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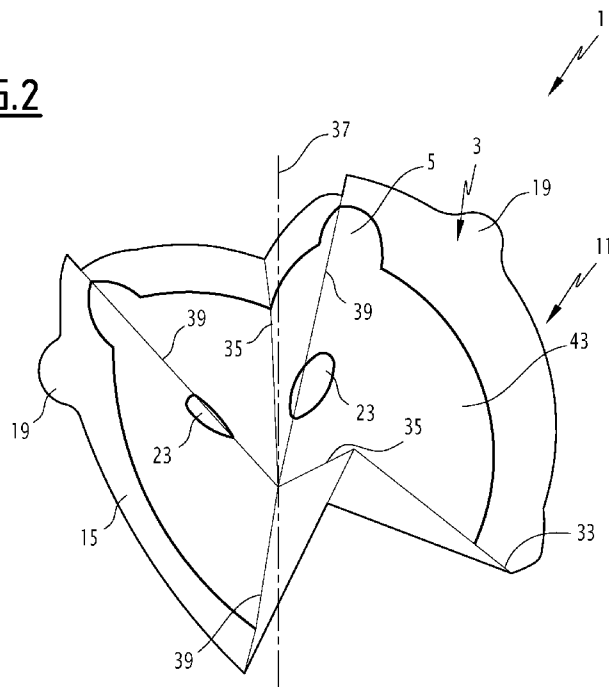
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(54) Title: PRODUCT PACKAGING ARTICLE, RELATED PROCESS FOR MANUFACTURING AND METHOD FOR USING

FIG.2



(57) Abstract: A product packaging article (1) comprising a support layer (3) and a sheet (5) for applying on a body surface of a user, said sheet (5) comprising a product (7) for applying on a body surface of a user and being disposed on the support layer (3). The article (1) is movable between a closed configuration in which the support layer (3) defines an inner space (9) comprising the sheet (5) in a flat folded state and a first open configuration in which the support layer (3) and the sheet (5) define a receptacle (11).

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Product packaging article, related process for manufacturing and method for using

The present invention concerns a product packaging article comprising a support layer and a sheet for applying on a body surface of a user, said sheet comprising a product for applying on a body surface of a user and being disposed on the support layer.

The product held by the sheet is typically a cosmetic product. The cosmetic product is for example a product for care or make up of a body surface of a user, such as the skin or the hair.

The term "cosmetic product" according to the present invention denotes a cosmetic product intended for application onto a human, such as for example a solid, a powder, a liquid or a cream. A "cosmetic product" is more generally a product as defined in EC Regulation N°1223/2009 of the European Parliament and the Council of the November 30, 2009, relating to cosmetic products.

Such article for applying on the body surface of the user is widely used. The efficiency of such article is related to the improved absorption capacity of the cosmetic product through the skin of the user.

Document WO2015001486 discloses an example of article comprising a sheet intended to be applied on the face of the user.

However, such article can be still improved. More particularly, the way to manufacture such kind of article is complex because it requires numerous steps. Moreover, the way to use of such article is not optimal.

One aim of the invention is to obtain an article which is easy to use for the user, easy to manufacture in safe conditions and which can be easily transported and stored without altering the article.

To this aim, the invention relates to a product packaging article wherein the article is movable between a closed configuration in which the support layer defines a inner space comprising the sheet in a flat folded state and a first open configuration in which the support layer and the sheet define a receptacle.

Therefore, the article according to the invention is easy to manufacture because the number of steps for manufacturing is reduced and the receptacle shape prevents from any spillage of the product during the manufacturing and the use of the article.

According to further advantageous aspects of the invention, the article comprises one or several of the following features taken in isolation or in technically possible combination:

According to various embodiments, the sheet and the support layer define a plurality of overlapped folding lines, in the closed configuration. According to various embodiments, the said article as described above further comprises, in the first open configuration, at least an inner fold protruding towards a central axis of the receptacle, along a first folding line, and at least an outer fold protruding away from the central axis of the receptacle, along a second folding line. The article is then easy to open and to close thanks to the folding lines.

According to a variant, the said article as described above is further movable in a second open configuration in which the support layer and the sheet are flat the sheet being unfolded. The second open configuration facilitates the use of the article by the user, allowing placing the article on a flat surface such as a table, before grasping the sheet with the hands.

According to various embodiments, the support layer has a circular outer edge. According to various embodiments, in the closed configuration, the said article has a circular sector shape. The circular shape optimizes the ratio between the necessary quantity of material for manufacturing the article and the maximal extension of the support layer. Moreover, the circular outer shape of the support layer and the circular portion shape of the article in the closed configuration prevent the user from potentially injuring with projecting angles.

