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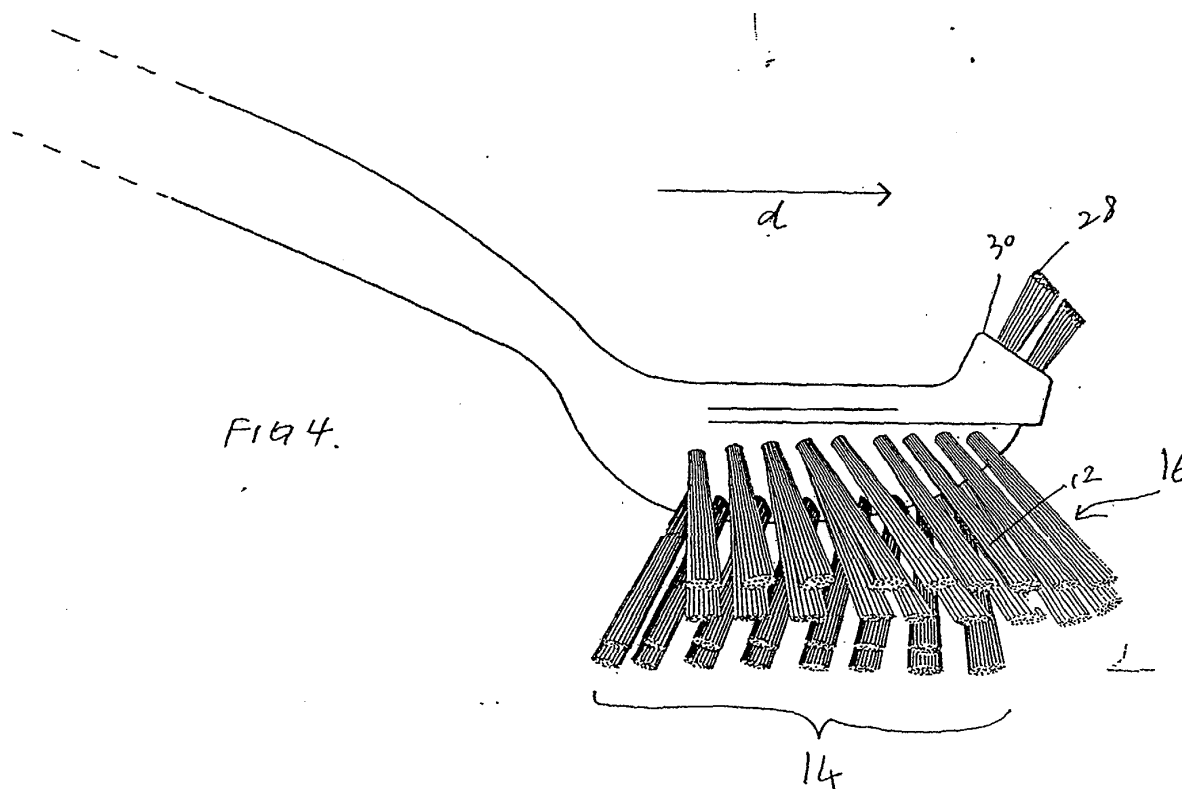
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(54) **Cleaning brush**

(57) A brush for cleaning purposes comprising a brush head from which a plurality of bristles arranged in clumps depend from an underside thereof, the clumps of bristles being disposed in at least two groups, a first group in which the clumps of bristles exhibit a variation in orientation from a direction which is substantially per-

pendicular to the surface to be cleaned in normal use of the brush to being inclined in a first direction relative to the perpendicular direction, and a second group in which the clumps of bristles exhibit a variation in orientation from substantially perpendicular to being inclined to the perpendicular in a direction opposite to said first direction.



