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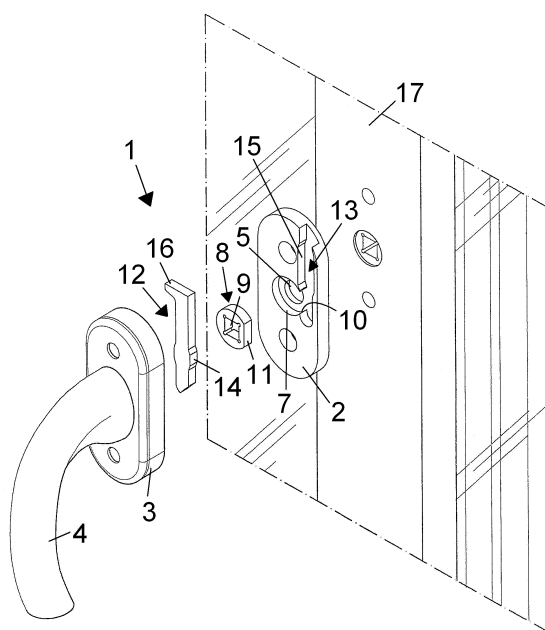
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(54) **Safety device for door-window handles**

(57) A safety device, for door, window, door-window handles and the like comprises a plate substantially contoured to correspond to a profile of a handle base, associated to a door-window; said plate including a through-going hole therethrough a handle pivot pin can extend, and a recess for a rotary body including a shaped hole, corresponding to the pivot pin shape; said safety device

comprising moreover a locking element having at least two operating positions: a closed operating position thereat it prevents the handle from rotating, by interfering against the rotary body profile, and an open position, thereat the locking element does not hinder the rotary movement of the rotary body thereby allowing the handle to rotate.



**FIG. 1**

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## Description

### BACKGROUND OF THE INVENTION

[0001] The present invention relates to an improved safety device, specifically designed for door, window, door-window handles and the like.

[0002] As is known, door-windows conventionally comprise driving handles for driving said door-windows either from inside or outside.

[0003] Door-window handles including key locks as well as door-window handles including keyless locking devices are also known.

### SUMMARY OF THE INVENTION

[0004] The aim of the present invention is to provide an improved safety device adapted to be applied also to existing door-window handles not including a safety device.

[0005] Within the scope of the above mentioned aim, a main object of the invention is to provide such an improved safety device preventing the door-window from being opened accidentally or by a non-authorized person.

[0006] Another object of the present invention is to provide such an improved device of small size and not altering the original aspect of the handle and door-window.

[0007] Yet another object of the present invention is to provide such an improved safety device which can be made of easily commercially available elements and materials and which, moreover, is very competitive from an economic standpoint.

[0008] Yet another object of the present invention is to provide such a safety device which, owing to its specifically designed constructional features, is very reliable and safe in operation.

[0009] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a safety device for door, window and door-window handles, **characterized in that** said safety device comprises a plate substantially contoured as to mate with a corresponding profile of a base of the handle of the door and window frame.

[0010] Said plate comprises a throughgoing hole allowing a handle contoured pin to pass therethrough, and a recess for a rotary body including a contoured hole corresponding to the contoured pin shape.

[0011] The device further comprises a locking element including at least two operating positions: a closed operating position, thereat said device prevents the handle from turning, by interfering against the rotary body contour, and an open position thereat said locking element does not interfere against the rotary movement of the rotary body and allows the handle to be turned.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following disclosure of a preferred, though not exclusive, embodiment of the invention which is illustrated, by way of an indicative but not limitative example, in the accompanying drawings, where:

Figure 1 is an exploded perspective view showing the safety device according to the present invention applied to a door-window frame;

Figure 2 is a further perspective view showing the safety device applied to the door-window frame, with the handle being separated therefrom, to show the closed position of the safety device;

Figure 3 is a view similar to Figure 2 but showing the safety device in an open position thereof;

Figure 4 is a partially broken away perspective view, showing the handle and device assembly in an assembled condition and in its two open and closed positions;

Figure 5 is a partially broken away front elevation view showing the handle and safety device assembly in an assembled condition, in a closed position thereof;

Figure 6 is a view similar to Figure 5 but showing the assembly during its transitioning from its closed to its open condition;

Figure 7 is a partially broken-away front elevation view, showing a safety device, according to a further aspect of the present invention, including a locking dowel and adapter outer ring elements, in a closed position;

Figure 8 is a view similar to Figure 7, but showing the safety device in its open position;

Figure 9 is a partially broken-away front elevation view, showing a device for a "martellina" handle, according to a further aspect of the present invention, in a closed position thereof;

Figure 10 is a view similar to Figure 9 but showing the safety device in an open position thereof;

Figure 11 is a partially broken-away front elevation view showing a safety device according to a further aspect of the present invention, including a proximity sensor, in a closed position thereof; and

Figure 12 is a partially broken-away front elevation view showing a device according to a further aspect of the present invention, including an infra-red (IR) sensor, in a closed position thereof.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] With reference to the number references of the above mentioned figures, the improved safety device for door-window handles and the like according to the present invention, which has been generally indicated by

the reference number 1, comprises a plate 2 which is preferably so designed as to mate the contour or profile of a base or bottom 3 of a handle 4.

