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(54) **A hair curler**

(57) This curler (1) comprises a body (2) consisting of an elongate flexible stem constituted by an elastically deformable material, and a fastening means which consists of a head (4) carried by one of the ends of the stem (2) and comprising at least one perforation (5) whose dimension is chosen so as to allow the insertion through it of the said stem (2), with its end (3) on the opposite side to the said head (4), then its wedging at a variable distance with an elastic grip. The stem (2) has, in its main portion, a substantially square cross section. Being very easy to manufacture (for example by stamping from a base plate), this curler (1) can be very easily positioned and withdrawn; it allows a tighter fixing than the roller shaped conventional curlers and it ensures a good lifting of the hair at the level of the roots, leading to attractive curls.

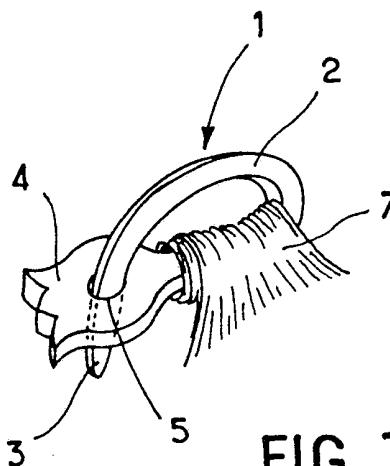
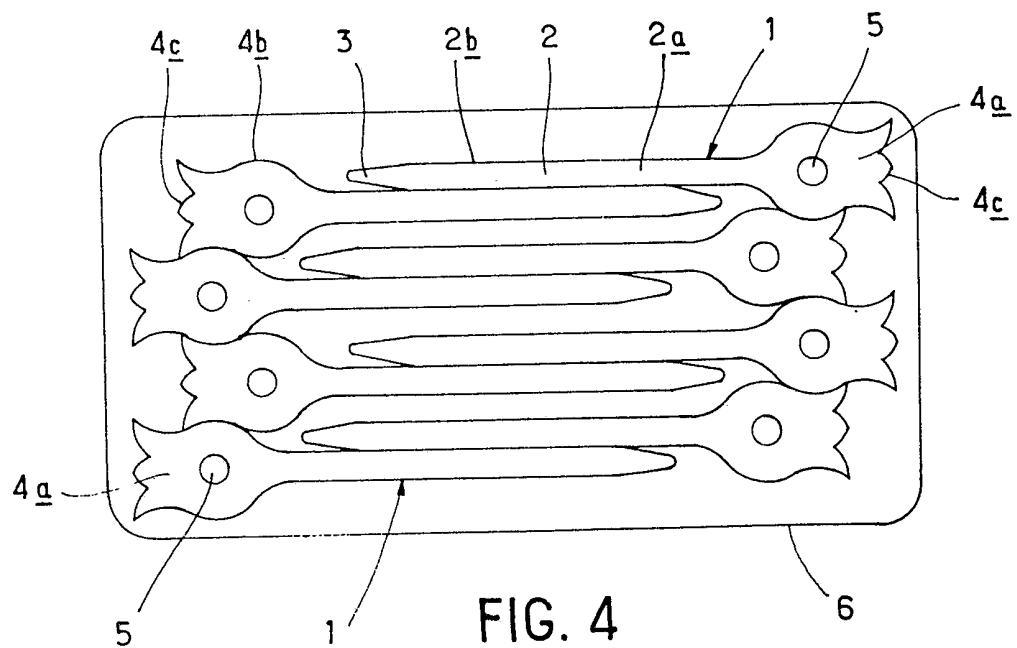
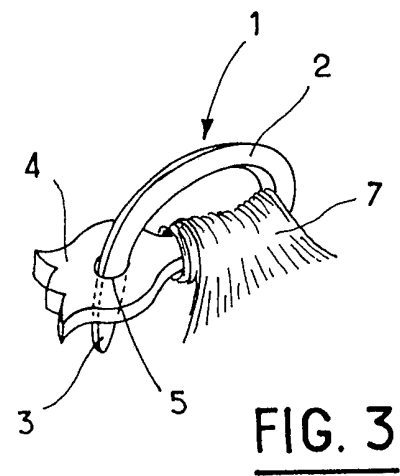
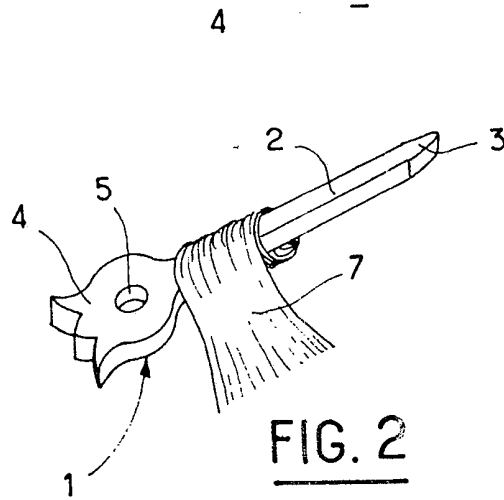
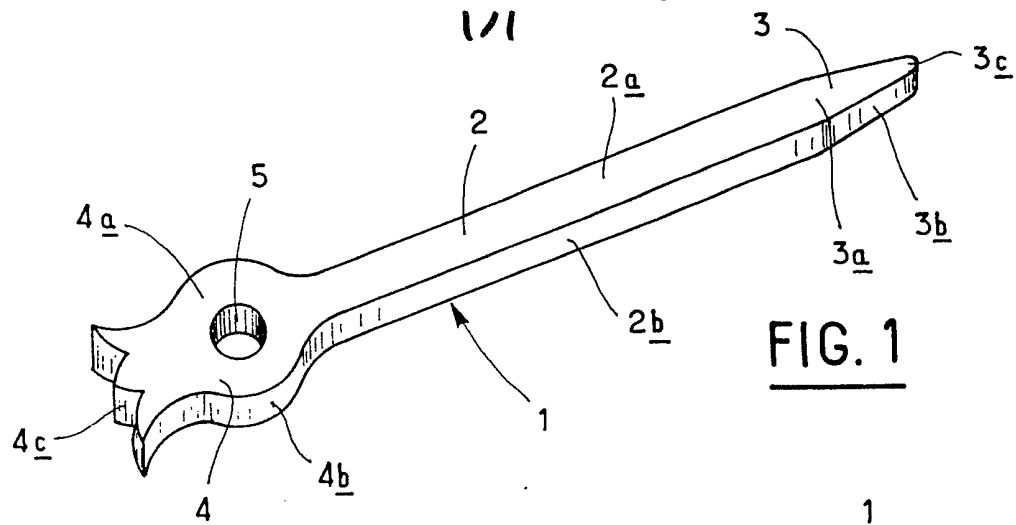


