(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 277 891 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
02.12.2009 Bulletin 2009/49

(51) Int Cl.:
E03D 1/012 *(2006.01)*

(21) Application number: **02016105.5**

(22) Date of filing: **19.07.2002**

(54) **Lavatory flush tank**

Toilettenspülkasten

Réservoir de chasse d'eau

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

(30) Priority: **20.07.2001 IT MI20011564**

(43) Date of publication of application:
22.01.2003 Bulletin 2003/04

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Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The present invention relates to a lavatory flush tank particularly suitable for recessed installation, and which can be equipped to operate with a front or top control.

[0002] As is known, flush tanks comprise a water tank 'housing a discharge device connected to an external user control by actuating members, which are normally fitted through an opening formed in a front or top wall of the flush tank, depending on where the control is located.

[0003] Some known flush tanks have two openings, one in the front wall and one in the top wall, so that the actuating members of the discharge device can be fitted through either, and the flush tank can be equipped to operate with a front or top control. One example of this type of flush tank having the features of the preamble of claim 1 is described in European Patent Application n. EP-A-867570.

[0004] Flush tanks of this sort, however, have the drawback of requiring a cover for the unused opening to prevent foreign material from falling into the water tank when walling in or otherwise installing the flush tank. Assembling and fastening the cover therefore involve additional, and not always straightforward, work when installing the flush tank.

[0005] It is an object of the present invention to provide a lavatory flush tank designed to eliminate the aforementioned drawbacks. More specifically, it is an object of the invention to provide a recessed flush tank which can be equipped to operate with a front or top control, and which simplifies assembly and installation, while at the same time being cheap and easy to produce.

[0006] According to the present invention, there is provided a lavatory flush tank comprising a box-shaped body defining a water tank and having two through openings for housing control members of a discharge device; said openings being formed adjacent to each other in a front wall and a top wall respectively of said body; and the flush tank being characterized by comprising flip-over cover means rotatably mounted on said body to selectively close either one of said openings.

[0007] The flush tank according to the invention can therefore be equipped to operate with a front or top control, and is quick and easy to assemble and install, while at the same time being cheap and easy to produce.

[0008] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic exploded view in perspective of a lavatory flush tank in accordance with the invention;

Figures 2, 3 and 4 show schematic larger-scale views of respective parts of the Figure 1 flush tank.

[0009] With reference to the accompanying drawings, a lavatory flush tank 1 comprises a box-shaped body 2 defining a water tank; body 2 is substantially prismatic in shape, and comprises a front wall 3, a rear wall 4, two lateral walls 5, a bottom wall 6, and a top wall 7; and bottom wall 6 has an outlet hole (not shown) connected to a bend 8.

[0010] Front wall 3 and top wall 7 have respective through openings 10, 11 for housing control members of a discharge device (all known and not shown for the sake of simplicity). Openings 10, 11 are substantially the same shape and size; are both rectangular; are defined by respective portions of the same opening 12 formed through front wall 3 and top wall 7; are located adjacent to each other along an edge 13 joining front wall 3 and top wall 7; are connected to each other along edge 13; and are defined by respective pairs of opposite lateral edges 14, 15, and by respective end edges 16, 17 connecting respective lateral edges 14, 15.

[0011] In the purely example embodiment shown, lateral edges 14 and end edge 16 of opening 10 project slightly from front wall 3; and, similarly, lateral edges 15 and end edge 17 of opening 11 project slightly from top wall 7.

[0012] In a variation not shown, lateral edges 14 and end edge 16 of opening 10 are recessed slightly with respect to front wall 3, so that opening 10 is set back with respect to the plane of front wall 3; and, similarly, lateral edges 15 and end edge 17 of opening 11 are recessed slightly with respect to top wall 7, so that opening 11 is set back with respect to the plane of top wall 7.

[0013] In a further variation not shown, lateral edges 14 and end edge 16 of opening 10 are flush with front wall 3, so that opening 10 is substantially coplanar with front wall 3; and, similarly, lateral edges 15 and end edge 17 of opening 11 are flush with top wall 7, so that opening 11 is substantially coplanar with top wall 7.

