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(54) **DEVICE FOR FIXING THE TOILET BOWL OF A SUSPENDED TOILET**

VORRICHTUNG ZUR BEFESTIGUNG DES TOILETTENBECKENS EINER HÄNGENDEN TOILETTE
DISPOSITIF POUR FIXER LA CUVETTE DE TOILETTES SUSPENDUES

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Description

[0001] The present invention concerns a device for fixing a toilet bowl, in particular the toilet bowl of a suspended toilet which is equipped with a pulverizer.

[0002] In the known installations, such toilet bowls are fixed to the wall by means of threaded rods and nuts.

[0003] A disadvantage is that in case of repairs, controls or maintenance of the pulverizer, the toilet must be entirely withdrawn, which is labour-intensive.

[0004] Hinge systems for fixing a suspended toilet are already known, whereby the toilet bowl can be laterally turned away.

[0005] From different documents, like for instance JP 03 158.535, DE 20.2006.000 411 and FR 1.221.219, different hinge systems are known which allow to move between a closed position corresponding to a suspension of the toilet bowl and a maintenance position whereby access to the inside of the toilet bowl is possible. The features of the preamble of claim 1 are known from JP-03.158.535, which represents the closest prior art.

[0006] A disadvantage is that the space round a toilet is often restricted, as a result of which it is not possible to turn the toilet away.

[0007] Another disadvantage is that the known toilets are noisy when the pulverization pump is activated.

[0008] Another disadvantage is that nothing is provided in the known systems to smooth away any possible irregularities between the toilet bowl and the finishing layer of the wall.

[0009] Such irregularities may be due to the toilet bowl as deformations have been formed during the drying process of the porcelain, or to the finishing layer of the wall in case of uneven tiling, rough materials or the like.

[0010] Yet another disadvantage is that the sealing between the support and the toilet bowl is filled with silicones, which is unaesthetic.

[0011] The present invention aims to remedy the above-mentioned and other disadvantages by providing a device for fixing the toilet bowl of a suspended toilet, whereby the device is provided with a frame for the fixation in or to a wall and a support onto which the toilet bowl can be fixed, and a mechanism with a drive which makes it possible to move the support in relation to the frame between a closed position corresponding to a suspension of the toilet bowl which is ready for use whereby the support is withdrawn towards the frame and a maintenance position whereby the support is withdrawn from the frame over a certain distance so as to provide access to the inside of the toilet bowl, whereby the mechanism is such that the support initially turns and subsequently or simultaneously moves away from the frame and whereby said mechanism comprises a rocker arm on the one hand which is hinge-mounted with one far end round an axis in the frame and which is hinge-mounted with its other far end to the bottom side of the support (5), and a tumbler on the other hand which is hinge-mounted to the frame, which tumbler is provided with two legs, placed

at a certain angle in relation to one another, whereby one of the above-mentioned legs is hinge-mounted to a rod which, is in turn hinge-mounted to a carriage which can shift in the frame and whereby the other leg is hinge-mounted to a bridge (26) which is in turn hinge-mounted to the top side of the support (5)

[0012] An advantage is that the toilet bowl can be initially turned away from the frame up to a certain distance, to thus gain access for example to the pulverizer and the accompanying electrical components and/or the connections, as a result of which mounting and repair works and small jobs are much easier to carry out.

[0013] Another advantage is that the toilet bowl can be initially turned over a small angle, so that the problem can be located without having to remove the toilet bowl.

[0014] An additional advantage is that the device only requires a restricted overall depth.

[0015] According to a preferred characteristic of the invention, the drive of the device is formed of a nut which can be shifted by means of a mechanical spindle.

[0016] An advantage is that the mechanism can be easily operated by tightening or loosening the nut.

[0017] Another advantage is that any irregularities between the finishing layer of the wall and the toilet bowl can be corrected by the device by tightening the nut in a controlled manner, whereby the bowl is drawn against the wall.

[0018] The support is preferably made in two parts, whereby a first part can work in conjunction with the above-mentioned mechanism and whereby a second part is provided on the toilet bowl, whereby both parts are provided with complementary coupling elements with which these two parts can be fixed to one another, which can be made in the form of laterally protruding gudgeons on the first part and hooks on the second part, such that the second part can be hooked over the protrusions of the first part.

[0019] An advantage is that in case of major repair works, the toilet bowl can be very easily withdrawn from the frame or replaced by another toilet bowl.

[0020] According to a preferred embodiment, the support is further provided with a sealing ring having the contours of the bearing surface of the toilet bowl against the wall.

[0021] An advantage is that the sealing between the toilet bowl and the wall reduces the sound, caused by the working of the pulverization pump, to an absolute minimum.

[0022] An additional advantage is that the sealing always remains in place.

[0023] Another advantage is that, as a result, no silicones have to be used and a nice finishing is thus obtained.

[0024] In order to better explain the characteristics of the invention, the following preferred embodiment of the device according to the invention is described by way of example only, without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 schematically represents a front view of a device according to the invention;
 figure 2 shows a view according to arrow F2 in figure 1 when the device is fully mounted;
 figures 3 to 6 represent the successive steps during the movement from the closed into the maintenance position.

[0025] Figures 1 and 2 schematically represent a device 1 according to the invention for fixing the toilet bowl 2 of a suspended toilet 3.

[0026] The device 1 is mainly formed of a frame 4 to be fixed in or to a wall and a support 5 onto which the toilet bowl 2 can be fixed, whereby the frame 4 is provided with a mechanism 6 which makes it possible to move the support 5 in relation to the frame 4.

[0027] The frame 4 is built of at least two vertical beams 7, 8 placed crosswise on the floor 9 and which are connected to one another by means of one or several cross connections 10, and it is preferably made of metal, either or not finished with powdered enamel.

[0028] As is clearly shown in figure 2, the mechanism 6 comprises among others a rocker arm 11 which is hinge-mounted with one far end 12 round an axis in the frame 4 and which is hinge-mounted with the other far end 13 to the bottom side of the support 5.

[0029] Further, the mechanism comprises a tumbler 14 which is hinge-mounted to the frame 4 and which is provided with two legs 15, 16, placed at a certain angle in relation to one another, preferably almost crosswise to one another.

[0030] In a preferred embodiment, the hinge point 17 with which the tumbler 14 is provided on the frame 4 is situated below the hinge point 18 with which the rocker arm 11 is provided on the frame 4.

[0031] Moreover, the hinge point 17 of the tumbler 14 is further withdrawn from the support 5 than the hinge point 18 of the rocker arm 11.

[0032] The distance A between the front side of the frame 4 and the hinge point 17 of the tumbler 14 may for example amount to 85 mm, whereas the distance B between the hinge point 18 of the rocker arm 11 and said front side may be 25 mm.

[0033] Preferably, the tumbler 14 is provided with a cam 19 opposite an edge 20 of the rocker arm 11 in order to be able to work in conjunction with this edge, whereby the cam 19 may be either or not provided with a wheel 21 with which the cam makes contact with the above-mentioned edge 20.

[0034] One of the legs 15 of the tumbler is hinge-mounted to a rod 22, which is in turn hinge-mounted to a carriage 23 which can slide in the frame 4, whereby the carriage 23 can move vertically in a guide 24 provided to that end..

[0035] The hinge point 18 with which the rocker arm 11 is provided on the frame 4 is situated in the extension of the direction of movement of said carriage 23.

[0036] The hinge, point 25 between the rod 22 and the

carriage 23 is situated between the hinge points 17, 18 with which the rocker arm 11 and the tumbler 14 are fixed to the frame.

[0037] The other leg 16 of the tumbler 14, in particular the leg with the cam 19, is hinge-mounted to a bridge 26 in the given example, which is in turn hinge-mounted to the top side of the support 5.