FIG. 3

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SPECIFICATION

A hair curler

5 The present invention relates to a hair curler capable of producing a hair style constituted by pretty curls whilst being extremely simple to manufacture and design.

Conventional hair curlers are generally constituted by small rollers whereon the hair is rolled up and wherewith fastening means are associated which can be independent fastening means (pins) passing through curlers with a latticed wall, or integral ones (small bars, elastic bands).

To ensure, in particular, better comfort for the user wearing the curlers, curlers have been made of a flexible material such as low density polyethylene foam. In the case where such curlers take the form of rollers, it was necessary to make provision for a fastening means in the form of small bars. This means has drawbacks, in particular because it does not always ensure a tight grip of the hair rolled up on the curlers, and because it involves separate manufacture of the bars with subsequent fitting on the curlers. Moreover, the bars are liable to be entangled in the hair when the curlers are removed.

Moreover, the fastening means, for example such as bars or elastic bands may damage the locks rolled up on the curlers, or produce marks on them.

An attempt was then made to make curlers of this type whose fastening system does not cause complications either in manufacture or in use and in particular, two solutions of this problem are known.

French Patent No 2 515 940 describes a curler constituted by an elongate body made of a synthetic foam containing a core of a semi-rigid metallic wire, protected in its central portion by a cover. Stoppers made of a plastic material are disposed at each end of the curler so as to stop translational displacement of the internal metallic wire. In use, the lock of hair is rolled up on the curler body and the curler is folded back on itself to cause it to take hold, which is made possible by the deformability of the metallic stem constituting the core. However, this system does not always make it possible to control the shape of the curls that one wishes to form and it consists of five different elements which does not really simplify manufacture. A curler of the same type is described in European Patent No 115 288 and has substantially the same drawbacks.

From the German Utility Model No 73-26662, a curler is also known which is exclusively made of a flexible elastic foam. This curler comprises an elongate body, to one end whereof there is joined an external longitudinal tab integral with the said body, this tab projecting with its free end from the other end of

the body whereon provision is made for a slot perpendicular to the median plane of the tab. After the curler has been positioned, it is fixed by bending down the free end of the tab towards the body and by inserting it in the slot.

