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(54) **Fastener for a window or a door**

Schliessvorrichtung für ein Fenster oder eine Tür

Dispositif de fereture pour une fenêtre ou une porte

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Description

[0001] This invention relates to developments in fasteners for windows and doors.

[0002] Fasteners for windows and doors are well known in the art in a number of designs. The traditional design is a simple rotatable lever attached to the window which moves a rotational bolt into a recess in the window frame. These types are frequently made from cast metal although other methods could be used. Typically the rotational bolt is rotationally attached to a base plate by which the fitting is attached to a window. A spigot extends from the rotational bolt for attachment to the handle. A handle of this type is shown in Figure 1.

[0003] More recently there has been a move towards multi point window locks using espagnolette type mechanisms. For these type of windows the handle is usually fitted at the point of manufacture and is usually specified when specifying the windows. When building the windows the handle is chosen from the available designs. Due to the volume and throughput the window manufacturer usually has ample stock of the different available closure designs. The handle is usually integrated with the fitting prior to assembly, often during manufacture, and the whole fitting attached to the window. An example of such a window is shown at Figure 2.

[0004] However, in top end window products, in particular steel or aluminium framed windows that are design imitations of historic windows, but which are made to modern standards, it is often a requirement that the window handles are made to a specific, sometimes bespoke, design so as to maintain the character of the windows. These windows are often required to be used when renovating historic or protected buildings where it is required to maintain the character of the building with minimum visual change. These more bespoke type windows have the same or similar type espagnolette fasteners as other modern windows and the same types of fittings as shown in Figure 2 are usually used, albeit with a different visual appearance. Accordingly, aside from the standard modern handle designs that window manufacturers carry in stock, there may be many design variants, both in actual shape and in finish, from which the handle can be chosen for these specialised windows. As these are specialised low volume products and are usually high value items window manufacturers do not usually carry any stock of them and order them specifically when needed, this can create long lead times when manufacturers are asked to produce bespoke windows with specific designs of handle. This can delay renovation projects for historic or protected buildings, which has inevitable financial implications for the people renovating the building, which in many cases may be charitable organisations.

[0005] German patent application DE222439, British patent application GB00028, and US application US68956 disclose various methods of affixing door knobs or handles onto a tapered spindle extending through a door. European application EP1321604 discloses a method of attaching a handle to a door or window leaf, the handle comprising a spindle and two projections which extend through the frame and receive fixing screws. US application US2005/0156441 and Chinese Utility Model CN202380809 disclose handles for windows or doors, wherein the handle is retained on a boss plate by a circlip.

[0006] It is the purpose of the present invention to provide an alternative closure design that at least partially mitigates some of the above mentioned problems with existing designs.

[0007] According to the invention there is provided a fastener for a closure comprising: a fastener body for attachment to the closure; a pivotal shaft extending through said fastener body, said pivotal shaft having a first end and a second end wherein the first end is located on a first side of the fastener body and the second end is located on a second side of the fastener body such that, in use it extends therefrom in a direction away from the closure. The first end is provided with a drive means configured to drive one or more latches to secure said closure, and the second end is provided with a taper for receiving a handle thereon, and wherein the taper is provided with a recess therein for receiving a further fastener.

[0008] The taper may be a machine taper, preferably a Morse taper. The taper can retain the handle on the shaft.

[0009] The shaft may be provided with at least one key extending therefrom.

[0010] The further fastener may be a screw. The screw may be a grub screw. The recess may be provided with a thread. The further fastener may be a grub screw that fastens to the thread.

[0011] There may further comprise a handle. The handle can be provided with a tapered hole therein for receiving said second end of the shaft. The taper may be a Morse taper matched to the taper on the second end of the shaft to retain the handle on the shaft. The tapered hole may comprise a blind tapered hole.

[0012] The handle can be provided with a keyway formed on the interior surface of its tapered hole.

[0013] The handle may have a threaded hole therein between an outer surface thereof and the tapered hole, and wherein a screw is provided in said threaded hole. The screw may be a grub screw.

[0014] The fastener of the invention may comprise a handle having a tapered hole therein for receiving said second end of the shaft, wherein the taper of the shaft is provided with a recess therein for receiving a further fastener; and wherein the handle has a threaded hole therein between an outer surface thereof and the tapered hole, and wherein a screw is provided in said threaded hole so that it extends through said tapered hole into said recess.

[0015] The fastener may further comprise latches and an espagnolette fastening device and said latches are driven by the handle via the espagnolette device.

[0016] Specific examples will be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 shows a traditional fastener as known in the art;

Figure 2 shows a known fastener used with espagnolette type fittings;

Figure 3 shows an exploded view of a fastener in accordance with the present invention;

Figure 4 shows an assembled view of a fastener in accordance with the present invention;

Figure 5 shows an alternative embodiment of the invention; and

Figure 6 shows the rear of the alternative embodiment of the invention.