[0014] Whichever the case, lateral edges 14 have respective holes 18a formed through front wall 3; lateral edges 15 have respective holes 18b formed through top wall 7; and holes 18a, 18b are all located a predetermined distance from edge 13.

[0015] Flush tank 1 also comprises a flip-over cover plate 20 rotatably mounted on body 2 to selectively close either of openings 10, 11, and which is therefore so shaped as to fit over either of openings 10, 11 and to cooperate with respective lateral edges 14, 15 and end edges 16, 17. In the non-limiting example shown, cover plate 20 comprises a flat rectangular plate 21, and a cylindrical rod 22 extending along one side 23 of plate 21; plate 21 is connected to rod 22 by a root portion 24, and may either be substantially coplanar with a diametrical plane of rod 22, or (in a variation not shown) extend tangentially from a lateral surface of rod 22; and rod 22 is shorter than side 23.

[0016] Two pins 25 project longitudinally from respective opposite axial ends of rod 22, engage in rotary manner respective rotation seats 26 formed in body 2, are aligned with each other, and define a predetermined axis of rotation R about which cover plate 20 can be rotated

or flipped over into either of two work positions 20a, 20b shown schematically in Figure 3 and in which cover plate 20 covers opening 10 or opening 11 respectively.

[0017] Rotation seats 26 are formed at edge 13, on opposite sides of opening 12; the axis of rotation R extends substantially along edge 13; and pins 25 click inside respective rotation seats 26.

[0018] Cover plate 20 also comprises click-on fastening means for fastening cover plate 20 to body 2 in either of work positions 20a, 20b. More specifically, cover plate 20 comprises a pair of pins 30 fitted symmetrically to plate 21, close to respective opposite lateral ends 31 of plate 21; and each pin 30 comprises two longitudinally opposite end heads 32a, 32b which click inside holes 18a, 18b, so that holes 18a, 18b define respective fastening seats for pins 30.

[0019] Flush tank 1 also comprises a guard frame 40 which selectively fits integrally to either one of openings 10, 11 not closed by cover plate 20. Guard frame 40 is substantially defined by a box 41; and by a radially outer rim 42 which fits over either of openings 10, 11 and cooperates with respective lateral edges 14, 15 and end edges 16, 17. Rim 42 supports a strip 43 projecting perpendicularly from rim 42, on the opposite side to box 41; and two teeth 44 which project perpendicularly from rim 42, substantially parallel to each other and to strip 43, and are located symmetrically at opposite lateral edges of rim 42 and at the same distance from strip 43.

[0020] Teeth 44 are substantially the same shape as end heads 32a, 32b of pins 30, and also click inside holes 18a, 18b, which therefore define respective fastening seats for both teeth 44 and pins 30.

[0021] Box 41 is provided inside with locating pins 45 (only one shown in Figure 4) fitted, for example, to a radially inner peripheral edge of rim 42 and substantially parallel to teeth 44.

[0022] In actual use, cover plate 20 is fitted in rotary manner to body 2 by inserting pins 25 inside respective rotation seats 26. If flush tank 1 is to be set up to operate with a top control (i.e. with the control members of the discharge device housed through opening 11), cover plate 20 is set to work position 20a closing opening 10 and leaving opening 11 open, and is fixed to body 2 by clicking heads 32a of pins 30 inside holes 18a.

[0023] Guard frame 40, on the other hand, is fitted over opening 11 : locating pins 45 are inserted inside opening 11 to guide the guard frame into the correct position; and guard frame 40 is then fixed to body 2 by clicking teeth 44 inside holes 18b.

[0024] Guard frame 40 is prevented from being fitted by mistake over opening 10 (already closed by cover plate 20) by holes 18a already being engaged by pins 30 of cover plate 20 (and therefore unable to receive teeth 44 of guard frame 40), and by cover plate 20 preventing insertion of locating pins 45 inside opening 10. Flush tank 1 is therefore provided with means 46 for preventing guard frame 40 from being fitted over the opening already closed by cover plate 20.

[0025] Conversely, if flush tank 1 is to be set up to operate with a front control (i.e. with the control members of the discharge device housed through opening 10), cover plate 20 is flipped over or rotated about axis of rotation R into work position 20b closing opening 11 and leaving opening 10 open, and is fixed to body 2 by clicking heads 32b of pins 30 inside holes 18b.

