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(54) Title: DISH-WASHING BRUSH WITH REMOVEABLE REFILL TUBE

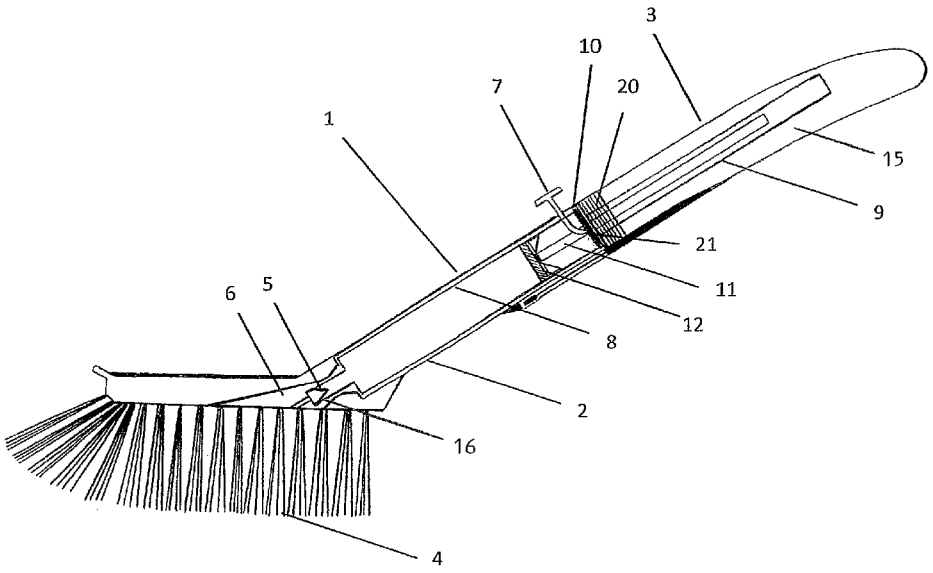


Fig. 1.

(57) **Abstract:** A dish-washing brush (1) with dosage button (7) which adjusts the amount of dishwasher detergent to and past bristle (4) during dish washing and cleaning. Refilling and storing of dishwasher detergent occurs through a new refill tube (8) being inserted into hollow lower handle part (14). Worn-out bristles (4) kan be exchanged for a new bristle part (18).

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Dish-washing brush with removeable refill tube

Technical field

The present invention regards a device in the shape of a separable dish-washing brush comprising bristle and dispository for fluids, in the shape of a removable refill tube comprising the dishwasher detergent, which is arranged to be refilled in the dish-washing brush' hollow part in the separable handle. The separable hollow handle is shaped as a dispository, in part for refill tube and a dispensing tip that co-operate with a dosage button, as well as the remaining mechanical components, in order to achieve a regulation of the outflow of dishwasher detergent.

Background

It is a known problem that dishwasher detergent container and dish-washing brush are separate products even though during use are needed together, the present invention combines the dish-washing brush by also comprising the dishwasher detergent in the shape of a convenient refill tube for quick and easy refill, which entails a simplified usage of dish-washing and that the user can easily dose the quantity of dishwasher detergent as well as when he or she wants to add dishwasher detergent during the dish washing, which entails more effective dish washing and cleaning. The benefits are as such temporal, economical and technical, as the waste of time is eliminated with regards to finding a dishwasher detergent container when dishwasher detergent is needed, faster as dish washing becomes more effective with the correct amount of dishwasher detergent, the dosage itself which can be difficult is avoided which often leads to excessive dosage of dishwasher detergent and unnecessary consumption of dishwasher detergent which eventually leads to an effect on the environment, before long the result of the dish washing becomes better as the user can obtain the correct amount of dishwasher detergent with the suggested invention.

There are a few known patents and closest prior art is US 2014130279A1 which has a separate unit for dishwasher detergent, but none of the said solutions include a separate refill tube or a dosage function.

Description of the invention

With the present invention one achieves the purpose of solving the problems regarding dosage, storing and refilling of dishwasher detergent, primarily for dish-washing brushes, but also for other separable cleaning brushes comprising cleansing agent in the refill tube.

