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(54) **RETAINING DEVICE FOR DOOR- AND WINDOW SHUTTERS**

(57) The present utility model relates to a retaining device for door/window shutters, comprising a shaped plate, which slidably accommodates a spring-loaded

slider inside it, suitable for blocking a catch that is provided with a step and is suitable to engage under a protruding chute made inside the slider.

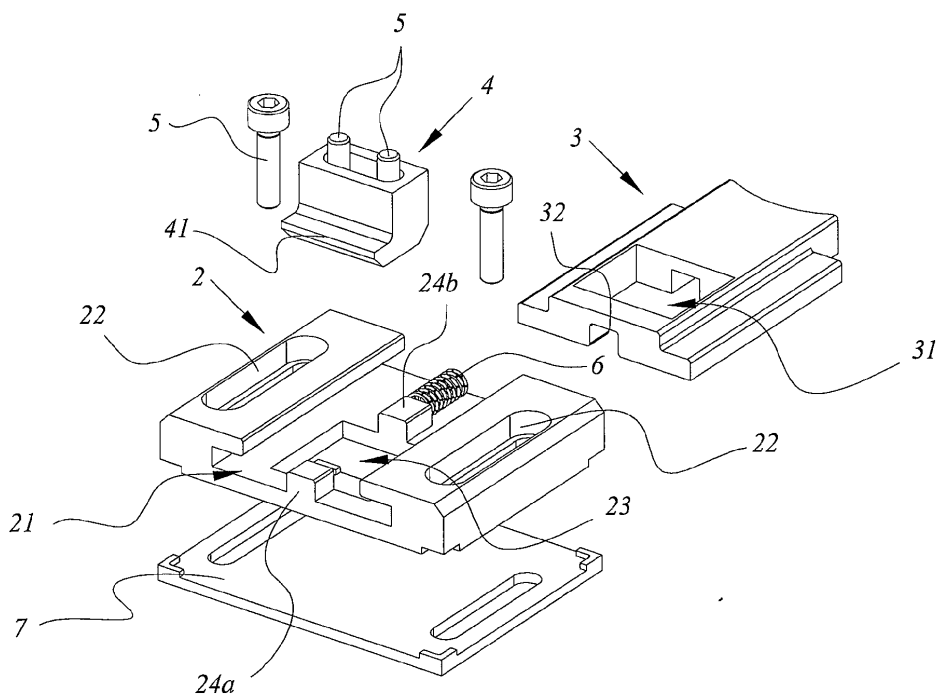


Fig. 2

Description

[0001] The present utility model relates to the field of accessories for doors and windows, and in particular, it relates to a device suitable for retaining window shutters when they are fully opened.

[0002] Various systems are known to keep a shutter in a fully open condition and for the most part, they are very simple mechanical systems, which differ according to whether they are equipped with elastic elements or are manually operated.

[0003] Among the elastic-type retaining systems, the most common is certainly the one consisting of a small snapping clamp, fixed to an end of the shutter and a pin fixed to the wall, which engages inside said snapping clamp, when the shutter of the frame is in the maximum opening condition.

[0004] Another known and extremely simple system consists of a T-bracket fixed to the wall, which has the characteristic of rotating on itself so that a 90° rotation suitable for positioning the T-bracket vertically, can retain a lower end of the shutter.

[0005] A further known system to retain the shutter in maximum opening consists of a simple catch, which ends with a hook suitable to engage inside an eyelet constrained to the shutter.

[0006] The known systems have some drawbacks, and, in particular, in case of devices using elastic elements, that of not being suitable to retain the shutter in case of strains due to particularly intense wind.

[0007] On the other hand, mechanical retaining devices, such as T-brackets, have the drawback of losing their ability to block the shutter over time, due to play in the mechanism caused by its wear, forcing the user to make periodic adjustments to the distance of the bracket from the wall.