[0038] The length C of the bridge 26 is preferably smaller than the length D of the rocker arm 11, whereby these lengths may for example amount to 115 mm and 245 mm respectively, measured between the hinge points.

[0039] The mechanism 6 further comprises means which, after an initial rotation and as the drive 27 is activated further, make sure that the support 5 can rotate back in the opposite sense of rotation and that the support 5 can move further away in relation to the frame 4.

[0040] In the given embodiment, the above-mentioned means are made in the shape of the above-mentioned cam 19 and a rising part 28 of the above-mentioned edge 20 of the rocker arm 11 with which the cam 19 can make contact, and which may be inclined in relation to the geometrical axis through the hinge points of the rocker arm 11.

[0041] The shape of the rising part 28 is such that the distance between the point of contact 29 and said axis decreases as the point of contact 29 moves towards the hinge point 18 of the rocker arm 11 on the frame 4.

[0042] In the given embodiment, the drive 27 is formed of a nut 30 provided in the carriage 23 and which can be shifted in the direction of the axis of the hinge point 18 of the rocker arm 11 on the frame 4 by means of a mechanical spindle 31.

[0043] In the given embodiment, the support 5 is made in two parts, whereby one part 32 can be controlled by the mechanism 6 and another part 33 is provided on the toilet bowl 2, and whereby both parts 32; 33 can be fixed to one another by means of complementary coupling elements.

[0044] These coupling elements may for example have the shape of laterally protruding gudgeons 34 on the above-mentioned first part 32 of the support 5 and hooks 35 on the second part 33 of the support 5, such that the second part 33 can be hooked over the protrusions 34 of the first part 32.

[0045] In the given embodiment, two protrusions 34 are provided on the first part 32 of the support 5, situated on the top side and the bottom side of the support 5, and the hinge point of the bridge 36 is situated on the support 5 between these two protrusions 34.

[0046] In a preferred embodiment, a sealing ring 37 is provided having the contours of the bearing surface of the toilet bowl 2 against the wall.

[0047] The device 1 preferably comprises two parallel mechanisms 6 working independently from one another which are connected to one another by means of what is called a balance controller 38 which, in the given example, is formed of a rod which is fixed in a central point 39 to the above-mentioned carriage 23 and which serves

as the topmost hinge point of the rod.

[0048] The rod of the balance controller 38 is in this case fixed to the carriage 23 by means of a connecting piece 40 which is directed slantingly downward, such that the direction of movement of the upper hinge point 25 of the rod 22 is situated between the hinge points 17, 18 with which the tumbler 14 and the rocker arm 11 are fixed to the frame 4.

[0049] The required overall depth E for the device may be smaller than 25 cm, preferably even smaller than 20 cm or even smaller than 18 cm.

[0050] The working of the device 1 is very simple and as follows.

[0051] In the withdrawn position corresponding to the suspension of the toilet bowl 2 that is ready for use, as represented in figure 2, the support 5 of the toilet bowl 2 is withdrawn towards the frame 4 and said support 5 is situated in or against the frame 4, whereby the toilet bowl 2 is tightened against the wall by means of the spindle 31 and whereby the sealing 37 corrects any irregularities in the wall and of the toilet bowl 2, as well as any possible alignment errors of the frame 4 in relation to the wall.

[0052] The rocker arm 11 is parallel to the support 5 and the bridge 26 is directed mainly crosswise to the frame 4. The hinge point 25 of the rod 22 on the carriage 23 is situated closer to the frame 4 than the hinge point 41 of the rod 22 on the tumbler 14.

[0053] The rod 22 is situated at an obtuse angle in relation to the first leg 15 of the tumbler 14.

[0054] The initial rotational movement can be activated by turning the nut, which is provided behind a cover plate in a practical embodiment.

[0055] The thread of the nut 30 can work in conjunction with the thread of the spindle 31, such that the rotation of the nut 30 makes the spindle 31 revolve round its axis, which in turn moves the carriage 23 in the guide 24.

[0056] As the carriage 23 is moved, the rod 22 will hinge round the hinge point 25 with the carriage 23, as a result of which the hinge point 41 of the rod on the tumbler's 14 leg 15 is set in motion.

[0057] As a result, the tumbler 14 starts to turn round its hinge point 17 on the frame 4, whereby the sense of rotation is such that the legs 15, 16 of the tumbler 14 move in the direction of the support 5.

[0058] Thanks to the rotation of the tumbler 14 round its hinge point 17, the angle between the leg 15 of the tumbler 14 which is hinge-mounted to the bridge 26 and the bridge 26 itself will increase.

[0059] As a result, the other far end of the bridge 26 which is connected to the support 5 can turn away from the frame 4, whereby the support 5 revolves round the hinge point 13 on the rocker arm 11, and thus the toilet bowl 2 initially turns away from the frame 4, whereby a gap 42 is created at the top between the toilet bowl 2 and the wall which must allow for a quick visual control of the inside of the toilet bowl 2 and the parts and connections provided therein, as represented in figure 3.

[0060] The dimensions and the shape of the mecha-

nism 6 have been selected such that the angle at which the support 5 initially rotates in relation to the frame 4 is proportional to the angle at which the tumbler 14 rotates in relation to the axis through the hinge point 17.

[0061] During the rotation of the tumbler 14 round the axis through its hinge point 17 on the frame 4, the leg 15 will move in the direction of the rocker arm 11. together with the cam 19 and hit the rocker arm 11 at a given moment, as is represented in figure 5.

[0062] During this revolving motion, the wheel 21 will move in the direction of the hinge point 18 of the rocker arm 11 on the frame 4, whereby, thanks to the movement of the cam 19, the rocker arm 11 round the hinge point 18 will rotate further away from the frame 4 and whereby this rotary motion is a function of the shape and dimensions of the rising part 15 28 at the edge 20 of the rocker arm 11.

[0063] The rising part 28 is preferably such that the support 5 of the toilet bowl 2 moves up and rotates back to finally end up higher above the floor 9 than in the closed position.

[0064] This movement whereby the support turns away from the frame 4 is stopped as soon as the cam 19 reaches the end of the deepened rising part 28, as represented in figure 6.

[0065] At that time, the device 1 is in the maintenance position whereby the support 5 is almost vertical again and the distance between the toilet bowl 2 and the frame 4 amounts to at least 13 cm, better still at least 15 cm, and preferably at least 17 cm, which is sufficiently large to enable a craftsman to carry out the necessary repairs on the inner parts.

[0066] If necessary, the toilet bowl 2 can be simply withdrawn by releasing the hooks 35 of the second part 33 of the support 5 from the protrusions 34 of the first part 32 of the support 5.

[0067] In order to put the toilet bowl 2 in the ready-for-use position again, one only has for the fixation the toilet bowl 2 to the support 5 by means of the hooks 35, after which, by screwing down the nut 30, the toilet bowl 2 will carry out the movement in the opposite sense.

[0068] The nut 30 should hereby be screwed in the direction which is opposite to the direction which is followed when turning out the toilet bowl.

[0069] By tightening the nut 30, the toilet bowl 2 can be drawn against the wall in a controlled manner and irregularities between the finishing layer of the wall and the toilet bowl 2 can be corrected as the balance controller 38 can deal with little tolerances in any direction since the two parallel mechanisms can move independently from one another.

[0070] Consequently, an identical tension force can be obtained in all points of the contact surface between the toilet bowl 2 and the wall.

[0071] It is not excluded according to the invention to apply the device in a suspended toilet without a pulverizer.

[0072] It is not excluded according to the invention to

apply the device in other applications in order to make parts move, whereby these applications are not necessarily sanitary applications.