The body of the present dish-washing brush is partly hollow and preferrably made of metal or plastic. The lower handle part comprises bristle and a hollow space meant for a storage part for the refill tube comprising dishwasher detergent, a dispensing tip as well as a duct leading to the bristle that are made of synthetic or natural material. The upper part of the dish-washing brush, which is called the upper handle part, is hollow for input function and dosage button, the upper handle part is also a handle for the user and comprises the following, separation between the lower part and upper handle part for changing of the refill tube as well as a means of force and

locking mechanism connecting the upper and lower handle parts. The material of the refill tube is plastic, metal or other material that is easily compressible and said refill tube is sealed at the front section in the opening area where one of the functions of the dispensing tip is to puncture during the charge of a new refill tube, the second function of the dispensing tip is to contribute to the regulation of the outflow of dishwasher detergent.

The refill tube comprises dishwasher detergent without aerosol propellant, but the refill tube can alternally be equipped with comprising aerosol propellant in order to distribute the dishwasher detergent better. The refill tube in the lower part is adjacent to the dispensing tip sealed with a rubber seal and also in the division between the lower handle part and upper handle part as well as around the dosage button, in order for the hollow spaces to be sealed off from water. The bristle on the lower handle part is to be permanent but can alternatively be interchangeable. The schematic size of the handle part as shown by the figures can be equipped with larger or smaller bristle part in a different design. The said means of force, locking mechanism and mechanics for dosage button are not within the scope of the invention. The dosage button and its mechanics can be placed in the upper handle part or the lower handle part adjacent to the divison, its purpose is identical irregardless of its placement. The means of force is a gas spring as shown by the figure but can also be made up of a different means of force in the shape of a spring or another adequate power device. The angle of the dish-washing brush at the lower part could be angled approximately 30-35 degrees as shown by the figures but can also be shaped in a more or less angled manner. At the front of the lower handle part as shown by the figures through a side view is an extended edge with the purpose of cleaning through scraping, this extended edge can have a different design or be removed. At the back of the upper handle part there is a hole for suspension as shown by the figures, this hole can have a different design or be removed.

Brief description of figures

In detail representing diametrical, in part schematic or perspective views:

- Fig. 1. Displays a side view complete dish-washing brush 1 with division 10 between lower handle part 2 comprising bristle 4 and upper handle part 3 with hollow space for upper handle part 15. Dosage button 7, refill tube 8 with its ring 21, said ring 21 is the attachment for dosage button 7 and also receives the pressure from spring 20 as an attachment, opening area 16, dispensing tip 5, duct 6 and to bristle 4. The power-storing device in the shape of gas spring 9 with its rod piston 11 pushes piston seal 12 inside refill tube 8.

- Fig 2. Displays from underneath the lower handle part 2 with hollow space for lower handle part 14 and upper handle part 3 somewhat separated in division 10, locking mechanism 13 control and lock lower handle part 2 with upper handle part 3.

- Fig 3. Displays from a side view dish-washing brush 1 and hollow space lower handle part 14 is shown when refill tube 8 in dish-washing brush 1 is uncharged.

- Fig 4. Displays refill tube 8 with opening area 16, ring 21 and piston seal 12 as well as steering organ 17 for rod piston 11.
- Fig 5. Displays what the alternally detachable bristle part 18 looks like in its preferred shape adjacent to the lower handle part 2.
- Fig 6A. Displays how the alternally detachable bristle part 18 is attached or removed.
- Fig 6B. Displays a preferred shape of positioning of the alternally detachable bristle part 18 with locking adjacent surfaces 19 to lower handle part 2.

Detailed description

Fig 1. Displays a complete dish-washing brush 1 intersected side view with division 10 between lower handle part 2 comprising bristle 4 and upper handle part 3 with hollow space for upper handle part 15. Dosage button 7 which through pressure of a finger lifts refill tube 8 upwards in its ring 21, said ring 21 then also presses together spring 20 upwards, upon which passage is created between opening area 16 and dispensing tip 5 and dishwasher detergent is then being regulated past dispensing tip 5 to flow out into duct 6 and past bristle 4.
At reduced or non-existent finger pressure effect on dosage button 7 spring 20 is pressing ring 21 back down through the power of pressure and refill tube 8 with its opening area 16 against dispensing tip 5 so that the outflow of dishwasher detergent is reduced or stopped.
Gas spring 9 gives pressure power to rod piston 11, said rod piston 11 in its complete extended length pushes piston seal 12 within refill tube 8 and the dishwasher detergent is pressed forwards towards dispensing tip 5.

