

Description

This invention relates to brush components and their manufacture.

In our U.K. Patent No. 1,457,074 a method of manufacturing brush components is disclosed wherein a plurality of endless bristle filaments are folded into zig-zag formation and held in that position by means of threads knitted into the zig-zag, the resulting tape then being slit centrally and having plastic locking beads extruded onto it either before or after slitting. In a subsequent U.K. patent application we disclose further methods of brush construction wherein beads of plastic material are extruded onto a line of bristle elements held between endless haul-off belts. It is also possible to manufacture brush components by making a tow of endless bristle elements and weaving this with a suitable warp yarn to provide a woven fabric, which subsequently has plastics beads extruded onto it transverse to the tow wefts and is slit into brush component tapes.

We have now devised a further method of manufacturing brush components incorporating a membrane within the bristles.

According to the present invention, we provide a method of manufacturing a brush component comprising the steps of arranging a plurality of bristles of synthetic resinous material substantially in line in the required density, arranging a membrane of synthetic resinous material which is compatible with that of the bristles relative to the line of bristles such that the line of bristles and membrane are superimposed one above the other so that the membrane extends from one end of the bristles across more than half the length of the bristles and folding the bristles and the membrane through 180° about the substantial midpoint of the bristles into a generally U-shaped configuration, characterised in that the bristles and membrane are held in this folded position and passed through an extruder (not shown) and at the same time the folded portion is caused to be heated and thus softened and a beading of synthetic resinous material compatible with that of the bristles and membrane is extruded onto said folded portion at a temperature and pressure sufficient to cause fusion between the membrane bristles and beading.

Also according to the present invention, we provide a method of manufacturing a brush component comprising the steps of arranging a plurality of synthetic resinous bristles substantially in line in the required density, arranging a membrane formed of synthetic resinous material compatible to that of the bristles and of a width equal to more than half the length of the bristles over the line of bristles and folding the bristles and membrane through approximately 180° into a configuration of generally U-shaped cross section characterised in that the folded configuration is passed through a heater so as to melt the synthetic resinous materials of the membrane and bristles in the vicinity of the fold, and then passing the melted parts through a former to form a bead and

cause the membrane and bristles in the vicinity of the fold to be fused together.

Preferably, the membrane is located internally of the folded over bristles.

Preferably, a strengthening device is incorporated in the thus formed brush component in the vicinity of the fold. Preferably, the strengthening device is in the form of a metal wire located within the base of the U and about which the bristles and membrane are folded. The wire may be coated with a synthetic resinous material compatible with the other synthetic resinous materials.

Although it is envisaged that the bristles may be loosely arranged prior to formation of the brush component, it will be appreciated that they could be provided in the form of a knitted or woven tape, the warp yarns except those in the vicinity of the beading being removed from the bristles subsequent to the forming operation.

Also according to the present invention, we provide a brush component comprising an array of aligned synthetic resinous bristles and a membrane of synthetic resinous material compatible with that of the bristles overlying each other, the membrane having a width which is greater than half the length of the bristles, and wherein the bristles and membrane are arranged in a generally U-shaped configuration so that the membrane extends throughout the length of at least one arm of the U and around the bend of the U, characterised in that a clamping beading of synthetic resinous material compatible with that of the bristles and membrane extends around the base of the U, said extruded beading being fused with the bristles and membrane to maintain the bristles in their generally U-shaped configuration and to maintain the membrane in place, said beading being formed by means of an extrusion operation or by fusing the synthetic resinous material in the vicinity of the base of the U-shaped bend.

Preferably, a strengthening device such as a wire which may be coated with a synthetic resinous material compatible with the other synthetic resinous material, is located within the U at the base thereof and extending throughout the length of the U, and the membrane is located within the U, and bent with the bristles into a U-shaped configuration, preferably around the strengthening device.

