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(54) Fixing arrangement for door fitting

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EP 2 657 436 B1

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Description

[0001] This invention relates to a door furniture fixing and to a method of fixing door furniture to a door.

[0002] Figures 1a-d show a prior art example of a pair of door handles and plates fixed on either side of a door (10). An interior door handle (12) and interior handle plate (14) are secured to an interior side of the door. A corresponding exterior handle (16) and exterior handle plate (18) are secured to an exterior side of the door (10). The exterior handle and plate are secured to the door (10) by means of fixings (20a, 20b) that are received through and bear against the interior door plate (14), extend through the door (10) and into an interior fixing lug (22) on an inner side of the exterior plate (18). The fixings that are used are screws which are received in correspondingly tapped parts of the lugs (22). The interior and exterior handles (12/16) are connected by a spindle (24) in the usual way.

[0003] Disadvantages arise with this type of arrangement when an intruder attempts to break the locking mechanism that is part of the door handles. An intruder will typically lever at an underside of the exterior plate (18) which will inevitably cause stress on the interface between the fixings (20a and 20b) and their respective tapped lugs (22). An area around the lug subject to such stress will eventually fracture due to the stress, allowing the exterior plate (18) and also the handle (16) to be removed so that the locking mechanism can be disabled.

[0004] DE 91 02 588 U1 discloses a door furniture assembly in which a fixing is received in a threaded bush comprising a steel ball. WO 2010/001170 A2 discloses a door latch face plate assembly having a fastener slidably mounted on a face plate.

[0005] It is an object of the present invention to address the above-mentioned disadvantage. According to the present invention there is provided an apparatus and method as set forth in the appended claims. Other features of the invention will be apparent from the dependent claims, and the description which follows.

[0006] According to the present invention there is provided a door furniture assembly comprising an internal, service-side, door plate, an external, non-service-side, door plate and at least one fixing to secure the two door plates on service and non-service faces of a door respectively, wherein the at least one fixing is securable at the non-service side door plate by at least one fixing seat that is adapted to accommodate relative movement of at least a part of the fixing seat and the remainder of the non-service side plate. The at least one fixing seat is a ball joint.

[0007] The at least one fixing is preferably adapted to extend from the service-side door plate to an inner side of the non-service side door plate. Preferably at least two fixings with corresponding fixing seats are provided.

[0008] Preferably, the relative movement of the at least a part of the fixing seat and the remainder of the non-service side plate involves a relative movement of two

parts of the at least one fixing seat. Preferably a first part of the at least one fixing seat is securable to the non-service-side door plate and a second part is preferably securable to the at least one fixing. Preferably, the first and second parts are adapted for movement relative to one another. Preferably the relative movement is a relative rotation.

[0009] The at least one fixing seat may be adapted to receive the at least one fixing at or in the second part thereof, preferably in an opening thereof. The second part may be a ball of the ball joint.

[0010] The door furniture assembly may include service-side and non-service side door handles. The door furniture assembly may include a locking mechanism.

[0011] The invention extends to a kit of an internal service-side, door plate, an external, non-service-side, door plate, and at least one fixing and fixing seat pair as described in the above aspect.

[0012] For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1a is a cross-sectional side view of interior and exterior prior art door handles and plates secured to a door;

Figure 1b is a close-up of the cross-sectional view shown in Figure 1a showing a contact between a fixing and a lug in to which the fixing is secured;

Figure 1c is a cross-sectional view from above of the handles and plates shown in Figure 1a;

Figure 1d is a front view of the interior handle and door plate shown in Figure 1a;

Figure 2a is a cross-sectional side view of interior and exterior door handles and plates according to an embodiment of the invention secured to a door;

Figure 2b is a close-up of the cross-sectional view shown in Figure 2a showing a contact between a fixing and a lug in to which the fixing is secured;

Figure 2c is a cross-sectional view from above of the handles and plates shown in Figure 2a;

Figure 2d is a front view of an exterior handle and door plate shown in Figure 2a;

Figure 3a is an exploded schematic view of a joint fixing for receiving fixing means to secure the door plates of Figures 2a-2d to a door;

Figure 3b is a schematic cross-sectional side view of the fixing shown in Figure 3a;

Figure 3c is a schematic perspective view of the fixing shown in Figure 3a; and

Figure 3d is a pneumatic side view of the fixing shown in Figure 3a.

