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(54) **A closing and/or opening latch device for a drawer guide**

(57) A device for closing and/or opening a drawer (13) of a piece of furniture. This device comprises a latch (1) and its respective retainer (4), where one is attached to the piece of furniture and the other is attached to the drawer (13). The device is characterized by the fact that the latch (1) is fastened to a plate (2) equipped with means (12) suitable for positioning the plate precisely with respect to the retainer (4), and by the presence of elastic means (8) suitable for exerting a pushing force on the drawer (13) of the piece of furniture in the opening direction.

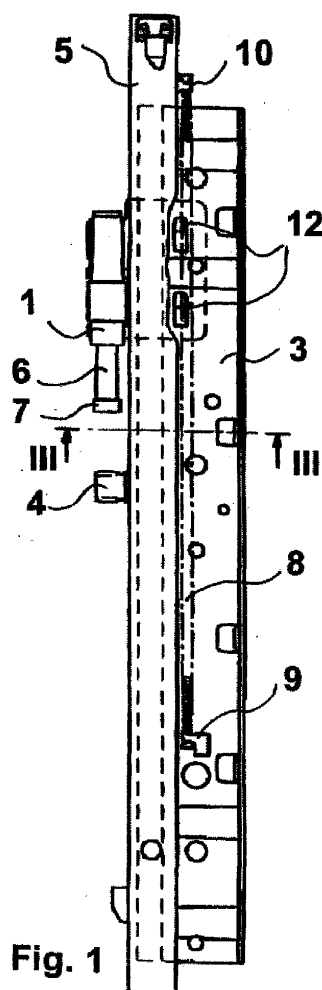


Fig. 1

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Description

Technical Field

[0001] This invention relates to a closing and/or opening device for a moving part of a piece of furniture. More particularly, it relates to a drawer equipped with a latch-type device and elastic means to facilitate opening.

Background Art

[0002] Today, several types of latch-type devices or latches are used to open or close or at least facilitate - depending on the function for which they were designed - moving doors or drawers of pieces of furniture. These latches generate a slight contrasting force during closing; this force is stored by the elastic parts and is released later on during the inverse operation, opening.

[0003] When using a latch to facilitate the opening of or to open a drawer, the drawer is kept in its closed position by appropriate devices, which can be separate from or integral with the latch for example, hooking devices, magnets, etc..

[0004] In this case, to open the drawer, the drawer must be pushed slightly first to release the latch, returning the elastic energy stored during closing and exerting a pushing force on the drawer in the opening direction. An advantage of said devices is to eliminate the need for handles or similar gripping devices on the drawer, which are not always desirable for aesthetic or other reasons.

[0005] In the state-of-the-art types of drawers, the latches of the type described above are fastened directly on parts of the piece of furniture housing the drawer and on the drawer itself; unfortunately, their placement is subject to sizing or positioning imprecision that may cause the drawer to jam or close imperfectly. Sometimes, if the mechanism of a latch does not work properly, it may be difficult to grip the drawer to open it because the drawer is not fitted with handles and/or because the drawer did not open enough to facilitate opening.

Objects of the Invention

[0006] It is a main object of this invention to provide a latch-type closing and/or opening device for a drawer guide able to overcome the above drawbacks. Furthermore, this device should be cheap and simple to make.

[0007] This object is achieved by means of a latch-type closing and/or opening device in accordance with claim 1.

[0008] Thanks to its features, the device of the invention can be fitted quickly, precisely, and easily. The device is fitted without the use of special tools and is securely fastened, guaranteeing against breakage or detachment from the drawer guide to which it is fastened. Given the precision of the resulting coupling, the proper

working order of the latch is ensured. The latch also comprises elastic means able to carry out an opening stroke adequate to enable the drawer to be opened easily or to do away with this manual action completely.

[0009] The dependent claims describe preferred versions of the invention.

Brief Description of the Drawings

[0010] These and other advantages and properties of the invention shall be readily apparent from the more detailed description of the preferred versions of a latch-type fastening device, given as non-limiting examples and in conjunction with the following accompanying drawings:

Fig. 1 shows a plan view of the device of the invention fitted onto a drawer guide in a first position corresponding to a partial opening of the guide;

Fig. 1A shows a plan view of an alternative version of the device of the invention;

Fig. 2 shows a plan view of the device displayed in Fig. 1 in a second position corresponding to the closure of the drawer guide;

Fig. 3 shows a sectional view along the III-III line of the device displayed in Fig. 1;

Fig. 4 shows a side view of a part of the device in accordance with the invention;

Fig. 5 shows a plan view of the part displayed in Fig. 4;

Fig. 6 shows a front view of the part displayed in Fig. 4.

