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(11) Publication number:

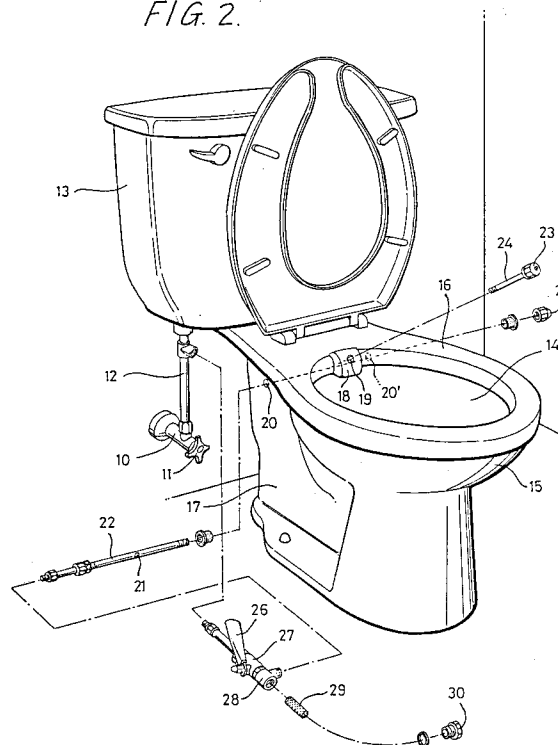
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EUROPEAN PATENT APPLICATION(21) Application number: **92306709.4**(51) Int. Cl.⁵: **E03D 9/08**(22) Date of filing: **22.07.92**(30) Priority: **06.09.91 KR 1455691**(43) Date of publication of application:
10.03.93 Bulletin 93/10(84) Designated Contracting States:
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London WC1N 2DD (GB)(54) **Toilet with a cleaning water supply device.**

(57) A toilet includes a device for supplying cleaning water for a user to wash himself after using the toilet. The toilet main body (15) includes a projection (18) arranged at the rear of the periphery of the bowl (14). A nozzle pipe (24) extends through the projection (18) and provides an inclined, upwardly pointing nozzle. The nozzle pipe is connected to a water supply pipe (22) extending through the side walls (17a, 17b) of the rear of the toilet main body. The supply pipe is connected, in turn, to a connecting pipe (28) in which is arranged a valve (27) and a filter (29). The connecting pipe (28) is connected to a pipe (12) which supplies flushing water to the toilet.

FIG. 2.

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The present invention relates to toilets of the type having a main body including a bowl portion around the upper periphery of which extends a flange, and which includes cleaning water supply means. The present invention is concerned with a toilet having a cleaning water supply device by means of which it is possible to supply cleaning water for cleaning around the anus of a person using the toilet after a movement or for any other appropriate requirement. The invention also extends to a cleaning water supply device per se.

It is known to attach a cleaning water supply device for cleaning private parts to an existing toilet. Since such known devices cannot be incorporated in the main body of a conventional toilet, it is normal to adapt a conventional toilet seat to receive a cleaning water supply device. This has the disadvantage that attachment of the cleaning water supply device is difficult and time consuming and the necessary fittings are complex.

The present invention seeks to overcome these and other problems associated with the conventional device.

According to the present invention, a toilet of the type described above is characterised by an inwardly directed protrusion on the flange, the cleaning water supply means comprising a nozzle pipe extending through the protrusion and terminating in a nozzle, a water supply pipe extending transversely at least part of the way through the main body, to which the nozzle pipe is connected, and a connecting pipe, one of whose ends is connected to the water supply pipe and the other of whose ends is adapted to be connected to a water supply.

The nozzle pipe preferably terminates in a detachable nozzle head, and a valve is preferably arranged in the connecting pipe.

The supply pipe preferably extends all the way through the main body and, more preferably, the main body has spaced, opposed side walls in a rear portion thereof, and the water supply pipe is supported in and extends between the side walls.

In the exemplary embodiment, the connecting pipe has a filter therein for filtering water flowing through it, and also the pipe extends substantially horizontally from the water supply pipe and the valve has a valve actuating member on the outside of the connecting pipe.