[0017] Referring to Figure 1 a traditional type window fastener 2 commonly used with metal framed windows is shown. The fastener 2 has a base plate 4 by which it is attached to the window by screws via screw holes 6. A post 8 extends from the base plate 4 and a handle 10 is connected to the end of the post 8 by peening 12 the end of the post 8 so that it fastens to the post 8. The handle 10 has a latch 14 extending therefrom which interacts with a second part of the latch (not shown) that is located on the window frame so as to secure the window relative to the window frame.

[0018] Figure 2 shows a traditional type fastener for use with an espagnolette type fitting 100, for example as used in uPVC type windows. The handle 102 has an shaft 104 that is permanently attached hereto, for example by shrink fitting, expansion fitting, or push fitting, although other known fitting methods will be apparent to the skilled person, and which extends through a base plate 112 and which has a shaped end 106 that can drive an espagnolette type fitting. The handle 102 is retained it the fitting by means of a circlip 108. Alternatively a retaining ring washer can be push fitted onto the shaped end 106 to retain the handle on the base plate 112. The fitting is attached to the frame of a window during manufacture by screws (not shown) which pass through the attachment holes 110.

[0019] Referring to Figures 3 and 4 a fastener 20 of the present invention is shown.

[0020] The fastener 20 has a body 22 for attachment to the closure part of, for example, a window or door. A shaft 24 extends through the body 22 and is retained therein by a circlip 26 that fixes in a groove 28 of the shaft. In this way the shaft 24 is free to rotate in the plate 22. When fixed in place the shaft 24 passes through the body 22 so that it extends on both sides thereof.

[0021] One end of the shaft 24 is shaped in a substantially square shape 30 so that it may be received in a latch fitting, for example in a drive mechanism of an espagnolette type fitting, such that its rotation secures the closure, e.g. window, in a closed position. It will be appreciated that although depicted and described as substantially square shaped, the end 30 of the shaft may have any shape suitable for driving in a rotary motion

[0022] The other end of the shaft is provided with a taper 32 on which is received a handle 34. The taper is a machine taper, and may be a Morse taper. The handle 34 has a corresponding internal taper 36 so that when placed on the shaft the two tapers retain the handle 34 in place on the shaft. In this way, turning the handle will turn the shaft and activate the espagnolette or other latch type mechanism to allow the closure to be opened or closed.

[0023] As shown in the figures, to improve the strength of the turning motion that can be applied, the taper 32 may be provided with a key 38 that locates in a corresponding slot 40 in the interior of the tapered hole 36 in the handle 34.

[0024] The tapered end of the shaft 24 is provided with a recess 42 therein. The handle 34 may be provided with at hole 44 so that a further fastener 46 can be passed from through the hole 44 to locate in the recess 42. In this manner the handle 34 is prevented from pulling away from the shaft 24. Either the recess 42 or the hole 44 may be provided with a thread and the further fastener 46 may, for example, be a grub screw that fastens to the thread.

[0025] The fastener 20 may also include an espagnolette fastening device having a drive hole in which the end 30 of the shaft is received so as to operate the latches of the espagnolette type device.

[0026] Referring to Figures 5 and 6 an alternative embodiment of the invention is shown. This embodiment is similar to that shown in Figure 3 and as can be seen the handle attachment by means of the machine taper is the same.

[0027] Instead of the circlip 26 that retains the handle of Figure 3, in this embodiment this is replaced with a cog 50. The cog 50 not only retains the shaft 24, which is shorter in this embodiment, in the handle body 22.

[0028] As can be seen from Figure 6 the shaft 23 is shorter and as such does not extend beyond the body 22. Instead the cog 50 acts on a drive arm 52 to slide between two positions. In use the drive arm 52 will act on an espagnolette type fixture in the window frame to operate remote latches.

Claims

1. A fastener (20) for a closure comprising:

a fastener body (22) for, in use, attachment to said closure;
a pivotal shaft (24) extending through said fas-

tener body (22), said pivotal shaft (24) having a first end and a second end wherein the first end is located on a first side of the fastener body (22) and the second end is located on a second side of the fastener body (22) such that, in use the second end extends therefrom in a direction away from the closure; wherein
the first end is provided with a drive means configured to drive one or more latches to secure said closure; and
the second end is provided with a taper (32) for receiving a handle thereon, and wherein the taper (32) is provided with a recess (42) therein for receiving a further fastener.

2. The fastener according to claim 1 wherein the taper (32) is a machine taper.

3. The fastener according to claim 2 wherein the taper (32) is a Morse taper

4. The fastener according to claim 2 or claim 3 wherein the taper (32) retains the handle on the shaft.

5. The fastener according to any preceding claim wherein the shaft is provided with at least one key (38) extending therefrom.

6. The fastener according to any preceding claim further comprising a handle (34).

7. The fastener according to claim 6 wherein said handle (34) has a tapered hole (36) therein for receiving said second end of the shaft.

