



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
20.12.2000 Bulletin 2000/51

(51) Int. Cl.⁷: **E05D 5/02**

(21) Application number: **00111905.6**

(22) Date of filing: **13.06.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: **18.06.1999 IT BO990078 U**

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(54) **Hinge for casements**

(57) A hinge for casements composed of a leaf and a frame, said hinge comprising a plate (15) for locking in a channel (2) of a post of said leaf and said frame which has two lateral undercuts (3, 4), comprising a body which is composed of a first flat portion (9) for resting on a first undercut (3), of a second portion (10) which is concave and directed toward the bottom (12) of said channel and has an internal protrusion (13), and of a third portion (11) which ends with a first lip (14) which engages under a second undercut (4), said locking plate (15) having a first side (17) and a second side (19), said first side (17) being directed toward said second undercut (4), resting on said internal protrusion

(13), and being provided with a rib (18) which rests on said bottom (12), said second side (19) being directed toward said first undercut (3) and being provided with a second lip (20) for engagement under said first undercut (3), and further comprising locking means (21) for said plate (15) which act between said second concave portion (10) and a central portion (22) of said plate (15) and are suitable to turn said plate (15) about said protrusion (13) so as to push said rib (18) against said bottom (12) and said first lip (14) against said second undercut (4).

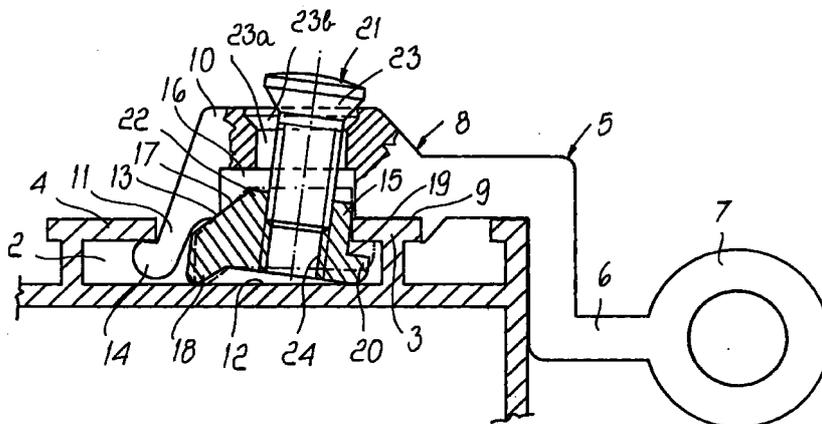


Fig. 2

Description

[0001] The present invention relates to a hinge for casements, such as doors, windows and the like.

[0002] The assembly of doors and windows in frames formed by means of profiles, particularly made of aluminum, is considerably influenced by the proper fixing of the hinges, which are required in order to move the leaves. Accordingly, if the residual play after assembly is too high, the leaf, in addition to being noisy during its oscillation on the pivot of the hinge, may interfere with the floor and be unable to complete its stroke between the open and closed positions.

[0003] In particular, conventional hinges engage a channel of the frame by means of a lip. The hinges are then locked in the channel with a plate which is inserted in the channel and is tightened by screws until the plate fastens against a retaining undercut of the channel.

[0004] Although these constructive examples are designed to allow easier and faster assembly work, they are not able to offer high stability of the fixing of the hinge in the channel of the profile.

[0005] The aim of the present invention is to obviate the above-cited drawback of conventional devices, i.e., to provide a hinge which after mounting has no residual play and at the same time has an extremely simple structure.

[0006] Within this aim, an object of the present invention is to devise a structure which is easy to provide in practice, safe in use, effective in operation, and at a low cost.

[0007] These and other objects which will become better apparent hereinafter, are achieved by the present hinge for casements composed of a leaf and a frame, said hinge comprising a plate for locking in a channel of a post of said leaf and said frame which has two lateral undercuts, characterized in that it comprises a body which is composed of a first flat portion for resting on a first undercut, of a second portion which is concave and directed toward the bottom of said channel and has an internal protrusion, and of a third portion which ends with a first lip which engages under a second undercut, said locking plate comprising a first side and second side, said first side being directed toward said second undercut, resting on said inner protrusion, and being provided with a rib which rests on said bottom, said second side being directed toward said first undercut and being provided with a second lip for engagement under said first undercut, and further comprising locking means for said plate which act between said second concave portion and a central portion of said plate and are adapted to turn said plate about said protrusion so as to push said rib against said bottom and said first lip against said second undercut.

