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(71) Applicant: **Grouphomesafe Limited**
Henlow Camp
Bedfordshire
SG16 6DS (GB)

(72) Inventor: **Shenton, Nigel**
Wolverhampton WV10 6PZ (GB)

(74) Representative: **Oxley, Robin John George**
Marks & Clerk LLP
Alpha Tower
Suffolk Street Queensway
Birmingham B1 1TT (GB)

(54) Fastener for a window or a door

(57) A fastener for a closure is provided which has a fastener body 22 for attachment to the closure and a pivotal shaft 24 extending through the fastener body 22. The shaft 24 has a first end located on one side of the fastener body, and a second end located on a second side of the fastener body so that the second end extends in a direction away from the closure. The first end is profiled to drive one or more latches to secure the closure; and the second end is provided with a taper for receiving a handle thereon.

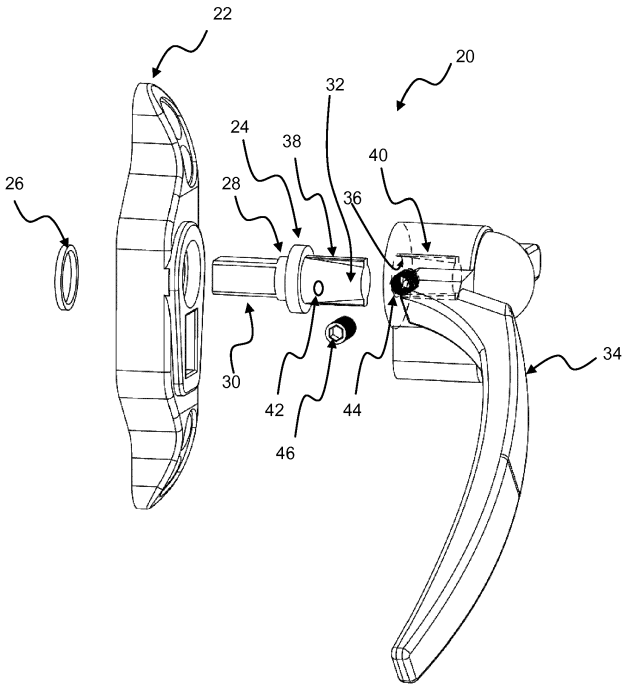

Figure 3

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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] 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.

[0006] 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.

[0007] The taper may be a machine taper, preferably a Morse taper. The taper can retain the handle on the shaft.

[0008] The shaft may be provided with at least one key extending therefrom.

[0009] The taper may be provided with a recess therein for receiving a further fastener. 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.

[0010] 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.

[0011] The handle can be provided with a keyway formed on the interior surface of its tapered hole.

[0012] 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.

[0013] 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.

[0014] The fastener may further comprise latches and an espagnolette fastening device and said latches are driven by the handle via the espagnolette device.

[0015] 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.

[0016] 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.

[0017] 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.

[0018] Referring to Figures 3 and 4 a fastener 20 of the present invention is shown.

[0019] 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.

[0020] 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

[0021] 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.

[0022] 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.

[0023] In addition, or alternatively, the tapered end of the shaft 24 may be provided with a recess 42 therein and 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.

[0024] 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.

[0025] 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.

[0026] 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.

[0027] 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 for a closure comprising:

a fastener body for, in use, attachment to said 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 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 for receiving a handle thereon.

2. The fastener according to claim 1 wherein the taper is provided with a recess therein for receiving a fastener.

3. The fastener according to claim 1 or claim 2 wherein the taper is a machine taper.

4. The fastener according to claim 3 wherein the taper is a Morse taper

5. The fastener according to claim 3 or claim 4 wherein the taper retains the handle on the shaft.

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

7. The fastener according to any preceding claim further comprising a handle.

8. The fastener according to claim 7 wherein said handle has a tapered hole therein for receiving said second end of the shaft.

9. The fastener according to claim 7 or claim 8 wherein said tapered hole comprises a blind tapered hole.

10. The fastener according to any one of claims 7 to 9 wherein said handle comprises a keyway formed on the interior surface of said tapered hole.

11. The fastener according to any one of claims 7 to 10 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.

12. The fastener according to claim 11 wherein said screw is a grub screw.

13. The fastener according to claim 1 further comprising a handle having a tapered hole therein for receiving said second end of the shaft, and wherein
the taper is provided with a recess therein for receiving a fastener;
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.