Fig 2. Displays from underneath the lower handle part 2 and upper handle part 3 somewhat separated in division 10, this in order to when needed exchange the separately interchangeable refill tube 8, locking mechanism 13 steers and locks together lower handle part 2 with upper handle part 3, at this connection spring 20 presses refill tube 8 down and its opening area 16 towards dispensing tip 5 in order to ensure that new sealed refill tube 8 gets punctured in opening area 16 so that the content in the form of dishwasher detergent is opened for use, also hollow space for lower handle part 14 for refill tube 8 is shown.

Fig 3. Displays dish-washing brush 1 intersected side view and upper hollow space handle part 15 as well as hollow space lower handle part 14 when refill tube 8 is uncharged in dish-washing brush 1.

Fig 4. Displays refill tube with ring 21 and piston seal 12 with steering device 17 for rod piston 11, said steering device 17 controls and centers rod piston 11 at interlocking and also during the complete movement from gas spring 9 and opening area 16 which is punctured at the charging of a new refill tube 8.

Fig 5. Displays what the alternally detachable bristle part 18 looks like in its preferred shape adjacent to the lower handle part 2.

Fig 6A. Displays how the alternally detachable bristle part 18 is attached or removed.

Fig 6B. Displays from a straight forward angle, a preferred shape of positioning of the alternally detachable bristle part 18 with locking adjacent surfaces 19 to lower handle part 2.

List of parts

1=dish-washing brush
2=lower handle part
3=upper handle part
4=bristle
5=dispensing tip
6=duct
7=dosage button
8=refill tube
9=gas spring
10=division
11=rod piston
12=piston seal
13=locking mechanism
14=hollow space for lower handle part
15=hollow space for upper handle part
16=opening area
17=steering device
18=detachable bristle part
19=locking adjacent areas
20=spring
21=ring

Patent claim

1. Dish-washing brush (1) meant for dish washing as a separable dish-washing brush (1) with hollow space which comprises lower handle part (2) comprising bristle (4) and a detachable upper handle part (3) which comprises a force transmitting gas spring (9) with its rod piston (11) and connection in division (10) with locking mechanism (13) between lower handle part (2) to upper handle part (3), refill tube (8) is further arranged to contain dishwasher detergent and dosage button (7) adjusts the outflow of dishwasher detergent that through dispensing tip (5) flows into duct (6) down to and past bristle (4) during dish washing, **characterized by** a separate exchangeable refill tube (8) comprising a seal which at insertion is punctured by dispensing tip (5), at which time refill tube (8) is opened for use, connection occurs in division (10) with locking mechanism (13), spring (20) pushes down refill tube (8) with its opening area (16) against dispensing tip (5) so that the outflow of dishwasher detergent is kept sealed. Gas spring (9) with piston rod (11) pushes via piston seal (12) in refill tube (8), which results in the content in terms of dishwasher detergent is pushed forwards but obstructed outwards. Dosage button (7) which through finger pressure effect lifts refill tube (8) in its ring (21) which pushes together spring (20) upwards, passage is created between opening area (16) and dispensing tip (5) which then results in an outflow of dishwasher detergent.

2. Dish-washing brush according to claim 1, **characterized by** the refill tube (8) being made out of plastic, metal or other compressible material.

3. Dish-washing brush according to claims 1 or 2, **characterized by** the refill tube (8) being cylindrical with a pushable piston seal (12) in the upper section of the refill tube (8).

4. Dish-washing brush according to claims 1, 2 or 3, **characterized by** the refill tube's (8) material in opening area being thinner in order to more easily get punctured by dispensing tip (5).

5. Dish-washing brush according to claims 1, 2, 3 or 4 **characterized by** the refill tube (8) comprising dishwasher detergent and no aerosol propellant, although the refill tube (8) can also alternally be equipped with comprising an aerosol propellant as well as dishwasher detergent.

6. Dish-washing brush according to any of the claims above, **characterized by** dish-washing brush (1) having a division (10) between lower handle part (2) and upper handle part (3), in division (10) lower handle part (2) and upper handle part (3) are also connected with locking mechanism (13) which controls and locks lower handle part (2) with upper handle part (3).

7. Dish-washing brush according to any of the claims above, **characterized by** dish-washing brush (1) having a hollow space (14) in lower handle part (2) for refill tube (8) and a hollow space (15) in upper handle part (3) where gas spring (9) is contained.

8. Dish-washing brush according to any of the claims above, **characterized by** the detachable bristle part (18) being exchangable as an exchangable unit which is attached on the lower handle part (2) and a positioning with locking areas (19) contiguous to lower handle part (2).