[0008] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of a hinge with a locking plate for

casements, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is an exploded perspective view of the hinge, according to the present invention;

Figure 2 is a sectional side of the hinge in the release position;

Figure 3 is a sectional side view of the hinge in the locking position.

[0009] With reference to the above figures, the reference numeral 1 generally designates a hinge with a locking plate to be applied to the post of a leaf of a door or window which has a channel 2 provided with two lateral undercuts 3 and 4 for retention of the body 5 of the hinge 1.

[0010] The body 5 has a part 6, which is connected to the bush 7 for accommodating the articulation hinge of the leaf, and a part 8, which comprises three portions 9, 10 and 11 which are arranged one after the other. The first portion 9 is flat and is designed to rest on a first undercut 3; the second portion 10 is concave, is directed toward the bottom 12 of the channel 2 and has an internal protrusion 13; finally, the third portion 11 ends with a first lip 14 which engages under the second undercut 4.

[0011] The locking plate 15 of the hinge 1 is accommodated in an enclosed space 16 that is formed between the profiled guide 2 and the body 5. The plate 15 comprises a first side 17 which is directed toward the second undercut 4 and rests on the internal protrusion 13. The side 17 ends with a rib 18 which rests on the bottom 12. A second engagement lip 20, located under the first undercut 3, protrudes from a second side 19 of the plate 15 which is directed toward the first undercut 3.

[0012] The hinge 1 further comprises means for locking and releasing the plate 15 which act between the second concave portion 10 and a central portion 22 of the plate 15. Said means comprise two screws 21 with a conical head 23, which are driven through slots 23a of the second portion 10 of the body 5. The screws 21 are screwed into respective threaded holes 24 formed in the central portion 22 of the plate 15.

[0013] The locking and release means are adapted to turn the plate 15 about the internal protrusion 13, pushing the rib 18 against the bottom 12 and, by reaction, the first lip 14 against the second undercut 4. At the same time, the second lip 20 tightens against the first undercut 3.

[0014] It is observed that since the protrusion 13 is in an axially offset position with respect to the axis of the screw 21, a moment of rotation of the plate 15 about its center of rotation, constituted by the protrusion 13, is produced and causes the locking of the body 5 against both undercuts 3 and 4 of the channel 2.

[0015] It should be observed that the slots 23b for the passage of the screws 21 are elongated at right

angles to the channel 2, so as to allow the oscillation of the screws 21 during tightening. Conveniently, the slots 23a have flared portions 23b which are shaped complementarily to the conical heads 23 of the screws, so as to provide an adequate resting surface.

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[0016] The disclosures in Italian Utility Model Application No. BO99U000078 from which this application claims priority are incorporated herein by reference.

[0017] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

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Claims

1. A hinge for casements composed of a leaf and a frame, said hinge comprising a plate (15) for locking in a channel (2) of a post of said leaf and said frame which has two lateral undercuts (3, 4), characterized in that it comprises a body which is composed of a first flat portion (9) for resting on a first undercut (3), of a second portion (10) which is concave and directed toward the bottom (12) of said channel and has an internal protrusion (13), and of a third portion (11) which ends with a first lip (14) which engages under a second undercut (4), said locking plate (15) having a first side (17) and a second side (19), said first side (17) being directed toward said second undercut (4), resting on said internal protrusion (13), and being provided with a rib (18) which rests on said bottom (12), said second side (19) being directed toward said first undercut (13) and being provided with a second lip (20) for engagement under said first undercut (3), and further comprising locking means (21) for said plate (15) which act between said second concave portion (10) and a central portion (22) of said plate (15) and are suitable to turn said plate (15) about said protrusion (13) so as to push said rib (18) against said bottom (12) and said first lip (14) against said second undercut (4).
2. The hinge according to claim 1, characterized in that said locking means comprise at least two screws (21) which are driven through slots (23a) of said body (5) and are screwed into corresponding threaded holes (24) in said central portion (22) of said plate (15).
3. The hinge according to claim 2, characterized in that said slots (23a) of said body (5) are elongated at right angles to said channel (2) and have flared portions (23b) which are shaped complementarily to the heads of said screws (21).

