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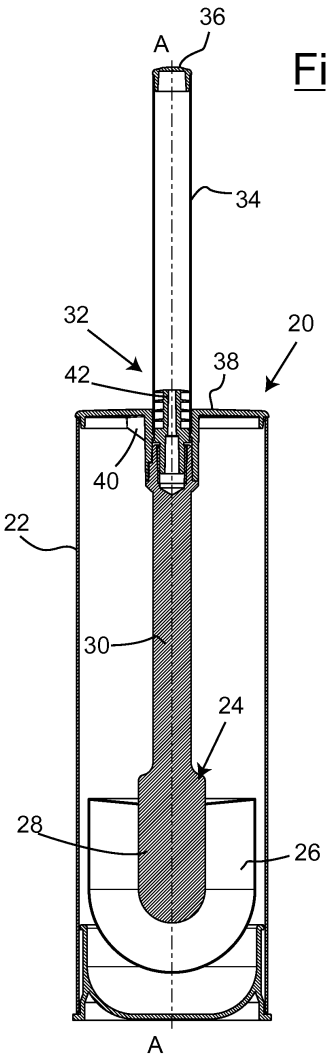
(54) Toilet brush with interchangeable components

(57) Described herein is a toilet brush (20) provided with interchangeable components, of the type that can be inserted inside a container (22), provided with a handle-stick (32) and a head (24) which forms the lower end of the handle-stick (32). The handle-stick (32) is provided with a hollow tubular upper portion (34) at the lower end of which, constrained in a rotating manner there is a cover (38) for the container (22). Inside the lower end of the hollow tubular upper portion (34) is inserted in a non-removable manner at least one releasable coupling element (42), configured to be engaged with a corresponding releasable coupling element (44) made at the upper end of the head (24), thus joining in a non-removable manner the head (24) itself and the hollow tubular upper portion (34) of the handle-stick (32).

Fig. 2



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Description

[0001] The present invention regards a toilet brush with interchangeable components.

[0002] One of the needs of the people cleaning the toilet environments, be it the owner of the house, a house servant or a cleaning firm operator, both in private and public sector, regards periodical replacement of the head of the toilet cleaning brush. The term head in this case refers to the tip of the accessory, generally made up of a rigid body onto which bristles made of soft material are attached, intended for cleaning the inner part of the toilet. The head is then usually attached to a handle-stick, provided with a grip for the user and on which a plate is fixed, in the most common embodiments, serving as a cover for the container in which the accessory is placed when not being used.

[0003] Clients of the toilet accessories sellers often request that the replacement operations of the head of the brush be simple, quick and above all allow replacement without touching the head of the used brush with the hands. In particular, the entire zone under the cover of the brush, up to the head, is considered to be subject to accumulation of dirt and thus to be touched the least possible.

[0004] The type of toilet brushes with an interchangeable head currently in the market provide for fixing the head to the relative handle-stick by means of an unscrewing system or else by means of a fastened screw, as shown for example in figure 1 of the drawings attached. However, this fixing system requires holding the head when replacing it.

[0005] In addition, the part of the handle-stick comprised between the cover and the head which, as mentioned beforehand, is subject to accumulation of dirt during use, is not replaced and thus requires frequent disinfection for proper hygiene.

[0006] Some manufactures of toilet accessories have already attempted to solve such a problem, by making some toilet brushes provided with the head and the part of the handle-stick comprised between the head and the cover made in a single piece, of economical material, thus allowing the replacement of the entire block and avoiding cleaning the handle-stick.

[0007] Such assembly is then fixed to the rest of the handle-stick by means of systems, for example a screw, which allow to operate on the upper part of the accessory and perform the replacement operation, hence reducing the necessity to touch the part below the cover.

[0008] However, the abovementioned systems are scarcely practical, given that, as a matter of fact, they require a tool, for example a screwdriver, so as to be able to disassemble the disposable block to be replaced and replace it with a new block. In addition, due to the non-ideal assembly system, the toilet brushes of this type proved to have low resistance during their use, in that it occurs that the head and the relative replaceable handle-stick portion loosen easily, thus requiring new periodical fastening operations on the remaining portion of the toilet brush.

[0009] Therefore, the objective of the present invention is to overcome the drawbacks mentioned above of the prior art in a simple, economical and particularly functional manner.

