



(51) International Patent Classification:

A45D 33/26 (2006.01) B01F 7/00 (2006.01)
A45D 34/00 (2006.01) B01F 13/00 (2006.01)
A45D 40/00 (2006.01) B01F 15/00 (2006.01)
A45D 40/18 (2006.01) A45D 40/24 (2006.01)
B01F 11/00 (2006.01)

(21) International Application Number:

PCT/EP2011/055137

(22) International Filing Date:

1 April 2011 (01.04.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10 52473 1 April 2010 (01.04.2010) FR
61/328722 28 April 2010 (28.04.2010) US

(71) Applicant (for all designated States except US): **L'OREAL** [FR/FR]; 14, rue Royale, F-75008 Paris (FR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **THIEBAUT, Laure** [FR/FR]; 3 Rue Klock, F-92110 Clichy (FR).

(74) Agents: **JACOBSON, Claude** et al.; Cabinet Lavoix, 2, place d'Estienne d'Orves, F-75009 Paris (FR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: COSMETIC PRODUCT MIXER, KIT FOR PREPARING A COSMETIC COMPOSITION AND ASSOCIATED PREPARATION METHOD

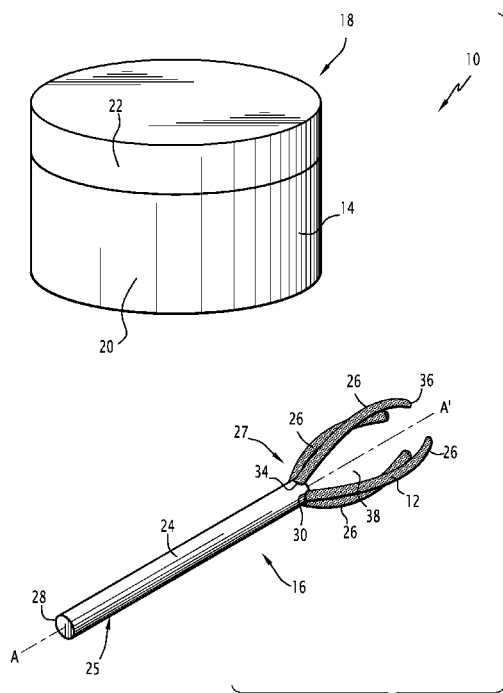


FIG.1

(57) Abstract: This mixer comprises a grasping member (25) and a mixing member (27). The mixing member (27) comprises a rod (24) and two mixing parts (26) projecting radially either side of an axis (A-A') of the rod (24), the mixing parts (26) being separated from each other by an intermediate space (38). The mixer (16) is pre-loaded with a dose of a first cosmetic product (12) over at least part of its outer surface.



Published:

- *without international search report and to be republished
upon receipt of that report (Rule 48.2(g))*

**Cosmetic product mixer, kit for preparing a cosmetic composition
and associated preparation method**

The present invention concerns a mixer for cosmetic products of the type comprising:

- 5 - a grasping member; and
- a mixing member.

The cosmetic products to be mixed are intended to form for example a care cream or a make-up product such as a foundation.

10 A cosmetic product is more generally a product such as defined by Council Directive 93/35/EEC dated 14 June 1993.

To meet the needs of users of cosmetic products, a wide variety of cosmetic compositions are available in relation to the uses thereof, as desired by the user. For example, the user may wish to apply an anti-fatigue cream, a care cream, a moisturizing cream, or an anti-wrinkle, an anti-imperfection, an anti-spot, an astringent or a re-pulping
15 composition without this list being exhaustive.

The cosmetic composition generally comprises a basic cosmetic product and an active product mixed with the basic product. Users who wish to use these different compositions must therefore provide themselves with a large number of containers each containing a different composition, which is cumbersome.

20 Additionally, users are not easily able to adapt the formulation of the cosmetic composition to their desires.

To overcome this problem at least in part, it is known to provide users with a container containing a basic cosmetic product and with doses of an active cosmetic product to be mixed with the basic product to form different types of cosmetic compositions
25 to be applied.

For this purpose, a sachet containing a small quantity of active cosmetic product is supplied to users with a container of larger capacity receiving the basic cosmetic product. To prepare the cosmetic composition, the user must open the sachet then pour it into a dose of basic cosmetic product and mix these together.

30 In one variant described for example in US-3 690 452, a product is placed at one end of a matchstick carried by a holder. When users wish to use the product, they detach the matchstick from the holder and dip the end of the matchstick in a basic product, to prepare a mixture.

However, such kits remain of fastidious use, in particular when the quantity of
35 cosmetic product to be mixed is very small.

FR-2 933 282 describes a cosmetic product dispenser comprising a plurality of accessories mounted end to end.

It is one objective of the invention to obtain a mixer for cosmetic products, which allows the easy preparation of personalized formulations of cosmetic compositions.

5 It is another objective of the invention to obtain a mixer for cosmetic products with which it is possible to obtain a large variety of cosmetic compositions but which takes up little volume.

For this purpose, the subject of the invention is a mixer for cosmetic products of the above-mentioned type, characterized in that the mixing member comprises a rod and two
10 mixing parts projecting radially outwards either side of an axis of the rod, the mixing parts being separated from each other by an intermediate space, the mixer being pre-loaded with a dose of a first cosmetic product over at least part of its outer surface.

The cosmetic product mixer according to the invention may comprise one or more of the following features taken alone or in any technically possible combination:

- 15 - the first cosmetic product is a solid applied to the outer surface of the mixer, advantageously to a mixing part;
- each mixing part is curved;
- each mixing part comprises an end connected to the rod and a free end;
- each mixing part comprises a proximal end connected to the rod and a distal
20 end connected to one of the rod and of another mixing part;
- the rod has a free distal end, each mixing part projecting from the free distal end of the rod, the space between the mixing parts being clear;
- the mixer comprises a plurality of mixing members, each mixing member comprising a rod and two mixing parts projecting either side of an axis of the
25 rod, the mixing parts being separated from each other by an intermediate space, the mixing members being connected to each other via breakable links;
- the grasping member is formed by a proximal part of the rod of the mixing member;
- the grasping member is distinct from the rod of the mixing member;
- 30 - the grasping member comprises a hollow body receiving the mixing member;
- the mixer is pre-loaded with the dose of first cosmetic product by dipping the mixer into the first cosmetic product; and
- the mixer is pre-loaded with the dose of first cosmetic product by dipping the mixer into the first cosmetic product, which is in the form of a powder.

35 A further subject of the invention is a kit for preparing a cosmetic composition, of the type comprising:

- a mixer for cosmetic products comprising :
 - a grasping member;
 - a mixing member comprising a rod and two mixing parts projecting radially either side of an axis of the rod, the mixing parts being separated from each other by an intermediate space, the mixer being pre-loaded with at least one dose of a first cosmetic product or comprising a surface capable of retaining a dose of a first cosmetic product;

the kit further comprising:

- a container containing a second cosmetic product intended to be mixed with the first cosmetic product.

The kit according to the invention may comprise one or more of the following features either taken alone or in any technically possible combination:

- the mixer is pre-loaded with a dose of the first cosmetic product;
- the kit comprises an auxiliary container containing the first cosmetic product;
- the first cosmetic product is solid, the second cosmetic product being fluid,
- the mass of the dose of first cosmetic product is smaller than the mass of second cosmetic product contained in the container;
- the mixer is pre-loaded with the at least one dose of first cosmetic product by dipping the mixer into the first cosmetic product; and
- the first cosmetic product is in the form of a powder.