8. The fastener according to claim 6 or claim 7 wherein said tapered hole (36) comprises a blind tapered hole.

9. The fastener according to any one of claims 6 to 8 wherein said handle (34) comprises a keyway (40) formed on the interior surface of said tapered hole.

10. The fastener according to any one of claims 6 to 9 wherein the handle (34) has a threaded hole (44) therein between an outer surface thereof and the tapered hole (36), and wherein a screw (46) is provided in said threaded hole.

11. The fastener according to claim 10 wherein said screw (46) is a grub screw.

12. The fastener according to claim 1 further comprising a handle (34) having a tapered hole (36) therein for receiving said second end of the shaft, and wherein the taper (32) is provided with a recess (42) therein for receiving a fastener (46);
the handle (34) has a threaded hole (44) therein between an outer surface thereof and the tapered hole (36), and wherein a screw (46) is provided in said threaded hole (44) so that it extends through said tapered hole (36) into said recess (42).

13. The fastener according to any preceding claim further comprising an espagnolette fastening device and said latches are driven by the handle via the espagnolette device.

Patentansprüche

1. Befestigungsmittel (20) für einen Verschluss, umfassend:

einen Befestigungsmittelkörper (22), zum Befestigen, im Betrieb, an dem Verschluss;
eine Schwenkwelle (24), welche sich durch den Befestigungsmittelkörper (22) erstreckt, wobei die Schwenkwelle (24) ein erstes Ende und ein zweites Ende aufweist, wobei das erste Ende auf einer ersten Seite des Befestigungsmittelkörpers (22) und das zweite Ende auf einer zweiten Seite des Befestigungsmittelkörpers (22) angeordnet ist, sodass, im Betrieb, das zweite Ende sich von demselben in einer Richtung von dem Verschluss weg erstreckt; wobei
das erste Ende mit einem Antriebsmittel versehen ist, welches konfiguriert ist, um eine oder mehrere Sperrklinken anzutreiben, um den Verschluss zu sichern; und
das zweite Ende mit einer Verjüngung (32) versehen ist, um auf derselben einen Griff aufzunehmen, und wobei die Verjüngung (32) eine Ausnehmung (42) darin aufweist, zum Empfangen eines weiteren Befestigungsmittels.

2. Befestigungsmittel nach Anspruch 1, wobei die Verjüngung (32) eine maschinell bearbeitete Verjüngung ist.

3. Befestigungsmittel nach Anspruch 2, wobei die Verjüngung (32) ein Morsekegel ist.

4. Befestigungsmittel nach Anspruch 2 oder Anspruch 3, wobei die Verjüngung (32) den Griff auf der Welle hält.

5. Befestigungsmittel nach einem der vorhergehenden Ansprüche, wobei die Welle zumindest einen sich von derselben aus erstreckenden Keil (38) aufweist.

6. Befestigungsmittel nach einem der vorhergehenden Ansprüche, ferner umfassend einen Griff (34).

7. Befestigungsmittel nach Anspruch 6, wobei der Griff (34) ein verjüngtes Loch (36) darin aufweist zum

Empfangen des zweiten Endes der Welle.

8. Befestigungsmittel nach Anspruch 6 oder Anspruch 7, wobei das verjüngte Loch (36) ein verjüngtes Sackloch umfasst.

9. Befestigungsmittel nach einem der Ansprüche 6 bis 8, wobei der Griff (34) eine Keilnut (40) umfasst, welche auf der Innenfläche des verjüngten Lochs gebildet ist.

10. Befestigungsmittel nach einem der Ansprüche 6 bis 9, wobei der Griff (34) eine Gewindebohrung (44) darin zwischen einer Außenfläche desselben und dem verjüngten Loch (36) aufweist, und wobei eine Schraube (46) in der Gewindebohrung bereitgestellt ist.

11. Befestigungsmittel nach Anspruch 10, wobei die Schraube (46) eine Madenschraube ist.

12. Befestigungsmittel nach Anspruch 1, ferner umfassend einen Griff (34), welcher eine Gewindebohrung (36) darin umfasst, um das zweite Ende der Welle aufzunehmen, und wobei
die Verjüngung (32) eine Ausnehmung (42) darin aufweist, um ein Befestigungsmittel (46) aufzunehmen;
der Griff (34) eine Gewindebohrung (44) darin zwischen einer Außenfläche desselben und dem verjüngten Loch (36) aufweist, und wobei eine Schraube (46) in der Gewindebohrung (44) bereitgestellt ist, sodass sie sich durch das verjüngte Loch (36) in die Ausnehmung (42) erstreckt.

13. Befestigungsmittel nach einem der vorhergehenden Ansprüche, ferner umfassend eine Treibstangenverschlussvorrichtung und wobei die Sperrklinken durch den Griff über die Treibstangenverschlussvorrichtung angetrieben werden.

