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(71) Applicant and

(72) Inventor: SALAMA, Karina [GB/GB]; 27 Priory Road,
Kew, Surrey TW9 3DQ (GB).

(74) Agents: COPSEY, Timothy, Graham et al.; Kilburn &
Strode, 20 Red Lion Street, London WC1R 4PJ (GB).

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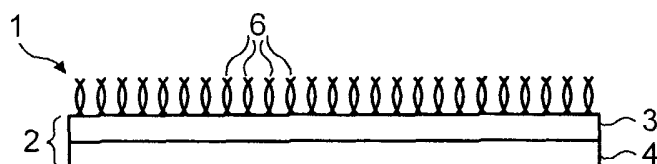
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(54) Title: HAIR STRAIGHTENING DEVICE



(57) Abstract: A device (1) for the straightening of hair comprising a resilient planar base portion (2) onto which is attached a material with a number of small hook-type fasteners (6) disposed over the planar surface. The devices (1) are preferably used in pairs to "lock" the hair in a straight position while the hair dries.

HAIR STRAIGHTENING DEVICE

The present invention relates to a hair styling device, in particular to a device for
5 the straightening of hair.

There are a number of devices available on the market for straightening curly or wavy hair. One method commonly employed is wrapping each lock of hair around a brush while the hair is still wet, pulling the hair straight and then drying the hair
10 in the straight position with a hairdryer. This is a very time-consuming task and there is a need for a quicker and less arduous and labour intensive method of obtaining straight hair. Further, if the hair is pulled upwards in a largely vertical direction for drying, although the hair may be straightened by virtue of being pulled upwards, when it is allowed to rest on the head there appears to be a degree
15 of lift in the hair. It does not lie flat on the head. This is considered to be undesirable in some circumstances.

Some commercially available straightening methods involve the use of chemical treatments which may “relax” the hair and enable it to be straightened. An initial
20 composition is applied to the hair and left for a while. The hair may then be subjected to further treatment with a second “neutralising” composition before it is washed and dried straight. In many cases, the hair still has to be pulled out straight while wet and dried in this position although the effects may be longer lasting than simply drying untreated hair in a straight manner as described above. However, the
25 use of compositions such as these on a regular basis may damage the structure of the hair.

Other devices which are available use the application of heat to straighten the hair. Heating irons comprising two metal plates are clamped around the selected strands
30 of hair and the hair is in effect “burnt” into being straight by the close application of heat. Again, the use of such treatment on a regular basis may damage the hair. It is also still a time consuming process as each group of hair must be gathered and then held in place to be heated in the irons.

Another option is the use of large diameter hair curlers. These have the effect of giving a smoother shape to the hair, but ultimately still have the effect of curling rather than straightening the hair.

5

It is therefore an object of the present invention to provide a simple, effective means for straightening the hair without the disadvantages of the prior art set out above.

10 According to the present invention, there is provided a device for the straightening of hair comprising a resilient planar base portion onto which is attached a material with a number of small hook-type fasteners disposed over the planar surface.

The invention also extends to the use of such a device to straighten hair. A section
15 of wet hair close to the head is placed on to the self-grip surface of the device. The hook-type fasteners grip the strands of hair to the planar device and hold them there until the hair has dried. In some cases, another device may be placed on top, self-grip side down, to "lock" the section of hair in place. The hair may be allowed to dry naturally or be aided by the use of a hair dryer. In longer hair, several
20 devices (or pairs of devices sandwiched together) may be used in sequence on each section of hair.

The device has been found to be particularly effective in straightening relatively wavy or curly hair. The hair is temporarily straightened by use of the device until
25 the next time the hair is washed or becomes damp. Of course, the temporary nature of the straightening may be enhanced to a certain extent by the use of sprays, lotions and gels as is well known.

Preferably the base portion has one or more holes through it to allow the passage of
30 air which will speed up the drying of the hair. The mesh is preferably as open as possible without compromising the structural strength of the device. The more open the mesh, the better the flow of air through the device and the better the

drying of the hair.

Optionally, the base portion has a foam or rubber coating on the underside of it to provide a comfortable surface for lying adjacent to the head when the device is in use. Of course, the foam or rubber must be selected to be capable of withstanding the heat of a hair dryer, both hand held and under a hood in a hairdressing salon. The rubber or foam coating preferably also has holes in it corresponding to the holes in the base portion to maintain the flow of air past the hair.

10 The size of the hook-type fasteners on the device may be selected to be appropriate to the coarseness of the hair to be straightened. For fine hair, the hooks may be relatively small, but for thicker, coarser hair the hooks will be larger.

