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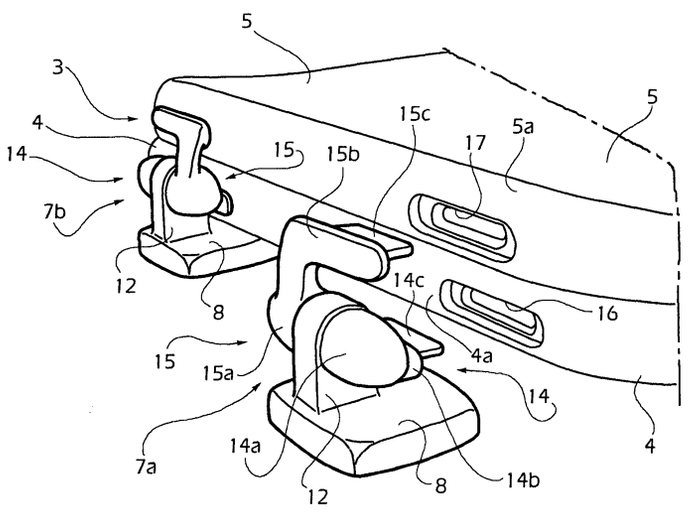
(54) Hinge arrangement for a toilet bowl seat and lid

(57) The hinge arrangement enables a closure assembly (3) including a seat (4) and a lid (5) to be hinged (6) to a toilet bowl (1, 2) and includes a pair of hinges (7a, 7b) each including in turn

a support base (8) for fixing to a rear part (2) of the bowl (1);
an upright member (12) extending upwards from the base (8);
a transverse pin (13) carried by the upper end of the upright member (12); and
first and second hinge elements (14, 15) each including a respective bush portion (14a, 15a) mounted for rotation on the pin (13), and respective arms (14b, 15b) for securing to the lid (5) and the seat (4) respectively.

The hinge arrangement (6) is characterised in that the arms (14b, 15b) of the hinge elements (14, 15) are made so as to be fitted to the rear edge surface of the lid (5) and the seat (4) respectively, each having an integral formation (14c, 15c) in the shape of a blade, for embedding in a corresponding seat or slot (16, 17) in the rear edge of the lid (5) and the seat (4) respectively so that, once assembled for use, the said arms (14b, 15b) are substantially invisible.

Fig. 2



EP 1 452 117 A2

Description

[0001] The present invention relates to a hinge arrangement for a closure assembly for a toilet bowl including a seat and a lid, the hinge arrangement being of the type including a pair of separate hinges, each of which comprises, in turn:

a support base for fixing to a rear part of the bowl,
an upright member extending upwards from the base,
a transverse pin, horizontal in use, carried by the free end of the upright member, and
first and second hinge elements, each including a respective bush portion, mounted for rotation on the pin, and respective arms for fixing to the lid and the seat ring respectively.

[0002] A hinge arrangement of this type is described for example in the international patent application W096/29923. In this known arrangement one arm of one hinge element of each hinge is fixed to the lower surface of the lid and is thus visible when the lid is open for use. In addition, in this hinge arrangement the arms for fixing the hinge elements are secured to the seat ring and to the lid by screws.

[0003] One object of the present invention is to provide a hinge arrangement of the type specified above, in which, when fitted for use, the arms of the hinge elements are substantially invisible, both when the lid of the toilet bowl is closed and when it is open.

[0004] A further object of the invention is to provide a hinge arrangement suitable to be preassembled with the closure assembly (seat ring and lid) of a toilet bowl, thereby freeing the user from awkward assembly operations.

[0005] These and other objects are achieved according to the invention by providing a hinge arrangement of the type described above, characterised in that the arms of the hinge elements are made in such a way that they are mounted to the rear edge surface of the lid and of the seat ring respectively and are each formed in one piece, essentially in the shape of a blade, so that they can be fitted, preferably with interposition of an adhesive, into corresponding slots in the rear edge of the lid and of the seat ring respectively, in such a way that they are substantially invisible when mounted for use.

