

Jan. 14, 1969

TERUYA TSURUZAWA

3,421,171

BRUSH FOR CLEANING

Filed July 12, 1967

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Fig. 1

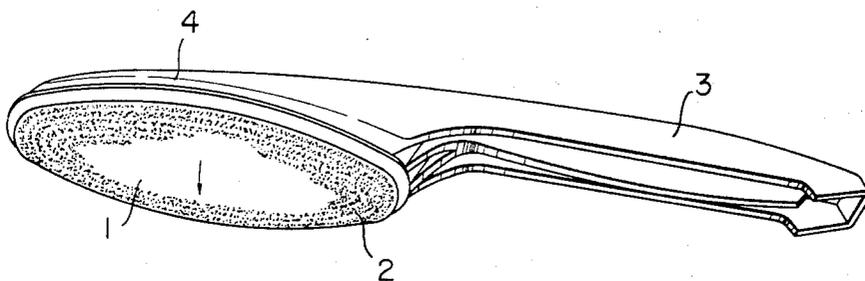


Fig. 2

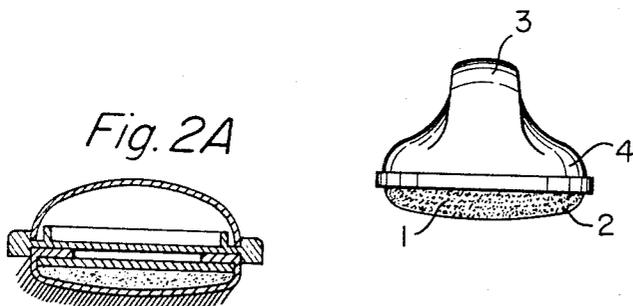
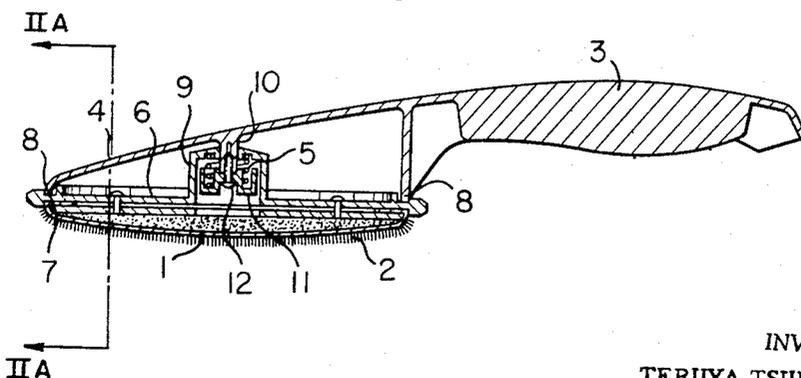