15 The planar nature of the device means that the hair is not forced into drying in an upward direction giving the problem of lift. The hair is allowed to dry straight in a downward direction.

The planar devices are simple to place in the hair. As indicated above, the devices may be used in combination with artificial drying means such as hair dryers. They may also be used in association with conventional hair sprays and lotions.

25 The present invention does not rely on the use of chemical solutions to treat the hair. In addition to the benefits to the quality of the hair, the absence of solutions avoids chemical damage to the devices which may therefore be reused many times.

The invention also extends to the use of heated devices in a similar fashion to the way curlers may be heated before they are placed in the hair. The devices wouldn't have heating elements in themselves as this may lead to scalding of the head and also increases the weight of the device therefore making it uncomfortable to wear for any length of time. The device would be heated away from the head by an external heating source and, once it had reached the desired temperature, it would be placed in the hair to straighten it.

The present invention may be put into practice in various ways and a number of specific embodiments will be described by way of example to illustrate the invention with reference to the accompanying drawings, in which:

5

Figure 1 shows a plan view from above of the base portion of a hair straightening device according to the present invention;

Figure 2 shows an expanded side elevation view of a hair straightening device according to the present invention; and

10

Figure 3 is a simplified representation of the devices in use on a head.

Figure 1 shows a plan view from above of one embodiment of the base portion 2 of a device 1 according to the present invention. The base portion 2 includes a resilient planar sheet 3 made of any suitable means such as a light plastic.

15

Optionally the underside of the base portion has a corresponding layer 4 of rubber or foam material adhered to the underside of the planar sheet 3 by any suitable means to increase the comfort level of the device in use (see figure 2).

20

As shown in figure 1, the base portion has a number of holes 5 in it to allow air to flow freely through the device when it is in the hair. This allows the hair to dry uniformly without encountering the problems associated with curlers where the hair which is wrapped right round the curler is slower to dry than the hair on the outside of the curler. If the layer 4 of rubber or foam material is also present then this has corresponding holes to maintain the airflow.

25

30

On the top side of the flexible resilient planar sheet 3 are a large number of hook-type fasteners 6. Only a few such fasteners are shown in figure 2 for the sake of clarity, but in practice the top surface will be covered by such fasteners 6. As indicated above, the size of the fastener 6 may vary from device to device to accommodate different types of hair from fine through to coarse. For coarser and thicker hair, larger fasteners 6 may be needed to hold the hair in the straight position while it dries. If two devices are to be used to "sandwich" the hair, the size

of the fastener is less critical as the two devices will lock the hair between them.

The fasteners may themselves be attached to a thin layer of material which is then attached by any suitable means to the top of the sheet 3. In particular, the thin layer
5 of material may be glued to the sheet 3 around the perimeter of the sheet using a suitable adhesive. The adhesive must be of the type that can withstand the heat of a hair dryer without losing adhesion. The material to which the fasteners 6 are attached also has a number of holes in it to allow the smooth passage of air through the device as a whole.

10

The dimensions of the device may be set by what is comfortable when in position in the hair. In particular the device may be of a smaller dimension if it is to be used, for example, for straightening a fringe. Typically the device may be of a dimension such as 8 x 6 cm although longer devices to grip longer lengths of hair
15 may be used. The device need not be rectangular in shape but a rectangle is preferred since this will provide the maximum area of hold for the strands of hair while they dry. However, other shapes could be considered from a fashionable perspective.

20 Figure 3 shows a simplified representation of the device of the present invention being used in the hair. While the hair is still wet, stands of hair are separated out and a device is placed under the hair gripping the hair by means of the fasteners 6. Optionally, another device may be placed on top of the first device to "lock" the hair in place while it is still wet. The hair is therefore held straight while it is
25 drying. Depending on the length of hair to be straightened, more than one device may be required for each set of stands of hair (see figure 3). The lightweight design of the device enables the user to wear a number of the devices simultaneously in the same way that a number of curlers may be worn at any one time. However, the discomfort associated with curlers does not apply in the present case since all of
30 the fasteners are facing away from the head and protrude outwards through the strands of hair.

As indicated in figure 3, the device of the present invention may also be used to straighten the hair of a fringe. This is traditionally an area which is difficult to straighten with curlers, as there may not be as much hair in the fringe as there would be on top of the head. The device will hold in the hair without fear of it
5 falling out. The user may therefore allow the hair to dry naturally with the devices in while they undertake other tasks.

