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[Continued on next page]

(54) Title: FLUSHING APPARATUS FOR CLOSET BOWL WITH FLOW RATE ADJUSTER

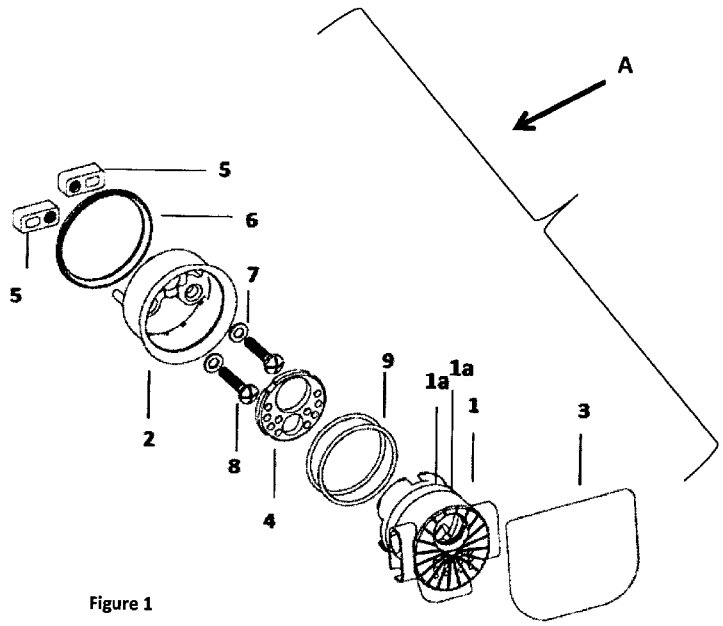

Figure 1

(57) Abstract: The application relates to a flushing apparatus which provides wash water to a water closet bowl. The apparatus (A) therefore comprises at least one inner body (1), at least one outer body (2), at least one cover (3), and at least one flow adjuster (4). The flow adjuster comprises at least a first aperture (4a) and second aperture (4b), whereby the first aperture (4a) has a diameter that is greater than the diameter of the second aperture (4b). The flow adjuster (4) can be rotated such that the flush water passes either the first or second aperture. It is thus possible to adjust the flow rate passing the flow adjuster. Preferably, the apparatus also provides a bidet function whereby a bidet end (16) is integrated within the apparatus.

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FLUSHING APPARATUS FOR CLOSET BOWL WITH FLOW RATE ADJUSTER

Subject of the Invention

The subject of the invention relates to a washing apparatus which provides washing of the water closet bowl by being mounted on the water closet and to a method for washing the water closet bowl with the use of this system.

Present State of the Art

Serious hygiene problems occur in the water closets of the common use areas such as schools and workplaces where we spend most of our time in the event that adequate cleaning is not provided. Some of the products used in the present state of the art do not comprise an additional washing system and many water closets in use comprise a section called ring and they are water closets with ring. By means of the holes having various size and diameters which are drilled on the inner bowl or on ring in the water closets with ring, washing of the water closet bowl is provided. However, performing either washing or cleaning processes through these holes drilled on the water closet bowl creates an unfavorable environment in terms of hygiene in time.

Some of the systems developed in the present state of the art are the washing systems applied in the water closets without ring, which are also called rimless water closets.

The Patent No. WO2009030904A1 relates to a washing system which can be used in the water closets without ring. Said system is not a system mounted subsequently and is provided on the water closet. The water flows into the bowl through the side inlets numbered 5 and 6 and the middle inlet numbered 14. This system is suitable for use in the water closets without ring and water closets should have water distribution section to distribute water. In said document, said system is not a system mounted subsequently to the water closet and is a system formed on the water closet.

In the document No. US6145138A, a washing system is disclosed where a water passage is formed on the rim which provides the passage of water into the bowl through this section.

In the document No. US7661153B2, a washing system is disclosed many different applications of which are mentioned. Water enters into the side portions by means of the holes provided to the side portion of the water closet bowl and moves on the channels provided therein and is discharged into the water closet bowl through the water spouting sections guided by these channels. One of the water spouting channels is positioned to provide the forward movement of the water while the other is positioned to provide the backward movement of the water, and thereby the water creates a vortex. An application with respect to spouting the water through a jet hole section is also disclosed.

In the document No. US2011/0023224A1, a washing system is disclosed where 1/3 of the water flows into the bowl through a first orifice and 2/3 of the water flows into the bowl from a second orifice.

In the document No. US5283913A, water flow is provided through the holes which are provided on the rim with certain diameters. A set is mounted between these holes and the water coming clockwise and counterclockwise creates a water jet at the center.

Likewise, in the document No. US8037552B2, a system is disclosed where the water to flow into the bowl passes into the bowl through two different orifices in 1/3 and 2/3 ratios. The inner bowl surface into which the water flows is designed so as to obtain maximum efficiency from flowing.

In the document No. US5918325A, a system is disclosed where the water passing over the rim flows into the bowl through the holes provided on the rim. The holes disposed in the front section of the rim are designed wider in diameter.

Brief Description of the Invention

The subject of the invention relates to a washing apparatus which provides washing of the water closet bowl by being mounted on the water closet and to a method for washing the water closet bowl with the use of this system.

The installation of the system developed within the scope of the invention is quite simple and can subsequently be mounted to the product. Thanks to the washing system developed within the scope of the invention, water can easily be conveyed to the desired points.

Washing apparatus (A) according to the invention comprises at least one inner body (1), at least one outer body (2), at least one cover (3), and at least one flow rate adjuster (4). Washing apparatus (A) developed within the scope of the invention can subsequently be mounted on the water closet and can be demounted easily, thereby cleaning process can be performed. Washing apparatus (A) developed within the scope of the invention can be used in the water closets with and without bidet system. In case of using the washing apparatus (A) in the water closets with bidet system, a cover (3) which comprises at least one hole (3a) where at least one bidet end (16) will be positioned thereon, will be used.

Description of the Figures:

Figure 1: The exploded view of the washing apparatus according to the invention without bidet system

Figure 2: The side X-X cross sectional view of the washing apparatus according to the invention without bidet system

Figure 3: The rear exploded view of the washing apparatus according to the invention

Figure 4a: The side assembled view of all the parts of the washing apparatus according to the invention except for the cover

Figure 4b: The side X-X cross-sectional view and front assembled view of all the parts of the washing apparatus according to the invention except for the cover

Figure 4c: The rear perspective assembled view of all the parts of the washing apparatus according to the invention except for the cover

Figure 4d: The front perspective assembled view of all the parts of the washing apparatus according to the invention except for the cover

Figure 4e: The top assembled view of all the parts of the washing apparatus according to the invention except for the cover

Figure 4f: The side perspective assembled view of all the parts of the washing apparatus according to the invention except for the cover

Figure 5: The exploded view of the washing apparatus according to the invention with bidet system

Figure 6: The exploded view of the washing apparatus according to the invention with bidet system together with the bidet pipe and bidet end

Figure 7: The side X-X cross-sectional view and front view of the washing apparatus according to the invention with bidet system

Figure 8a: The side view of the inner body of the washing apparatus according to the invention

Figure 8b: The side X-X cross-sectional view and rear view of the inner body of the washing apparatus according to the invention

Figure 8c: The front view of the inner body of the washing apparatus according to the invention

Figure 8d: The side view of the inner body of the washing apparatus according to the invention

Figure 8e: The rear perspective view of the inner body of the washing apparatus according to the invention

Figure 8f: The rear view of the inner body of the washing apparatus according to the invention

Figure 8g: The rear view of the inner body of the washing apparatus according to the invention

Figure 9a: The front perspective view of the flow rate adjuster

Figure 9b: The side X-X cross-sectional and front view of the flow rate adjuster

Figure 10a: The top view of the outer body

Figure 10b: The front perspective view of the outer body

Figure 10c: The side X-X cross-sectional and front view of the outer body

Figure 11a: The top cross-sectional view of the asymmetric water guide on the inner body