The manufacture of this curler seems to be relatively straightforward. However, as regards its fixing, it is not obvious how the grip is to be adjusted because the fixing tab must necessarily come to be situated outside, as in the case of curlers with conventional bars and because the tab has a tendency to come away from the slot wherein it has been placed.

The present invention is the result of an attempt to make a curler having an extremely simple fastening system which should be as easy to engage as to disengage and which should be readily adjustable, irrespective of the length of the lock of rolled up hair, to ensure correct tension for the latter.

According to the invention, there is provided a curler which comprises an elongate flexible stem constituted by an elastically deformable material and a head which is at one end of the stem, said head comprising at least one perforation so dimensioned that upon the insertion therethrough of the free end of the stem, the stem can be wedged at a variable distance through the head by an elastic grip between the stem and the interior wall of the perforation.

As later described in detail, the curler can be made of a soft and flexible material so that its free end can be inserted into the perforation of the head and be maintained therein by an elastic grip. It follows therefrom that the manufacture is simplified to a maximum, that the positioning can produce a completely controlled tension of the hair around the curler and that—this constitutes an original feature in comparison with a cylindrically shaped curler—the lock of rolled up hair has a curved in shape according to the shape of the body of the curler in position, which lifts the hair at the root and facilitates the obtaining of pretty curls.

In accordance with a particularly worthwhile characteristic of the present invention, the stem has, at least at that portion thereof upon which it is intended the lock of hair should be rolled, a substantially quadrangular cross-section. In these conditions, it is therefore easier for the user to get hold of the curler than if the cross-section of the latter were circular, the rolling up of the lock of hair can be effected without sliding and, insofar as the body of the curler is constituted by a soft and elastically deformable material, the four edges of the curler body will tend to become rounded under the tension of the rolled up hair, thus leaving no mark on the hair after the latter has been dried and unrolled.

Preferably, the free end of the stem has the shape of a tapered point, thus facilitating the

insertion of the free end of the stem in the perforation when the curler is being fixed.

The head advantageously constitutes a widened portion in relation to the stem forming the curler body and it comprises a single perforation in the conventional manner.

Preferably, the perforation is delimited by a cylindrical wall. In these circumstances, the user does not have to worry about the orientation taken by the stem when it is inserted into the said perforation.

In accordance with a particularly preferred mode of embodiment, the curler body and the head are made integrally, the curler being advantageously constituted by an expanded plastics material, such as a low density polyethylene foam.

The curler can readily be obtained by stamping from a base plate of the plastics material chosen.

The present invention will now be described by way of a purely illustrative and non-restrictive example with reference to the accompanying drawings, in which:

Figure 1 is a view in perspective of a curler in accordance with the present invention;

Figure 2 is a view on a reduced scale of the curler of Figure 1 as a lock of hair is being rolled up on its body;

Figure 3 is a view corresponding to Figure 2, when the curler is in an intermediate position as its grip is being secured; and

Figure 4 is a top view of a base plate wherein a plurality of curlers identical with that of Figure 1 are formed by stamping.

Referring to the drawings, it will be seen that a flexible curler 1 is entirely made of a low density polyethylene foam.

This curler 1 comprises an elongate body 2 tapered at one (3) of its ends and being joined at its opposite end to a head 4.

The body 2 has, except in its tapered end portion 3, a rectangular cross-section. The two pairs of the sides of body 2, opposed two by two in its main portion, have been designated 2a and 2b, respectively.

The end portion 3 of the body 2 is delimited by two opposed sides 3a being situated in the same plane as the two opposed sides 2a of the main portion of the body 2, and by two sides 3b perpendicular to the former. The sides 3b extend the two other opposed sides 2b of the main portion but are convergent, gradually coming nearer to each other to be joined in a rounded end surface 3c.

The head 4 is delimited by two opposed sides 4a located as extensions of the above mentioned sides 2a and 3a and by two lateral sides 4b which extend the sides 2b, the sides 4b first flaring and then narrowing and finally again flaring slightly, as well as in an indented end 4c. It will therefore be found that the head 4 has a contour which is that of a stylised tulip, which gives the curler 1 a pleasing appearance. The head 4 is traversed by a

cylindrical perforation 5 whose axis is perpendicular to the planes of the sides 4a. Moreover, the perforation 5 is centered on the longitudinal axis of the curler 1, being cut in the portion with the greatest enlargement of the head 4.

The large side of the rectangle delimiting the cross-section of the stem 2 in its main portion has a slightly larger dimension than the side of a square which could be inscribed in the circle delimiting the perforation 5.