A further subject of the invention is a method for preparing a cosmetic composition comprising the following steps:

- providing a mixer comprising:
 - a grasping member;
 - a mixing member comprising a rod and two mixing parts projecting either side of an axis of the rod, the mixing parts being separated from each other by an intermediate space, the mixer carrying a dose of a first cosmetic product;
- inserting the mixer into a dose of a second cosmetic product;
- mixing the first cosmetic product with the second cosmetic product by moving the mixer in the second cosmetic product so that the first cosmetic product becomes detached from the mixer and is mixed with the second cosmetic product, the mass of the dose of the first cosmetic product carried by the mixer at the providing step being for example smaller than the mass of the dose of second cosmetic product into which the mixer is inserted at the insertion step;

- the mixer provided at the providing step is pre-loaded with the first cosmetic product over at least part of its outer surface;
- the mixer is pre-loaded with the first cosmetic product by dipping the mixer into the first cosmetic product ; and
- 5 - the providing step comprises the dipping of the mixer, advantageously free of first cosmetic product, into a volume of first cosmetic product, the mixer carrying, after dipping, a dose of the first cosmetic product.

The invention will be better understood on reading the following description given solely by way of example and with reference to the appended drawings in which:

- 10 - Figure 1 is a schematic perspective view of a first kit for preparing a cosmetic composition according to the invention;
- Figure 2 is a side view of the mixer of a second preparation kit according to the invention;
- Figure 3 is a perspective view of the mixer of a third kit according to the invention;
- 15 - Figure 4 is a schematic perspective view of a fourth preparation kit according to the invention;
- Figure 5 is a perspective view of the mixer of a fourth kit according to the invention;
- 20 - Figure 6 is a cross-sectional view along the median axial plane VI in figure 5;
- Figure 7 is a perspective view of a detail of a mixing member of the fourth kit according to the invention;
- Figure 8 is a perspective view of a fifth kit according to the invention;
- 25 - Figures 9 to 12 are perspective views illustrating variants of mixers according to the invention.

In the remainder hereof, the terms « distal » and « proximal » are generally meant to designate the furthest away from the user's hand and the closest to the user's hand.

A first kit 10 according to the invention is illustrated figure 1. This kit 10 is intended for the preparation of a cosmetic composition by mixing a first cosmetic product 12 with a
30 second cosmetic product 14.

The cosmetic composition is for example a care composition intended to be applied to a user's body surface such as the user's skin or keratin fibres.

In this case, the second cosmetic product 14 is advantageously a cream, a liquid or free-flowing powder. The first cosmetic product 12 is advantageously a solid intended to
35 be dispersed and/or dissolved in the second cosmetic product 14.

This solid is for example an active ingredient, such as vitamin C, a freeze-dried active ingredient e.g. plankton or krill, powdered enzymes or proteins, clay powder, anti-oxidants and anti-free radicals, crushed algae.

As a variant, the cosmetic composition is a make-up. In this case, the second cosmetic product 14 is a basic care formulation in the form of a creamy or liquid emulsion, and the first cosmetic product 12 is for example a pigment or an active ingredient intended to be mixed with the basic formula to modify the properties or tint thereof.

With reference to Figure 1, the first kit 10 according to the invention comprises a mixer 16 pre-loaded with a dose of the first cosmetic product 12, and a container 18 containing a dose of a second cosmetic product 14.

The container 18 for example comprises a jar 20 containing the second cosmetic product 14 and a cover 22 removably mounted on the jar 20.

The mixer 16 comprises a rod 24 whose proximal part in this example forms a grasping member 25. The mixer 16 further comprises a plurality of mixing parts 26 which project radially either side of the rod 24.

The rod 24 and the mixing parts 26 therefore form a mixing member 27.

The rod 24 extends along a longitudinal axis A-A' between a proximal end 28 and a distal end 30.

In this example, the mixing parts 26 project radially from the distal end 30 of the rod 24, either side of the axis A-A'. Each mixing part 28 is formed of a curved lug 32 advantageously made in one piece with the rod 24.

The mixing parts 26 distally extend the rod 24, from the distal end 30.

The cross-section of each mixing part 26 is smaller than the cross-section of the rod 24. Each mixing part 26 extends between an end 34 connected to the rod 24 and a free end 36.

In this example, the length of the mixing part 26 taken along axis A-A' is shorter than the length of the rod 24 taken along axis A-A'.

Each mixing part 26 is curved. It is therefore of general C-shape with convexity directed away from the axis A-A', and concavity directed towards the axis A-A'.

The free ends 36 of the mixing parts 26 lie transversally away from the axis A-A'. In this example, the ends 36 are spaced apart.

The mixing parts 26 can be deformed, by bending towards the axis A-A' relative to the rod 24 about their fixed end 34.

The number of mixing parts 26 is two or more, and is advantageously between 2 and 8, more precisely between 3 and 6.

As illustrated Figure 1, the mixing parts 26 delimit between them an intermediate space 38 for mixing the second cosmetic product 14 with the first cosmetic product 12.

In this example, the intermediate space 38 between the mixing parts 26 is fully clear.

5 The dose of the first cosmetic product 12 is pre-loaded on the mixing member 27, in particular on the mixing parts 26 and optionally on the rod 24.

Pre-loading is carried out at the time of manufacture of the device and not by the user at the time of use thereof.

10 For this purpose, in a first embodiment, the outer surface of the mixer 16 to which the first cosmetic product 12 is applied is a rough surface.

The roughness Ra is preferably greater than 1.6 μm with a Charmilles grade for surface finish higher than 24.

15 To pre-load the dose of the first cosmetic product 12, the rough outer surface of the mixer 16 is dipped into a volume of first cosmetic product 12, for example in the form of a powder or liquid. The first cosmetic product 12 mechanically attaches to the rough surface, in particular to the mixing parts 26.

20 According to a second embodiment of the pre-loading, an adhesive material for example glue is arranged on the outer surface of the mixing member 27, in particular on the mixing parts 26 intended to be pre-loaded. When the outer surface is dipped into the product 12, the product 12 adheres by being glued to the outer surface.

25 According to a third embodiment of the pre-loading, the first cosmetic product 12 is made liquid, for example by raising the temperature thereof or by dissolving in a solvent. The mixing parts 26 are dipped into the liquid. The layer of liquid applied to the outer surface then solidifies. A dose of first product 12 is therefore mechanically attached to the outer surface of the mixing member 27.

According to a fourth embodiment of the pre-loading, the surface intended to receive the pre-load is porous and the first cosmetic product 12 is pre-loaded by impregnating the pores defined in the outer surface.

30 In all cases, when the cosmetic product 12 is pre-loaded, it remains substantially attached to the outer surface of the mixer 16 when the mixer 16 is set in movement for example by rotation of the rod 24 about the axis A-A' in a volume of air.

35 By « substantially attached » under the present invention is in particular meant that at least 50 % by mass of the first cosmetic product 12 remains attached to the outer surface of the mixer 16 when the mixer 16 is shaken by hand in air, for example for 10 seconds at the rate of one shake per second.

In the kit 10 of the invention the mass m_1 of the dose of first cosmetic product 12 pre-loaded on the mixer 16 is smaller than the mass m_2 of the dose of second cosmetic product 14 intended to be mixed with the first cosmetic product 12.

Advantageously, the mass m_1 of the dose of first cosmetic product 12 is smaller than 50 %, advantageously smaller than 20 % of the mass m_2 of the dose of second cosmetic product 14, and further advantageously smaller than 1% of the mass m_2 .

A description will now be given of a method for preparing a cosmetic composition using the first kit 10.