[0073] The present invention is by no means restricted to the embodiment described by way of example and represented in the accompanying drawings; on the contrary, such a device for fixing the toilet bowl of a suspended toilet according to the invention can be made in all sorts of shapes and dimensions while still remaining within the scope of the invention.

Claims

1. Device (1) for fixing the toilet bowl (2) of a suspended toilet (3), whereby the device (1) is provided with a frame (4) for the fixation in or to a wall and a support (5) onto which the toilet bowl (2) can be fixed, and a mechanism (6) with a drive (27) which makes it possible to move the support (5) in relation to the frame (4) between a closed position corresponding to a suspension of the toilet bowl (2) which is ready for use whereby the support (5) is withdrawn towards the frame (4) and a maintenance position whereby the support (5) is withdrawn from the frame (4) over a certain distance so as to provide access to the inside of the toilet bowl (2), whereby the mechanism (6) is such that the support (5) initially turns and subsequently or simultaneously moves away from the frame (4),
characterised in that the above-mentioned mechanism (6) comprises a rocker arm (11) on the one hand which is hinge-mounted with one far end (12) round an axis in the frame (4) and which is hinge-mounted with its other far end (13) to the bottom side of the support (5), and a tumbler (14) on the other hand which is hinge-mounted to the frame (4), which tumbler is provided with two legs (15,16), placed at a certain angle in relation to one another, whereby one of the above-mentioned legs (15) is hinge-mounted to a rod (22) which is in turn hinge-mounted to a carriage (23) which can shift in the frame (4) and whereby the other leg (16) is hinge-mounted to a bridge (26) which is in turn hinge-mounted to the top side of the support (5).
2. Device (1) according to claim 1, **characterised in that** the legs (15,16) of the tumbler (14) are practically crosswise to one another.
3. Device (1) according to claim 1 or 2, **characterised in that** the hinge point (17) with which the tumbler (14) is provided on the frame (4) is situated lower than the hinge point (18) with which the rocker arm (11) is provided on the frame (4) and at a larger distance from the support (5) than said hinge point (18).
4. Device (1) according to any one of claims 1 to 3,

characterised in that the hinge point (18) with which the rocker arm (11) is provided on the frame (4) is situated in the extension or practically the extension of the direction of movement of the carriage (23).

5. Device (1) according to any one of claims 1 to 4, **characterised in that** the hinge point (25) of the rod (22) on the carriage (23) is situated, as seen in the direction of movement of the carriage, between the hinge point (17) with which the tumbler (14) is provided on the frame (4) and the hinge point (18) with which the rocker arm (11) is provided on the frame (4).
6. Device (1) according to any one of claims 1 to 5, **characterised in that** the length C of the bridge (26) is smaller than the length D of the rocker arm (11).
7. Device (1) according to any one of claims 1 to 6, **characterised in that** the dimensions and the shape of the mechanism (6) are such that the angle at which the support (5) turns in relation to the frame (4) during the initial rotational movement is proportional to the angle at which the tumbler (14) rotates in relation to the axis through the hinge point (17).
8. Device (1) according to any one of claims 1 to 7, **characterised in that** the tumbler (14) is provided with a cam (19) opposite an edge (20) of the rocker arm (11) so as to work in conjunction with the latter, whereby the cam (19) may be either or not provided with a wheel (21) with which the cam (19) can make contact with the above-mentioned edge (20).
9. Device (1) according to claim 8, **characterised in that** the cam (19) is provided on the leg (16) which is hinge-mounted to the bridge (26).
10. Device (1) according to any one of claims 8 to 9, **characterised in that** the mechanism (6) is provided with means which, after the support (5) has been initially turned away from the frame (4), turn back the support (5) in the opposite sense of rotation.
11. Device (1) according to claim 10, **characterised in that** the above-mentioned means are formed of the above-mentioned cam (19) together with a rising part (28) of the above-mentioned edge (20) of the rocker arm (11) with which the cam (19) can make contact, which rising part (28) is provided slantingly in relation to the geometrical axis through the hinge points of the rocker arm (11), and whereby the distance of the point of contact (29) up to this geometrical axis decreases as said point (29) moves towards the hinge point (18) of the rocker arm (11) on the frame (4).
12. Device (1) according to claim 11, **characterised in**

that the rising part (28) of the rocker arm (11) is situated on the far end (12) which is hinge-mounted to the frame (4).

13. Device (1) according to any one of claims 1 to 12, **characterised in that** in the withdrawn, closed position of use, the bridge (26) is directed mainly cross-wise to the frame (4). 5
14. Device (1) according to any one of claims 1 to 13, **characterised in that** the rod (22) and the first leg (15) of the tumbler (14) enclose an obtuse angle in the withdrawn, closed position of use. 10
15. Device (1) according to any one of the preceding claims, **characterised in that** in the maintenance position, the distance between the toilet bowl (2) and the frame (4) amounts to at least 13 cm, better still at least 15 cm, and preferably at least 17 cm. 15
16. Device (1) according to any one of claims 1 to 15, **characterised in that** the drive (27) is formed of a nut (30) provided in the carriage (23) and which can shift in the direction of the axis of the hinge point (18) of the rocker arm (11) on the frame (4) by means of a mechanical spindle (31). 20
17. Device (1) according to any one of claims 1 to 16, **characterised in that** the device (1) comprises two parallel mechanisms (6) working independently from one another which are connected to one another at the hinge point (25) of the rod (22) on the frame (4) by means of a connecting piece (40) which is fixed to the carriage (23). 25
18. Device (1) according to any one of the preceding claims, **characterised in that** the support (5) is made in two parts with one part (32) which can be controlled by the mechanism (6) and a second part (33) which is provided on the toilet bowl (2), whereby both parts (32,33) comprise complementary coupling elements (34,35) with which the two parts (32,33) can be fixed to one another. 30
19. Device (1) according to claim 18, **characterised in that** the first part (32) of the support (5) is provided with laterally protruding gudgeons (34) and **in that** the second part (33) is provided with hooks (35) with which the second part (33) can be hooked over the protrusions (34) of the first part (32). 35
20. Device (1) according to any one of the preceding claims, **characterised in that** the support (5) is provided with a sealing ring (37) having the contours of the bearing surface of the toilet bowl (2) against the wall. 40
21. Device (1) according to any one of the preceding

claims, **characterised in that** the toilet bowl (2) is provided with a pulverizer.

22. Device (1) according to any one of the preceding claims, **characterised in that** the required overall depth E for the device is smaller than 25 cm, better still smaller than 20 cm, or even smaller than 18 cm. 45

Patentansprüche

1. Vorrichtung (1) zur Befestigung des Toilettenbeckens (2) einer Hängetoilette (3), wobei die Vorrichtung (1) mit einem Rahmen (4) zur Befestigung in oder an einer Wand und einer Stütze (5), woran das Toilettenbecken (2) befestigt werden kann, versehen ist, sowie mit einem Mechanismus (6) mit einem Antrieb (27), der es ermöglicht, die Stütze (5) in Bezug auf den Rahmen (4) zwischen einer geschlossenen Position, die einer gebrauchsfertigen Aufhängung des Toilettenbeckens (2) entspricht, wobei die Stütze (5) zu dem Rahmen (4) hin zurückgezogen ist, und einer Wartungsposition, wobei die Stütze (5) von dem Rahmen (4) über einen bestimmten Abstand weggezogen ist, um Zugang zum Inneren des Toilettenbeckens (2) zu gewähren, zu bewegen, wobei der Mechanismus (6) derart ist, dass die Stütze (5) sich anfänglich dreht und sich darauffolgend oder gleichzeitig von dem Rahmen (4) wegbewegt, **dadurch gekennzeichnet, dass** der vorgenannte Mechanismus (6) einerseits einen Kipphebel (11) umfasst, der mit einem Ende (12) scharnierbeweglich um eine Achse in dem Rahmen (4) montiert ist und der mit seinem anderen Ende (13) scharnierbar an der Unterseite der Stütze (5) montiert ist, und andererseits ein Kippelement (14), das scharnierbeweglich an dem Rahmen (4) montiert ist, welches Kippelement mit zwei Schenkeln (15, 16) versehen ist, die in Bezug zueinander in einem bestimmten Winkel angeordnet sind, wobei einer der vorgenannten Schenkel (15) scharnierbeweglich an einer Stange (22) montiert ist, die ihrerseits scharnierbeweglich an einem Schlitten (23) montiert ist, der in dem Rahmen (4) verschiebbar ist, und wobei der andere Schenkel (16) scharnierbeweglich an einer Brücke (26) montiert ist, die ihrerseits scharnierbeweglich an der Oberseite der Stütze (5) montiert ist. 50
2. Vorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Schenkel (15, 16) des Kippelements (14) praktisch quer zueinander gerichtet sind.
3. Vorrichtung (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Scharnierpunkt (17), womit das Kippelement (14) an dem Rahmen (4) angebracht ist, sich niedriger befindet als der Scharnierpunkt (18), womit der Kipphebel (11) an dem Rahmen (4) angebracht ist, und in einem größeren