Description of the Invention

[0011] With reference to the above figures, what follows is a detailed description of preferred versions of a drawer guide device, hereinafter also referred to as reference "G". This drawer guide device comprises a latch 1 secured to a plate 2, which is fastened to a guide 3 of a drawer 13. The second guide is not shown; this is generally present in drawers and, together with the first, forms the guide system.

[0012] In this version of the invention, the latch 1 is fastened to the fixed guide 3 but can also be suitably fastened to a moving guide 5, while remaining within the scope of this invention.

[0013] A retainer 4 is also included; this is integral with the moving guide 5 and protrudes from its side wall with two ribs, which are essentially in the shape of a "C". In this way, said retainer can be appropriately fastened both to the left guide and to the right guide.

[0014] The latch 1 is integral with a plate 2; it can be fastened, for example, with a bent element 11 or, alternatively, it can be welded or attached using appropriate means. Two tabs 12 are provided in the plate 2, for example, through die forming. These tabs are raised compared to the plate and, due to the material and the way

in which they are made, are able to exert an elastic gripping force against the surface of the fixed guide 3. The fixed part 3 of the drawer guide device G comprises two holes, with an essentially elongated shape or in the shape of slots, which can house the tabs 12. A sliding movement locks the tabs 12 inside the corresponding slots of the plate 2; this mechanism makes the plate 2 integral with the fixed guide 3.

[0015] Remaining within the scope of this invention, it is also possible to machine the tabs in the fixed part 3 of the drawer guide device G, or to fasten the plate similarly to the moving part 5 of the drawer guide device G.

[0016] During opening/closing, the latch interacts with a retainer, which is integral with the other guide, in this case the moving guide 5. The retainer 4 can be machined directly in the material of the guide 5 or can be welded or screwed into the guide. The retainer 4 can interact with the means of the latch suitable for keeping the drawer closed, regardless of whether these are magnetic, mechanical, or other.

[0017] The operation of the drawer guide device is described below. When closing the drawer, the moving guide 5 moves in the direction of the arrow "C", and a rib of the retainer 4 pushes the shank 6 of the latch 1, positioning it as shown in Fig. 2. In this position, the magnet 7 holds the retainer 4 against the latch 1 that, since it is locked in this position, keeps the drawer shut. To open the drawer, a slight pushing force must be applied to the drawer. This causes the rib 4 to move the shank 6, releasing it from its retainer which is not shown in the figures. Now, the latch returns the elastic energy stored when closing the drawer, and this energy is transformed into a force that pushes the moving guide 5 in the opening direction. The above actions only open the drawer partially; the full opening of the drawer is assured by the second elastic means.

[0018] Advantageously, the elastic means comprise, for example, an extension spring 8 fastened to one end by a retainer 9 of the fixed guide 3 and to the end by a retainer 10 of the moving guide 5. This spring 8 is responsible for integrating the opening pushing force of the drawer. Specifically, the spring 8 provides a force that integrates the one exerted by the latch in order to increase the opening stroke of the drawer or complete the opening of the drawer until the limit stop. The spring is sized to make it compatible with the locking force of the aforementioned reversible retaining means of the drawer for example, mechanical or magnetic means.

[0019] The opening and/or closing device in accordance with the invention can also be made with different embodiments of the latch in different sizes. For example, in the embodiment shown in Fig. 1A, the shank 16 is longer than the one 6 shown in Fig. 1. This version makes it possible to eliminate the additional spring 8 for facilitating the opening of the drawer since the elastic part is integrated with the latch and increases the stroke of the shank, resulting in a greater drawer-opening movement.

[0020] The particular versions described in this document do not limit the scope of this patent application, which covers all the embodiments of the invention defined in the claims.