Initially, a kit 10 is provided comprising a mixer 16 preloaded with a dose of first cosmetic product 12, and a container 18 containing a dose of second cosmetic product 14.

The container 18 is open so that the second cosmetic product 14 is accessible and a dose can be withdrawn.

The user grasps the grasping member 25 formed by the proximal part of the rod 24 of the mixer 16. Next the mixing parts 26 pre-loaded with the first cosmetic product 12 are placed in the dose of second cosmetic product 14.

The user then moves the mixing parts 26 of the mixer 16 in the second cosmetic product 14 e.g. by driving them in rotation. Having regard to the arched shape and to the arrangement of the mixing parts 26, the first cosmetic product 12 becomes detached from the outer surface of the mixing parts 26, and homogeneously mixes with the second cosmetic product 14.

With the first kit 10, the preparation of the cosmetic composition is therefore made very simple.

Depending upon the type of first cosmetic product 12 pre-loaded on the mixer 16, the user is able to prepare a cosmetic composition which fully meets the desired use thereof.

The mixer 16 of a second kit 50 according to the invention is illustrated figure 2. Unlike the mixer 16 in the first kit 10, the mixing parts 26 comprise a curved proximal section 52 extending axially and transversally away from the rod 24 and a distal section 54 bent towards the rod 24 in the form of a hook.

With this mixer 16, the free end 36 of each mixing part 26 does not form the point that is axially the furthest from the distal end 30 of the rod 24.

The functioning of the second kit 50 is otherwise similar to that of the first kit 10.

The mixer 16 of a third kit 60 according to the invention is illustrated Figure 3.

Unlike the mixer 16 of the first kit, the free ends 36 of the mixing parts 26 are in contact with each other about the axis A-A'.

In addition, the maximum radial extent of the mixing parts 26, taken perpendicular to the axis A-A', is at least twice greater than the maximum transverse extent of the rod 24 and more precisely 4 times greater. Each mixing part 26 comprises a proximal section diverging away from the axis A-A', and a distal section converging towards the axis A-A'.

5 The functioning of the third kit 60 according to the invention is otherwise similar to that of the second kit 50.

A fourth kit 70 according to the invention is illustrated figure 4. Unlike the first kit 10, the mixer 16 of the fourth kit 70 comprises a plurality of mixing members 27 mounted end to end to form a string.

10 The fourth kit 70 further comprises a hollow grasping member 25, distinct from each rod 24, to house the mixing members 27 and a manipulating member 76 to move the mixing members 27 inside the grasping member 25.

As illustrated figure 6, the mixing members 27 are joined end to end by breakable links 78. Each mixing member 27 therefore comprises a rod 24 such as previously
15 described and mixing parts 26 which project radially from the rod 24 delimiting between them an intermediate space 38.

The rod 24 comprises a proximal section 80 joined upstream to the rod 24 of an adjacent mixing member 27 via a breakable link 78A. It comprises a distal section 82 extending in the intermediate space 38 between the mixing parts 26 as far as a breakable
20 link 78B connected to a proximal section of the rod 24 of an adjacent mixing member 27.

Each successive mixing member 27 can be detached from the string of mixing members 27 by breaking the breakable link 78 connecting it to the other mixing members 27, as will be seen below.

Each mixing member 27 is pre-loaded with a dose of first cosmetic product 12 as
25 described above, for example on the mixing parts 26 and optionally on the rod 24.

The cosmetic products 12 may be identical for all the mixing members 27 or they may be different for at least two mixing members 27.

The grasping member 25 comprises a hollow tubular sleeve 84 receiving the string of mixing members 27. In this example it also comprises a proximal plug 86.

30 The sleeve 84 extends along axis A-A'. At its distal end, it opens out through an outlet opening 88 for the mixing members 27. The sleeve 84 is axially closed at its proximal end by the proximal plug 86.

The sleeve 84 innerly delimits a cavity 90 receiving the mixing members 27 and the manipulating member 76, and an axial slot 92 for circulation of the manipulating member
35 76.

The cavity 90 opens out axially through the outlet opening 88 and opens out transversally through the slot 92.

The slot 92 extends longitudinally along the sleeve 84, parallel to axis A-A'. It comprises a central region 93 of substantially constant width and a plurality of pairs of lateral notches 94 located either side of the slot 92, to index the position of the string of mixing members 27 inside the cavity 90.

The manipulating member 76 is joined to the proximal end 96 of a proximal mixing member 27. It comprises a guiding body 98 housed in the cavity and a manipulating button 100 which projects outwardly from the sleeve 84 through the slot 92.

The guiding body 98 has a plurality of bearing surfaces on an inner surface of the sleeve 84 delimiting the cavity 90. Therefore the guiding body 76 is complementarily and slidingly received inside the cavity 90, which prevents transverse movement thereof relative to the axis A-A'.

The button 100 extends axially above the slot 92. It comprises two transverse projections 102 of rice-grain shape located either side of the axis of the slot 92. The projections 102 are designed to engage releasably in each pair of opposite-facing notches 94 to block movement of the string of mixing members 27 temporarily in the cavity 90.

The string of mixing members 27 and the manipulating member 76 can be jointly moved in translation along the axis A-A' inside the cavity 90, between a retracted position, illustrated figure 6, and a plurality of successive deployed positions (not illustrated) in which each successive mixing member 27 projects outside the cavity 90.

In the retracted position, the mixing members 27 are all received inside the cavity 90.

The manipulating member 76 then lies in the vicinity of the proximal end of the sleeve 84 for example, bearing against the proximal plug 86.

In each deployed position, the manipulating member 76 has been moved by sliding in the slot 92 in the direction of the outlet 88, as far as an indexed position in which the transverse projections 102 are received in the notches 94.

In this position, at least one mixing member 27 projects outside the cavity 90 through the outlet opening 88.

Advantageously, the string of mixing members 27 and the manipulating member 76 are made in one piece being moulded together.

The functioning of the fourth kit 70 according to the invention will now be described.

Initially, before using the kit 70, the string of mixing members 27 lies in retracted position within the cavity 90.

When users wish to prepare a cosmetic composition, they take hold of the grasping member 25. They then actuate the manipulating member 76, moving it longitudinally by pushing the button 100 towards the outlet opening 88. This movement of the manipulating member 76 causes the extraction of at least one mixing member 27 outside the cavity 90 through the opening 88.

The rod 24 of this member 27 and the mixing parts 26 loaded with the first cosmetic product 12 then project outside the cavity 90.

Next, users dip the mixing member 27 into a dose of second cosmetic product 14. They move the mixing member 27 in the dose of second cosmetic product 14 which causes detachment of the first cosmetic product 12 carried by the mixing member 27 and mixing thereof with the second cosmetic product 14.

Once the cosmetic composition is prepared, users break the breakable link 78 between the mixing member 27, whose dose of cosmetic product 12 has been mixed with product 14, and the following mixing member 27. At the time of next use, users again move the manipulating member 76 towards the outlet 88 at the distal end of the manipulating member 84 to extract another mixing member 27.

The length of the string of mixing members 27 along axis A-A' decreases.

Figure 8 illustrates a fifth kit 120 according to the invention. Unlike each of the kits 10, 50, 60, 70 illustrated above, the mixer 16 of the fifth kit 120 is devoid of any first cosmetic product 12 before the first use thereof.

The fifth kit 120 comprises an auxiliary container 122 containing the first cosmetic product 12, in addition to the container 18 containing the second cosmetic product 14.

The mixer 16 advantageously has a retaining surface 124 capable of retaining a dose of the first cosmetic product 12.