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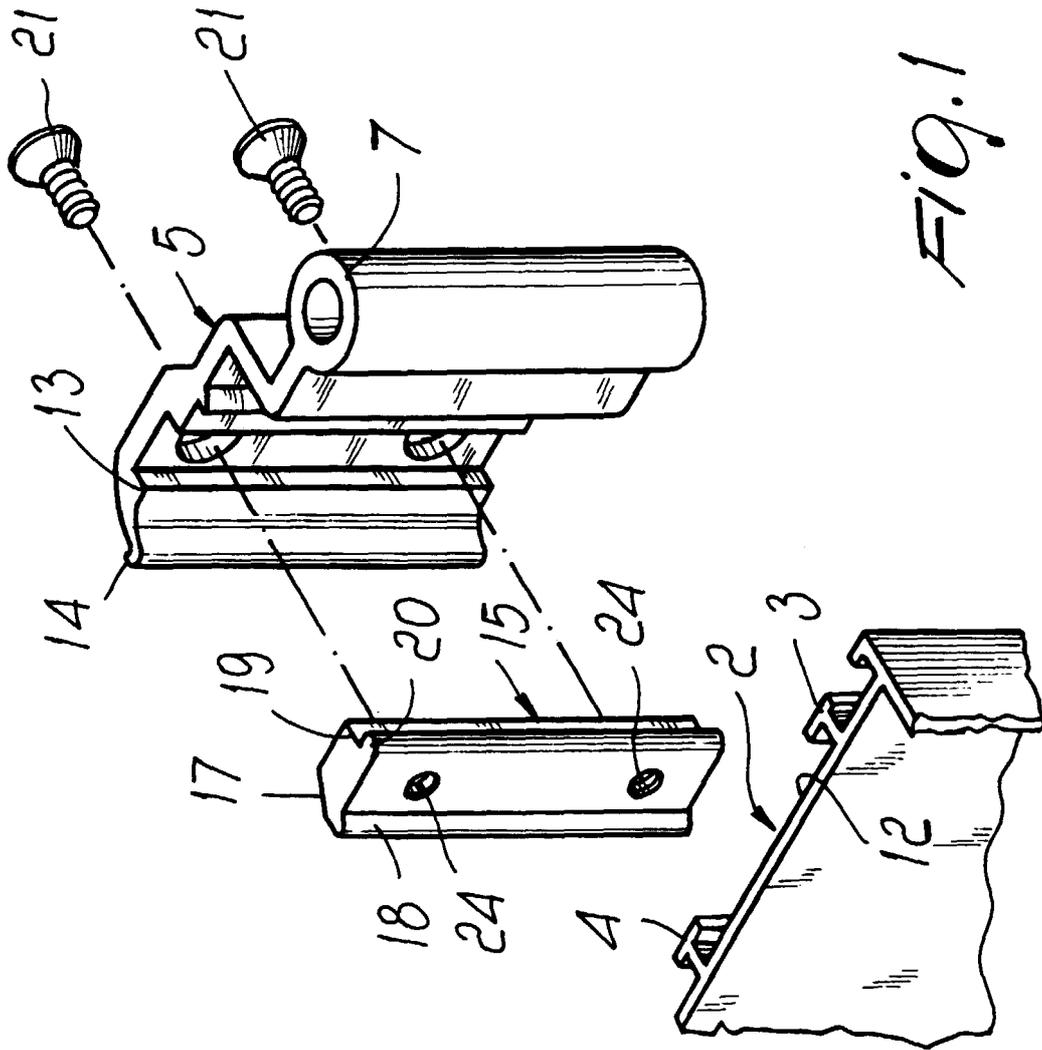
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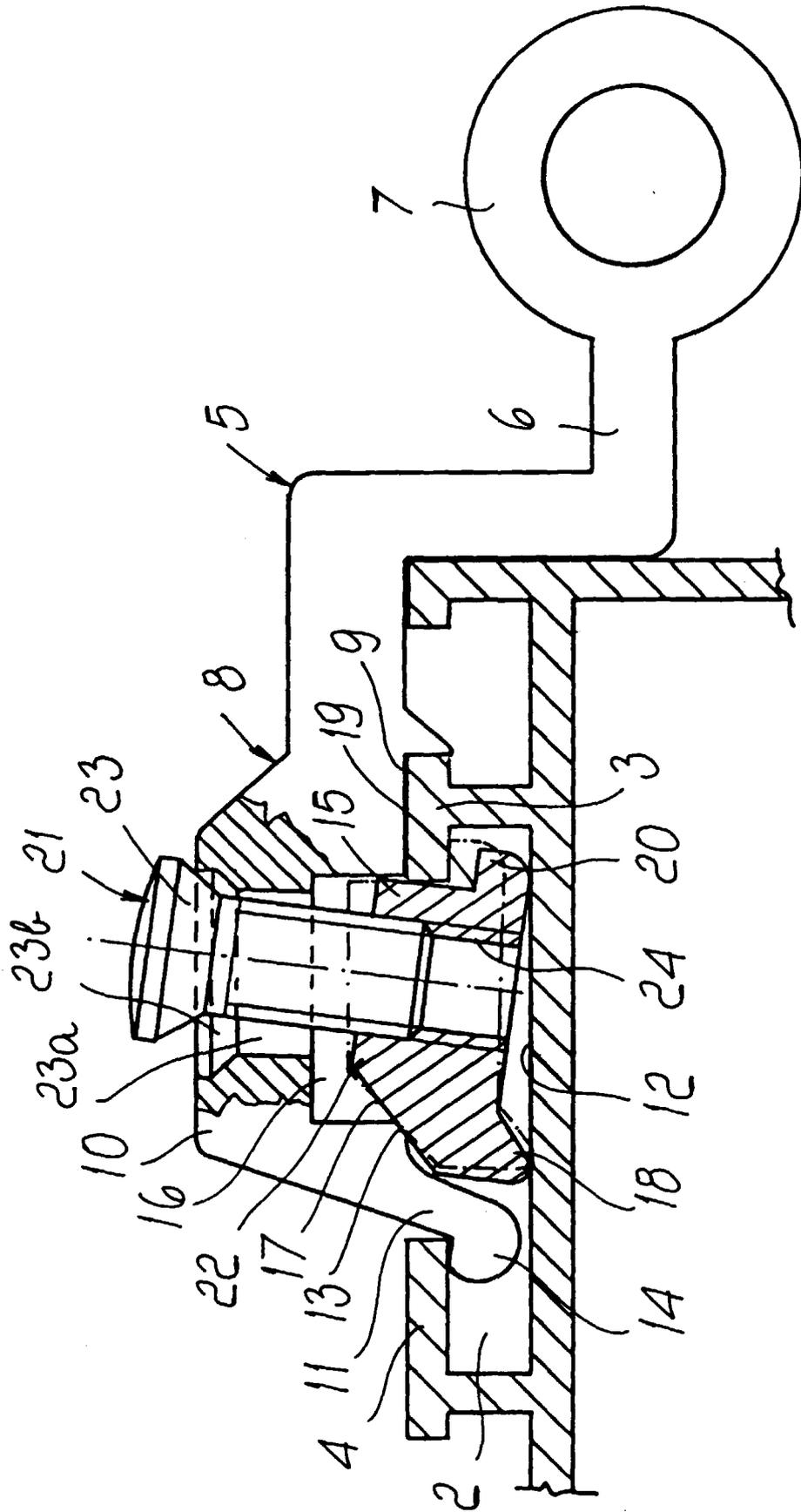
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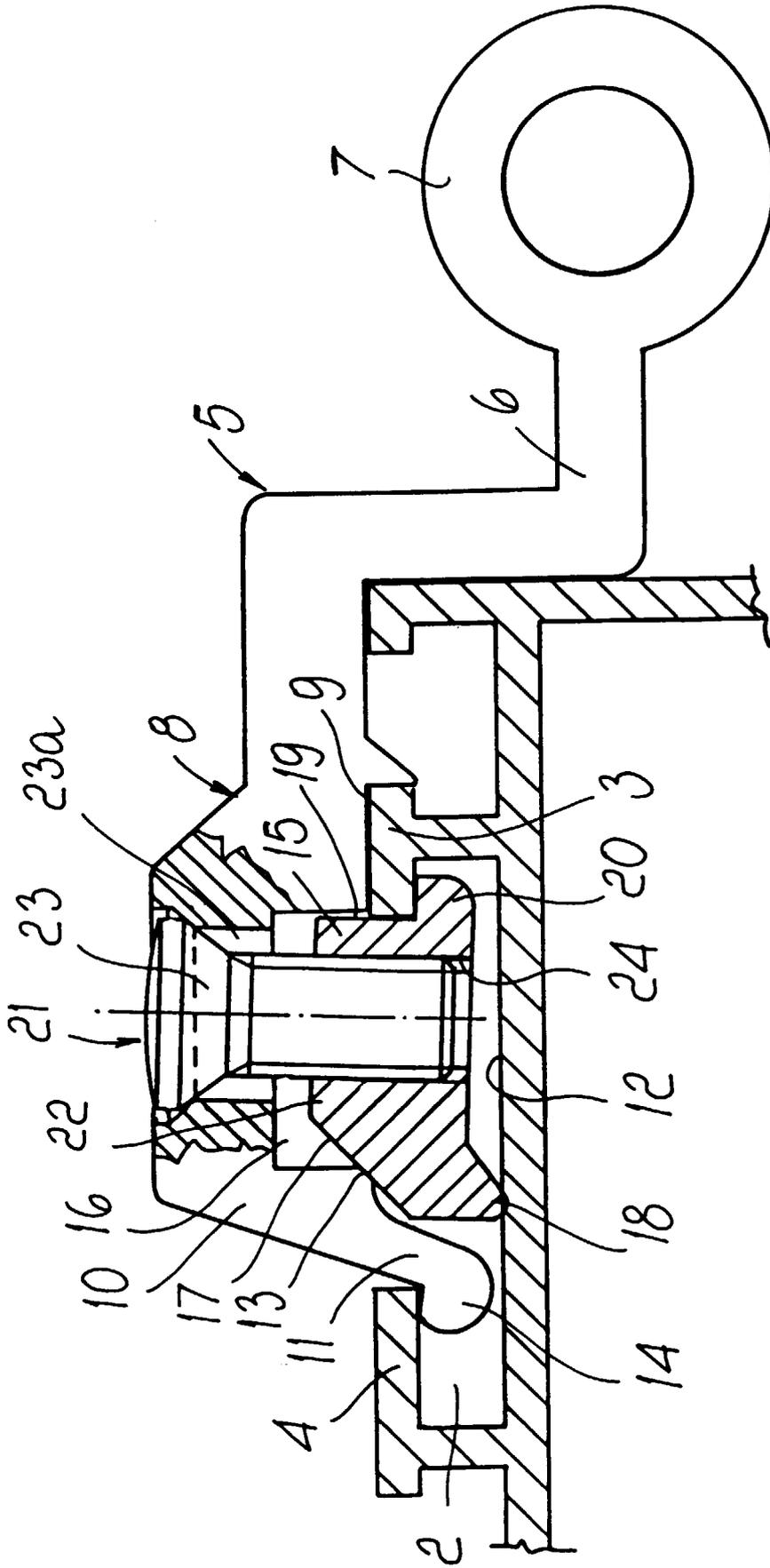


FIG. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 00 11 1905

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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Place of search	Date of completion of the search	Examiner	
THE HAGUE	17 July 2000	Guillaume, G	
CATEGORY OF CITED DOCUMENTS		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	
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		& : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 00 11 1905

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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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82