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(54) A sanitary purging apparatus

(57) A sanitary purging apparatus including a basin, a housing disposed on the front portion of the brim of the basin, a temperature monitor provided with a central temperature-monitor unit, and a flux-monitor comprising a central flux-monitor unit and a valve casing, the housing is formed with a first transverse receiving hole having a left portion and a right portion for receiving the central temperature-monitor unit which is provided with a hot water filter layer and a cold water filter layer communicated respectively with a hot water supplier and a cold water supplier, the left portion accommodating the central flux-monitor unit formed with a flux bore and the valve casing formed with a casing bore, the central flux-monitor unit is mounted to the valve casing, so that the former can slide axially in the latter to change the area over which the flux bore and the casing bore coincide with each other for the purpose of adjusting the water flux through the area, a water output passage having an end connected to the casing bore and another end communicated with an end of a water output conduit provided with another end connected to a sprayer disposed in the basin.

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Description

Technical Field

[0001] The present invention relates to a sanitary appliance, particularly to a body purging apparatus for purging the bottom of a person after he or she defecates and/or urinates.

Background of the Invention

[0002] People usually use toilet paper to clean their bottoms after they defecate or urinate. However, they could be infected with diseases or parasites, as toilet paper is not sanitary at all. As a matter of fact, it is not satisfactorily effective to clean a human body with toilet paper. Furthermore, discarded paper could clog the drainage.

[0003] A conventional purging apparatus is disclosed by Chinese utility model No. 89219065.5 entitled "A Portable Apparatus for Purging a Human Body". As shown in Fig. 1, the purging apparatus comprises a tank 1, a sprayer 2, a foam plastic plug 5 and a cylindrical enclosure 4. The sprayer 2 is screwed onto the tank 1, which is made from a flexible plastic and consists of an upper shell and a lower shell both of which are engaged or sealed tightly with each other. The sprayer 2 is inserted into the foam plastic socket 5, which is used for cleaning or rubbing the sprayer. Some napkins 3 may be received in the enclosure 4. The thank 1 has a section shaped elliptically. Naturally, the tank 4 is used for containing water, which is often kept at a substantially constant temperature when the tank is carried close to the body. Though the conventional purging apparatus is effective somewhat in purging, it is still deemed generally as a rudiment device. Particularly, it is disadvantageous in that it is constructed too simply to be used conveniently and widely, and there is no warm water generated for users.

[0004] As people grow rich, a purging apparatus has evolved from a so-called luxurious appliance to a routine necessity used widely. As shown in Fig. 2, another conventional purging apparatus comprises a toilet basin 9 and a tap 7 disposed on a front portion of the brim of the basin 9. The conventional apparatus is found disadvantageous in that:

(1) When the basin 9 is installed in a toilet room, it is usually placed in abutment with a wall. A user is forced to seat himself on the basin and face the wall to purge himself by adjusting the tap, since the tap is not disposed conveniently for the user and the water temperature is not monitored automatically.
(2) As the basin is not provided with a cover, the user is forced to seat himself directly on the brim of the basin to purge himself. Most users feel uncomfortable or even terrible, as the basin is made of a ceramic material.
(3) The tap 7 has a sprayer 8 mounted with a predetermined orientation, which is not adjustable to purge in a desired direction.

Summary of the Invention

[0005] To overcome the disadvantages of the prior art as described above, the present invention provides a sanitary purging apparatus including a basin, a housing disposed on the front portion of the brim of the basin, a temperature monitor provided with a central temperature-monitor unit, and a flux-monitor comprising a central flux-monitor unit and a valve casing, the housing is formed with a first transverse receiving hole having a left portion and a right portion for receiving the central temperature-monitor unit which is provided with a hot water filter layer and a cold water filter layer communicated respectively with a hot water supplier and a cold water supplier, the left portion accommodating the central flux-monitor unit formed with a flux bore and the valve casing formed with a casing bore, the central flux-monitor unit is mounted to the valve casing, so that the former can slide axially in the latter to change the area over which the flux bore and the casing bore coincide with each other for the purpose of adjusting the water flux through the area, a water output passage having an end connected to the casing bore and another end communicated with an end of a water output conduit provided with another end connected to a sprayer disposed in the basin.