[0010] In particular, an objective of the present invention is to manufacture a toilet brush, provided with interchangeable components, capable of allowing the user to perform the replacement of the disposable portion below the cover of the toilet brush itself, that is the head and the part of the handle-stick on which it is engaged, quickly, without using tools and without risks of touching the part to be replaced.

[0011] Then, another objective of the invention is to manufacture a toilet brush provided with interchangeable components particularly resistant and reliable, reducing the possibilities of inadvertent detachment of the brush from the portion of the grip of the relative handle-stick.

[0012] These objectives according to the present invention are attained by manufacturing a toilet brush provided with interchangeable components as described in claim 1.

[0013] Further characteristics of the invention are described by the subsequent claims.

[0014] Characteristics and advantages of a toilet brush provided with interchangeable components according to the present invention shall be more evident from the following exemplifying and non-limiting description with reference to the schematic drawings attached wherein:

Figure 1 is a section view, in side elevation, of a toilet brush provided with interchangeable components according to the known art;

Figure 2 is a section view, in side elevation, of a toilet brush provided with interchangeable components according to the present invention; and

Figure 3 is an enlarged view of a detail of the toilet brush provided with interchangeable components shown in figure 2.

[0015] With reference to figure 1, a toilet brush provided with interchangeable components according to the known art is schematically shown in section. It comprises a container 10 inside which the real brush, made up of a head 12 operatively connected to its handle-stick by means of a screw 16, is inserted. Thus, a plate 18 serving as a cover for the container 10 when the brush is inserted inside it, is constrained in the handle-stick.

[0016] As it can be easily understood, in order to proceed to the replacement of the head 12 it is necessary to operate, using an appropriate tool, on the screw 16 positioned close to the head 12 itself and thus well below the cover 18, that is in that portion of the handle-stick 14 easily subject to accumulation of dirt.

[0017] On the contrary, now with reference to figure 2, a toilet brush provided with interchangeable components according to the present invention is schematically

shown in section, indicated in its entirety with reference number 20.

[0018] Analogously to the embodiments of the known type, the brush 20 is configured to be inserted inside a container 22 and is provided with a handle-stick 32 and a head 24 which forms the lower end of such handle-stick 32. More precisely, the head 24 consists of a plurality of bristles 26 made of soft material, constrained around a rigid body 28. Conveniently, the rigid body 28 is made in a single piece with the extended portion 30 which constitutes the lower part of the handle-stick 32.

[0019] Having been made intended for the replacement after a limited period of use, such lower portion 30 is made, just like the rigid body 28 integrally joined to it, with sufficiently solid but inexpensive material, such as for example polypropylene. In turn, the bristles 26 of the head 24 can be made of PVC, in such a manner that the entire replacement element is of low cost.

[0020] The handle-stick 32 is thus provided with a hollow tubular upper portion 34, or grip, which allows to hold the entire brush 20. The grip 34 can be of various shapes, material and finishing, thus following the market trend and, if made of noble material, such as for example chrome-plated brass, it can enhance the value of the entire accessory. Furthermore, at the upper end of the grip 34 a decorative end portion 36 of any design can be inserted.

[0021] On the contrary, at the lower end of the grip 34, that is the end intended for coupling with the extended lower portion 30, a cover 38 having a lower surface made and/or coated with a non-metallic material is fixed in a rotating manner, thus absorbing impact when the entire brush 20 is placed in the relative container 22. In addition, the cover 38 has, on its lower surface, at least one cone-shaped projection 40 which allows self-centring of the handle-stick 32 in the container 22 when the user releases the brush 20 inside it, and a hollow annular projection 46 (figure 3) which constitutes an extension towards the lower part of the grip 34.

[0022] Similarly to the grip 34, also the upper part of the cover 38 can be of various shapes, material and finishing, thus following the market trend and, if made of noble material, such as for example chrome-plated brass, it can enhance the value of the entire accessory.

[0023] According to the invention, with reference in particular to the figure 3 of the attached drawings, inside the lower part of the hollow grip 34, there is, inserted in a non-removable manner, for example by pressure or by gluing, at least a releasable coupling element 42, such as for example a male threaded joint, which serves among others the purpose of withholding the cover 38 at the lower end of the hollow grip 34, but leaving it free to turn around the grip 34 itself.

[0024] The joint 42 is configured to be engaged, preferably by screwing, with a corresponding releasable coupling element 44, such as for example a threaded hole, made at the upper end of the head 24, in a way to join in a removable manner said head 24 to the grip 34. The joint 42 can be made of various materials, plastic and/or metallic, as long as it is provided with the mechanical resistance required to bear bending and torsion stresses to which it is subject during the use of the brush 20.

