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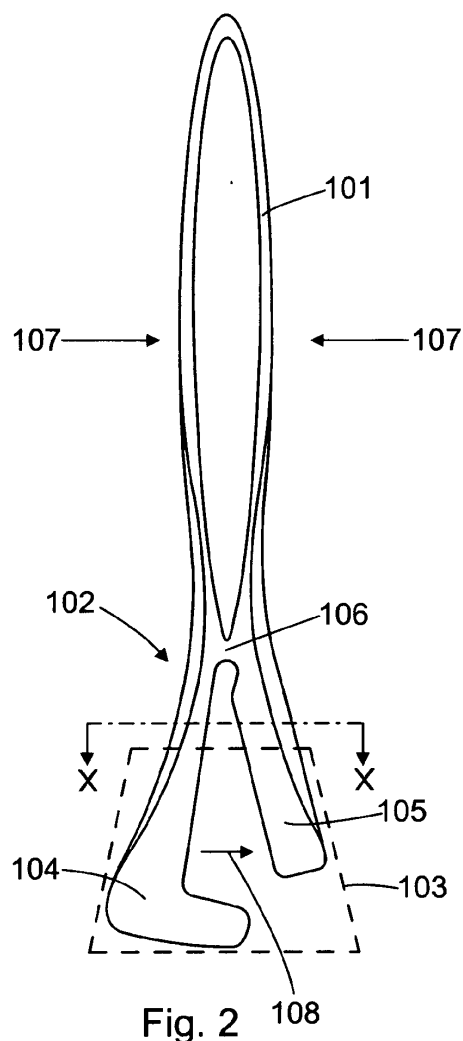
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(54) **Device for cleaning sanitary equipment**

(57) Device comprising a handle (101) and a cleaning element (103) in the form of a paper envelope or pouch. The handle may have the form of tongs or callipers for engaging against the interior walls of the envelope when extended so as to retain the envelope. The envelope has a relatively narrow opening at the top for the tongs to enter the interior. The envelope is used to clean sanitary equipment e.g., a lavatory bowl, while retained on the handle. The tongs have a channel-shaped cross-section which directs liquid e.g., toilet flush-water into the interior of the envelope so that the weight of water in the envelope ensures that the soiled envelope falls away from the handle when the tongs or callipers are no longer extended and the envelope can be flushed away.



Description

[0001] The present invention relates to a device, a kit and a method for cleaning sanitary equipment, such as toilet basins, chamber pots, commodes, pipes (e.g., waste pipes) and drains, inter alia.

[0002] Toilet brushes are well-known for use in cleaning sanitary equipment such as toilet basins. Usually a toilet brush is retained in a container adjacent the toilet basin. The brush and the container have the potential to be a breeding ground for bacteria and unpleasant odours.

[0003] WO 2004/000087 discloses a hand-held cleaning device for cleaning a toilet bowl. The device comprises a handle and a cleaning element, the handle having at or towards one end thereof, and means to releasably retain the cleaning element, the retention means being operable by an operator between relatively expanded and contracted conditions and wherein the cleaning element is held on the handle with said means in the expanded condition. The cleaning element is a paper envelope and although the device is relatively satisfactory for effecting cleaning, the inventor has found that it has a significant drawback, namely, that when the retention means is returned from its expanded condition to its contracted condition, the cleaning element sticks to the retention means and is not reliably removed therefrom even under the action of flushing water. As a result, soiled wet paper remains adhered on the retaining means which must be removed in some way before the device can be used for another cleaning operation.

[0004] It is an object of the present invention to provide an improved cleaning device which does not suffer from at least the defects of the device described in WO 2004/000087. The present application provides a hand-held device for cleaning a toilet bowl, chamber pot, commode, drain, pipe or other sanitary equipment. The device of the invention is defined in claim 1 of the set of claims following this description of the invention. Optional and/or preferred features are the subject of the other claims in the said set of claims.