Fig. 3



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Fig. 4

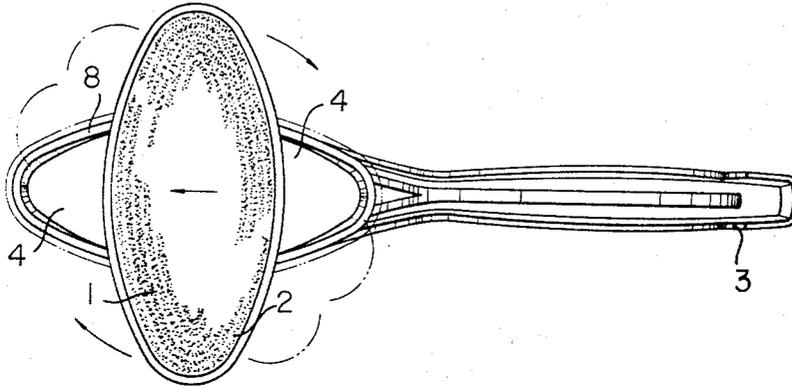


Fig. 5

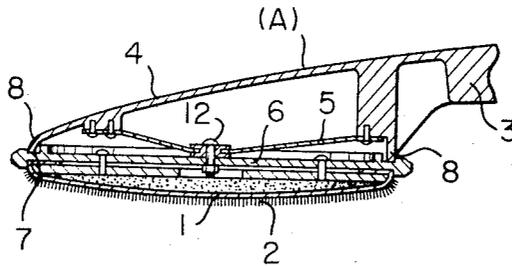
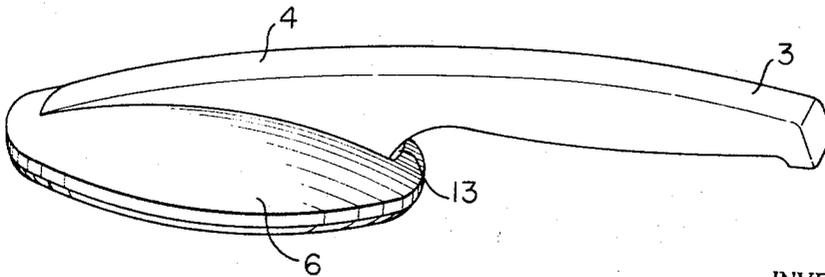


Fig. 6A



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Fig. 6B

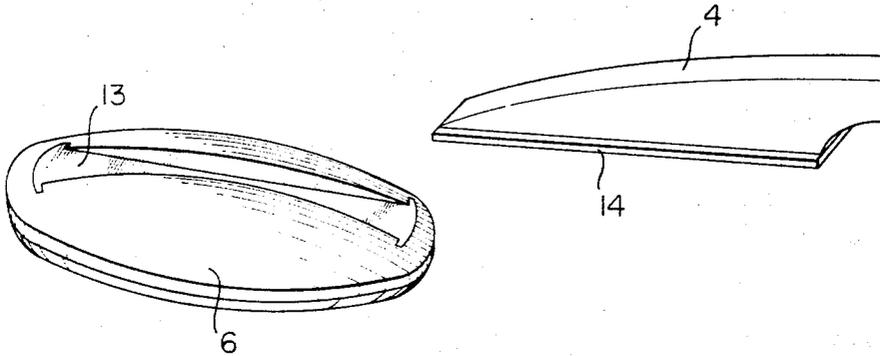


Fig. 7A

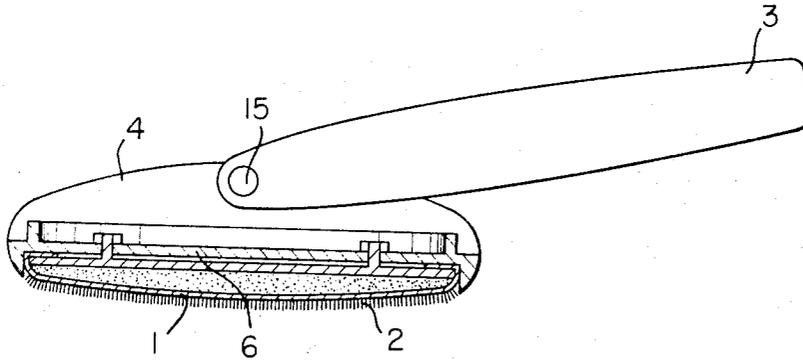
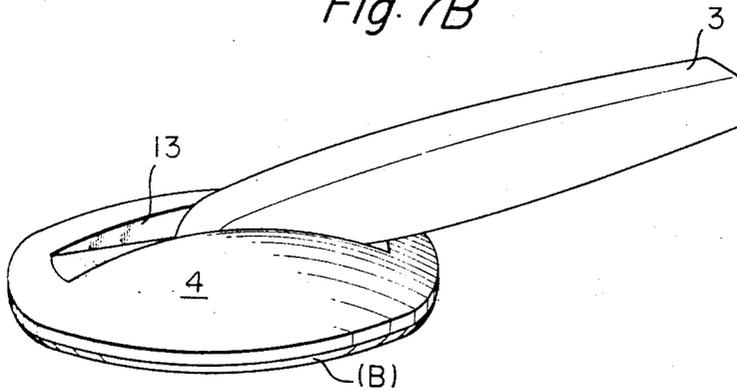