[0008] The device of the present utility model solves the described problems, because the constraint made by means of a strong catch, which engages in a shaped plate with a spring-loaded slider, resists high strains; moreover, the release of the shutter by the user is quick and easy.

[0009] A further object of the invention is to provide a retaining device, adaptable to any kind of surface by virtue of the use of appropriate spacers, which allow the height and position to be adjusted.

[0010] A further object of the invention is to provide a compact and effective retaining device to be able to retain heavy door/window shutters that are different from those of common windows, such as door and gate shutters.

[0011] These and other objects are achieved by the coupling device for door/window shutters of the present utility model described below in a preferred, non-limiting embodiment of further developments in the scope of the patent, with the aid of the accompanying drawings, which illustrate the following figures:

vice;

Fig. 2, an exploded isometric view of the constituent components of the shutter-retaining device;

Fig. 3, an isometric, semi-sectional view of the retaining device with the catch in a blocking condition;

Fig. 4, an isometric, semi-sectional view of the retaining device with the slider translated to release the catch;

Fig. 5, an isometric view of the retaining device in the coupled shutter condition;

Fig. 6, an isometric view of a type of spacer to be applied to the shaped plate;

Fig. 7, an isometric view of the retaining device applied to a jamb and in the condition of partial opening of the shutter.

[0012] As illustrated in the accompanying figures, the coupling device for door/window shutters, hereinafter referred to as retaining device 1, consists of a shaped plate 2, which slidably accommodates a slider 3 inside it, suitable for blocking a catch 4. The catch 4 is constrained to the outer surface of the shutter by means of a pair of pins 51; conversely, the shaped plate 2 is equipped at its ends with a pair of slots 22 suitable for accommodating a corresponding pair of fixing pins 5 for fixing it to the jamb of the frame in the direction of the aforementioned catch 4.

[0013] As shown in figure 2, a cavity 21 is made inside the shaped plate 2 in the shape of an inverted T for the entire length thereof, suitable for sliding the shape of the slider 3, whose geometry is the same T-shaped section as the cavity 21.

[0014] Both the shaped plate 2 and the slider 3 are equipped, in a front position, with prismatic through cavities 23, 31 mutually corresponding and suited to contain the geometry of the catch 4 when the latter is contextually engaged to the slider 3 and housed inside the shaped plate 2.

[0015] The cavity 21 of the shaped plate 2 is centrally crossed by a dowel 24, configured in two portions 24a, 24b because it is interrupted by the through prismatic cavity 23 made on the shaped plate 2.

[0016] To allow the slider 3 to slide along the shaped plate 2 provided with the dowel 24, the geometry of the T-section of the slider 3 is provided with a longitudinal blind seat 32 suitable to accommodate said dowel 24 of the shaped plate 2. Said blind longitudinal seat 32 of the slider 3 is further suitable to accommodate an elastic element 6 therein, which is accommodated between the end portion 24b of the dowel 24 and the end portion of the blind longitudinal seat 32.

[0017] As can be seen in figure 3, in the blocking condition, the elastic element 6 has the function of retaining the slider 3 in an offset position relative to the shaped plate 2 so that the through cavity 31 of the slider 3 partially covers the through cavity 23 of the shaped plate 2. The blocking condition illustrated in Figure 3 occurs when the catch 4 advances perpendicularly towards the shaped plate 2 and, subsequently insisting on a protruding chute

Fig. 1, an isometric view of the shutter-retaining de-

311 made on a side of the through cavity 31, forces the slider 3 to move from its resting condition, translating to allow the catch 4 to pass completely, until the condition of engaging its step 41 below said protruding chute 311, thereby finally achieving the blocking of the catch 4.

[0018] As shown in figure 4, to allow the catch 4 to be released from the previously described constraining condition, it will be necessary to push the slider 3 manually to overcome the reaction of the elastic element 6 and align the through cavity 31 of the slider 3 with the through cavity 23 of the shaped plate 2 allowing the release of the catch 4.