[0005] The invention also provides a cleaning kit for cleaning a toilet basin, commode, drain, pipe or other sanitary equipment, the kit comprising a handle, and expandable retaining means, and a pack of cleaning elements each comprising an envelope having an openable upper side for receiving the retaining means, and manual operating means operable to cause the retaining means to expand so that, when received in a cleaning element, the expanded retaining means retains the cleaning element on the retaining means, the retaining means and/or the handle comprising a channel and/or a bore for directing liquid into an envelope retained in an open configuration on the retaining means so as to promote separation of the envelope from the retaining means. The invention also provides a method of cleaning sanitary equipment employing a kit as described in the preceding paragraph. The method comprises the steps of: (a) inserting the retaining means into an open upper side of one cleaning

element; (b) expanding the retaining means when received in the cleaning element to retain the element on or with the retaining means; (c) employing the outer faces of the cleaning element to remove soiling material from the sanitary equipment; (d) contracting the retaining means within the cleaning element; (e) providing a flush of water or other liquid along the channel and/or the bore so as to cause liquid to enter the cleaning element and to detach the cleaning element from the retaining means.

[0006] Some non-limitative embodiments of the invention are now described, by way of example only, and with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a schematic side elevation of a hand-held cleaning device according to the invention in one of its configurations;

Figure 2 is a schematic side elevation of the device of Fig. 1 in another of its configurations;

Figure 1A is a partial cross-sectional plan view of part of the device of Figure 1 looking down from the plane of X-X;

Figure 3 is a side elevation of one form of cleaning element useful in the device of the invention;

Figure 4 is a schematic perspective view of a kit comprising a hand-held device of the invention;

Figure 5 shows an outside view of a dispenser for cleaning elements used in the kit of Fig. 4; and

Figure 6 illustrates an internal arrangement of the dispenser of Fig. 5 containing cleaning elements.

[0007] In Fig. 1, the hand-held device, generally indicated by reference 100, comprises a handle 101, a retaining part generally indicated by reference 102, and a cleaning element 103, shown in broken lines, in the form of an open-topped envelope or pouch, which may be comprised of paper or some similar material.

[0008] The handle 101 and the retaining part 102 are formed from relatively rigid but resilient plastics material, such as polypropylene. The handle 101 is in the form of an ellipse and the retaining part 102 comprises two arms projecting downwardly from the handle 101, one arm 104 having generally the form of a hockey stick, the other arm 105 being relatively straight. The bottom end of the arm 105 almost touches the tip of the curved end of the arm 104. The bottom of the handle 101 and the top of the retaining part 102 are formed by a resilient common bridge member 106 which is integral with the handle 101 and the retaining part 102 and functions as a hinge.

[0009] Fig. 2 shows the configuration of the device 100 when the opposite sides of the handle 101 are pressed towards each other by pressure applied, e.g., manually, in the directions indicated by the arrows 107. The pressure squashes or flattens the handle 101 to some extent, causing one or both of the arms 104, 105 of the retaining part 102 to pivot around the bridge member so that the distance between the arms 104, 105 is increased. In the embodiment of Fig. 2, the arm 105 tends to pivot around

the bridge member 106, as indicated by the arrow 108, while the arm 104, being somewhat stiffer than arm 105, does not pivot so markedly. In the configuration depicted by Fig. 2, the arms 104, 105 of the retaining part 102 grip against the internal surfaces of the element 103 so that it is retained on the retaining part 102 and can be used to clean surfaces of a toilet basin, chamber pot, commode, or other sanitary equipment.

[0010] When the pressure (as indicated by arrows 107) on the handle 101 is released, the device resumes the configuration shown in Fig. 1.

[0011] Figure 1A shows, in broken lines, the arms 104, 105 in the dispositions of Fig. 1

wherein they are received in the element 103 but are not in an element-retaining disposition. Fig. 1A also depicts the arms 104, 105 in the positions shown in Fig. 2 wherein arm 105 is shown in broken lines and indicated by reference 105a, showing the arms retaining the element 103.

