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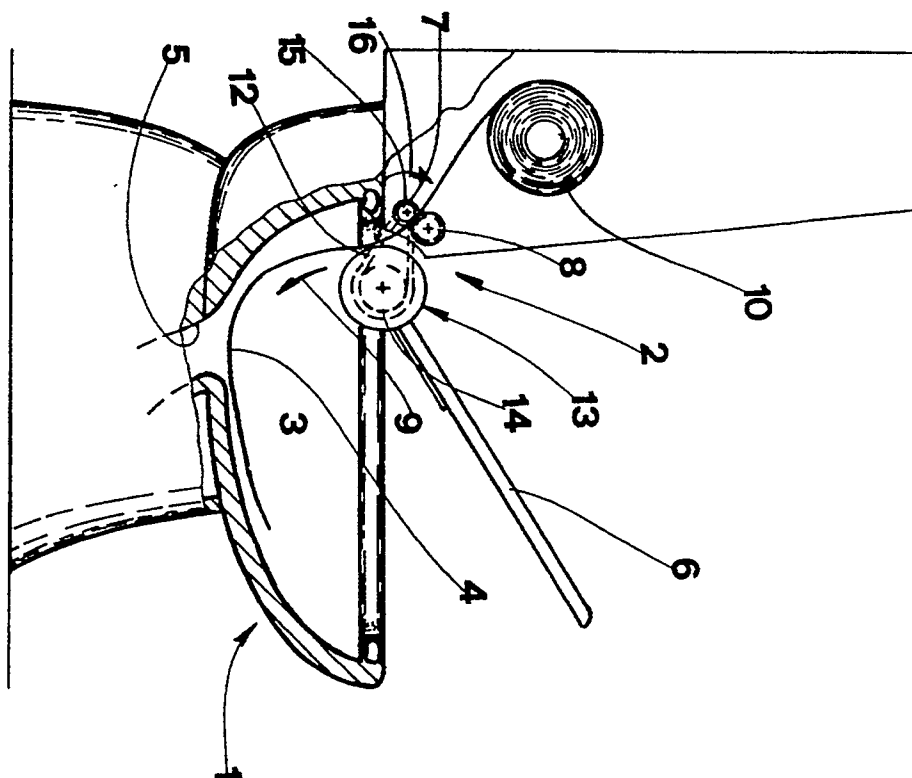
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(54) **An apparatus designed to facilitate the cleaning of hygienic services, in particular water closets and similar.**

(57) The invention relates to an apparatus designed to facilitate the cleaning of hygienic services, in particular water closets and similar, comprising a distributing device (2) located externally to the water closet or latrine (1), which distributing device (2) functions in such a way as to deposit, upon command, a section of paper (4) or other material, drawn from a feeding compartment, in the internal cavity (3) of the water closet or latrine (1).



**Fig.1**

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The present invention concerns an apparatus designed to facilitate the cleaning of hygienic services, in particular water closets and similar.

Specifically, but not exclusively, the invention is useful with respect to hygienic services for the public.

It presents a device which is activated upon use of the water closet or latrine by the user.

In particular, the invention aims to provide a careful cleaning of the water closet while eliminating the need to depend on mechanical actions, by means of brushes or similar, in addition to the cleaning provided by the water of the flush.

The invention, as characterised in the claims which follow, reaches the above-described aims in a way which is both simple and successful.

An advantage of the invention is that it can be realised in mechanically simple embodiments, with easy operation and maintenance.

Further characteristics and advantages will better appear in the description which follows, of some preferred but not exclusive embodiments of the invention, illustrated here purely in the form of non-limiting examples in the accompanying diagrams, in which:

- Figure 1 shows a schematic elevated side-view, partially sectioned, of a first embodiment;
- Figure 2 shows a schematic elevated side-view of a second embodiment of the invention.

With reference to the above-mentioned figures, Fig. 1 denotes a water-closet in which can be seen the internal cavity 3 which has at the bottom of its bowl the discharge outlet 5. Posteriorly, behind the seat 6, a distributing device 2 is placed, whose purpose is to deposit, on command, a section of paper 4 or other material in said cavity 3. In more detail, the distributing device 2, which is located just above the water-closet 1, comprises a parallel -axis roller-couple 7 and 8 which are maintained in pre-established constant pressure one against the other. The two rollers 7 and 8 compress the section of paper 4 between them and by means of friction cause its advancement in the direction indicated by the arrow 9. The section of paper 4 which is deposited in the internal cavity 3 of the water-closet 1 is part of a continuous sheet which is housed in a feeding compartment comprising, in the embodiment of Fig. 1, a bobbin or roll 10. In the embodiment of Fig. 2, the sheet of paper is continuous, as in the embodiment of Fig. 1, but housed in a container 11 in which the sheet is stacked in folds.

In other embodiments, not illustrated in the accompanying diagrams, a compartment could be envisaged which would feed the rollers 7 and 8 with single pre-cut sheets, instead of a continuous sheet.