This surface 124 is for example a rough surface of roughness (Ra) greater than 1.6 μm with a Charmille grade surface finish higher than 24, or an adherent surface.

As a further variant, the surface 124 is a porous surface.

The surface 124 is advantageously located on the mixing parts 26 and optionally on the rod 24.

The functioning of the fifth kit 120 differs from the functioning of kits 10, 50, 60, 70 in that initially the mixer 16 does not carry any first cosmetic product 12.

Users take hold of the grasping member 25 and place the mixing parts 26 in the auxiliary container 122 containing the first cosmetic product 12. The retaining surface 124 is dipped into the first cosmetic product 12, which causes mechanical attachment of a dose of first cosmetic product 12 onto the mixer 16.

The mixer 16 thus carrying the first cosmetic product 12 is then dipped into a dose of second cosmetic product 14 extracted from the container 18 or contained in this container 18.

As described previously, users then move the mixing parts 26, now loaded with the first cosmetic product 12, in the dose of second cosmetic product 14, which causes detachment of the first cosmetic product 12 and mixing thereof with the second cosmetic product 14 to form the cosmetic composition.

The mixer 16 of the fifth kit 120 may be similar to any of the mixers 16 described above for kits 10, 50, 60, 70.

Figures 9 to 12 illustrate variants of mixers which can be used in one of the previously described kits 10, 50, 60, 70 and 120.

The mixer 16 illustrated in figure 9 comprises a longitudinal rod 24 and two mixing parts 26 of semi-torus shape 132 joined to the rod 24 by a common transverse section 130.

The common section 130 is joined to the distal end 30 of the rod 24. Each semi-torus 132 extends substantially over a plane perpendicular to the rod axis A-A'. Each semi-torus 132, together with the common section 130, delimits a central intermediate space 38 that is half-moon shaped.

The mixing parts 26 therefore extend either side of an axial or median plane passing through axis A-A' and through the common transverse section 130.

The mixer 16 illustrated in figure 10 comprises four mixing parts 26. The mixing parts comprise two curved lugs 32 positioned either side of axis A-A' of the rod 24 and two curved lugs 140 positioned in a plane perpendicular to the plane of the lugs 32. The lugs 32 and the lugs 140 form two perpendicular arches.

The mixer 16 illustrated figure 11 comprises two mixing parts 26 which project transversally either side of the axis A-A' of the rod 24. The mixing parts 26 have a width which increases the more they draw radially away from the axis A-A', either side of this axis and as far as a free edge 142. Therefore each mixing part 26 is in the shape of a substantially trapezoid propeller blade in figure 11.

The mixer 16 illustrated figure 12 comprises three mixing parts 26 distributed substantially angularly about the axis A-A'. The mixing parts 26 project radially from the free end 30. In this example, the mixing parts 26 are formed of petals which, when seen in cross-section in an axial plane passing through the axis A-A', draw away from axis A-A' radially and continually as far as their free edges 142, and draw axially away from the free end 30 as far as their free edge 142.

As set forth above, each mixer 16 can be pre-loaded with first cosmetic product 12 at the time of manufacture of the mixer 16, or the cosmetic product 12 can be loaded by the user.

The terms « one », « two » ... etc. are respectively to be construed as « at least one », « at least two » ..., unless indicated to the contrary.

According to the above description, in reference to the appended drawings, the fact that the intermediate space 38 delimited between the mixing parts 26 is clear means that even when the mixer 16 is pre-loaded with the first cosmetic product 12, the first cosmetic product 12 carried by the mixing parts 26 does not bridge the space between any two of the mixing parts 26. In particular, the first cosmetic product 12 does not connect between them any portions of any two mixing parts which are not connected between them in the absence of the first cosmetic product 12.

Advantageously, the word “solid” means that no collapse of the composition is observed when it is outside of a container comprising it, in the absence of a mechanical or thermal stimulation, in particular heating.

In particular, the word “solid” is used to define a composition for which the stress measurement is comprised between 5000 and 50 000 Pascals (N.m^{-2}). The stress measurement is measured at room temperature (20-25°C), after penetration with a flat cylindrical stainless steel spindle of 6 mm (or 12 mm) in diameter, into the matrix of the composition to a depth of 0.4 mm at a speed of 1 mm/s, relaxation for 1 second and removal of said spindle from the matrix of the composition at a speed of 1 mm/s, the stress being measured with a texture analyser of the “TA-XT2” type sold by the company RHEO. The stress is preferably comprised between 10 000 and 40 000 Pa and even more preferably between 15 000 and 35 000 Pa.

In one embodiment, the mixer 16 is pre-loaded with the dose of first cosmetic product 12 by dipping the mixer 16 into a first cosmetic product in the form of a powder mixed with a volatile liquid and by evaporating the liquid, after dipping, in order to leave only the powder attached to the mixer 16. The evaporation is for example obtained by sucking up the liquid.

As explained above, the mixer can be pre-loaded with a dose of a first cosmetic product over at least part of its outer surface by dipping the mixer into the cosmetic product. The first cosmetic product applied to the outer surface of the mixer, advantageously to a mixing part, is a solid.

This solid can be obtained e.g. by dipping the outer surface into a volume of a first cosmetic product in the form of a powder, in the form of a powder mixed with a volatile liquid, or in the form of a liquid which solidifies on the outer surface.

The mixer is then pre-loaded with a solid dose of the first cosmetic product.

CLAIMS

1.- Mixer (16) for cosmetic products, of the type comprising:

- a grasping member (25); and

- a mixing member (27),

characterized in that the mixing member (27) comprises a rod (24) and two mixing parts (26) projecting radially either side of an axis (A-A') of the rod (24), the mixing parts (26) being separated from each other by an intermediate space (38),

the mixer (16) being pre-loaded with a solid dose of a first cosmetic product (12) over at least part of its outer surface by dipping the mixer (16) into the first cosmetic product (12).

2.- Mixer (16) for cosmetic products according to claim 1, characterized in that the dose of first cosmetic product (12) is attached mechanically to the outer surface of the mixing member (27) by solidification of a layer of liquid applied to the outer surface of the mixing member (27).

3.- Mixer (16) for cosmetic products according to claim 1, characterized in that the dose of first cosmetic product (12) is pre-loaded by dipping the outer surface of the mixer (16) into a volume of first cosmetic product (12) in the form of a powder.

4.- The mixer (16) according to any of the preceding claims, characterized in that each mixing part (26) is curved.

5.- The mixer (16) according to any of the preceding claims, characterized in that each mixing part (26) comprises an end (34) connected to the rod (24) and a free end (36).

6.- The mixer (16) according to any of claims 1 to 4, characterized in that each mixing part comprises a proximal end (34) connected to the rod (24) and a distal end (36) connected to one of the rod (24) and of another mixing part (26).

7.- The mixer (16) according to any of the preceding claims, characterized in that the rod (24) has a free distal end (30), each mixing part (26) projecting from the free distal end (30) of the rod (24), the space between the mixing parts (26) being clear.

8.- The mixer (16) according to any of the preceding claims, characterized in that it comprises a plurality of mixing members (27), each mixing member (27) comprising a rod (24) and two mixing parts (26) projecting either side of an axis (A-A') of the rod (24), the mixing parts (26) being separated from each other by an intermediate space (38), the mixing members (27) being connected to each other via breakable links (78).