[0013] In the following, the terms exterior and interior are used in relation to the faces of a door. The meaning of exterior is that it is the face shown to an intruder or person who may wish to make unauthorised access to a door, whereas the interior is taken to mean the service-side or a face of a door that is presented to a secure side of the doorway.

[0014] Figures 2a-2c show an embodiment of the invention in which the fixings (20a, 20b) shown in Figures 1a-1d are received in a different fitting to that shown in Figures 1a-1d. The fitting for receiving the fixings, which are shown in Figures 2a-2d by reference numerals 120a and 120b, differs in that an internally tapped opening (127) receives the fixing (120a/b), with the internally tapped opening (127) forming part of a ball joint fixing (122) shown in greater detail in Figures 3a-3d.

[0015] An exterior face of a door (110) has an exterior plate (118) with an exterior handle (116). The exterior plate (118) may incorporate a strengthening plate (119).

[0016] Fixings for securing the exterior plate (118) and handle (119) are received from an interior side of the door (110). The fixings (120a, 120b) are received through an interior plate (114) and a wall section of a PVC profile of the door (115). A handle (112) is present on the interior plate, as is usual. The two handles are joined by a spindle (124).

[0017] The fixings (120a, 120b) extend through the interior plate (114) in the usual way to be received in the tapped ball joint fixing (122) as explained below.

[0018] The ball joint fixing consists of 3 parts, which are a threaded base section (128) that is received in an internally tapped opening (142) on an inner part of the exterior door plate (118). The base section (128) has an upper neck section (138) in which is received a ball (126) having the internally tapped opening (127) referred to above. The upper neck section (138) of the base section (128) has flats (130) that are used to secure the base section (128) in the base section (128) has flats (130) that are used to secure the base section (128) in position in the tapped opening (142) of the exterior door plate (118). With the ball (126) located in the upper neck section (138) of the lower section (128), a cap section (124) is engaged with the externally threaded neck section (138) by means of an internally threaded section (140) of the cap section. The cap section (124) similarly incorporates flats (132) to allow fitting thereof onto the base section (128). A rim section (125) of the cap section (124) retains the ball (126) in position.

[0019] As shown in Figure 3c the opening (127) of the ball (126) is located to face upwards and away and out of the capped section (124). The location of the ball is chosen so that the length of the opening (127) extends

substantially coaxially with the length of the fixings (120a, 120b).

[0020] When the ball joint (122) is located in the opening (142) in the exterior door plate (118) with the opening (127) facing towards the interior door plate (114) the fixings (120a, 120b) can be inserted into position through the interior door plate (114), through the door (110) and tightened into the internally tapped opening (127) in the ball (126) in the exterior door plate (118).

[0021] In this way, the exterior and interior plates (118, 114) are secured to the door (110).

[0022] In the event of an intruder attempting to lever or otherwise remove the exterior plate (118) from the door (110) to gain access to a lock incorporated in the door (110), levering of the plate (118) would typically result in a stress fracture of the plate (118) around the seat of the fixing (22) as described above in relation to Figures 1a-1d. However, with the ball joint (122) in position, relative movement of the exterior plate (118) as it is levered by an intruder and the fixing (120a) is accommodated by the small movements of the ball (126) within the lower section (128) and capped section (124) of the ball joint (127). This reduces the likelihood of stress fracture of the exterior door plate (118), or the strengthening member (119). Thus the use of the ball joint alleviates the stress exerted on the plate and associated fixings.

[0023] It will be appreciated from the above that significant advantages arise from the use of the ball joint in the locations shown and described above. Stress fracture of the exterior door plate is considerably less likely given that the force of the levering of an intruder is taken up by relative movement of the fixing and the ball joint.

[0024] The invention is not restricted to the details of the foregoing embodiment(s). The scope of protection is solely defined by the appended claims.

Claims

1. A door furniture assembly comprises an internal, service-side, door plate (114), an external, non-service-side, door plate (118) and at least one fixing (120a,b) to secure the two door plates (114,118) on service and non-service faces of a door (110) respectively, wherein the at least one fixing (120a,b) is securable at the non-service side door plate (118) by at least one fixing seat (122); wherein the at least one fixing seat (122) is adapted to accommodate relative movement of at least a part of the fixing seat (122) and the remainder of the non-service side door plate (118) as the non-service side door plate is levered by an intruder; **characterised in that** the at least one fixing seat (122) is a ball joint.
2. A door furniture assembly as claimed in claim 1, wherein the at least one fixing (120a,b) is adapted to extend from the service-side door plate (114) to

an inner side of the non-service side door plate (118).