The roller 7 acts as a drawing roller and is connected, by means of mechanical belt-drive transmission 12, with a mobile element 13, which is rotatably mobile about an axis parallel to the axes of the parallel-axis roller-couple 7, and which is solid with the seat 6. The mobile element 13 comprises a group which

interacts between the water-closet 1 and the seat 6 with the aim of maintaining said seat 6 automatically in the lifted position in the absence of a user. The belt 12 is wound around and stretched between a pulley 14, fixed coaxially to the mobile element 13, and a pulley 15, which is mounted laterally on the roller 7, a free-wheel mechanism being interposed between them to permit of rotating solidarity between the drawing roller 7 and the pulley 15 in only one direction, more precisely in the clockwise direction (indicated by the arrow 16). In this way the section of paper 4 is advanced by means of friction as indicated by arrow 9. The roller 8 is mounted idle on its axis and is pressed (to a pre-established pressure) against roller 7 so as to be set in rotation by means of friction against said roller 7. The transmission ratio between the pulley 14 and the pulley 15, as well as the diameters of the two pulleys 7 and 8 are arranged in such a way that in correspondence with the lowering of the seat 6, a length of paper 4 is drawn into the internal cavity 3 which is enough to cover a large part of the cavity walls around the discharge outlet 5.

The continuous section of paper 4 has universally distributed transversal perforations at regular intervals, or otherwise invitations arranged so as to facilitate the tearing of the section of paper 4 which is in the internal cavity 3 from the remaining section of paper 4 which is stretched between rollers 7 and 8. Said tearing is encouraged by the force of the flush water.

The introduction of a section of paper 4 sufficient to cover the greater part of the internal cavity 3 is realised by means of the lowering of the seat 6 from the rest position (upright) to the work position (horizontal). The drawing and advancing of the section of paper 4 in the direction indicated by the arrow 9 are produced by the friction effected on the section of paper 4 by the rollers 7 and 8.

The section of paper 4 which is deposited in the internal cavity 3 adheres, at least partially, to the surface of the internal cavity 3, thus constituting a sort of thin covering.

At the moment of flushing the water closet, the flushwater drags the section of paper 4 into the discharge outlet 5. The presence of the section of paper 4, therefore, prevents contact between the waste and the surface of the internal cavity 3, as well as facilitating the cleaning of said internal cavity 3 by rubbing against its surface as it is flushed away. The detachment of the section of paper 4 from the continuous roll is facilitated by the presence of perforations or other invitations in the sheet itself.

In other embodiments, not illustrated in the accompanying diagrams, feeding of the paper might not be realised using a continuous roll, but rather through the distribution of single sheets taken from a special compartment wherein said single sheets would have been previously stacked.

In yet other embodiments, variants on the command system for drawing the paper could be envisaged. For example, a control which was independent of the seat 6 might be envisaged, as could the use of a device for the distancing of the rollers 7 and 8 thus preventing, when considered necessary, the automatic drawing of the section of paper 4 when the seat 6 was lowered.

## Claims

1) An apparatus designed to facilitate the cleaning of hygienic services, in particular water closets and similar, comprising a distributing device 2 which is located externally to a water closet or latrine 1, which distributing device 2 deposits, on command, a section of paper 4 or other material in the cavity 3 of said water closet or latrine 1, said section of paper 4 or other material being drawn from a feeding compartment; said section of paper 4 being shaped in order to come into contact with at least part of the surfaces of said internal cavity 3 around the discharge outlet 5 of the water closet or latrine 1.

2) Apparatus as in claim 1, wherein said distributing device 2 is located just above the perimeter of said water closet or latrine 1 and comprises at least one parallel-axis roller-couple 7 and 8 which are maintained in pre-established constant pressure one against the other in order to compress the section of paper 4 between them and by means of friction cause its advancement in a pre-established direction by effect of the rotation, in opposite directions, of the two rollers 7 and 8.

3) Apparatus as in claim 2, wherein at least roller 7 acts as a drawing roller, being commanded to the rotation by an external activating device, while roller 8 is mounted idle on its axis in such a way that it can be set in rotation by means of friction against said roller 7.

4) Apparatus as in claim 3, wherein said drawing roller 7 is commanded to the rotation by said external activating device by means which ensure that transmission to said drawing roller 7 can only produce rotation in one direction.

5) Apparatus as in claim 4, wherein said external activating device comprises a pivoted mobile element 13 able to rotate in both directions on an axis which is parallel to those of the said two rollers 7 and 8; said mobile element 13 being connected to said drawing roller 7 by means of a belt-driven mechanical transmission having at least one free-wheel mechanism to permit of transmission of movement only in the direction which, by rotating the drawing roller 7, produces the advancement of the section of paper 4 towards the internal cavity 3.

6) Apparatus as in claim 5, wherein said mechanical transmission comprises a belt (or chain) which is

wound around and stretched between a first pulley 15, mounted laterally on said drawing roller 7, a free-wheel mechanism being interposed between them, and a second pulley 14, coaxially fixed to said mobile element 13.

7) Apparatus as in claim 6, wherein said mobile element 13 is solidly associated with the seat 6 of said water closet 1.