Abstand von der Stütze (5) als dieser Scharnierpunkt (18).

4. Vorrichtung (1) nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** der Scharnierpunkt (18), womit der Kipphebel (11) an dem Rahmen (4) befestigt ist, sich in der Verlängerung oder nahezu der Verlängerung der Bewegungsrichtung des Schlittens (23) befindet. 5
5. Vorrichtung (1) nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** sich der Scharnierpunkt (25) der Stange (22) an dem Schlitten (23), gesehen in der Bewegungsrichtung des Schlittens, zwischen dem Scharnierpunkt (17), womit das Kippelement (14) an dem Rahmen (4) befestigt ist, und dem Scharnierpunkt (18), womit der Kipphebel (11) an dem Rahmen (4) angebracht ist, befindet. 10
6. Vorrichtung (1) nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** die Länge C der Brücke (26) kleiner ist als die Länge D des Kipphebels (11). 15
7. Vorrichtung (1) nach einem der Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** die Abmessungen und die Form des Mechanismus (6) derart sind, dass der Winkel, über den die Stütze (5) sich während der anfänglichen Schwenkbewegung in Bezug auf den Rahmen (4) dreht, proportional zu dem Winkel ist, über den das Kippelement (14) sich in Bezug auf die Achse durch den Scharnierpunkt (17) dreht. 20
8. Vorrichtung (1) nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** das Kippelement (14) mit einem Nocken (19) gegenüber einem Rand (20) des Kipphebels (11) versehen ist, um damit zusammenzuwirken, wobei der Nocken (19) entweder mit einem Rad (21) versehen sein kann oder nicht, womit der Nocken (19) mit dem vorgenannten Rand (20) in Kontakt kommen kann. 25
9. Vorrichtung (1) nach Anspruch 8, **dadurch gekennzeichnet, dass** der Nocken (19) an dem Schenkel (16) vorgesehen ist, der scharnierbeweglich mit der Brücke (26) verbunden ist. 30
10. Vorrichtung (1) nach einem der Ansprüche 8 bis 9, **dadurch gekennzeichnet, dass** der Mechanismus (6) mit Mitteln versehen ist, die, nach dem anfänglichen Wegschwenken der Stütze (5) von dem Rahmen (4), die Stütze (5) in umgekehrter Drehrichtung zurückschwenken. 35
11. Vorrichtung (1) nach Anspruch 10, **dadurch gekennzeichnet, dass** die vorgenannten Mittel durch den vorgenannten Nocken (19) gebildet werden, zusammen mit einem Rampenteil (28) des vorgenann- 40

ten Randes (20) des Kipphebels (18), womit der Nocken (19) in Kontakt kommen kann, welches Rampenteil (28) in Bezug auf die geometrische Achse durch die Scharnierpunkte des Kipphebels schräg angebracht ist, und wobei der Abstand des Kontaktpunkts (29) zu dieser geometrischen Achse abnimmt, je weiter dieser Punkt (29) sich zu dem Scharnierpunkt (18) des Kipphebels (11) auf dem Rahmen (4) bewegt.

12. Vorrichtung (1) nach Anspruch 11, **dadurch gekennzeichnet, dass** das Rampenteil (28) des Kipphebels (11) sich an dem Ende (12) befindet, das scharnierbeweglich an dem Rahmen (4) montiert ist. 45
13. Vorrichtung (1) nach einem der Ansprüche 1 bis 12, **dadurch gekennzeichnet, dass** in der zurückgezogenen, geschlossenen Gebrauchsposition die Brücke (26) im Wesentlichen quer zu dem Rahmen (4) gerichtet ist. 50
14. Vorrichtung (1) nach einem der Ansprüche 1 bis 13, **dadurch gekennzeichnet, dass** die Stange (22) und der erste Schenkel (15) des Kippelements (14) in der zurückgezogenen, geschlossenen Gebrauchsposition einen stumpfen Winkel einschließen. 55
15. Vorrichtung (1) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** in der Wartungsposition der Abstand zwischen dem Toilettenbecken (2) und dem Rahmen (4) mindestens 13 cm, noch besser mindestens 15 cm und bevorzugt mindestens 17 cm beträgt.
16. Vorrichtung (1) nach einem der Ansprüche 1 bis 15, **dadurch gekennzeichnet, dass** der Antrieb (27) durch eine Mutter (30) gebildet wird, die an den Schlitten (23) angebracht ist und die mittels einer mechanischen Spindel (31) in der Richtung der Achse des Scharnierpunkts (18) des Kipphebels (11) auf dem Rahmen (4) verschiebbar ist.
17. Vorrichtung (1) nach einem der Ansprüche 1 bis 16, **dadurch gekennzeichnet, dass** die Vorrichtung (1) zwei parallele, unabhängig voneinander arbeitende Mechanismen (6) umfasst, die an dem Scharnierpunkt (25) der Stange (22) an dem Rahmen (4) mittels eines Verbindungsstücks (40), das an dem Schlitten (23) befestigt ist, miteinander verbunden sind.
18. Vorrichtung (1) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** die Stütze (5) aus zwei Teilen ausgeführt ist, mit einem Teil (32), das durch den Mechanismus (6) gesteuert werden kann, und einem zweiten Teil (33), das an dem Toilettenbecken (2) vorgesehen ist, wobei die zwei

Teile (32, 33) komplementäre Koppellemente (34, 35) umfassen, womit die zwei Teile (32, 33) aneinander befestigt werden können.

19. Vorrichtung (1) nach Anspruch 18, **dadurch gekennzeichnet, dass** das erste Teil (32) der Stütze (5) mit seitlich vorragenden Zapfen (34) versehen ist und dass das zweite Teil (33) mit Haken (35) versehen ist, womit das zweite Teil (33) über den Vorsprüngen (34) des ersten Teils (32) festgehakt werden kann.
20. Vorrichtung (1) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** die Stütze (5) mit einem Dichtungsring (37) versehen ist, der die Konturen der Stützfläche des Toilettenbeckens (2) an der Wand aufweist.
21. Vorrichtung (1) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** das Toilettenbecken (2) mit einem Mahlwerk versehen ist.
22. Vorrichtung (1) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** die erforderliche Gesamttiefe E für die Vorrichtung kleiner als 25 cm, noch besser kleiner als 20 cm, oder sogar kleiner als 18 cm ist.

