

(19)



(11)

EP 4 520 897 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
12.03.2025 Bulletin 2025/11

(51) International Patent Classification (IPC):
E05B 9/00 (2006.01) E05B 47/00 (2006.01)

(21) Application number: **23306487.2**

(52) Cooperative Patent Classification (CPC):
E05B 9/002; E05B 47/0038

(22) Date of filing: **07.09.2023**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

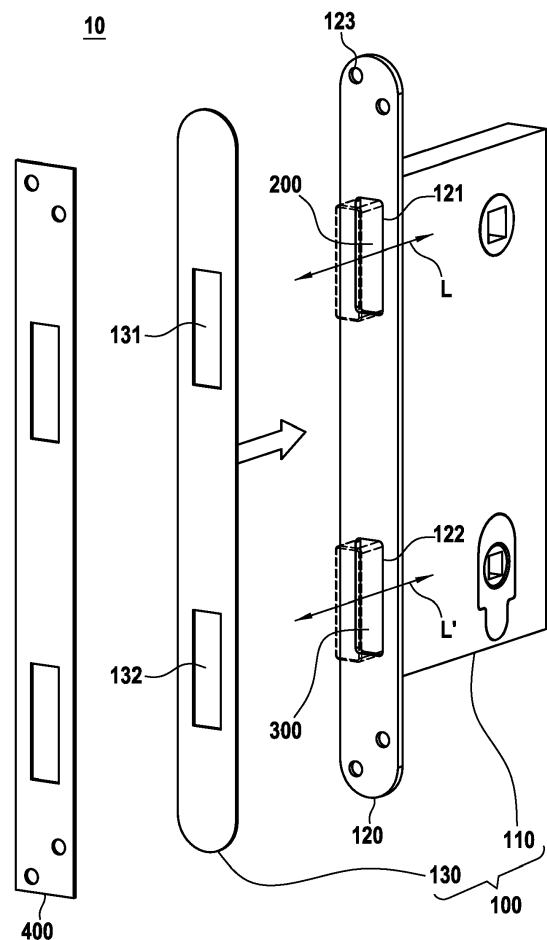
(72) Inventors:
• **CIOPI, Simone**
61022 Vallefoglia (IT)
• **KONIECKA, Pawel**
64-917 Skorka (PL)
• **MOATTI, Jean-Louis**
75011 Paris (FR)

(71) Applicant: **Cemax**
93250 Villemomble (FR)

(74) Representative: **Cabinet Beau de Loménie**
158, rue de l'Université
75340 Paris Cedex 07 (FR)

(54) MORTICE LOCK HOUSING WITH A MAGNETICALLY ATTACHED FRONT PLATE COVER

(57) The present invention concerns a mortice lock housing (100) comprising a front plate (120) and a front plate cover (130). The front plate cover (130) is magnetically attached to the front plate (120). The present invention further concerns a lockset (10) comprising this mortice lock housing (100) and a latch and/or a deadbolt mechanism received within the mortice lock housing (100), a door assembly comprising a frame (600), a leaf (500), and the lockset (10), and a method for covering an exposed front plate (220) of a mortice lock housing (200), comprising a step of magnetically attaching a front plate cover (230) to the front plate (220).

**FIG.1**

Description

TECHNICAL FIELD

[0001] The disclosure relates to a mortice lock housing, as well as to a lockset and door with this mortice lock housing, and to a method for covering an exposed front plate of a mortice lock housing.

BACKGROUND

[0002] Mortice lock housings usually comprise a main body, configured to be received into a pocket or cavity called the mortice, opening to the edge of a door leaf, and a front plate for covering the mortice, typically comprising orifices for fastening the mortice lock housing to the door leaf, usually with fastening means such as countersunk screws.

[0003] The appearance of this front plate may however contrast significantly with that of the surrounding area of the edge of the door leaf. Moreover, various markings, screw heads, and/or empty orifices left exposed on the front plate may be found unsightly by at least some users. To make the front plate better blend in with the surrounding area, the front plate is sometimes painted in the same colour as that surrounding area. However, paint may not adhere adequately to the front plate. Moreover, when not carefully applied, it may interfere with the operation of latches and deadbolts protruding from the front plate. Finally, paints and coatings may block the fastening elements such as screw heads holding the front plate to the door leaf, so that the mortice lock housing cannot be easily removed from the door leaf for maintenance, repair or replacement.