[0012] Fig. 1A shows that the arms 104, 105 have a channel shape in cross-section, approximating to the shape of a letter 'C' or a letter 'U'. The purpose of the channel shape is to direct liquid, e.g., water from a water-flush, into the interior of the cleaning element 103 so that the element at least partly fills with liquid and the weight of liquid in the element promotes or causes the element to detach from the retaining part 102 at least when the pressure (indicated by the arrows 107 in Fig. 2) on the handle 101 is released. When the pressure on the handle is thus released, the device resumes the shape shown in Fig. 1. The inventor has found that when a cleaning device similar to the hand-held device of the invention except that it has no channel or bore or tube or other means for directing liquid into the cleaning element 103, the cleaning element 103 (or part thereof) tends to remain adhered to the retaining part even when subjected to the water flush in a wc basin, or an equivalent flush in other sanitary equipment or pipes, necessitating taking steps to remove the used cleaning element or residue thereof. The device of the present application avoids the necessity of taking this potentially unpleasant step.

[0013] In use, the retaining part 103 in the relaxed configuration of Fig. 1 is pushed into the open top of a cleaning element 103 until it is adequately received therein. The handle part 101 is then "squashed" by manual pressure, e.g. by hand and/or fingers, to the shape shown in Fig. 2 so as to retain the element on the retaining means 102. The device is then used for cleaning a wc basin, chamber pot or other soiled ware, using any suitable technique such as a wiping and/or pushing action applied on the soiled surface. When the cleaning is completed or the element is too soiled to use for further cleaning, the pressure on the handle is relaxed so that the device assumes the shape shown in Fig. 1, whereupon the retaining part 102 no longer exerts any retaining action on the element. As indicated herein, the element 103 still adheres to the retaining device, especially when wet or damp. A stream of liquid is then caused to run down the device, and the channel-shaped arms 104 and 105 direct

some liquid into the interior of the element so that the weight of liquid overcomes the adhesion of the element 103 to the arms 104, 105 causing the element 103 to detach from the arms. A suitable stream of liquid is the water flush obtained when a wc is flushed. After the cleaning element 103 has detached from the arms 104, 105, the cleaning device of the invention, including an unused cleaning element 103, can be used in another cleaning operation. The channel-shaped arms function similarly when the device is used for cleaning other sanitary equipment such as chamber pots, drains and pipes.

[0014] The cleaning element 103 as depicted in Figs. 1, 1A and 2 takes the form of an envelope or pouch having the general shape of a rhombus, wider at the bottom than at the open top. It may have other suitable forms. The element may be comprised of paper, more preferably paper which is of the type which is water-dispersible and/or biodegradable, and may be infused with a cleaning agent (such as a detergent composition, a bactericide, a perfume, a colourant).

[0015] Referring now to Fig. 3, there is shown an embodiment of a cleaning element 20 comprising opposed first and second major faces 22, 23 joined together about their peripheries 22a, 23a, to provide a hollow envelope or pouch body 24, but not joined together at their peripheral portions 22b, 23b so as to provide an open neck portion 25.

[0016] The first face 22 (front face, as shown) has a slit 26 extending away from its peripheral portion 22b. The material adjacent the slit 26 is folded back on itself about fold line 27, the purpose of which will be explained below, but it is evident that the effective opening in the neck portion is made larger by provision of the slit 26.

[0017] The cleaning element 20 is preferably made from liquid absorbent sheet material, e.g., paper. The neck portion 25 is narrower than the widest part of the respective hollow body 24, i.e., the hollow body 24 narrows towards the open neck portion 25. The major faces 22, 23 may be joined at their peripheries 22a, 23a, by one or more of gluing, crimping, heat sealing, folding, stitching, needling or other known techniques.

[0018] Each cleaning element 20 may have an insert 8 (shown in Fig. 6) located in the hollow body 24 carrying or impregnated with one or more of a chemical cleaning agent (e.g., a detergent and optionally a bleaching agent), disinfectant, bactericide, perfume, colourant. The insert 8 may be formed from thicker or denser sheet material than that used to fabricate the major faces 22, 23 of the cleaning element 20. The insert 8, if present, may be sandwiched between the major faces 22, 23 of the cleaning element during its fabrication. If the insert 8 is not present, one or both major faces 22, 23 may carry or be impregnated with one or more of chemical cleaning agent, disinfectant, bactericide, perfume, colourant. Alternatively or additionally to the insert 8, each element 20 may have a stiffening element 9 (Fig. 6) applied over or on to a part of its second face 23. The stiffening element may carry a waterproof substance on or across a major

surface thereof to provide a barrier to water transfer. If the stiffening element 9 is not present, one or both of the major surfaces 22, 23 may carry a waterproof substance.

