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(54) Method for accurately depositing a relatively small amount of a lip product on an applicator for containing said lip product

(57) Method for depositing a relatively small amount of semi-solid lip product (8) which is meltable by heat and which is non flowable at room temperature, comprising a thin flexible sheet-like support (1) with a lip product area (4), comprising an interconnected open channel structure therein, which is formed by channel forming elements (6), like for example small projections and/or cut-outs,
at least comprising the steps of

- depositing the necessary amount of lip product in the lip product area (4), the circumference of which comprises a raised edge (7) accurately delimiting said area (4), having such dimensions that it can at least accommodate the intended thickness of the lip product (8) to be deposited,
- subjecting the the lip product (8) to a heat treatment, such that all of the lip product (8) is heated to above the melting point thereof.
- cooling the assembly of applicator and lip product (8).

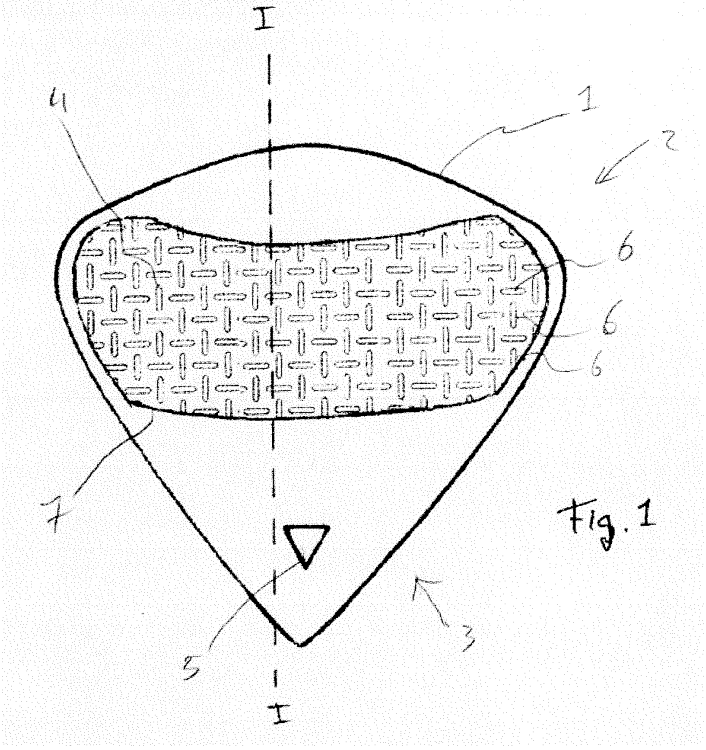

Fig. 1

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Description

[0001] The present invention relates to a method for depositing a relatively small amount of semi-solid lip product which is meltable by heat and which is non flowable at room temperature on an applicator for containing said lip product, said applicator comprising a thin flexible sheet-like support with a surface with a lip product area which is designed to comprise the lip product, said lip product area comprising an interconnected open channel structure therein, which is formed by channel forming elements, like for example small projections and/or cutouts, in the surface thereof,
at least comprising the steps of

- depositing the necessary amount of lip product in the lip product area,
- subjecting the lip product to a heat treatment,
- cooling the assembly of applicator and lip product.

[0002] Such a method is known from US-A- 4 995 408. In this document semi solid cosmetic material is printed on a sheet-like carrier with a subsequent surface heat treatment to melt the amorphous surface of the cosmetic product to harden the surface thereof. The applicator comprises a base support which may have projections extending through the layer of cosmetic material. An example of cosmetic material in this document is lipstick.

[0003] In the prior art a variety of methods is known for depositing a variety of lip products on a variety of applicators. Said applicators ranging from relatively thin sheet-like supports to more rigid stick like applicators. All intended to contain and apply said lip product.

[0004] Lip products are usually quite vulnerable products which are easily smeared or otherwise deformed even when still residing in the respective package thereof and will thereby inadvertently be applied to the lips later on.

[0005] The applicators which comprise a relatively small amount of a lip product are for example lip product samplers or testers, which are used to enable potential customers to sample and try the lip product. Also encompassed are single use applicators for other purposes, like medical purposes.