Figure 11b: The view of the asymmetric water guide on the inner body from inside the inner body

Figure 11c: The top cross-sectional view of the asymmetric water guide on the inner body

Figure 12: The view of the housing where the apparatus according to the invention is mounted on the water closet

Figure 13: The view of the apparatus according to the invention on the water closet

Figure 14: The view of the housing where the apparatus according to the invention is mounted on the water closet, together with the clean water channel and the reservoir

Description of the References:

A: Washing apparatus according to the invention

1: Inner body

1a: Sealing element housings

2: Outer body

2a: Fixing element housing

2b: Bidet end connection hole

3: Cover

3a: Hole on the cover

4: Flow rate adjuster

4a: Big hole

4b: Small hole

5: Fixing component

5a: Housings where legs on the outer body are positioned

5b: Fixing element housings on the fixing component

6: Sealing element on the outer body

7: Washer

8: Fixing element

9: Sealing elements on the inner body

10: Bidet water pipe mounting section

10a: Threaded section

11: Middle channel

12, 13: Side channel

13a: Side channel open section

13b: Side channel closed section

14: Fixing legs

15: Coves

16: Bidet end

16a: Bidet end sealing element housings

17: Bidet water pipe

18: Threaded component

19: Intrusions on the inner body

20: Hole on the inner body

21: Protrusions on the inner body

22: Asymmetric guide

22a: Portion of the asymmetric guide at the side channel direction where it is fully open

22b: Portion of the asymmetric guide at the side channel direction where its one section is open and its other section is closed

23: Fixing housings

24: Bidet end gasket

25: Reservoir

26: Clean water channel

27: Housing

Description of the Invention:

The subject of the invention relates to a washing apparatus which provides washing of the water closet bowl by being mounted on the water closet and to a method for washing the water closet bowl with the use of this system.

Washing apparatus (A) according to the invention comprises at least one inner body (1), at least one outer body (2), at least one cover (3), and at least one flow adjuster (4).

The washing apparatus according to the invention further comprises fixing components (5), fixing elements (8), sealing elements (6) positioned on the outer body and sealing elements (9) positioned on the inner body. Washing apparatus (A) developed within the scope of the invention can be used with and without bidet system. In case of being used with bidet system, it comprises at least one bidet end (16), at least one bidet end gasket (24) and at least one hole (3a) where the bidet end (16) will be positioned on the cover (3). In the event of being used with bidet system, at least one bidet water pipe (17) is fixed to the bidet water pipe mounting section (10) on the outer body (2) by means of at least one threaded component (18).

Of the sealing elements used in the washing apparatus developed within the scope of the invention, the sealing element (6) positioned on the outer body is preferably gasket and provides sealing between the surface of the water closet and the apparatus according to the

invention. The sealing elements (9) positioned on the inner body, on the other hand, is preferably O-ring and is positioned on at least one sealing housing (1a) on the inner body (1). Figure 1 shows the use of the washing apparatus developed within the scope of the invention in the water closet without bidet system while Figures 5 and 6 show the use thereof with bidet system.

Washing apparatus according to the invention is mounted to the end of the clean water inlet channel (26) on the water closet, in other words; to the housing (27) positioned therein. Use of the washing apparatus developed within the scope of the invention in the water closets which do not comprise ring in the inner section of the bowl thereof is also possible. No nozzle is used for guiding the water in the apparatus according to the invention. Differently from the systems used in the present state of the art, water comes from the reservoir (25) instead of the installation and reaches to the washing apparatus according to the invention by passing through the clean water inlet channel (26). Use of the washing apparatus developed within the scope of the invention with bidet system is possible, but the use thereof without bidet system is also possible.

While washing of the water closet bowl is provided with the water coming from the gaps or holes drilled on the water closet during the use of the current systems in the present state of the art, washing is performed with the washing apparatus (A) subsequently mounted to the product according to the invention. A housing (27) with an appropriate size should be available which provides the mounting of the apparatus on the water closet for the use of the apparatus (A) developed within the scope of the invention (Figure 11). This housing (27) is at the end of the clean water distribution channel (26). Washing apparatus outer body (2), on which sealing element (6) is fitted, is mounted on this housing (27).

Outer body (2) of the washing apparatus is mounted on the water closet by means of the fixing components (5) and the fixing elements (8). Outer body (2) comprises thereon legs (14) on which fixing component (5) will be positioned. Fixing components (5) comprise thereon housings (5a) where the outer body legs (14) will be positioned and housings (5b) where the fixing elements (8) will be positioned. As seen in Figure 10c, the outer body (2) comprises at least one bidet end connection hole (2b) and at least one fixing element connection hole (2a) in the inner section thereof. Within the scope of the invention, the outer body (2) comprises at least three holes, one of which is the bidet end connection hole

(2b) and the two of which are the fixing element connection holes (2a). Fixing legs (14) provided on the outer body are fitted into the housings (5a) on the fixing components and the fixing elements (8) are positioned both in the housings (5b) on the fixing components and in the housings (2a) on the outer body (2), and thus the fixing components (5) are fixed on the outer body as seen in Figure 4e. Fixing elements can be fixed by means of at least one washer (7). However, unless the fixing elements (8) are tightened, fixing components (5) can move on the outer body. By this means, the fixing components (5) attached on the outer body take a horizontally inclined position as they are pushed forwards while passing through the housing (27) on the water closet and pass through the housing in this manner, thanks to the fact that the fixing components (5) are longer than the length of said housing after being tightened and straightened horizontally, their passage through the housing is prevented and the outer body (2) is fixed on the housing (27). Said fixing elements (8) are preferably screw. Outer body comprises thereon at least one bidet water pipe mounting section (10) and in case the washing apparatus according to the invention is used with bidet system at least one bidet water pipe (17) is mounted to this section. Bidet water pipe mounting section (10) comprises thereon at least one threaded section (10a) and the bidet water pipe (17) is mounted to this section by means of at least one threaded component (18).

The inner body (1) comprised by the apparatus developed within the scope of the invention is shown in Figures 8a-8g. Inner body (1) comprises thereon at least one sealing element housing (1a) where at least one sealing element (9) will be positioned. Sealing element (9) is positioned to said housing and in the preferred use said sealing element is an O-ring. Inner body (1) is fixed into the outer body (2) in a close-fit manner thanks to said sealing elements (9). The view of the inner body (1) when mounted on the outer body (2) is shown in Figures 4a-4f. Inner body (1) comprises thereon at least one side channel (12, 13) and at least one middle channel (11). Water flows into the bowl through said channels and performs the washing process. One section of one of the side channels is open while the other section of the same is closed to the water passage. As seen in Figure 4f, for a more efficient water flow and more adequate washing process, side channel (13) comprises at least one open section (13a) and at least one closed section (13b). The other side channel (12), however, is a fully open channel. Side channels (12, 13) comprise coves (15) at the lower parts thereof. Said coves (15) provides a more efficient water flow. Inner body (1) comprises protrusions (21) where flow rate adjuster (4) will be positioned in the inner section thereof. Inner body (1)

comprises intrusions (19) in the surface thereof on which the cover (3) will be positioned. Cover (3) is mounted on the inner body (1) by adhesion method in the preferred use and said intrusions (19) increase the surface of adherence. At least one hole (20) where the bidet end (16) is located, is positioned on the inner body (1). Inner body (1) comprises asymmetric guide (22) in the inner surface thereof as seen in Figures 8b, 8e, 8f and 8g. Asymmetric guide is given in detail in Figures 11a, 11b and 11c. Portion of the asymmetric guide (22b) at the side channel (13) direction where its one section is open and its other section is closed, is inclined in a manner to guide the coming water to the open section (13a) of the side channel, namely to guide it upwards while portion of the asymmetric guide (22a) at the side channel (12) direction where it is fully open, is inclined in a manner to guide the water also toward the open lower section of the channel. By this means, the water guided by the asymmetric guide (22) with different angles and coming from the two side channels is not combined right at the center inside the water closet bowl and this prevents the water from splashing out of the bowl. Diameter of the sections of the side channels, through which water flow is allowed, is different in other words, one section of the side channel (13) is open while the other section thereof is closed, which prevents the water from coming with the same intensity through both channels.