**[0014]** Said plate 2 comprises a throughgoing hole 5 therethrough passes the contoured pivot pin 6 of the handle 4.

**[0015]** Said contoured or shaped pivot pin 6 usually has a quadrangular cross section and engages with an opening mechanism of the door-window, in a per se known way.

**[0016]** According to the present invention, the safety device plate 2 comprises, at said throughgoing hole 5, a recess or seat 7 for engaging therein a rotary body 8 having a contoured hole 9 corresponding to the shape of the shaped pivot pin 6, in this case a quadrangular configuration.

**[0017]** The rotary body 8 has a circular configuration and turns together with the contoured pivot pin 6 in said recess 7, also having a substantially circular shape, but with an open side 10.

**[0018]** The rotary body 8 comprises moreover a cut-out 11 interrupting its circular profile.

**[0019]** The safety device 1, according to the present invention, comprises moreover a locking element, having at least two operating positions: a closed operating position, thereat it prevents the handle 4 from rotating, by interfering against the profile of the rotary body 8, and an open operating position, thereat said locking element does not hinder the rotary movement of the rotary body 8 thereby the handle 4 may be rotated.

**[0020]** Preferably, said locking element comprises a rod 12 slidingly engaged in a tangential seat 13 of the plate 2 tangentially of the recess 7 of the rotary body 8 and communicating with said recess 7.

**[0021]** Said rod 12 comprises an enlarged portion 14 allowing said rod 12 to be driven in a tangential seat 13 through a movement range defined by an enlarged region 15 of the tangential seat or recess 13.

**[0022]** In a closed position, said rod 12 interferes against the cut-out 11 of the contour or profile of the rotary body 8, as clearly shown in Figures 2 and 5, thereby preventing the contoured pivot pin 6 of the handle 4 from rotating.

**[0023]** In the open position, shown in Figures 3 and 6, the rod 12 is removed from the open side 10 region of the recess 7 thereby allowing the rotary body 8 to freely rotate in said recess 7, and in turn allowing the handle 4 and related contoured pivot pin 6 to rotate to drive the door-window to an open position.

**[0024]** Advantageously, the rod 12 comprises a small lug 16 facilitating the gripping and displacement of the rod.

**[0025]** The safety device 1 according to the present invention may be clamped to existing handles by several clamping systems, for example screws, glue materials, and so on, by arranging the plate 2 between the base or bottom 3 of the handle 4 and the surface 17 of the door-window.

**[0026]** Figures 7 and 8 show an improved safety device, according to a further aspect of the present invention, and generally indicated by the reference number 101, comprising a plate 102.

5 **[0027]** Said plate 102 comprises a pair of perimetrical elements, indicated by the reference numbers 112 and 122 respectively, which are mutually interexchangeable and allow the plate contour or profile to be fitted to the base profile of a handle.

10 **[0028]** More specifically, said plate 102 comprises a throughgoing hole therethrough the shaped pivot pin 106 of the handle extends.

**[0029]** The shaped pivot pin 106 usually comprises a quadrangular cross-section and engages the door-window opening mechanism, in a per se known way.

15 **[0030]** According to the present invention, the device plate 102 comprises, at said throughgoing hole, a seat or recess for a rotary body 108, including a contoured hole, corresponding to the shape of the contoured pivot pin 106, in this embodiment a quadrangular shape.

20 **[0031]** The rotary body 108 has a circular configuration and turns, rigidly with said contoured pivot pin 106, in said seat, also having a substantially circular configuration, but with an open side, as in the hereinabove disclosed embodiment.

25 **[0032]** The rotary body 108 comprises a cut-out interrupting its circular profile.

30 **[0033]** The device 101 comprises a locking element consisting of a locking rod 112 slidingly engaged in a tangential seat or recess formed in the plate 102.

**[0034]** Said rod 112 comprises a cut-out 114 allowing the rotary body 108 to turn, as it is arranged at said cut-out, thereby bringing the rod 112 to its open position, as shown in Figure 8.

35 **[0035]** In its closed position, the rod 112 interferes against the cut-out of the rotary body 108 profile, as clearly shown in Figure 7.

**[0036]** Thus, the shaped pivot pin 106 of the handle is prevented from turning.

40 **[0037]** Advantageously, the rod 112 comprises a small lug portion 116 facilitating a gripping and handling of said rod.

**[0038]** According to this embodiment, the device 101 comprises a safety element consisting of a locking dowel 130, which prevents any opening movement, that is a sliding of the rod 112.

**[0039]** Said dowel 130 may be unlocked by a dedicated key, associated with the safety device 101.

**[0040]** The device 101 comprises moreover a spring pressing element 150 engaged in a side of the plate 102.

**[0041]** Figures 9 and 10 show an improved safety device, according to a further aspect of the present invention, being generally indicated by the reference number 201, comprising a plate 202.

55 **[0042]** Said plate 202 comprises interexchangeable perimetrical elements 222 with the profile or contour of said plate mating with the handle bottom or base profile.

**[0043]** The plate 202 comprises a throughgoing hole

allowing the handle contoured pivot pin 206 to pass therethrough.