3. A door furniture assembly as claimed in claim 1 or claim 2 wherein the relative movement of the at least a part of the fixing seat (122) and the remainder of the non-service side door plate (118) involves a relative movement of two parts of the at least one fixing seat (122).
4. A door furniture assembly as claimed in any preceding claim, wherein a first part (128) of the at least one fixing seat (122) is securable to the non-service-side door plate (118) and a second part (126) is securable to the at least one fixing (120a,b).
5. A door furniture assembly as claimed in claim 4, wherein, the first and second parts (128, 126) are adapted for movement relative to one another.
6. A door furniture assembly as claimed in claim 4 or 5, wherein the second part of the at least one fixing seat (122) is a ball (126) of the ball joint.
7. A door furniture assembly as claimed in any one of claim 4, 5, or 6, wherein the at least one fixing seat (122) is adapted to receive the at least one fixing (120a,b) at or in the second part (126) thereof.
8. A door furniture assembly as claimed in any preceding claim, wherein the door furniture assembly includes service-side and non-service side door handles (112,116).
9. A door furniture assembly as claimed in any preceding claim which includes a locking mechanism.
10. A kit comprising an internal, service-side, door plate (114), an external, non-service-side, door plate (118), and at least one fixing (120a,b) and fixing seat (122) pair as described in any of the preceding claims, wherein the at least one fixing seat (122) is adapted to accommodate relative movement of at least a part of the fixing seat (122) and the remainder of the non-service side door plate (118) as the non-service side door plate is levered by an intruder;
characterised in that the at least one fixing seat (122) is a ball joint.

Patentansprüche

1. Türbeschlaganordnung, umfassend eine innere, bedienungsseitige Türplatte (114), eine äußere, nicht bedienungsseitige Türplatte (118) und zumindest eine Befestigung (120a, b) zum Sichern der beiden Türplatten (114, 118) auf einer bedienungsseitigen bzw. einer nicht bedienungsseitigen Seite einer Tür

(110), wobei die zumindest eine Befestigung (120a, b) durch zumindest einen Befestigungssitz (122) an der nicht bedienungsseitigen Türplatte (118) sicherbar ist;

wobei der zumindest eine Befestigungssitz (122) dazu ausgelegt ist, eine Relativbewegung zumindest eines Teils des Befestigungssitzes (122) und des Rests der nicht bedienungsseitigen Türplatte (118) aufzunehmen, wenn die nicht bedienungsseitige Türplatte durch einen Einbrecher angehoben wird;
dadurch gekennzeichnet, dass der zumindest eine Befestigungssitz (122) ein Kugelgelenk ist.

2. Türbeschlaganordnung nach Anspruch 1, wobei die zumindest eine Befestigung (120a, b) dazu ausgelegt ist, sich von der bedienungsseitigen Türplatte (114) zu einer Innenseite der nicht bedienungsseitigen Türplatte (118) zu erstrecken.

3. Türbeschlaganordnung nach Anspruch 1 oder Anspruch 2, wobei die Relativbewegung des zumindest einen Teils des Befestigungssitzes (122) und des Rests der nicht bedienungsseitigen Türplatte (118) eine Relativbewegung von zwei Teilen des zumindest einen Befestigungssitzes (122) beinhaltet.

4. Türbeschlaganordnung nach einem der vorangehenden Ansprüche, wobei ein erster Teil (128) des zumindest einen Befestigungssitzes (122) an der nichtbedienungsseitigen Türplatte (118) sicherbar ist und ein zweiter Teil (126) an der zumindest einen Befestigung (120a, b) sicherbar ist.

5. Türbeschlaganordnung nach Anspruch 4, wobei der erste und der zweite Teil (128, 126) dazu ausgelegt sind, sich relativ zueinander zu bewegen.

6. Türbeschlaganordnung nach Anspruch 4 oder 5, wobei der zweite Teil des zumindest einen Befestigungssitzes (122) eine Kugel (126) des Kugelgelenks ist.

7. Türbeschlaganordnung nach einem der Ansprüche 4, 5 oder 6, wobei der zumindest eine Befestigungssitz (122) dazu ausgelegt ist, die zumindest eine Befestigung (120a, b) an oder in seinem zweiten Teil (126) aufzunehmen.