Bidet end (16) comprises thereon at least one housing (16a) where at least one sealing element will be positioned and thanks to the sealing elements positioned in this housing (16a), the bidet end (16) is fixed to the bidet end connection hole (2b) on the outer body (2) in a close-fit manner. In case the apparatus according to the invention is desired to be used with the bidet system, the bidet end (16) passes through the hole (20) on the inner body together with at least one bidet end gasket (24) and is fixed to the bidet end connection hole (2b) on the outer body (2) in a close-fit manner as mentioned.

Flow rate adjuster (4) comprised by the apparatus according to the invention is shown in Figures 9a-9b. Flow adjuster is positioned in the inner section of the inner body (1). Flow adjuster (4) comprises thereon at least two water passage holes, one of which is a big hole (4a), bigger than the other, and a small hole (4b), smaller than the other. Flow adjuster (4) is positioned inside the inner body as seen in Figures 1 and 5 such that the big hole will be at the top in the standard position thereof. However, small hole (4b) can also be positioned at the top when the water coming from the reservoir is not powerful or more intensive water is

desired. Thus, the washing apparatus developed within the scope of the invention is effective in increasing the flow of the water thanks to this adjuster when the flow is desired to be increased for a more efficient washing according to the intensity of the water coming from the reservoir. Flow adjuster (4) comprises thereon fixing housings (23) into which the protrusions (21) on the inner body (1) are fitted. Flow adjuster (4) is fixed into the inner body (1) by fitting of the protrusions (21) on the inner body into these fixing housings (23).

In case of using the apparatus (A) developed within the scope of the invention with bidet system, bidet water pipe (17) with at least one threaded component (18) are fixed on the section (10) where bidet pipe is mounted on the outer body. Threaded component (18) is fixed to the threaded section (10a) on the section (10), where bidet pipe is mounted on the outer body, by screwing of the threaded surfaces to each other or by interlocking thereof.

The cover (3) used in the washing apparatus according to the invention can be ceramic in a manner to be compatible with the water closet while it can also be made of different materials within the scope of the invention.

Washing the water closet bowl with the washing system according to the invention is based on the principle that the water in the free-flowing state when the reservoir button is pushed passes through the clean water channel (26) and reaches to the apparatus according to the invention, and then reaches to the inner body (1) by passing through the outer body (2), enters into the water closet bowl through the channels (11, 12, 13) provided on the inner body (1), and performs the washing in the bowl. While the water flows into the water closet bowl both from the right and the left through the side channels (12, 13) provided on the inner body, it directly flows into the water closet bowl in downward direction through the middle channel (11) positioned in the middle. Flow adjuster (4) provided on the inner body (1) is used for adjusting the flow of the water coming from the reservoir. In its standard use, the flow adjuster (4) is fixed into inner body (1) as seen in Figures 1, 5 and 6 such that the big hole (4a) thereon will be at the top, but in case flow of the water coming from the reservoir is not sufficient the flow adjuster (4) is positioned such that the small hole (4b) thereon will be at the top and the flow rate of the water is increased.

The washing apparatus according to the invention is quite useful in that it performs the washing process by distributing the water coming from the clean water channel properly,

provides an aesthetic appearance, provides the cleaning to be performed easily, and it can be easily mounted and used in the water closets without ring. Moreover, said washing apparatus can be used in the water closets with or without bidet system. As it is not an integrated part but consists of parts which can be demounted and as it easily can be mounted and demounted to the water closet, the cleaning thereof can be performed easily. The washing apparatus according to the invention is not formed on the water closet unlike the systems used in the present state of the art, wherein it is an apparatus which can subsequently be mounted to the product and can be demounted from the product for cleaning when desired.

CLAIMS

1. A washing apparatus which is positioned in at least one housing (27) on a water closet, which can be used in the water closets with or without bidet system, and which comprises at least one outer body (2) mounted on the water closet, at least one inner body (1) mounted into the outer body (2) and at least one cover (3) positioned on the inner body (1), characterized in comprising at least one flow rate adjuster (4) which is mounted into the inner body (1) and comprises thereon at least one big hole (4a) and at least one small hole (4b) such that the diameter of the big hole (4a) is bigger than the diameter of the small hole (4b) and small hole (4b) is used to increase the flow rate in case the flow rate of coming water is insufficient.

2. The washing apparatus as in Claim 1, characterized in further comprising the following in case of being used in a water closet with bidet system
   - at least one bidet end (16),
   - at least one bidet end gasket (24),
   - at least one threaded component (18) which provides the mounting of at least one bidet water pipe (17) on the outer body (2), and
   - at least one hole (3a) where the bidet end will be positioned on said cover (3).

3. The washing apparatus as in Claim 1, characterized in comprising at least one fixing component (5) which provides the fixing of the outer body (2) on the water closet.

4. The washing apparatus as in Claim 1, characterized in comprising fixing legs (14) on the outer body (2).

5. The washing apparatus as in Claim 1, characterized in comprising at least one fixing element (8) and at least one washer (7).

6. The washing apparatus as in Claim 3, characterized in that fixing component (5) comprises at least one housing (5b) where said fixing elements (8) will be positioned.

7. The washing apparatus as in Claim 3, characterized in that fixing component (5) comprises at least one housing (5a) where fixing legs (14) provided on the outer body (2) will be positioned.

8. The washing apparatus as in Claim 5, characterized in that the outer body (2) comprises at least one fixing element housing (2a) where said fixing elements (8) will be positioned on.

9. The washing apparatus as in Claim 1, characterized in that outer body (2) comprises at least one bidet end connection hole (2b) where said bidet end (16) will be positioned.

10. The washing apparatus as in Claim 1, characterized in that inner body (1) comprises at least one hole (20) where said bidet end (16) will be positioned.

11. The washing apparatus as in Claim 1, characterized in comprising at least one sealing element (9) positioned in at least one sealing element housing (1a) on the inner body (1).

12. The washing apparatus as in Claim 1, characterized in comprising at least one sealing element (6) positioned on the outer body (2).

13. The washing apparatus as in Claim 1, characterized in that inner body (1) comprises protrusions (21) where said flow rate adjuster (4) will be positioned.

14. The washing apparatus as in Claim 1, characterized in that flow rate adjuster (4) comprises fixing housings (23) where the protrusions (21) on the inner body will be placed.

15. The washing apparatus as in Claim 1, characterized in that inner body (1) comprises intrusions (19) in the surface thereof where said cover (3) will be mounted.

16. The washing apparatus as in Claim 1, characterized in that inner body (1) comprises thereon at least one side channel (12, 13) positioned at the right and left, one for each and at least one middle channel (11) positioned in the middle.

17. The washing apparatus as in Claim 16, characterized in that one section of said side channel (13) is open to the water passage while the other section thereof is closed to the water passage, in other words; said side channel comprises both the open section (13a) and the closed section (13b).

18. The washing apparatus as in Claim 16, characterized in that inner body comprises coves (15) on the side channels (12, 13).

19. The washing apparatus as in Claim 1, characterized in that inner body (1) comprises asymmetric guide (22).

20. The washing apparatus as in Claim 2, characterized in that said bidet end (16) comprises thereon at least one sealing element housing (16a) where the sealing elements will be positioned.

21. The washing apparatus as in Claim 11, characterized in that said sealing elements (9) are O-ring.

22. The washing apparatus as in Claim 12, characterized in that said sealing element (6) is gasket.

23. The washing apparatus as in Claim 1, characterized in that outer body (2) comprises at least one mounting section (10) where bidet water pipe will be mounted on.

24. The washing apparatus as in Claim 23, characterized in comprising at least one threaded section (10a) on the bidet water mounting section (10) on the outer body.