[0044] Said shaped pivot pin 206 usually has a quadrangular cross-section and engages the door-window opening mechanism, in a per se known way.

[0045] According to the present invention, the plate 202 of the safety device comprises, at its throughgoing hole, a seat or recess for a rotary body 208, which includes a contoured or shaped hole, corresponding to the pivot pin 206 shape, in this embodiment a quadrangular shape.

[0046] The rotary body 208 has a circular configuration and turns, together with the shaped pivot pin 206, in the seat, also of substantially circular configuration, but with an open side, as in the above disclosed embodiment.

[0047] More specifically, the rotary body 208 comprises a cut-out 211 interrupting its circular profile.

[0048] The safety device 201 comprises moreover a locking element, consisting of a first lever 212 pivoted to the base 202, and a second contoured or shaped lever 240, adapted to latch and lock the first lever 212.

[0049] Thus, as the first lever 212 is disengaged from the second lever 240, it will not hinder the rotary movement of the rotary body 208.

[0050] In the closed position, the first lever 212 interferes against the cut-out 211 of the rotary body 208 contour, as clearly shown in Figure 9, and accordingly prevents the shaped pin 206 of the handle from rotating.

[0051] The second lever 240 advantageously comprises a lug 216 facilitating a gripping and driving of said second lever.

[0052] According to this embodiment, the safety device 201 comprises a safety element consisting of a locking dowel 230 preventing said second lever 240 from being opened, that is from turning.

[0053] The dowel 230 may be unlocked by a suitable unlocking key, associated with the safety device 201.

[0054] Figure 11 schematically shows an embodiment in which the safety device 101 is electrically driven and in which reference numbers corresponding to those of Figures 7 and 8 have been used for indicating like elements in this embodiment.

[0055] This embodiment comprises moreover a proximity sensor 160 to detect the distance of the two door and window elements, as it conventionally occurs, for example, in the magnetic contacts applied on frames of alarm systems.

[0056] Figure 12 schematically shows an embodiment with an electronic drive of the device 101 and in which like reference numbers are applied to like elements of Figures 7 and 9.

[0057] This modified embodiment comprises moreover an infrared or IR sensor 170, to detect the distance of the two door and window elements.

[0058] It has been found that the invention fully achieves the intended aim and objects.

[0059] In fact, the invention has provided a safety device preventing an accidental or unauthorized opening

of a door-window, by preventing the rotary movement of the handle.

[0060] The safety device according to the present invention has a small size and is "discreet".

5 [0061] In fact, the device is virtually invisible since the plate 2 has a small thickness and is so contoured as to fit the handle bottom configuration.

[0062] The disclosed device embodiments may also comprise a safety element consisting of a locking dowel preventing the door-window from being opened without a dedicate key.

[0063] Moreover, all the disclosed embodiments may be controlled by a telecontrol device including an electronic system to detect the open and closed conditions, and to signal possible tamperings.

[0064] All the disclosed devices may comprise proximity or IR sensors to read a distance between the two door and window components.

[0065] The perimetrical elements allow the device to be fitted to all commercial door-window configurations.

[0066] The safety device according to the present invention may also comprise electronic elements to be integrated or built-in in existing door-window patterns.

[0067] Likewise, it is possible to mechanically apply, in the disclosed embodiments, suitable sensor elements and electronic circuit controlled drives allowing to make the device active and to be interfaced with an electronic apparatus, also by a radio connection, to operate in an autonomous manner or to be interfaced with an alarm central unit, in a case of a tampering.

[0068] In practicing the invention, the used materials, as well as the contingent size and shapes can be any, according to requirements.

## Claims

1. A safety device, for door, window and door-window handles, **characterized in that** said safety device comprises a plate substantially contoured to correspond to a profile of a handle base, associated to a door window; said plate including a throughgoing hole allowing a handle pivot pin to pass therethrough, and a recess for a rotary body including a shaped hole, corresponding to the pivot pin shape; said safety device comprising moreover a locking element having at least two operating positions: a closed operating position thereat it prevents the handle from rotating, by interfering against the rotary body profile, and an open position, thereat the locking element does not hinder a rotary movement of the rotary body thereby allowing the handle to rotate.
2. A safety device, according to claim 1, **characterized in that** said rotary body has a circular configuration and turns, together with said pivot pin, in said seat, said seat also having a substantially circular configuration, with an open side, said rotary body compris-

ing a cut-out interrupting its circular profile.