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Description

Background of the Invention

[0001] The present invention relates to a brush of the type for use in cleaning everyday items such as pots, pans, cutlery and the like or for cleaning surfaces in the home such as sinks, worktops etc. Traditional brushes for these purposes comprise a brush head provided with a plurality of bristles. The bristles are typically arranged in clumps where the bristles are aligned generally parallel with each other, or may be in a slightly splayed out arrangement. The present invention seeks to provide a cleaning brush which has an improved cleaning function through the arrangement of its bristles and can effectively and efficiently carry out a cleaning operation, or at least to provide a useful alternative to the public.

Summary of the Invention

[0002] According to the present invention there is provided a brush for cleaning purposes comprising a brush head from which a plurality of bristles arranged in clumps depend from an underside thereof, the clumps of bristles being disposed in at least two groups, a first group in which the clumps of bristles exhibit a variation in orientation from a direction which is substantially perpendicular to the surface to be cleaned in normal use of the brush to being inclined in a first direction relative to the perpendicular direction, and a second group in which the clumps of bristles exhibit a variation in orientation from substantially perpendicular to being inclined to the perpendicular in a direction opposite to said first direction.

[0003] In the preferred embodiment the brush head is of elongate form with a forward end and rear end from which a handle extends the bristles of the first group extending more forwardly relative to the forward end than those of the second group and at this end being inclined in the forward direction, the bristles of the second group extending more rearwardly relative to the rear end than those of the first group and at this end being inclined in the rearward direction. The clumps of bristles of the first group become progressively more inclined towards the front end of the head. The clumps of bristles of the second group become progressively more inclined towards the rear end of the head. The second group of bristle clumps are arranged along the longitudinal centre of the brush head and the clumps of the first group at least partly surround the second group in a horseshoe shape. The most rearward clumps of the second group extend through the open side of the horseshoe shape of the first group of clumps.

[0004] The brush head is preferably of downwardly convex shape both laterally across the head, and longitudinally in the direction between forward and rear ends.

[0005] An upper region of the brush head may be provided with additional clumps of bristles at a forward end

thereof.

Brief Description of the Drawings

[0006] The present invention is now described by way of examples only, with reference to the following drawings in which:

Figure 1 is a perspective view of a brush in accordance with an embodiment of the present invention; Figure 2 is a perspective view of the brush head only shown in Figure 1;

Figure 3 is a bottom view of the brush head;

Figure 4 is a side view of the brush head;

Figure 5 is a schematic sectional view of the brush head taken laterally across the brush head;

Figure 6 is a schematic sectional view of the brush head taken along its longitudinal axis; and

Figure 7 is a perspective view of a cleaning brush in accordance with a second embodiment of the present invention.

Description of the Preferred Embodiments

[0007] Turning to the drawings, as can be seen in Figures 1 to 6 there is provided a first embodiment of a brush generally indicated 2 having a brush head portion 4 and a handle 6. Although the brush is shown with a handle 6, the invention is equally applicable to brushes without a handle where the head is otherwise adapted to be gripped by a user. The brush head 4 comprises a lower portion 8 defining a surface 10 from which a plurality of bristles extend. These are arranged in discreet tufts or clumps 12. The head is provided with a plurality of blind openings into which individual clumps are secured using staples or other securing means as is well known in the art. As can best be seen in Figures 5 and 6, the surface 10 is convex in shape both laterally and longitudinally. The brush head 4 as illustrated is of elongate form with the handle extending from the rear of the head, but it may alternatively be of more rounded shape, for example with a more part-spherical underside. It should be noted that whilst Figures 5 and 6 are cross-sectional views, the blind openings and clumps of bristles are not shown in section for reasons of clarity.

[0008] As best illustrated in Figures 3 and 4, the clumps of bristles are arranged essentially into two groups. A second group 14 is arranged centrally, having as seen in Figure 3, four rows of clumps. A first group 16 partly surrounds the second group 14 in a horseshoe shape, as illustrated having two rows of clumps. In each group the clumps of bristles extend very generally in the same direction as now discussed further.