8. Türbeschlaganordnung nach einem der vorangehenden Ansprüche, wobei die Türbeschlaganordnung einen bedienungsseitigen und einen nicht bedienungsseitigen Türgriff (112, 116) beinhaltet.

9. Türbeschlaganordnung nach einem der vorangehenden Ansprüche, umfassend einen Verriegelungsmechanismus.

10. Bausatz, umfassend eine innere, bedienungsseitige

Türplatte (114), eine äußere, nicht bedienungsseitige Türplatte (118) und zumindest ein Paar einer Befestigung (120a, b) und eines Befestigungssitzes (122) nach einem der vorangehenden Ansprüche, wobei der zumindest eine Befestigungssitz (122) dazu ausgelegt ist, eine Relativbewegung zumindest eines Teils des Befestigungssitzes (122) und des Rests der nicht bedienungsseitigen Türplatte (118) aufzunehmen, wenn die nicht bedienungsseitige Türplatte durch einen Einbrecher angehoben wird; **dadurch gekennzeichnet, dass** der zumindest eine Befestigungssitz (122) ein Kugelgelenk ist.

Revendications

1. Ensemble de meuble à porte comprenant un panneau de porte interne, côté service (114), un panneau de porte externe, côté non-service (118) et au moins une fixation (120a,b) pour fixer les deux panneaux de porte (114, 118) sur les faces service et non-service d'une porte (110), respectivement, l'au moins une fixation (120a,b) pouvant être fixée au panneau de porte côté non service (118) par au moins un siège de fixation (122) ;
l'au moins un siège de fixation (122) étant prévu pour accepter un mouvement relatif d'au moins une partie du siège de fixation (122) et du reste du panneau de porte côté non service (118) à mesure que le panneau de porte côté non service est soulevé par un intrus ;
caractérisé en ce que l'au moins un siège de fixation (122) est un joint à rotule.
2. Ensemble de meuble à porte selon la revendication 1, dans lequel l'au moins une fixation (120a,b) est prévue pour s'étendre depuis le panneau de porte côté service (114) jusqu'à un côté interne du panneau de porte côté non service (118).
3. Ensemble de meuble à porte selon la revendication 1 ou la revendication 2, dans lequel le mouvement relatif de l'au moins une partie du siège de fixation (122) et du reste du panneau de porte côté non service (118) fait intervenir un mouvement relatif de deux parties de l'au moins un siège de fixation (122).
4. Ensemble de meuble à porte selon l'une quelconque des revendications précédentes, dans lequel une première partie (128) de l'au moins un siège de fixation (122) peut être fixée au panneau de porte côté non service (118) et une deuxième partie (126) peut être fixée à l'au moins une fixation (120a,b).
5. Ensemble de meuble à porte selon la revendication 4, dans lequel la première et la deuxième partie (128, 126) sont prévues pour se déplacer l'une par rapport à l'autre.

6. Ensemble de meuble à porte selon la revendication 4 ou 5, dans lequel la deuxième partie de l'au moins un siège de fixation (122) est une rotule (126) du joint à rotule.
7. Ensemble de meuble à porte selon l'une quelconque des revendications 4, 5, ou 6, dans lequel l'au moins un siège de fixation (122) est prévu pour recevoir l'au moins une fixation (120a,b) au niveau de, ou dans, la deuxième partie (126) de celui-ci.
8. Ensemble de meuble à porte selon l'une quelconque des revendications précédentes, l'ensemble de meuble à porte comportant des poignées de porte côté service et côté non service (112, 116).
9. Ensemble de meuble à porte selon l'une quelconque des revendications précédentes, comportant un mécanisme de verrouillage.
10. Kit comprenant un panneau de porte interne côté service (114), un panneau de porte externe côté non service (118), et au moins une paire comprenant une fixation (120a,b) et un siège de fixation (122) comme décrit selon l'une quelconque des revendications précédentes,
dans lequel l'au moins un siège de fixation (122) est prévu pour accepter un mouvement relatif d'au moins une partie du siège de fixation (122) et du reste du panneau de porte côté non service (118) à mesure que le panneau de porte côté non service est soulevé par un intrus ;
caractérisé en ce que l'au moins un siège de fixation (122) est un joint à rotule.