14. 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.

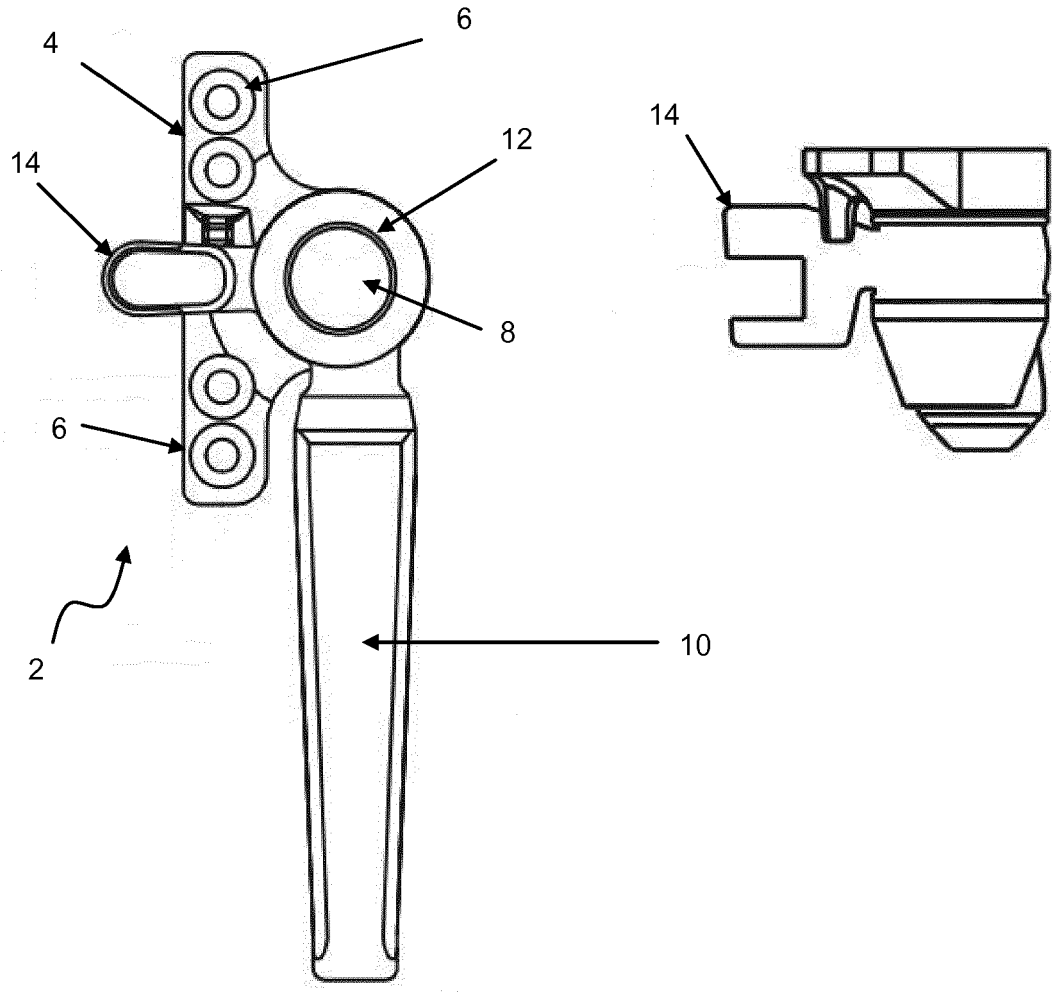

Figure 1

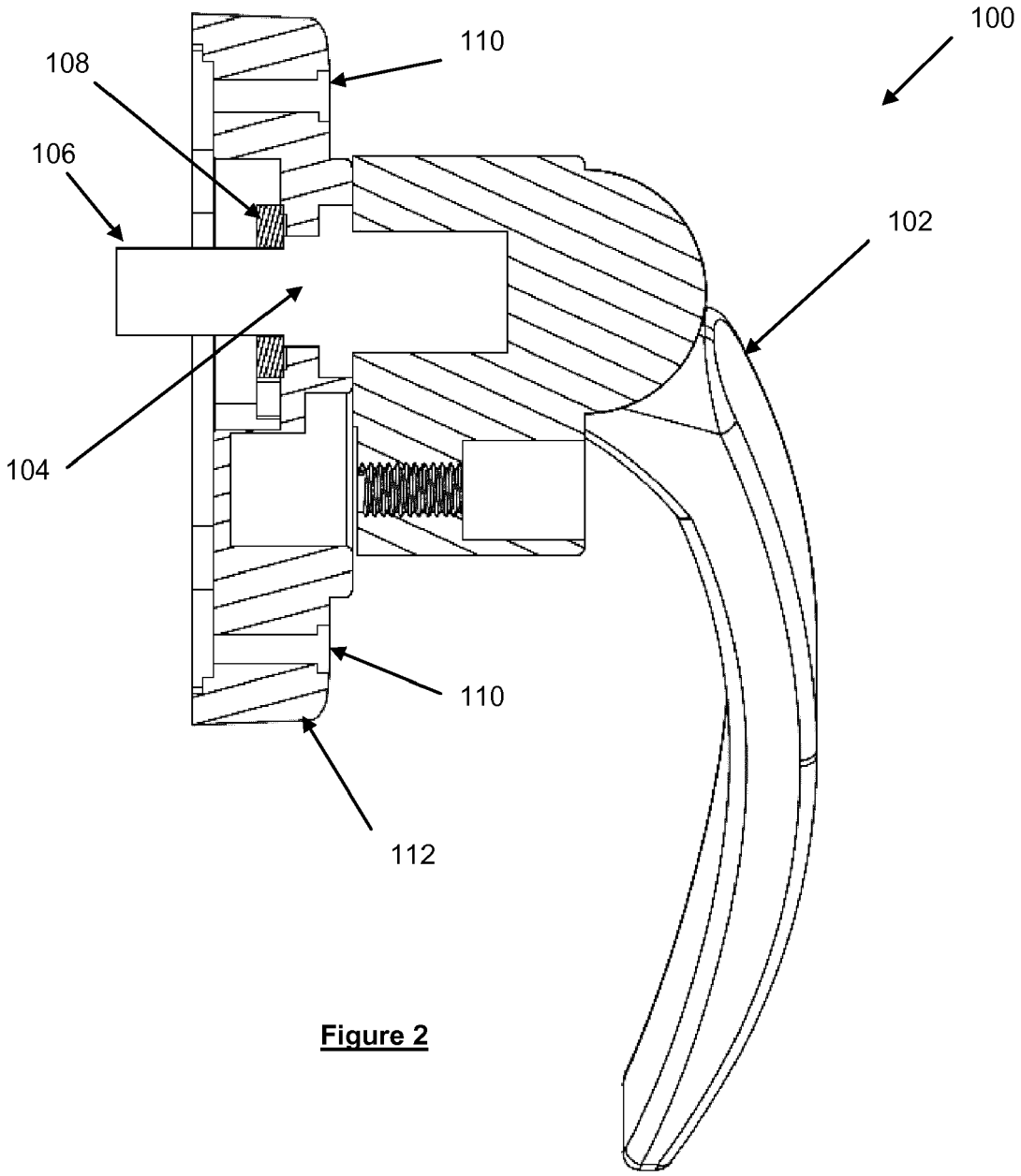