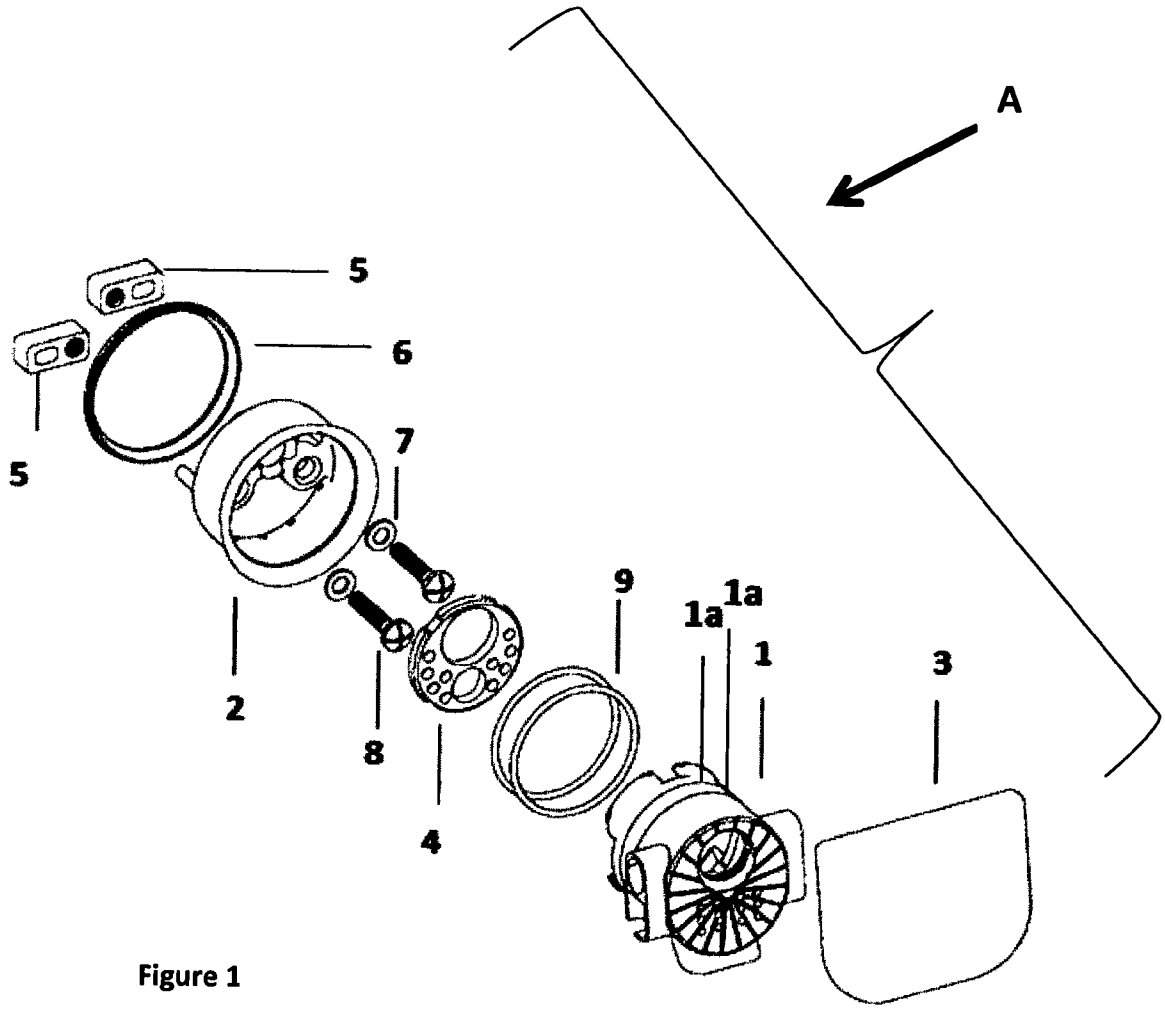


Figure 1

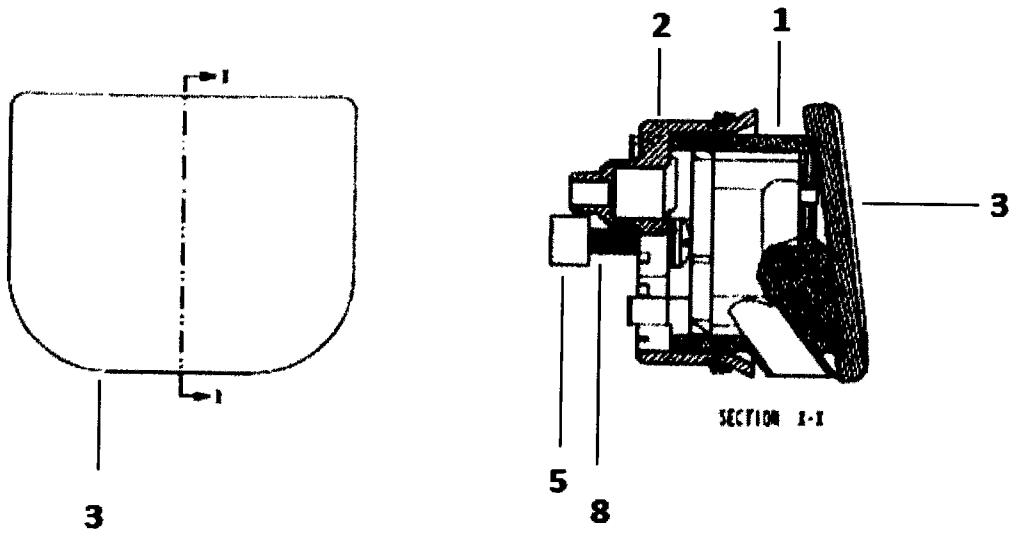
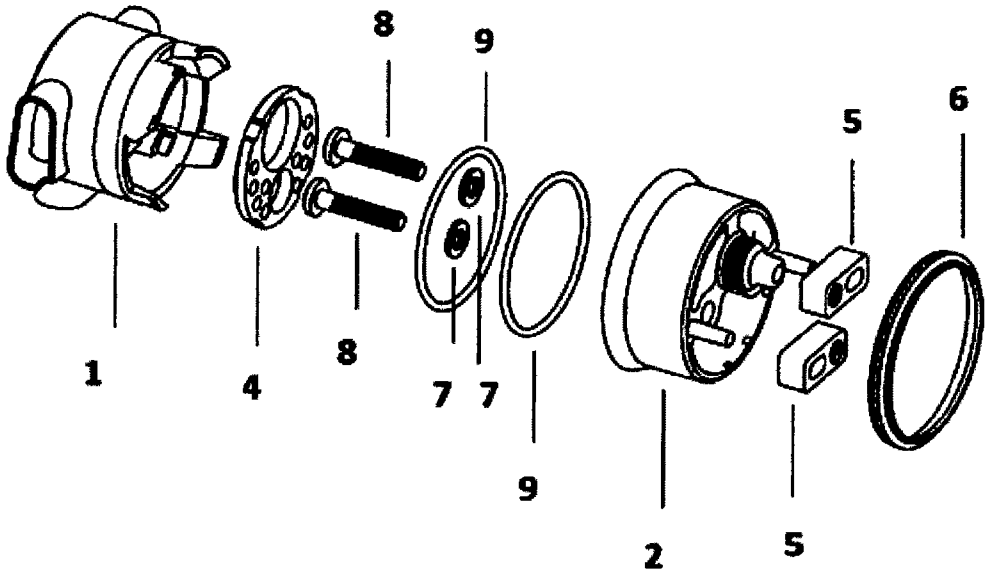


Figure 2



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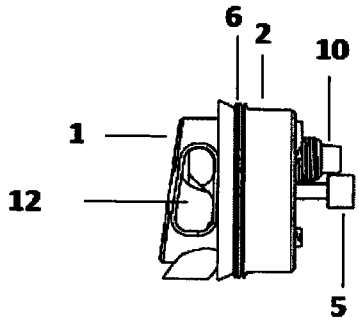
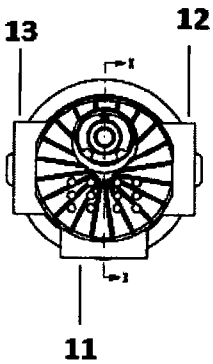