[0019] Referring to Figs. 4, 5 and 6, there is depicted a dispenser 30 in which is located a plurality of cleaning elements 20. The dispenser 30 is a box-like structure with an opening 31 formed in its upper surface 32. A lip 33 depends from the periphery of the openings 31. The lip 33 extends a distance such that the second face 23 of the element 23 of the element 20 is caught thereon (the slit 26 allowing the front face 22 to pass under the lip 33) as seen in Fig. 6. Located within the dispenser 30 is a plastic leaf spring 34 arranged to urge the elements 20 towards the opening 31 from a starting mode in which the dispenser is full of elements 20 as indicated by the dotted line. A handle 40 is supplied with the dispenser 30 and cleaning elements 20. The handle 40 may have any suitable form, such as that disclosed in relation to Figs. 1, 1A and 2 herein, or may be any of those disclosed in WO2004/00087, provided it incorporates a channel and/or a bore for directing liquid (e.g., water) into the cleaning element 20, as disclosed herein with reference to Figures 1, 1A and 2. The handle 40 shown in Figure 4 has a distal end (inserted into the element 20 in Fig. 4, and therefore not visible) which comprises a pair of arms movable toward and away from one another between relatively contracted and extended conditions, e.g., as described with reference to Figs. 1 and 2.

[0020] In use, the end of the handle 40 is inserted into the hollow body 24 of the element 20 with the arms in a relatively contracted condition. The open neck portion 25 is sized to allow the end of the handle 40 (in a contracted condition) to be pushed into the hollow body 24, the slit 26 providing extra room for such access. The members 41 a, 41 b at the proximal end 42 of the handle 40 are then brought together in the direction of arrows A to cause the distal end to adopt the relatively extended condition, thereby causing the hollow body 24 to bow outwardly. The handle 40 can then be used to pull the cleaning element 20 from the dispenser 30 out of engagement with the lip 33.

[0021] The handle 40 and cleaning element 20 retained thereon can be used to clean a toilet bowl, chamber pot, other sanitary equipment, pipes or drains. Any cleaning agent or other material on the element 20 will dissolve in any water present to facilitate a cleaning operation.

[0022] Once cleaning has been completed, water is directed down the channel(s) and/or tube(s) (not shown) of the handle 40 so as to be directed thereby into the interior of the element 40. The proximal ends 41 a, 41 b of the handle are then brought together to allow the distal ends to adopt a relatively more contracted condition within the element 40 so that the used cleaning element 20 falls away from the handle under the weight of water it contains for disposal, e.g., flushing away.

[0023] It will be appreciated that the user does not have to touch the cleaning element 20 either before or after

use in a cleaning operation.

[0024] Because the neck portion 25 of the element 20 is narrower than the hollow body 24, the element 20 is retained on the handle 40 when the latter is in its extended condition. The handle 40 and attached cleaning element 20 can be used to clean soiled surfaces using a wiping motion without the element becoming detached.

[0025] The insert 8 (if provided) is usually thicker or denser than the faces 22, 23 and will cause or promote the element to sink when in water, thus helping the element 20 to be flushed from a toilet bowl. The stiffener 9 ensures that the elements 20 are upright in the dispenser 30 even when there is little or no urging force from the spring 34. The stiffener 9 may also encourage the sinking of the element 20 and the insert may promote the element 20 to remain upright.

[0026] There may be provided a waterproof or water-resistant surface (not indicated) on one or more of the stiffening element 9, insert 8, first face 22, or second face 23. This stops or inhibits moisture in the dispenser from causing adjacent elements to stick together. Figs. 4 and 5 show that the dispenser 30 may comprise a recess 50 for receiving the brush-head 51 of a conventional lavatory brush 52.