Figure 2

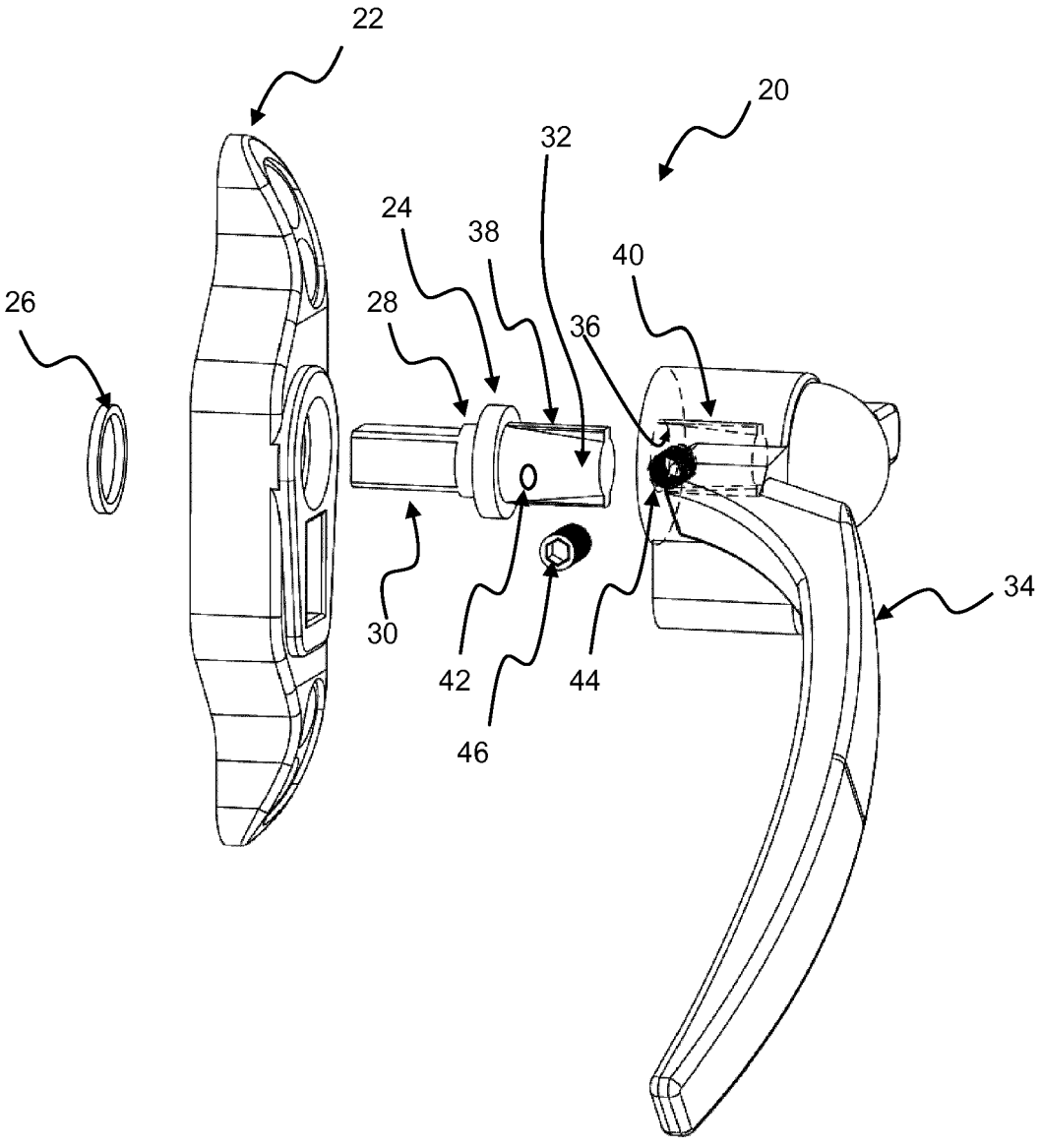

Figure 3