Figure 4a



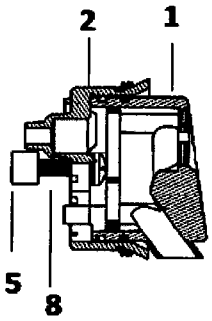


Figure 4b

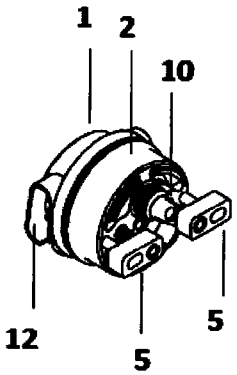
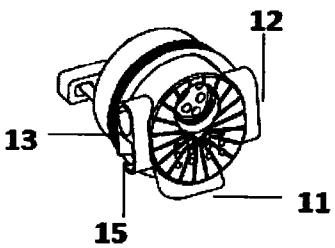


Figure 4c



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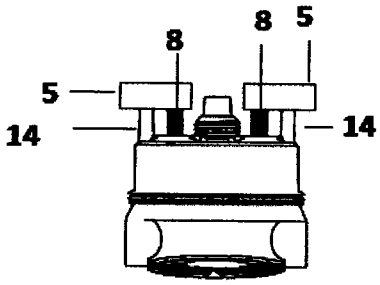
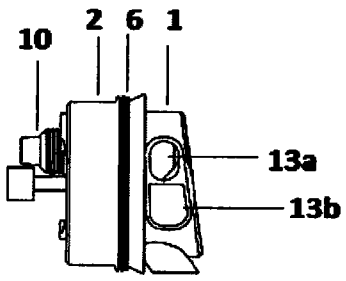


Figure 4e



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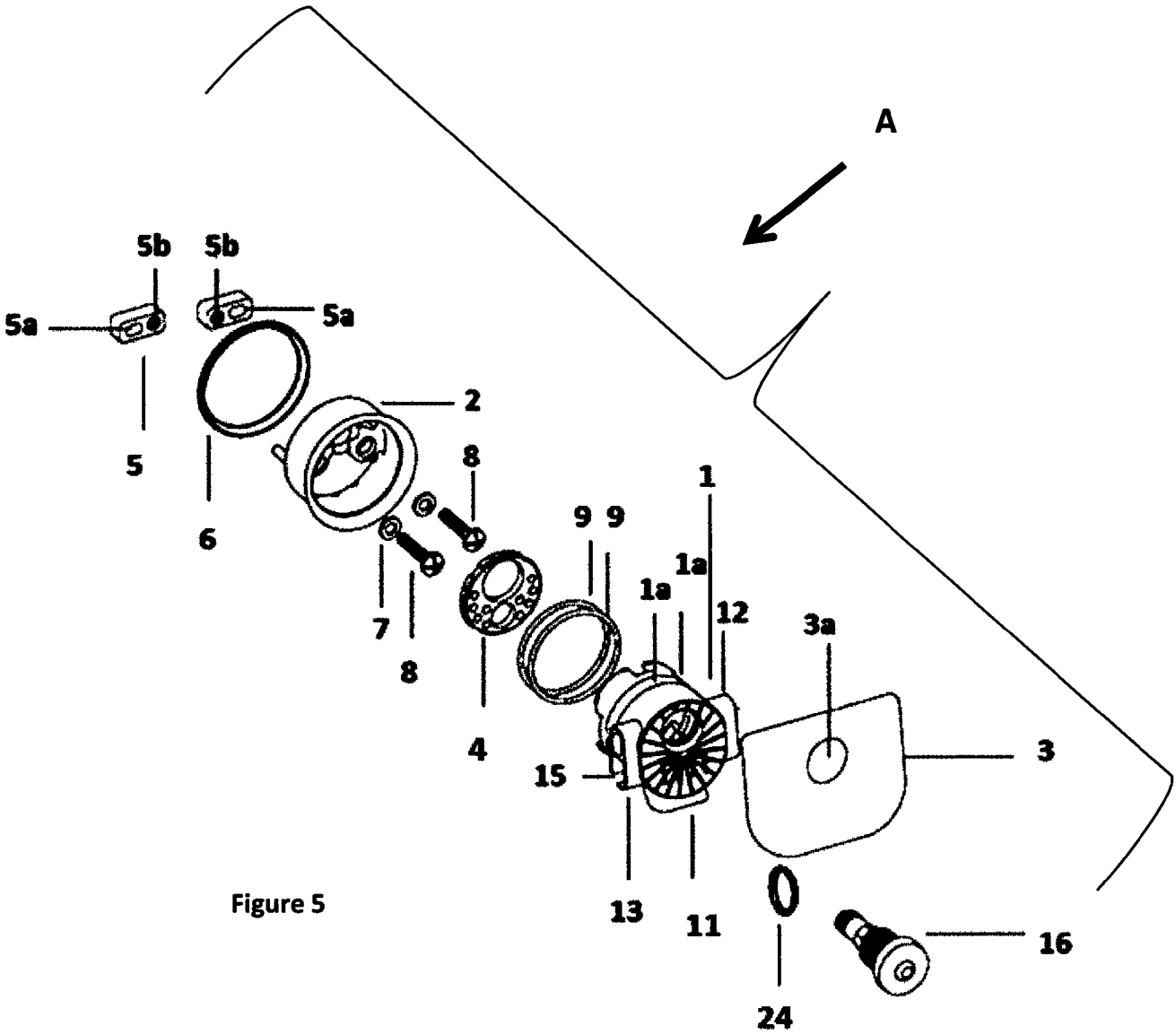

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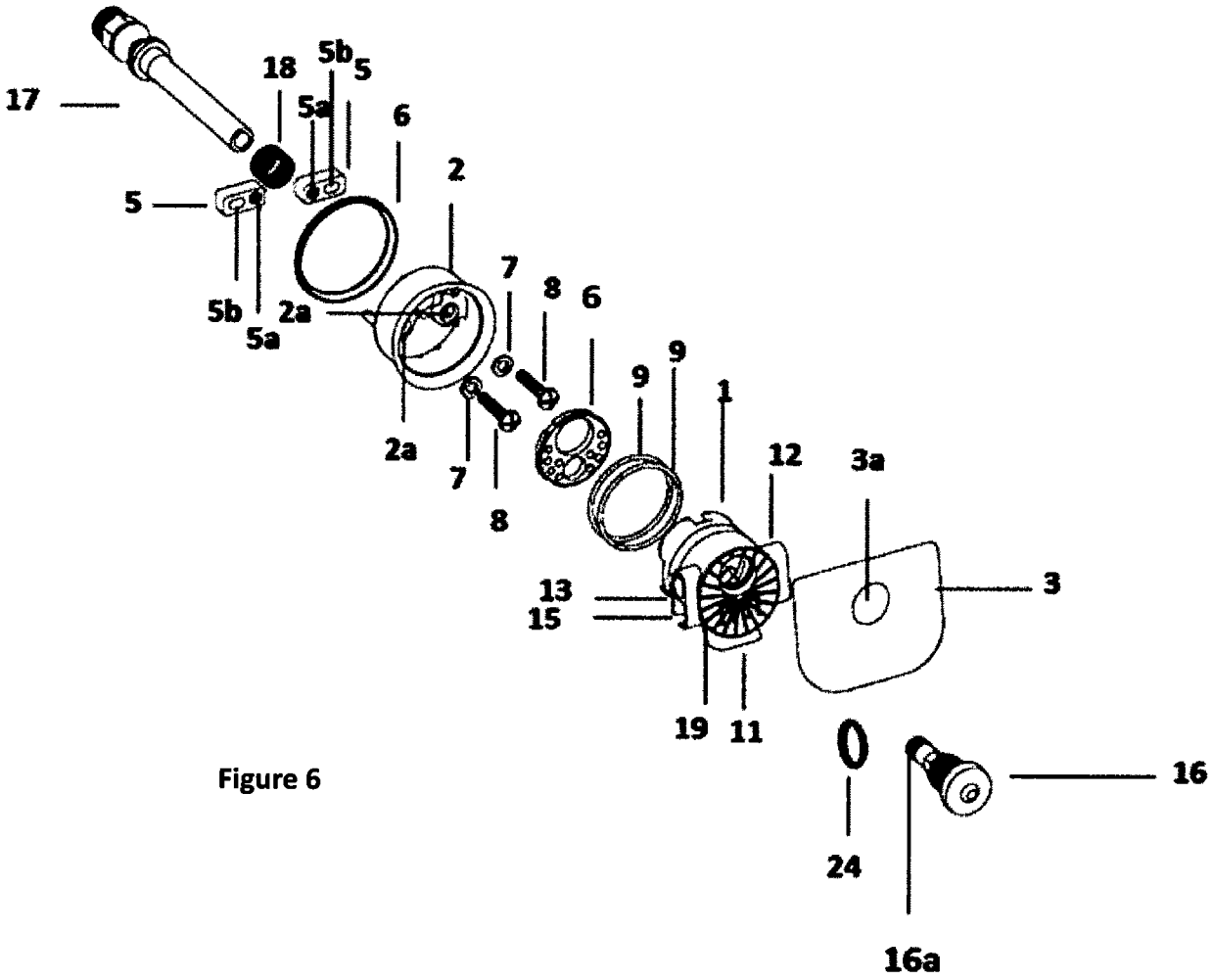