[0006] Lip products according to the invention are for example lipstick, or lipstick like materials and the like, but can also be medical products, like medical ointments, lip emollient, sun protection products, anti herpes labialis agent etc. The lip products used according to the invention are non flowable and semi solid at room temperature which is intended to mean that they retain their threedimensional shape at room temperature and therefore also encompass products such as ointments and the like. Products being liquid at room temperature are specifically excluded.

[0007] The lip product according to the invention has to be meltable by heat and non flowable semi-solid at room temperature. Lipstick usually is supplied in bulk as a semi solid material which can be melted by heat and then becomes a liquid. When the liquid lipstick thereafter is cooled for example in a mould it hardens to a harder consistency than before heating and melting.

[0008] When a relatively small amount of lip product is present on a support (applicator) intended for sample or testing purposes in the cosmetics field, it is very important that the material is deposited very accurately so that the applicator has the appearance of a rich product comprising a lush amount of lip product, which is clean and whereby the lip product area has a delimitation which is as smooth and accurate as possible. The use of the applicator should be associated with quality and finesse. The lip product is intended to be applied to the lips of a user, most frequently for cosmetic purposes, and therefore the neat, accurate and glamorous appearance of the applicator comprising the lip product is of the utmost importance. Also the outline of the lip product area should be as meticulous as possible.

[0009] In the prior art no technique exists which can meet the above standards. Many lip product deposition techniques are described in the prior art.

[0010] According to US-A-4 611 611 lipstick is applied on a paper sheet by printing or first a lip product area is die stamped and thereafter printed. Finally the deposited lipstick is subjected to flame hardening whereby the surface of the lipstick is melted to provide a non smudging surface.

[0011] Further US-A-4 747 782 discloses the application of lipstick on a paper support in a liquid state (melted) by spraying.

[0012] None of the prior at methods however provides an applicator with a lip product area which is very accurately and durably filled with lip product as described in the introductory part of the description.

[0013] In the prior art therefore a need exists to further improving the accuracy of the deposition and the appearance of the deposited lip product in the lip product area of a lip product applicator.

[0014] The present invention meets the above need by providing a method for depositing a relatively small amount of semi-solid lip product which is meltable by heat and which is non flowable at room temperature on an applicator for containing said lip product, said applicator comprising a thin flexible sheet-like support with a surface with a lip product area which is designed to comprise the lip product, said lip product area comprising an interconnected open channel structure therein, which is formed by channel forming elements, like for example small projections and/or cutouts in the surface thereof,
at least comprising the steps of

- depositing the necessary amount of lip product in the product area,
- subjecting the lip product to a heat treatment,
- cooling the assembly of applicator and lip product,

said method being characterized in that the circumfer-

ence of the lip product area of the applicator comprises a raised edge accurately delimiting said circumference having such dimensions that it can at least accommodate the intended thickness of the lip product to be deposited in the lip product area, and that the heat treatment is such that all of the lip product is heated to above the melting point thereof.

[0015] The raised edge in combination with the interconnected open channel structure and specific heat treatment wherein all of the lip product is heated to above the melting point thereof provides the surprising effect that the lip product fills the entire lip product area automatically. The exact mechanism is not clear but it seems to be a combination of cohesive-,adhesive- and capillary forces. Also the hardened outer layer described in the prior art is obtainedm, providing the necessary strength and shine to the lip product before use.

[0016] The interconnected open channel structure is a channel structure which is for a substantial portion accessible from the outside, and which is preferably open to the surroundings for more than 50 % of the surface of the lip product area covered by the channels, more preferably for more than 80 % and most preferred for substantially a 100 % open. The channels may be formed by any suitable means, they may be engraved, embossed or the like, or simply formed by injection moulding of projections and/or cutouts in the lip product area.

[0017] Also the raised edge is not specifically limited to a ridge or the like but may for example also be the delimitation of a recess forming the lip product area, that is the connection of the recessed area with the higher area. The raised edge is preferably substantially closed over the entire length thereof, and is therefore usually endless.

[0018] Compression of the applicator during use or storage is no problem as the possible compression thickness is limited to the thickness of the channel forming elements or projections and the raised edge. By proper selection of the thickness of the channel forming elements or projections, the raised edge and the amount of lip product smearing and deformation by compression can be fully prevented.

[0019] Further because of the presence of the channel forming elements the amount of lip product can be decreased even further without deterioration of the appearance of the applicator provided with the lip product.