Revendications

1. Élément de fixation (20) pour une fermeture, comprenant :

un corps de fixation (22) destiné à être fixé en service sur ladite fermeture ;
un arbre pivotant (24) s'étendant à travers ledit corps de fixation (22), ledit arbre pivotant (24) comportant une première extrémité et une deuxième extrémité, dans lequel la première extrémité est située sur un premier côté du corps de fixation (22), la deuxième extrémité étant située sur un deuxième côté du corps de fixation (22) de sorte qu'en service la deuxième extrémité s'étend à partir de celui-ci dans une direction allant à l'écart de la fermeture ; dans lequel :

la première extrémité comporte un moyen d'entraînement configuré pour entraîner un ou plusieurs verrous pour fixer ladite fermeture ; et
la deuxième extrémité comporte un cône (32) pour recevoir une poignée, et dans lequel le cône (32) comporte un évidement (42) pour recevoir un élément de fixation additionnel.

2. Élément de fixation selon la revendication 1, dans lequel le cône (32) est un cône de machine.

3. Élément de fixation selon la revendication 2, dans lequel le cône (32) est un cône Morse.

4. Élément de fixation selon la revendication 2 ou la revendication 3, dans lequel le cône (32) retient la poignée sur l'arbre.

5. Élément de fixation selon l'une quelconque des revendications précédentes, dans lequel l'arbre comporte au moins une clé (38) s'étendant à partir de celui-ci.

6. Élément de fixation selon l'une quelconque des revendications précédentes, comprenant en outre une poignée (34).

7. Élément de fixation selon la revendication 6, dans lequel ladite poignée (34) comporte un trou conique (36) pour recevoir ladite deuxième extrémité de l'arbre.

8. Élément de fixation selon la revendication 6 ou la revendication 7, dans lequel ledit trou conique (36) comprend un trou conique borgne.

9. Élément de fixation selon l'une quelconque des revendications 6 à 8, dans lequel ladite poignée (34) comprend une rainure de clavette (40) formée sur la surface interne dudit trou conique.

10. Élément de fixation selon l'une quelconque des revendications 6 à 9, dans lequel la poignée (34) comporte un trou fileté (44) entre sa surface interne et le trou conique (36), et dans lequel une vis (46) est agencée dans ledit trou fileté.

11. Élément de fixation selon la revendication 10, dans lequel ladite vis (46) est une vis sans tête.

12. Élément de fixation selon la revendication 1, comprenant en outre une poignée (34) comportant un trou conique (36) pour recevoir ladite deuxième extrémité de l'arbre, et dans lequel

le cône (32) comporte un évidement (42) pour recevoir un élément de fixation (46) ;
la poignée (34) comporte un trou fileté (44) entre sa surface externe et le trou conique (36), et dans lequel une vis (46) est agencée dans ledit trou fileté (44) de sorte à s'étendre à travers ledit trou conique (36) dans ledit évidement (42).

13. Élément de fixation selon l'une quelconque des revendications précédentes, comprenant en outre un dispositif de fixation à crémone, lesdits verrous étant entraînés par la poignée par l'intermédiaire du dispositif à crémone.

