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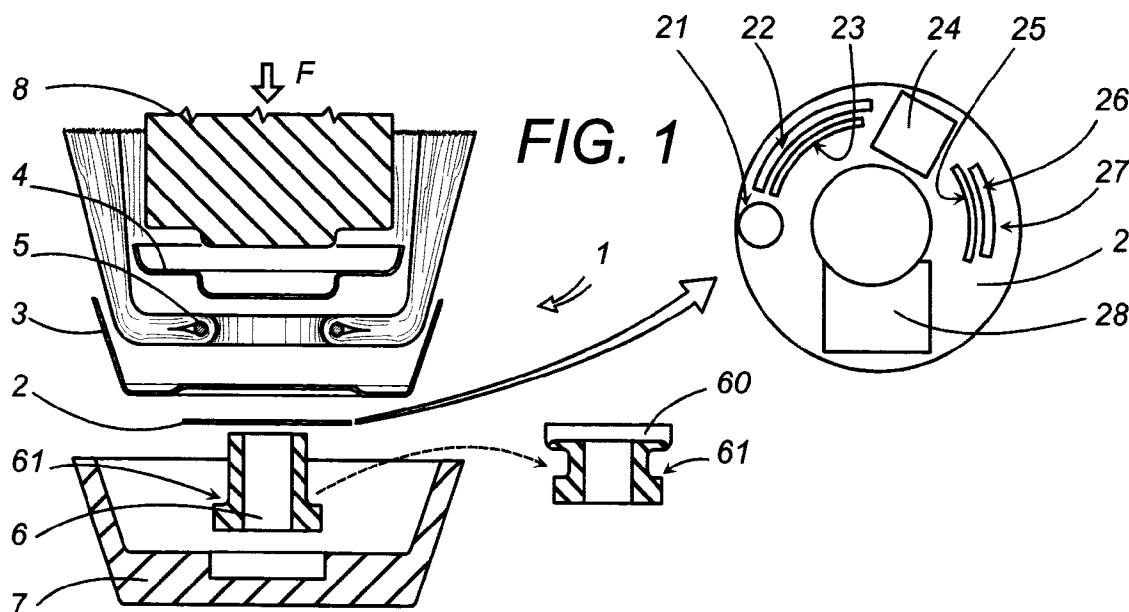
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(54) Method for the manufacture of brushes and brush thus manufactured

(57) A method for the manufacture of brushes, comprising an assembly phase during which a brush body, composed of one or more elements, and a filament-holder loop, or a similar element for supporting fibres, are subjected to the action of pressing means so as to define a mechanical constraint between brush body and filament-holder loop or similar element; the method entails associating stably to the brush body, in the course of assembly, a tag (2) reporting a series of data, indelibly reproduced, identifying the brush and/or the operating

procedures for the brush itself; the brush is of the type presenting a brush body, comprising one or more elements, and a filament-holder loop, or a similar element for supporting fibres, mechanically constrained to each other by means of a blocking element rimmed in at least one end and it is provided with a tag (2), reporting a series of data identifying the brush and/or the operating procedures for the brush itself, irremovably fitted between a portion of the blocking element (6; 3) and the brush body.



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Description

The present invention relates to a method for the manufacture of brushes and a brush thus manufactured.

In the production of brushes, in particular those destined to hobby use or in any case sold by retailers, said brushes are provided with an identification label bearing a series of data able to define the technical and safety features of the specific product.

Such data may pertain to the possible uses of the brush and to parameters for the operator's safety; the data may be expressed in alphanumeric form and also comprise bar codes, in addition to the manufacturer's and/or the retailer's trademarks.

In practice, the brush must bear data about, for instance, the manufacturer, brush model, the type of junction used, its maximum number of rotations/minute, the safety norms to be followed, etcetera, and the bar codes may be used for inventory management or, for instance, to identify a retail price when the brushes are placed for sale. The label may be a paper or plastic film support so as to be associated to the brush by means of adhesive substances after the brush itself has been manufactured, or replaced by markings.

The markings may be performed by means of pads on the brush itself or with a mark obtained by stencilling with a template the data directly onto the metal body of the brush, or through laser marking.

Both these solutions present some drawbacks.

Adhesive labels may become detached from the brush to which they are applied, particularly during the operation of the brush which heats up considerably. Additionally, they may absorb dirt and be affected by processing residues, making the reported data unusable because they are illegible. Moreover, a supplementary attachment operation is required, raising the cost of the product.