Fig. 7B



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Fig. 8A

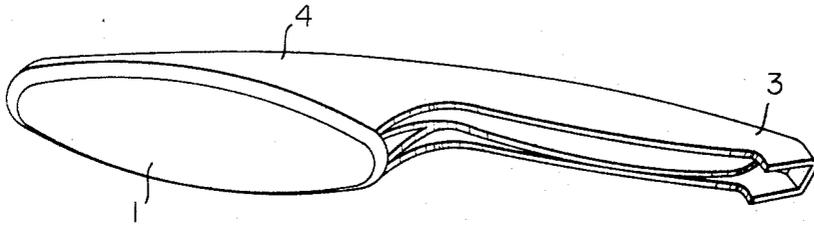
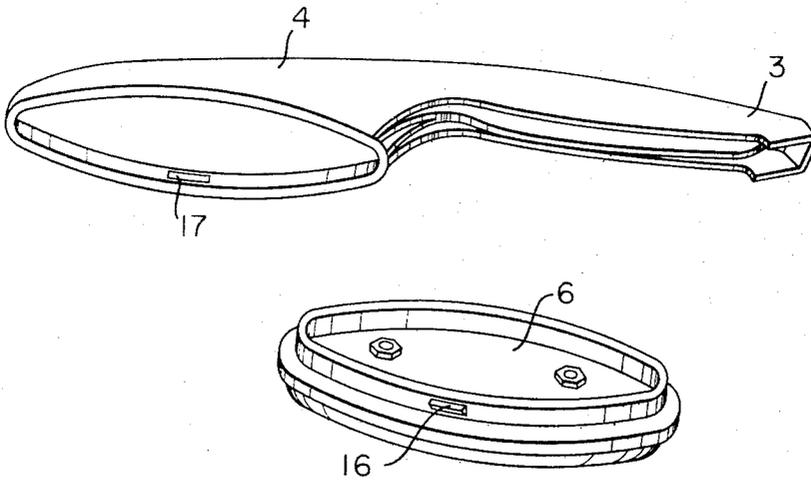


Fig. 8B



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3,421,171

BRUSH FOR CLEANING

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41/69,696

U.S. Cl. 15—172
Int. Cl. A46b

10 Claims

ABSTRACT OF THE DISCLOSURE

The disclosed brush for cleaning has a brush surface which is implanted and leaned in one direction by short piles, and a holder for securing the brush surface through a base plate. The brush has also means for converting the direction of the brush surface at angle 180° for easy operation of brushing.

Background of the invention

This invention relates to a brush for cleaning, and more particularly is directed to a brush for cleaning which has leaned piles in one direction for brushing and which direction of a base plate with the leaned piles are provided so as to be easily converted at angle 180°.

The conventional brush has piles disposed perpendicular to the brush surface, accordingly it merely moves dusts from one position to the other when brushing, but it cannot remove the dusts clearly from the surface to be brushed.

Summary of the invention

This invention eliminates the aforementioned disadvantage of the conventional brush and provides a novel and improved brush for cleaning which may remove the dusts from either direction by easy operation.

According to one aspect of the present invention, there is provided a brush for cleaning which has a brush surface implanted and leaned in one direction by short piles and a holder for securing the surface, and comprises means for converting the direction of the base plate provided with the leaned piles thereon.

According to another aspect of the present invention, there is provided a brush for cleaning characterized by the fact that the piles are made of fibers such as natural fibers, chemical fibers, synthetic fibers or glass fibers; the piles are adapted to be 1-7 mm. in length; the inclined angle of the piles to the brush surface is adapted to be 3-60° or at least 60-80; means for converting the direction of the base plate provided with the leaned piles includes resilient element such as helical or plate spring for securing a base plate with the brush surface to the holder; the means includes a slot provided on the base plate, and a projection provided on the holder so as to insert it to the slot; the means includes a pivot connection between the holder and the base plate, and a slot for receiving either side of the holder; or the means includes a pair of projections disposed on the base plate, and a pair of recesses for receiving the projections for securing the base plate to the holder.

Therefore, one object of this invention is to provide a brush for cleaning which may clearly remove dusts by easy operation.

Another object of this invention is to provide a brush for cleaning which may convert the direction of the base plate with the leaned piles on the brush surface.

Preferably in the brush for cleaning in accordance with the present invention, the brush has a brush surface

implanted by leaned piles in one direction for brushing, accordingly it removes perfectly the dusts on the surface to be brushed.

Preferably in the brush for cleaning according to the present invention, the brush has means for converting the direction of the brush surface implanted by the leaned piles, accordingly it removes the dusts from either direction by simple conversion thereof.