The invention is now described by way of example with reference to the accompanying schematic drawings in which:

Figure 1 is a perspective view of a brush component at a preliminary stage of its formation; and

Figure 2 is an end view showing the brush component after its final formation.

Referring to the drawings, Figure 1 shows an array of parallel aligned bristles 1 overlain by a membrane 3. Preferably the membrane is formed of an impervious sheet material e.g. a polythene or polypropylene sheet. A strengthening device in the form of a wire 5 is then placed over the membrane 3 extending along the midpoint of the

bristles 1 and sheet 3 throughout its length. The two side edges of the membrane 3 preferably extend at least to the ends of the bristles 1. The bristles and membrane may be aligned in any suitable manner for example by using a pair of parallel spaced sets of haul-off belts which grip the side edges of the membrane 3 and ends of the bristles 1 or by using a central set of haul-off belts in which case the wire 5 can be gripped as well. After the parts of the brush component have been laid out as shown in Figure 1, the bristles and membrane 3 are bent about the centre line of the membrane i.e. folded about the wire 5 through 180° to the position shown in Figure 2 (which is inverted relative to Figure 1) whereupon the bristles and membrane are maintained in this position by means of a synthetic resinous i.e. plastics beading 9 which, as can be seen from Figure 2, can be made to fuse with the bristles 1 and membrane 3 if the bristles and membrane are formed of a compatible synthetic resinous material to that of the beading 9. The beading 9 fuses completely with the bristles and membrane, so as to maintain the bristles in their bent over configuration and of course, if the wire 5 has a plastics coating which is also compatible, this can also be fused with the other plastics materials.

Although it is preferred that a strengthening device such as the wire 5 be provided so that the formed brush component can be bent into different configurations, it is not essential and can be omitted.

If desired, the aligned bristles 1, instead of being supplied in loose manner, can be supplied in the form of a knitted brush tape, such as is shown in our U.K. Patent No. 1,457,074 or in the form of a woven brush tape such as is disclosed in our U.K. patent application No. GB A—2 052 254. Obviously, in this case, the warp yarns except those in the vicinity of the base of the U, will have to be removed prior to use of the brush.

If desired, the partially formed brush component shown in Figure 1 can be fed to a special former for example by means of two sets of spaced haul-off belts and the rear face of the bristles 1 can be moved against a plough which cooperates with a folding blade to fold the bristles and membrane into a generally U-shaped configuration. The folding blade would of course be located on the side of the bristles and membrane remote from the plough and if a wire 5 is to be provided the face of the folding blade could be suitably formed to accommodate the wire.

The plough could lead to an extrusion machine to apply the plastics beading and the brush component could then be hauled-off in suitable manner, out of the extrusion machine.

Although it is preferred that the membrane 3 extend throughout the total length of the bristles 1 as shown in Figure 1, it will be appreciated that this does provide a two layer membrane as shown in Figure 2. If a single layer membrane only is required, the membrane need only extend from one end of the bristles 1 to just beyond the centre line of the bristles, i.e. just beyond the

location of the strengthening member 5 so that when the bristles are bent into their U-shaped configuration, the membrane edge will also be bent into a U-shaped configuration.

In the illustrated construction the membrane 3 is shown bent upon itself in the form of a U and located within the bristles. It will be appreciated, however, that other constructions are possible. For example, the membrane could be located exteriorly of the bristles and bent into a U-shaped configuration with the bristles and could extend down one face only or both faces of the bristles. Alternatively, the membrane could be located within the array of bristles, that is, sandwiched between what is effectively two arrays of bristles, which would then subsequently be bent into a U-shaped configuration and held in that position by the clamping means. Furthermore, the membrane may be pleated, or formed of separate overlapping sheets to give flexibility.

While it is preferred that the plastics beading 9 be provided by extruding extra material onto the bristles, it will be appreciated that the bristles, and the barrier membrane 3, and any plastics coating on the wire 5 will become heated and tend to fuse during their passage through the extruder. It is envisaged therefore that a mere heating step alone may be sufficient to cause this fusion, to hold the brush element together, and in this case, while still soft, the fused portion of the brush element would be passed through a former to form the edge into a bead.