The mechanical marking solution presents, as one of its drawbacks, the fact that, with the marking process, it is possible, by etching the surface of the metal sheet comprising the brush body, to define points which may present a predisposition to be attacked by rust or other corrosive agents.

Another drawback is due to the fact that, to perform the related operation, a generally expensive working process is required, since stamps previously obtained by electrical discharge machining must be set up.

Moreover, since the marking, for construction reasons linked to the thickness of the sheet metal, cannot exert more than a limited pressure on the brush body, the related reported data may turn out to be illegible once the components of the brush have been painted.

An additional negative characteristic is given by the essential impossibility of stencilling small brushes, with a brush body of relatively limited diameter.

The other types of marking, for instance laser, present high installation costs and present, in part, the same disadvantages as mechanical marking.

Pad marking presents disadvantages due to data legibility and pad wear. All the aforesaid markings also present the following disadvantages:

- 5 - they require an additional operation on the brushes in addition to the ones strictly required for manufacturing;
- they present the impossibility of marking the bar code which requires particular colors to be read electronically;
- 10 - they present little operational flexibility when data on the brushes need to be modified.

The purpose of the present invention is thus to eliminate the aforementioned drawbacks with a method for the realization of brushes, and the related brush, which allow optimally to support the data required to identify the brush and utilise it properly and to be able to use the colours which enable to have a legible bar code.

The method consists of associating, during the assembly of the parts comprising the brush, and in an essentially irremovable manner, a tag on which are indelibly reported the data described above.

The invention relates to a method for the manufacture of brushes, comprising an assembly phase during which a brush body, composed of one or more elements, and a filament-holder loop, or a similar element for supporting fibres, are subjected to the action of pressing means so as to define a mechanical constraint between brush body and filament-holder loop or similar element; the method is characterised in that it entails stably associating to said brush body, in said assembly phase, a tag bearing a series of data, indelibly reproduced, identifying the brush and/or the operating procedures for the brush itself.

The invention also relates to a brush of the type presenting a brush body, comprising one or more element, and a filament-holder loop, or a similar element for supporting fibres, mechanically constrained to each other by means of a blocking element rimmed in at least one end, brush which is characterised in that it is provided with a tag, bearing a series of data identifying the brush and/or the operating procedures for the brush itself, placed irremovably between a portion of said blocking element and said brush body.

The technical characteristics of the invention, according to the aforesaid purposes, can be clearly noted from the content of the claims reported below and its advantages shall be made clearer in the detailed description which follows, made with reference to the accompanying drawings, which show an embodiment provided purely by way of non limiting example, in which:

- Figure 1 shows, in a schematic side view with sectioned parts, with a detail related to a tag shown in enlarged plan view and a detail, related to a junction, shown in section view, a possible embodiment of the method constituting the subject of the present

- invention, related to a cup brush;
- Figure 2 shows, in a schematic exploded side view with sectioned parts, an embodiment of a cup brush according to the present invention;
- Figures 3, 4, 5 show, in prospective schematic views, two embodiments of brushes according to the invention, pertaining respectively to a cup brush of small diameter, to a straight brush and to a small circular brush;
- Figure 6 shows, in a schematic side view with sectioned parts, a possible embodiment of the method constituting the subject of the present invention, related to a circular brush;
- Figure 7 shows, in a schematic side view with sectioned parts, an embodiment of a brush according to the present invention, related to a circular brush;
- Figure 8 shows, in a top prospective view, an additional embodiment of a brush according to the invention.

In the figures of the accompanying drawings, which constitute, as stated previously, a non limiting example of embodiment, a brush manufactured according to the invention is indicated as 1 and, in the remainder of the present description, both the method and the related brush shall be described.

In general, the method for the manufacture of brushes is of the type including an assembly phase during which a brush body (which may comprise one or more element) and a filament-holder loop (or a similar element for supporting fibres) are subjected to the action of pressing means, so as to constitute the actual brush, in which the brush body is mechanically constrained to the filament-holder loop.

The present invention comprises the irreversible association in said assembly phase of a tag 2 bearing a series of indelible data identifying the brush and/or the operating procedures for the brush itself.

By way of example, such data may be the ones reported on the tag 2 shown in Figure 1. In particular, the indelible data appearing on the tag 2 pertain to: safety norms 21, maximum rpm number 22, Country where the product was manufactured 23, manufacturer's trademark 24, type of item 26, junction diameter 27, bar code 28. For the bar code 28 it is possible to use the colours which can be read by means of electronic reading systems.