Claims

1. A hand-held device for cleaning a toilet, commode, drain, pipe or other sanitary equipment, comprising at least one cleaning element and retaining means operable to releasably retain a cleaning element, wherein the cleaning element comprises an envelope or pouch having an opening on one side for receiving a retaining part of the retaining means, operable means operable to activate the retaining part to expand and to engage and retain a cleaning element when received therein, **characterised in that** the retaining means comprises liquid-directing means for directing liquid into the thus retained envelope so that the weight of liquid received in the envelope promotes or causes disengagement of the envelope from the retaining means.
2. The device of claim 1 wherein the liquid-directing means comprises a channel-shaped part or region and/or a bore in the retaining means.
3. The device of claim 1 or claim 2 wherein the retaining means comprises a handle, said operable means being formed with or connected to the handle.
4. The device of any preceding claim wherein the retaining means comprises a handle to which the operable means is connected.
5. The device of claim 4 wherein the operable means is hingedly attached to the handle.

6. The device of claim 4 or claim 5 wherein the operable means is attached to the handle by means of a flexible joint.

7. The device of any preceding claim wherein the handle and an operating part of the retaining means are located on one side of the hinge or flexible joint and an operable part of the retaining means is on the other side of the hinge or flexible joint, whereby moving the handle and the operating part towards each other (e.g., by squeezing together the handle and operating part) causes the operable part of the retaining means to separate and thereby open an envelope in which it is received.

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8. The device of any preceding claim wherein the retaining means is at least partly formed of a relatively rigid plastics material.

9. The device of any preceding claim wherein the retaining means comprises tongs or callipers which can be opened out within the envelope to retain the envelope.

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10. The device of claim 9 wherein one or both arms of the tongs or callipers are provided or formed with a channel-shaped region and/or a bore to direct liquid into an envelope which is opened and retained by the tongs or callipers.

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11. The device of any preceding claim wherein the cleaning element is comprised of paper.

12. The device of any preceding claim wherein the cleaning element is in the form of an envelope or pouch which is open at the top to receive the retaining means, and is at least the same width or a greater width towards the bottom.

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13. The device of claim 11 or claim 12 wherein the cleaning element comprises one or more of the following: a cleaning agent, a bactericide, an antiseptic, a colorant, a perfume.

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14. The device of any preceding claim comprising a pack of cleaning elements arranged with their openings facing upwards to receive the retaining means.

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15. The device of claim 14 comprising a dispenser, containing, or for containing, one or more cleaning elements, and optionally, the dispenser comprises a body containing, or for containing, one or more cleaning elements, an opening on the top-side of the body, and means operable to urge cleaning elements within the body to a position below the opening for abstraction or removal from within the body by retaining means, and optionally, the dispenser comprises a recess for receiving part of a lavatory brush.

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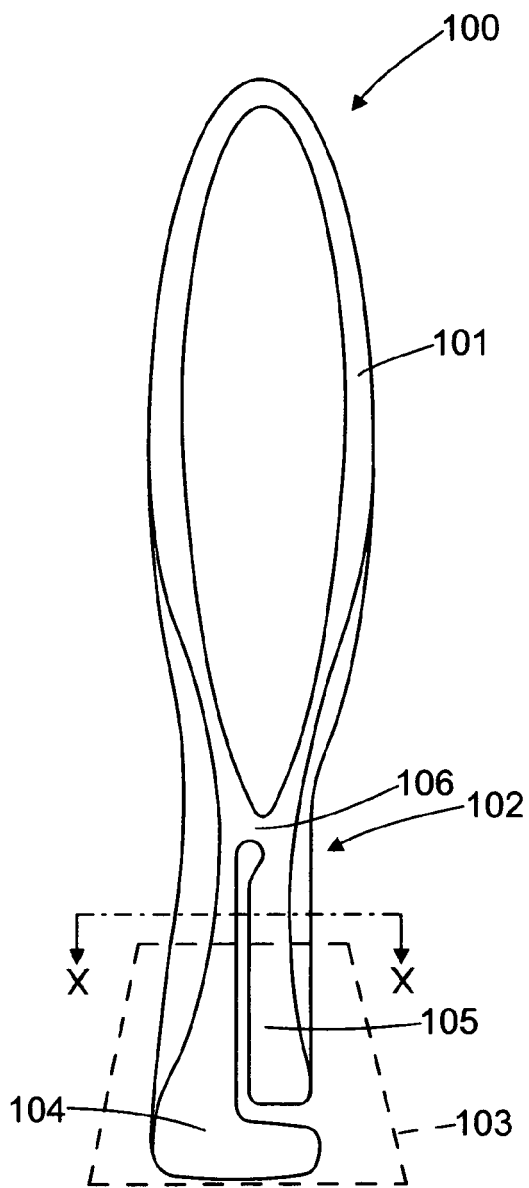