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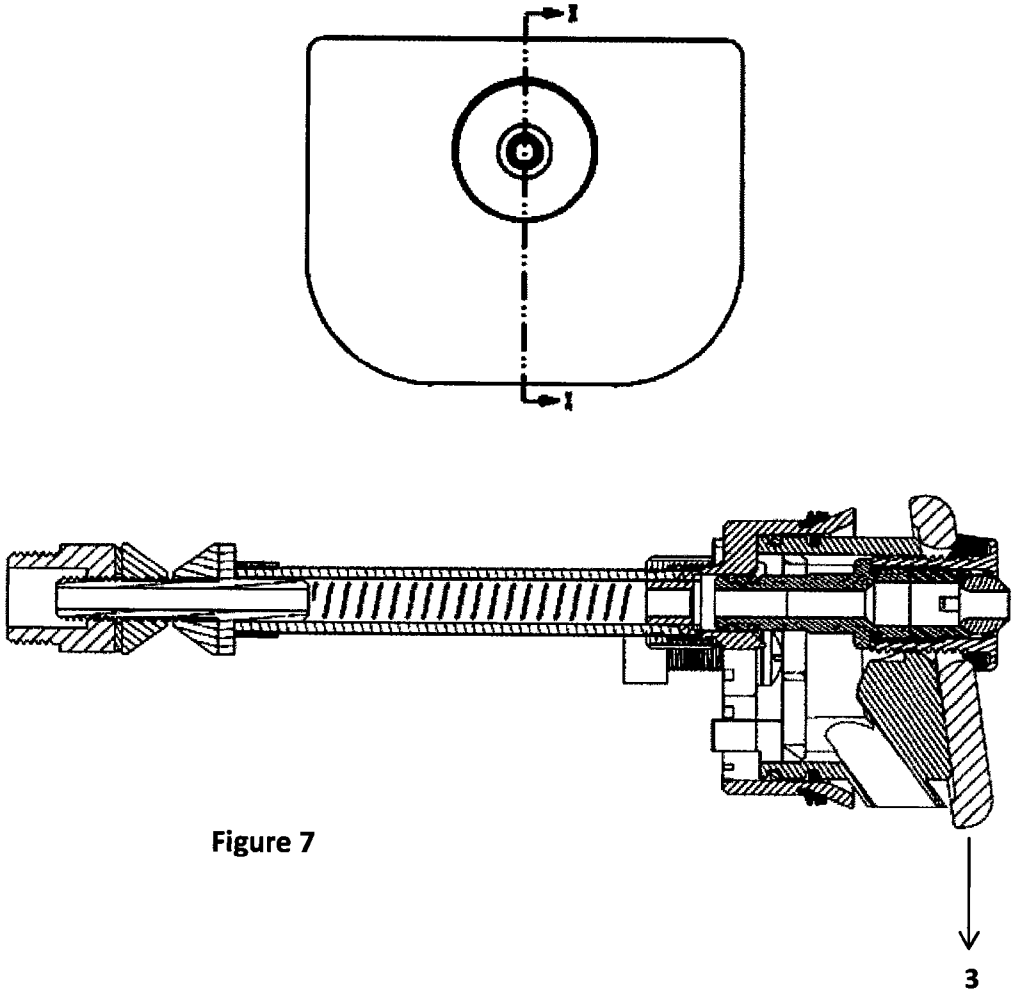

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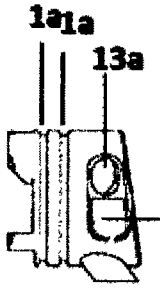


Figure 8a

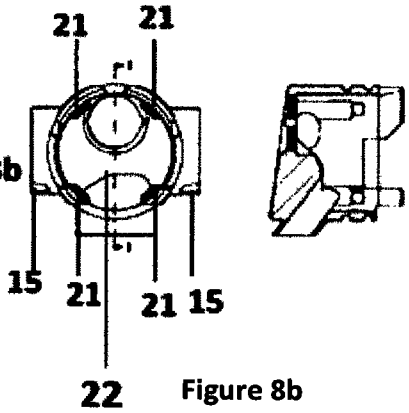


Figure 8b

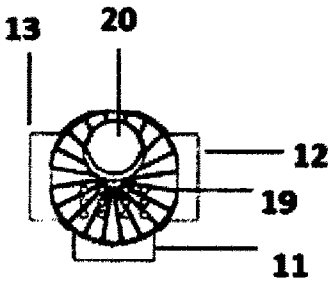
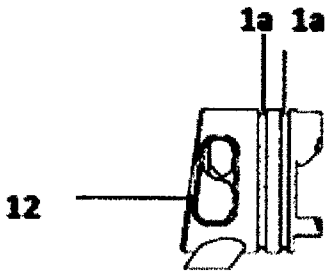


Figure 8c



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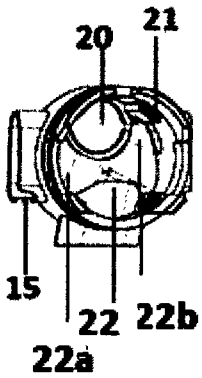

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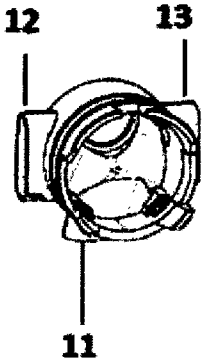

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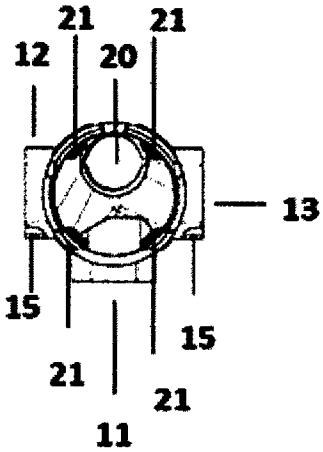