According to some embodiments, in the closed configuration, the inner space defined by the support layer is sealed by at least one sealing point and/or at least one sealing line. According to some embodiments, in the closed configuration, the inner space defined by the support layer is fluid tight. The sealing points and/or the sealing bar strengthen the article and prevent the article from opening during the transportation and the storage of the article. They retain the product inside the inner space defined by the support layer. The fluid tightness of the inner space allows preserving the properties of the product present in the sheet (e.g. by avoiding oxidation phenomena).

In a variant, the sheet is applied on the support layer without being fixed by an additive product. This is particularly advantageous because the risks of toxicity due to the use of an additive product (such as a glue) or of interactions between the additive product and the product are excluded.

In another variant, the support layer and/or the sheet comprise at least two gripping lugs protruding at a periphery of said support layer and/or said sheet. The gripping lugs facilitate the use of the product, especially during the opening step by the user and when the user separates the sheet from the support layer in order to apply it on a body surface.

In some embodiments, the body surface on which is applied the article is the face of the user. In some embodiments, the sheet defines at least one opening adapted to be placed in front of a face organ. The sheet is then particularly adapted to fit the shape of the face and to improve the user comfort during the use.

5 In a variant, the sheet is impregnated by the product, in particular a cosmetic product. A high quantity of product can be stored in the sheet and ensure an optimal action of the product on the body surface during all along the use. Moreover, it facilitates the manufacturing because the product is injected on a specific part of the sheet and then impregnates the whole sheet by capillarity.

10 The invention also relates to a process for manufacturing an article comprising the following steps:

- providing a support layer and a sheet for applying on a body surface of a user,
- applying the sheet on the support layer,
- moving the article in a first open configuration by forming a receptacle with the support layer and the sheet,
- 15 - injecting a product inside the receptacle using an injecting means,
- moving the article in a closed configuration in which the support layer defines an inner space comprising the sheet in a flat folded state.

The process is particularly advantageous because the number of steps for manufacturing the article is reduced and any risks of spilling are avoided, due to the receptacle shape of the support layer.

The invention also relates to a method for using a product packaging article comprising the following steps:

- providing an article as described above, in the closed configuration,
- 25 - moving the article at least in the first open configuration,
- applying the sheet on the body surface of a user,
- separating the sheet from the support layer before and/or after applying.

The method for using the article is simple and avoids potential spilling of product when the user opens the article.

30 The invention will be better understood, based on the following description, given solely as an example, and made in reference to the following drawings, in which:

- figure 1 is a schematic representation of the article in an open configuration,
- figure 2 is a schematic representation of the article of figure 1 in an open configuration defining a receptacle,
- 35 - figure 3 is a schematic representation of the article of figure 1 in a closed configuration, and

- figure 4 is a schematic representation of a step of applying the sheet of the article of figure 1 on a face of a user.

A cosmetic article 1 according to the invention is represented in figures 1 to 3 in various configurations.

5 The article 1 comprises a support layer 3 and a sheet 5 removable from the support layer 3 for applying on a body surface of a user. The sheet 5 comprises a product 7 and is disposed on the support layer 3. The article 1 is then movable between a closed configuration (figure 3) in which the support layer 3 defines an inner space 9 comprising the sheet 5 in a flat folded state and a first open configuration (figure 2) in which the
10 support layer 3 and the sheet 5 define a receptacle 11.

The body surface of the user is for example the face 13 as represented in figure 4.

In variant, the body surface of the user is only a part of the face 13 of the user, such as the nose, the forehead or the eyes contours.

15 In another variant, the body surface is any visible or invisible body surface of the user.

When in a flat unfolded state, the support layer 3 has any shape suitable to receive the sheet 5. For example, the support layer 3 has a circular outer edge as represented in figure 1.

The support layer 3 comprises an inner face 15 and an outer face 17.

20 The support layer has a single-layer or a multi-layer structure. A multilayer structure facilitates the creation of a barrier function to oxygen and/or to light, useful for preservation of the product 7. The multilayer structure for example comprises a layer of metal.

25 Preferably, the support layer 3 has a thermoplastic layer on its inner face 15 which comes into contact with the sheet 5. This facilitates the attachment of the sheet 5 onto the support layer 3.

The term "thermoplastic" denotes a material which softens under the effect of heat and which hardens on cooling, in a reversible manner.

30 This thermoplastic material is, for example, a polyolefin, in particular low-density or high-density polyethylene, low-density and high-density polypropylene.

The outer face 17 of the support layer 3 is advantageously defined by a multilayer structure with at least one layer of metal, for example of aluminum. This material may also comprise a layer of a thermoplastic material, for example a non-olefinic material, such as polyester, on which the layer of metal may be deposited.

Advantageously, the support layer 3 is flexible. By “flexible”, it has to be understood that the support layer 3 may be folded or unfolded easily, for example with the hands of the user.

Typically, the outer face 17 of the support layer 3 comprises printed information or drawings, for example useful for the user, such as instructions for use, composition of the product 7 or caution instructions.

Advantageously, the support layer 3 comprises at least two gripping lugs 19 protruding outwards at a periphery of said support layer 3.