Claims

1. A device for closing and/or opening component (13) of a piece of furniture, which moves with respect to the piece of furniture, comprising a latch (1) and a respective retainer (4) wherein one of these is attached to the piece of furniture and the other is solidarily fixed to the component (13), the device being **characterized by** the fact that the latch (1) is secured to a plate (2) equipped with fixing means (12) suitable for positioning the plate precisely with respect to the retainer (4), and by the provision of elastic means (8) suitable for exerting a pushing force on the component (13) of the piece of furniture in the opening direction.
2. A device as claimed in claim 1 wherein the component (13) of a piece of furniture is adapted to move by means of sliding guides (G) comprising a fixed element (3), suitable for being fixed to the piece of furniture, and a sliding element (5) with respect to the fixed one, suitable for being attached to the component (13) of the piece of furniture, and where the plate (2) is suitable for being fastened reversibly to one of said parts (3, 5) of the guide (G), and where said elastic means (8) are joined to a shank (16) of the latch (1) in order to exert said opening push.
3. A device as claimed in claim 1 wherein the component (13) of the piece of furniture is adapted to be moved by means of sliding guides (G) comprising a fixed element (3), suitable for being fastened to the piece of furniture, and a sliding element (5) with respect to the fixed one, suitable for being fastened to the component (13) of the piece of furniture, and wherein the plate (2) is suitable for being fastened reversibly to one of said elements (3, 5) of the guide (G), wherein said elastic means comprise an extension spring (8) attached at a first end to the fixed element (3) and at a second end to the sliding element (5) of the guide (G).
4. A device as claimed in claim 3 wherein the plate (2) comprises first fixing elements (12) providing a lock joint and, on one of said elements (3, 5) of the guide (G), second fixing elements providing lock joint suitable for fitting into each other said plate (2) and one of said elements (3, 5) of the guide (G).
5. A device as claimed in claim 4 wherein said first fixing elements consist of elastic tongues (12), and said second fixing elements consist of holes suitable

ble to house said tabs (12).

6. A device as claimed in claim 5 where said holes are cut in an appropriate part of the fixed part (3) of the guide (G) and are in the shape of a slot.

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7. A device as claimed in claim 4 where said tongues (12) are made by means of die forming.