Figure 8g

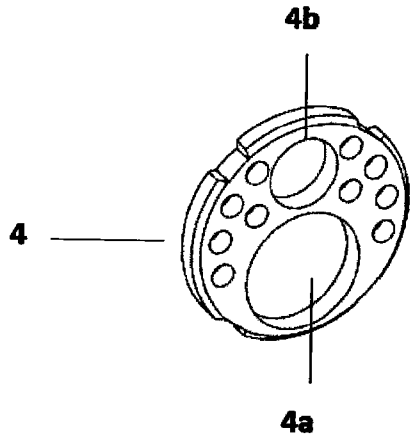


Figure 9a

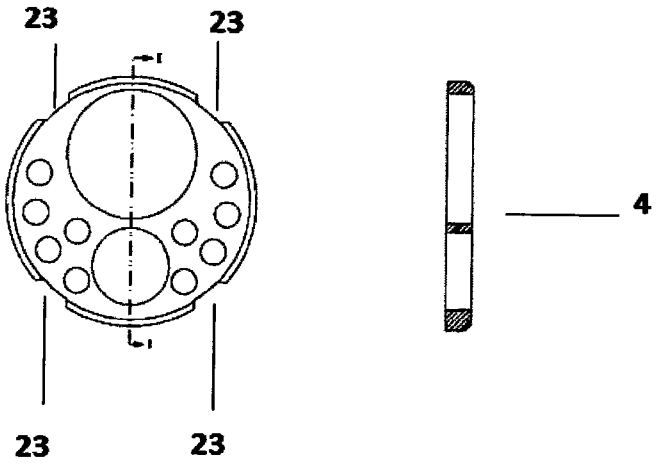


Figure 9b

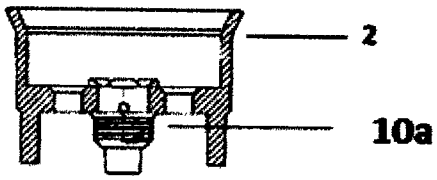
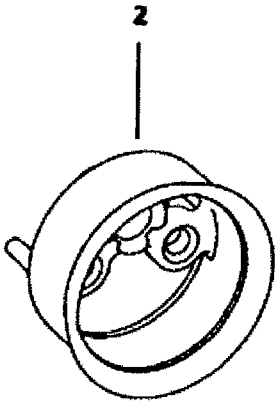


Figure 10a



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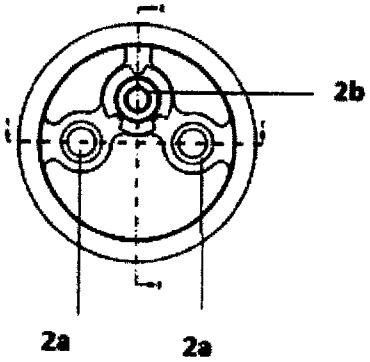


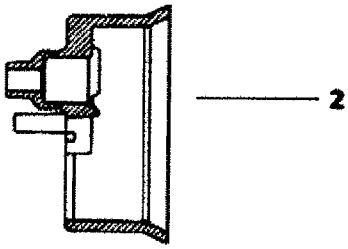


Figure 10c

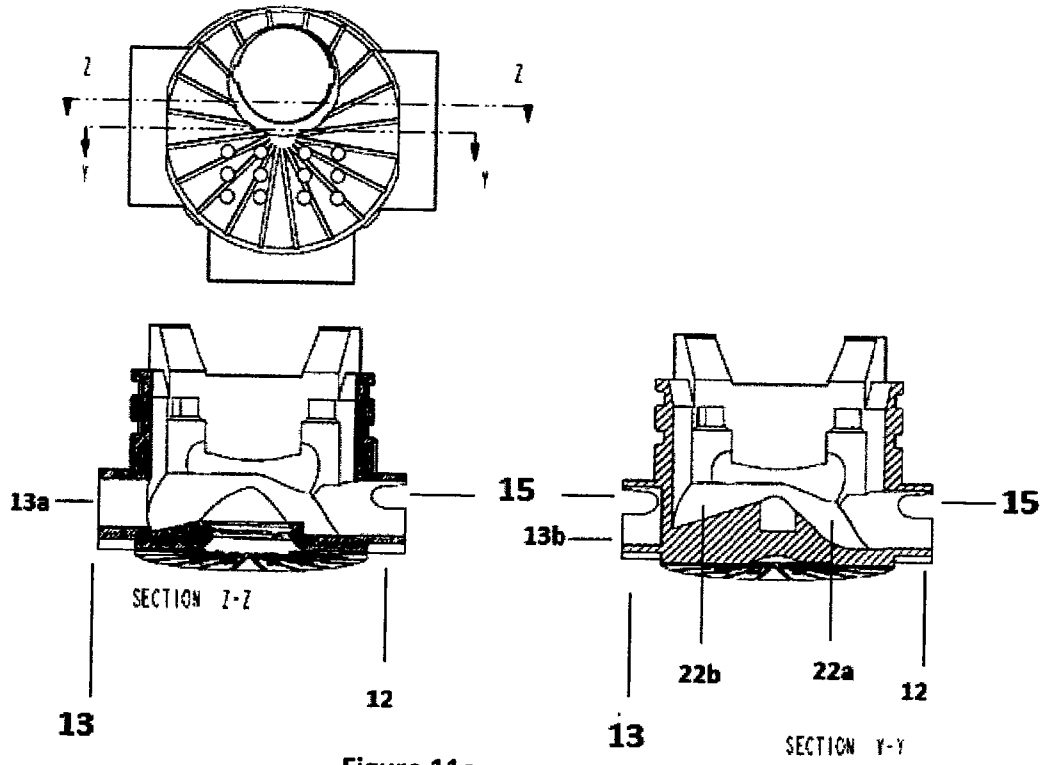
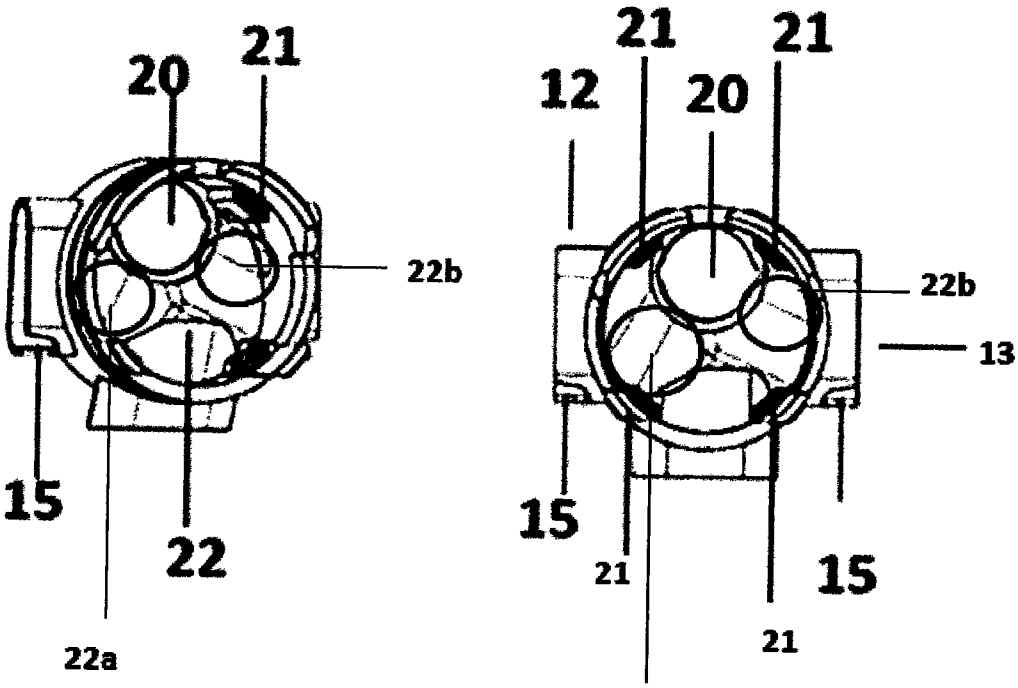