Fig. 1

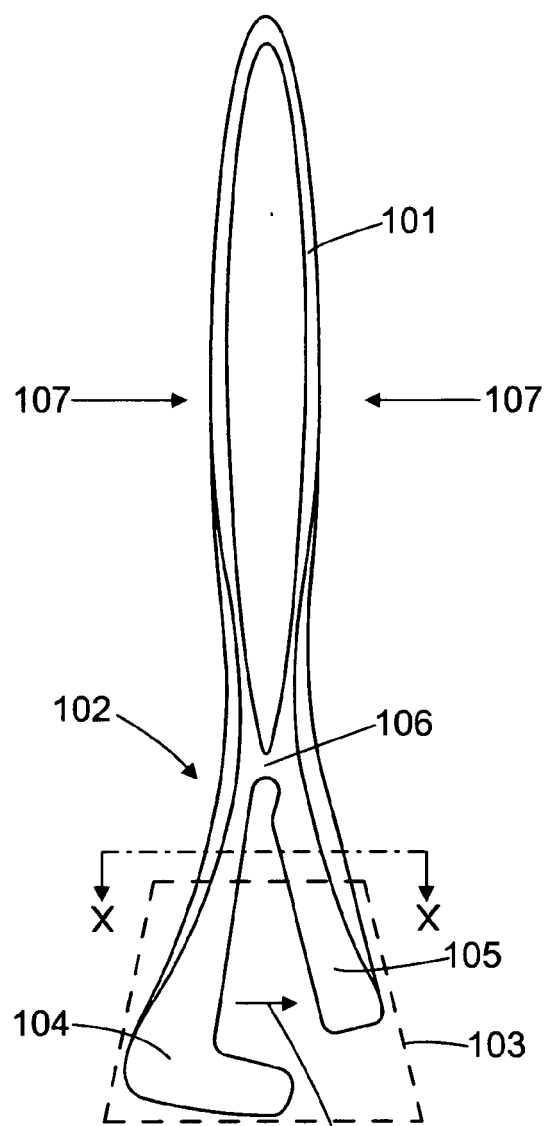


Fig. 2

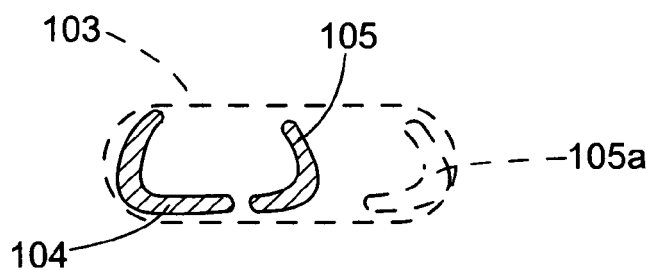


Fig. 1A

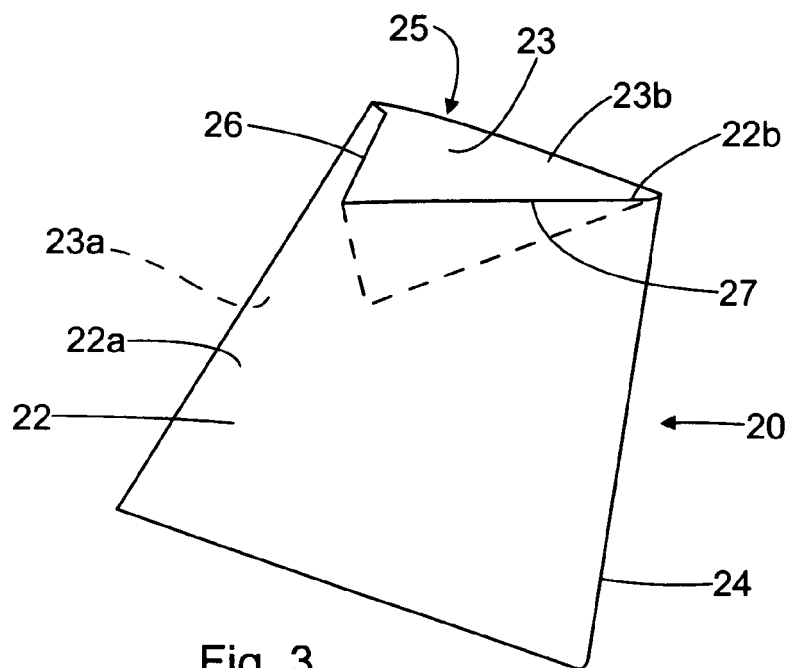


Fig. 3

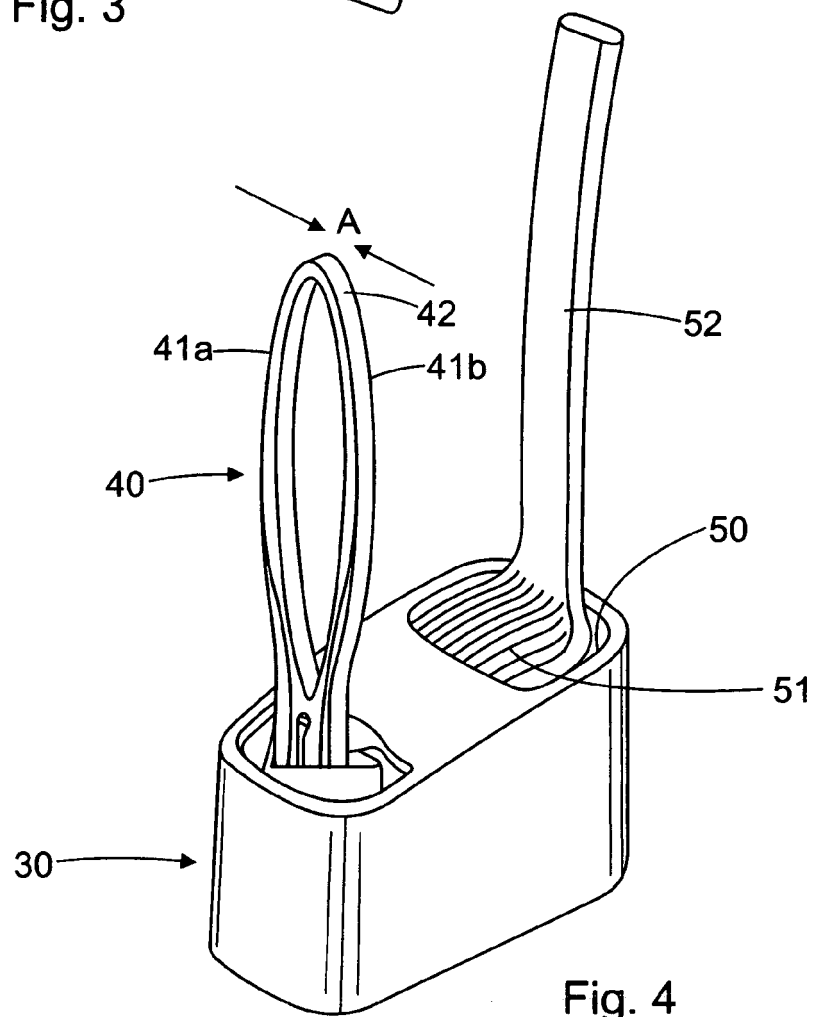