According to another aspect of the invention, a toilet main body for use with a cleaning water supply device, the toilet main body comprising a bowl portion around the upper periphery of which extends a flange, is characterised by an inwardly directed protrusion on the flange, having an upwardly inclined through hole for receiving a nozzle pipe therein, the toilet main body having spaced opposed side walls in a rear portion thereof, the

side walls having aligned holes therein for receiving a water supply pipe therein.

According to another aspect of the invention, a toilet in combination with a flushing water supply pipe extending to the toilet for supplying flushing water thereto, the toilet having a main body including a bowl portion around the upper periphery of which extends a flange, is characterised by an inclined, upwardly extending protrusion on the flange, directed radially of the upper periphery of the bowl portion, having an upwardly inclined through hole, the main body of the toilet further having spaced opposed side walls in a rear portion thereof and aligned holes in the respective side walls and is characterised by cleaning water supply means comprising a nozzle pipe extending through the hole in the protrusion having a nozzle head detachably mounted thereon, a water supply pipe extending transversely through the main body below the protrusion, the ends of the supply pipe being received in the said aligned holes, the nozzle pipe being connected to the supply pipe, and a connecting pipe having a valve and a filter therein, one end of which is connected to the water supply pipe and the other end of which is connected to the flushing water supply pipe.

Further features and advantages of the present invention will become clear from the following description of one exemplary embodiment of the invention which is made with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a toilet and cleaning water supply device according to the present invention;

Figure 2 is an exploded perspective view of the toilet of Figure 1;

Figure 3 is a side view partly in cross-section, of the toilet of figure 1; and

Figure 4 is a scrap cross-section through the toilet of Figure 1, on an enlarged scale, showing the water supply device.

Throughout the drawings, like reference numerals are used for designating like or equivalent parts or portions, for simplicity of illustration and explanation.

Referring to the Figures, a toilet comprises a water tank 13 supplied with water from a water supply pipe 12 through a valve 11 from a water supply line 10 from a water main. The tank 13 is mounted on the rear part of an upper flange structure 16 of a toilet main body 15, which also comprises a bowl portion 14. Flushing water for flushing the bowl is supplied from the tank 13, via supply means (not shown) in a rear portion 17 of the main body 15, to the underside of the upper flange 16, where the flange 16 extends around the top of the bowl 14. The water then flows into the bowl from the underside of the flange. A conventional toilet

seat and lid or cover are pivotally mounted on the rear portion of the flange.

A cleaning water supply device comprises an outwardly projecting, upwardly inclined protrusion 18 on the edge of the flange structure 16 at the rear portion of the bowl 14, with an upwardly inclined hole 19 provided therein. Through holes 20 and 20' are provided in the side walls 17a and 17b of the rear portion 17 (see Figure 4) at positions slightly lower than the upwardly inclined hole 19, and a horizontal water supply pipe 22 is mounted in the holes 17a and 17b. The pipe 22 has a connecting hole 21 at the middle thereof, and one threaded end of a nozzle pipe 24 is threaded into the supply pipe 22 at the hole 21, and the other end is inserted through the upwardly inclined hole 19 of the upwardly inclined protrusion 18 and has a jet nozzle head 23 threadably detachably mounted thereon, the rotational angle of which around the nozzle pipe 24 is adjustable. The fixed horizontal water supply pipe 22 has one end closed by a cap 25 mounted thereon from the outside of the toilet body 15, and the other end of the horizontal water supply pipe 22 is connected at a "T" joint to a connecting pipe 28. The connecting pipe 28 is in turn, connected to the water supply pipe 12 via a water supply control valve unit 27. The unit 27 has an actuating knob 26 on the outside for convenient access. A filtering tube 29 having almost the same diameter as the inner diameter of the connecting pipe is inserted into the end of the connecting pipe 28 at the T junction, and the end of the connecting pipe 28 is closed by a cap 30.