[0006] Some preferred embodiments are further defined in the dependent claims.

[0007] Compared with the prior art, the present invention is advantageous in that:

(1) The purging apparatus is provided with a water-temperature monitor that can adjust and monitor the output temperature by means of rotation of the handwheel. The temperature is kept constant in use. A user will seat himself or herself on the basin and be faced opposite to the building wall. In other word, the user will not be forced to face the wall anymore. As the temperature is set to a predetermined value, users will adapt the water flow by means of rotation of the flux-adjusting wheel.
(2) The water flow can be adjusted manually by means of rotation of the flux-adjusting handwheel.
(3) The water distributor distributes the water flux to the transversely oscillating sprayer and the longitudinally oscillating sprayer so that the sprayers can aim to the directions as desired subsequently.
(4) The apparatus has a cover used for keeping the basin clean and provided with a cushion ring for seating a user comfortably.

Brief Description of the Drawings

[0008]

Fig. 1 schematically shows Chinese utility model No. 89219065.5;
Fig. 2 schematically shows another conventional purging apparatus;
Figs. 3A, 3B and 3C schematically show a purging apparatus according to the present invention;
Fig. 3A is an elevation view of the present purging apparatus;
Fig. 3B is a front view of the present purging apparatus;
Fig. 3C, is a top view of the present purging apparatus;
Figs. 4A, 4B and 4C schematically show a temperature monitor according to the present invention;
Fig. 4A is a perspective view of the present temperature monitor;
Fig. 4B is a front view of the present temperature monitor;
Fig. 4C is an elevation view of the present temperature monitor; and
Fig. 5 is an exploded view of the present temperature monitor.

Detailed Description of the Embodiment

[0009] As shown in Figs. 3A, 3B and 3C, a purging apparatus according to the invention comprises a toilet basin 9, an adjustor 10 disposed on a front portion of the brim of the basin 9, a transversely oscillating sprayer 11 mounted to a front wall of the basin 9, and a longitudinally oscillating sprayer 12 mounted on the bottom thereof. The adjustor 10 has a housing provided with two outlets connected respectively with the sprayers 11 and 12 via conduits. The adjustor 10 includes a temperature monitor, a water distributor and a flux monitor, besides the housing 104. The temperature monitor comprises a central temperature-monitor unit (CTU) 105, and a temperature monitor handwheel 106. The water distributor comprises a distributor pull 113, a valve housing 112 and a distributor valve 111. The flux monitor includes a flux-adjusting handwheel 101, a central flux-monitor unit (CFU) 102 and a valve casing 103. The housing 104 is provided with a draining switch 15 at a side thereof, which is connected to a longitudinal or elongated draining rod 14a engaged with a transverse draining rod 14b, which is in turn anchored to a stopper 15 for closing the drainage. Therefore, a user can open or close the drainage by means of operating the draining switch 15. The basin 9 has a cover 16 which is provided with a cushion ring for seating the user so that he or she would feel comfortable and the purging apparatus could be kept clean.

[0010] As shown in Figs. 4 and 5, the housing 104 with the temperature monitor has an upper portion provided with a first receiving hole 115 bored through from the left side to the right side of the housing. The valve casing 103 is received in the first receiving hole 115, which has a first recess 116a for passing the body of the valve casing 103a and tightly engaging the casing fitting 103b thereof. The valve casing is hollow in that the casing body 103a has a casing bore 103c. The central flux-monitor unit 102 comprises a first fitting 102a, a second fitting 102b and a valve body 102c, which are all made into a single-piece member. The valve body 102c is formed with a central bore 102d having a diameter equal to that of the casing bore. The central flux-monitor unit 102 is inserted into the valve casing 103. The second fitting 102 is engaged tightly with the casing fitting 103a, and is rotatable axially in and about the casing fitting 103a, which can change the area over which the central bore 102d and the casing bore 103c coincide with each other, so that the water flux can be adjusted. The first fitting 102a of the central flux-monitor unit 102 are screwed with the flux-adjusting handwheel 101, which drives the rotation of the central flux-monitor unit 102, which changes the area over which the central bore 102d and the casing bore 103c coincide with each other for adjusting the water flux.