Revendications

1. Dispositif (1) pour fixer une cuvette de W.C. (2) d'un W.C. suspendu (3), le dispositif (1) étant muni d'un encadrement (2) pour la fixation dans ou sur un mur et d'un support (4) sur lequel la cuvette de W.C. (2) peut être fixée, et d'un mécanisme (6) comportant un entraînement (27) qui permet de faire passer le support (5) par rapport à l'encadrement (4) d'une position fermée correspondant à une suspension de la cuvette de W.C. (2) qui est prête à l'emploi, dans laquelle le support (5) est rétracté en direction de l'encadrement (4) et une position de maintenance dans laquelle le support (5) est rétracté par rapport à l'encadrement (4) sur une certaine distance pour permettre l'accès à l'intérieur de la cuvette de W.C. (2), le mécanisme (6) étant tel que le support (5) effectue dans un premier temps une rotation et par la suite ou de manière simultanée s'écarte de l'encadrement (4), **caractérisé en ce que** le mécanisme susmentionné (6) comprend un bras oscillant (11) d'une part, qui est monté en articulation avec une de ses extrémités éloignées (12) autour d'un axe dans l'encadrement (4) et qui est monté en articulation avec son autre extrémité éloignée (13) au côté inférieur du support (5), et un culbuteur (14) d'autre part, qui est monté en articulation sur l'encadrement (4), ledit culbuteur étant muni de deux branches (15, 16) disposées de façon à former un certain angle l'une

par rapport à l'autre, une des branches susmentionnées (15) étant montée en articulation sur une tige (22) qui à son tour est montée en articulation sur un chariot (23) qui est à même de se déplacer dans l'encadrement (4), l'autre branche (16) étant montée en articulation sur un pont (26) qui à son tour est monté en articulation sur le côté supérieur du support (5).

2. Dispositif (1) selon la revendication 1, **caractérisé en ce que** les branches (15, 16) du culbuteur (14) sont disposées pratiquement en position transversale l'une par rapport à l'autre.
3. Dispositif (1) selon la revendication 1 ou 2, **caractérisé en ce que** le point d'articulation (17) avec lequel le culbuteur (14) est prévu sur l'encadrement (4) est situé plus bas que le point d'articulation (18) avec lequel le bras oscillant (11) est prévu sur l'encadrement (4) et à une plus grande distance du support (5) que ledit point d'articulation (18).
4. Dispositif (1) selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** le point d'articulation (18) avec lequel le bras oscillant (11) est prévu sur l'encadrement (4) est situé dans le prolongement ou pratiquement dans le prolongement de la direction de déplacement du chariot (23).
5. Dispositif (1) selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** le point d'articulation (25) de la tige (22) sur le chariot (23) est situé, lorsqu'on regarde dans la direction de déplacement du chariot, entre le point d'articulation (17) avec lequel le culbuteur (14) est prévu sur l'encadrement (4) et le point d'articulation (18) avec lequel le bras oscillant (11) est prévu sur l'encadrement (4).
6. Dispositif (1) selon l'une quelconque des revendications 1 à 5, **caractérisé en ce que** la longueur C du pont (26) est inférieure à la longueur D du bras oscillant (11).
7. Dispositif (1) selon l'une quelconque des revendications 1 à 6, **caractérisé en ce que** les dimensions et la configuration du mécanisme (6) sont telles que l'angle de rotation du support (5) par rapport à l'encadrement (4) au cours du mouvement rotatif initial est proportionnel à l'angle de rotation du culbuteur (14) par rapport à l'axe passant par le point d'articulation (17).
8. Dispositif (1) selon l'une quelconque des revendications 1 à 7, **caractérisé en ce que** le culbuteur (14) est muni d'une came (19) à l'opposé du bord (20) du bras oscillant (11) de façon à travailler conjointement avec le dernier cité, la came (19) pouvant être ou non munie d'une roue (21) qui, avec la came (19),

peut entrer en contact avec le bord susmentionné (20).

9. Dispositif (1) selon la revendication 8, **caractérisé en ce que** la came (19) est prévue sur la branche (16) qui est montée en articulation sur le pont (26). 5
10. Dispositif (1) selon l'une quelconque des revendications 8 à 9, **caractérisé en ce que** le mécanisme (6) est muni de moyens qui, après la rotation initiale du support (5) à l'écart de l'encadrement (4), renvoient par rotation le support (5) dans le sens de rotation contraire. 10
11. Dispositif (1) selon la revendication 10, **caractérisé en ce que** les moyens susmentionnés sont constitués par la came susmentionnée (19) conjointement avec une partie surélevée (28) du bord susmentionné (20) du bras oscillant (11), avec laquelle la came (19) peut entrer en contact, ladite partie surélevée (28) étant prévue en inclinaison par rapport à l'axe géométrique passant par les points d'articulation du bras oscillant (11), la distance du point de contact (29) jusqu'à cet axe géométrique diminuant lorsque ledit point (29) se déplace en direction du point d'articulation (18) du bras oscillant (11) sur l'encadrement (4). 20 25
12. Dispositif (1) selon la revendication 11, **caractérisé en ce que** la partie surélevée (28) du bras oscillant (11) est située sur l'extrémité éloignée (12) qui est montée en articulation sur l'encadrement (4). 30
13. Dispositif (1) selon l'une quelconque des revendications 1 à 12, **caractérisé en ce que**, dans la position d'utilisation fermée, rétractée, le pont (26) est orienté principalement en direction transversale par rapport à l'encadrement (4). 35
14. Dispositif (1) selon l'une quelconque des revendications 1 à 13, **caractérisé en ce que** la tige (22) et la première branche (15) du culbuteur (14) forment ensemble un angle obtus dans la position d'utilisation fermée, rétractée. 40
15. Dispositif (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce que**, dans la position de maintenance, la distance entre la cuvette de W.C. (2) et l'encadrement (4) s'élève à au moins 13 cm, encore mieux à au moins 15 cm et de préférence à au moins 17 cm. 45 50
16. Dispositif (1) selon l'une quelconque des revendications 1 à 15, **caractérisé en ce que** l'entraînement (27) est constitué d'une rainure (30) prévue dans le chariot (23) et peut se déplacer dans la direction de l'axe du point d'articulation (17) du bras oscillant (11) sur l'encadrement (4) au moyen d'une broche mé-

canique (31).

17. Dispositif (1) selon l'une quelconque des revendications 1 à 16, **caractérisé en ce que** le dispositif (1) comprend deux mécanismes parallèles (6) travaillant indépendamment l'un de l'autre qui sont reliés l'un à l'autre au point d'articulation (25) de la tige (22) sur l'encadrement (4) au moyen d'une pièce de raccordement (40) qui est fixée au chariot (23). 5 10
18. Dispositif (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le support (5) est constitué par deux parties, une première partie (32) qui peut être commandée par le mécanisme (6) et une deuxième partie (33) qui est prévue sur la cuvette de W.C. (2), les deux parties (32, 33) comprenant des éléments d'accouplement complémentaires (34, 35) avec lesquels les deux parties (32, 33) peuvent être fixées l'une à l'autre. 15 20
19. Dispositif (1) selon la revendication 18, **caractérisé en ce que** la première partie (32) du support (5) est munie de goujons (34) faisant saillie en direction latérale, et **en ce que** la deuxième partie (33) est munie de crochets (35) avec lesquels la deuxième partie (33) peut venir s'accrocher par-dessus les saillies (34) de la première partie (32). 25 30
20. Dispositif (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le support (5) est muni d'un anneau d'étanchéité (37), les contours de la surface d'étanchéité de la cuvette de W.C. (2) venant se placer contre le mur. 35
21. Dispositif (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la cuvette de W.C. (2) est équipée d'un pulvérisateur. 40
22. Dispositif (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la profondeur globale requise E pour le dispositif est inférieure à 25 cm, encore mieux inférieure à 20 cm, voire inférieure à 18 cm. 45 50

