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(54) **Device for the locking of doors, windows, shutters, and the like**

(57) A shutter dog is disclosed, comprising a wall fixing element (1) which bears a bracket (6) perpendicular to the wall. Said bracket (6) swings about a hinging point (5) on said fixing element (1) and against the thrust of a return spring (8).

Preferably, said bracket (6) bears on one of its sides, within a groove (9), a tooth (10) fixed to a cursor (11), capable of sliding within said groove (9), the sliding of said cursor (11) within said groove (9) being suitably slowed down and better controlled by a toothing (12).

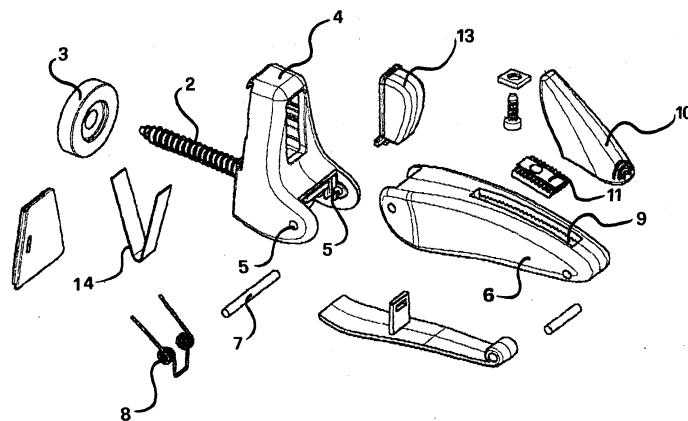


FIG. 6

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Description

[0001] The present invention relates to a device for the locking of doors, windows, shutters, and the like, such as a shutter dog.

[0002] Locking of shutters is traditionally accomplished by means of a device consisting of a shelf arranged below the opening-closure path of the shutter itself, and of a stop half-ring made of metal that can be flipped up and down. The shutter is opened, then the stop half-ring is tipped manually into closure position, and locking of the shutter in an open position is obtained. Such a device, despite being extremely simple and, usually, practical, nevertheless exhibits the drawback of being susceptible to unlocking by strong wind and requires a fully manual operation, which can be forgotten by those who should perform it.

[0003] Other methods have also been devised, again providing flipping devices, which provide a rigid linear element, which is then secured in position by pushing it downwards until it is locked; unlocking is later accomplished by pulling upwards such rigid element and flipping it downwards. As well as having the drawbacks described above, such device is also extremely fragile and prone to breakage.

[0004] Yet another device provides that on the shelf below the opening-closure path of the shutter a flat spring is provided. When opening the shutter, said spring compresses the flat element downwards, so that the shutter can pass above it. Once the shutter has passed the flat element completely, the latter springs up so as to take up a V-shape, preventing the shutter from closing again. In order to close again the shutter, it is necessary to press the spring downwards and move the shutter over it. In this device the flat spring is of paramount importance: too rigid a spring is difficult to open again, whereas too yielding a spring might not keep the shutter in a fixed position.

[0005] Finally, a device exists consisting of a clamp arranged on the shutter and of a pin arranged on the resting wall (or viceversa). In order to close the shutter it is sufficient to apply a force that overcomes the elastic thrust of the retaining clamp. However, such device is extremely fragile and, in order for closure of the shutter not to become an excessive struggle, the pin can be freed even by the wind action alone.

[0006] All the problems set forth above are brilliantly solved by the present invention, which concerns a device for the locking of doors, windows, shutters and the like, comprising a wall fixing element, which carries a bracket perpendicular to the wall, characterised in that said bracket swings about a hinging point on said fixing element.

[0007] This invention is now described in greater detail, with reference to the accompanying drawings, wherein:

[0008] fig. 1 is a plan view of the device according to the present invention;

[0009] fig. 2 is a plan view on another side of the device of fig. 1;

[0010] fig. 3 is a side view of the device of fig. 1;

[0011] fig. 4 is a cross-section view, taken along line A-A of fig. 1;

[0012] fig. 5 is a functional diagram of the device of fig. 1; and

[0013] fig. 6 is an exploded view of the device of fig. 1.