The manufacture of the curler 1 is extremely simple and is illustrated in Figure 4. In this Figure, a rectangular plate 6 has been represented whose thickness corresponds to the small side of the rectangle delimiting the cross-section of the stem 2 in its main portion; several curlers 1 have been formed in this plate 6 by stamping, the cutting out being effected perpendicular to the median plane of the said base plate 6.

In view of the particular shape of the curler 1 which has just been described, it will be seen that in the example represented, eight curlers can be formed in one and the same plate 6. The curlers 1 are disposed head to tail in pairs, two curlers of one and the same pair being placed against each other along one of their lateral sides 2b; moreover, as a result of the special tulip shape of the head 4, the head 4 of one curler of one pair of curlers is placed against the head 4 of the curler of the following pair which is staggered in relation to the preceding one, so that the convex portion of its lateral side 4b which is next to the end portion 4c, is placed against the concave part of the lateral side 4b of the other curler.

In this way, a cutting out process is obtained, producing the smallest possible surface area of unused fragments.

The positioning of the curler 1 is extremely simple and is illustrated in Figures 2 and 3. The lock of hair 7 is rolled up on the stem 2, it being possible to effect this rolling up without sliding because of the rectangular cross-section of the stem 2. Moreover, in this operation, the user can very easily get hold of the curler, this good grip also being the result of the choice of a quadrangular cross-section for the stem.

Since the material whereof the curler 1 is constituted has a certain elasticity, the edges of the stem 2 have a tendency towards rounding under the tension of the hair rolled up on the stem; the result obtained is therefore identical with that obtained when a curler with a circular cross-section is used, that is to say, that the head of hair after being unrolled after drying does not have any transverse marks which would be due to the edges pressing on the hair. This result has been observed both after a set and a perm.

It can also be indicated that under the tension during rolling up, the material which has been deformed has therefore a tendency to

reassume its initial aspect and ensures additional tension; because of this, a good lifting from the roots is obtained with the result that the curls formed at the end of the set or perm are more attractive.

After the hair has been rolled up on the body 2 of the curler 1, it suffices to fold back the end portion 3 of the stem 2 and to insert it into the perforation 5. The tapered shape of the end portion 3 facilitates this insertion, which is important, especially when the user is effecting the set of her own hair, in particular when she is placing the curlers at the nape of the neck.

The tightening is effected by pulling the free end which has passed through the head 4 more or less firmly according to the tension which one wishes to apply to the lock of rolled up hair.

The choice of an elastically deformable material allows the user to adjust this tension for tightening or loosening the curler according to her wishes. It is possible to ensure a very tight fixing grip, much more so than with conventional roller shaped curlers. Moreover, the grip produces a circular arc shape in the zone where the hair is rolled up which may be observed in Figure 3 and which is accentuated as the grip is tightened and which leads to a lifting of the hair at the level of the roots; this results in a good quality of the resultant curls.

It should also be emphasised that it is not only the positioning of the curler which is extremely straightforward, but its removal is equally simple since nothing comes to impede its withdrawal from the curl of rolled hair once the stem 2 has itself been withdrawn from the retaining hole 5.

CLAIMS

1. A curler which comprises an elongate flexible stem constituted by an elastically deformable material and a head which is at one end of the stem, said head comprising at least one perforation so dimensioned that upon the insertion therethrough of the free end of the stem, the stem can be wedged at a variable distance through the head by an elastic grip between the stem and the interior wall of the perforation.

2. A curler according to claim 1, wherein the stem has, at least at that portion thereof upon which it is intended the lock of hair should be rolled, a substantially quadrangular cross-section.

3. A curler according to claim 1 or 2, wherein the free end of the stem has the shape of a tapered point.

4. A curler according to any one of claims 1 to 3, wherein the head is constituted by a widened portion of the stem.

5. A curler according to any one of claims 1 to 4, wherein a single perforation only is provided through the head.

6. A curler according to any preceding

claim, wherein the perforation is delimited by a cylindrical wall.

7. A curler according to any preceding claim, wherein the stem and the head are made of a single piece.

8. A curler according to any preceding claim, which is constituted by an expanded plastics material.

9. A curler according to claim 8, wherein the expanded plastics material is a low density polyethylene foam.

10. A curler according to claim 8 or 9, which has been obtained by stamping from a base plate of the chosen plastics material.

11. A curler constructed and arranged to be used substantially as herein described with reference to and as illustrated in the accompanying drawings.

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