

HAIRBRUSH

5 This device relates to a hairbrush, and more particularly to an improvement in or relating to a hairbrush of a type in which bristles are implanted in a radially dispersed arrangement in an implant-
ation portion of a base. The present device is directed to provide a hairbrush which has excellent hair-holding properties when used for a permanent wave or straight hair and moreover has extremely good ability to separate the hairs in
10 drying.

A conventional hairbrush has a construction in which bristles are implanted in zigzag fashion in a bristle implantation portion of a base, which is generally referred to as a "handle", around its
15 entire periphery or a part of the periphery.

However, a roll brush (a hairbrush of a type in which bristles are implanted around its entire periphery) using animal hairs as the bristles has

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a large number of bristles per implantation hole.
For this reason, the hair is difficult to comb
when forming a desired hair style during blow
drying, the bristles have a low hair-holding prop-
erty and curls cannot be formed sufficiently.

Furthermore, since excess hair is easily entangled,
it tends to be pulled so that discomfort is caused,
and so the feel of the hairbrush during use is not
good.

On the other hand, a roll brush of a type in
which one moulded bristle is implanted in each hole
and a roll brush of a type in which two or four
filamentary plastic bristles are implanted in each
hole have been proposed in place of roll brushes
using animal hair. However, they are not free from
the problems of the entanglement of excess hair
and discomfort during use, and cannot essentially
solve the problems of the roll brush using animal
hairs. A so-called "half-round brush", in which
the bristles are implanted around about a quarter
of the periphery, is easy to use and brings about
less entanglement of the hairs, but involves the

problems that the hair-holding property of the
bristles is low and the ability to form curls
as well as the capacity of extending the curls
of permanently-waved hair is low.

5 As described above, hairbrushes, particularly
those hairbrushes which are used during blow
drying for finishing a desired hair style while
drying the hair with a dryer, have not yet been
fully satisfactory, and demands for improved hair-
10 brushes have been strong.

The inventors of the present device have made
intensive studies in search of hairbrushes which
satisfy all the requirements for curl formation
capacity, curl extending capacity for permanently
15 waved hair, and have found that a hairbrush of a
type in which the tips of the bristles, implanted
in a radially dispersed arrangement in an implant-
ation portion of a base, describe a specific
curvature, has an excellent hair-holding property
20 when used for permanently-waved or straight
hair, and exhibits good ability to separate the
hair during blow drying.

In a hairbrush according to the invention, having a base comprising an implantation portion from which bristles project and a grip portion formed as a continuation of the implantation portion, the bristles converge radially on a longitudinal bristle axis in such a fashion that the surface defined by the tips of said bristles is arcuate in cross-section and concave in longitudinal section, and the axis of rotation of said grip portion in the longitudinal direction is parallel with the bristle axis and spaced therefrom by from 5 to 15 mm on the side of the exposed portions of said bristles.

In a preferred embodiment of the hairbrush of the invention, the cross-section of the implantation portion is constant. It is also preferred that the surface of the implantation portion is arcuate with a radius of curvature of 10 to 30 mm on the cross-sectional plane of the implantation portion.

In the hairbrush of the present invention, the surface defined by the tips of the bristles describes a concave arc in section in the longitudinal direction, and the radius of this is preferably from about 300 to about 500 mm. To accomplish the objects described above, _____ in the hairbrush of the present device, the longitudinal axis of rotation of the grip portion is parallel with the bristle axis and is spaced from the latter on the side of the bristles. Also, it is preferred that the bristles meet the implantation portion at points such that the distance between said points for the bristles on the right hand and left hand sides of the implantation portion when viewed in cross-section and the axis of rotation of the grip portion is smaller than the distance between said points and the bristle axis. The cross-section of the surface of the bristle implantation portion is preferably arcuate.

In the hairbrush of the present invention, the bristles and the handle may be molded integrally, but from the aspect of production efficiency, it is advisable to fit a bristle sheet, which is produced by implanting the bristles into a sheet or by integrally molding the bristles with the sheet, to the handle of the hairbrush.

One hairbrush embodying the invention will now be described with reference to the accompanying drawings in which:

Fig.1 is a longitudinal section;

Fig.2 is a cross-section through the implantation portions; and

Figs.3 and 4 are sectional views showing alternative methods of implanting the bristles in the implantation portion.