[0014] The device according to the present invention comprises a wall fixing element 1, consisting of a screw 2 with a nut 3, and of a plate 4. The plate 4 comprises a protrusion opposite to the wall carrying a hinging 5, onto which a bracket 6 is fixed by a pin 7. The bracket 6 can be made to swing about 5 with respect to the plate 4 against the thrust of a return spring 8.

[0015] Advantageously, bracket 6 carries on one of its sides, inside a groove 9, a tooth 10, fixed to a cursor 11, capable of sliding within the groove 9. The sliding action can be slowed down and better controlled by a toothing 12.

[0016] Advantageously, in the upper part of plate 4 a bouncing body 13 is found for resting of the door, window, shutter or similar. The bouncing body 13 can move against the thrust of a return spring 14.

[0017] Operation of the device according to the present invention is diagrammatically illustrated in fig. 5. The solid-line drawing illustrates the device home position. Upon opening the door, window, shutter or similar, the same engages with tooth 10. Continuing to force open the door, window, shutter or similar, the same pushes tooth 10 which, in turn, pushes downwards bracket 6 until it is in the position illustrated by a broken line.

[0018] If tooth 10 has its front edge tilted towards the wall, the opening movement and tilting of bracket 6 occur in a simpler manner, since sliding of the lower edge of the door, window or shutter is thereby made easier.

[0019] Once completed the opening, the door, window or shutter has overcome the tooth, so that bracket 6 returns in the home position due to the effect of the return spring 8.

[0020] If tooth 10 is fixed to cursor 11, free to move in groove 9, its position can be adjusted with respect to the thickness of the shutter or door, so that the latter is kept pushed with no play against the bouncing body 13, until said body is pushed compressing spring 14.

[0021] In this way, perfect fixing of the shutter/door is obtained, which is kept in a steady position by the synergy between the thrust of spring 14 and tooth 10. Further synergy is obtained through toothing 12. In this way, it is not possible for the shutter/door to be unwillingly released due to the effect of wind or pressure on the shutter/door, especially if the back edge of tooth 10 is in a substantially vertical position.

[0022] Upon release, bracket 6 is manually brought back in the position indicated by the broken line in fig. 5. Spring 14 pushes the bouncing body 13 outwards which, in turn, vigorously pushes the shutter/door to exit

the engagement area so that, letting bracket 6 return into home position, the shutter/door is no longer locked.

[0023] The present invention has been described with reference to an embodiment illustrated in the drawings, but it is apparent that other variants are possible for an expert in the field, without nevertheless departing from the scope of the present invention. 5

Claims

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1. Device for the locking of doors, windows, shutters and the like, comprising a wall fixing element (1) which bears a bracket (6) perpendicular to the wall, **characterised in that** said bracket (6) swings about a hinging point (5) on said fixing element (1). 15
2. Device as in 1), **characterised in that** said wall fixing element (1) comprises a screw (2) with a nut (3) and a plate (4) . 20
3. Device as in claim 1) and in claim 2), **characterised in that** said bracket (6) swings about said fixing element (1) against the thrust of a return spring (8). 25
4. Device as in any one of the previous claims, **characterised in that** said bracket (6) bears a tooth (10) on one of its sides inside a groove (9). 30
5. Device as in claim 4), **characterised in that** the tooth (10) is fixed to a cursor (11), capable of sliding within said groove (9). 35
6. Device as in claim 5), **characterised in that** the sliding of said cursor (11) within said groove (9) is slowed down and better controlled through a tooth- ing (12). 40
7. Device as in claim 5) or 6), **characterised in that** said tooth (10) has a tilted front edge. 45
8. Device as in any one of claims 5) to 7), **character- ised in that** said tooth (10) has its back edge in a vertical position. 50
9. Device as in any one of the previous claims, **characterised in that** in the upper part of the plate (4) there is a bouncing body (13) for resting of the door, window, shutter or the like. 55
10. Device as in claim 9), **characterised in that** said bouncing body (13) moves against the thrust of a return spring (14) .