9. Procedure at the changing of a separate refill tube according to claim above, **characterized by** the dish-washing brush (1) being opened at division (10) and refill tube (8) is inserted in hollow space (14) in lower handle part (2), during application and by upper handle part (3) to lower handle part (2) refill tube (8) is attached by spring (20) which pushes refill tube (8) towards dispensing tip (5) which punctures refill tube (8) in its opening area (16) so that the content in the form of dishwasher detergent is opened for use.

10. The procedue during dosage of the amount of dishwasher detergent according to claim above, **characterized by,** the user's finger pressing force on the dosage button (7) and spring (20) adjusting the ammount of outflow of dishwasher detergent, as the dosage button (7) lifts refill tube (8) when the user with little or more finger pressure force on the dosage button (7) wishes to get dishwasher detergent or to get an increased amount of dishwasher detergent and spring (20) pushes down refill tube (8) when the user's finger pressure is reduced or stopped on dosage button (7) upon which the outflow of dishwasher detergent is reduced or stopped.

11. Dish-washing brush according to any of the claims above, **characterized by** dish-washing brush (1) with the same function also can be used as other separable cleaning brushes and that the refill tube (8) comprises cleansing agent.

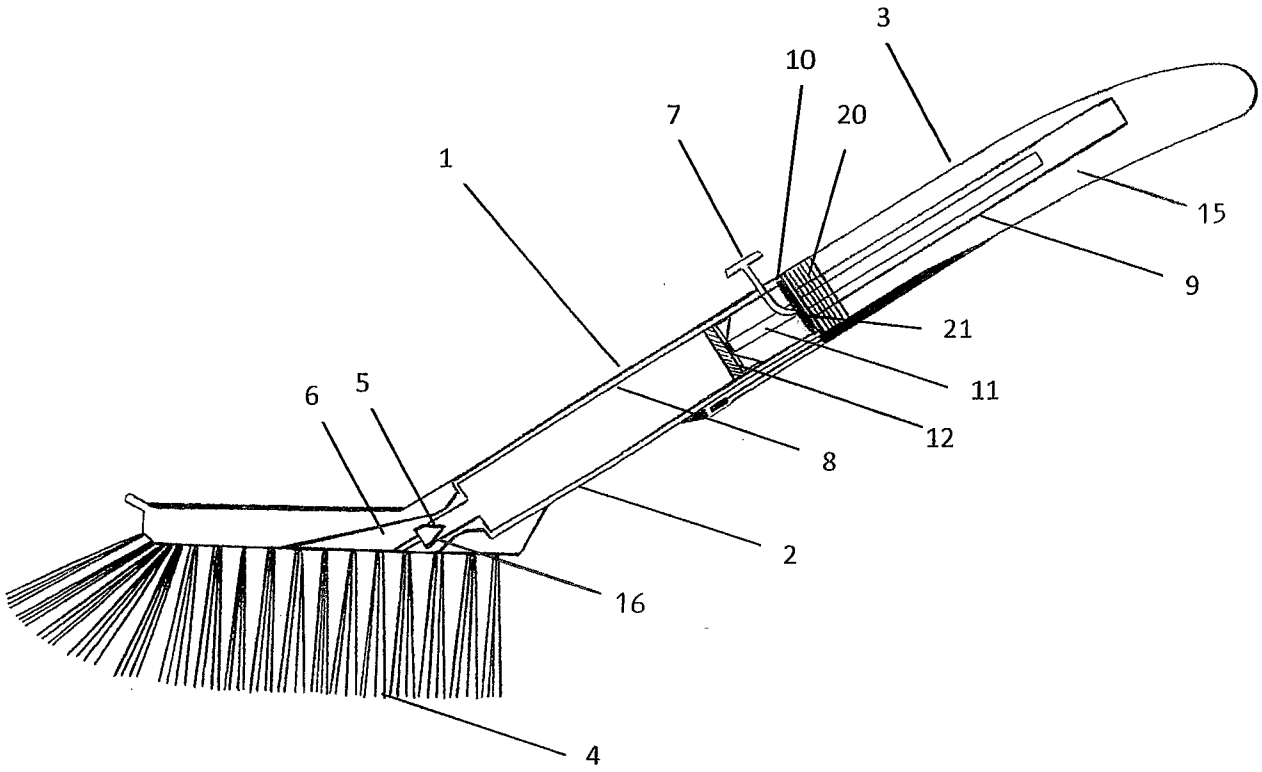


Fig. 1.