[0026] Guard frame 40 is then fitted over opening 10 and fixed to body 2 by clicking teeth 44 inside holes 18a.

[0027] In one possible variation, as opposed to being formed respectively through front wall 3 and top wall 7, holes 18a, 18b are closed by respective covers or thin portions of the walls in which they are formed; and the covers are pierced, when installing flush tank 1, by inserting pins 30 or teeth 44.

[0028] Clearly, changes may be made to the flush tank as described and illustrated herein without, however, departing from the scope of the present invention as defined in the annexed claims.

Claims

1. A lavatory flush tank (1) comprising a box-shaped body (2) defining a water tank and having two through openings (10, 11) for housing control members of a discharge device; said openings being formed adjacent to each other in a front wall (3) and a top wall (7) respectively of said body; and the flush tank being **characterized by** comprising flip-over cover means (20) rotatably mounted on said body (2) to selectively close either one of said openings (10, 11).

2. A flush tank as claimed in Claim 1, **characterized in that** said flip-over cover means comprise a cover plate (20) having pins (25) engaging in rotary manner respective rotation seats (26) formed in said body (2); said cover plate (20) being rotatable about a predetermined axis of rotation (R) to selectively assume either one of two work positions (20a, 20b) in which said cover plate (20) closes a respective opening (10, 11).

3. A flush tank as claimed in Claim 2, **characterized in that** said pins (25) click inside the respective rotation seats (26).

4. A flush tank as claimed in Claim 2 or 3, **characterized in that** said openings (10, 11) are located adjacent to each other along an edge (13) jointing said front wall (3) to said top wall (7); said axis of rotation (R) extending substantially along said edge (13).

5. A flush tank as claimed in Claim 4, **characterized in that** said openings (10, 11) are substantially the same shape and size, are defined by respective portions of a same opening (12), and are connected to

each other along said edge (13).

6. A flush tank as claimed in one of Claims 2 to 5, **characterized by** also comprising first click-on fastening means (30, 18a, 18b) for fastening said cover plate (20) to said body (2) in either one of said work positions (20a, 20b).

7. A flush tank as claimed in Claim 6, **characterized in that** said first click-on fastening means comprise at least one pin (30) carried by said cover plate (20) and having two longitudinally opposite end heads (32a, 32b) which click alternatively inside respective first fastening seats .(18a, 18b) formed in respective lateral edges (14, 15) of said openings (10, 11).

8. A flush tank as claimed in one of Claims 2 to 7, **characterized by** comprising a guard frame (40) which selectively fits integrally to either one of said openings (10, 11) not closed by said cover plate (20).

9. A flush tank as claimed in Claim 8, **characterized by** comprising means (46) for preventing said guard frame (40) from being fitted to the opening closed by said cover plate (20).

10. A flush tank as claimed in Claim 9, **characterized by** comprising second click-on fastening means (44, 18a, 18b) for fastening said guard frame (40) to said body (2).

Patentansprüche

1. Ein Toiletten-Spülkasten (1), der einen kastenförmigen Körper (2) aufweist, der einen Wasserbehälter definiert und zwei Durchgangsöffnungen (10, 11) zum Aufnehmen von Betätigungselementen einer Ableitungsvorrichtung aufweist, wobei die Öffnungen benachbart zueinander in einer vorderen Wand (3) beziehungsweise einer oberen Wand (7) des Körpers ausgebildet sind, und wobei der Spülkasten **dadurch gekennzeichnet, ist, dass** er Wende-Abdeckungsmittel (20) aufweist, die drehbar an dem Körper (2) montiert sind, um wahlweise eine der Öffnungen (10, 11) zu verschließen.

2. Ein Spülkasten gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Wende-Abdeckungsmittel eine Abdeckplatte (20) mit Stiften (25) aufweisen, die drehbar in jeweilige Drehsitze (26) eingreifen, die in dem Körper (2) ausgebildet sind, wobei die Abdeckplatte (20) um eine vorbestimmte Drehachse (R) drehbar ist, um wahlweise eine von zwei Arbeitspositionen (20a, 20b) einzunehmen, in der die Abdeckplatte (20) eine jeweilige Öffnung (10, 11) verschließt.