Without a bead of some kind, it is not so easy to locate and secure the brush element into a holder.

Claims

1. A method of manufacturing a brush component comprising the steps of arranging a plurality of bristles (1) of synthetic resinous material substantially in line in the required density, arranging a membrane (3) of synthetic resinous material which is compatible with that of the bristles (1) relative to the line of bristles (1) such that the line of bristles (1) and membrane (3) are superimposed one above the other so that the membrane (3) extends from one end of the bristles (1) across more than half the length of the bristles (1) and folding the bristles (1) and the membrane (3) through 180° about the substantial midpoint of the bristles (1) into a generally U-shaped configuration, characterised in that the bristles (1) and membrane (3) are held in this folded position and passed through an extruder (not shown) and at the same time the folded portion is caused to be heated and thus softened and a beading (9) of synthetic resinous material compatible with that of the bristles (1) and membrane (3) is extruded onto said folded portion at a temperature and pressure sufficient to cause fusion between the membrane (3), bristles (1) and beading (9).

2. A method of manufacturing a brush component comprising the steps of arranging a plurality of synthetic resinous bristles (1) substantially in line in the required density, arranging a mem-

bristles 1 and sheet 3 throughout its length. The two side edges of the membrane 3 preferably extend at least to the ends of the bristles 1. The bristles and membrane may be aligned in any suitable manner for example by using a pair of parallel spaced sets of haul-off belts which grip the side edges of the membrane 3 and ends of the bristles 1 or by using a central set of haul-off belts in which case the wire 5 can be gripped as well. After the parts of the brush component have been laid out as shown in Figure 1, the bristles and membrane 3 are bent about the centre line of the membrane i.e. folded about the wire 5 through 180° to the position shown in Figure 2 (which is inverted relative to Figure 1) whereupon the bristles and membrane are maintained in this position by means of a synthetic resinous i.e. plastics beading 9 which, as can be seen from Figure 2, can be made to fuse with the bristles 1 and membrane 3 if the bristles and membrane are formed of a compatible synthetic resinous material to that of the beading 9. The beading 9 fuses completely with the bristles and membrane, so as to maintain the bristles in their bent over configuration and of course, if the wire 5 has a plastics coating which is also compatible, this can also be fused with the other plastics materials.

Although it is preferred that a strengthening device such as the wire 5 be provided so that the formed brush component can be bent into different configurations, it is not essential and can be omitted.

If desired, the aligned bristles 1, instead of being supplied in loose manner, can be supplied in the form of a knitted brush tape, such as is shown in our U.K. Patent No. 1,457,074 or in the form of a woven brush tape such as is disclosed in our U.K. patent application No. GB A-2 052 254. Obviously, in this case, the warp yarns except those in the vicinity of the base of the U, will have to be removed prior to use of the brush.

If desired, the partially formed brush component shown in Figure 1 can be fed to a special former for example by means of two sets of spaced haul-off belts and the rear face of the bristles 1 can be moved against a plough which cooperates with a folding blade to fold the bristles and membrane into a generally U-shaped configuration. The folding blade would of course be located on the side of the bristles and membrane remote from the plough and if a wire 5 is to be provided the face of the folding blade could be suitably formed to accommodate the wire.

The plough could lead to an extrusion machine to apply the plastics beading and the brush component could then be hauled-off in suitable manner, out of the extrusion machine.

Although it is preferred that the membrane 3 extend throughout the total length of the bristles 1 as shown in Figure 1, it will be appreciated that this does provide a two layer membrane as shown in Figure 2. If a single layer membrane only is required, the membrane need only extend from one end of the bristles 1 to just beyond the centre line of the bristles, i.e. just beyond the

location of the strengthening member 5 so that when the bristles are bent into their U-shaped configuration, the membrane edge will also be bent into a U-shaped configuration.