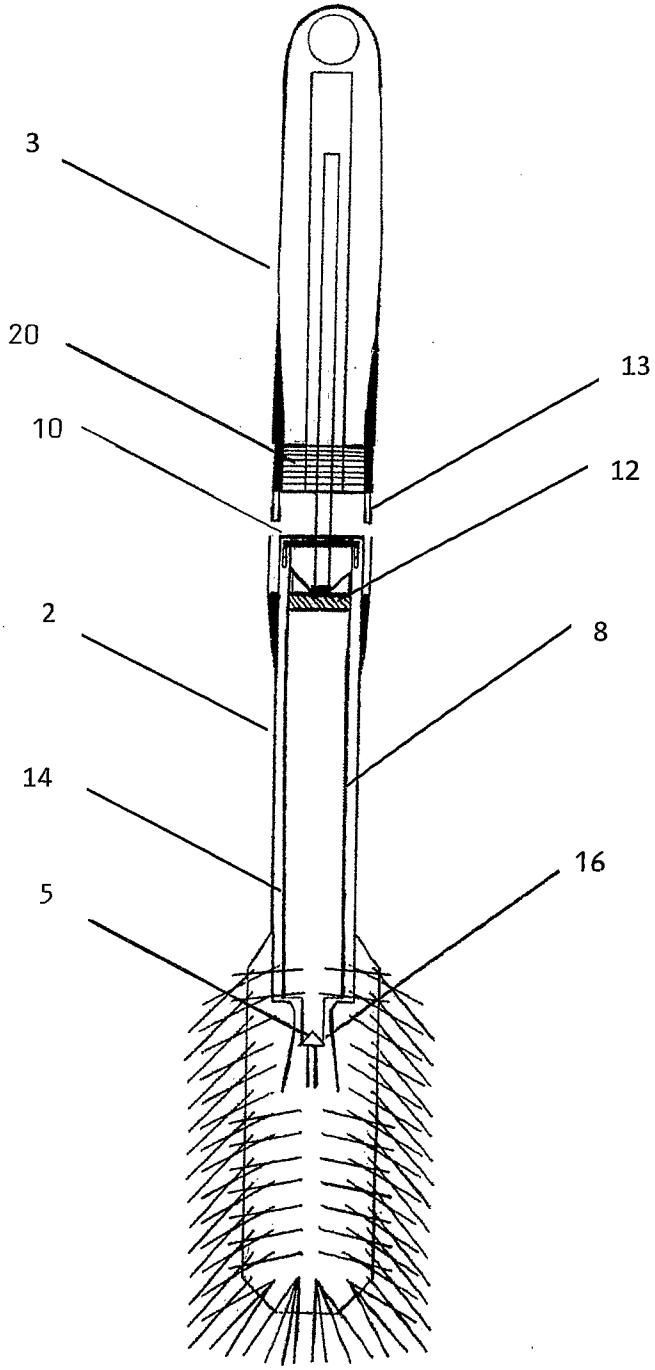


Fig. 2.