3. A safety device, according to claim 2, **characterized in that** said locking element comprises a locking rod slidingly engaged in a tangential seat formed in said plate, tangentially of the rotary body recess or seat and communicating with said recess. 5
4. A safety device, according to claim 3, **characterized in that** said rod comprises an enlarged portion allowing said rod to be displaced in said tangential seat, through a movement range defined by an enlarged region of said tangential seat. 10
5. A safety device, according to claim 4, **characterized in that**, in a closed position, said rod interferes against said cut-out of the rotary body profile, thereby preventing the handle pivot pin from turning; at an open position, said rod being disengaged from the seat open side region thereby allowing the rotary body to freely rotate in said seat while allowing said handle and pivot pin to turn to open the door-window. 20
6. A safety device, according to claim 5, **characterized in that** said rod comprises a lug facilitating a gripping and handling of said rod. 25
7. A safety device, according to claim 1, **characterized in that** said plate comprises a perimetrical element pair including interexchangeable perimetrical elements and allowing the plate profile to be fitted to a handle base profile. 30
8. A safety device, according to claim 1, **characterized in that** said rotary body comprises a cut-out interrupting its circular profile; said locking element consisting of a locking rod, slidably engaged in a tangential seat formed in said plate; said rod including a cut-out allowing the rotary body to turn as said rotary body is arranged at said cut-out, with the rod being brought to its open position; in the closed position said rod interfering against the cut-out of said rotary body thereby preventing the handle pivot pin from turning. 40
9. A safety device, according to claim 1, **characterized in that** said safety device comprises a safety element consisting of a locking dowel preventing the opening movement, that is the sliding of said rod; said locking dowel being adapted to be unlocked by an unlocking key associated with said safety device. 45
10. A safety device, according to claim 1, **characterized in that** said safety device comprises a spring pressing element engaged in a side of the plate. 50
11. A safety device, according to claim 1, **characterized in that** said rotary body comprises a cut-out inter-

rupting its circular profile; said device comprising moreover a locking element consisting of a first lever, pivoted to the base, and a second shaped lever, adapted to latch and lock the first lever; as the first lever is disengaged from the second lever said first lever does not hinder a rotary movement of said rotary body; in the closed position, the first lever interfering against the rotary body profile cut-out thereby preventing the handle pivot pin from turning; said second lever comprising a lug facilitating a gripping and handling of the second lever.

12. A safety device, according to claim 1, **characterized in that** said safety device comprises a proximity sensor for detecting a distance of the two door and frame elements.
13. A safety device, according to claim 1, **characterized in that** said safety device comprises an IR sensor, for detecting the distance of the two door and frame elements.
14. A safety device, according to claim 1, **characterized in that** said safety device comprises a telecontrol assembly for controlling an operation of said device in an electronic system for detecting the opening and closing condition to detect a possible tampering.