For example, the gripping lugs 19 are located such as they overlap when the article 1 is in the closed configuration (figure 3).

The gripping lugs 19 facilitate the opening of the article 1 by the user from the closed configuration to the first open configuration (figure 2).

Advantageously, the gripping lugs 19 define through-openings 21. The through-openings 21 improve the grip of the user during the opening of the article 1.

The sheet 5 has a shape suitable to fit the edges of the body surface on which it is applied.

In the embodiment of figures 1 to 4, the sheet 5 is a facial mask and has a substantially circular outer edge adapted to the face 13 of the user.

In variant, the sheet 5 has an ellipsoidal or a rectangular outer edge.

Advantageously, the sheet 5 defines openings 23 adapted to be placed in front of a face organ. For example, the openings 23 are placed in front of the eyes or in front of the mouth.

The sheet 5 may also defines at least one slot 25, for example adapted to be placed in front of the nose or adapted to be placed around the ears of the user to maintain the sheet 5 on the face 13.

The sheet 5 is here impregnated with the product 7.

The capacity of the sheet 5 to absorb the product 7 may be linked to the use of the article 1 and its destination.

The sheet 5 may be single-layered or have a multilayer structure.

The sheet 5 is typically made of a porous, in particular fibrous, substrate, preferably a nonwoven or a paper.

The term “nonwoven” denotes a substrate comprising fibres arranged in a disordered manner in a structure in the form of a layer and that are neither woven nor knitted. The fibres of the nonwoven are generally bonded together, either under the effect of a mechanical action or under the effect of a thermal action, or by addition of a binder.

A nonwoven is in particular defined by the standard ISO 9092.

The fibres may be of various natures, in particular natural, modified natural, synthetic or artificial natures, alone or as a mixture in any proportions.

The nonwoven fibres preferably contain hot-melt fibres.

The hot-melt fibres are for example polyolefin fibres, such as polyethylene (PE), polypropylene (PP) or polyethylene terephthalate (PET) fibres or acrylic fibres such as polymethyl methacrylate (PMMA) fibres, polyurethane fibres or fibres of the following thermoplastics: polyvinyl chloride (PVC), styrene polymers (for example polystyrene PS, expandable polystyrene EPS, acrylonitrile-butadiene-styrene terpolymer ABS, styrene-acrylonitrile copolymer SAN, styrene-butadiene copolymer SB), polyamides (PA), polycarbonates (PC), saturated polyesters (for example polyethylene terephthalate glycol PETG, polybutylene terephthalate glycol PBTG), polyacetals (for example polyoxymethylene POM, trioxane-ethylene oxide copolymer), polyvinyl alcohol (PVA), or else fluoropolymers (for example polytetrafluoroethylene PTFE, polyvinylidene fluoride PVDF, polychlorotrifluoroethylene PCTFE).

The other optional fibres constituting the nonwoven are for example synthetic fibres derived from petroleum derivatives, natural fibres derived from plants or animals, and/or modified natural fibres, derived for example from treatment or regeneration processes in order to form fibres.

Advantageously, the sheet 5 comprises at least two gripping lugs 27 protruding outwards at a periphery of said sheet 5.

The gripping lugs 27 facilitate the grip of the sheet 5 by the user when it is detached from the support layer 3 and facilitates the step for positioning the sheet 5 onto the face 13 of the user.

Advantageously, the sheet 5 is applied on the support layer 3 without being fixed by an additive product, such as glue.

The sheet 5 is typically maintained onto the support layer 3 by surface tension phenomena due to the physical and chemical properties of the product 7.

The sheet 5 is then able to stay fixed onto the support layer 3 whatever the configuration of the article 1.

Advantageously, the sheet 5 is stretchable. Then, the sheet 5 fits better the contours of the body surface.

The product 7 may be of any type and in particular be for cosmetic, dermatological or other use.

Preferably, the product 7 is for cosmetic or dermatological use.

The product 7 is preferably in a liquid form inside the container, but as a variant, the product 7 may be in another form, such as a dry or gelled form.

The product 7 may comprise an aqueous or alcoholic solvent. The product 7 may be a make-up, cleansing or care product.

Advantageously, the article 1 is movable between the closed configuration, the first open configuration and a second open configuration (figure 1) in which the support layer 3 and the sheet 5 are substantially flat.

The passage between the various configurations is operated by at least a step for folding/de-folding.

Typically, the support layer 3 and the sheet 5 define a plurality of folding lines 29, 31.

Typically, the support layer 3 and the sheet 5 define similar and aligned folding lines 29, 31.

In the embodiment represented in figure 1, the support layer 3 and the sheet 5 defines six folding lines 29, 31.

For example, the folding lines 29, 31 comprise a common intersection point substantially located for example in the center of the support layer 3 and of the sheet 5.