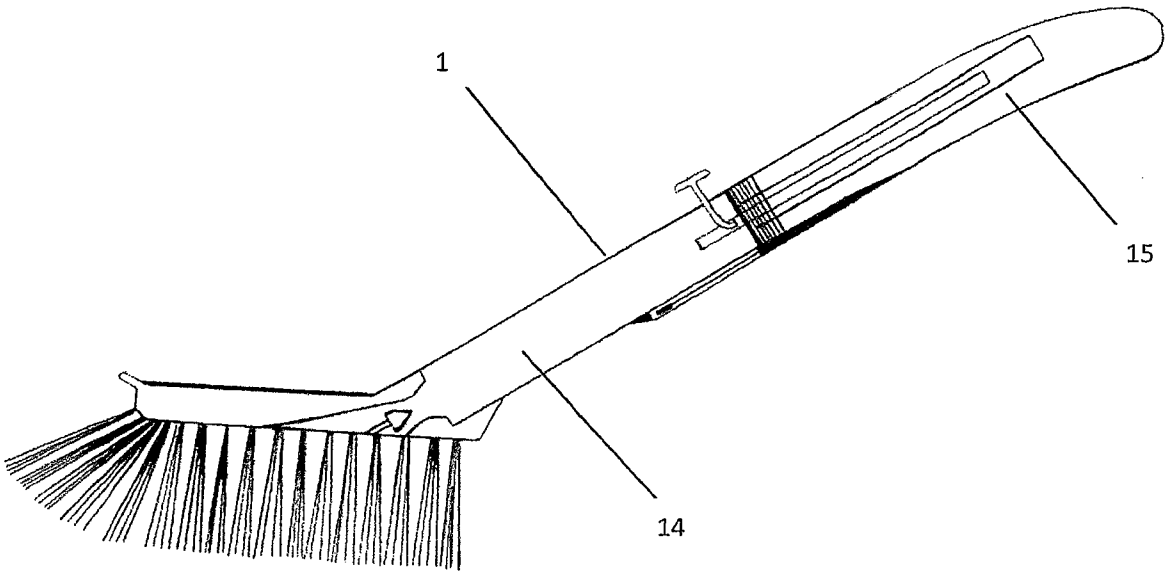


Fig. 3.

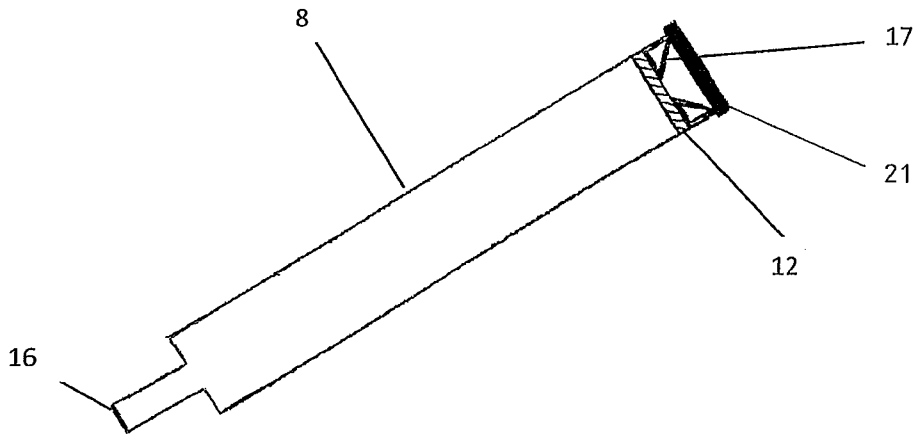


Fig. 4.

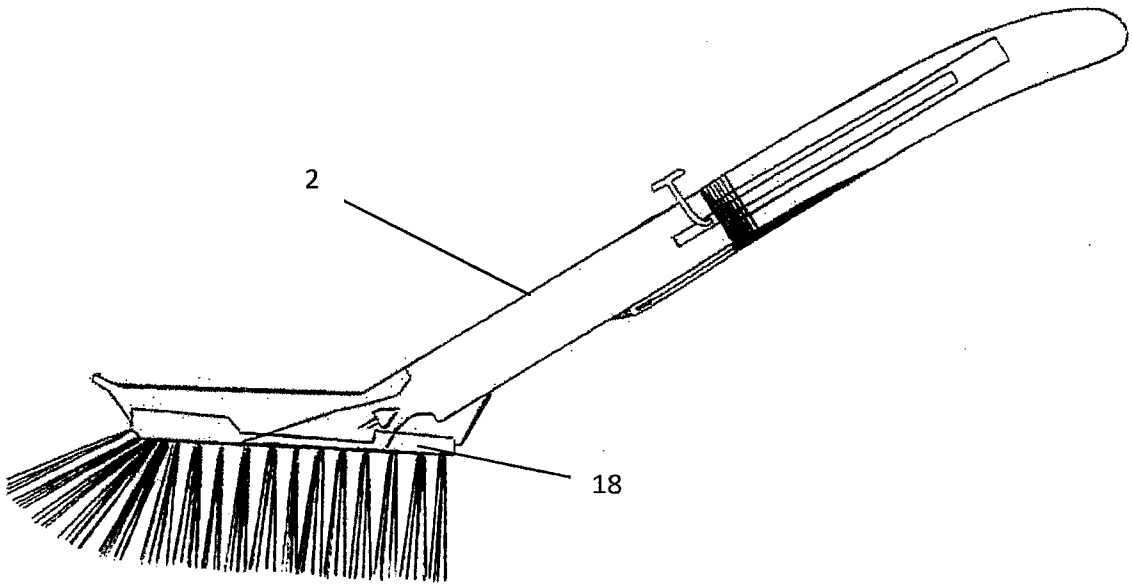


Fig. 5.