[0011] Now, there is a commercially available central temperature-monitor unit 105 comprising a hot water filter layer 105a for introducing a hot water stream, a cold water filter layer 105b for introducing a cold water stream and an outlet 105c for outputting at a predetermined temperature a mixture of the hot water and the cold water as introduced. The central temperature-monitor unit 105 is received the receiving hole 115 of the housing 104, which has second, third and fourth recesses 116b, 116c and 116d for accommodating the central temperature-monitor unit 105 snugly. Particularly, the second and third recesses 116b and 116c admit the cold water stream only to the cold water filter layer 105b, while none of the cold water to the recess 117 and the hot water filter layer 105a. The third and fourth recesses 106c and 106d admit the hot water stream only to the hot water filter layer 105a. The central temperature-monitor 105 is located on the right side of the valve casing 103, while they are not contacted directly with each other or specifically with the recess 117 sandwiched therebetween. A hot water passage 114b is provided under the hot water filter layer 105a of the housing 104, while a cold water passage 114a is placed under the cold water filter layer 105b.

[0012] The left and right sides of the housing 104 is provided with two openings for communicating with the cold water passage 114b and the hot water passage 114a respectively. A cold water conduit 108a and a hot water conduit 108b are inserted respectively into the openings. Check valves 107a and 107b are disposed respectively in the upper ends of the cold water conduit 108a and the hot water conduit 108b so as to prevent the water therethrough from flowing back.

[0013] The housing 104 includes a water output ring

120 connected to the casing bore 103c and a first longitudinal water output passage 121, under which a second receiving hole 118 is provided. A distributor valve 112 is tied to a water distributor pull 113 via the valve casing 112. The distributor valve 111 and the valve casing 112 are received in the second receiving hole 118, with the latter screwed into the second receiving hole. The water distributor valve 111 is moved transversely in the end portion 118a of the receiving hole 118. The end portion 118a of the distributor valve 118 is shaped in section like a right hexagon and has an upper salient and a lower salient. The end portion 118a of the second receiving hole 118 has a top portion communicated with the first water output passage, a left portion connected to the second water output passage 119a, and a right portion connected to the third water output passage 119b. The frontal surface of the end portion 118a is inclined at the same degree as the frontal face of the distributor valve 111. The distributor valve 111 has a height size greater than the diameter of the second receiving hole 118 and less than the height of the end portion 118a of the second receiving hole. As the distributor pull 113 is moved to the left, the distributor valve 111 slides in the same direction until it abuts against the left side wall of the end portion 118a so as to prevent water from flowing into the third water output passage 119a through the left portion of the end portion 118a. Likewise, as the distributor pull 113 is moved to the right, the distributor valve 111 slides in this direction until it abuts against the right side wall of the end portion 118a so as to prevent water from flowing into the fourth water output passage 119b through the right portion of the end portion 118a. When the distributor valve 111 is located on a midway along the end portion 118a, water is allowed to flow into a third water output passage 119a and a fourth water output passage 119b concurrently. The third water output passage 119a and the fourth water output passage 119b are extended under the housing 104 for respective connections with the first water output conduit 109a and the second water output conduit 109b. As shown in Fig. 3, the first water output conduit 109a is communicated with the transversely oscillating sprayer 11, while second water output conduit 109b connected to the longitudinally oscillating sprayer 109b.

Another Embodiment

[0014] As disclosed herein, the first embodiment is a preferred one according to the present invention. Another embodiment, a more preferred one, will be illustrated herebelow. The valve casing 103 and the central flux-monitor unit 102 may be inserted into the left portion of the first receiving hole 115 of the housing 104, while the central temperature-monitor 105 being placed in the right portion thereof. The water output conduit 109 may be connected directly with the casing bore 103c of the valve casing 103, and communicated with the transversely oscillating sprayer and/or the longitudinally oscillating sprayer for the purpose of the purging.

[0015] The detailed description is not intended to limit the scope of the invention. Those skilled in the art could contemplate any other alternative embodiments that should be deemed as falling into the scope of protection as claimed.