Brief description of the drawings

FIGURE 1 is a perspective view of a brush for cleaning in accordance with this invention;

FIGURE 2 is a lateral side view of the brush in FIGURE 1;

FIG. 2A is a cross-sectional view of the brush in FIGURE 2;

FIGURE 3 is a longitudinal sectional view of the brush in FIGURE 1;

FIGURE 4 is a bottom view of the brush in the event the base plate is disposed on the way of conversion of the direction;

FIGURE 5 is a view similar to FIGURE 4 but in accordance with another embodiment of this invention;

FIGURES 6A and 6B are views according to still another embodiment of the invention;

FIGURES 7A and 7B are views in accordance with still further embodiment of the invention;

FIGURES 8A and 8B are views according to still another embodiment of the invention.

Description of the preferred embodiment

Although specific forms of the invention have been selected for illustration in the drawings, and the following description is drawn in specific turns for the purpose of describing those forms of the invention, this description is not intended to limit the scope of the invention, which is defined in the claims.

Referring now to the drawings, and particularly to FIGURES 1 through 4, which show one embodiment of this invention relative to the brush for cleaning, it has a plurality of closely implanted short piles which are leaned to the surface thereof, as to the brush it will be hereinafter explained in detail.

In FIGURES 1 and 2, the brush for cleaning in accordance with the present invention comprises a brush surface 1, on which a plurality of short piles 2 made of fibers such as natural fibers, chemical fibers, synthetic fibers or glass fibers, threads or wools are provided closely thereon and the piles are leaned toward a constant direction, and a holding device including a handle 3 for a hand to be held and a holder 4 for supporting the brush surface 1 and means for turning the brush surface 1, which will be hereinafter described in detail. Proper length of the piles is 1-7 mm., and the inclined angle thereof is preferably 3-60°, but may be 60-80°.

Referring now to FIGURE 3, which shows a longitudinal view in section of the brush for cleaning relative to the present invention, the brush also comprises a resilient element 5 such as a helical spring in the embodiment, a base plate 6 for bearing the brush surface 1 at one side and on the other side provided at the periphery with a channel 7 for receiving and supporting the peripheral end 8 of the holder 4, a cylindrical hollow projection 9 projecting from the center portion of the base plate so as to receive and bearing the spring 5 on the inside top surface thereof, a hollow projection 10 projecting from the inside top surface of the holder 4 for supporting integrally a member 11 with a fastening means 12 such as a screw or pin, said member 11 adapted to receive and bear the other end of the resilient element or spring 5 which act so that it forces upwards in the drawing the

projection 9 integrally with the base plate 6 so as to fix the base plate 6 with the brush surface 1 through the channel 7 and end 8 facing and contacting each other to the holder 4.

In operation of turning the brush surface 1 at an angle of 180 degrees, when the handle 3 is held by the hand, and the peripheral edge of the base plate 6 is pulled away from the base plate the channel 7 of the base plate 6 separates from the end 8 of the holder 4, and both may be turned relative to each other. In this state, when the base plate 6 with the brush surface 1 is turned at angle 180 degrees, the direction of the leaned piles 2 on the brush surface 1 becomes inverse to the initial direction thereof or to the longitudinal direction of the handle 3, and in this state the channel 7 of the base plate 6 is adapted to receive the end 8 of the holder 4 so that both the holder 4 and the base plate 6 with the brush surface 1 may be fixed through the channel 7 and end 8 facing and contacting each other as the original state. The turning direction may be selectably either clockwise or counterclockwise.

In the event that the handle 3 is held by a right hand so as to brush the left portion of the suits, if the direction of the leaned piles 2 is downward, the left portion of the suits may be brushed by the brush surface 1 of the brush. When the handle 3 is held by a left hand just as the same state as aforementioned so as to brush the right portion of the suits, the brush surface 1 does not effect to remove the dust or cleaning function on the suits since the direction of the leaned piles 2 is upward and inverse to the brushing direction. In such a case, the brush in accordance with the present invention is provided to be turntable between the holder 4 or peripheral end 8 thereof and the channel 7 of the base plate 6 by pulling easily each other by hand to turn at an angle of 180 degrees so as to correspond the brushing direction to that of the leaned piles 2 integrally with the brush surface 1 to effect the cleaning function on the brush surface.