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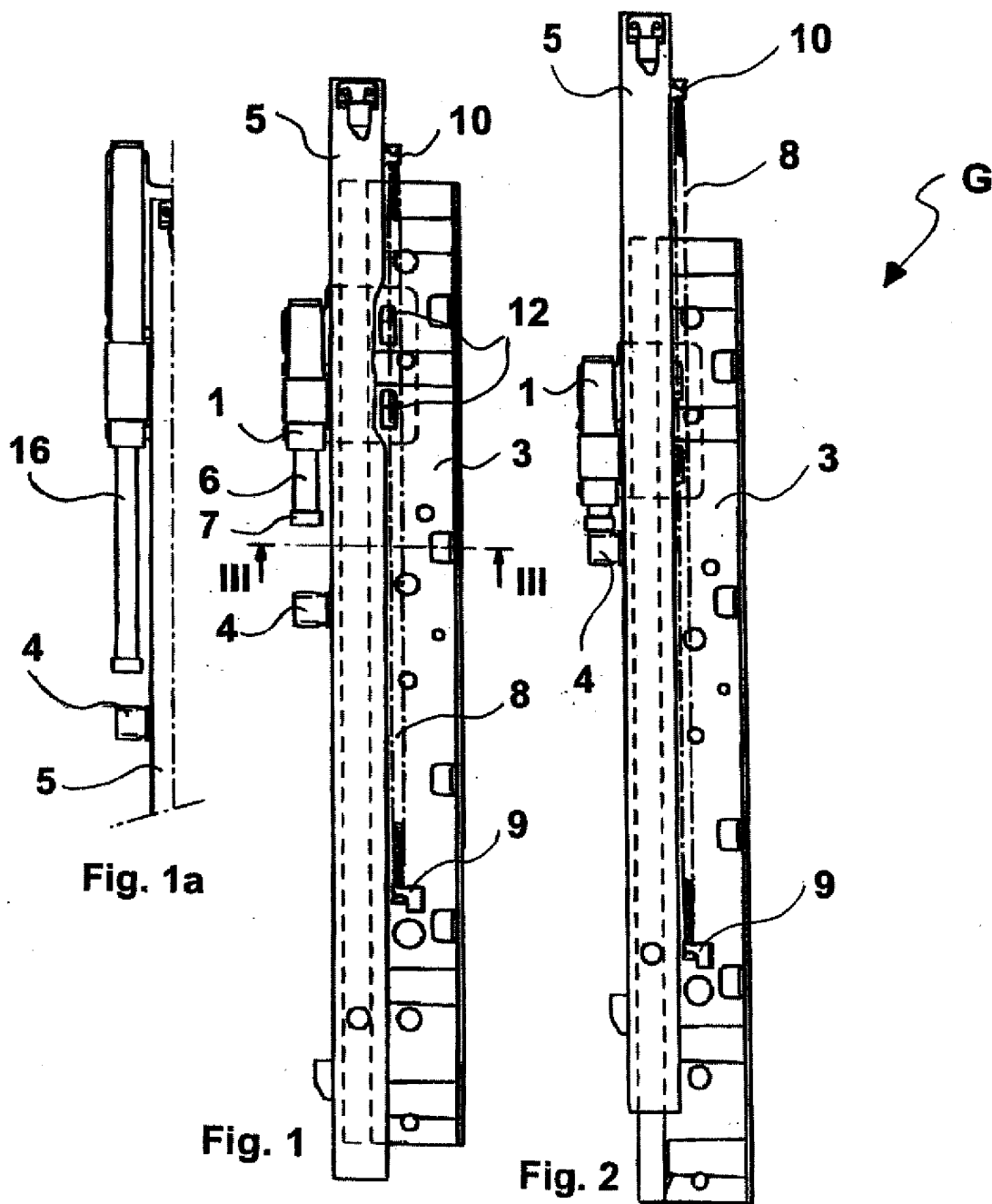
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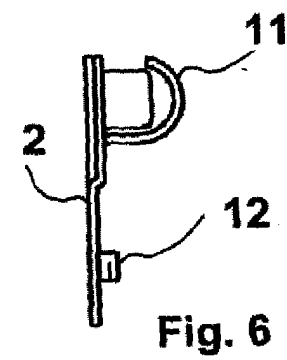
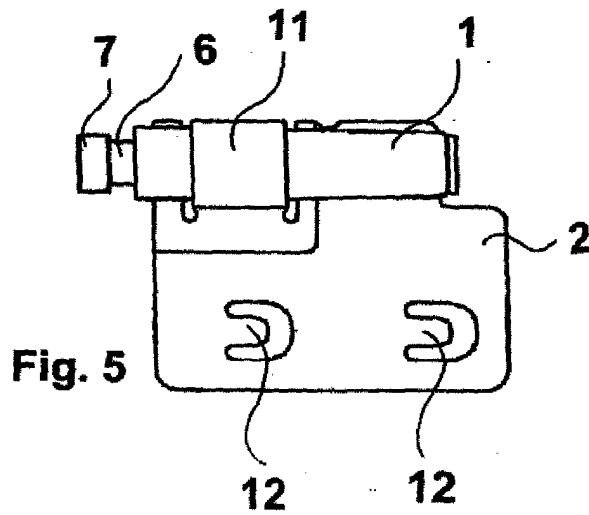
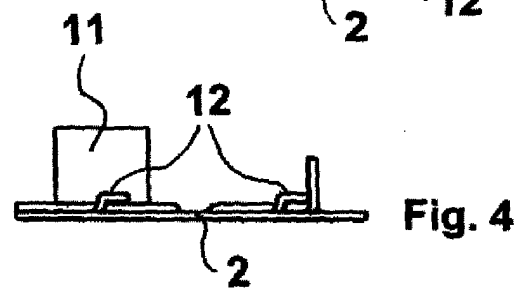
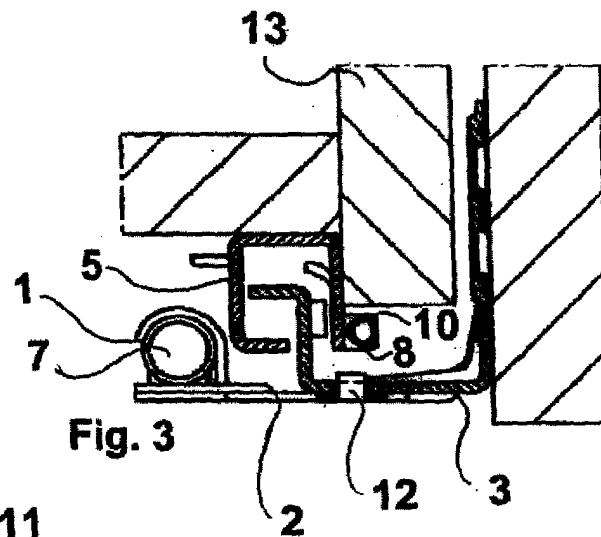
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Application Number
EP 04 10 2237

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 August 2004	Examiner Ottesen, R
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EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 10 2237

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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