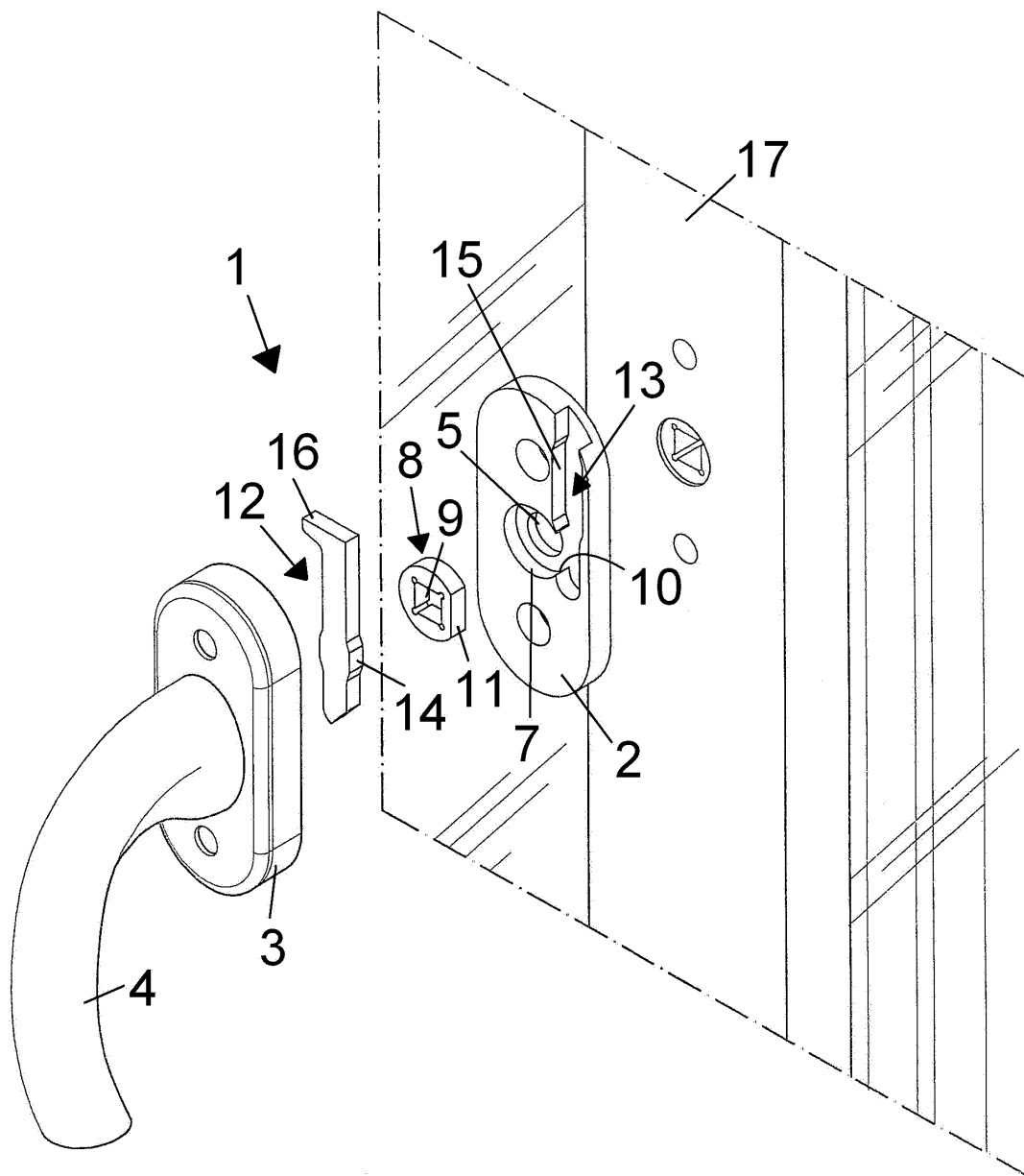


FIG. 1

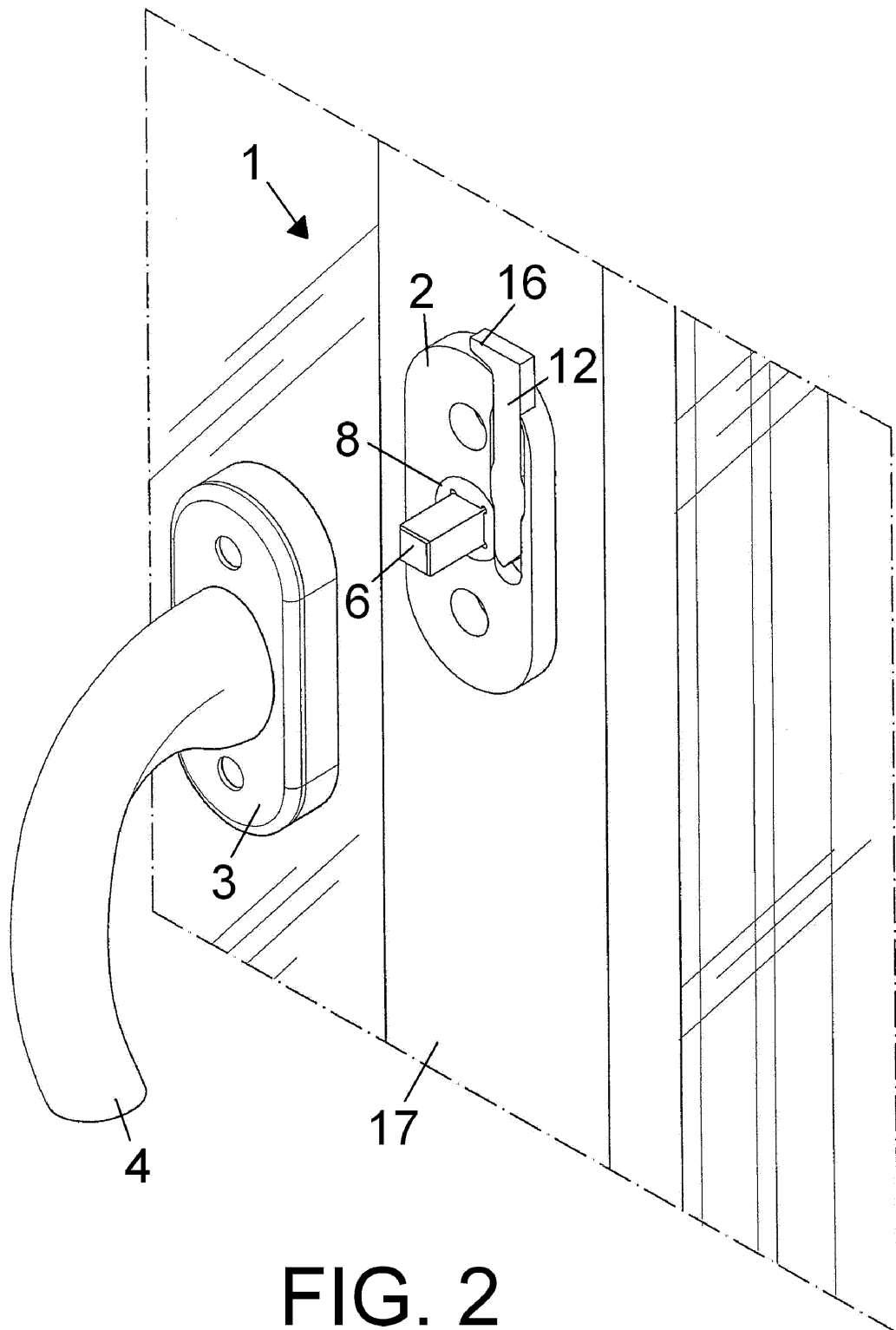