[0009] More specifically, the clumps in the second group 14 extend generally perpendicular to a surface to be cleaned when the brush is in its normal cleaning position relative to such a surface, ie vertically with respect to a horizontal surface, as in Figure 4 assuming a

horizontal surface is being cleaned, or extend with a rearward inclination to the perpendicular. Those bristles towards the front of the brush have a substantially perpendicular (vertical) disposition (14A) (or even a very slight forward inclination) which becomes progressively more inclined in the clumps positioned towards the rear of the brush (14B).

[0010] The clumps in the first group 16 extend generally perpendicular to the surface being cleaned (vertically) or with a forward inclination, those near the front of the brush (16A) being most inclined, whilst those to the rear (16B) being generally perpendicular (vertical). As can be seen in Figure 5, the clumps in both groups extend outwards generally radially from the curved underside 10 of the head.

[0011] The purpose of these bristle orientations is as follows. During cleaning, the brush is most commonly moved in a reciprocating forward and back motion. On a forward stroke it is those bristles at front of the brush in the first group which will most strongly impact on any object to be cleaned and thereby be subjected to a rearward deforming force. By arranging these clumps 16A to have the significant degree of forward inclination, the bending moment is significantly reduced. On a rearward stroke it is the rearward clumps at 14B of the second group which will most strongly impact any object being cleaned and be subjected to the forward deforming force. By arranging these clumps 14B to have a significant degree of rearward inclination, the bending moment on these clumps is significantly reduced. In this way a greater cleaning force can be exerted on the object to be cleaned, so that cleaning is more effective and efficient. In addition, the wear and permanent deformation of the bristles with repeated use is reduced so that the brush retains its effective cleaning capabilities for longer.

[0012] The curved shape of the surface 10 is also important, especially when cleaning the interior of objects with curved or non-planar surfaces. The curve in the lateral direction with the bristles extending splaying outwards means that the brush can be inserted into a say a curved glass and rotated in reciprocating manner, with the majority of the bristles contacting the interior surface of the glass. The curve in the longitudinal direction is also important for example for cleaning an object such as a curved bowl, or the bottom and bottom radius of the interior of a glass.

[0013] It can also be arranged that additional bristles 28 are provided at an upper surface 30. These can be used with the brush in an inverted orientation, for example for accessing a difficult to reach part of an object or where a particularly stubborn region of dirt is to be cleaned.

[0014] Figure 7 shows a second embodiment of the present invention in which a brush 32 is identical to the brush 2 except that the additional bristles 28 are replaced by a scraping lip 34 at an upper surface of its brush head 30, preferably moulded into the brush head.

This can be used for scraping for example stuck on food from a plate. Alternatively, a squeegee blade could be formed here.

Claims

1. A brush for cleaning purposes comprising a brush head from which a plurality of bristles arranged in clumps depend from an underside thereof, the clumps of bristles being disposed in at least two groups, a first group in which the clumps of bristles exhibit a variation in orientation from a direction which is substantially perpendicular to the surface to be cleaned in normal use of the brush to being inclined in a first direction relative to the perpendicular direction, and a second group in which the clumps of bristles exhibit a variation in orientation from substantially perpendicular to being inclined to the perpendicular in a direction opposite to said first direction.
2. A brush according to Claim 1 wherein the brush head has a forward end and rear end from which a handle extends, the bristles of the first group extending more forwardly relative to the forward end than those of the second group and at this end being inclined in the forward direction, the bristles of the second group extending more rearwardly relative to the rear end than those of the first group and at this end being inclined in the rearward direction.
3. A brush according to Claim 2 wherein the clumps of bristles of the first group become progressively move inclined towards the front end of the head.
4. A brush according to Claim 2 wherein the clumps bristles of the second group become progressively move inclined towards the rear end of the head.
5. A brush according to Claim 2 wherein the second group of bristle clumps are arranged along the longitudinal centre the brush head and the clumps of the first group at least partly surround the second group in a horseshoe shape.
6. A brush according to Claim 5 wherein the most rearward clumps of the second group extend through the open side of the horseshoe shape of the first group of clumps.
7. A brush according to any preceding claim wherein an upper region of the brush head may be provided with additional clumps of bristles at a forward end thereof.
8. A brush according to any preceding claim wherein the underside of the brush head is downwardly con-

vex in a lateral direction perpendicular to a direction between the forward and rear ends.