3. Ein Spülkasten gemäß Anspruch 2, **dadurch gekennzeichnet, dass** die Stifte (25) in die jeweiligen Drehsitze (26) einrasten.

4. Ein Spülkasten gemäß Anspruch 2 oder 3, **dadurch gekennzeichnet dass** die Öffnungen (10, 11) benachbart zueinander entlang eines Randes (13) positioniert sind, der die vordere Wand (3) mit der oberen Wand (7) verbindet, wobei sich die Drehachse (R) im Wesentlichen entlang des Randes (13) erstreckt.

5. Ein Spülkasten gemäß Anspruch 4, **dadurch gekennzeichnet, dass** die Öffnungen (10, 11) im Wesentlichen die gleiche Form und Größe aufweisen, durch jeweilige Abschnitte einer selben Öffnung (12) definiert sind und entlang des Randes (13) miteinander verbunden sind.

6. Ein Spülkasten gemäß einem der Ansprüche 2 bis 5, **dadurch gekennzeichnet, dass** er ferner erste Einrast-Befestigungs-Mittel (30, 18a, 18b) zum Befestigen der Abdeckplatte (20) an dem Körper (2) in einer der Arbeitspositionen (20a, 20b) aufweist.

7. Ein Spülkasten gemäß Anspruch 6, **dadurch gekennzeichnet, dass** die ersten Einrast-Befestigungs-Mittel mindestens einen Stift (30) aufweisen, der von der Abdeckplatte (20) getragen wird und zwei in Längsrichtung entgegengesetzte Endköpfe (32a, 32b) aufweist, die wahlweise in jeweilige erste Befestigungssitze (18a, 18b) einrasten, die in jeweiligen seitlichen Rändern (14, 15) der Öffnungen (10, 11) ausgebildet sind.

8. Ein Spülkasten gemäß einem der Ansprüche 2 bis 7, **dadurch gekennzeichnet, dass** er einen Schutzrahmen (40) aufweist, der wahlweise vollständig zu einer der Öffnungen (10, 11) passt, die nicht durch die Abdeckplatte (20) verschlossen ist.

9. Ein Spülkasten gemäß Anspruch 8, **dadurch gekennzeichnet, dass** er Mittel (46) aufweist, um zu verhindern, dass der Schutzrahmen (40) auf die Öffnung gesetzt wird, die durch die Abdeckplatte (20) verschlossen ist.

10. Ein Spülkasten gemäß Anspruch 9, **dadurch gekennzeichnet, dass** er zweite Einrast-Befestigungsmittel (44, 18a, 18b) zum Befestigen des Schutzrahmens (40) an dem Körper (2) aufweist.

Revendications

1. Réservoir de chasse d'eau (1) comprenant un corps en forme de boîte (2) définissant un réservoir d'eau et comportant deux ouvertures traversantes (10, 11)

pour contenir des éléments de commande d'un dispositif d'évacuation ; lesdites ouvertures étant formées adjacentes l'une à l'autre dans une paroi frontale (3) et une paroi supérieure (7), respectivement, dudit corps ; et le réservoir de chasse d'eau étant **caractérisé en ce qu'**il comprend des moyens de couverture basculants (20) montés de façon rotative sur ledit corps (2) pour fermer sélectivement l'une desdites ouvertures (10, 11).

2. Réservoir de chasse d'eau selon la revendication 1, **caractérisé en ce que** lesdits moyens de couverture basculants comprennent une plaque de couverture (20) comportant des axes (25) s'accouplant de manière rotative avec des assises de rotation (26) respectives formées dans ledit corps (2) ; ladite plaque de couverture (20) étant rotative autour d'un axe de rotation (R) prédéterminé pour occuper sélectivement l'une de deux positions de travail (20a, 20b) dans laquelle ladite plaque de couverture (20) ferme une ouverture (10, 11) respective.

3. Réservoir de chasse d'eau selon la revendication 2, **caractérisé en ce que** lesdits axes (25) s'encliquettent à l'intérieur des assises de rotation (26) respectives.