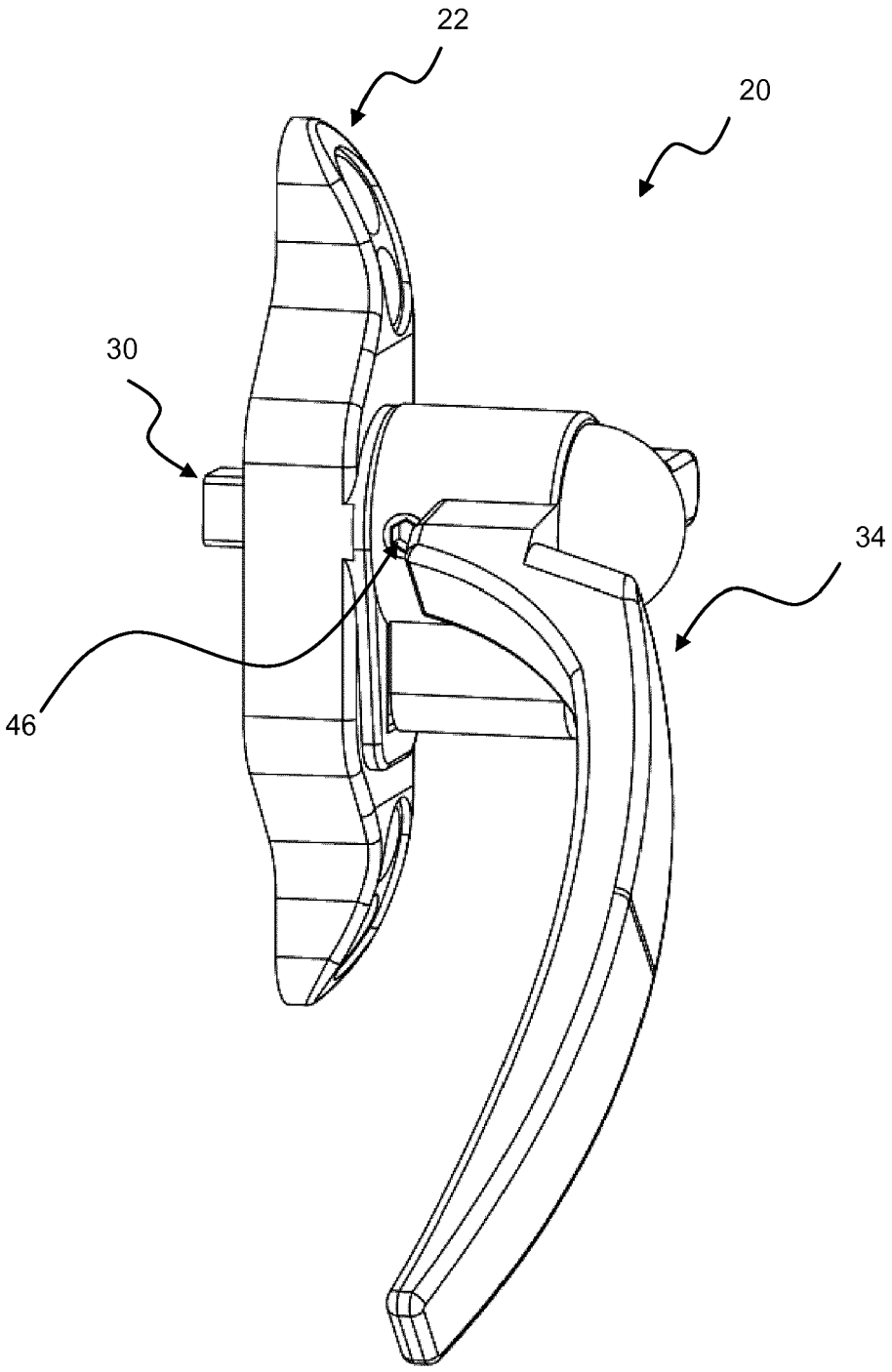

Figure 4

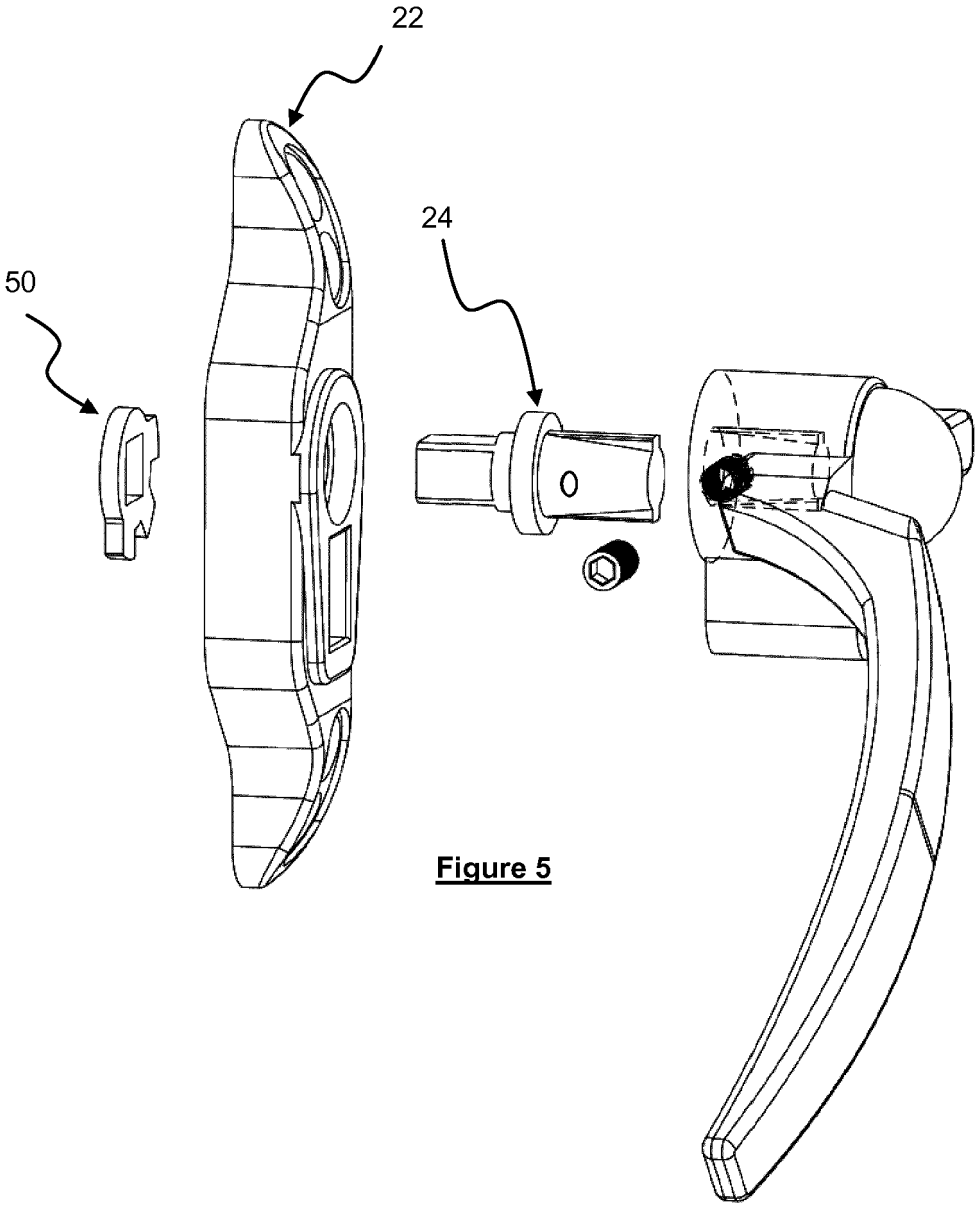