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Fig.1

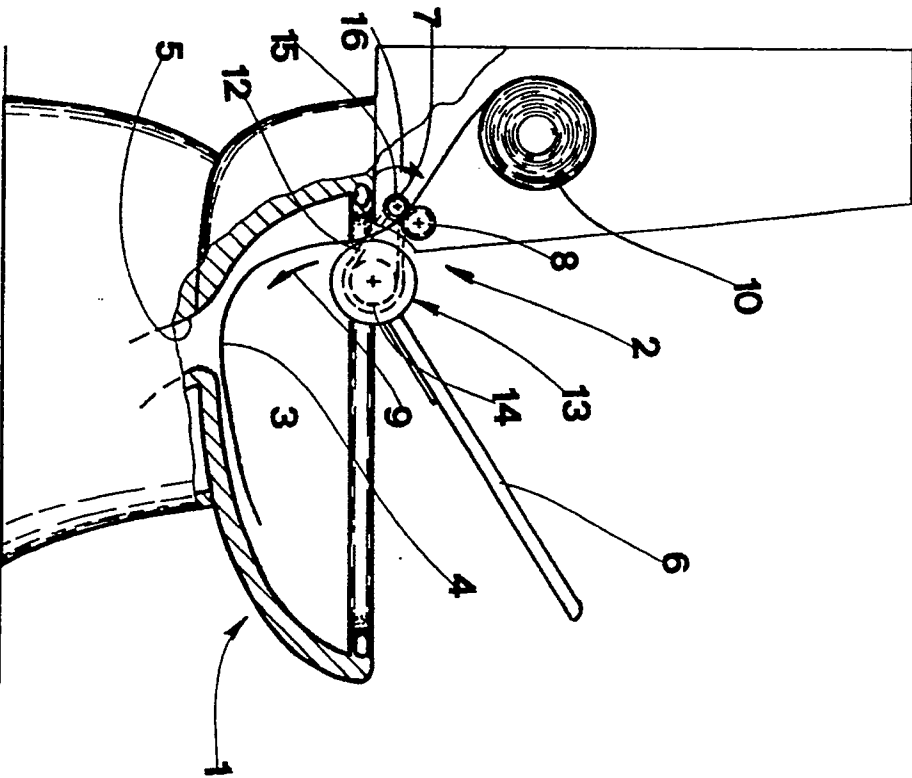
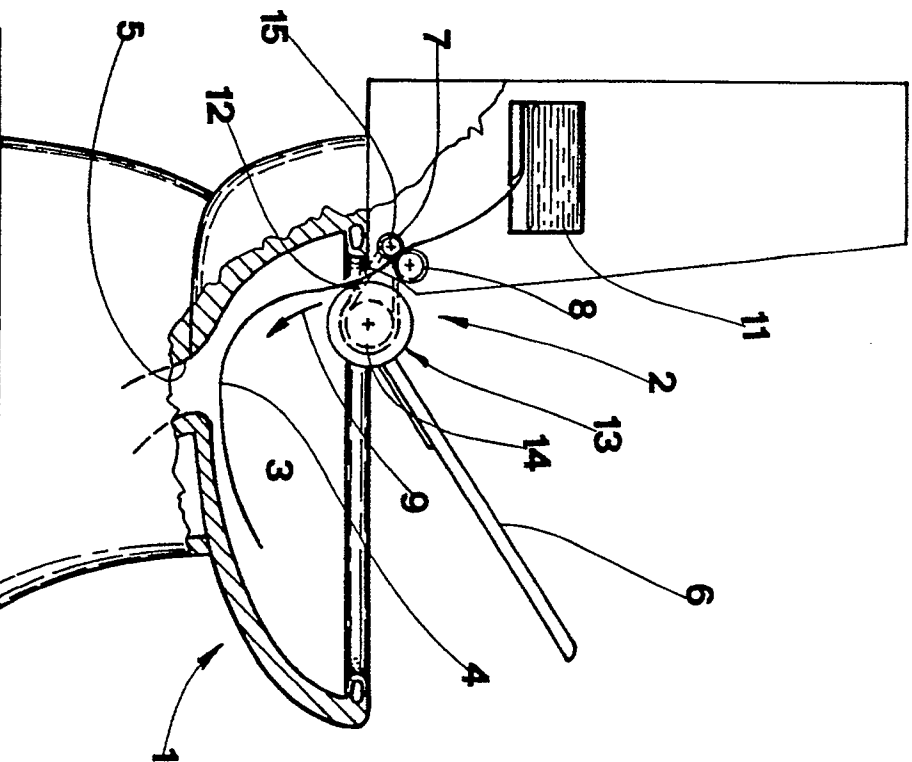


Fig.2





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## EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 91830108.6
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	<u>GB - A - 23 910/A.D. 1908</u> (RICHARD) * Totality * ---	1	A 47 K 13/24
A	<u>GB - A - 15 098/A.D. 1899</u> (JOHNSON) * Totality * ---	1	
A	<u>DE - C - 125 242</u> (ZEILLER) * Totality * ----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 47 K 13/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 04-06-1991	Examiner KNAUER
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>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</p> <p>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  .....  &amp; : member of the same patent family, corresponding document</p>			

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