(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 886 595 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
13.02.2008 Bulletin 2008/07

(21) Application number: **07113989.3**

(22) Date of filing: **08.08.2007**

(51) Int Cl.:
A45D 40/26 *(2006.01)* ***A46B 9/02*** *(2006.01)*
A46B 3/18 *(2006.01)*

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **08.08.2006 US 500853**

(71) Applicant: **Risdon International, Inc.**
Watertown, CT 06795-0100 (US)

(72) Inventor: **Kearney, Thomas**
Middletown, NY 10940 (US)

(74) Representative: **Parry, Christopher Stephen**
Saunders & Dolleymore,
9 Rickmansworth Road
Watford, Herts. WD18 0JU (GB)

(54) Mascara applicator with fan tip

(57) A method and apparatus for applying mascara includes a brush formed from a twisted wire core connected to a handle, with a first plurality of bristles extending radially from the core along a substantial portion thereof. The end of the wire core is bent, in some cases, approximately one hundred and eighty degrees, such that a group of bristles fan out from the distal end of the brush, preferably along a plane substantially parallel to the longitudinal axis of the core. The bent portion of the core includes between one and eight, and preferably one and four, turns of the twisted wire.

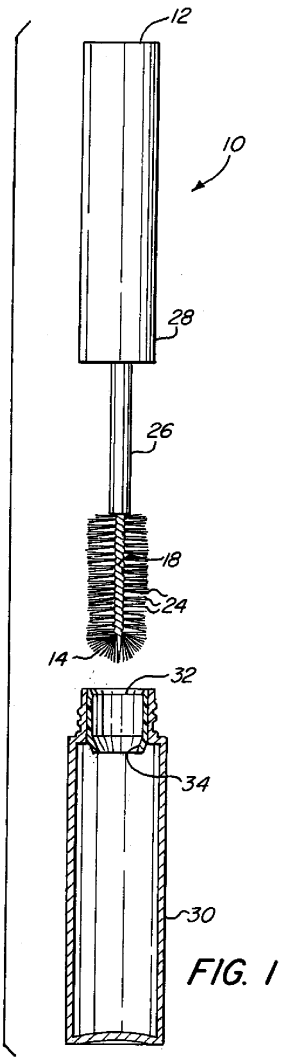

FIG. 1

EP 1 886 595 A1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to an applicator for cosmetic products. More specifically, the invention relates to a mascara brush with a fan tip that facilitates both general and precise application of mascara.

BACKGROUND OF THE INVENTION

[0002] The application of cosmetics to enhance one's appearance is an age-old practice. Accordingly, different kinds of cosmetics have been developed for enhancing particular physical features, such as mascara, which is used to lengthen, thicken, and color one's eyelashes. Typically, these kinds of liquid-type cosmetics are applied with a brush.

[0003] Mascara brushes are generally well known in the art. Typically, they comprise a series of bristles connected to an applicator rod, which extends from the underside of a bottle cap. When not in use, the rod and bristles are inserted into an opening in a bottle containing the mascara, and the cap closes the bottle. There is usually a wiper in the neck of the bottle, through which the rod extends when the bottle is closed, such that the bristles are immersed in the mascara.

[0004] The mascara brush must perform several functions. First, the brush must accumulate mascara within the bottle, and carry the mascara through the wiper, which removes the excess mascara from the bristles. The mascara brush must then apply the mascara to the eyelashes, and preferably, be capable of curling or lifting the eyelashes. The mascara brush must also be capable of combing and separating the eyelashes, as well as spreading the mascara relatively evenly thereon. In all these functions, the brush is desirably comfortable for the consumer to use..