Figure 11a



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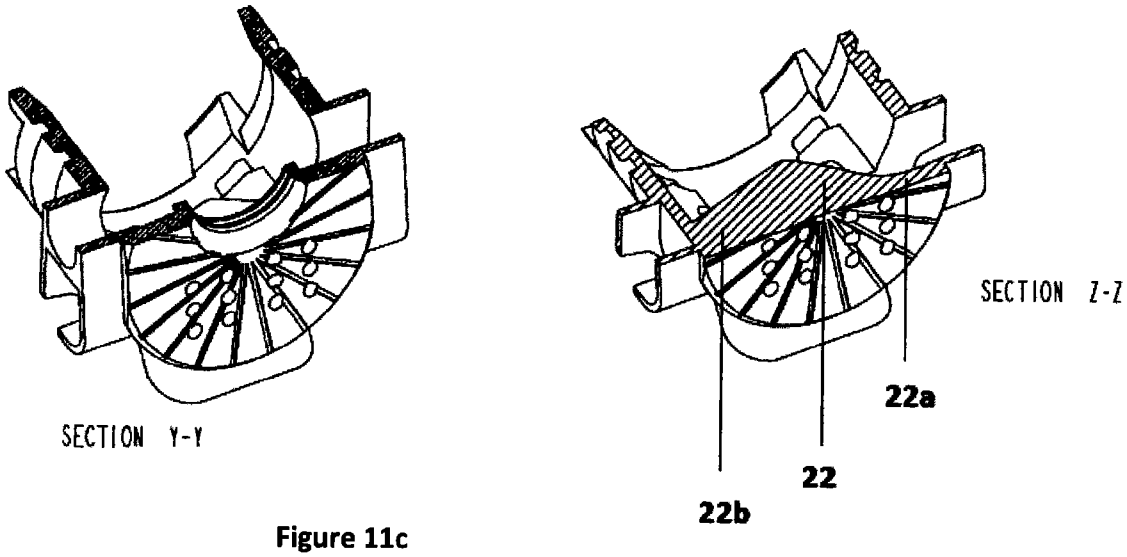

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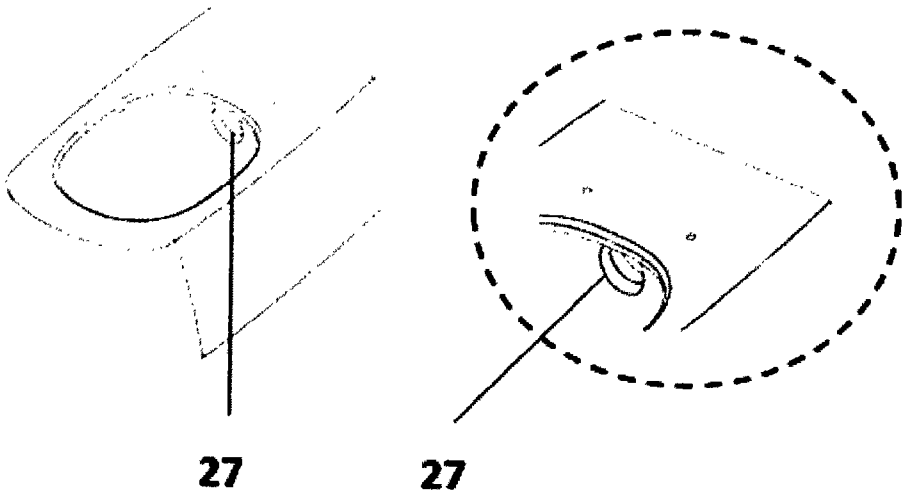

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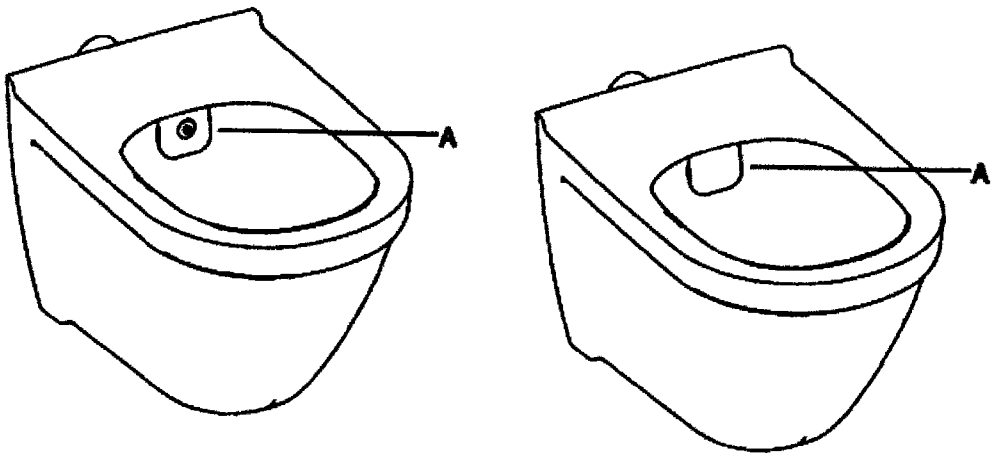

Figure 13

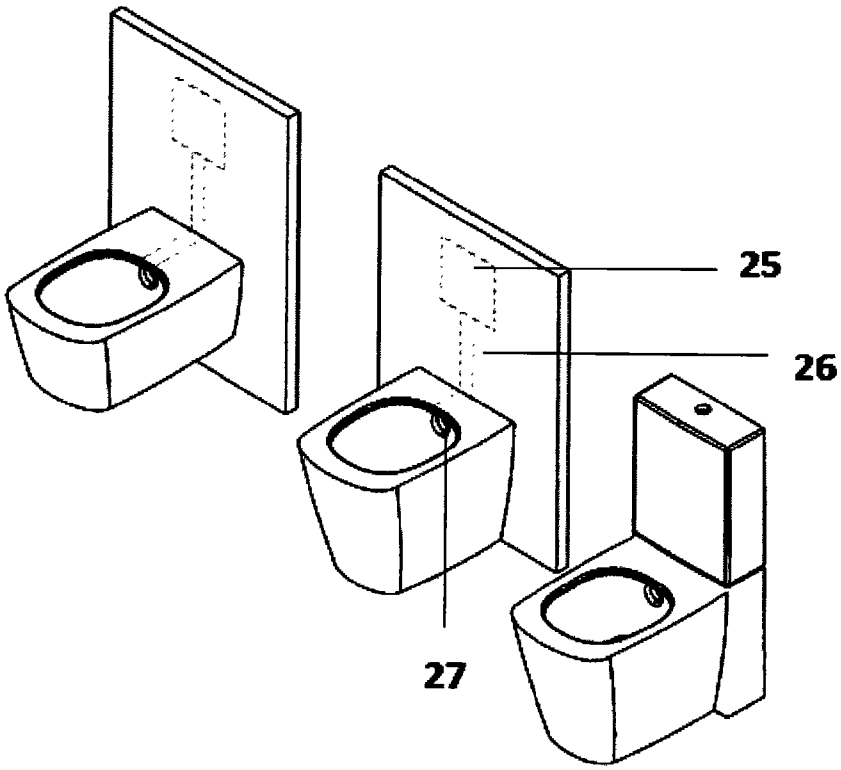

Figure 14

INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2015/000365

A. CLASSIFICATION OF SUBJECT MATTER
INV. E03D9/16 E03D9/08
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E03D G05D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2014/123494 A1 (ECZACIBASI YAPI GEREÇLERI SANAYI VE TICARET ANONIM SIRKETI [TR]) 14 August 2014 (2014-08-14) the whole document	1-24
Y	US 2010/122742 A1 (LIN HSIAO-MEI [TW]) 20 May 2010 (2010-05-20) the whole document	1-24
Y	GB 2 483 471 A (MICHAEL BULL [GB]; COLIN CHARLES JENNINGS [GB]) 14 March 2012 (2012-03-14) the whole document	1-24
Y	JP 2006 077404 A (LAND SYSTEM KK I) 23 March 2006 (2006-03-23) the whole document	1-24

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
2 May 2016	13/05/2016

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Geisenhofer, Michael

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/TR2015/000365

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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