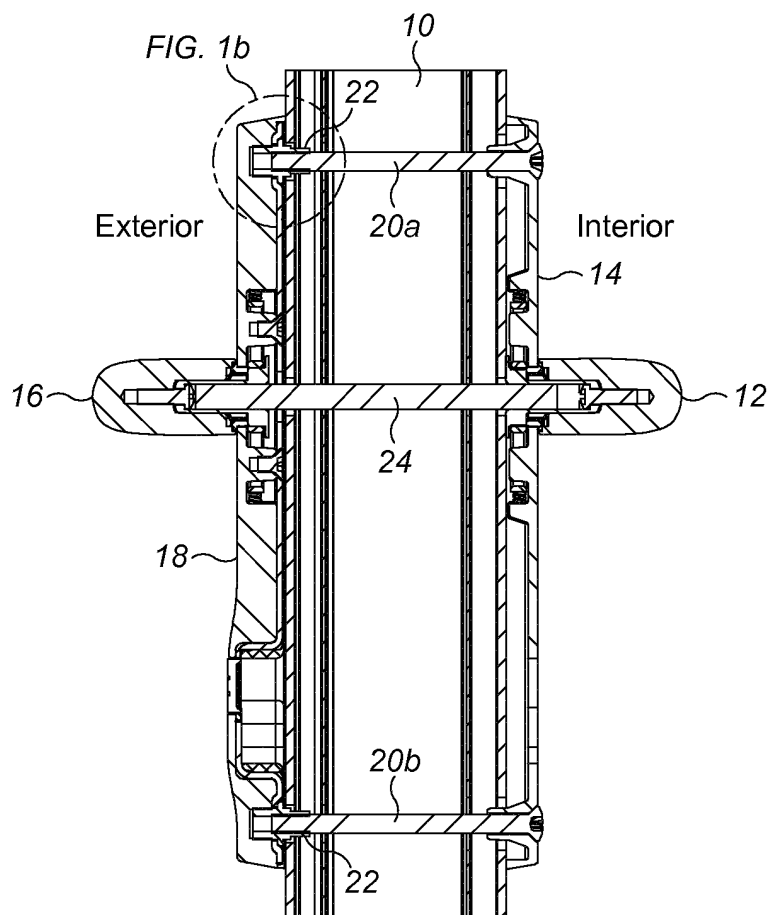


FIG. 1a

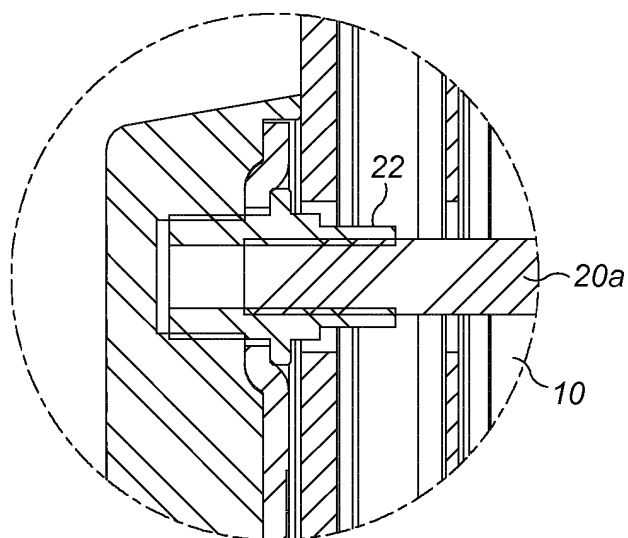


FIG. 1b

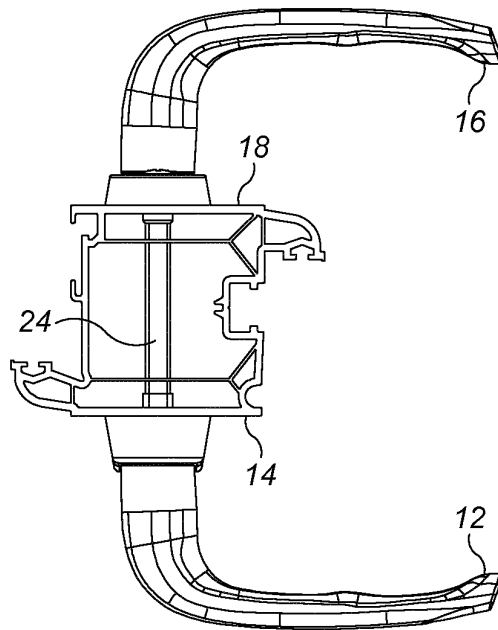


FIG. 1c

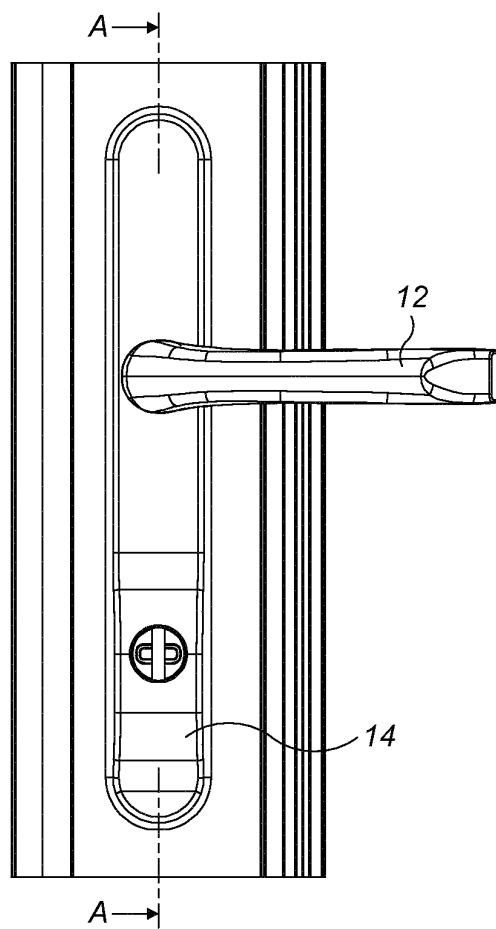