[0005] A typical mascara brush for achieving these various functions comprises a plurality of bristles mounted to a helically twisted wire. Such twisted wire brushes conventionally are manufactured by disposing a plurality of individual lengths of bristles transverse to and between substantially parallel, slightly spaced-apart thin metal wire lengths, such that the wire lengths generally bisect the filament lengths at their midpoints. Most typically, the parallel wire lengths comprise two substantially equal leg segments formed from bending a single length of wire into a U-shaped configuration. The wire lengths are then twisted together to form a helical core, causing the bristles disposed between the wires to be clamped therebetween at about their midpoints. In this twisting and clamping, the segments of the bristles on either side of the clamped midpoint are caused to flare radially outward from the core and thereby form an elongate bristle brush portion of generally circular cross-section. Examples of this process are described, for instance, in U.S. Patent No. 6,481,445 to Miraglia and U.S. Patent No. 5,551,456 to Hartel.

[0006] Generally, a large number of these radially-projecting bristles spiral along the length of the wire, thereby facilitating the collection and transfer of a substantial amount of mascara from the bottle to the eyelashes. Additionally, mascara is typically highly viscous, and thus, tends to clump when applied to eyelashes. These clumps of mascara are usually combed out as a finishing step during the application process, thereby requiring a relatively open bristle array in order to create a "comb-like" brush that is well suited for combing out the clumps and properly separating the lashes. However, the conventional arrangement of many projecting bristles along the length of the brush can make it difficult to perform more precise applications, such as may be required in order to apply mascara to the smaller, bottom lashes, in order to reach the corners of the lashes, and to perform general touch-up.

[0007] What is desired, therefore, is a mascara brush having a twisted wire stem and outwardly extending bristles that can collect and carry a satisfactory amount of mascara without repeated reintroductions of the brush into the mascara bottle. What is also desired is a mascara brush that provides good combing and lash-lengthening effects. What is further desired is a mascara brush with the above features that facilitates precise application of the mascara where necessary.

SUMMARY OF THE INVENTION

[0008] Accordingly, it is an object of the present invention to provide a mascara brush with enough bristle surface area to collect a large amount of mascara from a bottle and carry it to one's eyelashes.

[0009] It is a further object of the present invention to provide a mascara brush with enough bristle rows along the length of the brush to provide an adequate combing ability.

[0010] It is yet another object of the present invention to provide a mascara brush that enables one to apply mascara to small and hard to reach parts of one's eyelashes.

[0011] It is still another object of the present invention to provide a mascara brush that enables one to precisely touch-up the mascara.

[0012] In order to overcome the deficiencies of the prior art and to achieve at least some of the objects and advantages listed, the invention comprises a method for applying mascara, including providing a mascara container having mascara therein, forming a wire into approximately a U-shape having two leg segments, positioning a plurality of bristles between the two leg segments of the U-shaped wire, twisting the wire to produce a helical wire core having a plurality of bristles extending radially therefrom, bending an end of the wire core to produce a fan of bristles fanning out therefrom, and inserting the wire core into the mascara container to collect mascara.

[0013] In some of these embodiments, the approximately U-shaped wire has a base segment, and the step of twisting the wire comprises forming the base segment into a wire loop at the distal end of the brush.

[0014] In another embodiment, the invention comprises a method for applying mascara, including the steps of providing a mascara brush comprising a twisted wire core having a plurality of bristles extending radially therefrom and a distal end, bending the distal end of the brush to produce a fan of bristles fanning out therefrom, and collecting mascara on the plurality of bristles.

[0015] In yet another embodiment, the invention comprises a mascara applicator, including a container cap for closing a mascara bottle, an elongated member extending from the cap, the member having a core and a distal end, a first plurality of bristles radially extending from the core, and a second plurality of bristles fanning out from the distal end of the elongated member.

[0016] In still another embodiment, the invention comprises a mascara applicator, including a handle, and a twisted wire core connected to the handle, the wire core having a first plurality of bristles extending radially therefrom, a longitudinal axis, and a distal end, where the distal end of the core is bent relative to the longitudinal axis such that a second plurality of bristles fan out from the distal end of the core.