FIG. 2

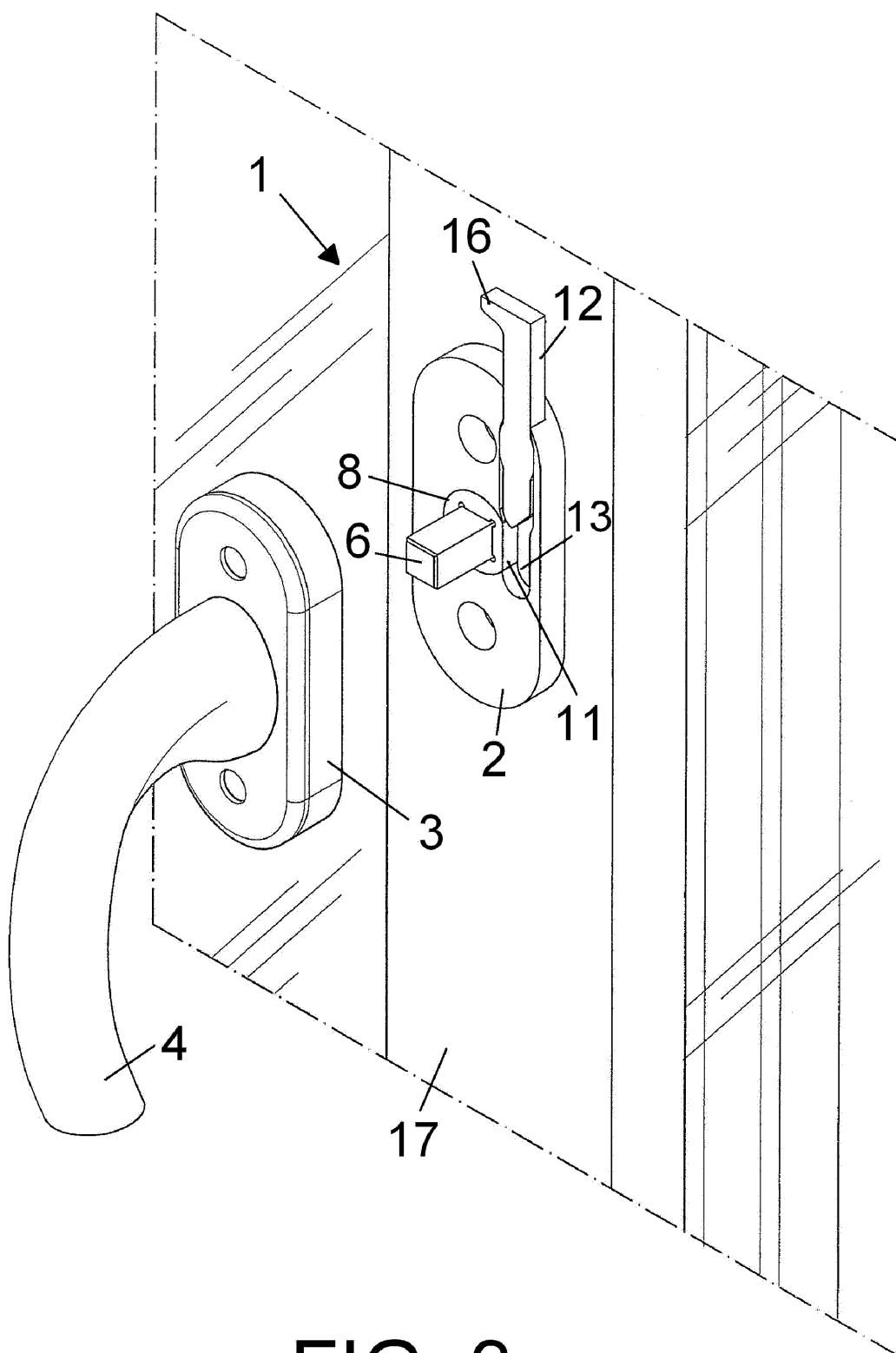


Figure 2



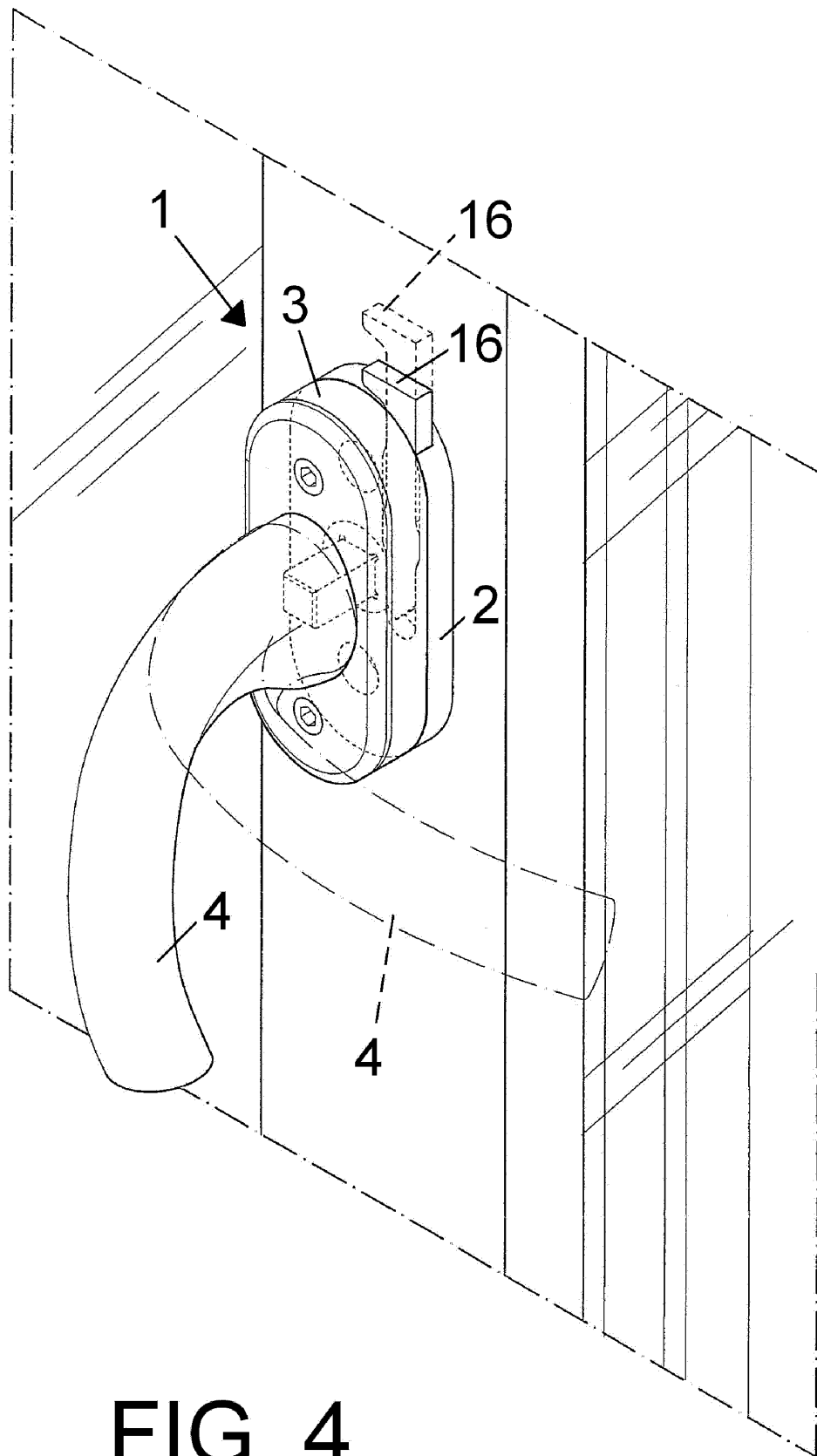