9.- A kit (10; 50; 60; 70; 120) for preparing a cosmetic composition, of the type comprising:

- a mixer (16) for cosmetic products, comprising:

- a grasping member (25);
- a mixing member (27) comprising a rod (24) and two mixing parts (26)

projecting radially either side of an axis (A-A') of the rod (24), the mixing parts (26) being separated from each other by an intermediate space (38), the mixer (16) being pre-loaded with at least one solid dose of a first cosmetic product (12) by dipping the mixer (16) into the first cosmetic product (12) or the mixer (16) comprising a surface capable of retaining a solid dose of a first cosmetic product (12) ;

the kit further comprising:

- a container (18) containing a second cosmetic product (14) intended to be mixed with the first cosmetic product (12).

10.- A kit (120) according to claim 9, characterized in that it comprises an auxiliary container (122) containing the first cosmetic product (12).

11.- A kit (10; 50; 60 70; 120) according to one of claims 9 and 10, characterized in that the first cosmetic product (12) is solid, the second cosmetic product (14) being fluid.

12.- A kit (10; 50; 60; 70; 120) according to any of claims 9 to 11, characterized in that the mass of the dose of first cosmetic product (14) is smaller than the mass of second cosmetic product (14) contained in the container (18).

13.- A method for preparing a cosmetic composition, comprising the following steps :

- providing a mixer (16) comprising:

- a grasping member (25);
- a mixing member (27) comprising a rod (24) and two mixing members (26)

projecting either side of an axis (A-A') of the rod (24), the mixing parts (26) being separated from each other by an intermediate space (38), the mixer (16) carrying a solid dose of a first cosmetic product (12) ;

- inserting the mixer (16) into a dose of a second cosmetic product (14);

- mixing the first cosmetic product (12) with the second cosmetic product (16) by moving the mixer (16) in the second cosmetic product (14) so that the first cosmetic product (12) becomes detached from the mixer (16) and is mixed with the second cosmetic product (14), the mass of the dose of first cosmetic product (12) carried by the mixer (16) at the providing step being for example smaller than the mass of the dose of second cosmetic product (14) into which the mixer (16) is inserted at the insertion step.

14.- The method according to claim 13, characterized in that the mixer (16) provided at the providing step is pre-loaded with the first cosmetic product (12) over at least part of its outer surface by dipping the mixer (16) into the first cosmetic product (12).

16

15.- The method according to one of claims 13 and 14, characterized in that the providing step comprises the dipping of the mixer (16), advantageously free of first cosmetic product (12), into a volume of first cosmetic product (12), the mixer (16) carrying, after dipping, a solid dose of the first cosmetic product (12).

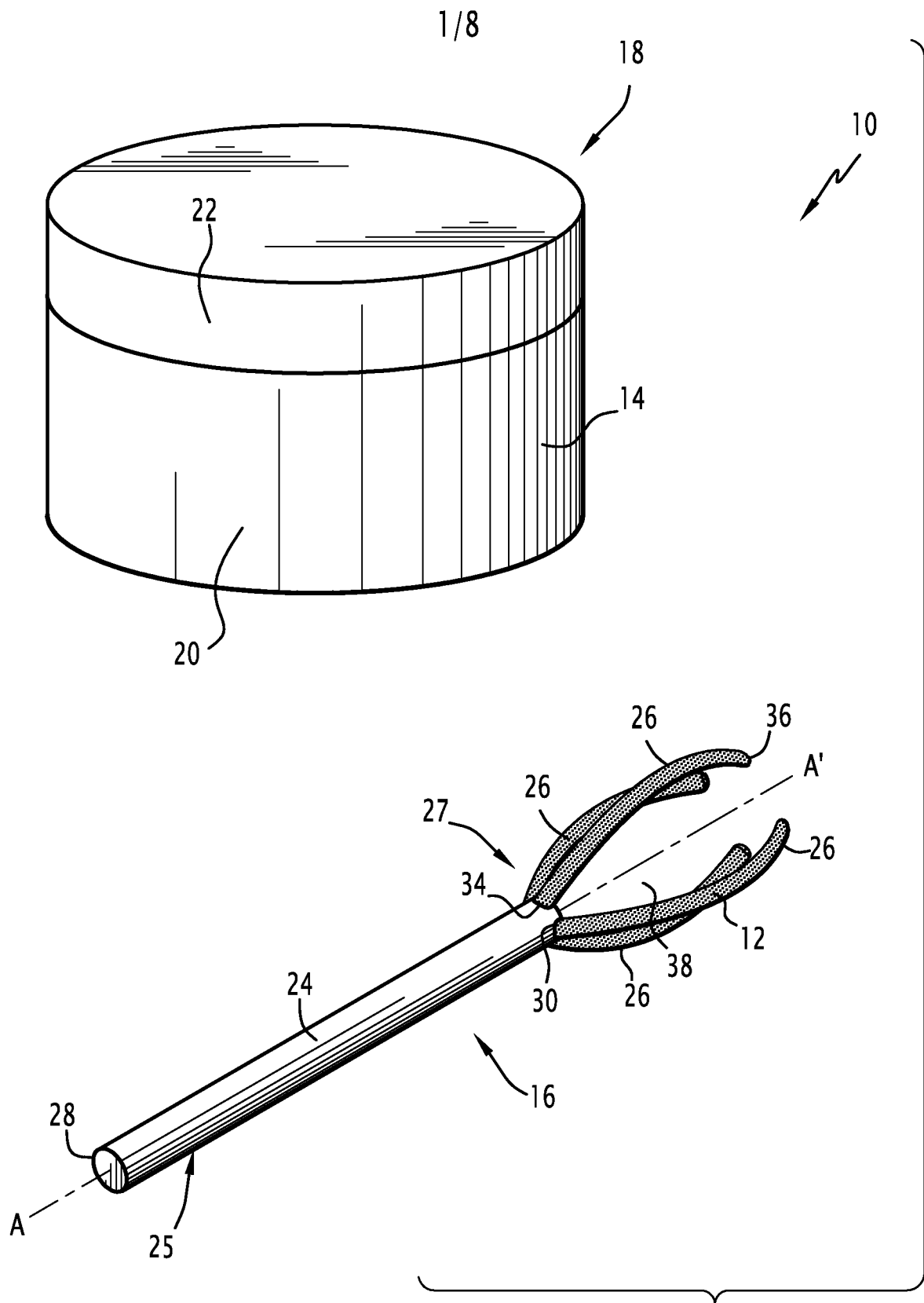
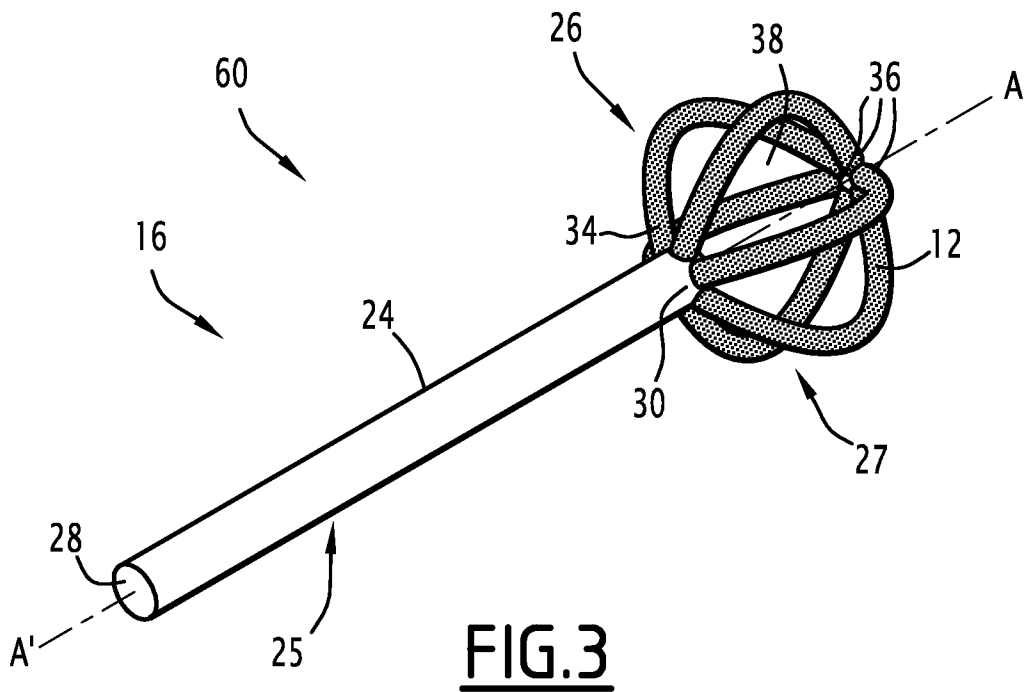
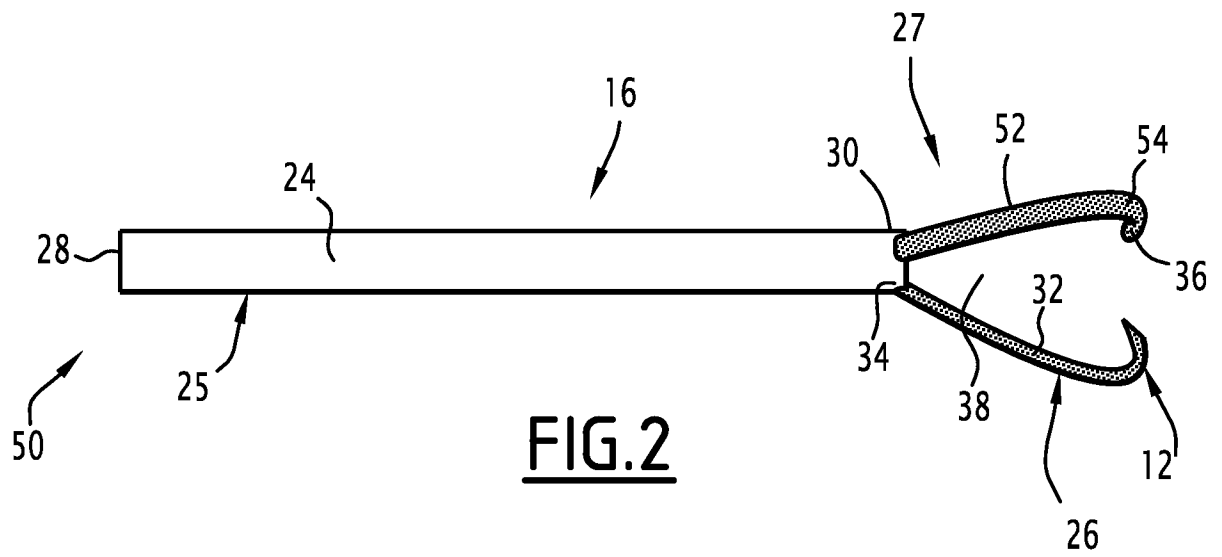