Claims

1. A sanitary purging apparatus including a basin, a housing disposed on the front portion of the brim of the basin, a temperature monitor provided with a central temperature-monitor unit, and a flux-monitor comprising a central flux-monitor unit and a valve casing, the housing is formed with a first transverse receiving hole having a left portion and a right portion for receiving the central temperature-monitor unit which is provided with a hot water filter layer and a cold water filter layer communicated respectively with a hot water supplier and a cold water supplier, the left portion accommodating the central flux-monitor unit formed with a flux bore and the valve casing formed with a casing bore, the central flux-monitor unit is mounted to the valve casing, so that the former can slide axially in the latter to change the area over which the flux bore and the casing bore coincide with each other for the purpose of adjusting the water flux through the area, a water output passage having an end connected to the casing bore and another end communicated with an end of a water output conduit provided with another end connected to a sprayer disposed in the basin.

2. An apparatus according to claim 1, wherein the sprayer is a transversely oscillating sprayer located in the front of the inside of the basin.

3. An apparatus according to claim 1 or 2, wherein the apparatus further includes a longitudinally oscillating sprayer mounted on the bottom of the basin.

4. An apparatus according to claim 3, wherein the apparatus further includes a water distributor comprising a distributor valve, a valve casing and a distributor pull, and wherein the housing is formed with a second transverse receiving hole having an end portion comprising a top portion communicated with the first water output passage, a left portion communicated with the first water output conduit connected to the transversely oscillating sprayer, and a right portion communicated with the second water output conduit connected to the longitudinally oscillating sprayer, the distributor valve being disposed in the second receiving hole and connected to the distributor pull through the valve casing so that the distributor can be slide transversely in the end por-

tion of the second receiving hole to adjust the water fluxes through the first and second water output conduits.

5. An apparatus according to claim 4, wherein the distributor valve has a end portion shaped with a hexagonal section formed with an upper salient and a lower salient the vertical diameter of which is greater than the diameter of the second receiving hole and less than the height of the end portion of the second receiving hole, and the end portion thereof has a frontal surface inclined at the same degree as a frontal end face of the water distributor valve.

6. An apparatus according to claim 1 or 4, wherein the housing is formed with a cold water passage having an end disposed under the cold water filter layer and another end connected to the cold water supplier, and a hot water passage having an end disposed under the hot water filter layer and another end communicated with the hot water supplier.

7. An apparatus according to claim 6, wherein the apparatus further includes a check valve provided with either of the cold water passage and the hot water passage at their interfaces with the cold water supplier and the hot water supplier.