In the illustrated construction the membrane 3 is shown bent upon itself in the form of a U and located within the bristles. It will be appreciated, however, that other constructions are possible. For example, the membrane could be located exteriorly of the bristles and bent into a U-shaped configuration with the bristles and could extend down one face only or both faces of the bristles. Alternatively, the membrane could be located within the array of bristles, that is, sandwiched between what is effectively two arrays of bristles, which would then subsequently be bent into a U-shaped configuration and held in that position by the clamping means. Furthermore, the membrane may be pleated, or formed of separate overlapping sheets to give flexibility.

While it is preferred that the plastics beading 9 be provided by extruding extra material onto the bristles, it will be appreciated that the bristles, and the barrier membrane 3, and any plastics coating on the wire 5 will become heated and tend to fuse during their passage through the extruder. It is envisaged therefore that a mere heating step alone may be sufficient to cause this fusion, to hold the brush element together, and in this case, while still soft, the fused portion of the brush element would be passed through a former to form the edge into a bead.

Without a bead of some kind, it is not so easy to locate and secure the brush element into a holder.

Claims

1. A method of manufacturing a brush component comprising the steps of arranging a plurality of bristles (1) of synthetic resinous material substantially in line in the required density, arranging a membrane (3) of synthetic resinous material which is compatible with that of the bristles (1) relative to the line of bristles (1) such that the line of bristles (1) and membrane (3) are superimposed one above the other so that the membrane (3) extends from one end of the bristles (1) across more than half the length of the bristles (1) and folding the bristles (1) and the membrane (3) through 180° about the substantial midpoint of the bristles (1) into a generally U-shaped configuration, characterised in that the bristles (1) and membrane (3) are held in this folded position and passed through an extruder (not shown) and at the same time the folded portion is caused to be heated and thus softened and a beading (9) of synthetic resinous material compatible with that of the bristles (1) and membrane (3) is extruded onto said folded portion at a temperature and pressure sufficient to cause fusion between the membrane (3), bristles (1) and beading (9).

2. A method of manufacturing a brush component comprising the steps of arranging a plurality of synthetic resinous bristles (1) substantially in line in the required density, arranging a mem-



brane (3) formed of synthetic resinous material compatible to that of the bristles and of a width equal to more than half the length of the bristles (1) over the line of bristles (1) and folding the bristles (1) and membrane (3) through approximately 180° into a configuration of generally U-shaped cross section characterised in that the folded configuration is passed through a heater so as to melt the synthetic resinous materials of the membrane and bristles in the vicinity of the fold, and then passing the melted parts through a former to form a bead and cause the membrane and bristles in the vicinity of the fold to be fused together.

3. A method according to claim 1 or 2 characterised in that the bristles (1) and membrane (3) are folded such that the membrane (3) is located internally of the bristles (1).

4. A method according to claim 1, 2 or 3 characterised in that a strengthening device (5) is incorporated in the thus formed brush component in the vicinity of the fold.

5. A method according to claim 4 characterised in that the strengthening device (5) is in the form of a metal wire (5) located within the base of the U-shaped configuration and about which the bristles (1) and membrane (3) are folded.

6. A method according to claim 5 characterised in that the wire (5) is coated with a synthetic resinous material (not shown) which is compatible with the other synthetic resinous materials.

7. A method according to any one of claims 1—6 characterised in that the bristles (1) are in the form of a knitted or woven tape (not shown) with warp yarns (not shown) except those in the vicinity of the beading (9) being removed from the bristles (1) subsequent to the forming operation.