9. A brush according to any preceding claim wherein the underside of the brush head is downwardly convex in the direction between the forward and rear ends. 5
10. A brush according to any preceding claim wherein the brush head is of elongate form in the direction between forward and rear ends. 10
11. A brush according to any preceding claim wherein an upper region of the brush head is provided with a scraping lip at a forward end thereof. 15

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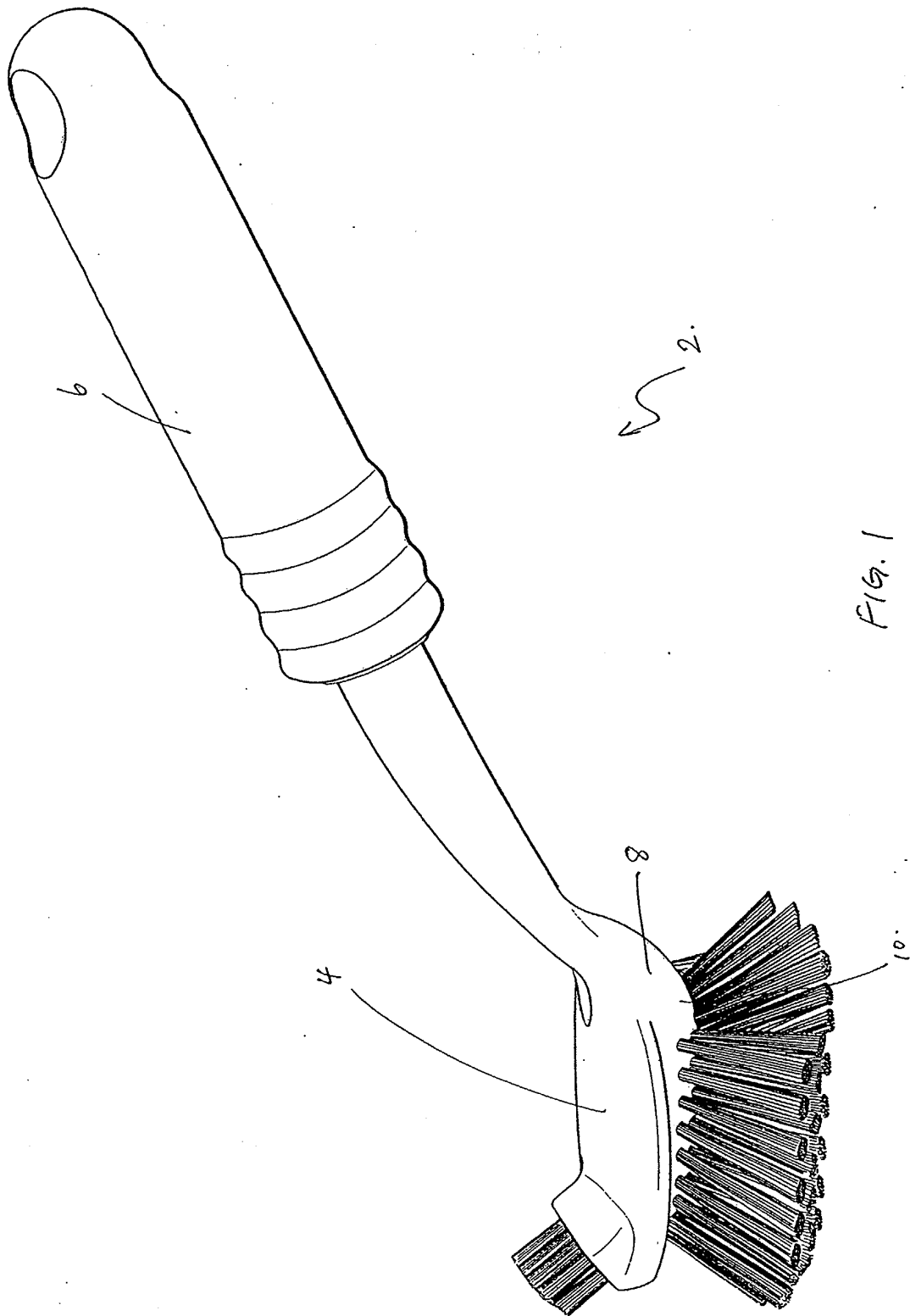
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