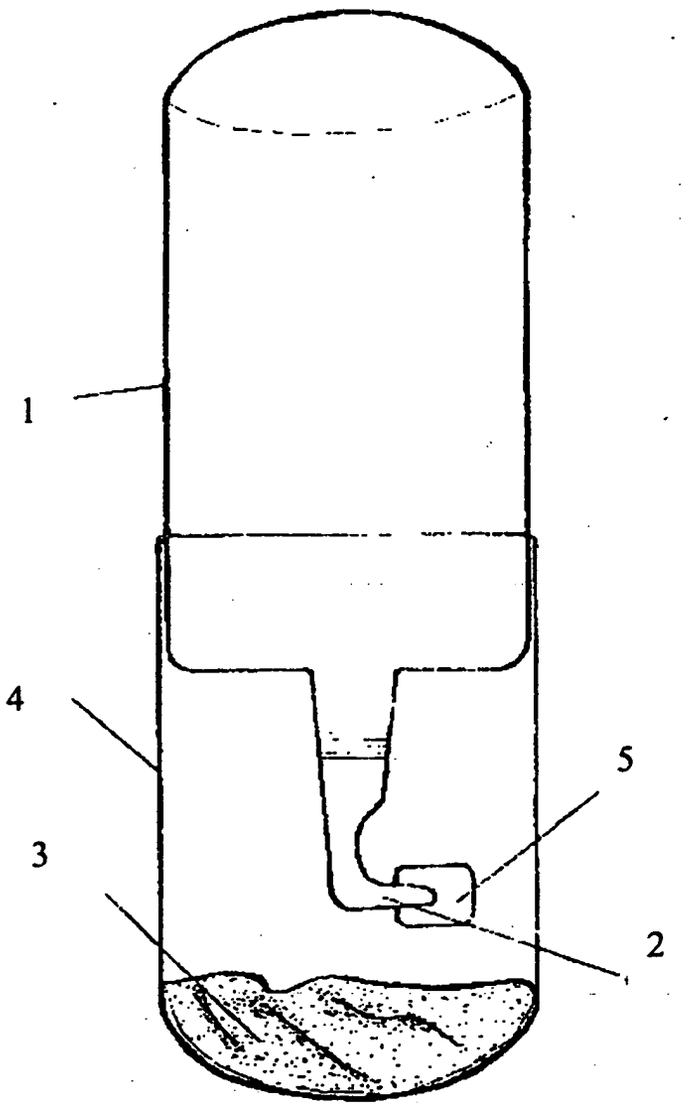


Fig. 1

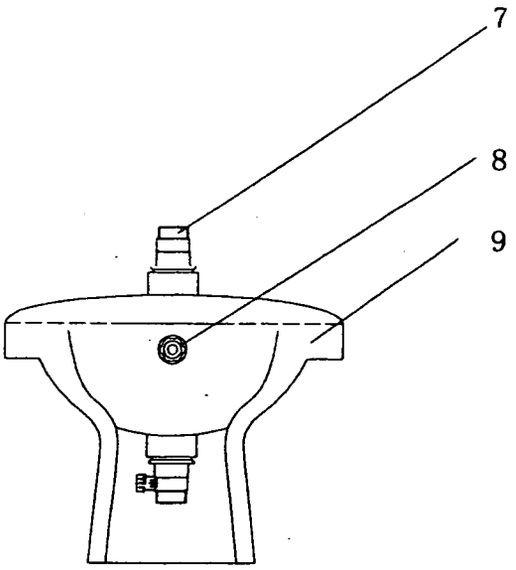


