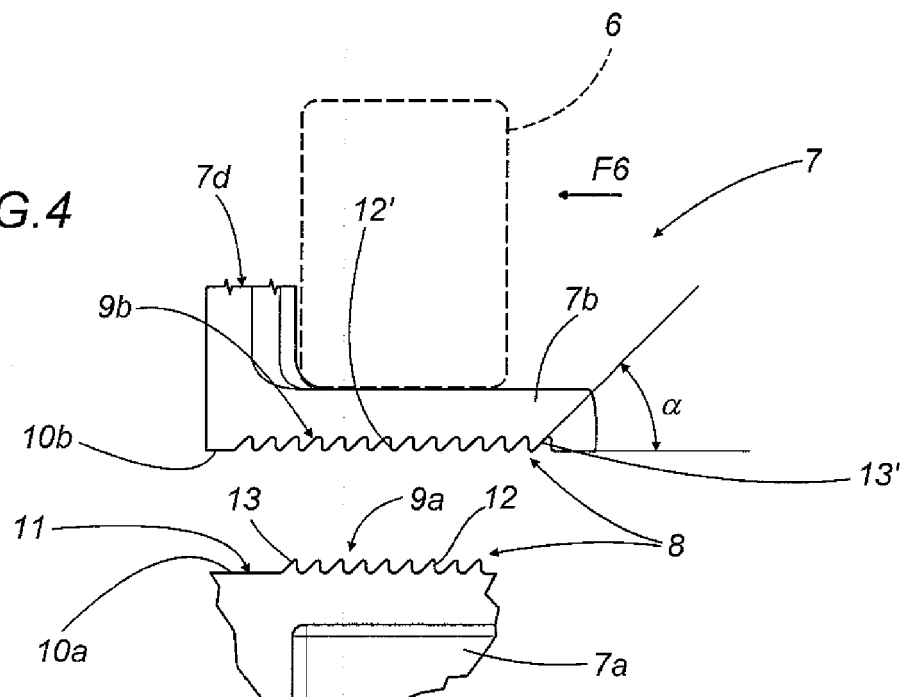


FIG.4





EUROPEAN SEARCH REPORT

Application Number
EP 09 17 1581

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 January 2010	Examiner Henkes, Roeland
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 09 17 1581

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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