[0006] Further characteristics and advantages of the hinge arrangement of the invention will become apparent from the detailed description which follows, provided purely by way of non-limitative example, with reference to the appended drawings, in which:

Figure 1 is a perspective view showing part of a toilet bowl and associated closure assembly with a hinge arrangement according to the present invention;
Figure 2 is a partial perspective view, partially exploded, of a closure assembly for a toilet bowl with a hinge arrangement according to the present invention comprising a pair of hinges, one of which is shown separated from the closure assembly;
Figure 3 is a partially exploded perspective view of the hinge arrangement according to the invention; and
Figure 4 is an exploded perspective view of part of the hinge arrangement according to the invention.

[0007] In Figure 1, a toilet bowl of a type known per se is indicated 1. Figure 1 shows only a portion of the rear rim 2, with a closure assembly generally indicated 3 pivoted thereon.

[0008] In a way which is also known, the closure assembly 3 includes a seat ring 4 and a lid 5.

[0009] This closure assembly 3 is pivoted on the rim 2 of the toilet bowl 1 by a hinge arrangement generally indicated 6 and including a pair of hinges 7a and 7b, on the right and left respectively.

[0010] In the embodiment illustrated by way of example, the hinges 7a and 7b are specularly symmetrical. It is however possible to make these hinges identical and thus interchangeable.

[0011] Each hinge 7a or 7b includes a support base 8 for fixing it to the rear portion 2 of the bowl 1. In a manner known per se, the base 8 of each hinge can be fixed to the bowl 1 with an interposed seal, such as that indicated 9 in Figure 3, by means of a threaded pin 10 which is screwed into a corresponding threaded seat formed in the lower surface of the base 8, with a nut 11 (see Figure 3) tightened onto it below the rear rim 2 of the bowl 1.

[0012] The method of fixing each hinge to the rear rim of the toilet bowl is in fact irrelevant to the scope of the present invention and could be different from that described above.

[0013] An upright member 12 extends upwards from the base 8 of each hinge, bearing a transverse pin 13, which is horizontal in use, on its distal end. In the embodiment illustrated, each end of the pin 13 projects from the upright 12.

[0014] Each hinge comprises a first and a second hinge element, indicated 14 and 15, including respective bush portions 14a and 15a, mounted for rotation on the pin 13, and respective arms 14b and 15b for fixing to the lid 5 and the seat 4 respectively.

[0015] The said arms 14b, 15b of the hinge elements 14 and 15 are substantially L-shaped, with a proximal branch substantially orthogonal to the axis of the pin 13 and a distal branch substantially parallel thereto. As can be seen in particular from Figure 2, pairs of slots are formed in the rear edges 4a and 5a of the seat 4 and the lid 5 respectively and are indicated 16 in the seat ring 4 and 17 in the lid 5.

[0016] The arms 14b and 15b of the hinge elements each have an integral formation 14c and 15c, essentially in the form of a blade, for embedding in the aforesaid

rear slots 16 and 17 respectively in the seat ring 4 and the lid 5, preferably with the addition of an adhesive. Once the formations have been fitted, the arms of the hinge elements are held on the rear faces of the peripheral edges of the seat ring 4 and the lid 5, so that in the condition, mounted for use, the said arms are substantially invisible.

[0017] In addition to this aesthetically advantageous characteristic, the arrangement of the invention enables the manufacturer to preassemble the hinges 7a and 7b with the closure assembly 3, whereby the user has no assembly operations to perform. Furthermore, the arrangement of the invention is extremely easy to clean.

[0018] Naturally, the object of the invention remaining unchanged, embodiments and manufacturing details may vary widely from those described and illustrated purely by way of non-limitative example, with the scope of the invention extending to any embodiment providing equivalent use thanks to the same innovative concepts defined in the annexed claims.

Claims

1. A hinge arrangement (6) for a closure assembly (31 for a toilet bowl (1, 2) including a seat ring (4) and a lid (5) ; the hinge arrangement (6) being of the type including a pair of hinges (7a, 7b), each comprising, in turn

a support base (8) for securing to a rear part (2) of the bowl (1);
an upright member (12) extending upwards from the base (8);
a transverse pin (13), horizontal in use, carried by the upper end of the upright member (12); and
first and second hinge elements (14, 15) each including respective bush portions (14a, 15a) mounted for rotation on the pin (13) and respective arms (14b, 15b) for fixing to the lid (5) and the seat ring (40) respectively;
the hinge arrangement (6) being **characterised in that** the arms (14b, 15b) of the hinge elements (14, 15) are made in such a way that they can be secured to the rear edge surface of the lid (5) and the seat ring (4) and each have an integral formation (14c, 15c) , essentially in the form of a blade, for embedding in a corresponding seat or slot (16, 17) formed in the rear edge surface of the lid (5) and the seat ring (4) respectively, whereby in this assembled condition the said arms (14b, 15b) are substantially invisible.