FIG. 1d

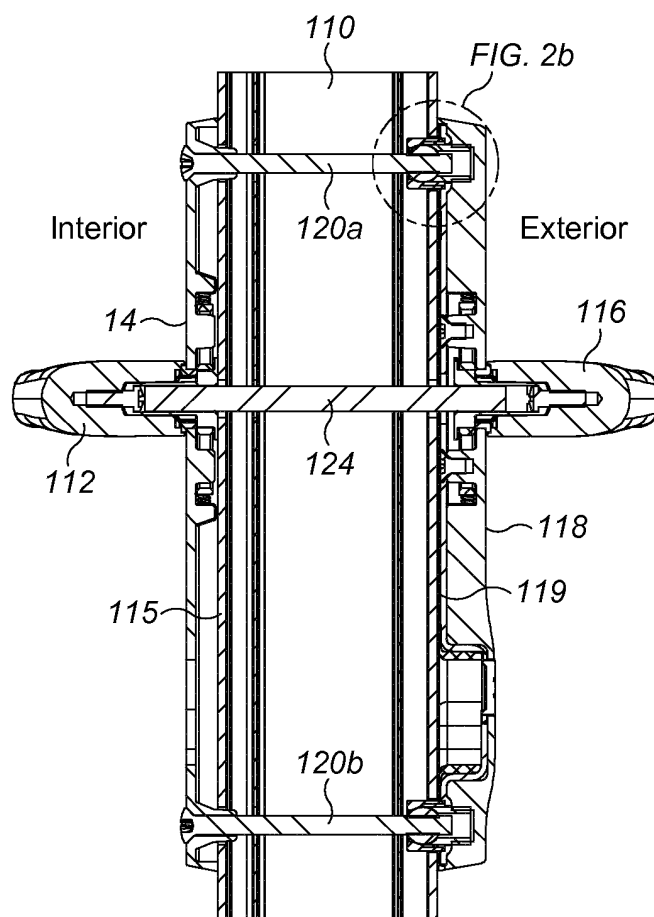


FIG. 2a

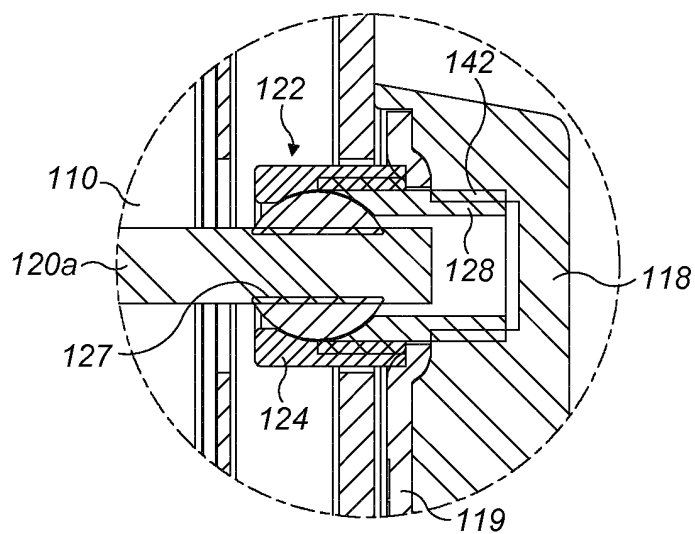


FIG. 2b

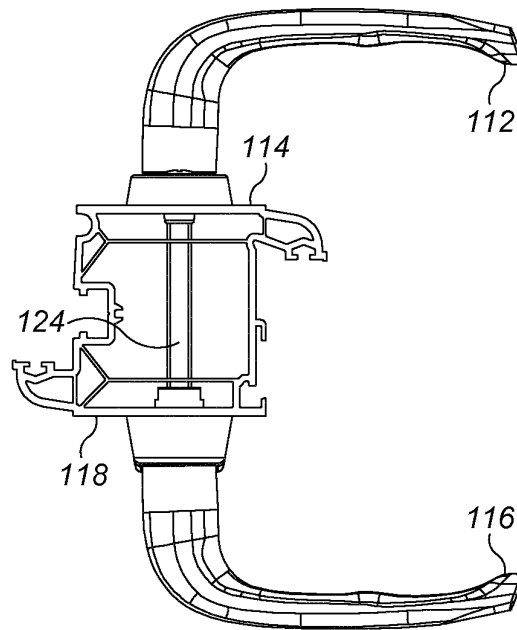