[0017] In certain embodiments, the second plurality of bristles fan out along a plane substantially parallel to the longitudinal axis of the core. Preferably, the distal end of the core is bent approximately one hundred and eighty degrees so that the second plurality of bristles fan out along an arc. In some of these embodiments, the bent portion of the core comprises between one to eight, and more preferably, one to four turns of the twisted wire core.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Figure 1 is a partially cross-sectional view of mascara container and brush in accordance with the invention.

[0019] Figure 2 is a perspective view of the wire and bristles that form the brush of Figure 1.

[0020] Figure 3 is a perspective view of the brush of Figure 1.

DETAILED DESCRIPTION OF THE INVENTION

[0021] The basic components of one embodiment of a mascara applicator in accordance with the invention are illustrated in Figure 1. As used in the description, the terms "top," "bottom," "above," "below," "over," "under," "above," "beneath," "on top," "underneath," "up," "down," "upper," "lower," "front," "rear," "back," "forward" and "backward" refer to the objects referenced when in the orientation illustrated in the drawings, which orientation is not necessary for achieving the objects of the invention.

[0022] A mascara applicator brush 10 comprises a handle end 12 and a brush end 14. The brush 10 includes an elongated member comprising a central, twisted wire core 18 with a longitudinal axis 20, and a helical array of regularly disposed bristles 24 retained by the twisted wire core 18 in the manner further described below. The core 18 is connected to a rod 26, which is, in turn, connected to a cap 28 for a mascara bottle 30. The brush end is inserted through an opening 32 in the bottle 30, past a wiper 34, in order to load mascara on the bristles 24.

[0023] The bristles 24 are usually made by cutting short segments from spools of filaments. The filaments are formed from nylon or polyester, or another suitable material. The filaments will typically be circular solids in cross-section, but alternatively, may have non-circular cross-sectional shapes, such as ovals, square, rectangular, or polygons (including hexagons), or the bristles may have voids therein, and thus, the term "diameter" as used herein to refer to "bristle diameter" is intended to mean the maximum distance between any of the possible opposite positions on the outer surface of a bristle filament.

[0024] As illustrated in Figure 2, the wire core 18 is made by forming wire into a "U" shape having leg segments 40 and 42 and a tip 44. The plurality of bristles 24 are placed between the leg segments 40 and 42, and these leg segments are then twisted around each other to clamp the bristles 24 therebetween at approximately the midpoints of the bristles 24. As a result of this twisting and clamping, the ends of the bristles 24 extend radially from the wire core 18 about the longitudinal axis 20 in a helical or spiral manner. Accordingly, a first plurality of bristles 52 extends along a substantial portion of the wire core 18, thereby providing a sufficient surface area for transporting and applying large amounts of mascara. After the bristles 24 are mounted to the wire core 18, the bristles 24 can be trimmed so that the brush 10 has any desired shape, such as, for example, cylindrical, tapered, conical, curved, etc. If desired, the ends of the bristles 24 may be processed by grinding, heating, or other techniques.

[0025] Typically, the wire of the twisted wire core 18 has a diameter of about .028 inch, and the core 18 has a pitch of about .04 -.10 inch to about .250 inch. The pitch P is the linear distance along the axis 20 of twisted wire core 18 from the center 60 of a wire segment to the center 62 of that wire segment 40 after it has twisted through 360 degrees.

[0026] Typically, the rod 26 may have a diameter in the range of about .065 inch to .250 inch, and more specifically, about .075 inch to .125 inch. As shown in Figure 3, the twisted wire core 18 has a first end 45 that can be attached to rod 26.

[0027] The bristle density per turn may be selected from a range of between about 10-65 bristles per turn. The preferred bristle density will be dependent on the bristle diameter, and, to a degree, on the hardness of the polymer used in making the bristles. The preferred bristle diameter will range between .003 inch and .012 inch, most preferably about .004 to .006 inch.

[0028] In the preferred embodiment there are between 18-22 rows of bristles that are twisted into the wire core 18. The section of the wire core 18 containing the bristles preferably comprises about 20-28 turns, most preferably about 24 turns.