8. A brush component comprising an array of aligned synthetic resinous bristles (1) and a membrane (3) of synthetic resinous material compatible with that of the bristles (1) overlapping each other, said membrane (3) having a width which is greater than half the length of the bristles (1), and wherein the bristles (1) and membrane (3) are arranged in a generally U-shaped configuration so that the membrane extends throughout the length of at least one arm of the U and around the bend of the U characterised in that a clamping beading (9) of synthetic resinous material compatible with that of the bristles (1) and membrane (3) extends around the base of the U, said beading (9) being fused with the bristles (1) and membrane (3) to maintain the bristles (1) in their generally U-shaped configuration and to maintain the membrane (3) in place, said beading being formed by means of an extrusion operation or by fusing the synthetic resinous material in the vicinity of the base of the U-shaped bend.

9. A brush component according to claim 8 characterised in that a strengthening device (5) is located within the U at the base thereof and extends throughout the length of the U.

10. A brush component according to claim 9 characterised in that the membrane (3) is located within the U, and is bent with the bristles (1) into a

generally U-shaped configuration, around the strengthening device (5).

11. A brush component according to claim 9 or 10 characterised in that the strengthening device is a length of wire (5).

12. A brush component according to any one of claims 8—11 characterised in that the wire (5) is coated with synthetic resinous material compatible with that of said bristles (1) and membrane (3).

Patentansprüche

1. Verfahren zur Herstellung eines Bürstenelements, das die Schritte aufweist, eine Vielzahl von Borsten (1) aus Kunstharz mit der erforderlichen Dichte im wesentlichen miteinander ausgerichtet anzuordnen, eine Membran (3) aus mit dem Kunstharz der Borsten (1) verträglichen Kunstharz in bezug auf die Borstenreihe (1) so anzuordnen, daß die Borstenreihe (1) und die Membran (3) so übereinander liegen, daß sich die Membran (3) von einem Ende der Borsten (1) über mehr als die halbe Borstenlänge erstreckt, und die Borsten (1) und die Membran (3) um 180° im wesentlichen um den Mittelpunkt der Borsten (1) zu einer allgemein U-förmigen Anordnung zu falten, dadurch gekennzeichnet, daß die Borsten (1) und die Membran (3) in dieser gefalteten Stellung gehalten und durch einen (nicht gezeigten) Extruder hindurchbewegt werden und gleichzeitig damit der gefaltete Bereich erwärmt und dadurch erweicht wird und ein Wulst (9) aus mit dem Kunstharz von Borsten (1) und Membran (3) verträglichem Kunstharz auf dem gefalteten Bereich bei einer Temperatur und einem Druck extrudiert wird, die ausreichend sind, eine Verschmelzung zwischen Membran (3), Borsten (1) und Wulst (9) zu bewirken.

2. Verfahren zur Herstellung eines Bürstenelements, das die Schritte aufweist, eine Vielzahl von Borsten (1) aus Kunstharz mit der erforderlichen Dichte im wesentlichen miteinander ausgerichtet anzuordnen, eine Membran (3) aus mit dem Kunstharz der Borsten (1) verträglichen Kunstharz und mit einer Breite, die gleich ist wie oder größer ist als die halbe Borstenlänge, über der Borstenreihe (1) anzuordnen und die Borsten (1) und die Membran (3) um ungefähr 180° zu einer Anordnung mit allgemein U-förmigem Querschnitt zu falten, dadurch gekennzeichnet, daß die gefaltete Anordnung durch eine Heizeinrichtung so hindurchgeführt wird, daß die Kunstharzmaterialien der Membran und der Borsten in der Nähe der Faltung schmelzen, und daß dann die geschmolzenen Teile durch eine Formeinrichtung hindurchbewegt werden, um einen Wulst zu bilden und zu bewirken, daß die Membran und Borsten in der Nähe der Faltung miteinander verschmolzen werden.

3. Verfahren nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Borsten (1) und die Membran (3) so gefaltet werden, daß die Membran (3) innerhalb der Borsten (1) angeordnet ist.