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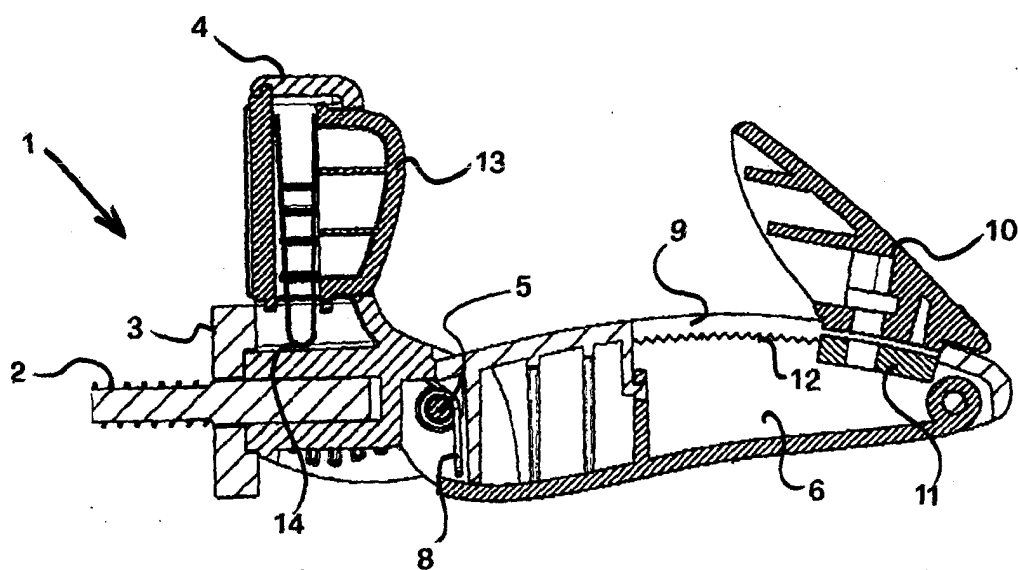