The differences between the toilet main body described above and a conventional toilet main body are that the upwardly inclined protrusion 18 is formed on the flange portion 16 at the rear side of the bowl 14 of the main body 15, that the flange portion 16 has an upwardly inclined hole 19 and that the through holes 20 and 20' are formed in the rear portion 17. Thus, the toilet main body is not greatly different from a conventional one. Further, the plumbing work involved in installing the horizontal water supply pipe 22 in the through holes 20 and 20' and screwing the nozzle pipe to the supply pipe 22 and installing it in the upwardly inclined hole 19, is simple.

In use, a user turns on the cleaning water supply by actuating the water supply control valve 27 with a knob 26. Cleaning water then is supplied to the nozzle pipe 24 through the horizontal water supply pipe 22 and the filtering tube 29 provided within the connecting pipe 28. After foreign material is filtered out by the filtering tube 29, water is forced out from the jet nozzle head 23 toward a user seated on the toilet. The filtering tube 29 is provided within the connecting pipe 28 to eliminate foreign material which may present in the water

from the water supply tank of the apartment or the like in which the toilet is situated. The cleaning water coming into contact with the user is thus clean, and blocking of the jet nozzle head 23 by foreign material is prevented. The user may change the type of jet by exchanging the jet nozzle head 23 e.g. from one having one jet hole to one having two or more jet holes.

It will be appreciated that the present invention is not restricted to the particular embodiment described hereinbefore, and that variations and modifications may be made therein without departing from the scope of the invention as defined in the appended claims.

Claims

1. A toilet having a main body (15) including a bowl portion (14) around the upper periphery of which extends a flange (16) and which includes cleaning water supply means, characterised by an inwardly directed protrusion (18) on the flange, the cleaning water supply means comprising a nozzle pipe (24) extending through the protrusion (18) and terminating in a nozzle, a water supply pipe (22) extending transversely at least part of the way through the main body, to which the nozzle pipe (24) is connected, and a connecting pipe (28), one of whose ends is connected to the water supply pipe (22) and the other of whose ends is adapted to be connected to a water supply.
2. A toilet as claimed in claimed 1 in which the nozzle pipe (24) terminates in a detachable nozzle head (23).
3. A toilet as claimed in claim 1 or claim 2 in which a valve (27) is arranged in the connecting pipe (28).
4. A toilet as claimed in claims 1, 2 or 3 in which the supply pipe (22) extends all the way through the main body.
5. A toilet as claimed in any preceding claim in which the connecting pipe (28) further has a filter (29) therein for filtering water flowing therethrough.
6. A toilet as claimed in claim 4 in which the main body has spaced opposed side walls (17a, 17b) in a rear portion (17) thereof, and the water supply pipe (22) is supported in and extends between the side walls.
7. A toilet as claimed in claim 3 and claim 6 in which the connecting pipe (28) extends sub-

stantially horizontally from the water supply pipe (22) and the valve (27) has a valve actuating member (26) on the outside of the connecting pipe (28).

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8. A toilet as claimed in any preceding claim in combination with a flushing water supply pipe (12), the said other end of the said water supply pipe (22) being connected to the flushing water supply pipe (12).

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9. A toilet main body for use with a cleaning water supply device, the toilet main body (15) comprising a bowl portion (14) around the upper periphery of which extends a flange (16), characterised by an inwardly directed protrusion (18) on the flange (16), having an upwardly inclined through hole (19) for receiving a nozzle pipe (24) therein, the toilet main body having spaced opposed side walls (17a, 17b) in a rear portion (17) thereof, the side walls having aligned holes (20, 20') therein for receiving a water supply pipe (22) therein.

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10. A toilet in combination with a flushing water supply pipe (12) extending to the toilet for supplying flushing water thereto, the toilet having a main body (15) including a bowl portion (14) therein around the upper periphery of which extends a flange (16), characterized by an inclined, upwardly extending protrusion (18) on the flange (16), directed radially inwardly of the upper periphery of the bowl portion (14) and having an upwardly inclined through hole (19), the main body (15) of the toilet further having spaced opposed side walls (17a, 17b) in a rear portion (17) thereof and aligned holes (20, 20') in the respective side walls, and characterised by cleaning water supply means comprising a nozzle pipe extending through the hole (19) in the protrusion (18) having a nozzle head (23) detachably mounted thereon, a water supply pipe (22) extending transversely through the main body (15) below the protrusion (18), the ends of the supply pipe (22) being received in the said aligned holes (20, 20'), the nozzle pipe (24) being connected to the supply pipe (22), and a connecting pipe (28) having a valve (27) and a filter (29) therein, one end of which is connected to the water supply pipe (22) and the other end of which is connected to the flushing water supply pipe (12).