The device may also be used in combination with artificial hair drying means such as a hair dryer. The selection of an appropriately sized fastener ensures that the
10 devices remain attached to the hair even when the hair dryer is switched on and hot air is blown through the device. In the preferred embodiment of the present invention where two devices are used on the same section of hair simultaneously, a first device is fitted under the hair as before and a second device is placed face down (i.e. fastener side down) on top of the first device thereby sandwiching the
15 hair. The holes in the two devices ensure that the hot air from the hair dryer still dries the hair, but the two sets of fasteners intertwine to form a strong link preventing either device from being blown out of position while the hair is being dried.

20 As with curlers, it is also possible to independently heat the hair straightening device away from the head and to then insert heated devices into the hair to assist in the drying process.

The device may be made in any design, but colourful designs are envisaged. The
25 devices will preferably be sold in packs and the use of different colours, both within individual devices and between adjacent devices in the pack, may be a useful selling point. In view of the planar nature of the devices they could also be effectively used to display logos.

30 The devices according to the present invention can be reused again and again as the wear on the device is small.

CLAIMS

1. A device for the straightening of hair comprising a resilient planar base portion onto which is attached a material with a number of small hook-type fasteners disposed over the planar surface.
5
2. A device as claimed in claim 1, in which the base portion comprises a resilient planar sheet and a corresponding foam or rubber layer.
- 10 3. A device as claimed in claim 1 or claim 2, in which the base portion has holes through it.
4. A device as claimed in any preceding claim, in which the hook-type fasteners are dimensioned for use with fine hair.
- 15 5. A device as claimed in any one of claims 1 to 3, in which the hook-type fasteners are dimensioned for use with thick hair.
6. A device as claimed in any preceding claim, in which the device is rectangular in shape.
20
7. A device as claimed in any preceding claim, in which the device is brightly coloured.
- 25 8. A device constructed and arranged substantially as herein and specifically described with respect to and shown in Figures 1 and 2 of the accompanying drawings.
9. The use of a device as claimed in any preceding claim, in which one or
30 more devices are placed in sequence under grouped strands of hair while they are still wet, the hook-type fastenings gripping the hair and holding it straight while the hair dries.

10. The use as claimed in claim 9, in which the drying of the hair is speeded up by the use of artificial drying means such as a hair dryer.
- 5 11. The use as claimed in claim 9 or claim 10, in which a second device is placed over the first device thereby sandwiching the hair and preventing movement of the devices while the hair is drying.

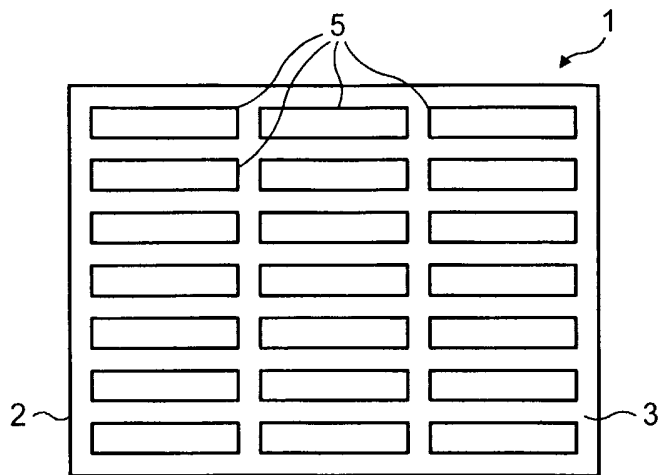


FIG. 1

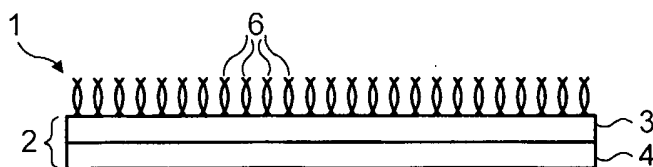


FIG. 2

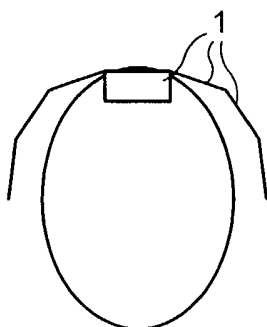


FIG. 3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A45D2/00

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 7 A45D

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

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

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 281 735 A (AKERMAN JEAN) 12 March 1976 (1976-03-12) the whole document ---	1
A	US 5 228 465 A (HILL PERCY H) 20 July 1993 (1993-07-20) abstract ---	1
A	US 5 865 188 A (MARQUEZ DIANE J) 2 February 1999 (1999-02-02) abstract -----	1

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

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Zetzsche, B

INTERNATIONAL SEARCH REPORT

Int'l Application No PCT/GB 02/01742
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