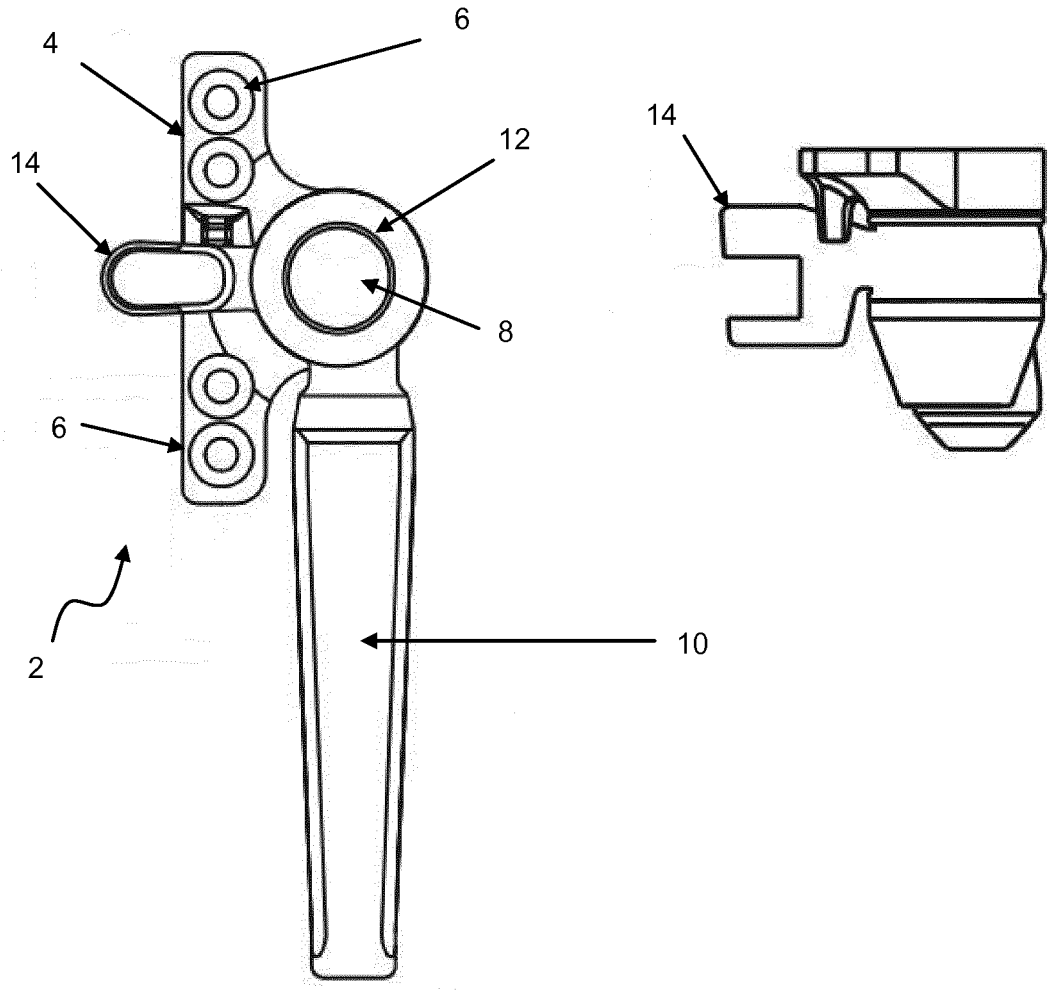

Figure 1

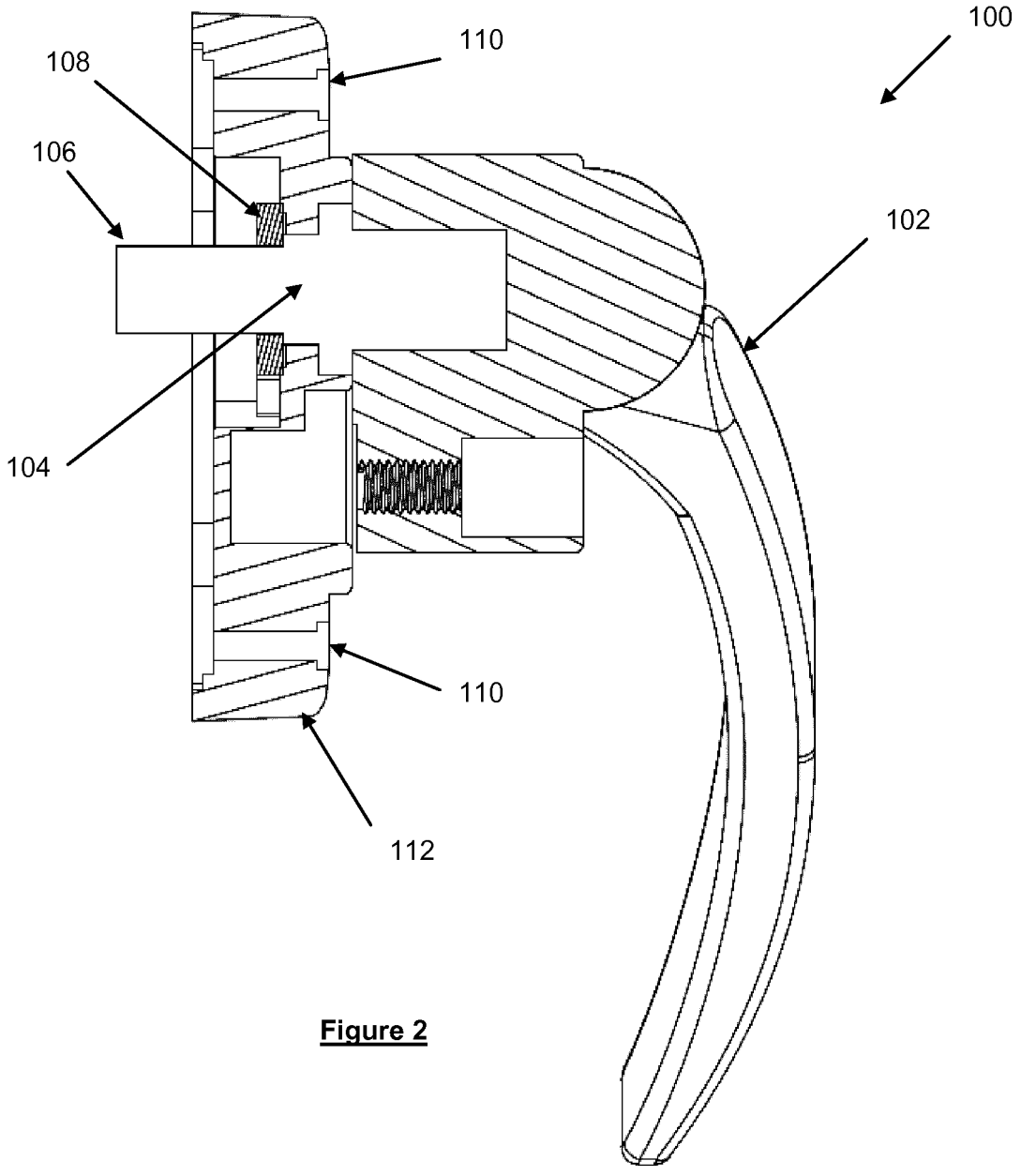

Figure 2