Fig. 2

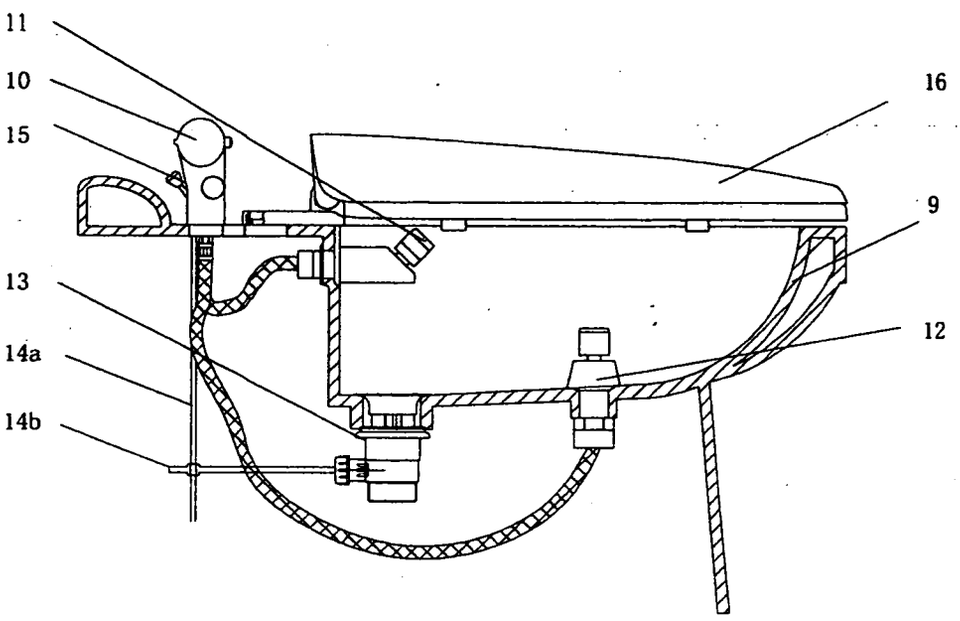


Fig. 3A

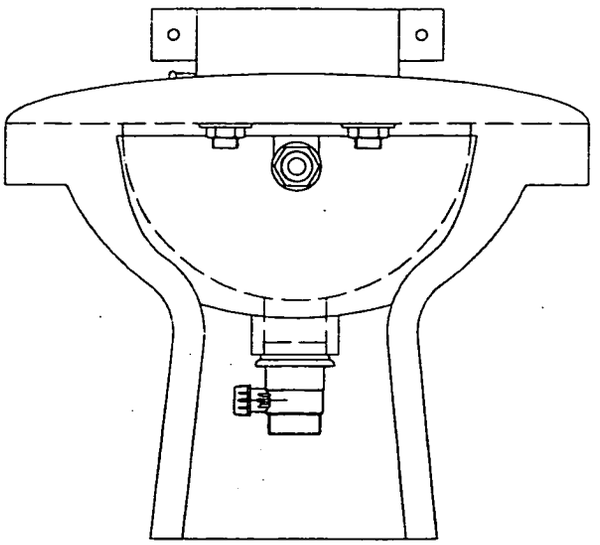