4. Réservoir de chasse d'eau selon les revendications 2 ou 3, **caractérisé en ce que** lesdites ouvertures (10, 11) sont situées adjacentes l'une à l'autre le long d'un bord (13) joignant ladite paroi frontale (3) à ladite paroi supérieure (7) ; ledit axe de rotation (R) s'étendant sensiblement le long dudit bord (13).

5. Réservoir de chasse d'eau selon la revendication 4, **caractérisé en ce que** lesdites ouvertures (10, 11) sont sensiblement de la même forme et de la même taille, sont définies par des parties respectives d'une même ouverture (12), et sont reliées l'une à l'autre le long dudit bord (13).

6. Réservoir de chasse d'eau selon l'une quelconque des revendications 2 à 5, **caractérisé en ce qu'**il comprend également des premiers moyens de fixation par encliquetage (30, 18a, 18b) pour fixer ladite plaque de couverture (20) audit corps (2) dans l'une desdites positions de travail (20a, 20b).

7. Réservoir de chasse d'eau selon la revendication 6, **caractérisé en ce que** lesdits premiers moyens de fixation par encliquetage comprennent au moins un axe (30) supporté par ladite plaque de couverture (20) et comportant deux têtes d'extrémité opposées longitudinalement (32a, 32b) qui s'encliquettent alternativement à l'intérieur des premières assises de fixation (18a, 18b) respectives formées dans les bords latéraux (14, 15) respectifs desdites ouvertures (10, 11).

8. Réservoir de chasse d'eau selon l'une quelconque des revendications 2 à 7, **caractérisé en ce qu'**il comprend une structure de protection (40) s'insérant sélectivement intégralement dans l'une desdites ouvertures (10, 11) qui n'est pas fermée par ladite plaque de couverture (20).

9. Réservoir de chasse d'eau selon la revendication 8, **caractérisé en ce qu'**il comprend des moyens (46) pour empêcher ladite structure de protection (40) d'être insérée dans l'ouverture fermée par ladite plaque de couverture (20).

10. Réservoir de chasse d'eau selon la revendication 9, **caractérisé en ce qu'**il comprend des seconds moyens de fixation par encliquetage (44, 18a, 18b) pour fixer ladite structure de protection (40) audit corps (2).