Fig. 4

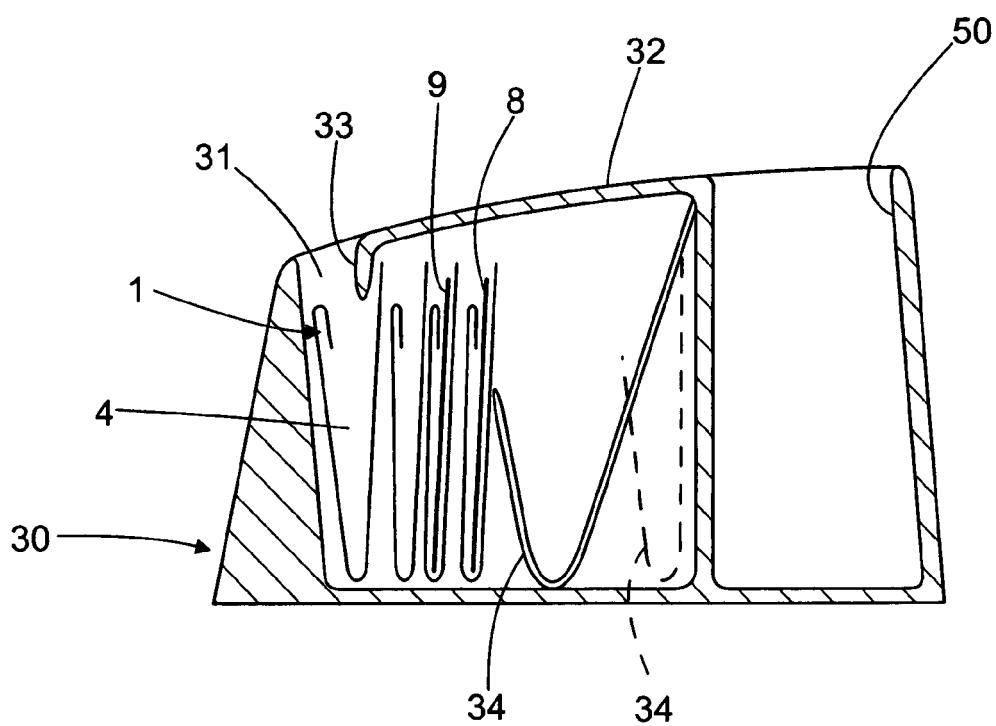
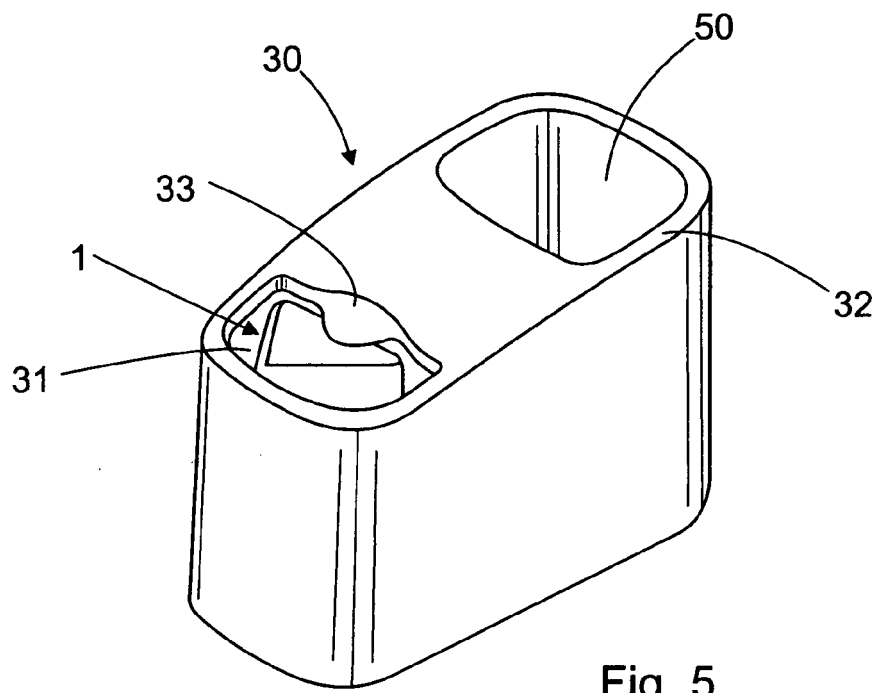


Fig. 6



EUROPEAN SEARCH REPORT

Application Number
EP 11 25 0657

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 December 2011	Examiner Fajarnés Jessen, A
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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