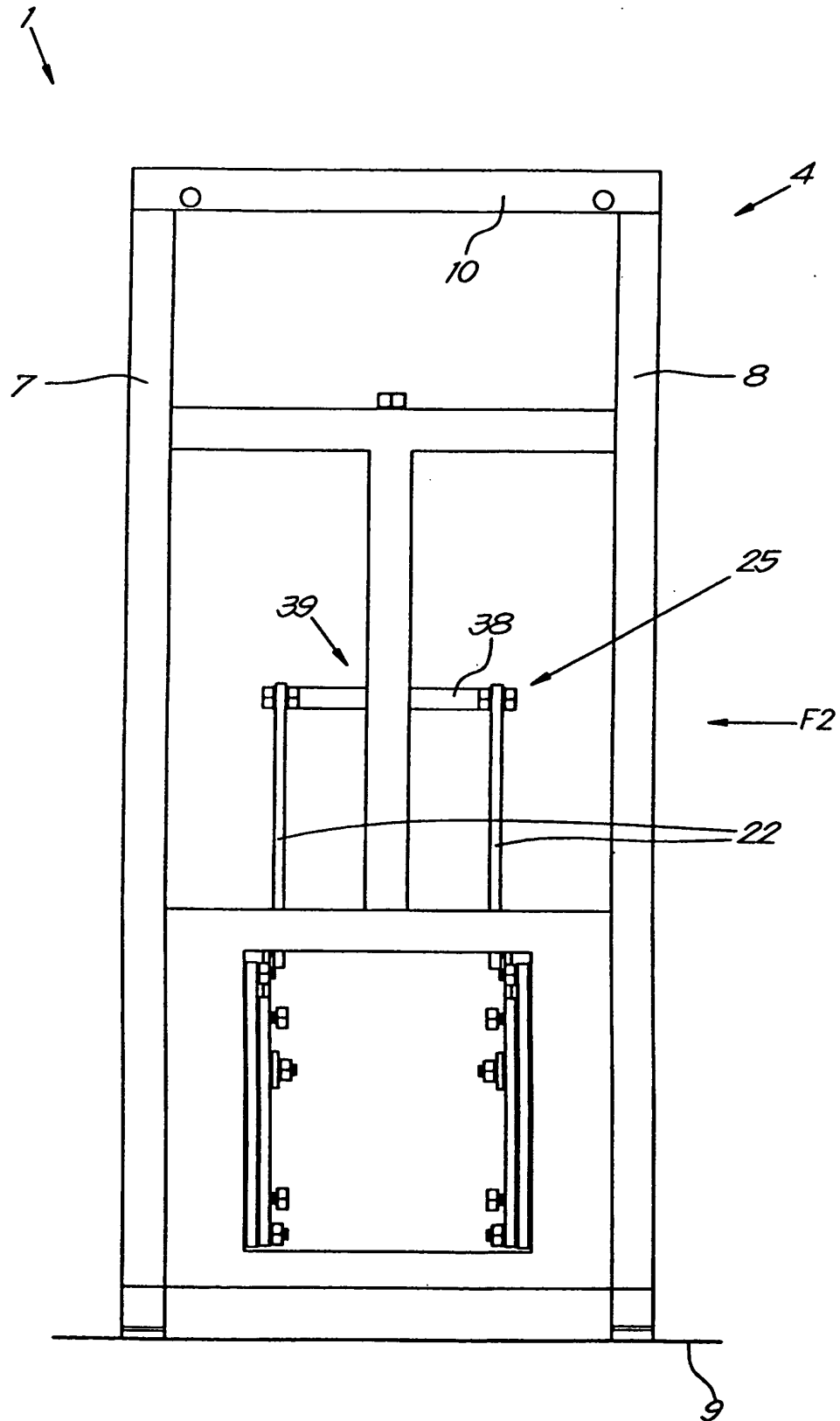


Fig. 1

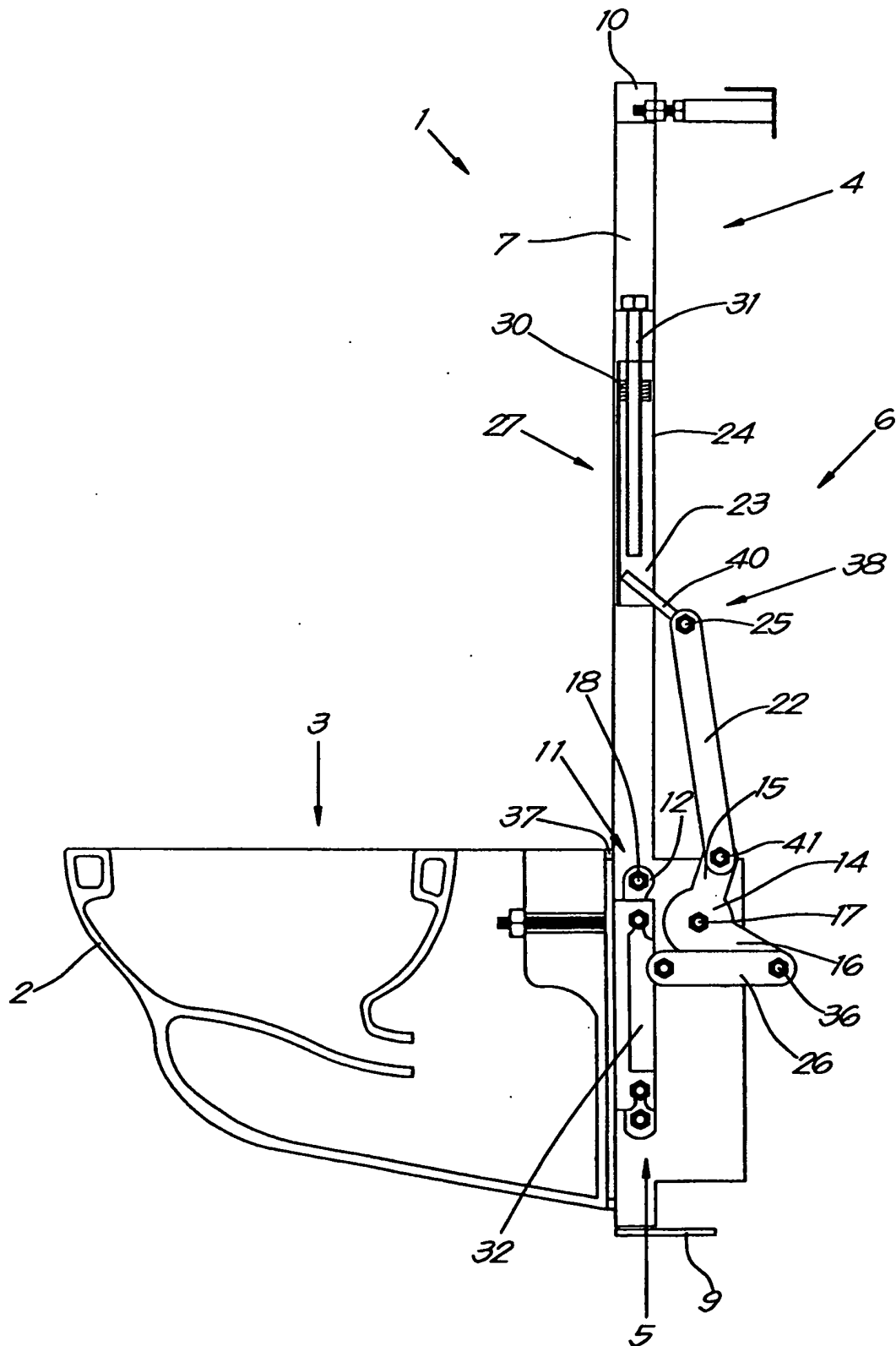


Fig. 2

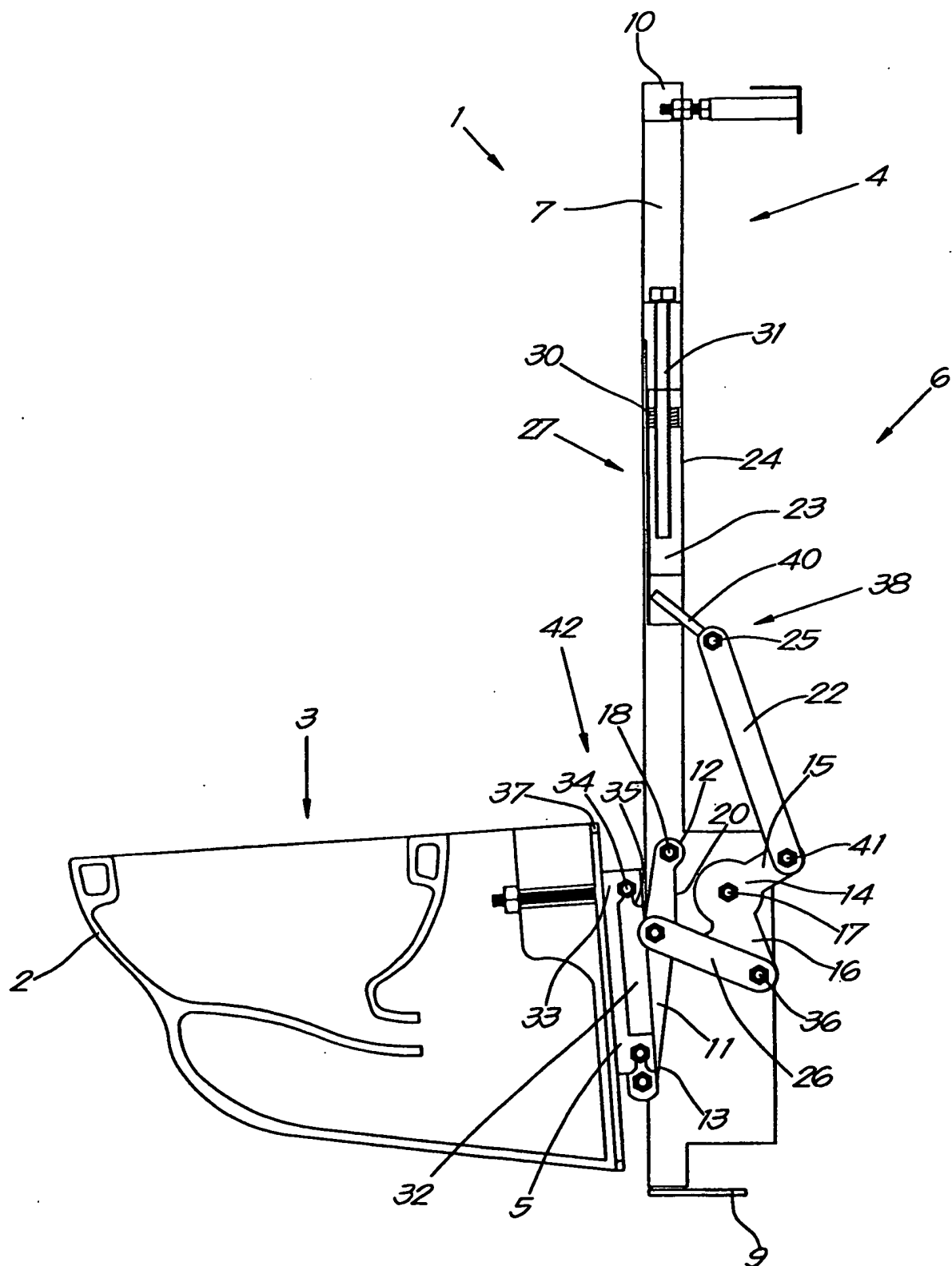