[0025] In the illustrated embodiment, the joint 42 is provided with a plurality of flexible flaps 52 which, engaging with the internal wall of the lower part of the tubular grip 34, allow insertion by pressure, in the direction of axis A of the handle-stick 32, and the subsequent coupling of the joint 42 in a non-removable manner inside such grip 34, thus allowing it to withhold the cover 38 in a rotating manner due to its annular projection 56.

[0026] Operatively, in order to proceed to fixing a new head 24 onto the group consisting of the grip 34 and the cover 38, the upper end of the head 24 is inserted inside the hollow annular projection 46, in such a manner to fit the male threaded joint 42, fixed at the lower end of the grip 34, into the corresponding threaded hole 44.

[0027] Thus holding the new head 24 firm and turning the grip 34 clockwise, the screwing of the joint 42 into the threaded hole 44 is performed, thus obtaining blocking of the head 24 against the group consisting of the grip 34 and the cover 38.

[0028] In order to prevent the relative rotation between the cover 38 and the head 24 when the latter has been assembled on site, on the internal wall of the hollow annular projection 46 there is at least one slot 48 into which a corresponding relief 50 made at the upper end of the head 24 itself, goes in abutment.

[0029] Therefore, in order to disassemble the head 24 used by the group consisting of the grip 34 and the cover 38, all that is required is to hold and keep the external edge 54 of the cover 38 firm in position and, turning the grip 34 anticlockwise with respect to said cover 38, the ejection of the head 24 from the abovementioned group is obtained, through disengagement of the joint 42 from the relative threaded hole 44, hence without touching the head 24 itself in any way whatsoever.

[0030] Thus, it has been observed that the toilet brush provided with interchangeable components according to the present invention attains the objectives described beforehand, given that the replacement of the head is simple and quick, does not require the use of any type of tool and it can be performed without touching the used head. In addition, once the new head has been fastened by hand, the assembly is resistant and does not loosen during use.

[0031] The toilet brush provided with interchangeable components of the present invention thus conceived is in any case susceptible to several modifications and variants, all falling within the same inventive concept; furthermore all the details can be replaced by technically equivalent elements. In practice, the materials used, alongside the shapes and dimensions, may vary depending on the technical requirements.

[0032] Thus, the protection scope of the invention is defined by the attached claims.

Claims

1. Toilet brush (20) provided with interchangeable components, of the type that can be inserted inside a container(22), provided with a handle-stick (32) and a head (24) which forms the lower end of said handle-stick (32), said handle-stick (32) being provided with hollow tubular upper portion (34) at the lower end of which, constrained in a rotating manner, there is a cover (38) for said container (22) **characterised in that** inside the lower end of said hollow tubular upper portion (34) is inserted in a non-removable manner at least one releasable coupling element(42) configured to be engaged with a corresponding releasable coupling element(44) made at the upper end of said head (24), in a way to engage in a removable manner said head (24) and said hollow tubular upper portion (34) of said handle-stick (32).

2. Toilet brush (20) according to claim 1, **characterised in that** said at least one releasable coupling element(42) withholds in a rotating manner said cover (38) at said hollow tubular upper portion (34) by means of an annular projection (56).

3. Toilet brush (20) according to claim 2, **characterised in that** said releasable coupling elements (42, 44) consist of, respectively, a male threaded joint and a threaded hole into which said threaded joint is engaged by screwing.

4. Toilet brush (20) according to claim 3, **characterised in that** said male threaded joint (42) is provided with a plurality of flexible flaps (52) which are engaged under pressure with the internal wall of the lower end of said hollow tubular upper portion (34).

5. Toilet brush (20) according to claim 3, **characterised in that** said male threaded joint (42) is inserted in a non-removable manner into the lower end of said hollow tubular upper portion (34) by gluing.

6. Toilet brush (20) according to claim 1, **characterised in that** said head (24) consists of a plurality of bristles (26) made of soft material, constrained around a rigid body (28) made in a single piece with an extended portion (30) which constitutes the lower part of said handle-stick(32).

7. Toilet brush (20) according to claim 6, **characterised in that** said portion (30) and said rigid body (28) integrally joined to it are made of polypropylene.

8. Toilet brush (20) according to claim 6, **characterised in that** said bristles (26) of said head (24) are made of PVC.