FIG. 4

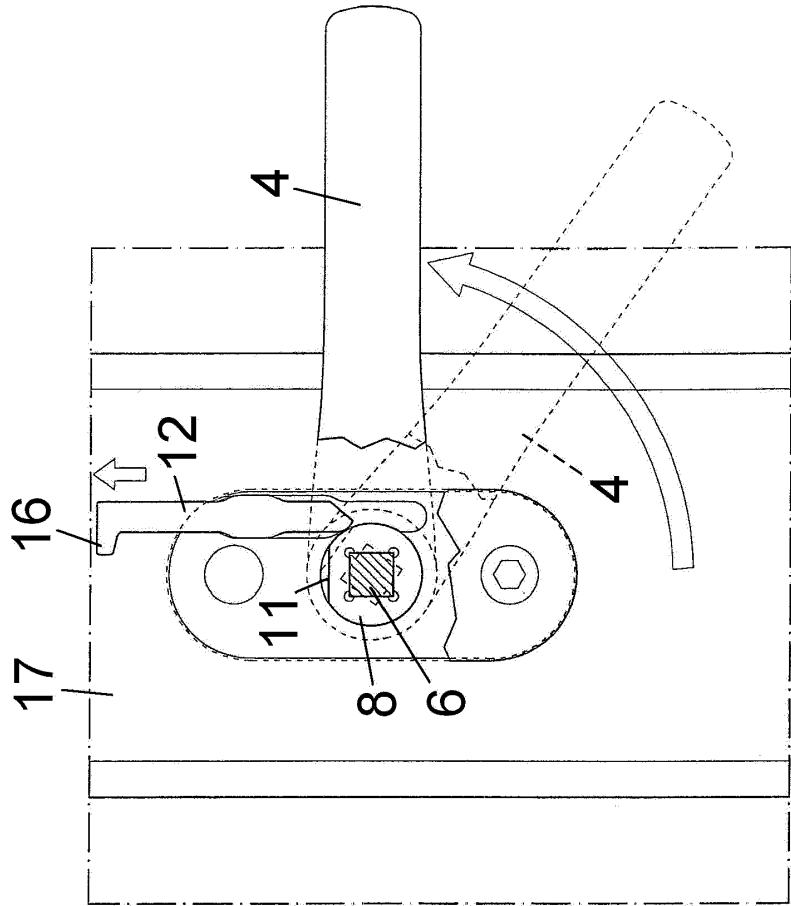


FIG. 5