FIG. 2c

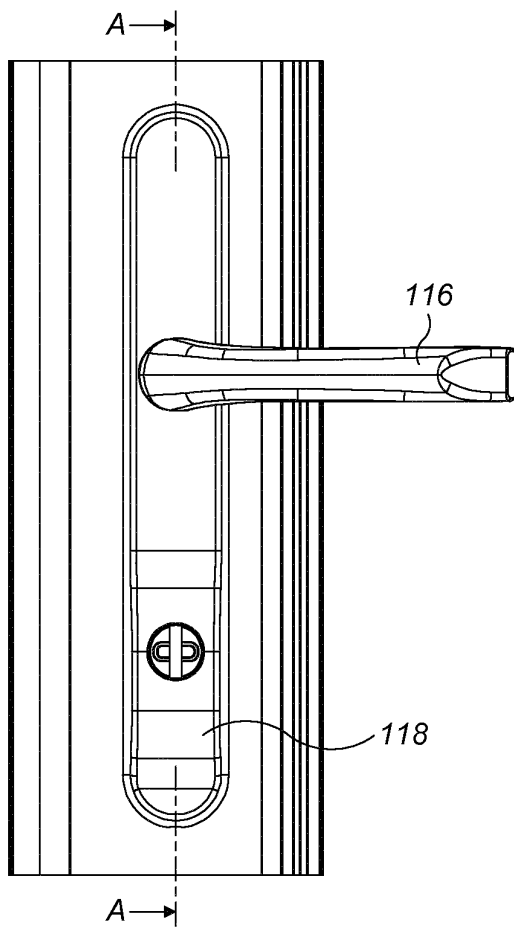


FIG. 2d

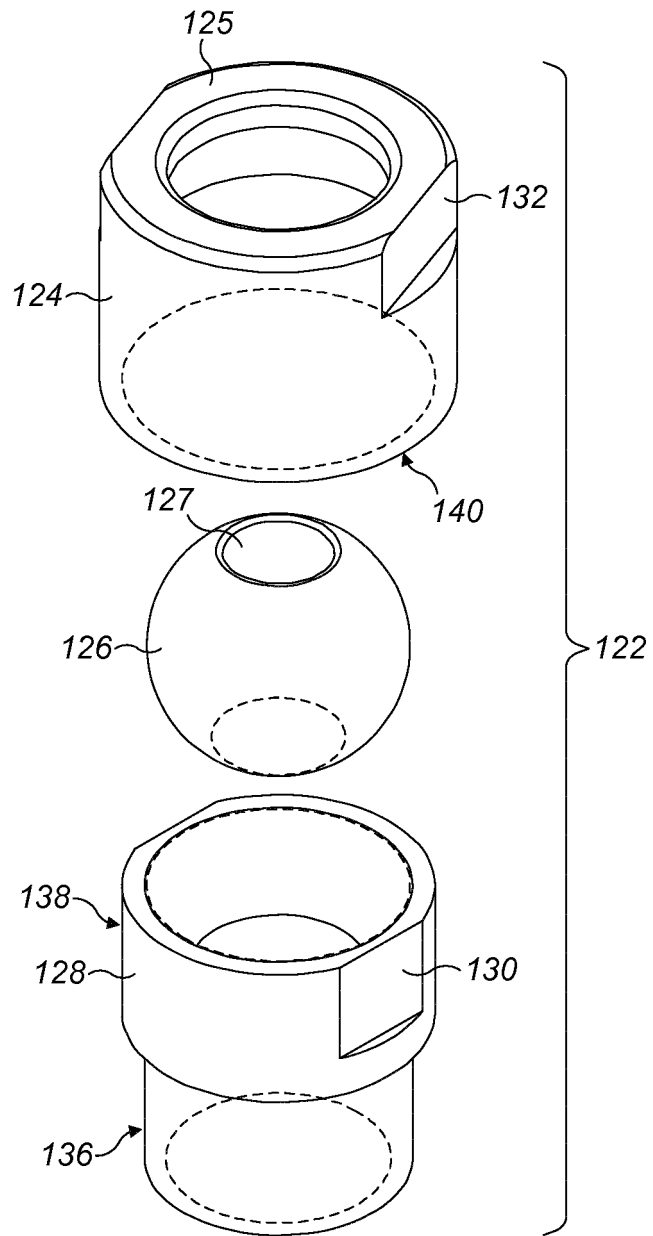


FIG. 3a

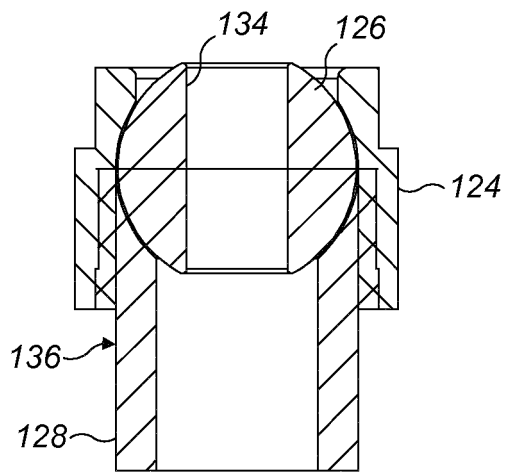


FIG. 3b