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FIG. 1.

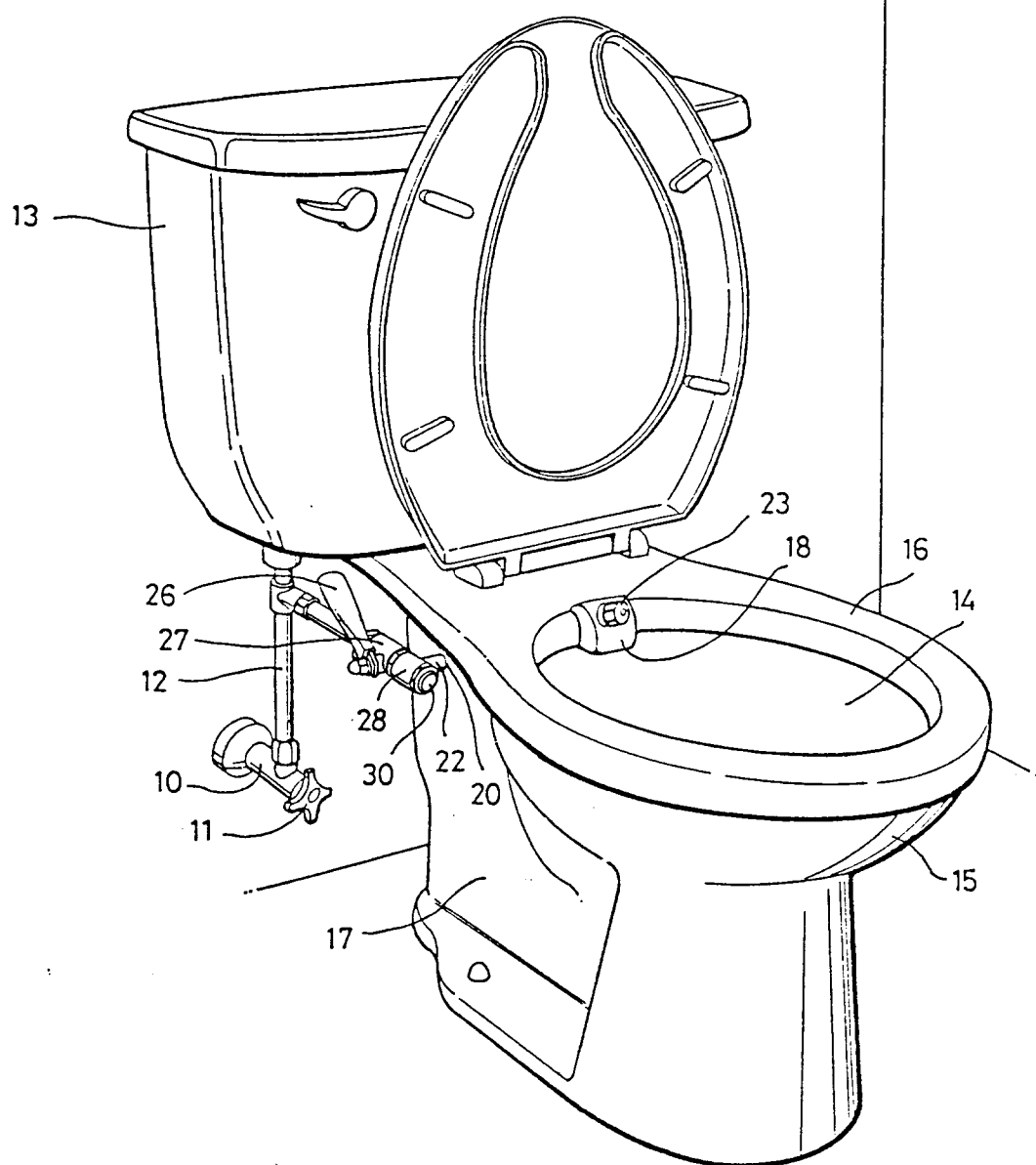


FIG. 2.

