(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 547 579 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **92121393.0**

(22) Date of filing: **16.12.92**

(51) Int. Cl.5: **A46B 9/02**, A46B 13/02, A45D 29/00

(30) Priority: **16.12.91 JP 103466/91 U**
27.04.92 JP 27515/92 U

(43) Date of publication of application:
23.06.93 Bulletin 93/25

(84) Designated Contracting States:
DE FR GB

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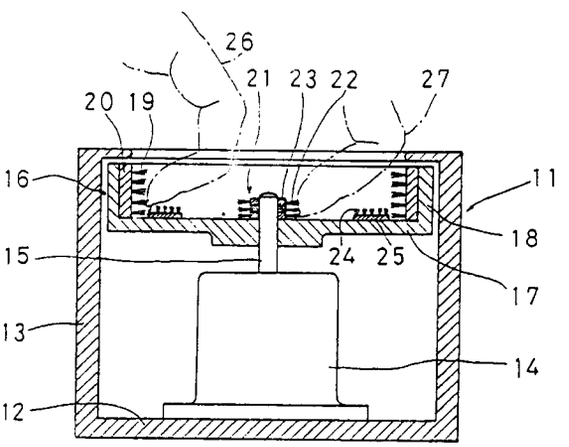
(54) Fingertip washer.

(57) A fingertip washer is in the form of an arcuate brush for removing dirt stuck between fingertips and fingernails. A large number of cleaning hairs (4) are planted in the inner surface of an arcuate plate. Also, there is provided a fingertip washer in the form of an annular brush. It has a disk-shaped bottom plate (2) and a peripheral wall (3) provided along the edge of the bottom plate (2). Numerous cleaning hairs (5) are planted in the inner surface of the peripheral wall (3) and the top surface of the bottom plate (2) for removing dirt stuck between fingertips and fingernails. In order to automatically remove dirt on fingertips, a rotary shaft (15) may be secured to the center of the disk-shaped bottom plate (2). In this case, a drive unit (14) is connected to the rotary shaft to rotate it in two directions.

FIG. 5



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This invention relates to a fingertip washer which can efficiently remove dirt that has penetrated into between fingertips and fingernails.

Though the palm or back of a hand can be cleaned with relative ease, it is not an easy job to remove dirt that has penetrated into between fingertips and fingernails of a hand of a factory worker or the like. For this purpose, brushes formed on a plastic base and planted with monofilaments made of plastic are usually used.

Such a conventional brush has a flat base plate. Hairs are planted in the flat surface of the base plate. Thus, hair tops delineate a flat plane. In order to brush off dirt stuck on the curved surfaces of fingertips with this type of brush, the fingertips have to be rubbed against the brush hairs while inclining them at various angles. This is troublesome and time-consuming.

An object of this invention is to provide a fingertip cleaner which is free of the above-discussed problems of prior art brushes and which can quickly remove dirt stuck between fingertips and fingernails of hands.

In order to solve these problems, there is provided, as a first embodiment of this invention, a fingertip washer in the form of an arcuate brush for removing dirt stuck between fingertips and fingernails, the brush comprising an arcuate base plate, a large number of cleaning hairs planted in the inner surface of the base plate.

As a second embodiment, there is provided a fingertip washer in the form of a circular brush, the brush comprising a disk-shaped bottom plate, a peripheral wall provided along the edge of the bottom plate, and numerous cleaning hairs planted in the inner surface of the peripheral wall and in the top surface of the bottom plate for removing dirt stuck between fingertips and fingernails.

As a third embodiment, a rotary shaft is secured to the center of the disk-shaped bottom plate and a drive unit is connected to the rotary shaft to rotate it in forward and backward directions.

In the first embodiment, since the hairs are planted in the inner concave surface of the arcuate plate, by pressing four fingers, i.e. index, middle medical and little fingers against the hairs while keeping them close together and moving them right and left, the hairs will be rubbed against the fingers. Thus, dirt can be removed easily from fingertips.

The second embodiment is in the form of a circular brush having hairs planted in the inner surface of the peripheral wall and the bottom plate. By rubbing fingertips against the hairs, dirt can be removed easily.

Dirt stuck between fingers and fingernails can be removed by the hairs planted on the peripheral wall, while dirt on the nail surfaces and the sides of the fingers can be removed by the hairs planted in the bottom plate.

In the third embodiment in which the fingertip washer is moved back and forth at predetermined time intervals by a drive unit, by pressing fingertips against the numerous hairs planted in the inner surface of the peripheral wall of the rotary brush, which is rotating back and forth, the numerous hairs penetrate into between the fingertips and fingernails and move back and forth, thus automatically removing dirt stuck therebetween.

According to this invention, the rotary brush has hairs planted in the inner surface of the peripheral wall provided around the disk. The brush is thus curved inward, so that the four fingernails of a hand except the thumbnail can be cleaned simultaneously.