In the drawings, reference numeral 1 represents the base of the implantation portion. The cross-sectional plane of the implantation surface of the base 1 is arcuate as shown in Fig.2, and the bristles 2 are implanted in the implantation surface extending radially from the bristle axis A

in different directions so that the surface defined by the tips of the bristles is arcuate. Moreover, the longitudinal section C through the tips of the bristles is concavely curved as shown in Fig.1, and the radius of this curvature is preferably from 300 to 500 mm, and more preferably from 350 to 450 mm. Since the section C is thus concave, the bristles can securely engage the hairs.

Furthermore, the longitudinal axis of rotation B of the grip portion 3 is parallel with the bristle axis A and is spaced apart therefrom towards the exposed portions of the bristles as shown in Figs. 1 and 2, by a distance within the range 5 to 15 mm.

The cross-sectional shape of the base 1 at the implantation portion is preferably hemispherical or semi-elliptical so that it is coaxial with the implantation axis A of the bristles and so that the bristles therefore extend from it radially.

The bristles 2 are preferably implanted so that the distance between the implantation points D of the bristles implanted at the right and left end portions and the axis of rotation B of the grip portion 3 in the longitudinal direction is smaller than the distance between the implantation points D and the bristle axis A, that is, so that the relationship $AD > BD$ is satisfied as shown in Fig.2.

In the present device, the axis of rotation of the grip portion in the longitudinal direction is displaced from the bristle axis A towards the exposed portions of the bristles, and the range of implantation of the bristles is limited as described above. Accordingly, the radius of rotation of the hairbrush is reduced and the hairbrush is easier to rotate so that manipulation of the brush is facilitated and the hair-holding properties of the hairbrush are improved.

In the present device, the term "implantation" means not only direct implantation of the bristles, but also includes any method or means whereby the

bristles are attached to the implantation portion.

Therefore, the implantation method includes not

only such a direct implantation of the bristle 2

into an implantation hole 6 formed in the

5 implantation portion of the base by a pin 7 as

shown in Fig. 4 but also a method in which the

bristles are fixed to a support 4 such as a flexible

sheet or plastics material plate having the

implantation holes, which is then wound around the

10 implantation portion of the base as shown in Fig. 3. Filaments

can be used in place of the pins 7. Moreover, the known

method in which the implantation portion and the

bristles are moulded integrally can of course be

employed.

15 In order to protect the hair more effectively,

it is preferred that one (5) of the ends of the

bristles is not exposed to the base surface as

shown in Fig.4.

20 In the present device, the shape of the base 1
is not limited to a particular configuration.

Preferably, the cross-sectional shape of the base

at the implantation portion is arcuate. If the

radius of the implantation portion is from 5 to 25 mm, the hairbrush is easy to use. Similarly, the thickness of the bristle is preferably from 0.5 to 2 mm, and its exposed length, from 10 to 25 mm.

5 The base and the bristles may for example be made of a plastics material, but a metal or a wooden handle can also be used.

 To obtain an easy-to-use hairbrush, the implantation density of the bristles is preferably
10 4 to 40 cm^{-2} and the length of the implantation portion is preferably within the range of 50 to 100 mm. To reduce the brushing force, one bristle is preferably implanted into each implantation hole, but the number of bristles may alternatively be up
15 to 40 per implantation hole.

 As shown in Figs.1 and 2, the hairbrush of the present invention changes the height of the bristles from the implantation portion to define an arc, so that the hairbrush exhibits excellent hair retaining
20 properties and good separability of the hair when used for permanently waved hair or straight hair, and is convenient to use.



CLAIMS:

1. A hairbrush having a base comprising an
implantation portion from which bristles project
and a grip portion formed as a continuation of the
implantation portion, wherein the bristles converge
radially on a longitudinal bristle axis in such a
fashion that the surface defined by the tips of
said bristles is arcuate in cross-section and
concave in longitudinal section, and the axis of
rotation of said grip portion in the longitudinal
direction is parallel with the bristle axis and
spaced therefrom by from 5 to 15 mm on the side of
the exposed portions of said bristles.
2. A hairbrush as defined in Claim 1 wherein the
cross-section of the implantation portion is constant.



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3. A hairbrush as defined in Claim 1 or Claim 2 wherein the implantation portion is arcuate in cross-section with a radius of curvature of 10 to 30 mm.

5 4. A hairbrush as defined in any preceding claim wherein the bristles meet the implantation portion at points such that the distance between said points for the bristles on the right hand and left hand sides of the implantation portion when viewed
10 in cross-section and the axis of rotation of the grip portion is smaller than the distance between said points and the bristle axis.