SUMMARY

[0004] A first object of the disclosure is that of providing for better, more harmonious integration of a mortice lock housing with an edge of a door leaf, while still allowing easy access to a front surface of the front plate of the mortice lock housing when necessary for maintenance, repair or replacement.

[0005] For that purpose, the mortice lock housing comprises, apart from the front plate, a front plate cover magnetically attached to the front plate.

[0006] With this configuration, the front plate cover may hide orifices and markings in the front plate, and emulate the surface finish of the front plate's surroundings on the edge of the door leaf. At the same time, magnetism provides for a durable and reliable attachment of the front plate cover to the front plate which can nevertheless be easily separated when a user needs to access the front plate.

[0007] In particular, one of the front plate and the front plate cover may be ferromagnetic and another one of the front plate and the front plate cover may incorporate a permanent magnet. More specifically, the permanent

magnet may be incorporated in a back surface of the front plate cover. It may for instance be cut from ferrite magnet sheeting, incorporating ferrite powder into an organic polymer matrix. Other types of magnets, for instance alnico magnets or rare earth magnets, in particular neodymium magnets, may however be considered instead.

[0008] To more effectively cover the front plate, an outer contour of the front plate cover may be substantially identical to an outer contour of the front plate. In the present context, "substantially identical" should be understood to mean identical within common, reasonable manufacturing tolerances. The front plate cover may comprise at least one orifice overlapping a latch and/or deadbolt orifice in the front plate, in order to allow for the unobstructed operation of the latch or deadbolt. On the other hand the front plate cover may cover at least one orifice in the front plate, such as a fastening orifice and/or a non-functional orifice. An outer surface of the front plate cover may incorporate an ornamental design.

[0009] A second aspect of the present disclosure relates to a lockset comprising the mortice lock housing according to the first aspect and a latch and/or a deadbolt mechanism received within the mortice lock housing. This lockset may further comprise a counterplate opposite to the front plate cover.

[0010] A third aspect of the present disclosure relates to a door assembly comprising a frame, a leaf, and the lockset according to the second aspect. The door assembly may be a hinged door assembly, with one or more hinges connecting the leaf and the frame. However, other types of door assemblies, such as sliding door assemblies, may alternatively be envisaged.

[0011] A fourth aspect of the present disclosure relates to a method for covering an exposed front plate of a mortice lock housing, comprising a step of magnetically attaching a front plate cover to the front plate

[0012] The above summary of some example embodiments is not intended to describe each disclosed embodiment or every implementation of the invention. In particular, selected features of any illustrative embodiment within this specification may be incorporated into an additional embodiment unless clearly stated to the contrary.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The invention may be more completely understood in consideration of the following detailed description of various embodiments in connection with the accompanying drawings, in which :

- FIG. 1 is a schematic perspective view of a lockset according to a first embodiment of the present disclosure.
- FIG. 2 is a schematic view of a door assembly equipped with the lockset of FIG. 1.
- FIG. 3 is a schematic perspective view of a lockset

according to a second embodiment of the present disclosure.

- FIGS. 4A and 4B are schematic perspective views of a lockset according to a third embodiment of the present disclosure in two alternative configurations.

[0014] While the invention is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit aspects of the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the scope of the invention.

DETAILED DESCRIPTION

[0015] For the following defined terms, these definitions shall be applied, unless a different definition is given in the claims or elsewhere in this specification.

[0016] As used in this specification and the appended claims, the singular forms "a", "an", and "the" include plural referents unless the content clearly dictates otherwise. As used in this specification and the appended claims, the term "or" is generally employed in its sense including "and/or" unless the content clearly dictates otherwise.

[0017] The following detailed description should be read with reference to the drawings in which similar elements in different drawings are numbered the same. The detailed description and the drawings, which are not necessarily to scale, depict illustrative embodiments and are not intended to limit the scope of the invention. The illustrative embodiments depicted are intended only as exemplary. Selected features of any illustrative embodiment may be incorporated into an additional embodiment unless clearly stated to the contrary.

[0018] As shown in Fig. 1, a lockset 10 according to a first embodiment of the present disclosure may comprise a mortice lock housing 100, a latch 200, a deadbolt 300, and a counterplate 400.