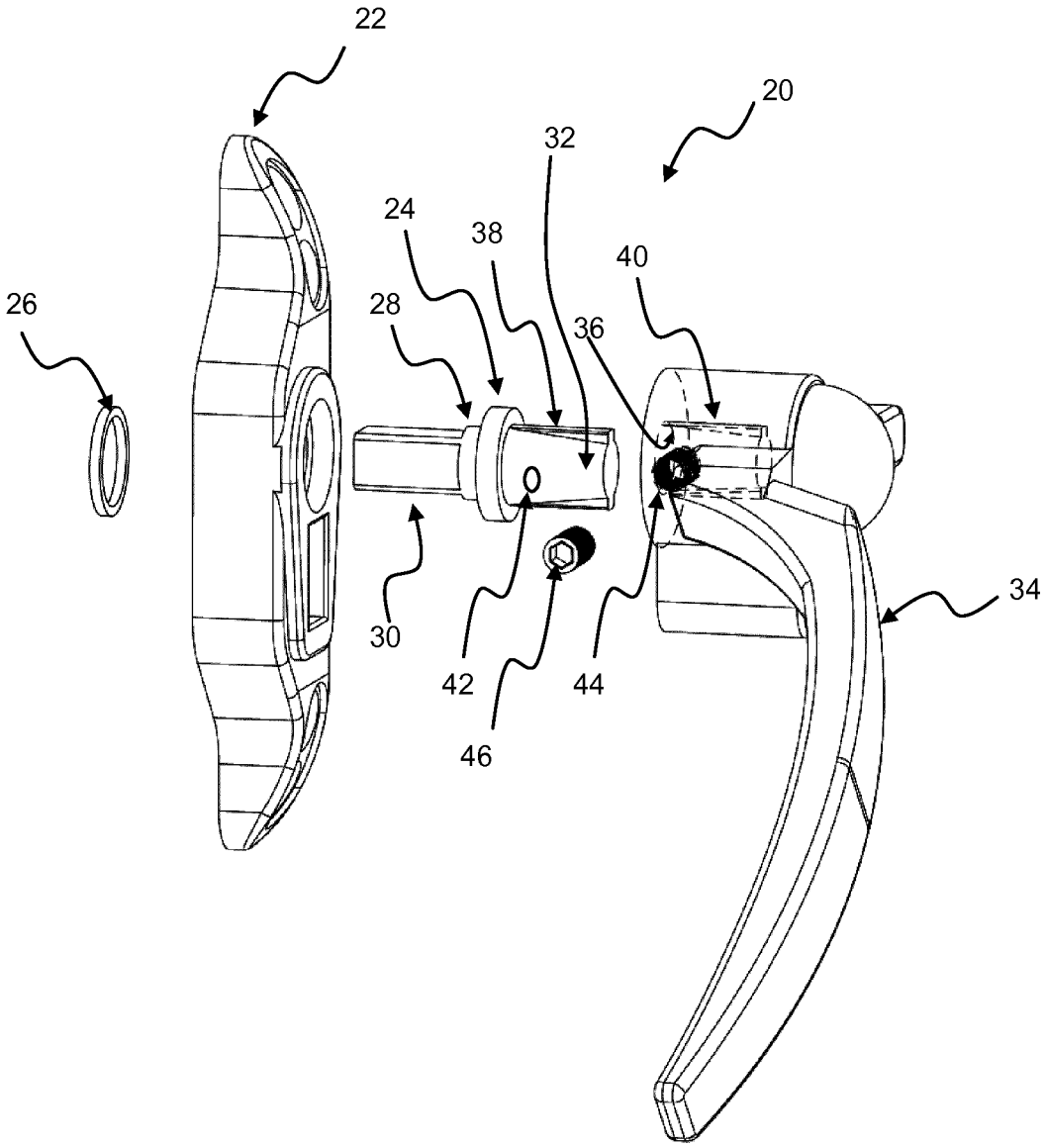

Figure 3

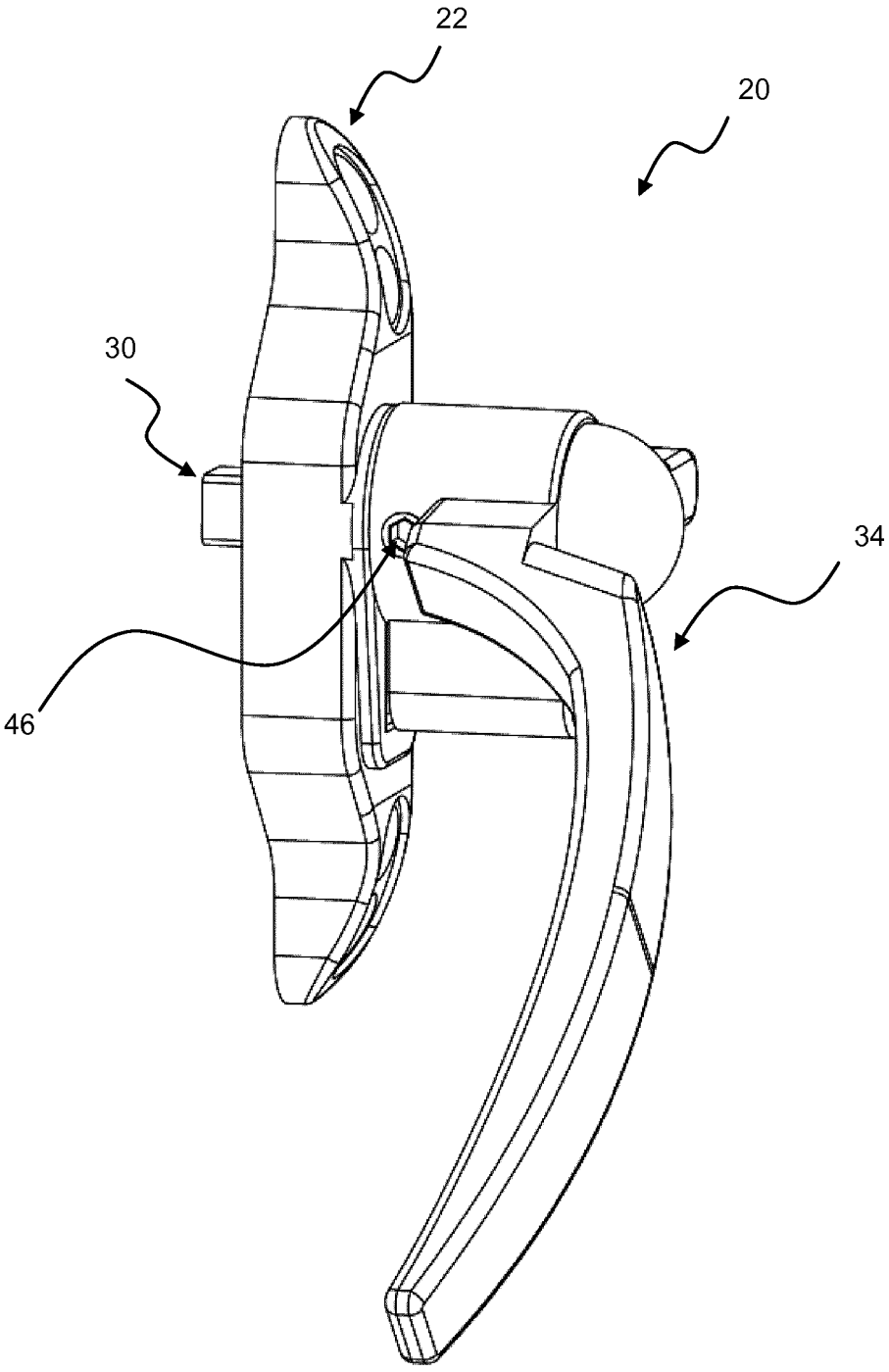