FIG.1

2/8



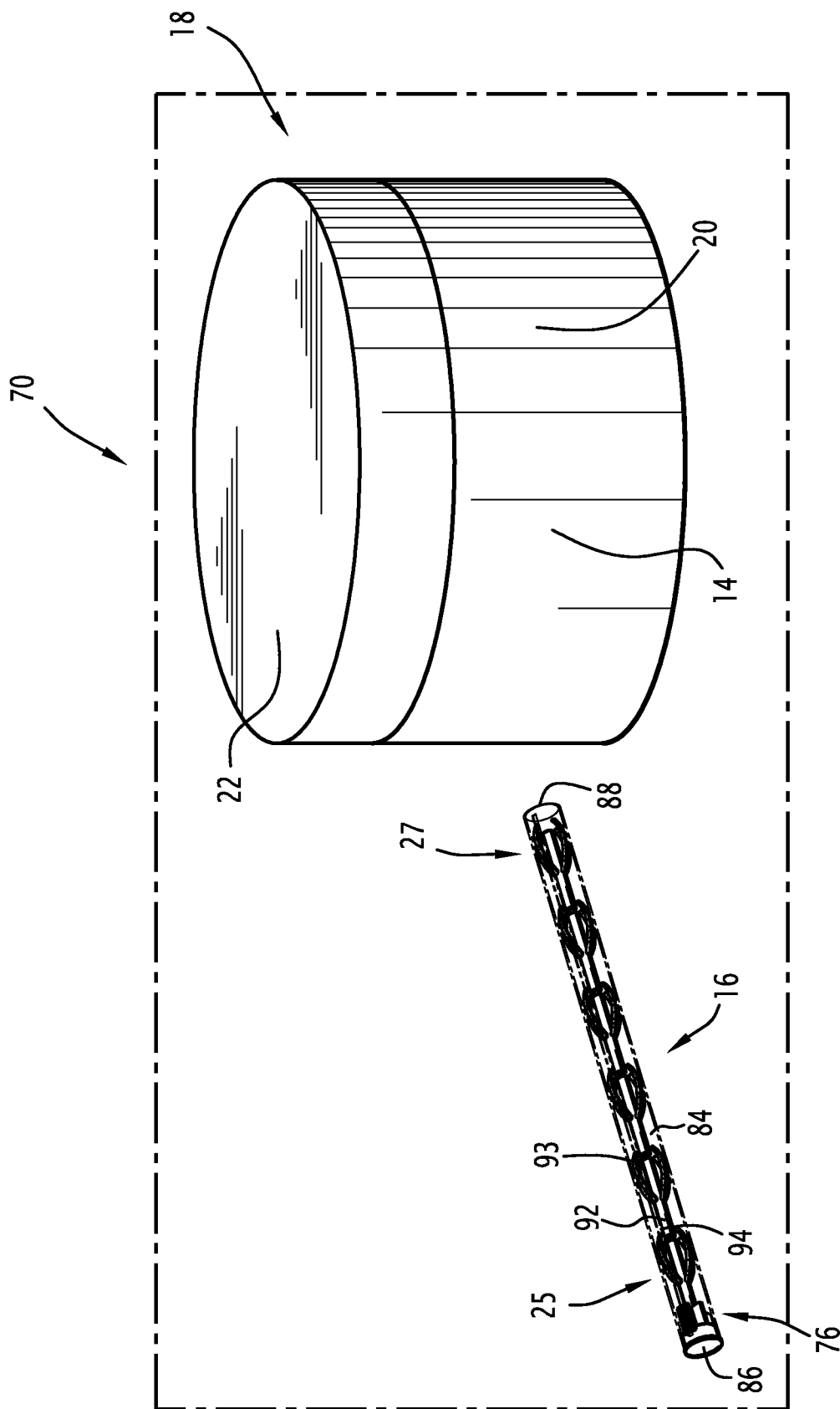
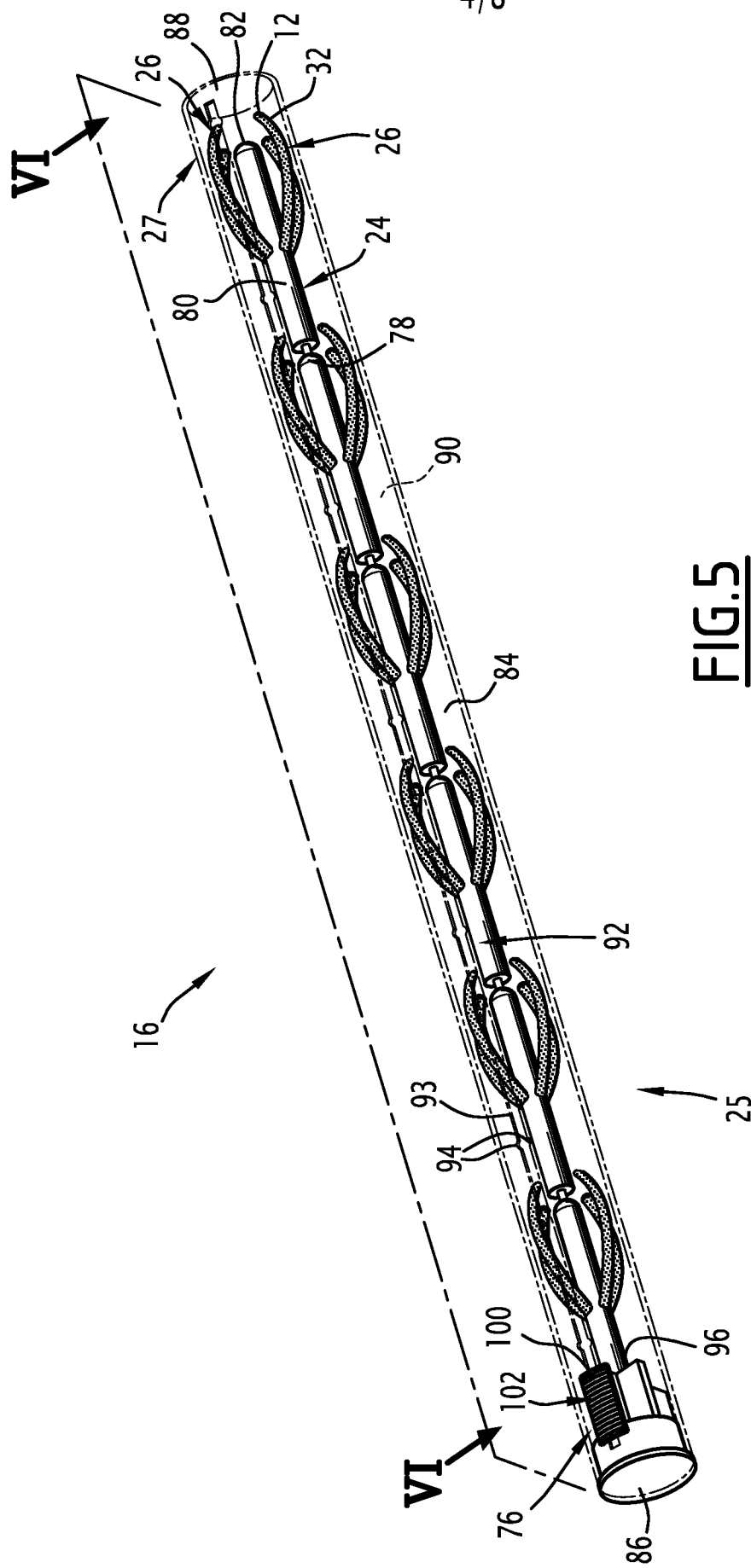