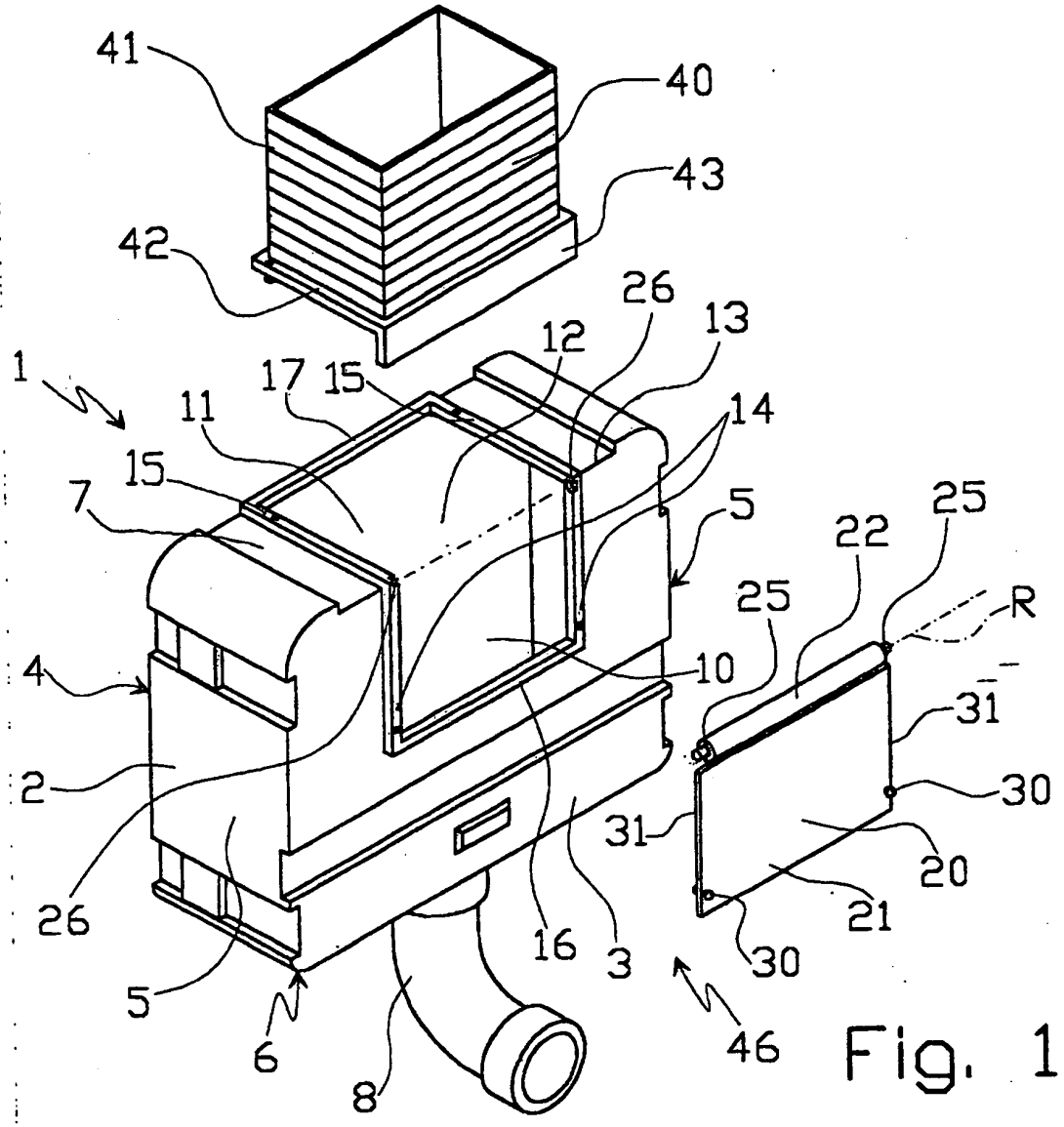
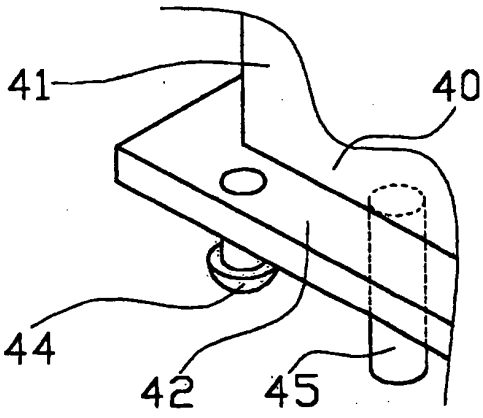