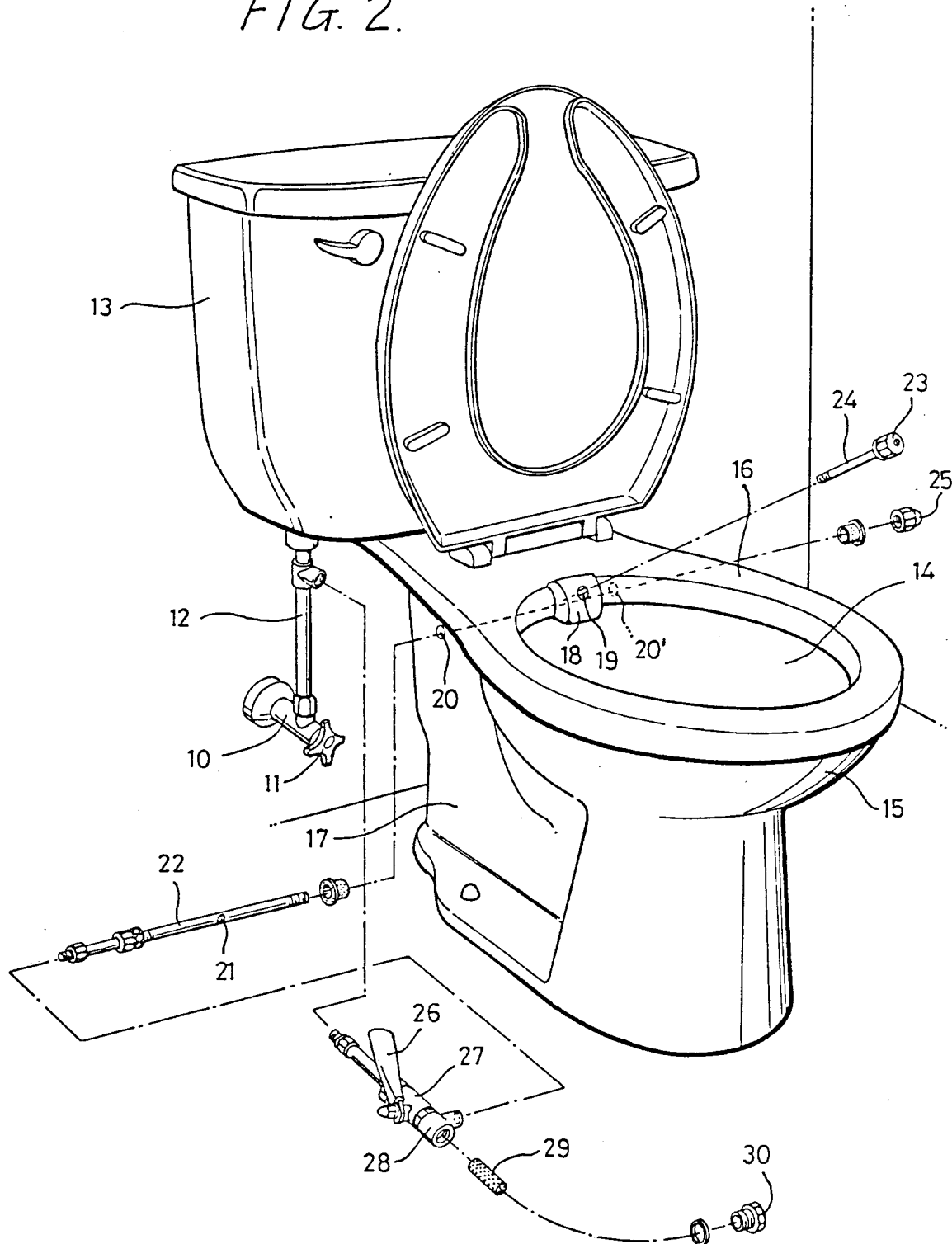
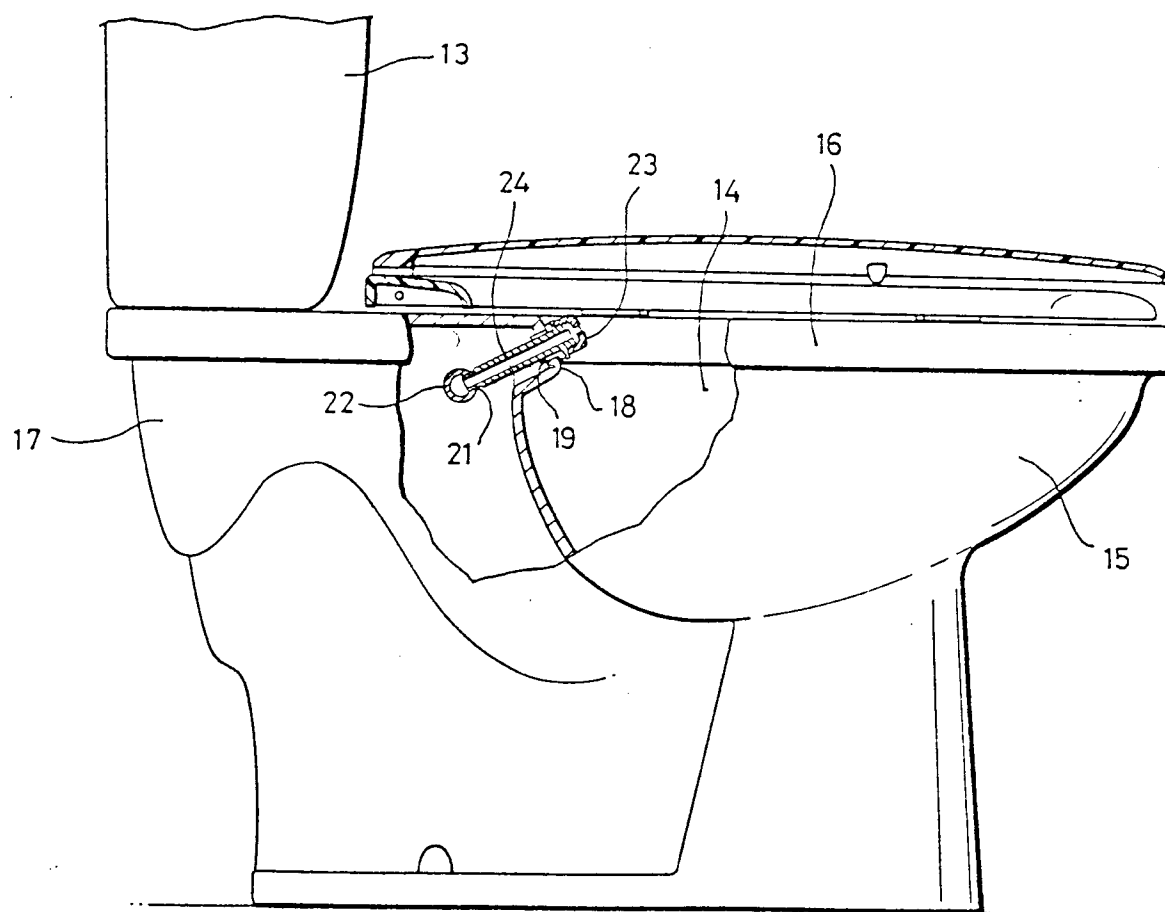
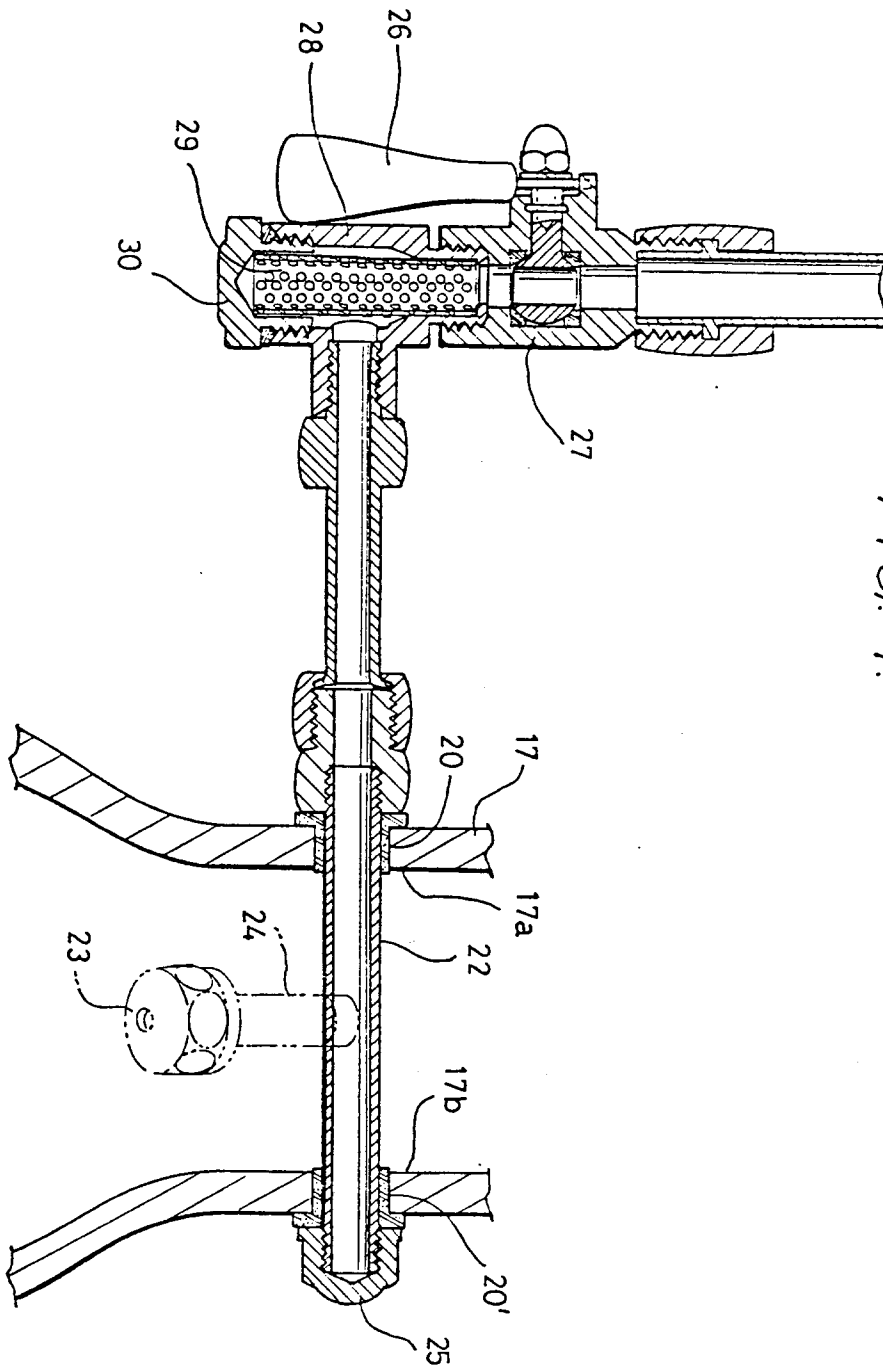


FIG. 3.







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EUROPEAN SEARCH REPORT

Application Number

EP 92 30 6709

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-2 762 058 (HURKO) * the whole document * ----	1-3,9,10	E03D9/08
A	DE-C-549 752 (HUHN) * line 30 - line 34; figure 1 * ----	1,9,10	
A	US-A-1 668 048 (CAMPUS) * page 1, line 64 - line 72; figures * ----	2-4,6,7, 9,10	
A	US-A-1 659 807 (CAMPUS) * the whole document * -----	1,3-4,6, 7,9,10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E03D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 01 DECEMBER 1992	Examiner VAN BEURDEN J.J.C.A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			