FIG. 4



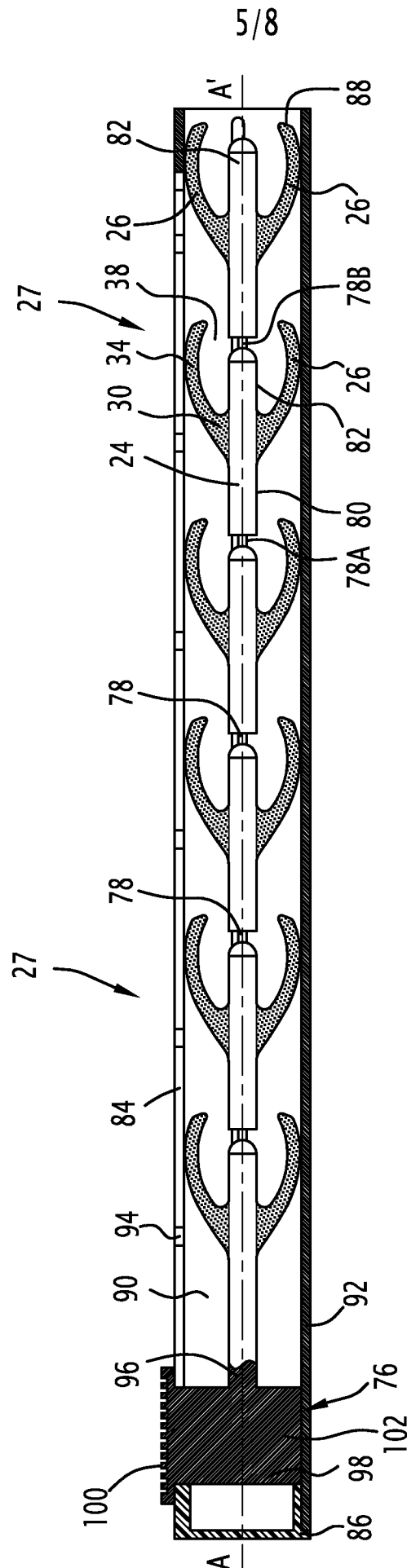


FIG. 6

6/8

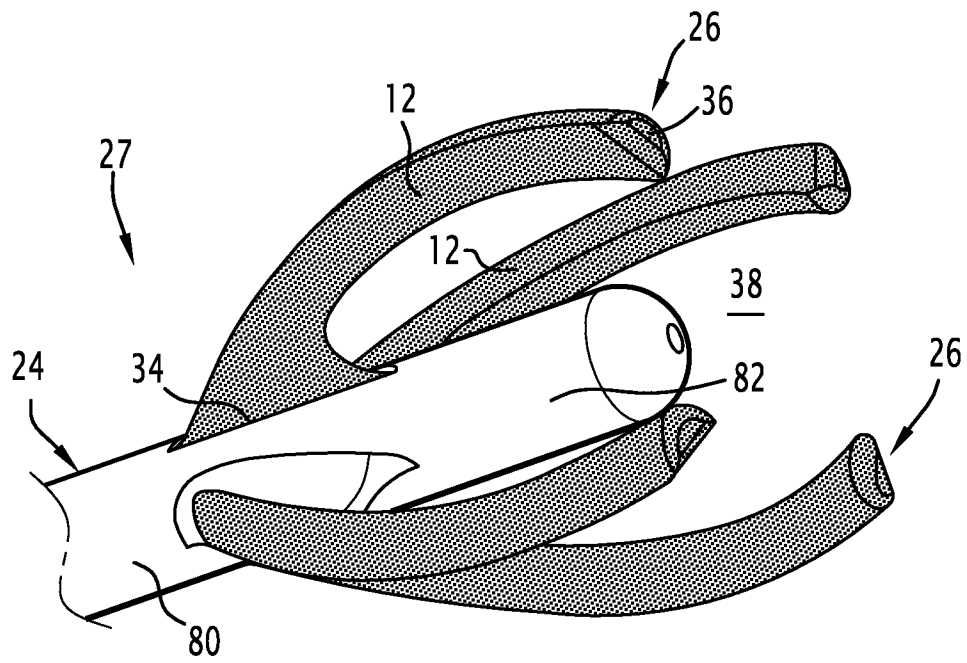


FIG. 7