[0019] As illustrated in Figure 5, for the correct functioning of the retaining device 1, in the condition in which the shutter A is completely open, the catch 4 engages inside the through cavity 31 of the slider 3 exclusively by virtue of the geometric condition dictated by a fixed distance H, between the shutter A and the application surface S to which the shaped plate 2 is constrained. To reach said distance H, corresponding to the correct closure, the shaped plate 2, can be fixed onto the surface S parallel to the fully opened shutter A, using suitable spacers 7 to be interposed between the shaped plate 2 and the application surface S. As illustrated in Figure 6, according to a preferred embodiment and in the case of application surfaces S which are not flat, the geometric section of the spacer 8 may assume any suitable shape to achieve the purpose of parallel alignment of the shaped plate 2 and the shutter A on which the catch 4 is constrained.

[0020] As illustrated in Figure 7, in which a shutter A is shown partially rotated towards the retaining device 1, the heads of the fixing pins 5 of the shaped plate 2 and the heads of the fixing pins 51 of the catch 4 are concealed by respective shaped plugs 9, 10, a first type 9 is constrained in the slots 22 of the shaped plate 2 and a second type 10 adapted to be constrained in the slot 42 of the catch 4.

2. Retaining device for door/window shutters (1), according to claim 1, **characterized in that** the engagement of the step (41) of the catch (4) under the protruding chute (311) occurs according to a fixed distance (H) between the shutter (A) and the application surface (S) onto which the shaped plate (2) is constrained.
3. Retaining device for door/window shutters (1), according to claim 1, **characterized in that** the elastic element (6) is housed between the end portion (24b) of the dowel (24) of the shaped plate (2) and the end portion of the longitudinal blind seat (32) of the slider (3).
4. Retaining device for door/window shutters (1), according to claim 1, **characterized in that** the installation position of the shaped plate (2) is adjusted longitudinally by means of the translation of a pair of fixing pins (5) housed within the slots (22) placed laterally to the shaped plate (2).
5. Retaining device for door/window shutters (1), according to claim 1 and 2, **characterized in that** the elastic element (6) is a spiral-type compression spring.
6. Retaining device for door/window shutters (1), according to claim 1 and 2, **characterized in that** it is provided with a spacer (8) having a section geometry suitable to constrain the shaped plate (2) onto surfaces (S) with a profile different from the flat one.

Claims

1. Retaining device for door/window shutters (1), comprising a shaped plate (2), equipped with a prismatic through cavity (23) on the front side and longitudinally with an inverted T-shaped cavity (21) and suitable for slidably containing a slider (3), the latter provided anteriorly with a prismatic cavity (31) and internally with a blind longitudinal seat (32) adapted to accommodate an elastic element (6), said retaining device (1) **characterized in that** the elastic element (6) keeps the prismatic through cavities (23, 31) of the shaped plate (2) and of the slider (3) mutually offset, allowing to retain the catch (4) inside said prismatic cavities (23, 31) interposing the step (41) of the catch (4) under the protruding chute (311) obtained on a side of the prismatic through cavity (31) of the slider (3).