Figure 4

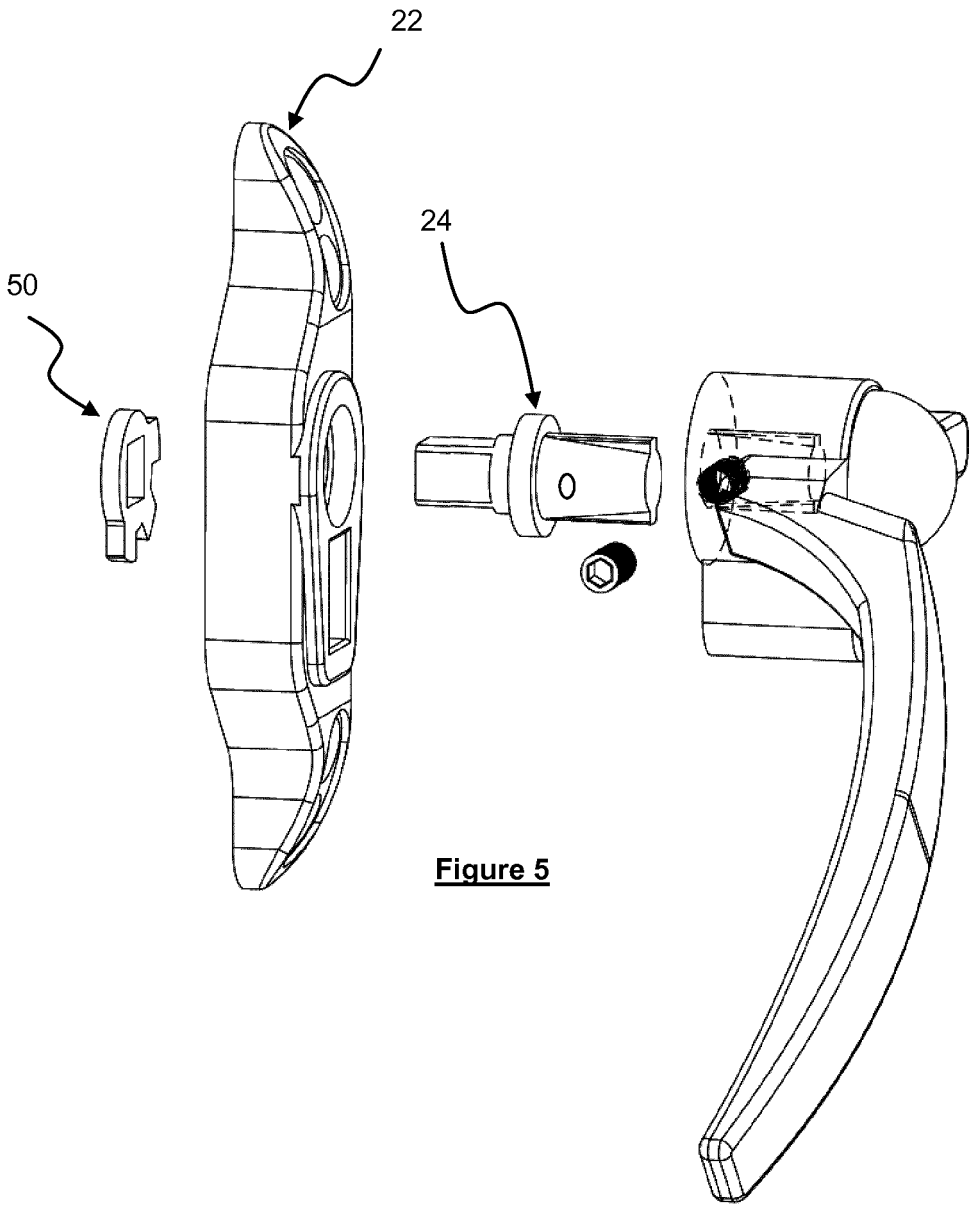

Figure 5

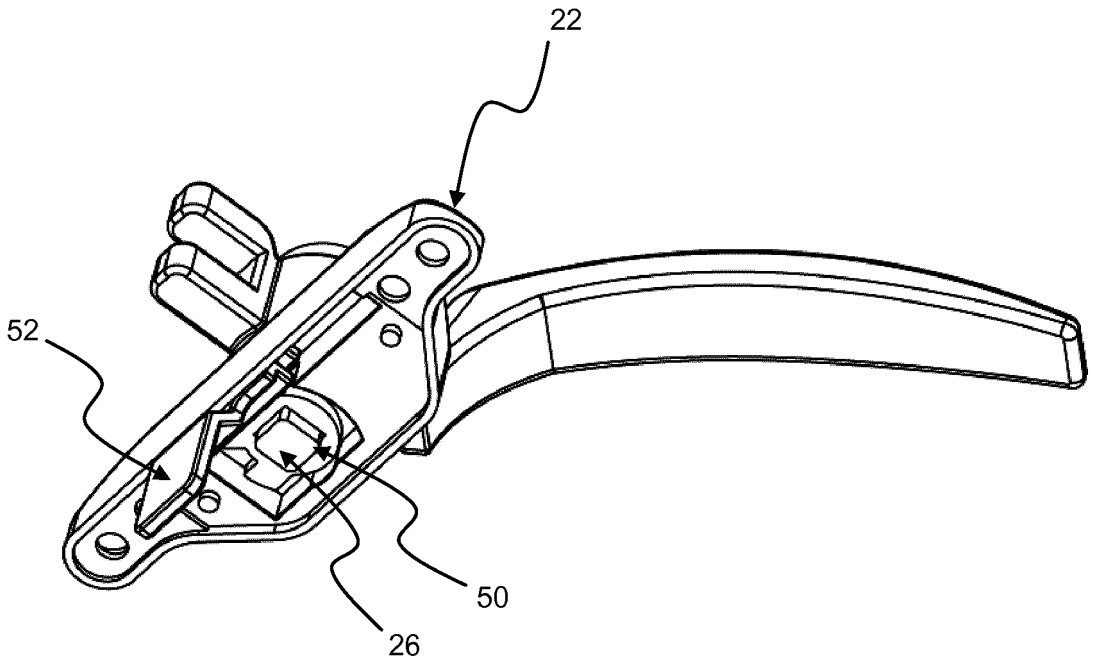

Figure 6

REFERENCES CITED IN THE DESCRIPTION

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