4. Verfahren nach Anspruch 1, 2 oder 3, da-



durch gekennzeichnet, daß eine Verstärkungseinrichtung (5) in der Nähe der Faltung in das so gebildete Bürstenelement eingebracht wird.

5. Verfahren nach Anspruch 4, dadurch gekennzeichnet, daß die Verstärkungseinrichtung (5) die Form eines Metalldrahts (5) hat, der innerhalb der Basis der U-förmigen Anordnung angeordnet ist und um den die Borsten (1) und die Membran (3) gefaltet werden.

6. Verfahren nach Anspruch 5, dadurch gekennzeichnet, daß der Draht (5) mit einem (nicht gezeigten) Kunstharz beschichtet ist, der mit den anderen Kunstharzen verträglich ist.

7. Verfahren nach einem der Ansprüche 1 bis 6, dadurch gekennzeichnet, daß die Borsten (1) die Form eines gestrickten, gewirkten oder gewebenen Bandes (nicht gezeigt) haben, wobei die Kettfäden (nicht gezeigt) mit Ausnahme derjenigen in der Nähe des Wulstes (9) von den Borsten (1) nach dem Formungsvorgang entfernt sind.

8. Bürstenelement, das eine Vielzahl ausgerichteter Kunstharzborsten (1) und eine Membran (3) aus Kunstharzmaterial aufweist, das mit demjenigen der Borsten (1) verträglich ist, die einander überlappen, wobei die Membran (3) eine Breite hat, die größer ist als die halbe Länge der Borsten (1), und wobei die Borsten (1) und die Membran (3) in einer allgemein U-förmigen Anordnung so angeordnet sind, daß sich die Membran über die Länge wenigstens eines Schenkels des U und um die Biegung des U herum erstreckt, dadurch gekennzeichnet, daß ein Haltewulst (9) aus Kunstharz, das mit demjenigen der Borsten (1) und der Membran (3) verträglich ist, sich um die Basis der U erstreckt, wobei der Wulst (9) mit den Borsten (1) und der Membran (3) verschmolzen ist, so daß die Borsten (1) in ihrer allgemein U-förmigen Anordnung gehalten werden und daß die Membran (3) an ihrem Ort gehalten wird, wobei der Wulst (9) mit Hilfe eines Extrusionsvorganges oder durch Schmelzen des Kunstharzes in der Nähe der Basis der U-förmigen Biegung gebildet ist.

9. Bürstenelement nach Anspruch 8, dadurch gekennzeichnet, daß eine Verstärkungseinrichtung (5) innerhalb des U an dessen Basis vorgesehen ist und sich durch die Längerstreckung des U erstreckt.

10. Bürstenelement nach Anspruch 9, dadurch gekennzeichnet, daß die Membran (3) innerhalb des U angeordnet ist und mit den Borsten (1) zu einer allgemein U-förmigen Anordnung um die Verstärkungseinrichtung (5) gebogen ist.

11. Bürstenelement nach Anspruch 9 oder 10, dadurch gekennzeichnet, daß die Verstärkungseinrichtung ein Draht (5) ist.

12. Bürstenelement nach einem der Ansprüche 8 bis 11, dadurch gekennzeichnet, daß der Draht (5) mit Kunstharz beschichtet ist, der mit demjenigen der Borsten (1) und der Membran (3) verträglich ist.

Revendications

1. Procédé de fabrication d'un élément de

brosse consistant à disposer une série de poils (1) en matière résineuse synthétique à peu près en ligne avec la densité voulue, à placer une membrane (3) en matière résineuse synthétique compatible avec celle des poils (1), par rapport à la ligne de poils (1), de façon que celle-ci et la membrane (3) soient superposées et que la membrane (3) s'étende à partir d'une extrémité des poils (1) sur plus de la moitié de la longueur des poils (1), et à plier les poils (1) et la membrane (3) à 180° autour du milieu approximatif des poils (1) pour les mettre en U, caractérisé en ce que les poils (1) et la membrane (3) sont maintenus dans cette position pliée et passés dans une boudineuse (non représentée) et en même temps, la partie pliée est chauffée et ainsi ramollie et une baguette (9) en matière résineuse synthétique compatible avec celles des poils (1) et de la membrane (3) est extrudée sur la partie pliée à une température et une pression suffisantes pour faire fusionner la membrane (3), les poils (1) et la baguette (9).