[0019] The mortice lock housing 100 may be configured to receive mechanisms to operate the latch 200 and/or deadbolt 300 and be installed within a door leaf 500, as shown in Fig. 2. The counterplate 400 may be installed in a door frame 600, in particular within a door jamb 610 opposite to the door jamb 620 on which one or more hinges 700 linking the door frame 600 to the door leaf 400 may be installed. The mortice lock housing 100 may comprise a casing 110, a front plate 120, and a front plate cover 130.

[0020] The front plate 120 may have latch and deadbolt openings 121, 122, respectively located so as to allow passage of the latch 200 and deadbolt 300 from their respective retracted to their respective extended positions. The front plate 120 may also have fastening orifices 123 for fastening elements such as, in particular, countersunk screws. The front plate cover 130 may be magne-

tically attached to the front plate 120. In particular, the front plate 120 may be ferromagnetic and the front plate cover 130 comprise one or more permanent magnets, although other arrangements, for instance with a ferromagnetic front plate cover 130 and one or more permanent magnets integrated in the front plate 120, may alternatively be considered. The front plate cover 130 may comprise corresponding latch and deadbolt openings 131, 132, respectively overlapping with the latch and deadbolt openings 121, 122 in the front plate 120, to allow the operation of the latch 200 and/or deadbolt 300. The front plate cover 130 may have an outer contour substantially identical to an outer contour of the front plate 120, and substantially cover the remaining surface of the front plate 120, including the fastening orifices 121. Furthermore, the front plate cover 130 may incorporate an ornamental design on its outer surface, which may for instance be printed by any conventional technique and possibly incorporate a surface texture. The front plate cover 130 may be selected so that its ornamental design matches the appearance of the door leaf edge around the front plate 120.

[0021] The front plate cover 130 may be applied on, and magnetically attached to the exposed outer surface of the front plate 120, in order to cover the front plate 120, after the installation and fastening of the mortice lock housing 100 within the door leaf 400, in particular so as to also cover the countersunk screw heads in the fastening orifices 123. It may be subsequently peeled away from the front plate 120, for instance in order to regain access to those countersunk screw heads and/or for replacing it with an alternative front plate cover 130.

[0022] Although in the first embodiment shown in Fig. 1, the mortice lock housing has both a latch and a deadbolt and corresponding openings in the front plate and front plate cover, in alternative embodiments the mortice lock housing may only have one of a latch and deadbolt, but the front plate still have a non-functional opening where the other one of the latch and deadbolt would be located, for manufacturing and standardization reasons. In that case, the front plate cover may be shaped so as to also cover the non-functional opening in the front plate. For example, in a second embodiment shown in Fig. 3, the lockset 10 may comprise a mortice lock housing 100, a latch 200 and a counterplate 400, but no deadbolt, even if the front plate 120 may still have not only a latch opening 121, but also a non-functional deadbolt opening 122. In this second embodiment, the front plate cover 130 may have a single opening 131 overlapping the latch opening 121 of the front plate 120, and cover the non-functional deadbolt opening 122.

[0023] The lockset may also have multiple alternatively selectable operation axes for the latch and/or the deadbolt, and the front plate may include latch and/or deadbolt openings for each one of these axes, to allow their operation regardless of which axes are selected. In that case, the front plate openings corresponding to the axes not selected will be non-functional. A front plate cover

may thus be selected with one or more openings aligned with the one or more front plate openings corresponding to the selected operation axes, and covering the remaining, non-functional openings. For example, in a third embodiment shown in Fig. 4A, the lockset 10 may comprise a mortice lock housing 100, a latch 200 and a counterplate 400, but the latch 200 may be alternatively installed in two different, parallel operation axes L, L', and the front plate 120 may comprise two corresponding latch openings 121, 122, to allow the selective operation of the latch 200 along each of those two operation axes L, L'. When the latch 200 is installed on the first operation axis L, as illustrated, a front plate cover 130 may be selected with a single latch opening 131 aligned with the first latch opening 121 corresponding to the first operation axis L on the front plate 120, and covering the non-functional second latch opening 122.

[0024] The front plate cover 130 may be easily replaced with an alternative front plate cover 130' having its single latch opening 132 aligned with the second latch opening 122 in the front plate 120, if the latch body 110 is to be installed on the corresponding second operation axis L', as shown in Fig. 4B.