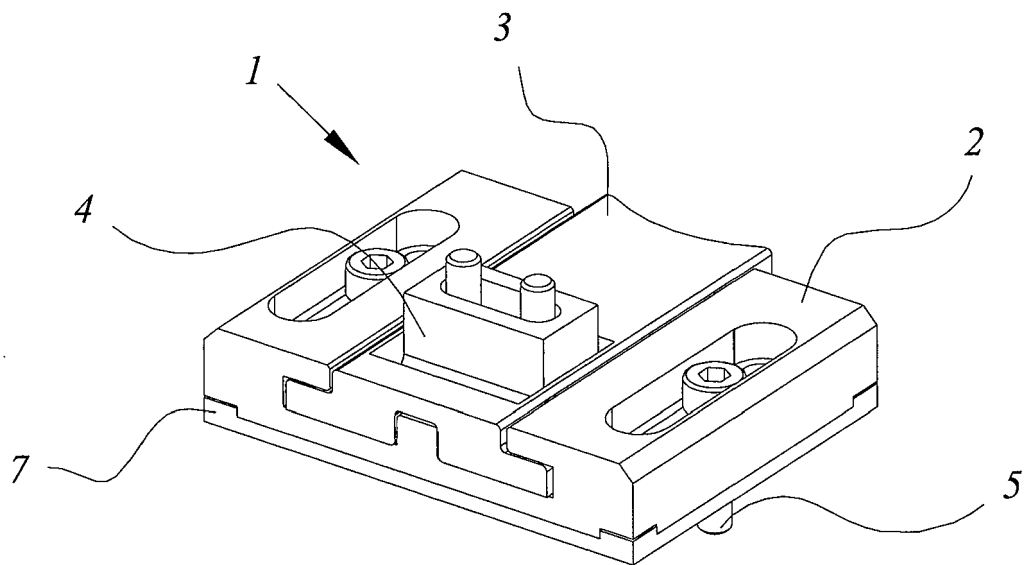


Fig. 1

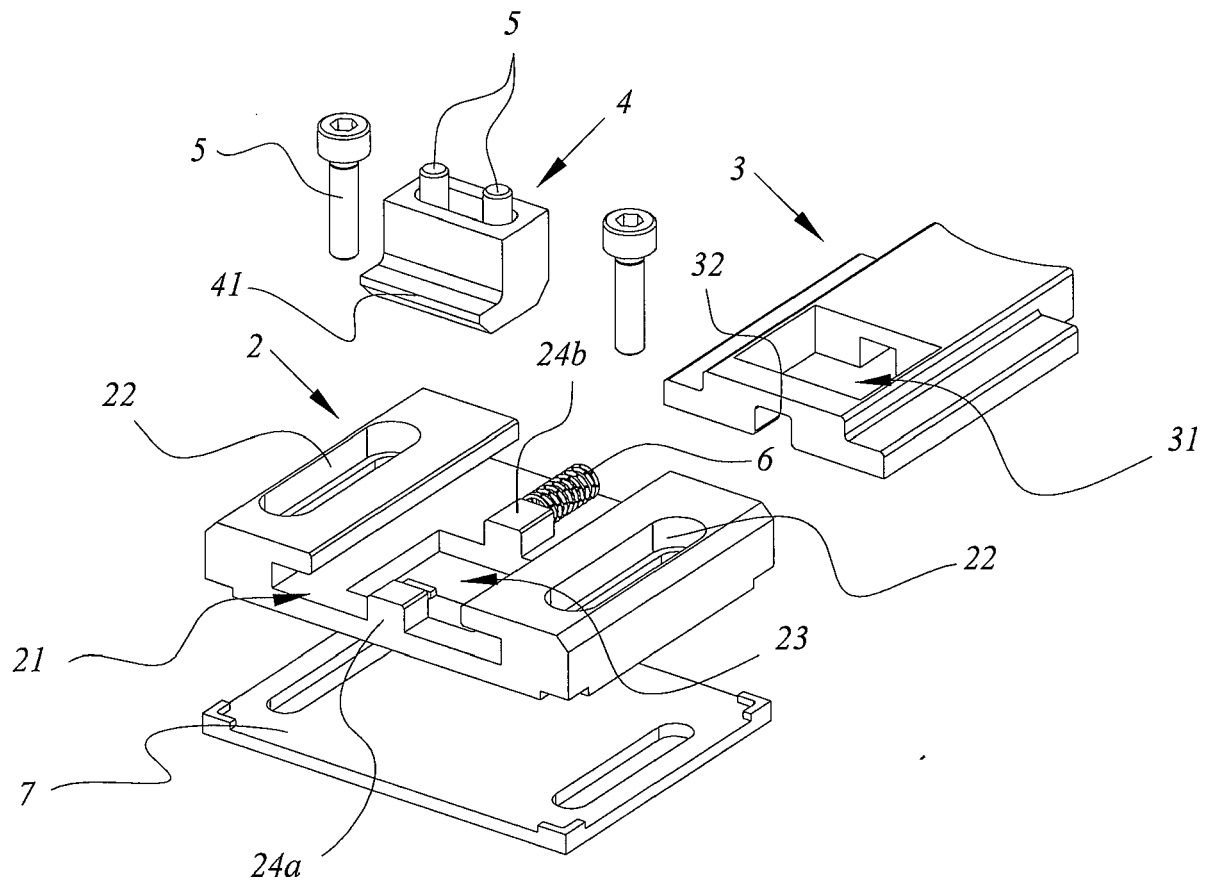


Fig. 2

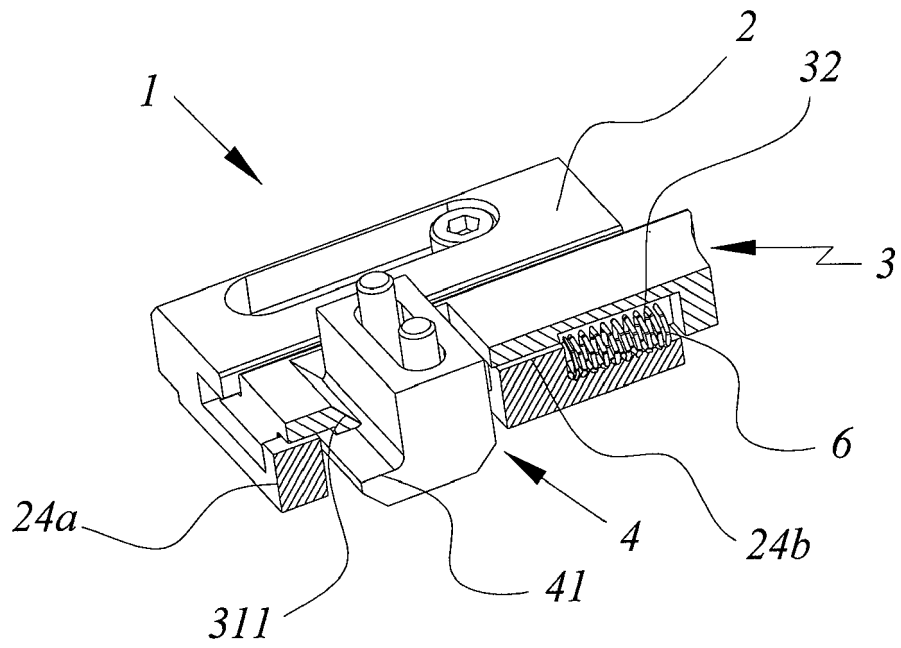


Fig. 3

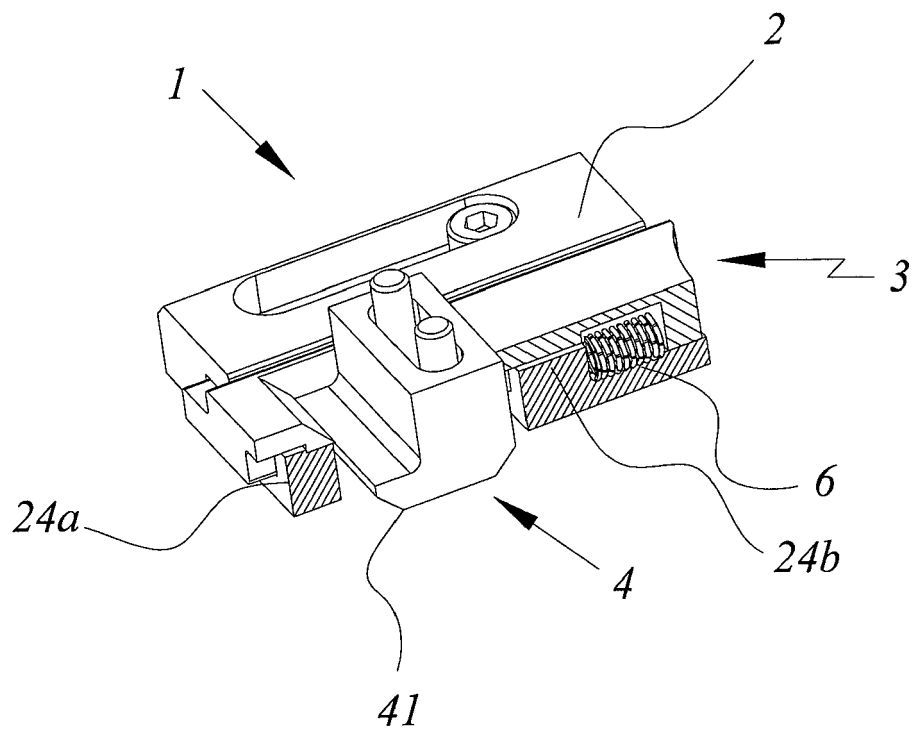