The folding lines 29, 31 define a plurality of portions 33 of the support layer 3 and of the sheet 5.

In the first open configuration (figure 2), the article 1 comprises two inner fold 35 protruding towards a central axis 37 of the receptacle 11, along two first folding lines 29, and four outer fold 39 protruding away from the central axis 37 of the receptacle 11, along four second folding lines 31.

The receptacle 11 defines the inner space 9 extending around the central axis 37. The inner space 9 expands from the bottom to the top of the article 1. The inner space 9 is opened on a top part.

The portions 33 of the support layer define a side wall 43 of the receptacle around the central axis 37.

The receptacle 11 totally contains the sheet 5 and the product 7.

The inner space 9 is delimited by at least a part of each portion 33 of the support layer 3.

The side wall 43 has a closed peripheral surface having a closed bottom.

At least an intersection between the closed peripheral surface and a plane perpendicular to the axis 37 defines a closed contour line.

Preferentially, all intersections between the closed peripheral surface and each plane perpendicular to the axis 37 from the bottom to a height of at least 50% of the maximum height of the article 1 in the first configuration define a closed contour line.

For example, in the closed configuration, the article 1 has a circular sector shape as represented in figure 3.

In the closed configuration, the article 1 has a flat shape, adapted to optimize the storage of the article 1.

Typically, at least two folding lines 31 overlap in the closed configuration. The inner space 9 has a volume smaller in the closed configuration than in the first opened configuration.

In the closed configuration, shown in figure 3, the article 1 comprises a sealing line 45 closing the inner space 9.

For example, the sealing line 45 is curved as represented in figure 3.

Typically, the sealing line 45 extends from a first side 47 to a second side 49 of the article 1 in the closed configuration along an external edge of the support

Advantageously, the inner space 9 defined by the support layer 3 in the closed configuration is fluidtight. The sheet 5 inside the inner space 9 is then prevented from desiccation and oxidation interactions with the environment of the article 1.

In the closed configuration, shown in figure 3, the article 1 also comprises sealing dots 51, for example placed on a periphery of the article 1.

By "dot", it is understood that the sealed surface of the support layer 3 for one dot 51 is for example comprised between 0.1 mm² and 100 mm², preferably between 0.1 mm² and 10 mm².

In the embodiment represented in figure 3, the article comprises four sealing dots 51 placed at a periphery of the article 1, symmetrically about the gripping lugs 19 of the support layer 3.

The sealing dots 51 improve the resistance of the article 1, especially during the transportation and the handling of the article 1. The sealing dots 51 act as a security to prevent any incidental tear of the sealing line 45.

Typically, in the closed configuration, the inner space 9 is sealed without a cold-contact pressure-sensitive adhesive substance, such as a glue.

Advantageously, the sealing dots 51 and the sealing line 45 are respectively welding dots and welding line.

The term "welding" denotes an attachment by melting at least one material, locally. The melting may be carried out with, in particular, an ultrasonic welding process or a process of thermal welding by conduction or convection, and more generally by any process that makes it possible to generate complete or partial melting of the hot-melt compound(s) of the support layer 3, optionally with the presence of a hot-melt adhesive on the support layer 3.

In a variant, the inner space 9 is sealed with a cold-contact pressure-sensitive adhesive substance, such as a glue.

A process for manufacturing an article 1 is now described.

The process comprises a step for providing a support layer 3 and a sheet 5 for applying on a body surface of a user.

The support layer 3, the sheet 5 and the body surface are for example as described above.

The process then comprises a step for applying the sheet 5 on the support layer 3.

Advantageously, the application step is made without using an additive product to fix the sheet 5 on the support layer 3.

The process then comprises a step for forming folding lines 29, 31 on the support layer 3 and the sheet 5.

Typically, the step for forming folding lines 29, 31 comprises forming at least one first folding line 29 intended to form an inner fold 35 and at least a second folding line 31 intended to form an outer fold 39, in the first open configuration.

The process thereafter comprises moving the article 1 in a first open configuration by forming a receptacle 11 with the support layer 3 and the sheet 5.

Advantageously, the moving step is made by folding the support layer 3 and the sheet 5.

In reference to figures 1 and 2, during the moving step, the two inner folds 35 get closer symmetrically to the central axis 37. The portions 33 then form the receptacle 11 as defined above.

The process then comprises a step for injecting a product 7 inside the receptacle 11 using an injecting means (not represented).

Typically, the product 7 is injected in the center of the receptacle 11. In reference to figure 2, the product 7 is injected next to the central axis 37 of the receptacle 11.

The product 7 is for example injected inside the receptacle 11 through a filling nozzle. The filling nozzle is placed above or inside the opened inner space 9 to deliver the product 7.

Typically, the process comprises a step for impregnating the sheet 5 with the product 7 by capillarity.

The process then comprises a second moving step for moving the article 1 in a closed configuration in which the support layer 3 defines an inner space 9 comprising the sheet 5 in a flat folded state.