[0029] The end section 46 of the twisted wire core 18 is bent over onto itself, which results in a fan tip section 54 comprising a plurality of bristles fanning out from the end section 46. The fan tip section 54, which is separate and angularly offset from the rest of the bristles extending along the length of the twisted wire core 18, should enable the user to easily perform precise application of the mascara.

[0030] In certain advantageous embodiments, the wire is bent approximately one hundred and eighty degrees, and the end section 46 includes between one to eight turns of the wire core 18, and most preferably the end section 46 includes between one to four turns of the twisted wire core 18 between the bending point and the bent end 48 of end section 46

[0031] The bent over end section 46 of the wire core 18 creates a fan tip section at the distal end of the brush 10. The fan tip section 54 preferably defines a 180 degree arc extending in a plane which is parallel to the axis of the wire core 18. However, the bent over section 46 may be bent at other angles so that the fan tip section 54 extends in other directions somewhere between and including planes which extend parallel to, and perpendicular to, the longitudinal axis of the brush 10. The fan tip section may also be somewhat less than a 180 degree arc.

[0032] It should be understood that the foregoing is illustrative and not limiting, and that obvious modifications may be made by those skilled in the art without departing from the spirit of the invention. Accordingly, reference should be made primarily to the accompanying claims, rather than the foregoing specification, to determine the scope of the invention.

Claims

1. A mascara package, comprising:

a container;
a mascara product contained in said container;
a cap for closing said container;
a elongated member extending from said cap, said elongated member having a core, said core having a distal end;
a first plurality of bristles radially extending from said core; and
a second plurality of bristles fanning out from the distal end of said elongated member.

2. The mascara package of claim 1, wherein:

the distal end of said core has a end section that is bent over onto itself.

3. The mascara package of claim 2, wherein the end section is bent over about one hundred and eighty degrees.

4. The mascara package of claim 1, wherein the elongated member and core comprise a rod and a twisted wire core affixed to said rod, said twisted wire core retaining said first plurality of bristles radially extending from said twisted wire core, and said twisted wire core having a end section that is bent over; said second plurality of bristles fanning out from a distal end of said twisted wire core.

5. The mascara package of claim 4, wherein the end section is bent over about one hundred and eighty degrees.

6. The mascara package of any preceding claims, wherein the second plurality of bristles fan out in a 180 degree arc.

7. The mascara package of claim 4, wherein said bent over end section comprises between one and eight turns of said twisted wire.

8. The mascara package of claim 5, wherein said bent over end section comprises between one and four turns of said twisted wire.

9. The mascara package of any preceding claims, wherein:

said core has a longitudinal axis; and
said second plurality of bristles fan out along a plane substantially parallel to said axis.

10. The mascara package of any one of Claims 1 to 8, wherein:

said core has a longitudinal axis; and
said second plurality of bristles fan out along a plane extending between and including planes which extend parallel to, and perpendicular to, the said longitudinal axis.