With reference to what is shown in Figures 1 and 2, the brush body may comprise at least an outer cup 3 and an inner cup 4, between which is placed the filament-holder loop 5.

The assembly operation is performed by placing on a support element 7 (shown only schematically in Figure 1), stacked one on top of the other, the outer cup 3, the filament-holder loop 5 and the inner cup 4. On the aforesaid parts acts a presser 8 (also shown only schematically in Figure 1) which moves to approach (towards F in the figure), so as to perform a rimming of a blocking

element and so as to define the necessary mechanical constraint which sets the brush in its definitive conformation.

The process may entail, similarly to what is shown in the Figures from 1 to 5, placing the tag 2, externally with respect to the outer cup 3, on the blocking element which, depending on the embodiments, may comprise differently shaped parts.

A possible example pertains to the manufacture of the cup brushes provided with a junction, as in the example shown in Figure 1; in this case, the blocking element comprises a junction 6, or a similar means for associating the brush with means to power it.

The junction 6 is rimmed inside the brush, in order to hold, thanks to the rimmed end 60 (see bottom right detail in Figure 1) the two cups 3, 4 and the filament-holder loop 5.

The association of the tag 2 to the brush 1 is accomplished by placing on the support element 7 the junction 6 and fitting on it, in succession from the bottom up, the tag 2 (which in this case will be ring shaped and resting on the inner plane surface 61), the outer cup 3, the filament-holder 5 and the inner cup 4. Pressure is then applied by the presser 8 which rivets the end 60 of the junction 6 so as to accomplish the mechanical constraint which keeps the brush together.

In those cases in which the cup brush does not provide for a junction, the blocking element is constituted by the outer cup 3, which is rimmed inside the brush to fasten inner cup 4 and filament-holder loop 5 thanks to the rim 30. In these cases, according to the present invention, an adhesive substance is interposed between the outer cup 3 and the tag 2, in order to obtain, through the pressure imparted by the pressing means upon assembly, an optimal adhesion between the two elements and the copy of the conformation of the outer face 31 of the cup 3 by the tag which is deformed accordingly.

Other systems for fastening the tag to the brush can comprise, similarly to what is shown in Figure 8, already while the outer cup 3 is being printed, teeth 33 which may be blocked on the tag 2 during brush assembly.

When the brush body comprises at least one tubular element 9, on which is fitted at least one filament-holder loop or similar element 5, the constraint is accomplished by rimming the ends 91 of the tubular element 9.

In this case, the tag 2 (ring-shaped) is fitted on the tubular element, so as to be held fast by one of the two rims obtained from the ends 91 once they have undergone the assembly operation.

The tag 2, as previously stated, may be laminar with annular configuration, or its shape may be different but such as to be mechanically coupled to components of the brush.