Fig. 3B

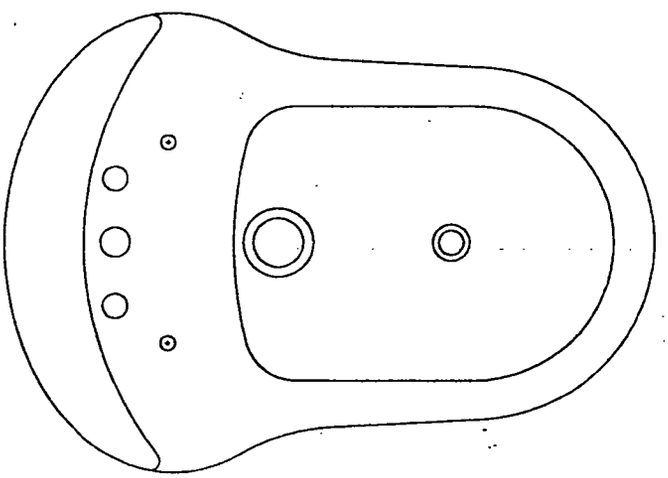
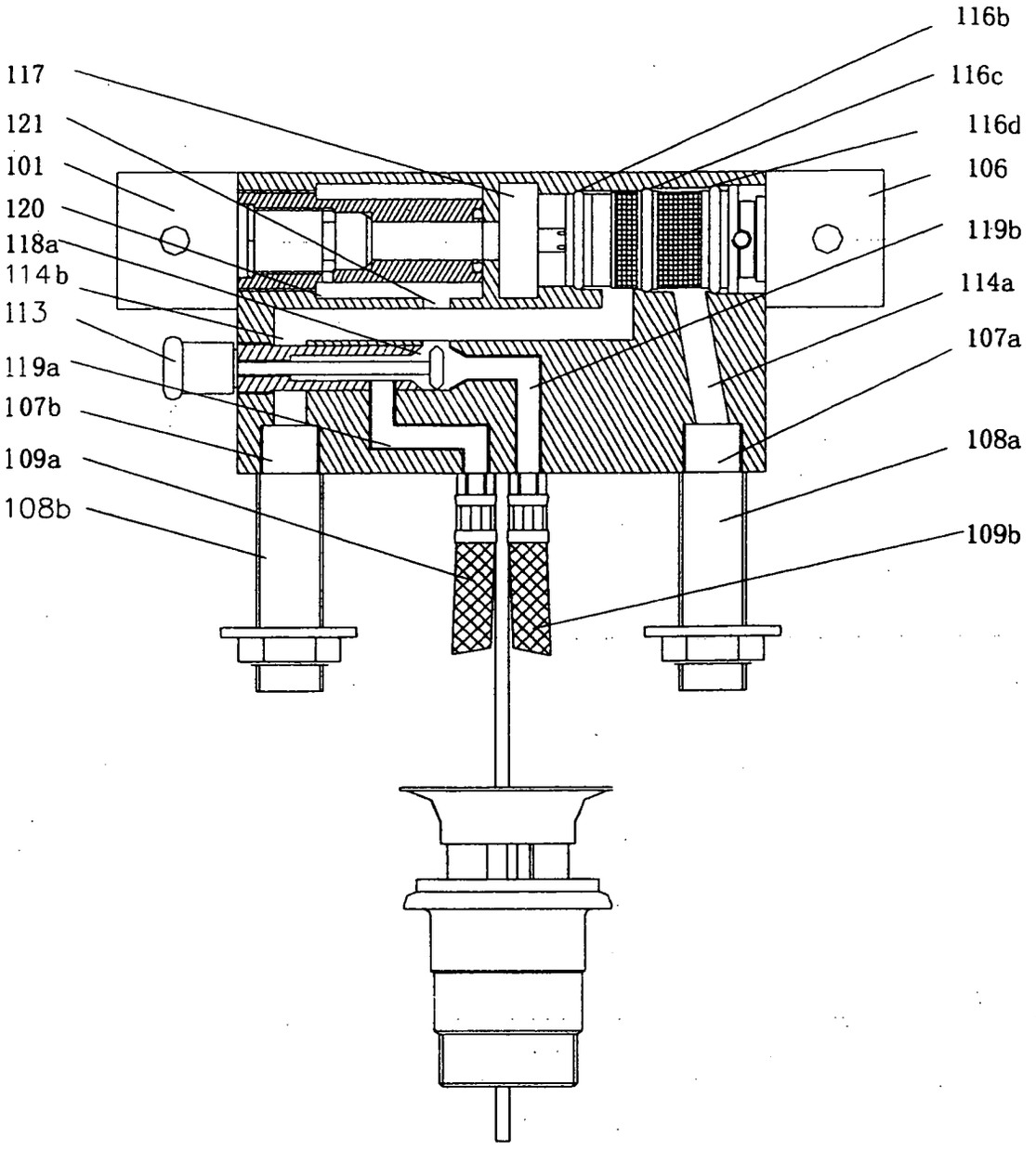