Fig. 3

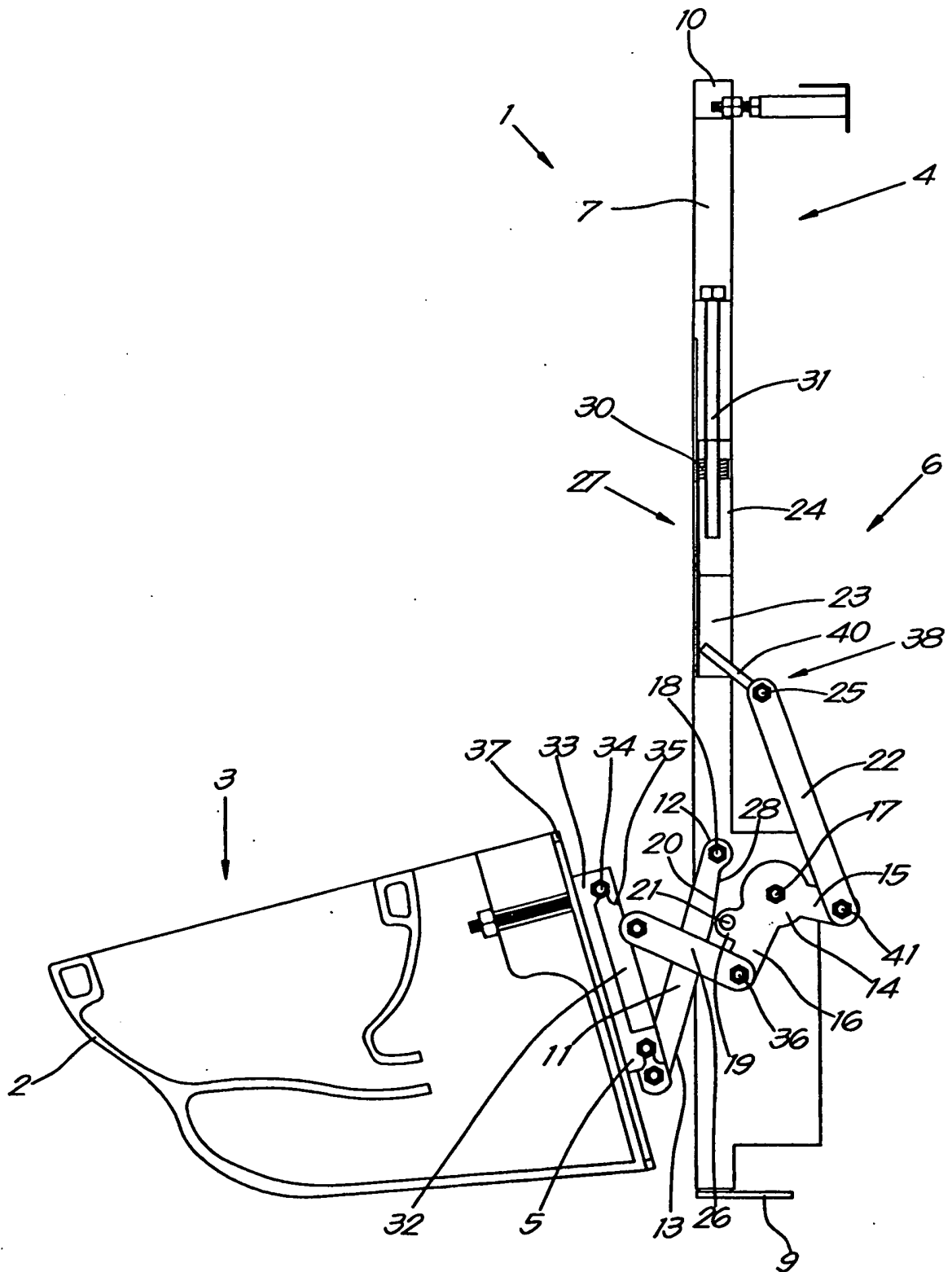


Fig. 4

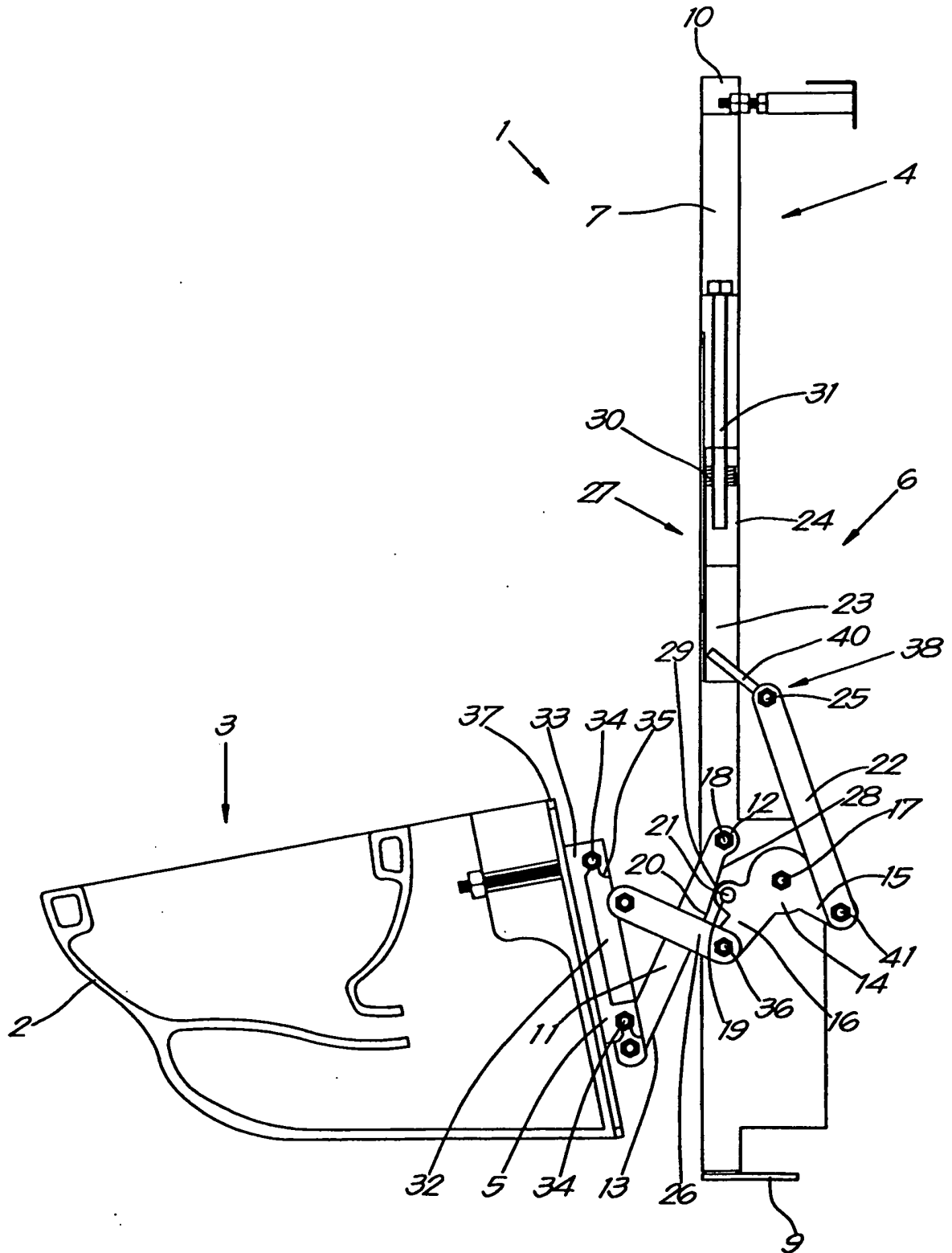


Fig.5