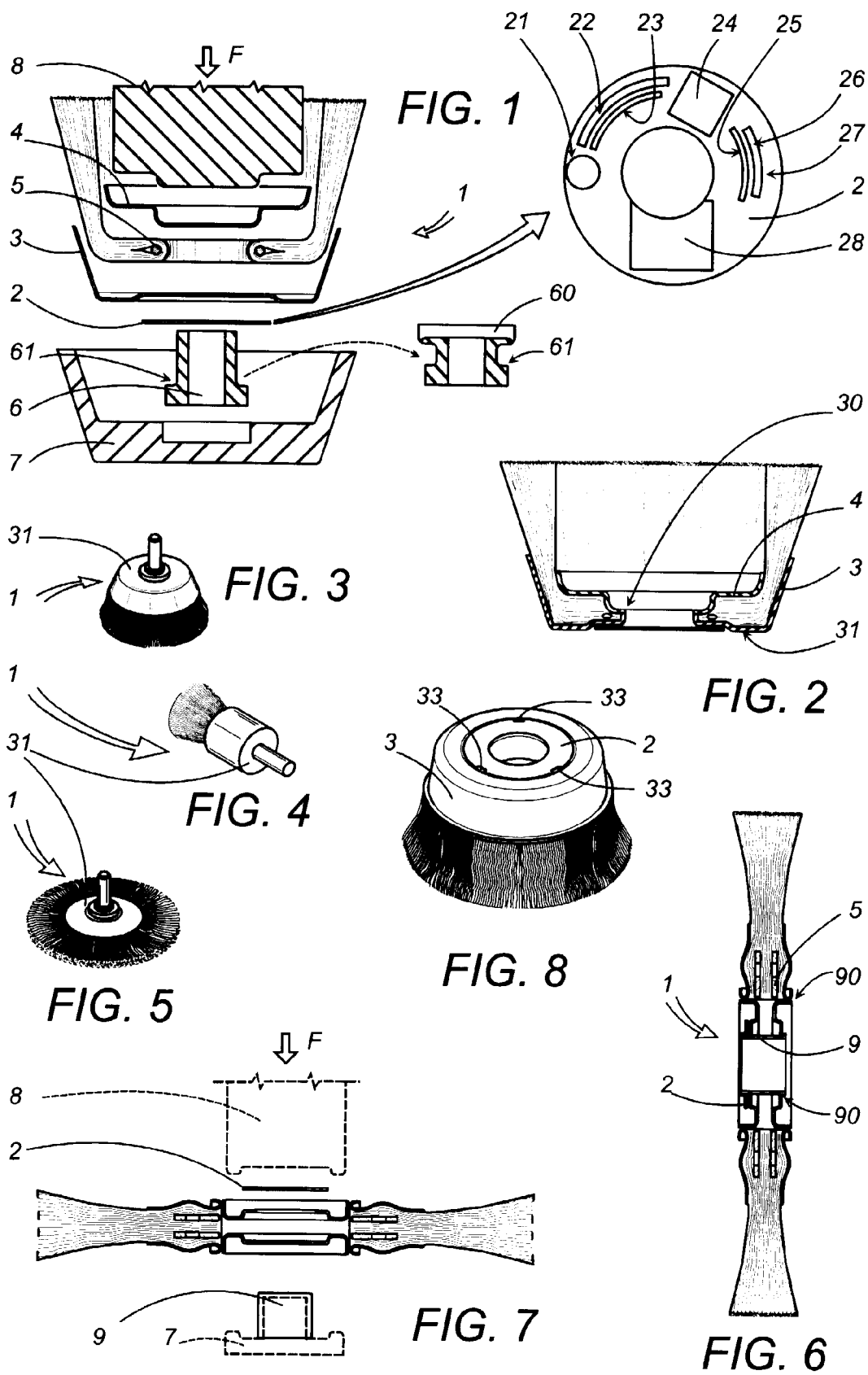
Moreover, for its manufacture, aluminium may be used and the related supported data may be impressed by serigraphy or anodic oxidation. Another embodiment of the tag may entail the use of a heat-resisting plastic material (or of a metal other than the aforementioned

aluminium), due to the high temperatures the brushes may reach in use. The invention thus conceived can be subject to numerous modifications and variations, without thereby departing from the scope of the inventive concept. Moreover, all components may be replaced with technically equivalent elements.