As previously described, the present invention provides the utility for enabling the direction of the base plate with the leaned piles 2 to immediately correspond to the brushing direction from either direction being provided especially when a certain surface is difficult to brush except only one direction due to some reason. Furthermore, in order to turn the base plate 6 with the brush surface 1 according to the present invention, only the base plate 6 may be pulled from the holder 4 so as to separate the peripheral end 8 of the holder 4 from the channel 7 of the base plate 6, it being very easy and quick to do so by holding the peripheral end of the base plate by fingers. As shown in the embodiment in FIGURE 3, since the peripheral end of the base plate projects from the peripheral end of the holder 4, it is much easier to hold it by the fingers and to pull it so as to separate each other.

Referring now to FIGURE 5, which shows another embodiment of the present invention in the sectional form as means for holding the brush surface 1, it comprises as its feature a resilient element 5 such as plate spring as shown by the embodiment, a base plate 6 for supporting the brush surface 1 at one side, and on the other side provided at the periphery with a channel 7 for receiving and supporting the end 8 of the holder 4 similar to the previous embodiment, said spring 5 being secured at both ends to a suitable portion inside the holder 4 and also secured at its central portion to the center portion of the base plate 6 so as to pull each other to fix between the base plate 1 with the brush surface 1 and the holder 4 contacting each other through the channel 7 and end 8 facing each other, and a pin 12 for securing the center portion of the spring 5 and that of the base plate 6 so that the base plate 6 may be turntable to the spring or the holder by pulling the base plate from the holder so as

to separate the end 8 from the channel 7 of the base plate.

Referring now to FIGURES 6A and 6B, which show still another embodiment of the present invention, it comprises only a slot 13 on the base plate 6, and a projection 14 at the end of the holder 4 so that the projection 14 may be inserted to the slot 13 so as to secure each other, and this construction may effect to turn the base plate 6 from the holder by pulling out the plate and inserting it from the opposite end of the slot 13 to turn the brush surface at angle 180 degrees.

In FIGURES 7A and 7B, which show still another embodiment of the present invention, it comprises merely a pivot connection 15 between the holder 4 and the base plate 6, and a slot 13 for receiving either side the handle 3 to be pivotally moved so as to substantially change the brush surface to the handle 3.

Referring now to FIGURES 8A and 8B, which show still another embodiment of the present invention, it comprises a pair of laterally radially opposite projections 16 disposed on peripherally outside of the base plate 6, and a pair of recesses 17 for receiving said projections so as to be resiliently inserted to fix the base plate 6 with the brush surface 1 to the holder 4, said base plate 6 being provided so as to be inserted to the holder 4 in opposite or inverse disposition in order to change the direction of the brush surface 1.

What is claimed is:

1. A brush for cleaning comprising a holder, an elongated handle attached at one end to said holder, a base plate attached to said holder and having in a brush surface short piles leaning in one direction at an angle to said base plate, and pivoting means between the handle and the plate for converting the direction of the base plate relative to the elongated handle so that the direction of the leaning piles may be reversed with respect to the elongated handle.

2. A brush for cleaning as set forth in claim 1, wherein said piles are made of natural fibers.

3. A brush for cleaning as set forth in claim 1, wherein said piles are from 1-7 mm. in length.

4. A brush for cleaning as set forth in claim 1, wherein the inclined angle of said piles to the brush surface is from 3-80 degrees.

5. A brush for cleaning as set forth in claim 1, wherein said means for converting includes a resilient spring means for securing the base plate to the holder.

6. A brush for cleaning as set forth in claim 1, wherein said means for converting includes a slot provided on the base plate, and a projection positioned on the holder for mating engagement with said slot.

7. A brush for cleaning as set forth in claim 1, wherein said means for converting includes a pivot connection between the holder and the base plate, and a slot for receiving either side said holder.

8. A brush for cleaning as set forth in claim 1, wherein said means for converting includes a pair of projections disposed on the base plate, and a pair of recesses for receiving said projections for securing the base plate to the holder.

9. A brush for cleaning as set forth in claim 1, wherein said piles are from 1-7 mm. in length; wherein the inclined angle of said piles to the brush surface is from 3-80 degrees; and wherein the means for converting comprises a cylindrical hollow projection attached to the base plate, a member slidably situated within said hollow projection and attached to the holder by a projection attached to the handle and extending into said hollow projection, and a spring bearing between said hollow projection and said slidable member.

10. A brush for cleaning as set forth in claim 1, wherein said piles are made of synthetic fibers.

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PETER FELDMAN, <i>Primary Examiner.</i>		
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