2. Procédé de fabrication d'un élément de brosse consistant à disposer une série de poils (1) en matière résineuse synthétique à peu près en ligne avec la densité voulue, à placer sur la ligne de poils (1) une membrane (3) en matière résineuse synthétique compatible avec celle des poils et de largeur supérieure à la moitié de la longueur des poils (1), et à plier les poils (1) et la membrane (3) à environ 180° pour les mettre en U, caractérisé en ce que l'ensemble plié est passé dans un dispositif de chauffage pour la fusion des matières résineuses synthétiques de la membrane et des poils à proximité du pli, puis les parties fondues sont passées dans un dispositif de mise en forme pour la formation d'une baguette et le fusionnement de la membrane et des poils à proximité du pli.

3. Procédé selon l'une des revendications 1 et 2, caractérisé en ce que les poils (1) et la membrane (3) sont pliés de façon que la membrane (3) soit située à l'intérieur des poils (1).

4. Procédé selon l'une des revendications 1, 2 et 3, caractérisé en ce qu'un élément de renfort (5) est incorporé à proximité du pli à l'élément de brosse ainsi formé.

5. Procédé selon la revendication 4, caractérisé en ce que l'élément de renfort (5) est un fil métallique (5) situé à l'intérieur de la base de l'ensemble en U et autour duquel les poils (1) et la membrane (3) sont pliés.

6. Procédé selon la revendication 5, caractérisé en ce que le fil (5) est revêtu d'une matière résineuse synthétique (non représentée) compatible avec les autres matières résineuses synthétiques.

7. Procédé selon l'une des revendications 1 à 6, caractérisé en ce que les poils (1) sont sous la forme d'un ruban tricoté ou tissé (non représenté), les fils de chaîne (non représentés), à l'exception de ceux qui sont à proximité de la baguette (9), étant enlevés des poils (1) après l'opération de mise en forme.

8. Élément de brosse comprenant une nappe de



poils en matière résineuse synthétique alignés (1) et une membrane (3) en matière résineuse synthétique compatible avec celle des poils (1) qui sont superposées, la membrane (3) ayant une largeur supérieure à la moitié de la longueur des poils (1), et les poils (1) et la membrane (3) étant en forme de U de façon telle que la membrane s'étend sur toute la longueur d'au moins une branche du U et autour du coude du U, caractérisé en ce qu'une baguette de fixation (9) en matière résineuse synthétique compatible avec celles des poils (1) et de la membrane (3) s'étend autour de la base du U, cette baguette (9) étant fusionnée avec les poils (1) et la membrane (3) pour maintenir les poils (1) en forme de U et maintenir la membrane (3) en place, et étant formée par une opération d'extrusion ou par fusion de la matière résineuse synthétique à proximité de la base du coude en U.

9. Elément de brosse selon la revendication 8, caractérisé en ce qu'un élément de renfort (5) est placé à l'intérieur du U à la base de celui-ci et s'étend sur toute la longueur du U.

5 10. Elément de brosse selon la revendication 9, caractérisé en ce que la membrane (3) est située à l'intérieur du U et est courbée en U avec les poils (1) autour de l'élément de renfort (5).

10 11. Elément de brosse selon l'une des revendications 9 et 10, caractérisé en ce que l'élément de renfort est un morceau de fil métallique (5).

15 12. Elément de brosse selon l'une des revendications 8 à 11, caractérisé en ce que le fil (5) est revêtu d'une matière résineuse synthétique compatible avec celles des poils (1) et de la membrane (3).

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