Claims

1. Method for the manufacture of brushes, comprising an assembly phase during which a brush body, composed of one or more elements, and a filament-holder loop, or a similar element for supporting fibres, are subjected to the action of presser means in order to define a mechanical constraint between brush body and filament-holder loop or similar element; method characterised in that it entails associating stably to said brush body, in said assembly phase, a tag (2) bearing a series of data, indelibly reproduced, identifying the brush and/or the operating procedures for the brush itself.
2. Method according to claim 1, wherein the brush body comprises at least one outer cup and one inner cup and said assembly operation is performed by placing on a supporting body, stacked one on top of the other, said outer cup, a filament-bearing loop or similar element and said inner cup, to perform, by means of a presser acting as it approaches said support element, a rimming of a blocking element able to define said mechanical constraint; method characterised in that it entails placing said tag (2) on said support element (6; 3) externally with respect to said outer cup (3).
3. Method according to claim 2, wherein said blocking element comprises a junction, or a similar means for associating to means for powering said brush, junction or the like being rimmed internally to the brush, method characterised in that said tag (2) is interposed between said junction or similar (6) and said outer cup (3).
4. Method according to claim 2, wherein said blocking element comprises said outer cup (3), which is rimmed internally to the brush, characterised in that an adhesive substance is interposed between said outer cup (3) and said tag (2).
5. Method according to claim 2, wherein said blocking element comprises said outer cup (3), which is rimmed internally to the brush, characterised in that: a series of teeth (33) are obtained when pressing said outer cup (3); said tag (2) is placed in an area adjacent to said teeth (33); said teeth (33) are riveted onto said tag (2) during said assembly phase, so as to make the tag (2) fast by means of the teeth themselves.
6. Method according to claim 1, wherein the brush body comprises at least one tubular element, onto which is fitted at least one filament-holder loop or similar element, and which is rimmed at the ends so as to accomplish said mechanical constraint, method characterised in that a tag (2) with annular shape is used and said tag is fitted onto said tubular element (9).
7. Method according to one of the previous claims, characterised in that it uses a tag (2) which is laminar and with annular shape.
8. Method according to one of the previous claims, characterised in that it uses an aluminium tag (2).
9. Method according to one of the previous claims, characterised in that it uses an aluminium tag (2) on which said series of data is impressed by serigraphy.
10. Method according to one of the claims 1 through 8, characterised in that it uses an aluminium tag (2) on which said series of data is impressed by anodic oxidation.
11. Method according to one of the claims 1 through 7, characterised in that it uses a tag (2) made of heat-resisting plastic material.
12. Method according to one of the previous claims, characterised in that said data indelibly impressed on said tag (2) reproduce at least one bar code obtained with colours which can be recognised by electronic reading devices.
13. Brush of the type presenting a brush body, comprising one or more elements, and a filament-holder loop, or a similar fibre-supporting element, mechanically constrained to each other by means of a blocking element rimmed in at least one end, characterised in that it is provided with a tag (2) bearing a series of data identifying the brush and/or the operating procedures for the brush itself, irremovably fitted between a portion of said blocking element (6; 3) and said brush body.
14. Brush according to claim 13, wherein said brush body comprises at least one outer cup and one inner cup between which is held said filament-holder loop or similar and wherein said blocking element comprises a junction rimmed in its inner end to said brush body; brush characterised in that said tag (2) is placed between said junction (6) and said outer cup (3).

15. Brush according to claim 13, wherein the brush body comprises at least one tubular element, onto which is fitted at least one filament-holder loop or similar element, and which is rimmed at the ends to as to accomplish said mechanical constraint, brush characterised in that it is provided with a ring shaped tag (2) fitted onto said tubular element (9) and mechanically constrained by means of the rimmed ends of the tubular element itself. 5
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16. Brush according to one of the claims 13 through 15, characterised in that said tag (2) is laminar and ring shaped. 15
17. Brush according to one of the claims 13 through 16, characterised in that said tag (2) is made of aluminium. 20
18. Brush according to one of the claims 13 through 17, characterised in that said tag (2) is made of aluminium and said series of data is impressed thereon by serigraphy. 25
19. Brush according to one of the claims 13 through 17, characterised in that said tag (2) is made of aluminium and said series of data is impressed thereon by anodic oxidation. 30
20. Brush according to one of the claims 13 through 16, characterised in that said tag (2) is made of heat-resisting plastic material. 35
21. Brush according to claim 14, characterised in that said outer cup (3) is provided with a series of teeth (33) arranged peripherally with respect to said tag (2) and gripping the same so as to hold it fast to said brush (1). 40
22. Brush according to one of the claims 13 through 21, characterised in that said data indelibly impressed on said tag (2) reproduce at least one bar code obtained with colours which can be recognised by electronic reading devices. 45
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EUROPEAN SEARCH REPORT

Application Number
EP 97 83 0669

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.6)
Y	CH 346 860 A (MEZ & CO.) 30 July 1960 * page 1, line 58 - page 2, line 91; figures * ---	1-3,7, 13-16	A46B15/00 A46B13/00 A46B3/10 B65C9/36 G09F3/16
Y	EP 0 027 675 A (MDM MATERNINI & C SNC) 29 April 1981 * page 3, line 21 - page 8, line 5; figures * ---	1-3,7, 13-16	
A	US 3 805 457 A (SHIMIZU Y) 23 April 1974 * column 2, line 8 - column 3, line 15; figures * ---	1,13	
A	US 3 005 221 A (TILGNER) 24 October 1961 * column 2, line 32 - column 4, line 45; figures * ---	1,13	
A	AU 507 531 B (CARR FASTENER PTY.) 21 February 1980 * figure 2 * ---	1,13	
A	US 5 522 164 A (FALLON REGIS) 4 June 1996 * figure * -----	13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A46B B65C G09F B24D
Place of search THE HAGUE		Date of completion of the search 20 March 1998	Examiner Ernst, R
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