FIG. 4

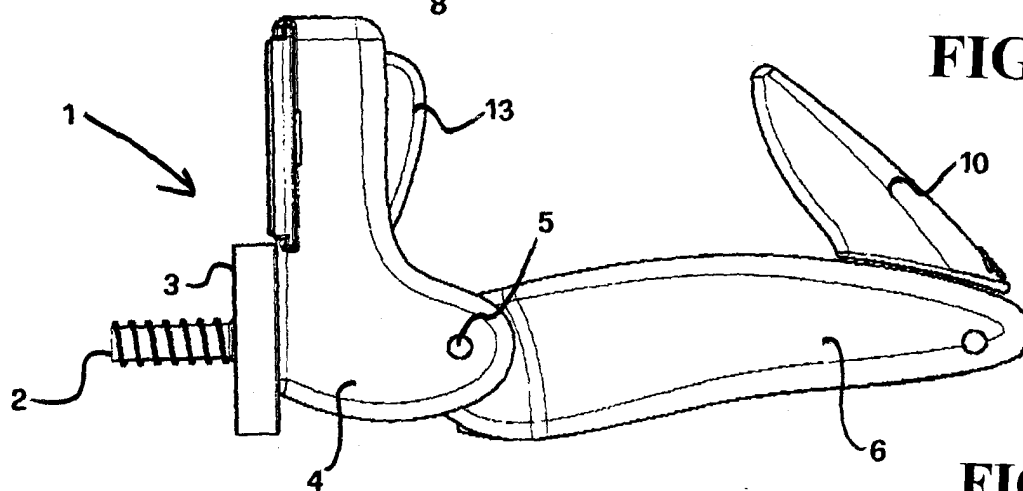


FIG. 3

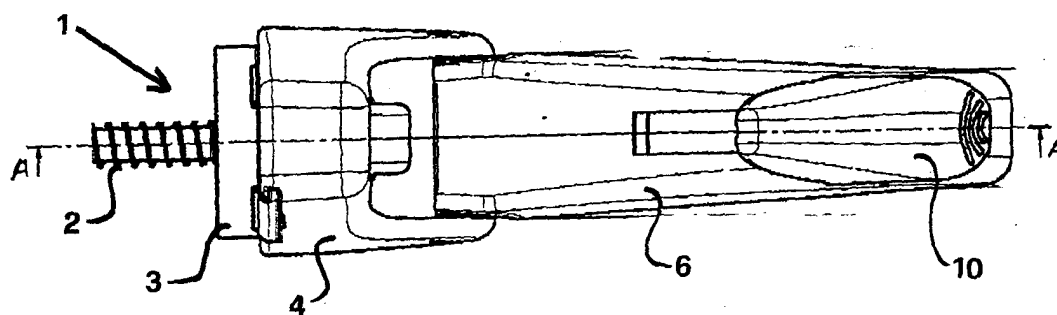


FIG. 1

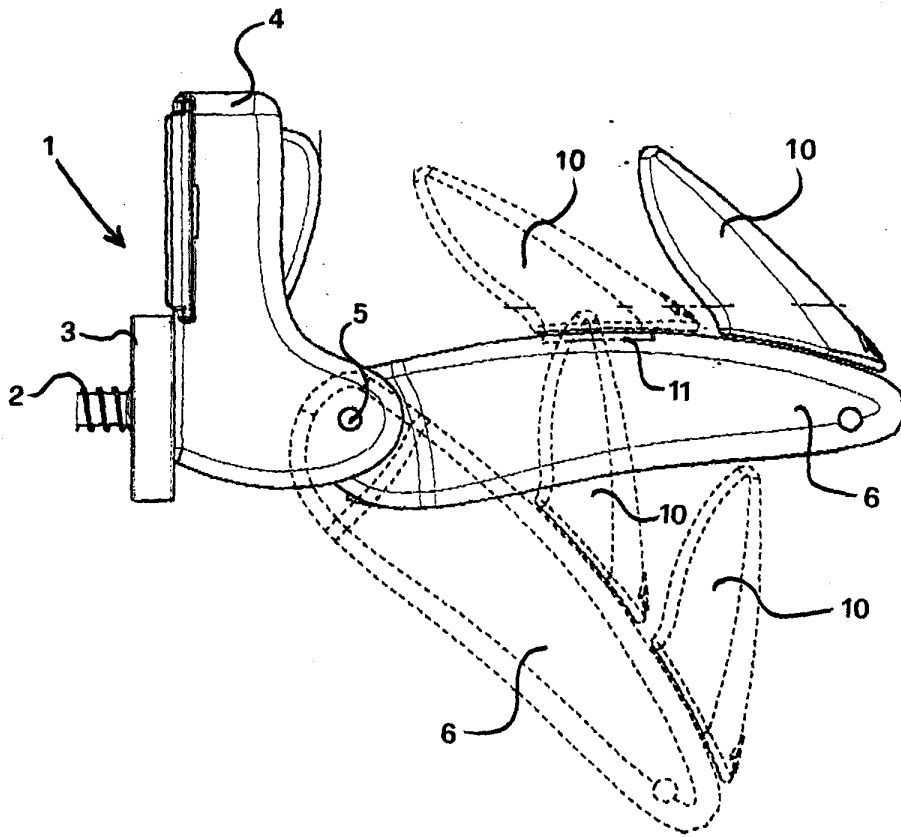


FIG. 5

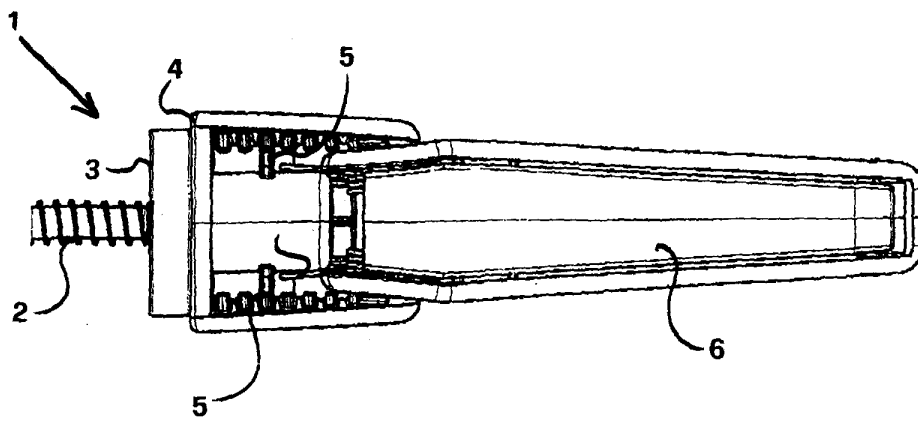


FIG. 2

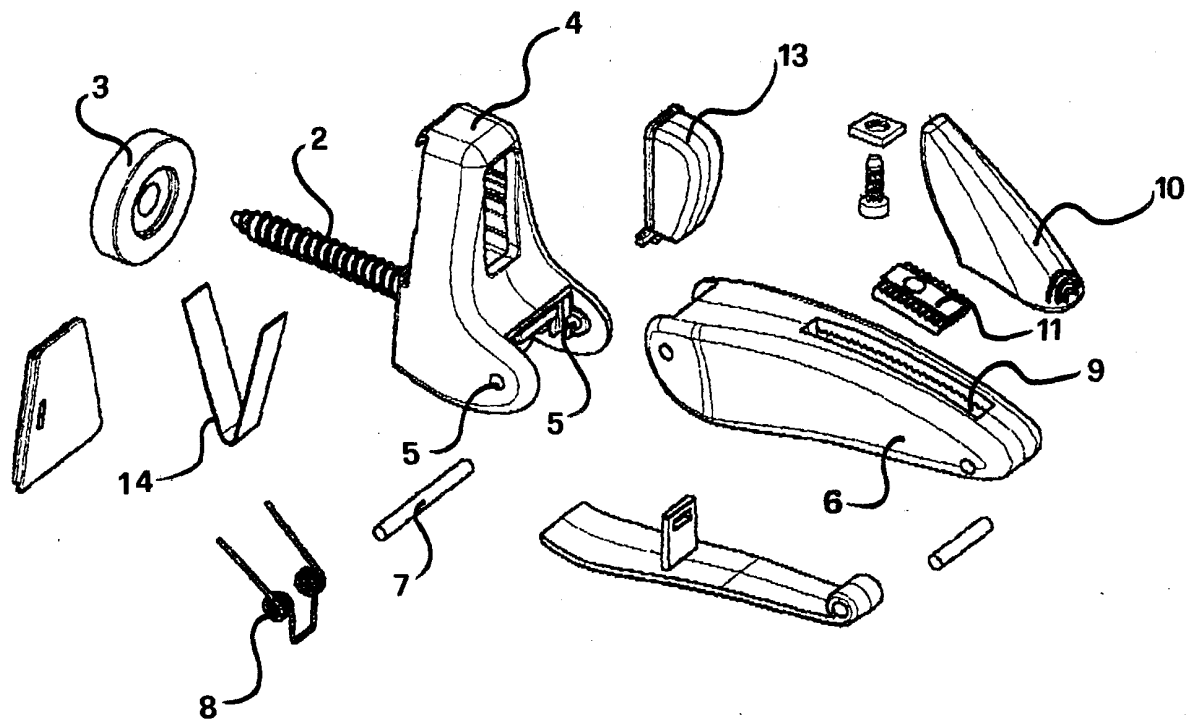


FIG. 6



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 05 10 0127

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	FR 2 795 762 A (ETABLISSEMENTS TORDO BELGRANO) 5 January 2001 (2001-01-05) * page 5, line 21 - page 8, line 14; figures 1-7 *	1-10	E05C17/50
X	FR 2 667 647 A (MIDI MOULAGES PLASTIQUES) 10 April 1992 (1992-04-10) * page 6, line 30 - page 10, line 8; figures 1-5 *	1-9	
X	FR 2 790 030 A (ETABLISSEMENTS TORDO BELGRANO) 25 August 2000 (2000-08-25) * page 5, line 26 - page 9, line 22; figures 1-6 *	1-8 9,10	
X	GB 680 850 A (HARRY REX LUCE) 15 October 1952 (1952-10-15) * page 1, line 85 - page 2, line 96; figures 1-5 *	1,2,9,10	
X	EP 0 119 413 A (MAYER & CO RIEGEL BESCHLAG) 26 September 1984 (1984-09-26) * page 4, line 8 - page 5, line 28; figures 1,2 *	1,2,4,5,7	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E05C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 May 2005	Examiner PEREZ MENDEZ, J
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
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 10 0127

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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02-05-2005

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2795762	A	05-01-2001	FR 2795762 A1	05-01-2001
FR 2667647	A	10-04-1992	FR 2667647 A1	10-04-1992
FR 2790030	A	25-08-2000	FR 2790030 A1	25-08-2000
GB 680850	A	15-10-1952	NONE	
EP 0119413	A	26-09-1984	AT 376753 B	27-12-1984
			AT 93983 A	15-05-1984
			AT 22718 T	15-10-1986
			DE 3408185 A1	20-09-1984
			DE 3460907 D1	13-11-1986
			EP 0119413 A2	26-09-1984