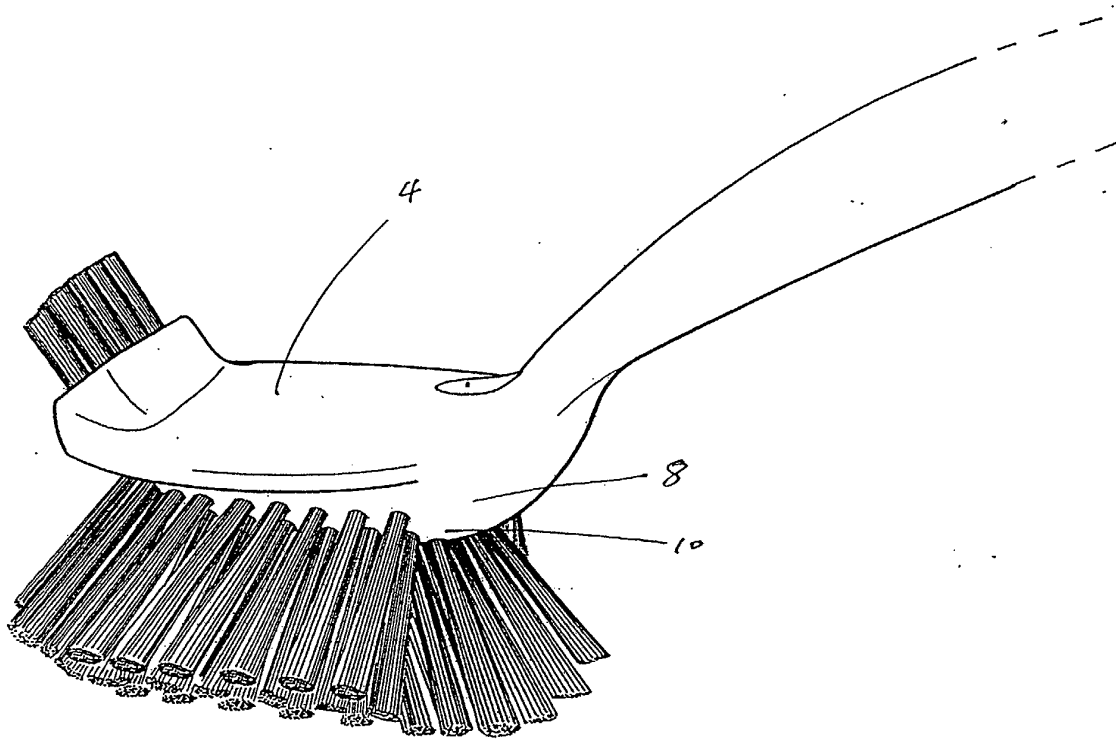
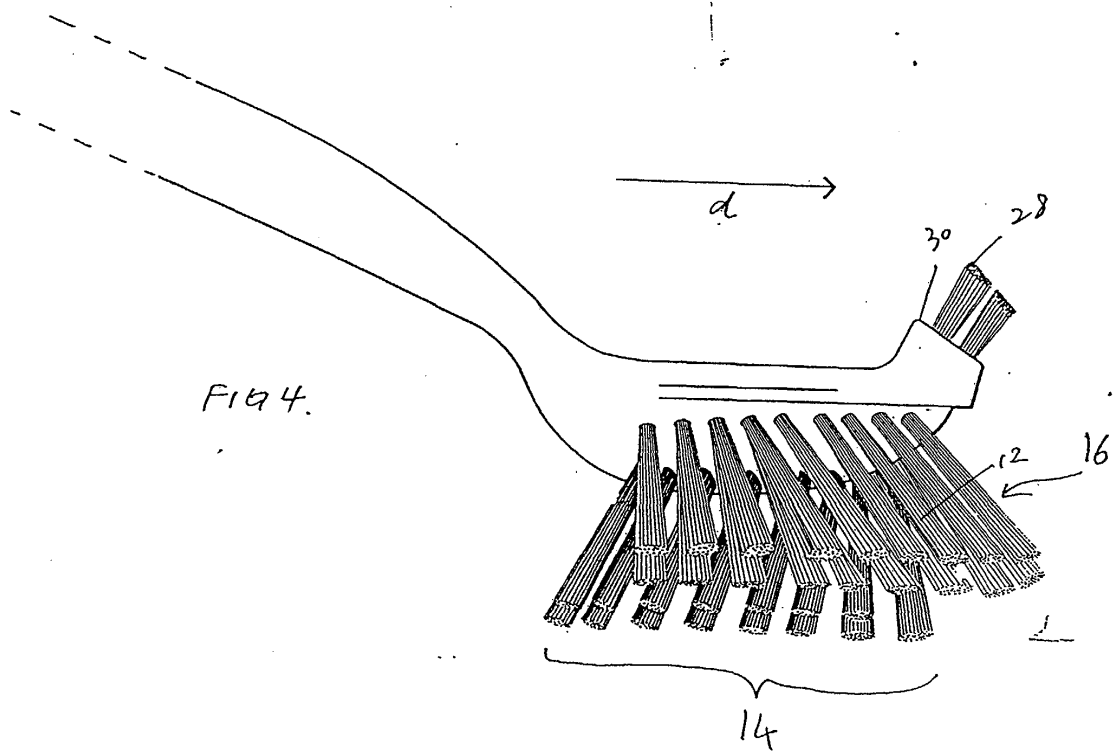
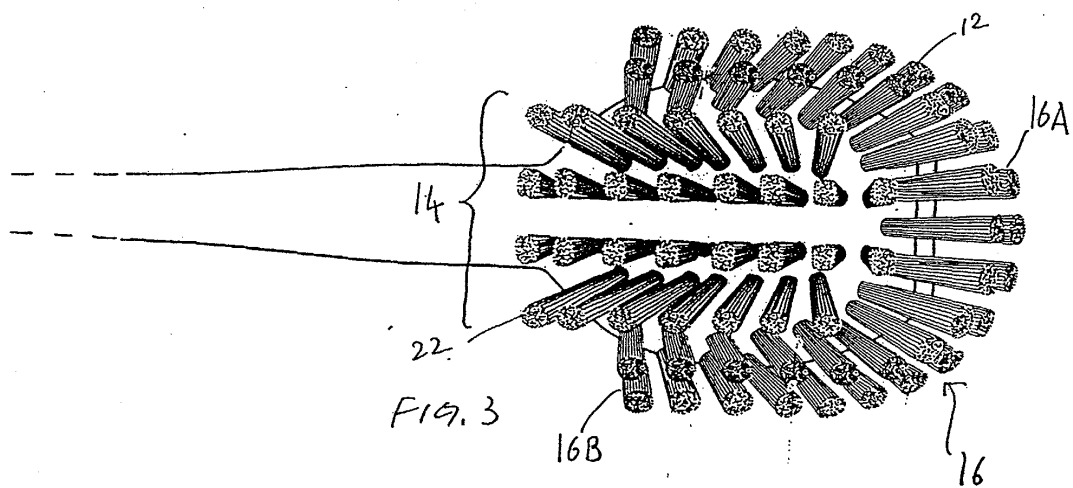
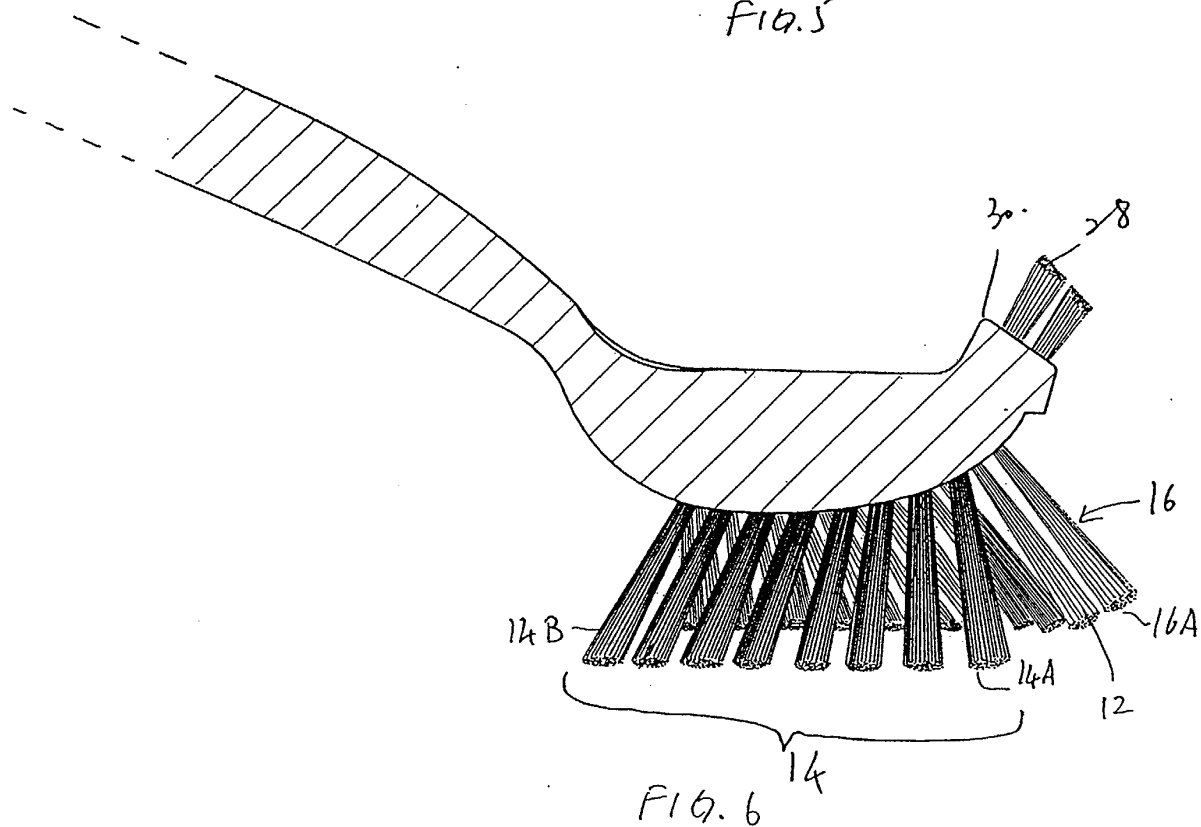
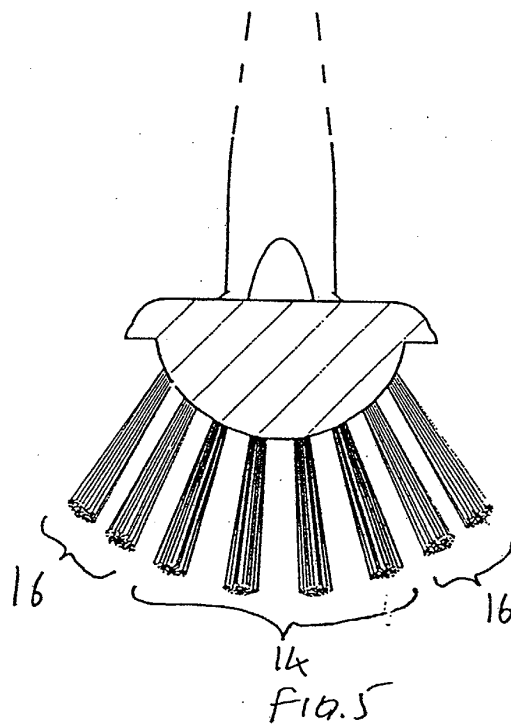