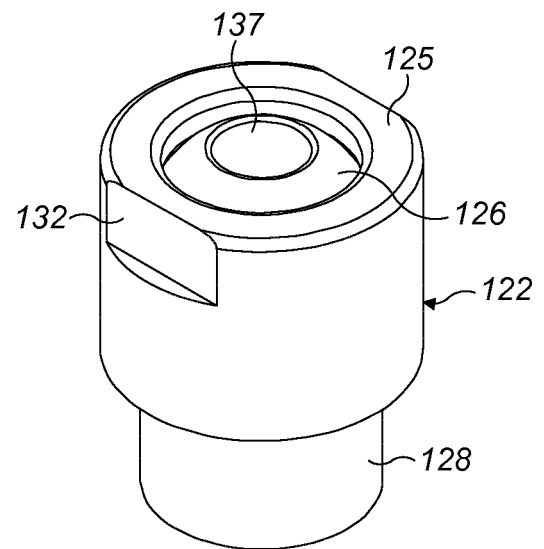


FIG. 3c

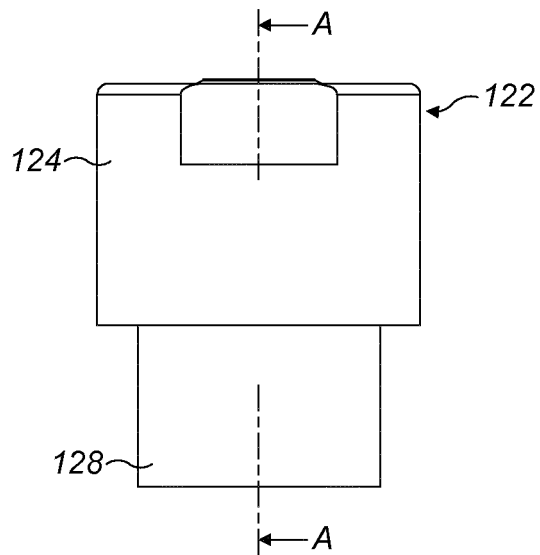


FIG. 3d

REFERENCES CITED IN THE DESCRIPTION

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