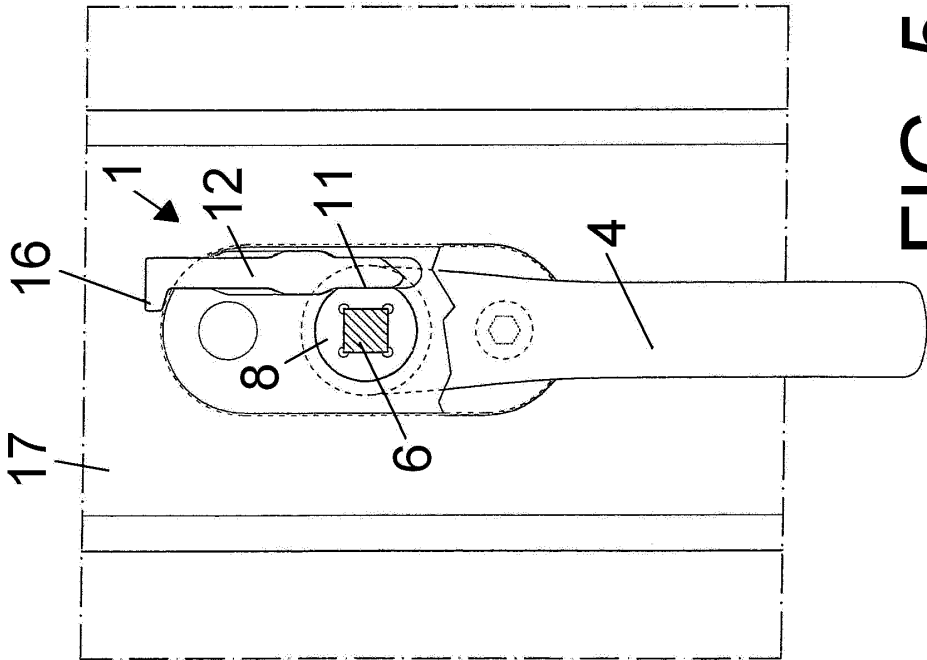


FIG. 6

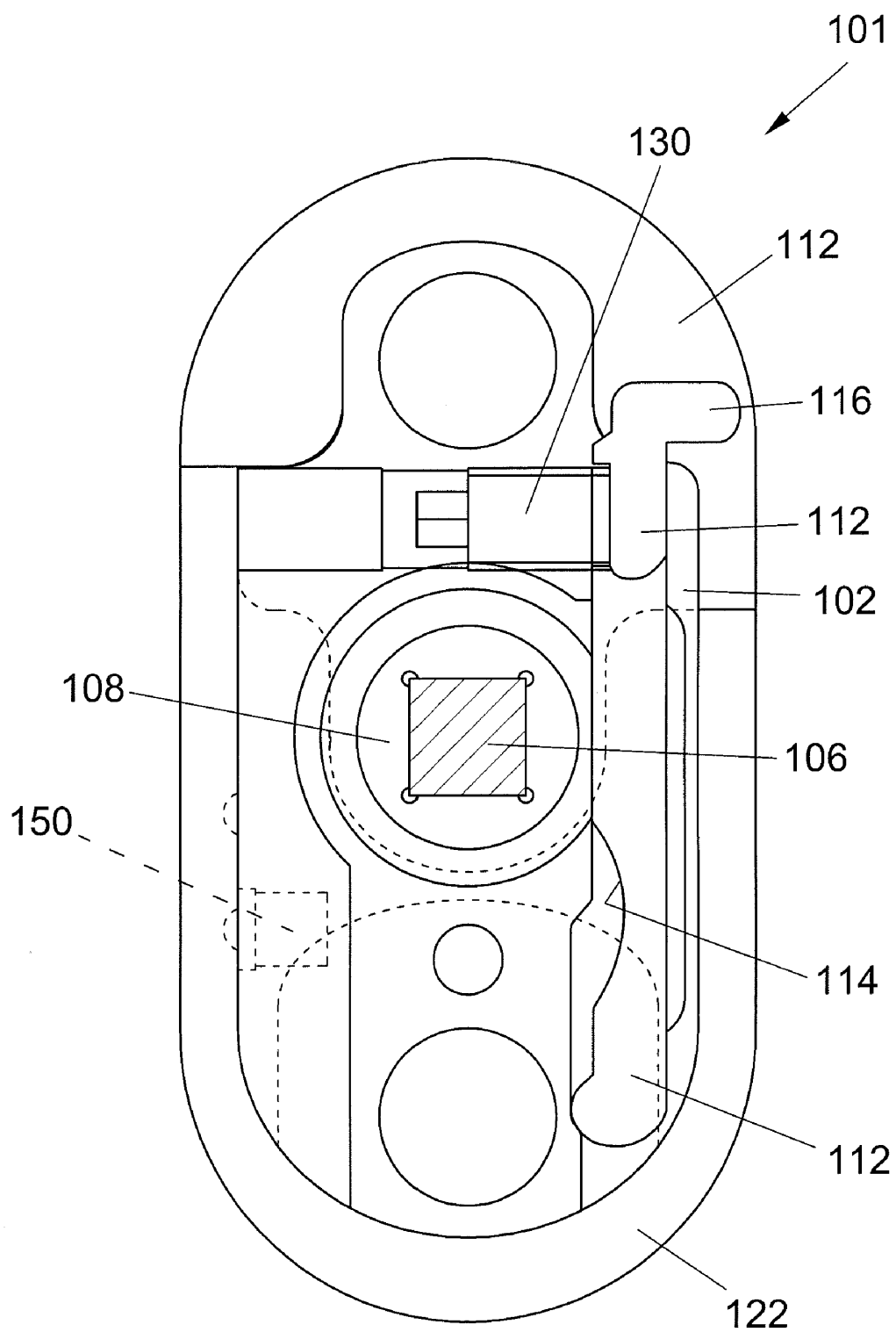


FIG.7