FIG. 2





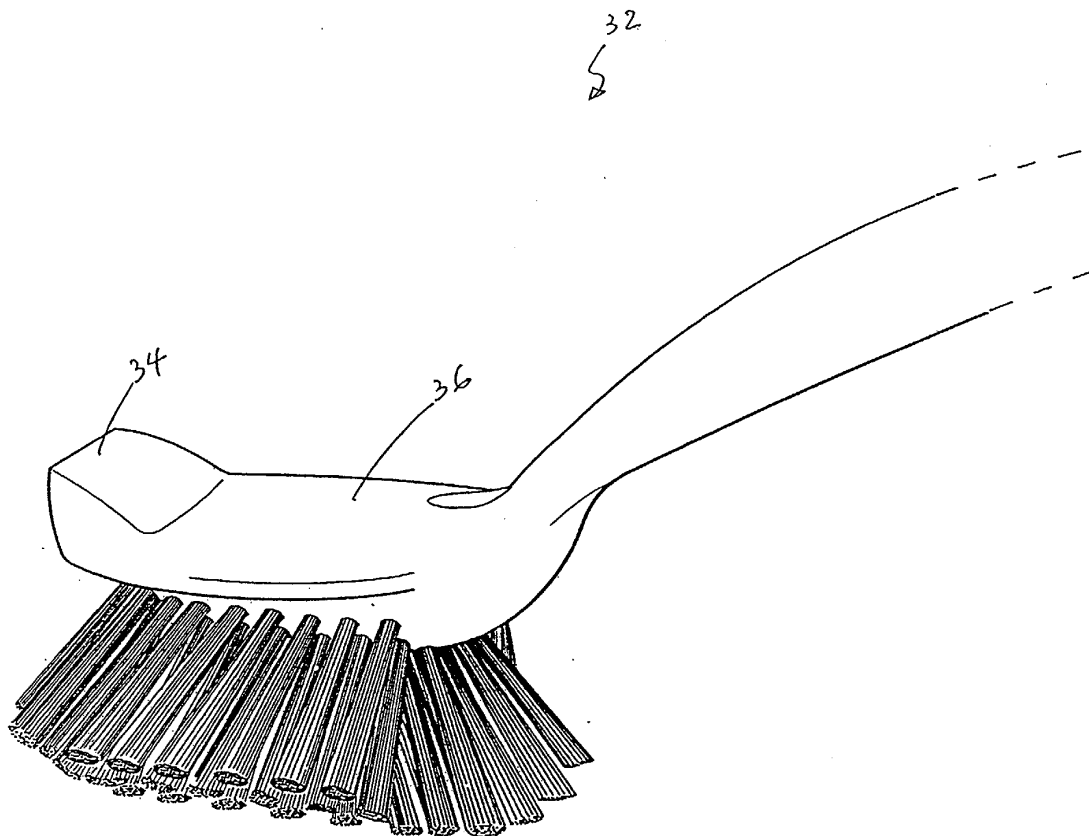


FIG. 7



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 04 25 4674

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		21 September 2004	Neiller, F
CATEGORY OF CITED DOCUMENTS			
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 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 & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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