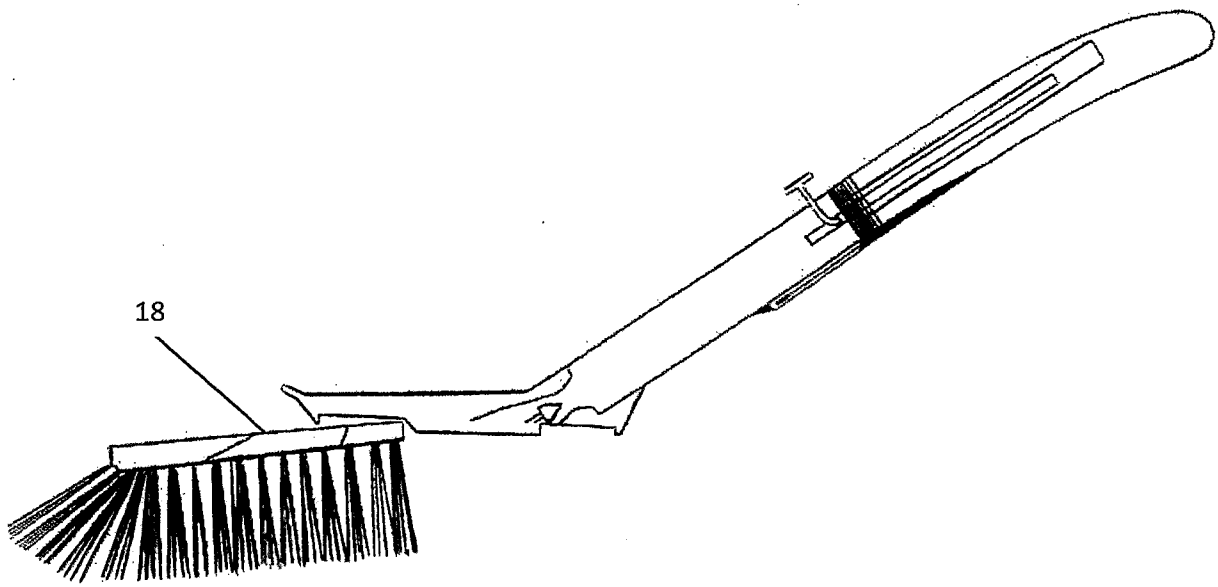


Fig. 6A.

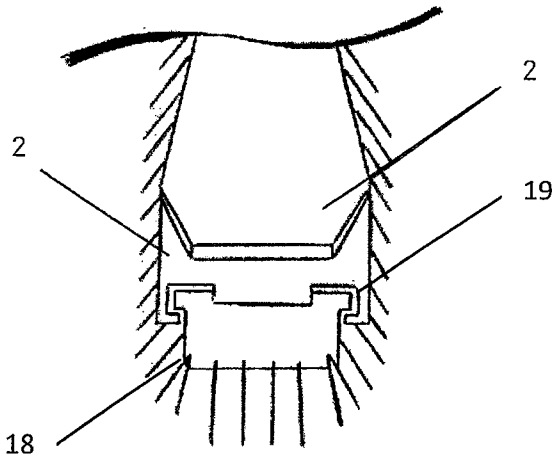


Fig. 6B.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2019/000001

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

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)

IPC: A46B, A47L

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

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ, WPI data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2412301 A (RECKITT BENCKISER INC), 28 September 2005 (2005-09-28); figures 11-14; claims 1,6-8 --	1-11
A	WO 0165969 A1 (DETTMANN JOACHIM ET AL), 13 September 2001 (2001-09-13); page 7, line 3 - line 13; page 7, line 29 - line 31; page 13, line 28 - page 14, line 24; figures 1, 2, 7; claims 33-37,42,43 --	1-11
A	DE 2331694 A1 (UGRINSKY ALEXANDER), 16 January 1975 (1975-01-16); whole document --	1-11

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
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"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
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2019/000001

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 20140130279 A1 (PEI SHAO-KAI), 15 May 2014 (2014-05-15); paragraph [0014]; figures 2,4 --	1-11
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International application No.
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International Patent Classification (IPC)

A46B 11/02 (2006.01)
A46B 11/00 (2006.01)
A47L 17/04 (2006.01)

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