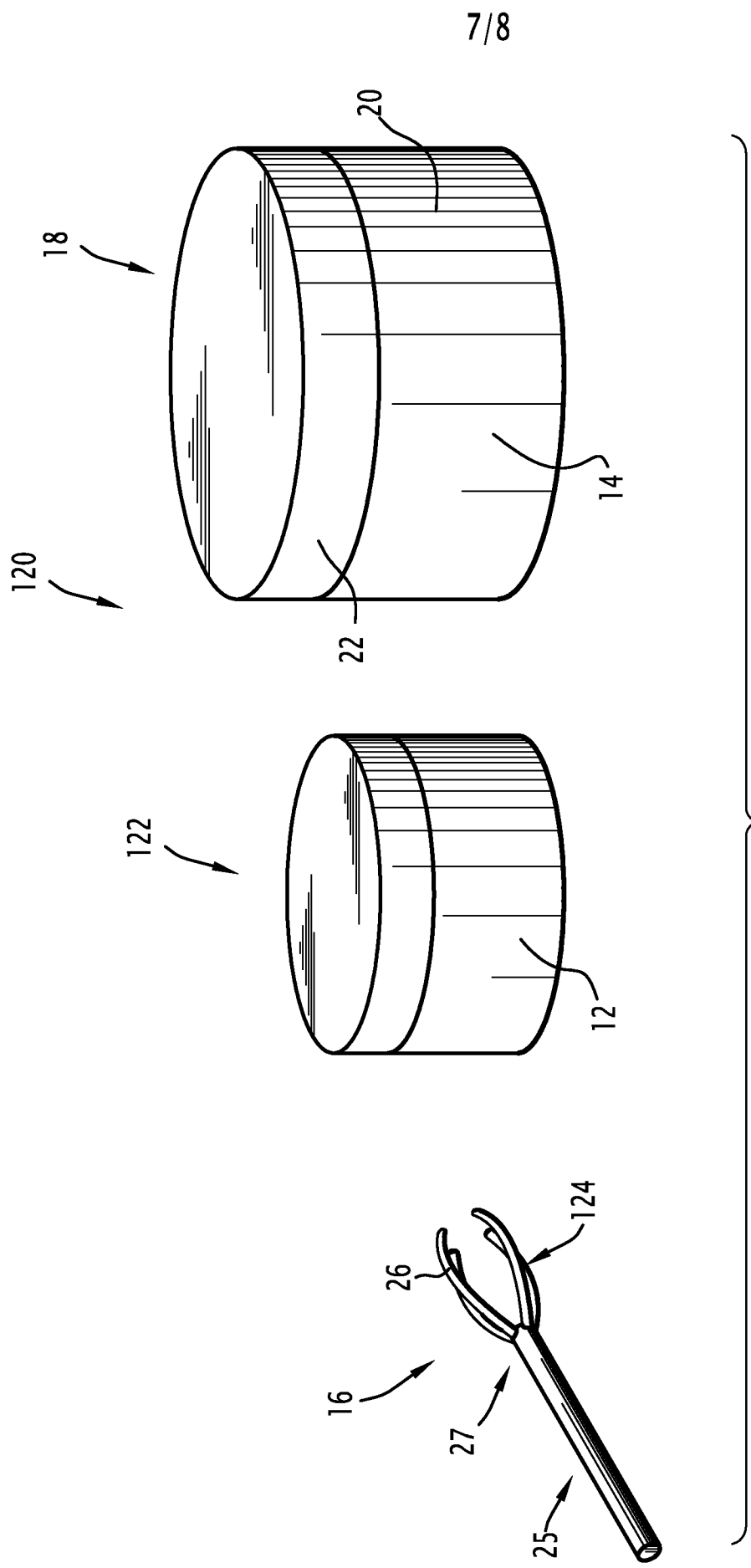


FIG. 8

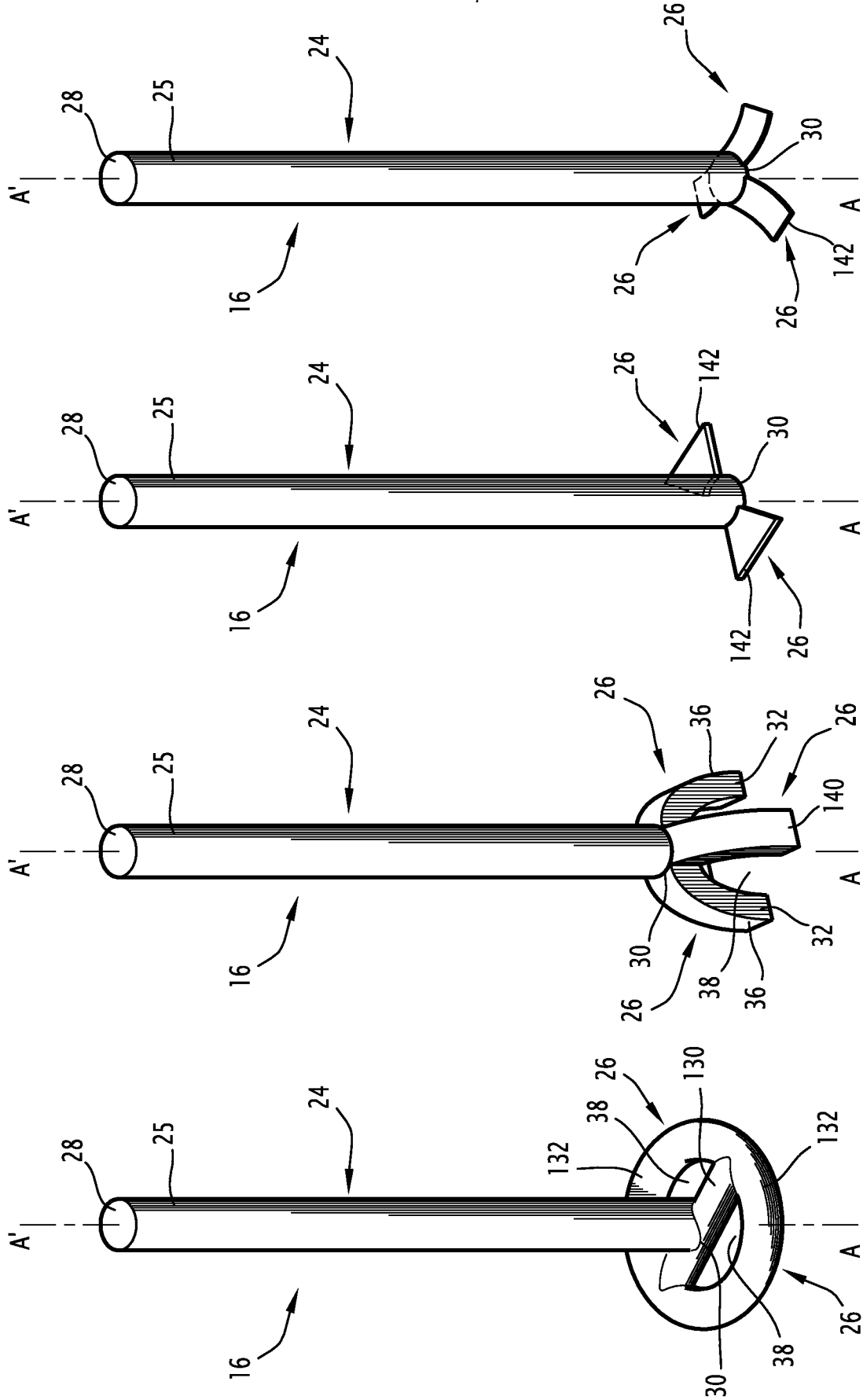


FIG.12

FIG.11

FIG.10

FIG.9