[0025] Those skilled in the art will recognize that the present invention may be manifested in a variety of forms other than the specific embodiments described and contemplated herein. Accordingly, departure in form and detail may be made without departing from the scope of the present invention as described in the appended claims.

Claims

1. Mortice lock housing (100) comprising a front plate (120) and a front plate cover (130), wherein the front plate cover (130) is magnetically attached to the front plate (120).
2. Mortice lock housing (100) according to claim 1, wherein one of the front plate (120) and the front plate cover (130) is ferromagnetic and another one of the front plate (120) and the front plate cover (130) incorporates a permanent magnet.
3. Mortice lock housing (100) according to claim 2, wherein the permanent magnet is incorporated in a back surface of the front plate cover (130).
4. Mortice lock housing (100) according to any one of claims 1 to 3, wherein an outer contour of the front plate cover (130) is substantially identical to an outer contour of the front plate (120).
5. Mortice lock housing (100) according to any one of claims 1 to 4, wherein the front plate cover (130) comprises at least one orifice overlapping a latch and/or deadbolt orifice in the front plate (120).
6. Mortice lock housing (100) according to any one of claims 1 to 5, wherein the front plate cover (130) covers at least one orifice in the front plate (120).
7. Mortice lock housing (100) according to claim 6, wherein the front plate cover (130) covers at least one fastening orifice in the front plate (120).
8. Mortice lock housing (100) according to any one of claims 1 to 7, wherein the front plate cover (130) covers at least one non-functional orifice in the front plate (120).
9. Mortice lock housing (100) according to any one of claims 1 to 8, wherein an outer surface of the front plate cover (130) incorporates an ornamental design.
10. Lockset (10) comprising the mortice lock housing (100) according to any one of claims 1 to 9 and a latch and/or a deadbolt mechanism received within the mortice lock housing (100).
11. Lockset (10) according to claim 10, further comprising a counterplate opposite to the front plate cover (130).
12. Door assembly comprising a frame (600), a leaf (500) and the lockset (10) according to any one of claims 10 or 11.
13. Door assembly according to claim 12, further comprising one or more hinges (700) connecting the leaf (500) to the frame (600).
14. Method for covering an exposed front plate (220) of a mortice lock housing (200), comprising a step of magnetically attaching a front plate cover (230) to the front plate (220).