9. Toilet brush (20) according to claim 1, **characterised in that** said cover (38) has, on its lower surface, a hollow annular projection (46) which constitutes an extension towards the lower part of said hollow tubular upper portion(34).

10. Toilet brush (20) according to claim 9, **characterised in that** on the inner wall of said hollow annular projection (46) there is at least one slot(48) into which a corresponding relief (50) made on the upper end of said head (24) goes in abutment.

11. Toilet brush (20) according to claim 1, **characterised in that** said cover (38) has, on its lower surface, at least one cone-shaped projection (40) which allows self-centring of said handle-stick (32) in said container (22) when the user releases said brush (20) inside said container (22).

12. Toilet brush (20) according to claim 1, **characterised in that** the lower surface of said cover (38) is made and/or coated with non-metallic material, thus absorbing impact when said brush(20) is placed in said container (22).

13. Toilet brush (20) according to claim 1, **characterised in that** at the upper end of said hollow tubular upper portion (34) there is inserted a decorative end portion (36) of varying design.

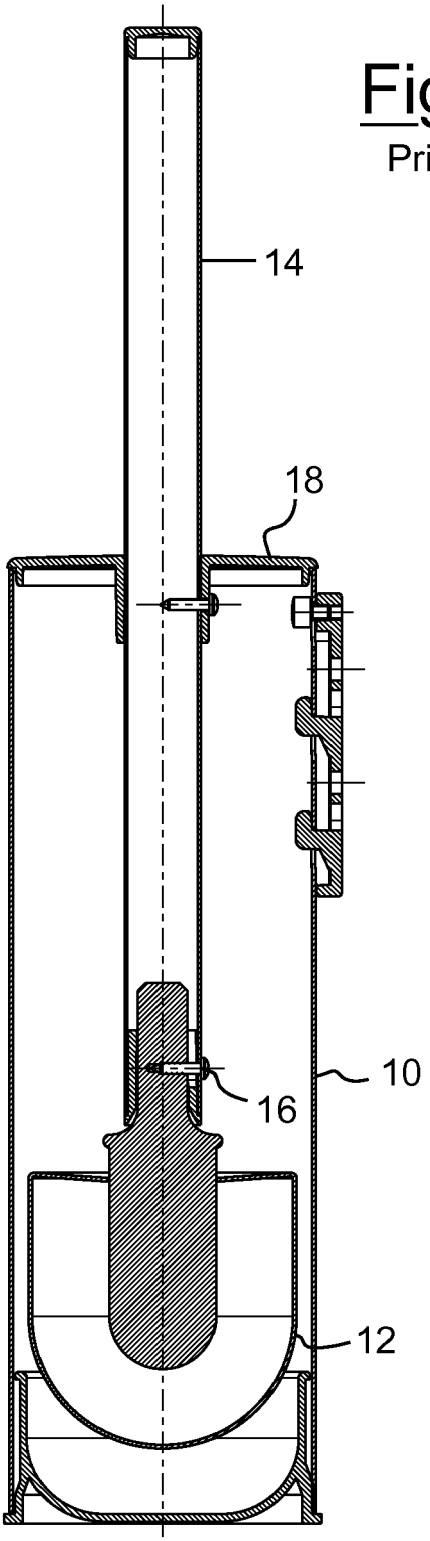
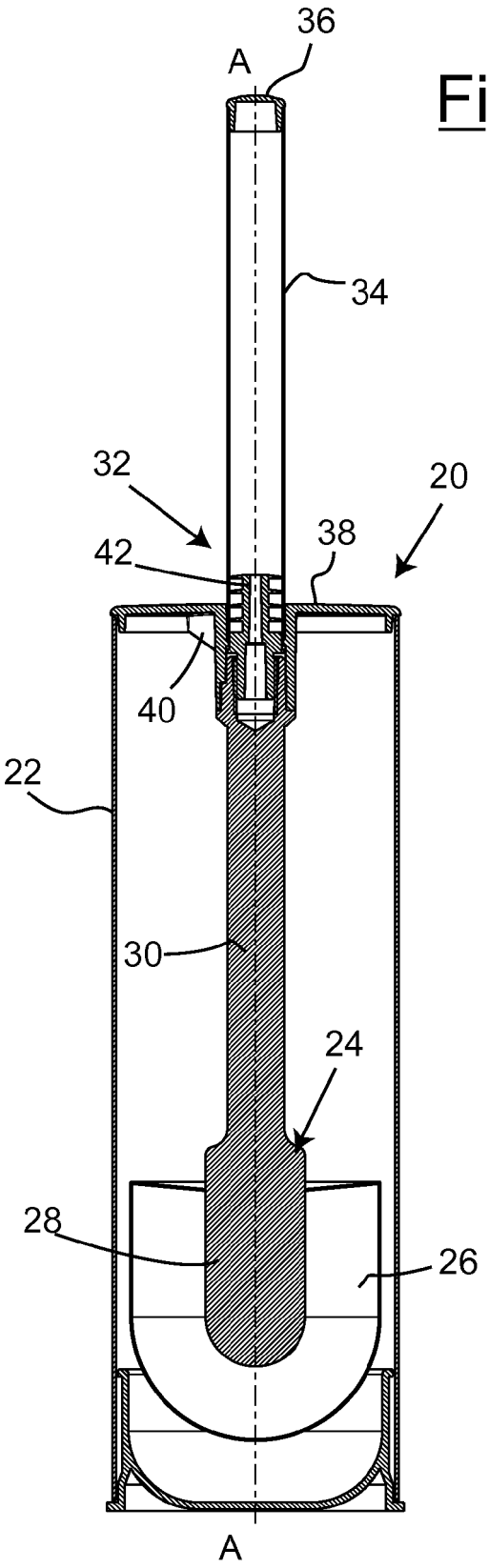