The brush is rotated back and forth in the third embodiment. Thus, dirt can be removed completely simply by pressing the fingertips and fingernails against the hairs.

The hairs planted in the top surface of the bottom plate serve to completely remove dirt stuck on fingernail surfaces and the sides of fingers.

Other features and objects of the present invention will become apparent from the following description taken with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of one embodiment;

Fig. 2 is a vertical sectional front view of another embodiment;

Fig. 3 is a partially cutaway plan view of the same;

Fig. 4 is a perspective view of the web-shaped brush;

Fig. 5 is a vertical sectional side view of still another embodiment; and

Fig. 6 is a plan view of the fingertip washer of the same.

The embodiment shown in Fig. 1 is in the form of an arculate base plate 1 having a large number of hairs 4 planted in its inner peripheral surface.

The base plate 1 of this embodiment may be formed by angularly dividing an annular ring made of a hard plastic into a plurality of arcuate portions. Also, it may be in the form of an annular ring not divided.

The embodiment shown in Figs. 2 and 3 comprises a disk-shaped bottom plate 2 and a peripheral wall 3 integral with the bottom plate 2. A great number of hairs 4 are planted in the inner surface of the peripheral wall 3. Also, a great number of hairs 5 are planted in the top surface of the bottom plate 2 which has a center hole 6.

In the embodiment shown in Figs. 2 and 3, the bottom plate 2 and the peripheral plate 3 are made of a hard plastic as in the first embodiment. The hairs 4 and 5 may be planted when forming them.

But, it is difficult to plant the hairs 4 directly in the concave inner surface of the base plate 1 or the peripheral wall 3 which are made of a hard plastic in the embodiments shown in Figs. 1 and 3.

In order to avoid this difficulty, in the embodiment shown in Fig. 4, hairs may be planted in a strip 7 made of rubber or a rubber-like plastic and the strip 7 is stuck on the inner surface of the base plate 1 or the peripheral wall 3 by means of adhesive.

Now, we shall explain how to use the brushes shown in Figs. 1-3. First, the base plate or the bottom plate 2 is grasped by one hand and four fingers of the other hand, that is, index, middle, medical and little fingers are held side by side. In this state, the portions between the tips and nails of these fingers are pressed against the hairs 4 as shown by chain lines 10 in Fig. 3 and moved right and left repeatedly. Thus, the dirt stuck between the fingertips and the fingernails are removed by the hairs 4.

In the embodiment shown in Figs. 2 and 3, any dirt stuck on the nail surfaces and the sides of the fingers can be removed by the hairs 5 planted in the bottom plate 2 simultaneously.

The embodiment shown in Figs. 5 and 6 shows a motor-driven automatic fingertip washer. In the figures, numeral 11 designates a case comprising a bottom plate 12 and a peripheral wall 13.

A driving unit 14 in the form of a reversible motor is fixedly mounted on the bottom of the case 11, its rotary shaft 15 extending coaxially with the peripheral wall 13.

Numeral 16 designates a fingertip washer.

It comprises a disk-shaped bottom plate 17 and a peripheral wall 18 extending upwardly from the edge of the bottom plate 17. Numerous hairs 19 are planted in the inner peripheral surface of the peripheral wall 18.

The bottom plate 17 and the peripheral wall 18 are integrally formed of a hard plastic. As described before, it is difficult to plant the hairs 19 directly in the peripheral wall 18.

For this reason, in the embodiment, the hairs 19 are planted first in a strip 20 made of rubber or a rubber-like plastic and the strip 20 is stuck with an adhesive on the inner surface of the peripheral wall 18. Thus, hairs can be planted easily.

The rotary shaft 15 is inserted in a hole formed in the center of the bottom plate 17 and fixed thereto, so that the fingertip washer 16 can be rotated in both directions.

The rotary shaft 15 protrudes from the top surface of the bottom plate 17 and to this protruding portion is secured a small-diameter rotary brush 21 comprising a plurality of rings 23 planted with numerous hairs 22.

An annular plate 25 made of rubber or plastic and planted with numerous hairs 24 is stuck with an adhesive or the like on the top surface of the bottom plate 17 so as to be concentrical with it. Hairs may be planted directly to the bottom plate 17.

The hairs 4, 5, 19, 22 and 24 are made of a soft and resilient material. For example, they may be monofilaments made of nylon or a polyamide plastic.

In use, four fingers, that is, index, middle, medical and little fingers are held side by side and pressed against the hairs 19 and 24 as shown by chain lines 26 in Figs. 5 and 6, while keeping the washer rotating back and forth with the drive unit 14. The hairs 19, rotating back and forth, are thrust into between the fingertips and the fingernails, thus scrubbing and removing dirt.