Fig. 4

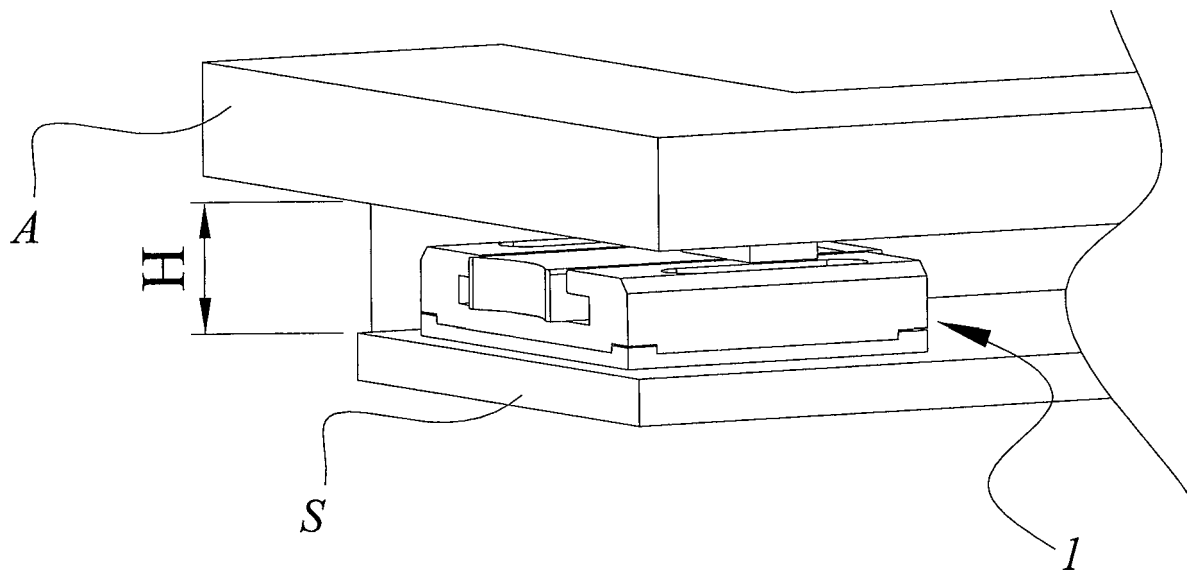


Fig. 5

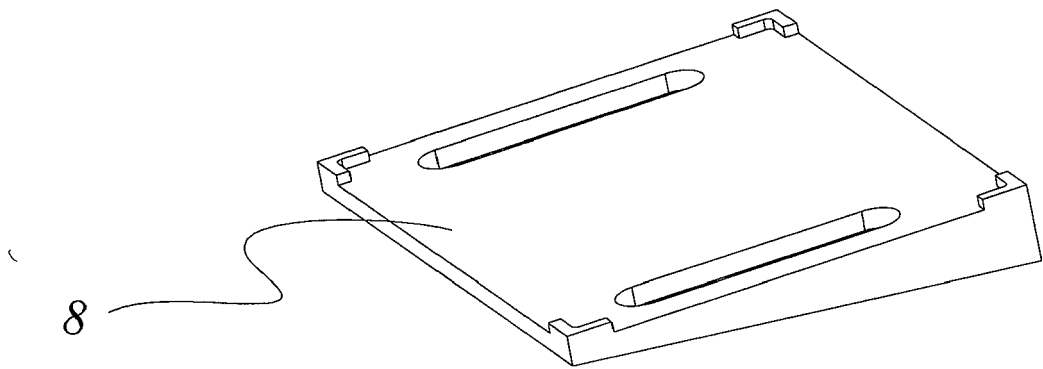


Fig. 6

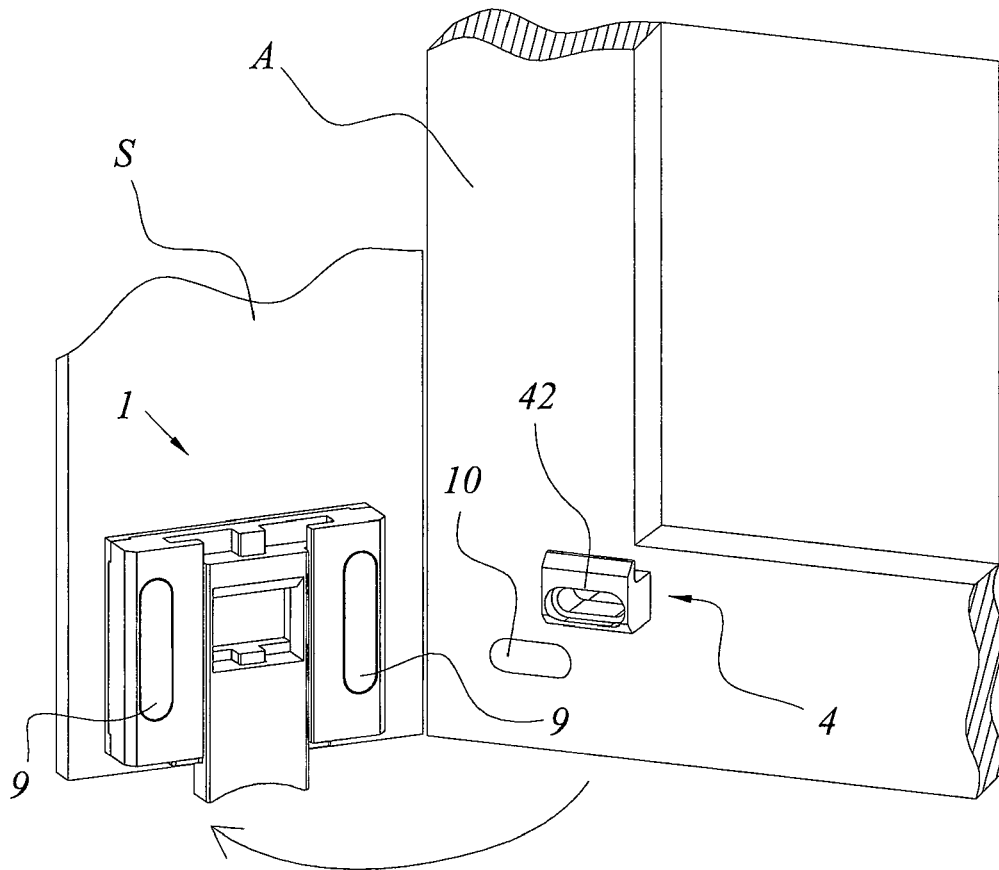


Fig. 7



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 Application Number
 EP 21 00 0064

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| Place of search The Hague | | Date of completion of the search 18 August 2021 | Examiner Antonov, Ventseslav |
| 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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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