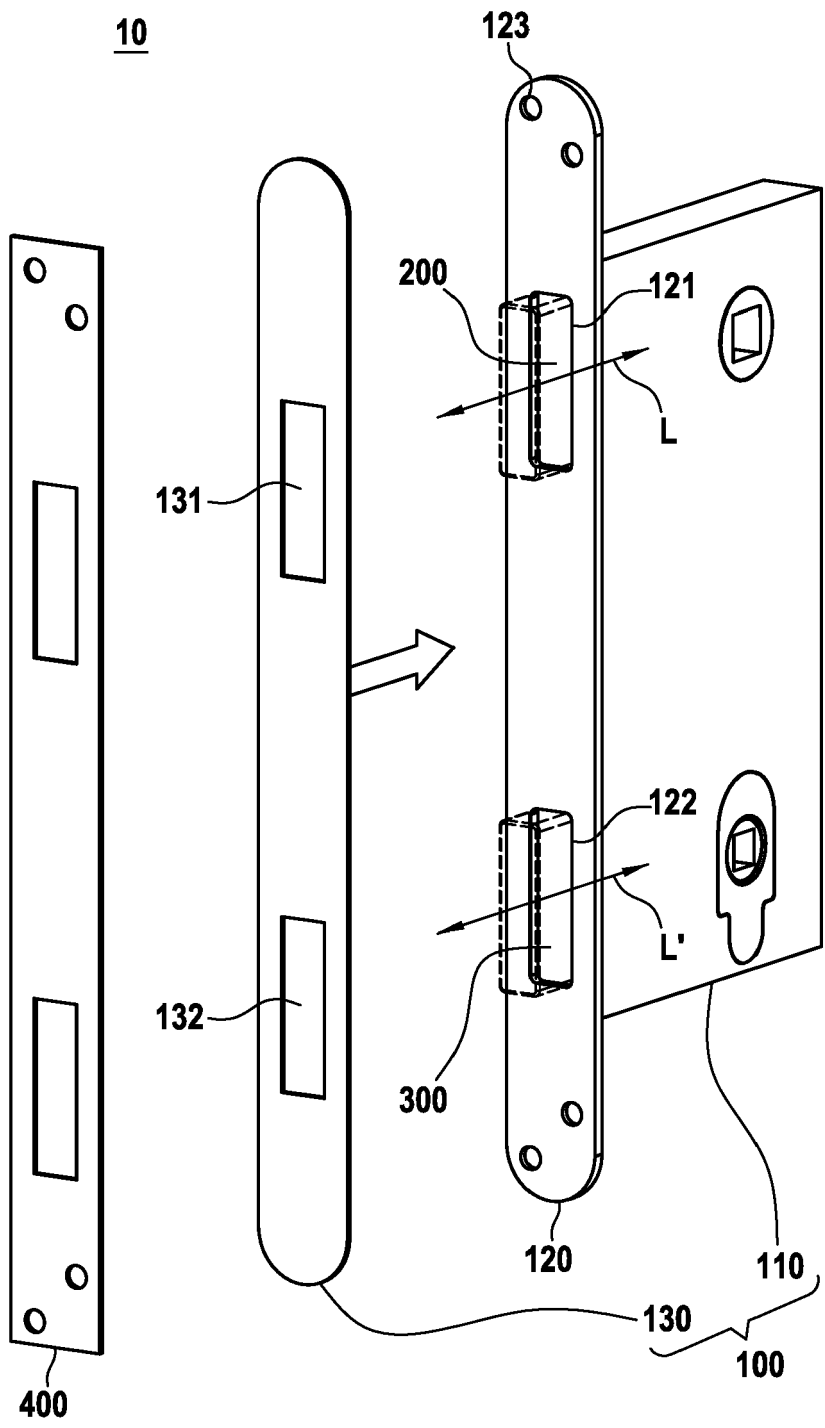


FIG.1

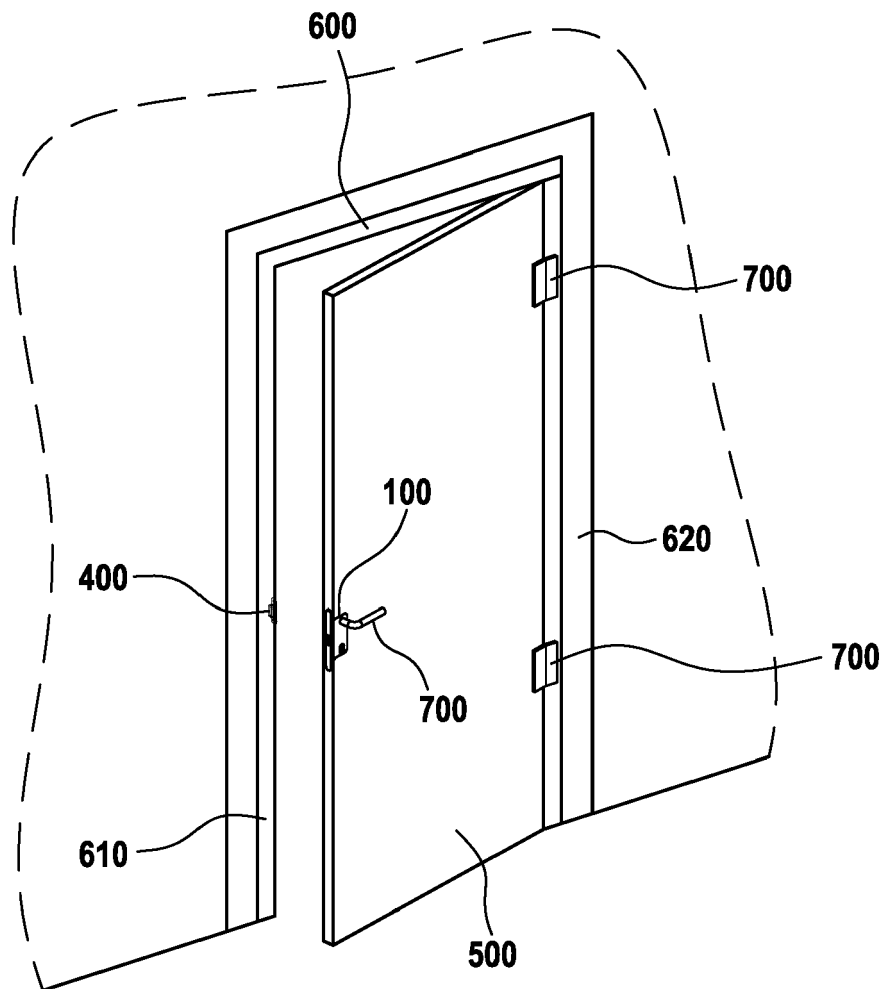


FIG.2

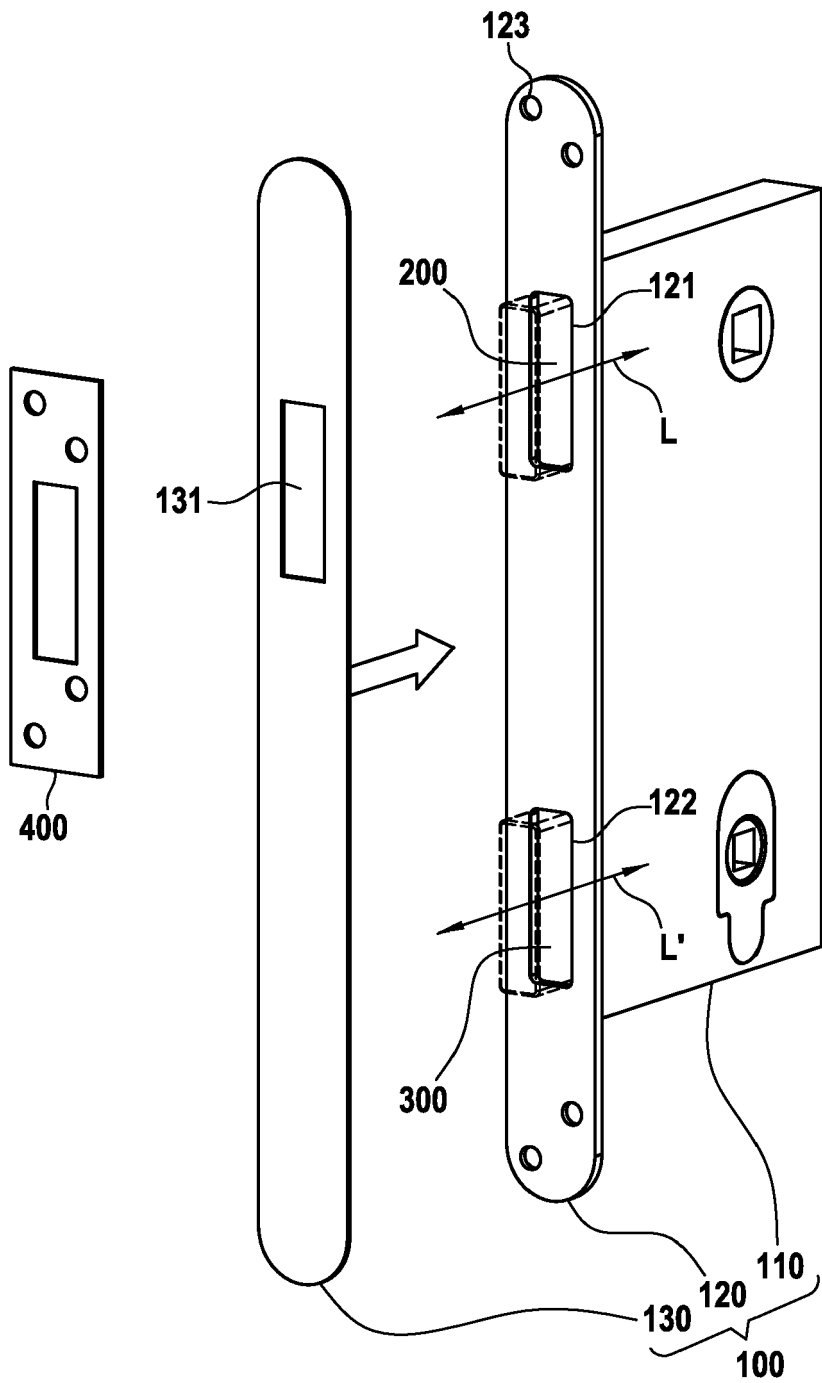


FIG.3

FIG.4A

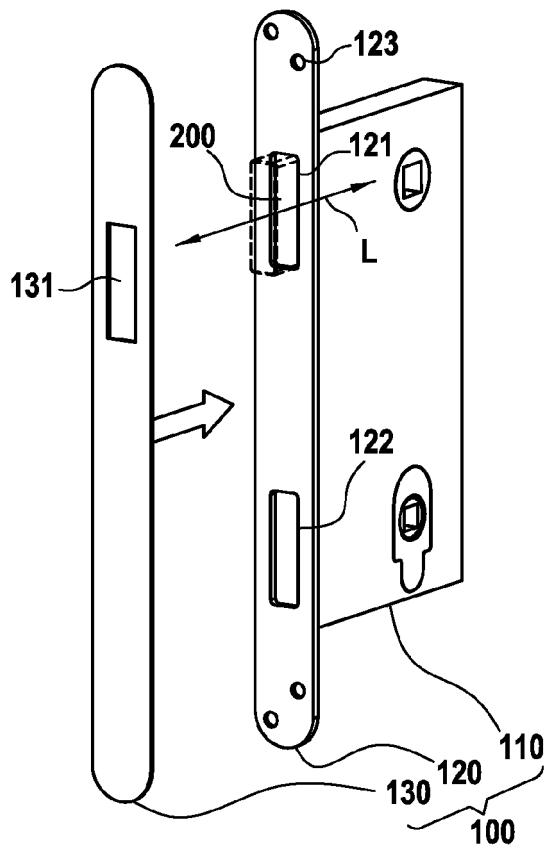
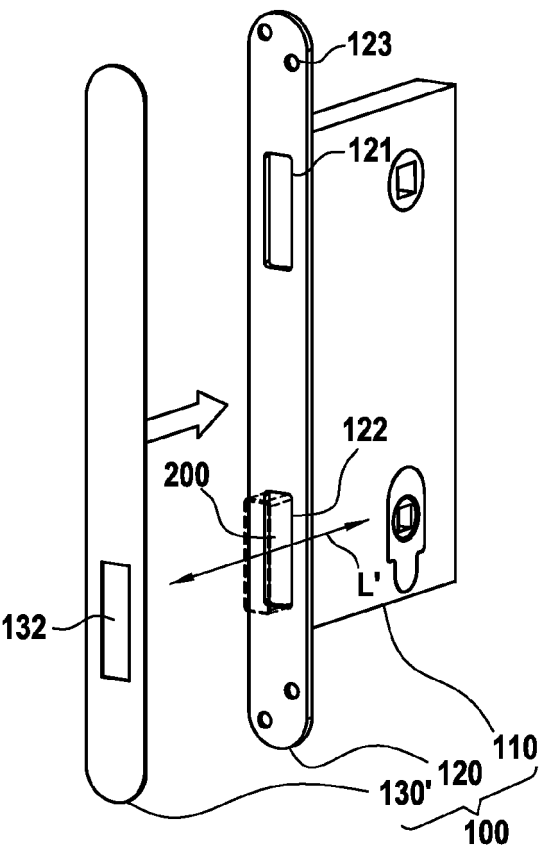


FIG.4B





EUROPEAN SEARCH REPORT

Application Number

EP 23 30 6487

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	AT 4 700 U1 (TOECHTERLER JOSEF [AT]) 25 October 2001 (2001-10-25) * the whole document *	1-14	INV. E05B9/00 E05B47/00
A	EP 4 115 038 A1 (SCHLAGE LOCK CO LLC [US]) 11 January 2023 (2023-01-11) * the whole document *	1-14	
A	CN 111 561 230 A (IMILAB SHANGHAI CO LTD) 21 August 2020 (2020-08-21) * the whole document *	1-12	
A	US 2021/270058 A1 (BOOMER ZACHARY P [US] ET AL) 2 September 2021 (2021-09-02) * the whole document *	1-12	
			TECHNICAL FIELDS SEARCHED (IPC)
			E05B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		7 February 2024	Geerts, Arnold
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
AT 4700	U1	25-10-2001	NONE
EP 4115038	A1	11-01-2023	EP 4115038 A1 11-01-2023
		US 2021274669 A1	02-09-2021
		WO 2021178439 A1	10-09-2021
CN 111561230	A	21-08-2020	NONE
US 2021270058	A1	02-09-2021	NONE

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