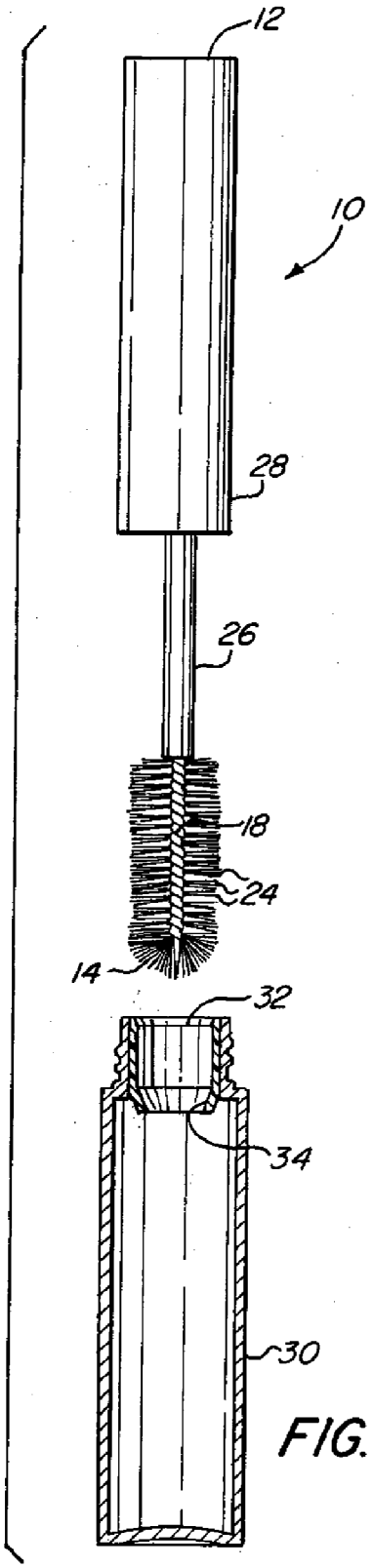

FIG. 1

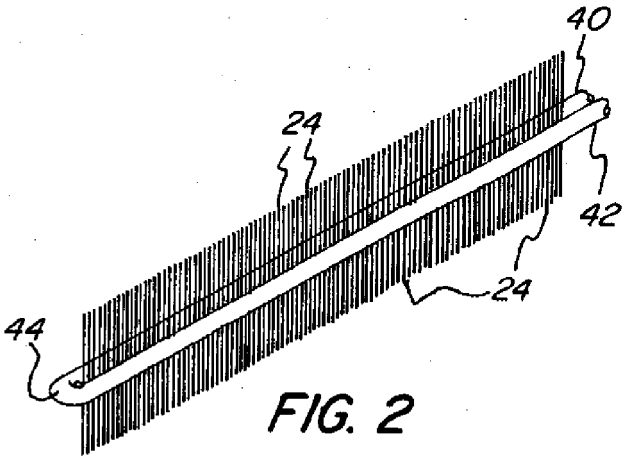

FIG. 2

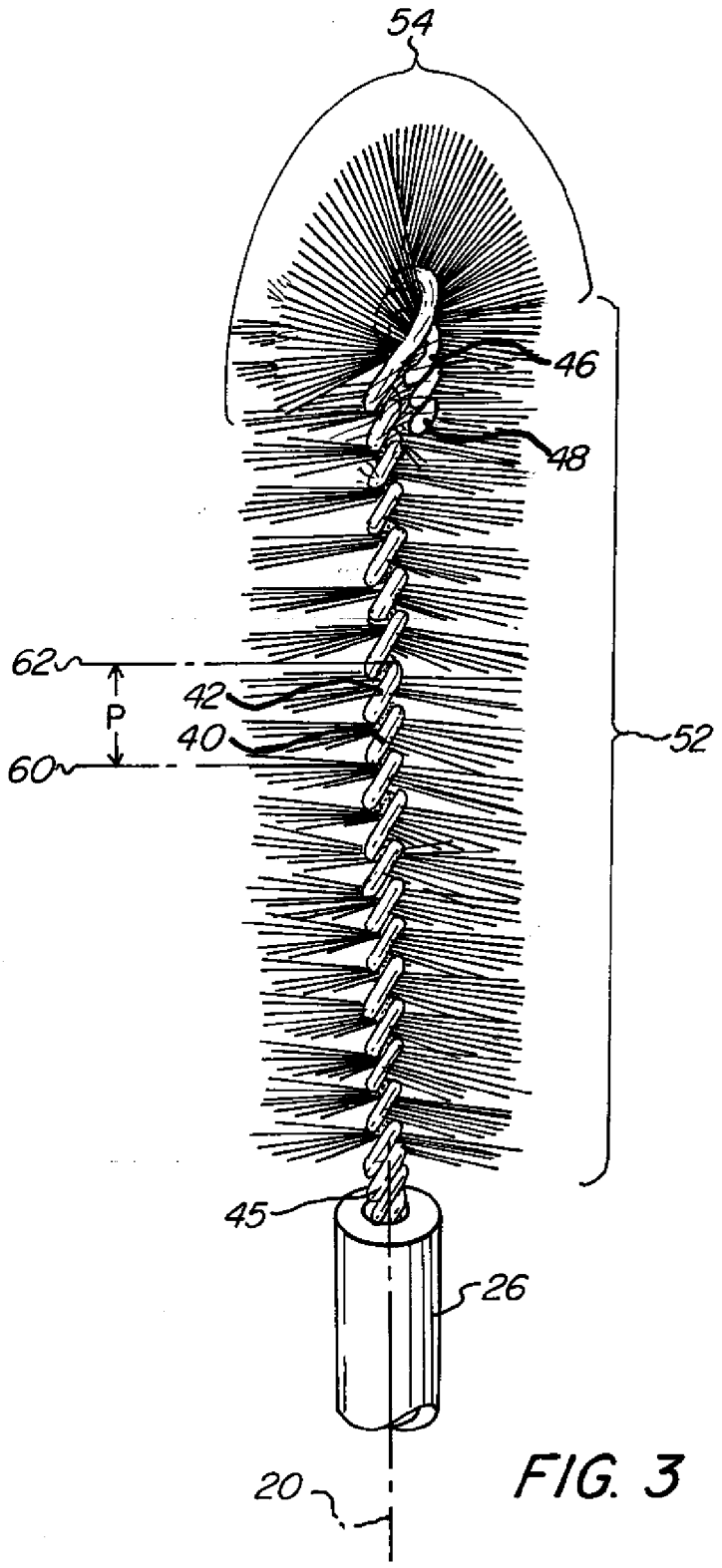

FIG. 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 11 3989

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 174 895 A (COLE RODNEY DAVID) 19 November 1986 (1986-11-19) * the whole document *	1-10	INV. A45D40/26 A46B9/02 A46B3/18
X	FR 2 753 353 A (GIVENCHY PARFUMS [FR]) 20 March 1998 (1998-03-20) * abstract; figures 1-3 *	1	
X	WO 93/16617 A (GEKA BRUSH GEORG KARL GMBH [DE]) 2 September 1993 (1993-09-02) * abstract; figures 1-7 *	1	
X	US 2003/217759 A1 (KEPKA STANLEY W [US]) 27 November 2003 (2003-11-27) * abstract; figure 1 *	1	
D,A	US 5 551 456 A (HARTEL FRANKLIN J [US]) 3 September 1996 (1996-09-03) * the whole document *		
D,A	US 6 481 445 B1 (MIRAGLIA LORETTA A [US]) 19 November 2002 (2002-11-19) * the whole document *		TECHNICAL FIELDS SEARCHED (IPC) A45D A46B
A	GB 320 949 A (WILLIAM JAMES HOBBS) 28 October 1929 (1929-10-28)		
A	US 2 869 160 A (MURCOTT CHARLES E) 20 January 1959 (1959-01-20)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 November 2007	Nicolás, Carlos

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 07 11 3989

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-11-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2174895 A	19-11-1986	NONE	
FR 2753353 A	20-03-1998	WO 9810680 A1	19-03-1998
WO 9316617 A	02-09-1993	DE 4205935 A1	02-09-1993
US 2003217759 A1	27-11-2003	NONE	
US 5551456 A	03-09-1996	NONE	
US 6481445 B1	19-11-2002	AT 273639 T	15-09-2004
		AU 764837 B2	04-09-2003
		AU 3818401 A	20-08-2001
		CA 2399498 A1	16-08-2001
		DE 60104984 D1	23-09-2004
		DE 60104984 T2	18-08-2005
		EP 1257183 A1	20-11-2002
		ES 2225492 T3	16-03-2005
		JP 2003521982 T	22-07-2003
		PT 1257183 T	29-10-2004
		WO 0158309 A1	16-08-2001
GB 320949 A	28-10-1929	NONE	
US 2869160 A	20-01-1959	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 6481445 B, Miraglia **[0005]**
- US 5551456 A, Hartel **[0005]**