In order to remove dirt between a thumb tip and nail, the thumb is pressed against the hairs 22 on the central small-diameter rotary brush 21. Further, the fingers are pressed against the hairs 24 planted in the bottom plate 17 to remove dirt completely.

Claims

1. A fingertip washer in the form of an arcuate brush for removing dirt stuck on fingertips and between fingertips and fingernails, said brush comprising an arcuate base plate, and a multiplicity of hairs planted in said arcuate base plate on inner surface thereof.

2. A fingertip washer in the form of a circular brush, said brush comprising a disk-shaped bottom plate, a peripheral wall extending upwardly along the edge of said bottom plate, and a multiplicity of hairs planted in the inner surface of said peripheral wall.

3. A fingertip washer as claimed in claim 2 further comprising a multiplicity of hairs planted in the top surface of said bottom plate.

4. A fingertip washer as claimed in claim 2 or 3 further comprising a rotary shaft secured to the center of said bottom plate and a drive means having said rotary shaft for rotating said rotary shaft and thus said bottom plate in opposite directions.

FIG. 1

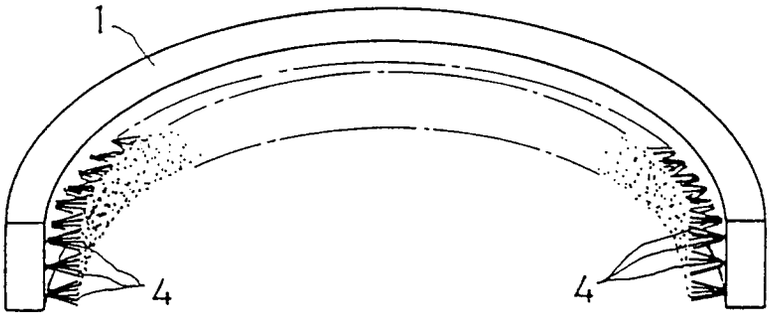


FIG. 2

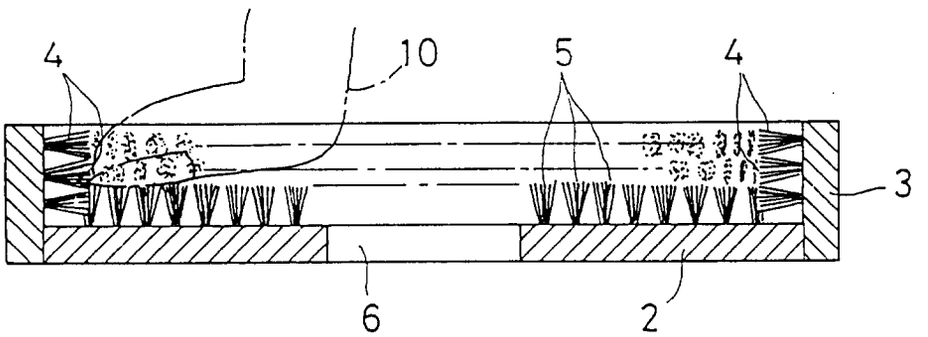


FIG. 3

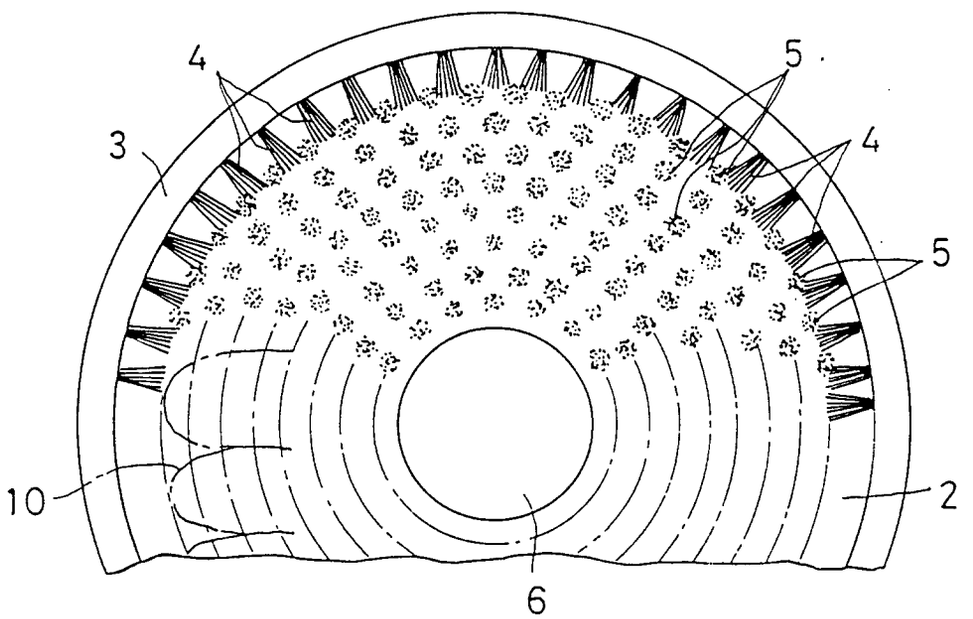


FIG. 4

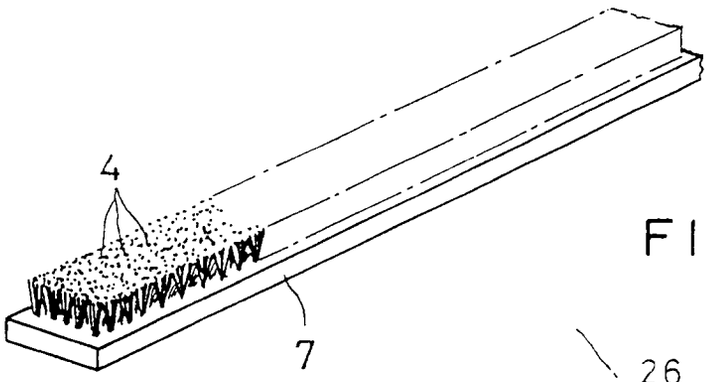


FIG. 5

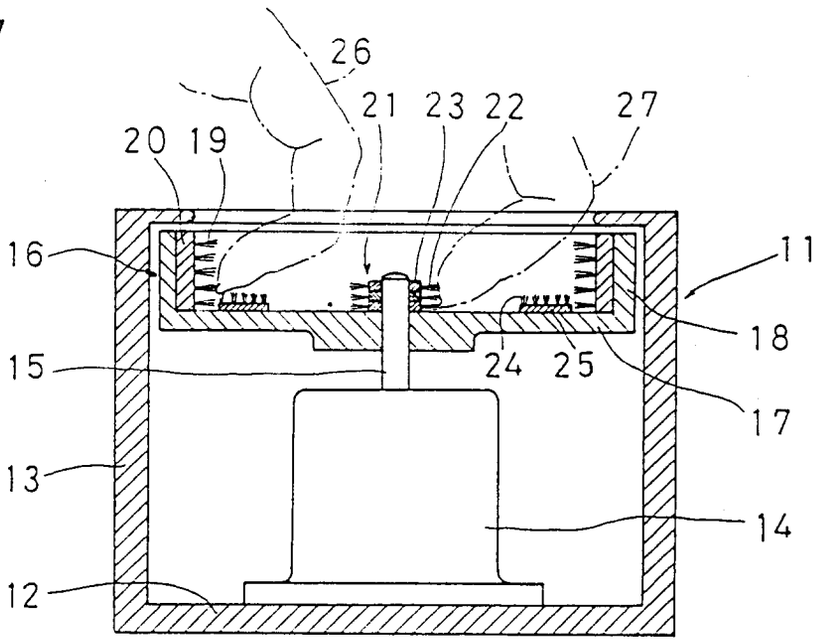
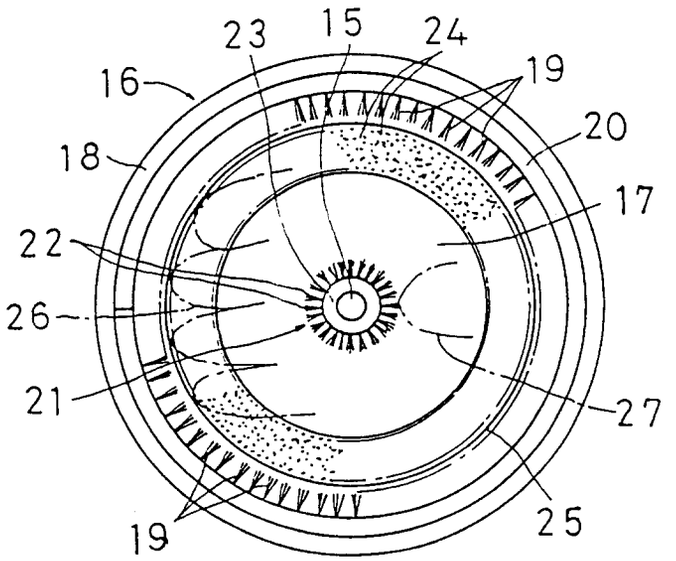


FIG. 6



European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 12 1393

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 757 571 (YOUNG) * claims; figures *	1	A46B9/02 A46B13/02 A45D29/00
Y	US-A-4 180 884 (HESS ET AL.) * column 2, line 5 - column 3, line 22; figures *	2-4	
Y	GB-A-143 142 (COOK) * figure *	2-4	
A	US-A-4 733 423 (BLATT) * claim; figures *	1,2	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A46B A45D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	25 MARCH 1993	ERNST R.T.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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