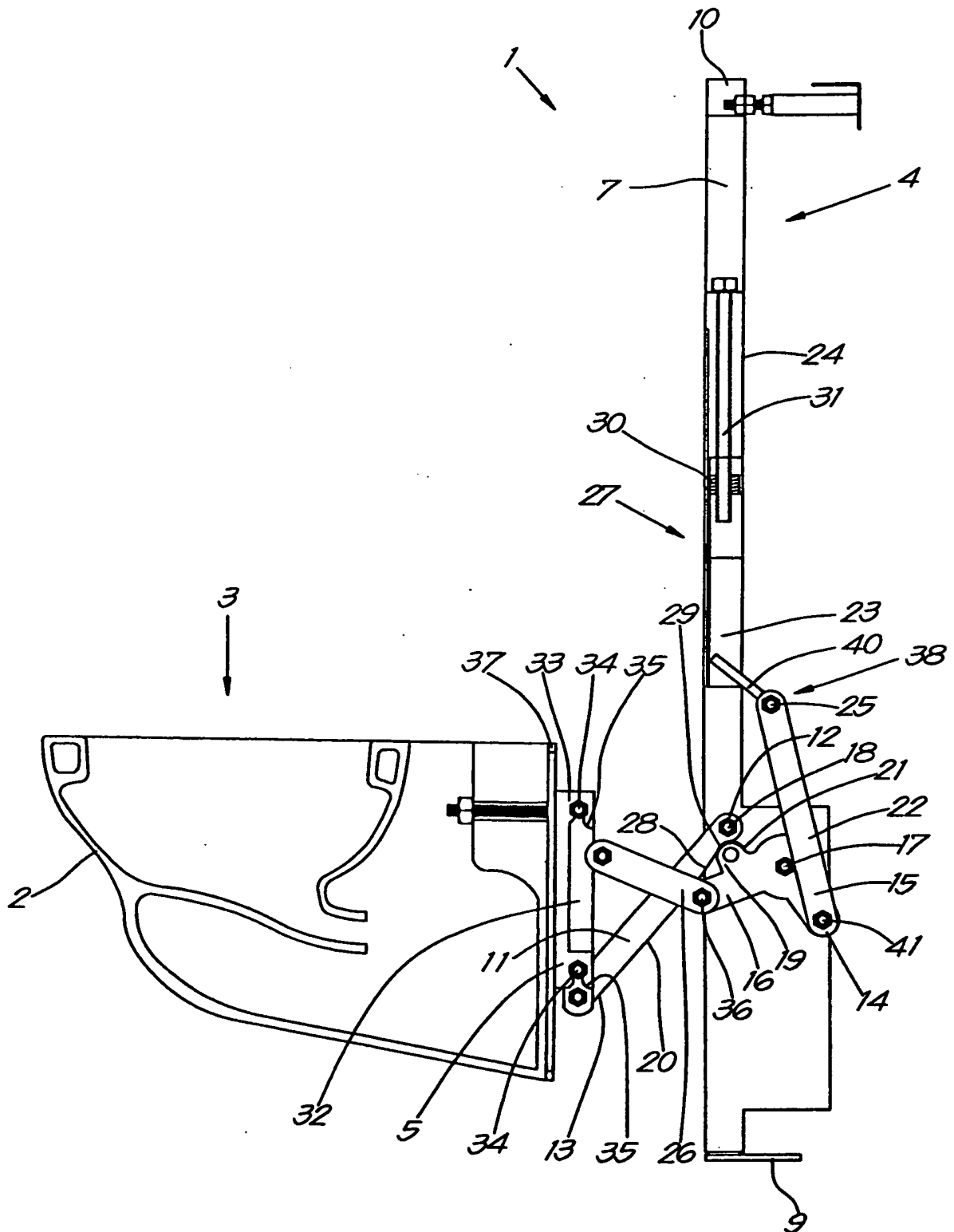


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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