2. A hinge arrangement according to Claim 1, in which the arms (14b, 15b) of the hinge elements (14, 15) are substantially L-shaped, with a proximal branch substantially orthogonal to the axis of the pin (13) and a distal branch substantially parallel thereto, with the respective blade formation (14c, 15c) extending from it.

3. A hinge arrangement according to either preceding Claim, in which the blade formations (14c, 15c) lie in planes parallel to the axis of the pin (13).

4. A hinge arrangement according to any preceding Claim, in which the ends of the pin (13) protrude in opposite directions from the upright member (12), with the bush portions (14a, 15a) of the aforesaid hinge elements (14, 15) mounted for rotation thereon.

Fig. 1

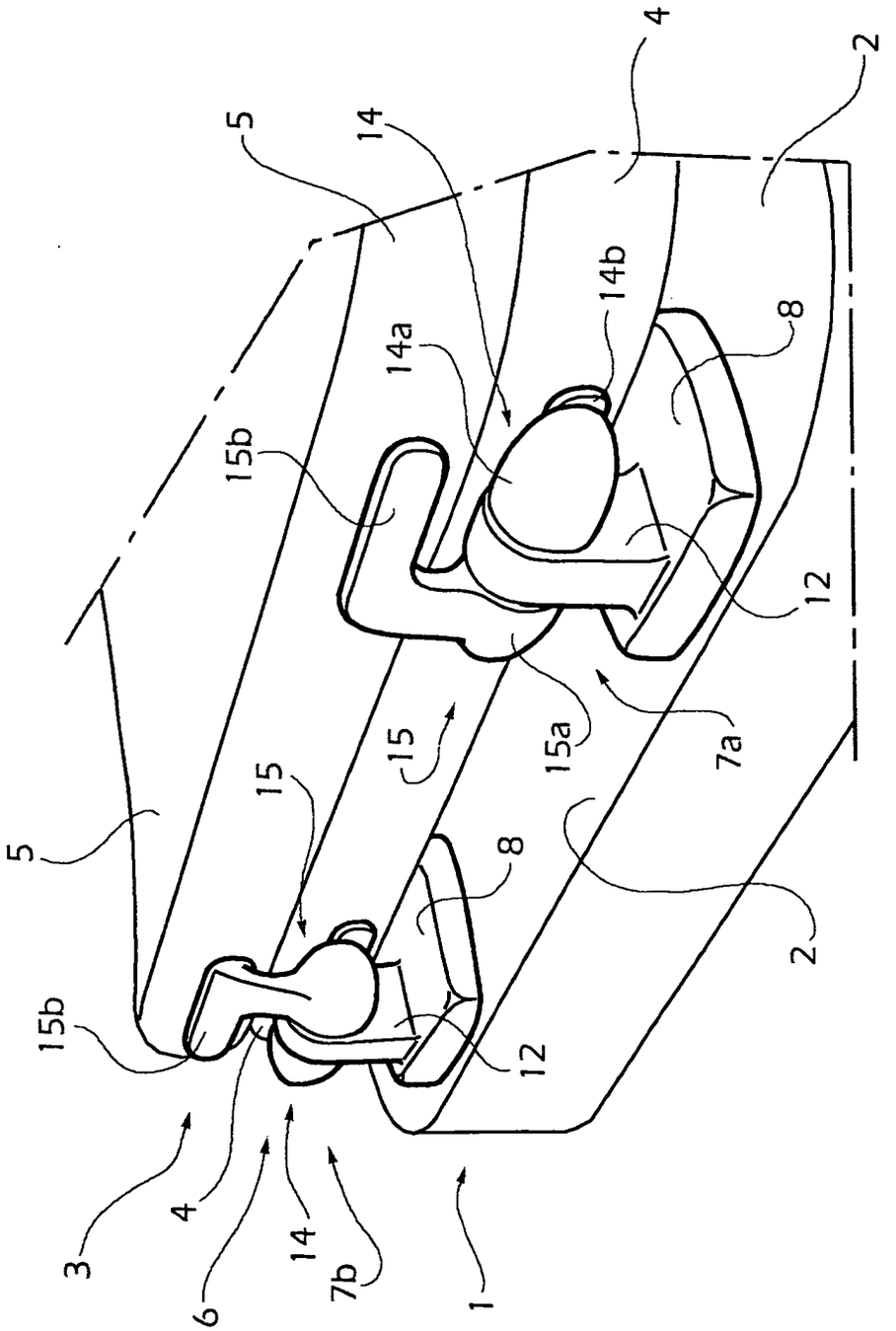


Fig. 2

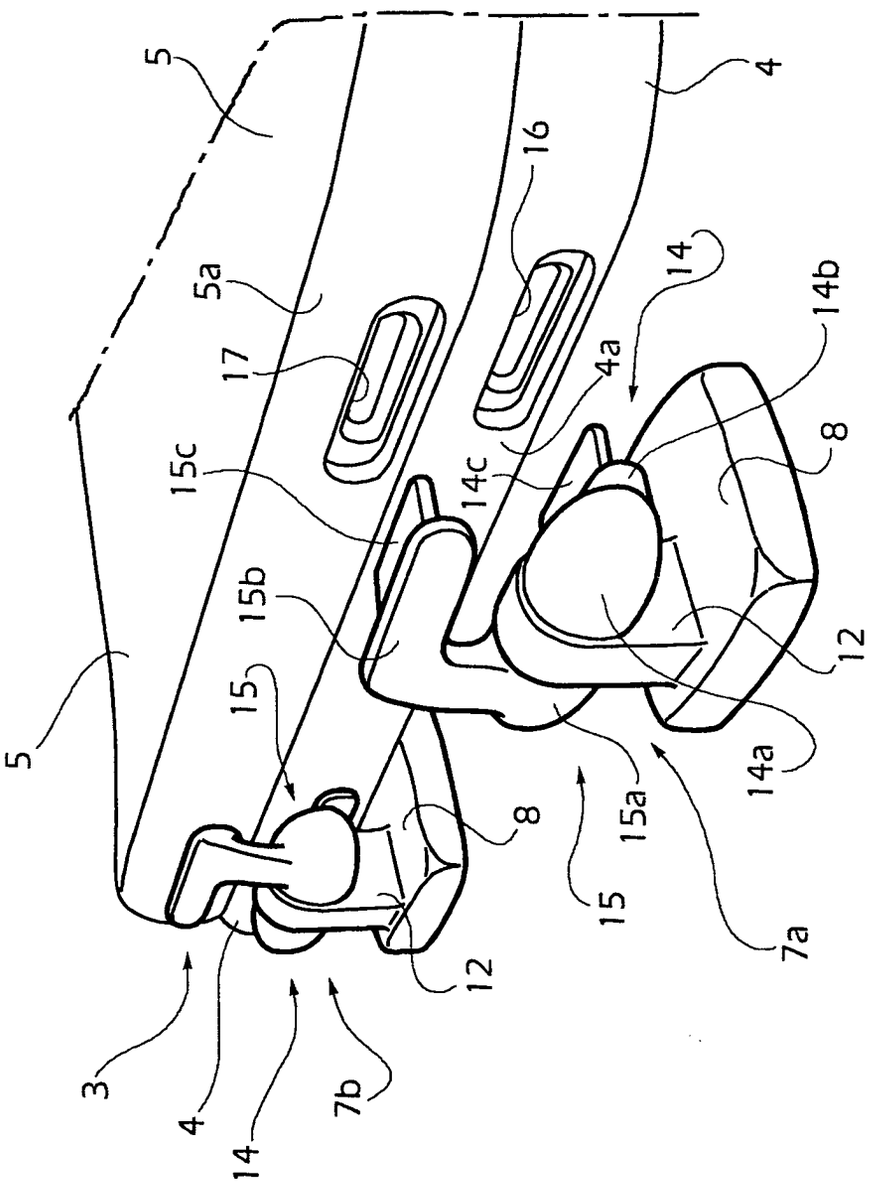


Fig. 3

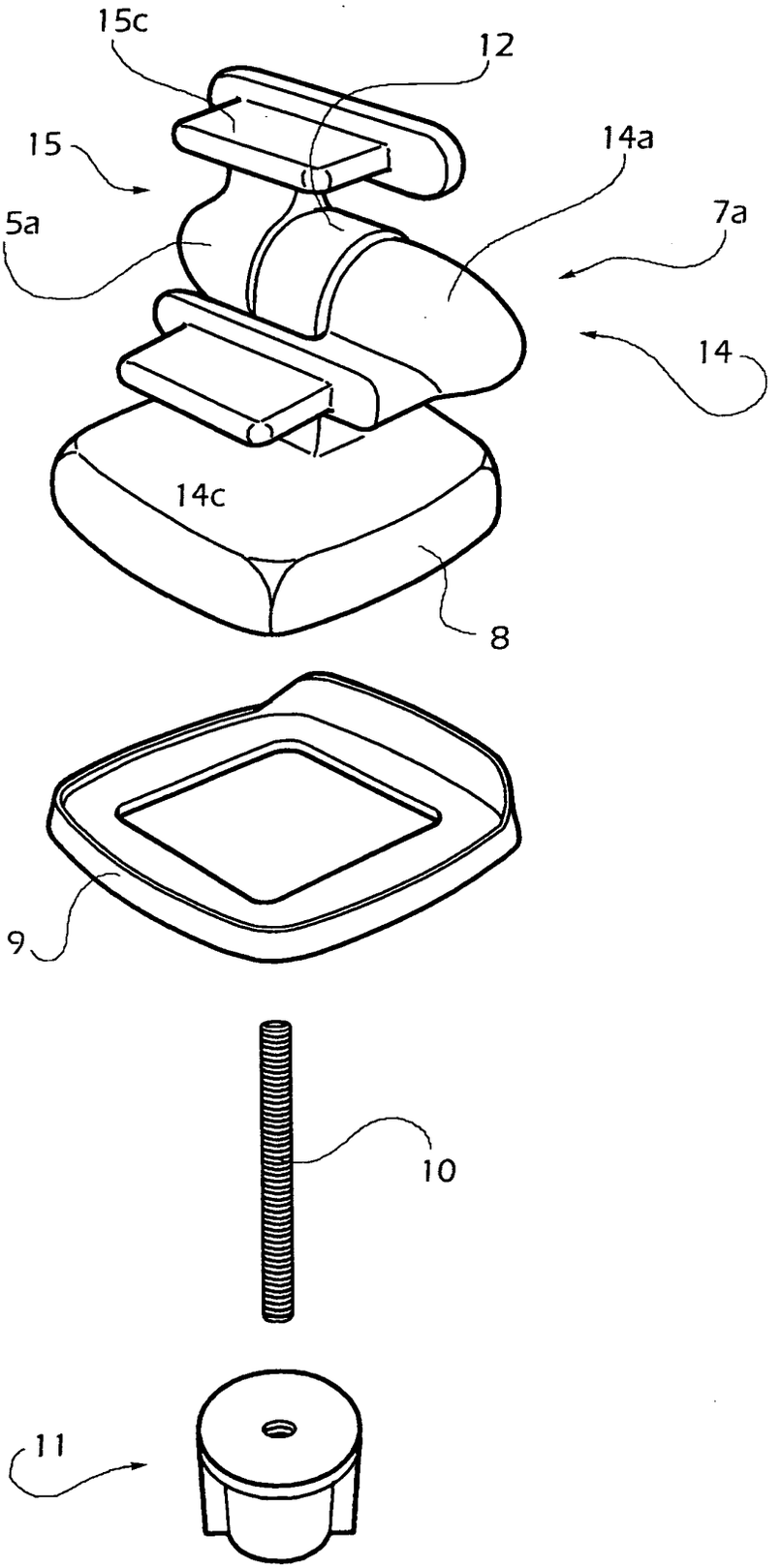


Fig. 4