The process further comprises a step for sealing the article 1 by welding or using a cold-contact pressure-sensitive adhesive substance, such as a glue, as described above.

The sealing step advantageously comprises a first sub-step in which the article 1 is sealed by a sealing line 45 and then a second sub-step in which the article 1 is sealed by at least one sealing dot 51 at a periphery of the article 1.

Finally, the process may comprise a step for printing information on the article 1 or applying a sticker on the article 1.

In a variant, the step for printing information or for applying a sticker is made before the first moving step.

A method for using an article 1 by a user is now described.

The method comprises a step for providing an article 1 as described above in the closed configuration.

The method then comprises moving the article 1 in the first open configuration.

In reference to figure 3, the moving step comprises a step for gripping the gripping lugs 19 of the support layer 3 and then separating the two gripping lugs 19 by moving them away in an opposite direction.

Then, the moving step may comprise a step for tearing off the sealing dots 51 and/or the sealing line 45.

In reference to the embodiment of figure 3, the moving step comprises a step for tearing the two sealing dots 51 located next to the gripping lugs 19. Then, the method comprises a step for tearing the curved sealing line 45. Then, the method comprises a step for tearing off the two other sealing dots 51 located in two corners of the article 1.

The method comprises a step for moving the article 1 in a second open configuration in which the support layer 3 and the sheet 5 are flat. The method then may comprise placing the article 1 of a flat surface, such as a table.

Typically, the method then comprises a step for gripping the sheet 5 from the support layer 3 by the user.

Advantageously, the gripping step comprises a sub-step for grasping the gripping lugs 27 of the sheet 5. The sheet 5 is then removed from the support layer 3.

Finally, the method comprises a step for placing the sheet 5 on the body surface of user (figure 4).

In a variant, the article remains in the first open configuration wherein the support layer 3 and the sheet 5 define a receptacle 11 as described above.

In variant, in the second open configuration, the support layer 3 and the sheet 5 are in an expanded configuration in which the support layer 3 and the sheet 5 have a stable tridimensional conformation, typically due the material used for the support layer 3 and/or the sheet 5.

The article 1 according to the invention comprises numerous advantages especially for the manufacturing and for the use.

The number of steps for manufacturing the article 1 is reduced and spillage of product 7 is prevented as well during the manufacturing step as during the using step, due to the receptacle shape of the article 1 in the first open configuration.

The properties of the sheet 5 are preserved inside the inner space 9 and the article 1 can be safely handled and transported.

Moreover, the absence of additive product, such as a glue, between the sheet 5 and the support layer 3 decreases the risks of toxicity and of interactions between the additive product and the product 7.

CLAIMS

1.- A product packaging article (1) comprising a support layer (3) and a sheet (5) for applying on a body surface of a user, said sheet (5) comprising a product (7) for applying on a body surface of a user and being disposed on the support layer (3), wherein the article (1) is movable between a closed configuration in which the support layer (3) defines a inner space (9) comprising the sheet (5) in a flat folded state and a first open configuration in which the support layer (3) and the sheet (5) define a receptacle (11).

2.- The article (1) according to claim 1, wherein the sheet (5) and the support layer (3) define a plurality of overlapped folding lines (31), in the closed configuration.

3.- The article (1) according to claim 2, further comprising, in the first open configuration, at least an inner fold (35) protruding towards a central axis (37) of the receptacle (11), along a first folding line (29), and at least an outer fold (39) protruding away from the central axis (37) of the receptacle (11), along a second folding line (31).

4.- The article (1) according to any one of claims 1 to 3, is further movable in a second open configuration in which the support layer (3) and the sheet (5) are flat the sheet (5) being unfolded.

5.- The article (1) according to any one of claims 1 to 4, wherein, the support layer (3) has a circular outer edge.

6.- The article (1) according to any one of claims 1 to 5, wherein, in the closed configuration, the article (1) has a circular sector shape.

7.- The article (1) according to any one of claims 1 to 6, wherein, in the closed configuration, the inner space (9) defined by the support layer (3) is sealed by at least one sealing point (51) and/or at least one sealing line (45).

8.- The article (1) according to any one of claims 1 to 7, wherein in the closed configuration, the inner space (9) defined by the support layer (3) is fluidtight.

9.- The article (1) according to any one of claims 1 to 8, wherein the sheet (5) is applied on the support layer (3) without being fixed by an additive product.

10.- The article (1) according to any one of claims 1 to 9, wherein the support layer (3) and/or the sheet (5) comprise at least two gripping lugs (19, 27) protruding at a periphery of said support layer (3) and/or said sheet (5).

5 11.- The article (1) according to any one of claims 1 to 10, wherein the body surface on which is applied the article (1) is the face (13) of the user.

12.- The article (1) according to claim 11, wherein the sheet (5) defines at least one opening (23) adapted to be placed in front of a face organ.