41
40
43
42
26
13
12
1
17
15
11
14
15
7
5
22
25
25
R
4
10
31
2
30
31
20
26
21
16
3
30
5
6
8
46

Fig. 1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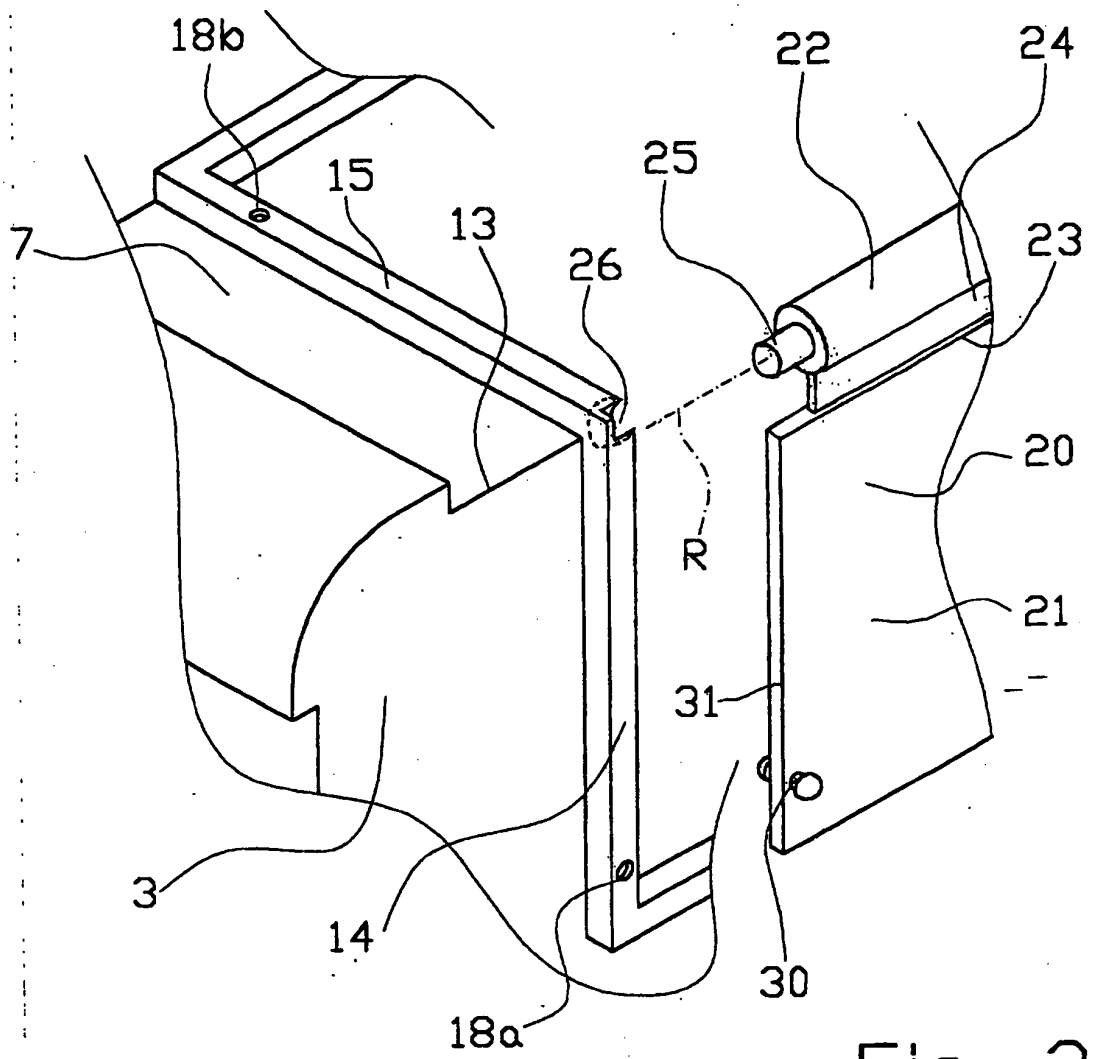
45

Fig. 4


18b
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15
25
7
13
23
26
20
R
21
31
3
14
30
18a

Fig. 2

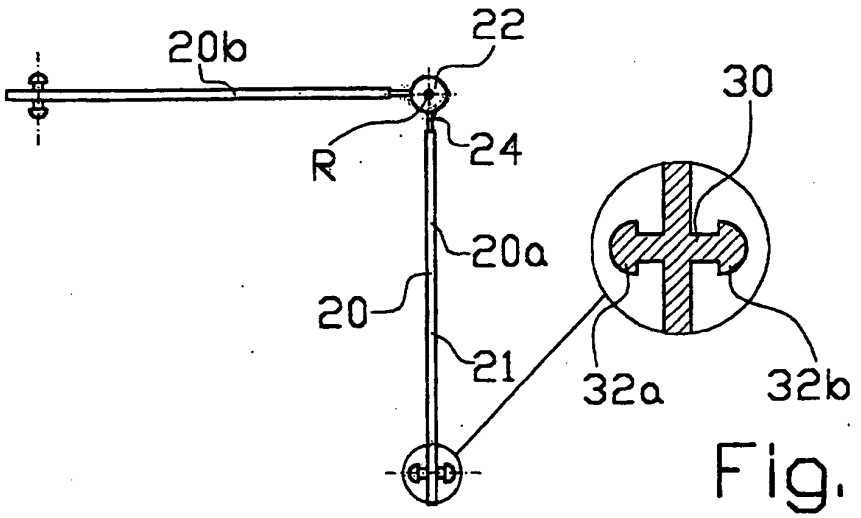
20b
22
30
R
24
20a
20
21
32a
32b

Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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