Figure 5

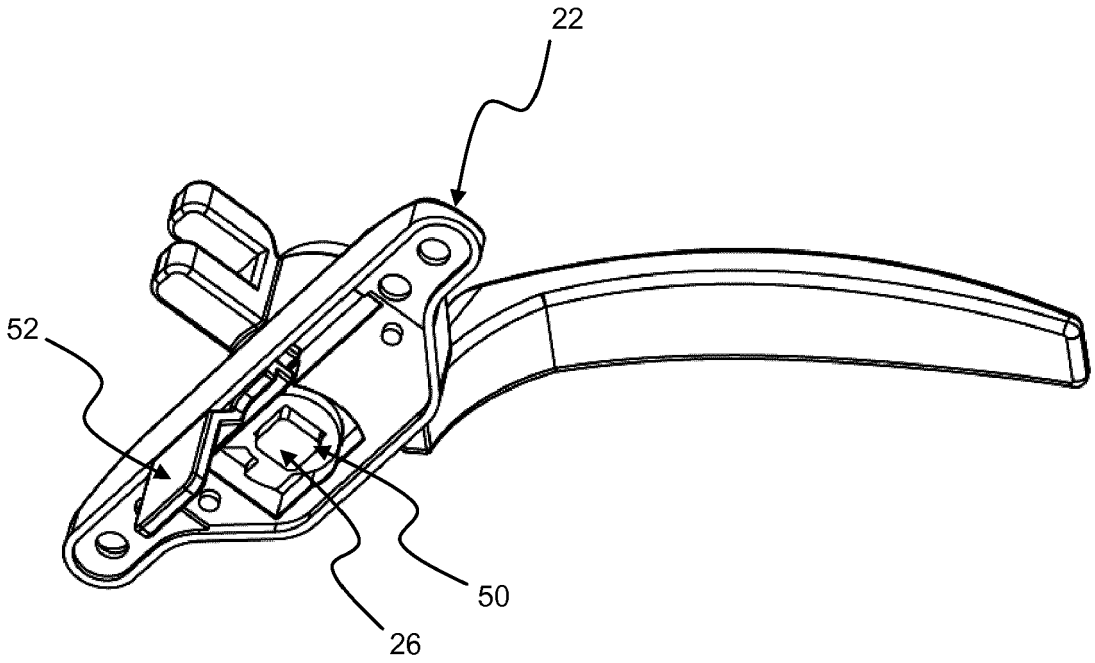

Figure 6