10 13.- The article (1) according to any one of claims 1 to 12, wherein the sheet (5) is impregnated by the product (7), in particular a cosmetic product.

14.- Process for manufacturing a product packaging article (1), said process comprising:

- 15
- providing a support layer (3) and a sheet (5) for applying on a body surface of a user,
 - applying the sheet (5) on the support layer (3),
 - moving the article (1) in a first open configuration by forming a receptacle (11) with

20 the support layer (3) and the sheet (5),

 - injecting a product (7) inside the receptacle (11) using an injecting means,
 - moving the article (1) in a closed configuration in which the support layer (3) defines an inner space (9) comprising the sheet (5) in a flat folded state.

25 15.- Method for using a product packaging article (1) comprising:

- providing an article (1) according to any one of claims 1 to 13, in the closed configuration,
- moving the article (1) at least in the first open configuration,
- applying the sheet (5) on the body surface of a user,

30 - separating the sheet (5) from the support layer before and/or after applying.

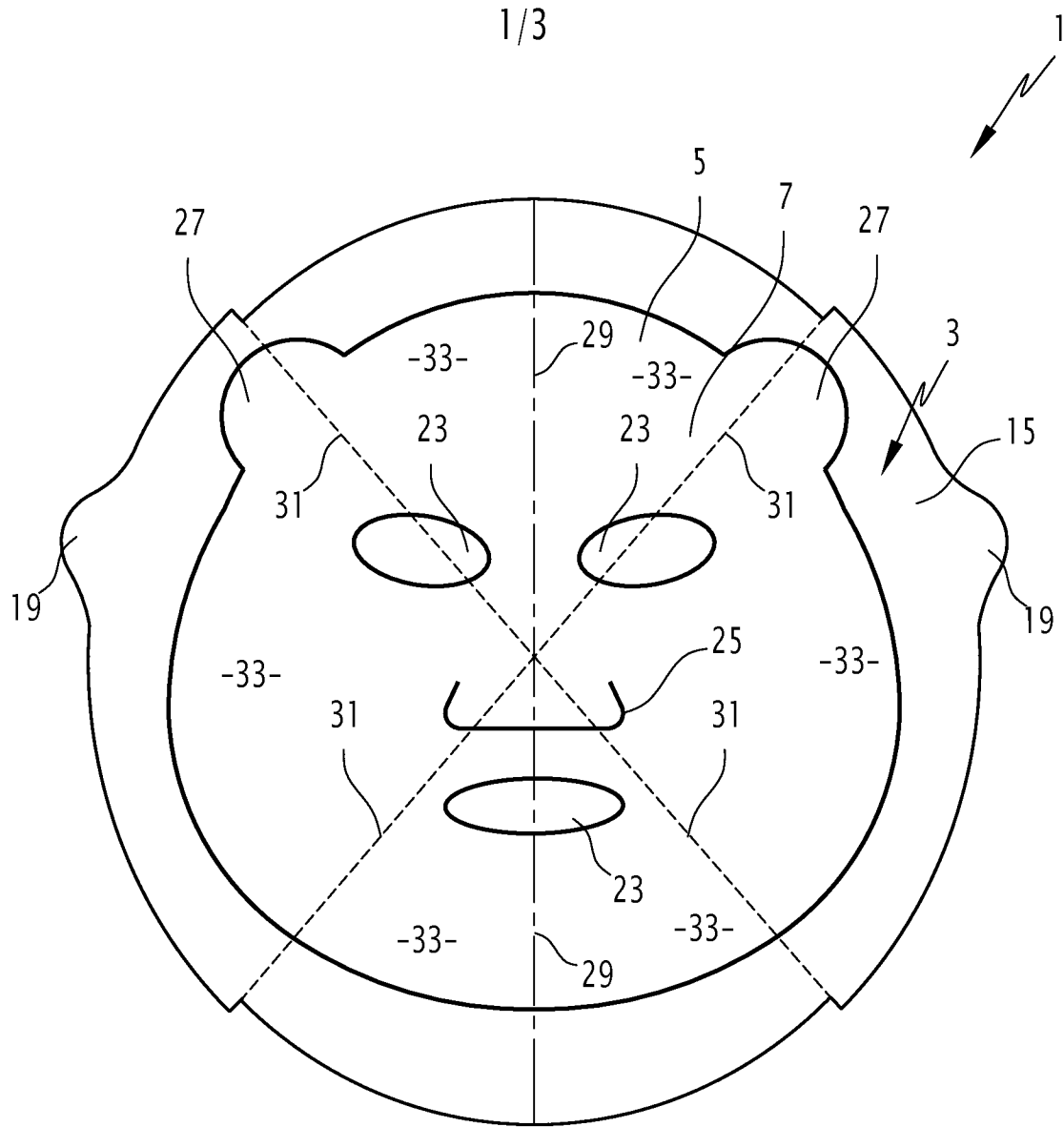


FIG.1

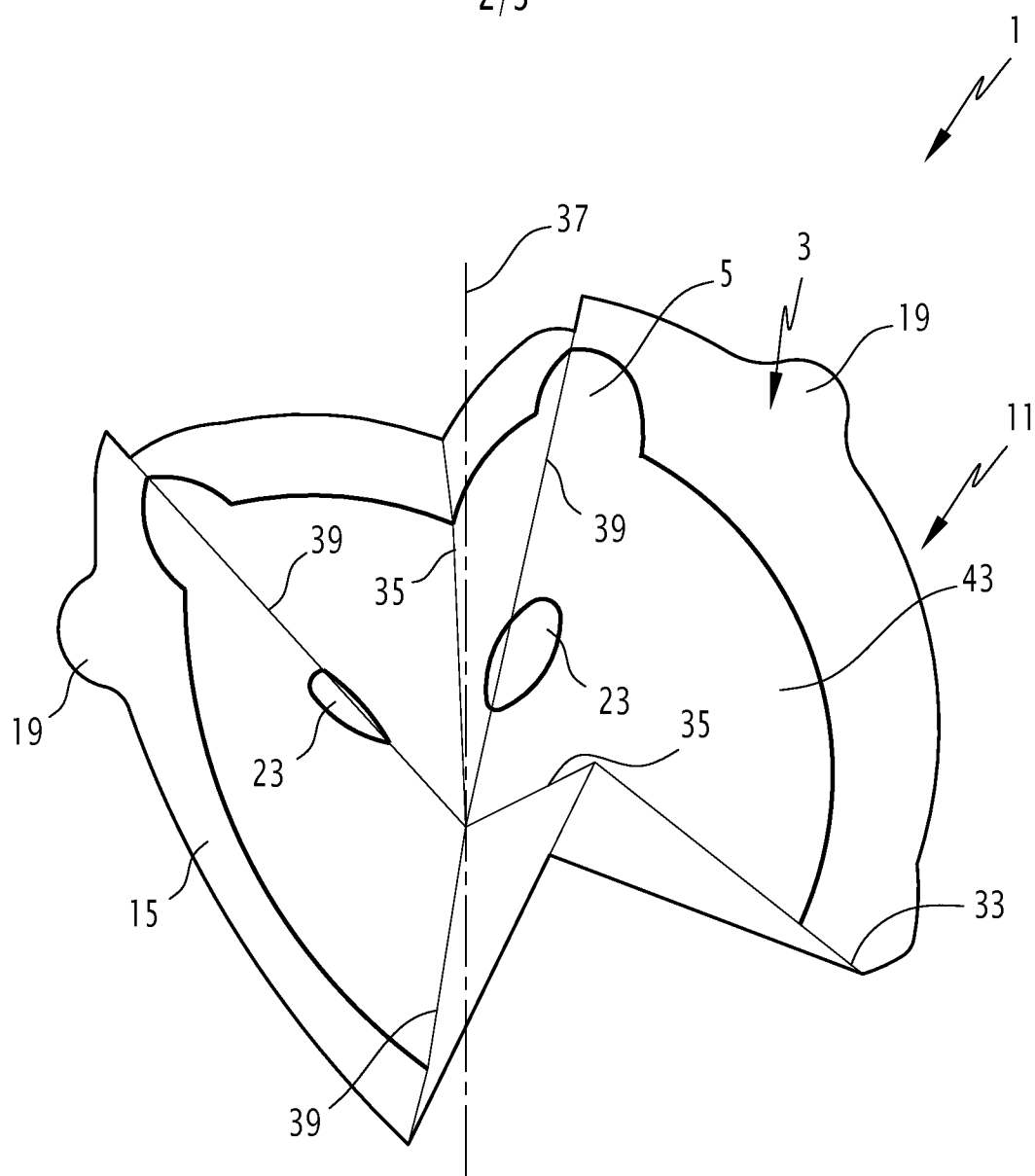


FIG.2

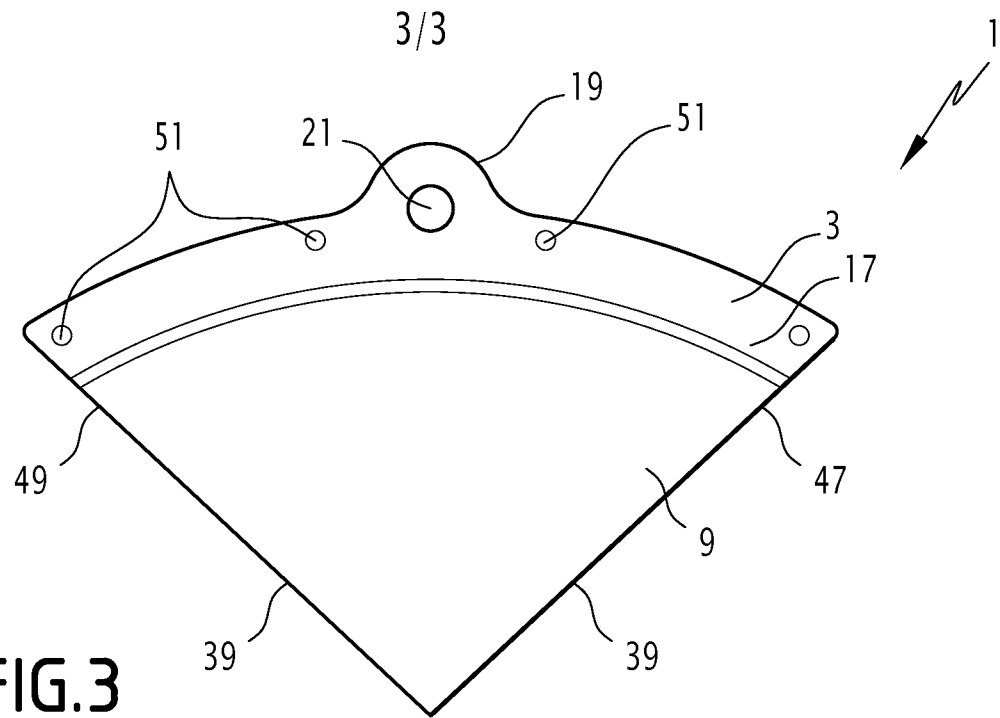


FIG.3

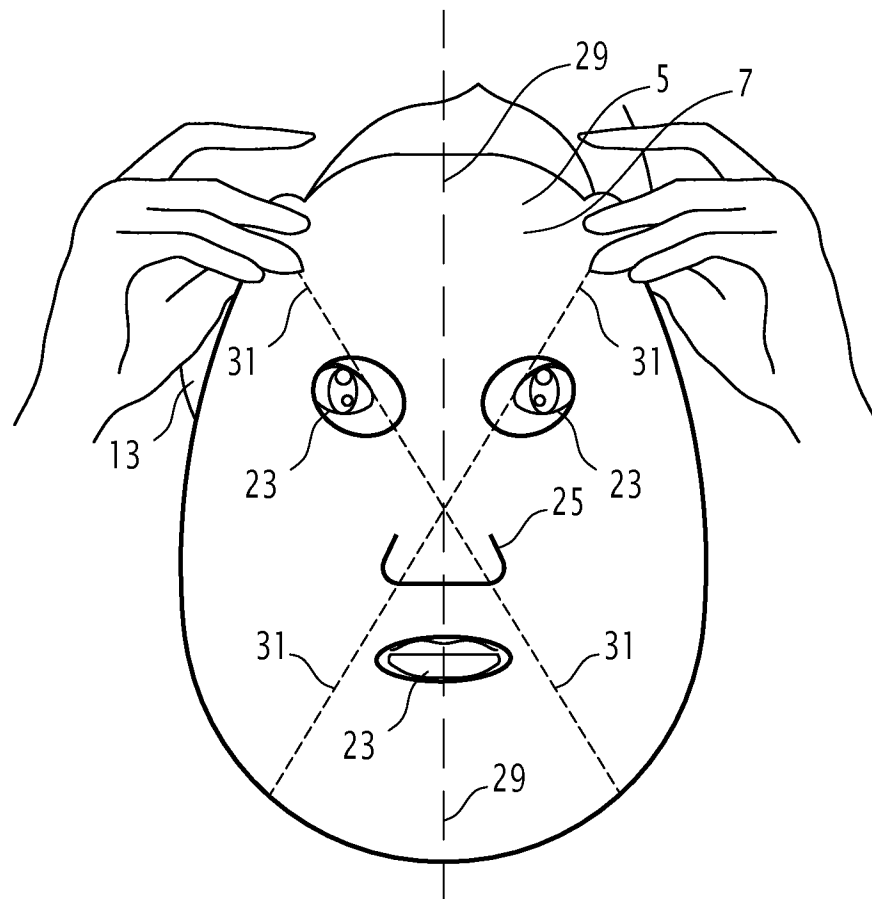


FIG.4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2017/103780

A. CLASSIFICATION OF SUBJECT MATTER

B65D 75/04(2006.01)i; A45D 44/22(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D; A45D

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CNABS, DWPI, SIPOABS, CNTXT, USTXT, EPTXT, CNKI, Google scholar, Patentics: cosmetic, mask, receptacle, container, fold+, package+, spill+, layer, sheet, stor+, transport+, +flap

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2016167856 A1 (L'OREAL) 16 June 2016 (2016-06-16) paragraphs [0099]-[0130] and figures 11,13A-13F	1-15
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Further documents are listed in the continuation of Box C.



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Date of the actual completion of the international search

23 May 2018

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INTERNATIONAL SEARCH REPORT
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