Fig. 3c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117
116c
121
116d
101
106
120
119b
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113
107a
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107b
108a
109a
108b
109b

Fig. **4A**

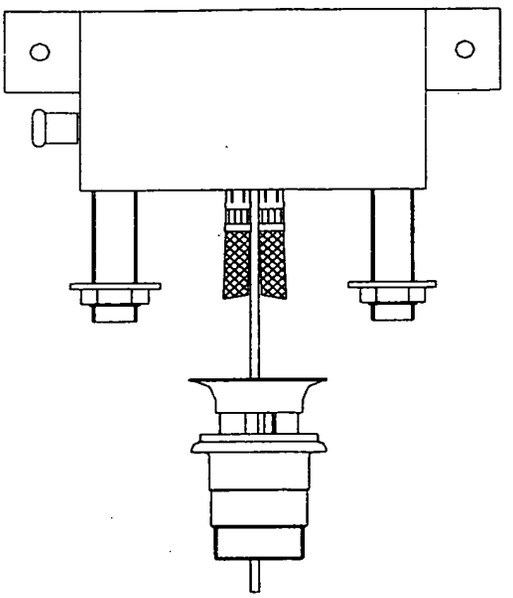


Fig. 4B

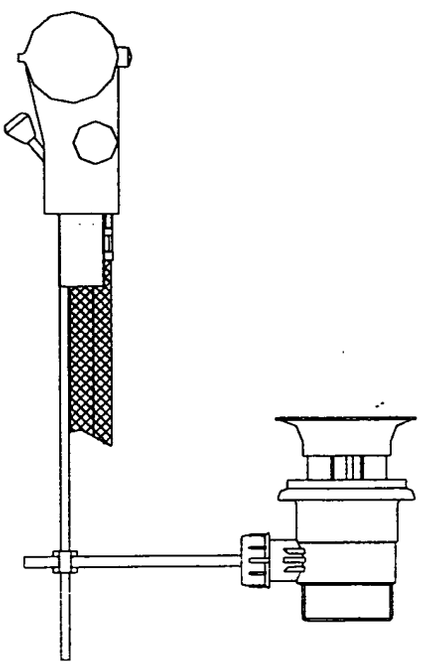
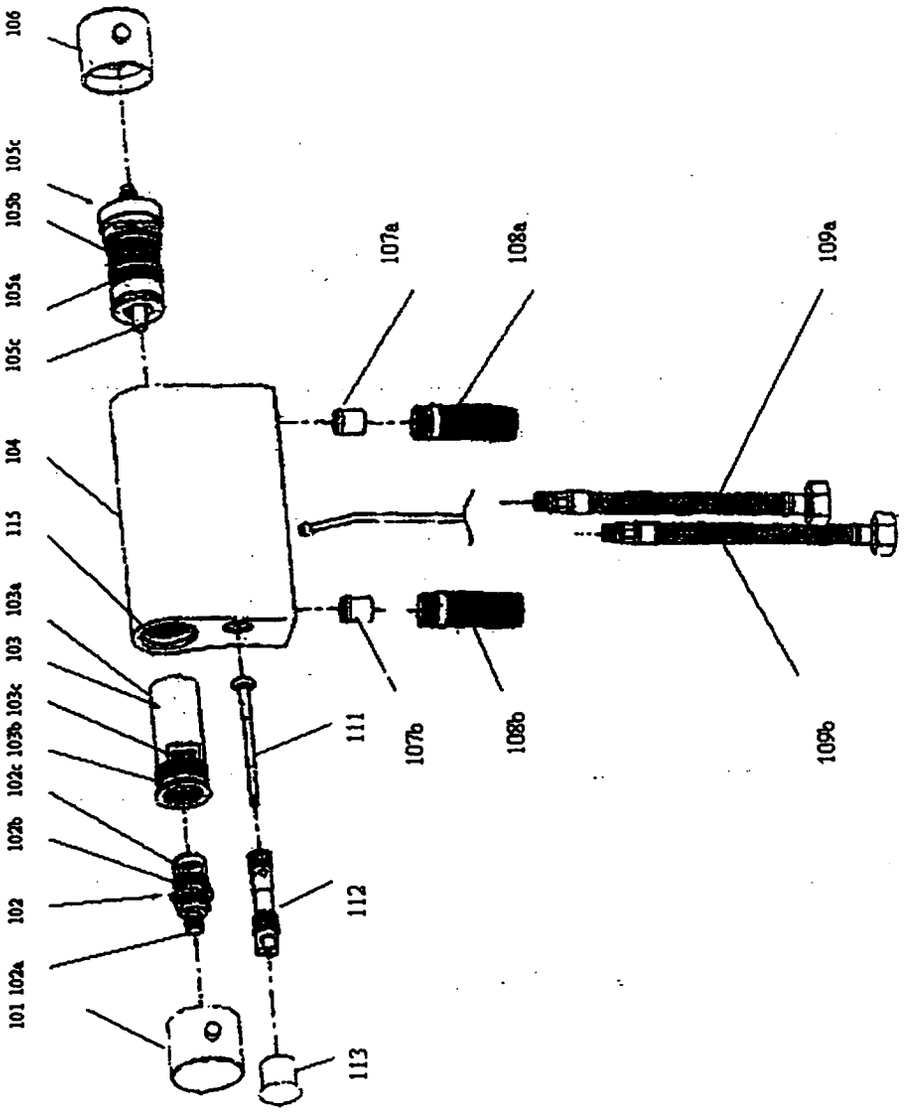


Fig. 4C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103
103c
103b
102c
102b
102
101 102a
111
112
113
107a
108a
109a
107b
108b
109b

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 04 01 3348

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.7)
A	CA 1 198 552 A (YUI GEORGE M) 31 December 1985 (1985-12-31) * page 13, line 22 - page 14, line 19; figures 3,4,7 * -----	1	E03D9/08
A	US 4 123 807 A (OGUMA TOMIO ET AL) 7 November 1978 (1978-11-07) * column 2, line 3 - column 44, line 44; figures 1,4 * -----	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E03D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 September 2004	De Coene, P

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 01 3348

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20-09-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CA 1198552 A	31-12-1985	CA 1198552 A2	31-12-1985
US 4123807 A	07-11-1978	JP 52017554 U	07-02-1977
		JP 52025460 U	22-02-1977
		JP 52034147 U	10-03-1977
		DE 2630671 A1	13-01-1977

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