Fig. 1
Prior Art

Fig. 2



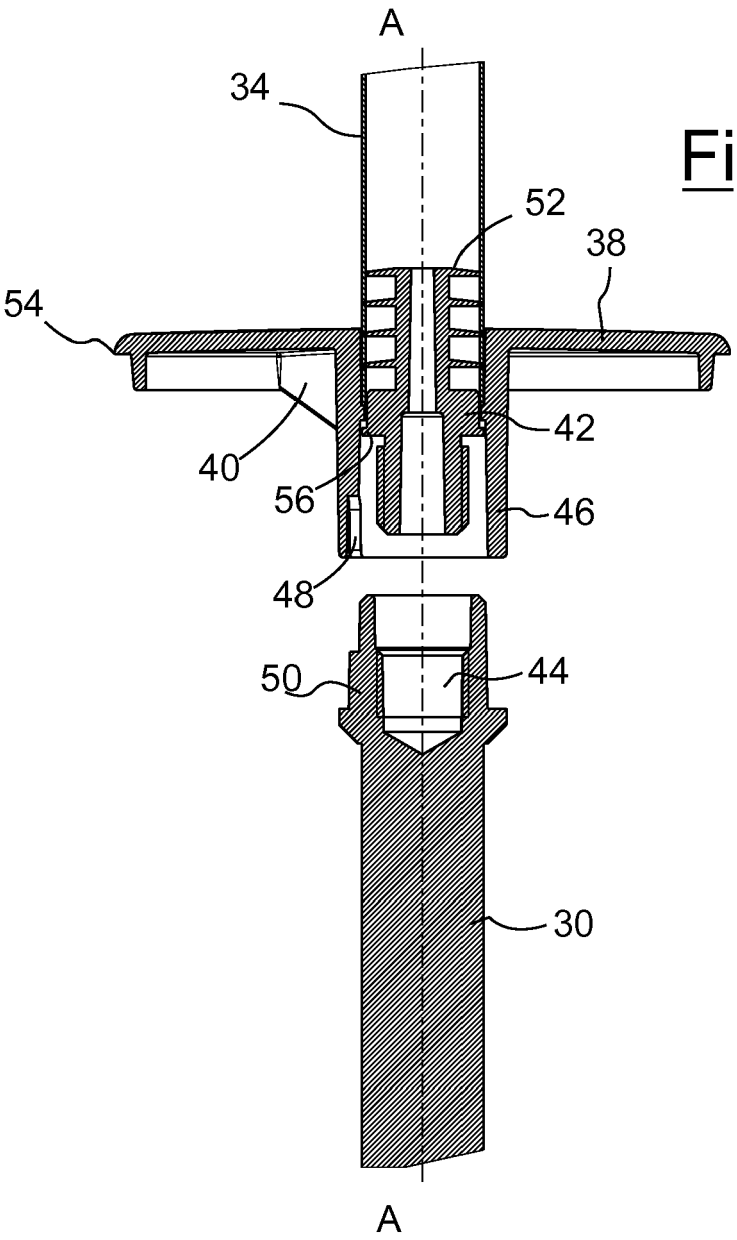


Fig. 3