[0020] Finally the presence of the channel forming elements can be sensed by the user on the lips which increases the accuracy of application of the lip product.

[0021] When lip product is applied to the lips using the applicator according to the invention the user can, as a consequence of the presence of the channel forming elements, position the applicator on or between the lips very accurately.

[0022] The channel forming elements may be separate elements or form an integral part of the applicator made by for example injection moulding. The channel forming elements preferably have a symmetrical shape and arrangement. The channel forming elements are designed and arranged such that many interconnected small open channels are formed. The channel forming elements can be separate elements attached or connected to the applicator or may be formed in the applicator by embossing techniques and the like in the material of the applicator itself. Examples of channel forming elements will be explained further with reference to the enclosed drawing.

[0023] The deposition of the lip product can as a consequence of the method according to the invention be performed with methods having limited accuracy as long as the lip product is deposited inside the lip product area, such as printing, screen printing, mask spraying etc. Advantageously the deposition of the lip product is performed by pad printing. The deposition accuracy can be low as practice has shown that the lip product after melting during the heat treatment will fill the entire lip product area accurately automatically without further handling or method steps being necessary. The lip product just flows out towards and against the raised edge. This advantageous covering effect of the lip product area with the lip product even takes place when the applicator is held upside-down.

[0024] The heat treatment is preferably performed in a substantially horizontal position of the applicator, whereby one face thereof is facing upward and the other is facing downward. One or both of the faces of the applicator may comprise a lip product area designed in accordance with the present invention.

[0025] In particular during the heat treatment the assembly is shaken in a substantially horizontal direction. This has shown to further improve the covering effect of the lip product in the lip product area.

[0026] In an advantageous embodiment according to the invention the applicator has lip product areas on both sides, the lip product being deposited on both sides thereof and preferably both sides being subjected to the heat treatment at the same time.

[0027] In a particular embodiment the applicator comprises a sheet-like flexible support with a mouth end portion and an opposite positioned holding end portion, said sheet-like flexible support comprising on at least one side thereof a lip product area carrying an amount of lip product, said lip product area being located on said support near the mouth end portion thereof in such a manner that at least a substantial part of at least one lip of a user can be brought into contact with said lip product in said lip product area by taking the support between the lips at the mouth end portion, said support being dimensioned such that it can be grasped manually at the holding end portion thereof which during use is located outside the mouth of the user, said sheet-like flexible support being designed in such a manner that it has an increasing flexibility from the mouth end portion to the holding end portion at least over the part of the lip product area of the support carrying the lip product.

[0028] The above applicator is disclosed in WO-A-2007/006559. This applicator provides outstand-

ing results in applying lipstick to the lips of a user in an extremely accurate manner. The present invention provides a substantial improvement to the above applicator as with the method according to the invention including the minor adjustments to the lip product area, including the channel forming elements and the raised edge, a perfect product is obtained fully meeting the high standards required for such products in the cosmetics field.

[0029] Advantageously said sheet-like flexible support has a substantially triangular shape with rounded corners and has a substantially constant thickness, and the lip product area being designed in a curved band near a base of the triangular shape in order to approach the curvature of the lips of a user when used. This embodiment will be discussed in greater detail with reference to the enclosed drawings.

[0030] Finally the invention provides an applicator obtainable with the method according to the invention. Preferably the channel forming elements in the lip product area have rounded top edges. This has the advantage that during the heat treatment these curved or rounded top edges will be left uncovered. This means that when the applicator is in a package between foils or the like the lip product does not substantially touch the package as this is only in contact with the top edges of the channel forming elements.

[0031] In the following the invention will be explained in greater detail with reference to the accompanied drawings, therein:

Fig. 1 shows a planar view of an applicator suitable for use with the method according to the invention;
Fig. 2 shows a magnified schematic view of a portion of the cross-section I-I from fig.1 wherein the lip product area is filled with lipstick; and
Fig. 3 shows seven embodiments of the open channel structure with different channel forming elements.

[0032] Fig.1 shows an applicator according to the invention comprising a sheet-like support 1 with a mouth end portion 2 and a holding end portion 3. Near the mouth end portion 2 a lip product area 4 is present. Near the holding end portion 3 a triangular opening 5 is present for improving the grip when using the applicator. The applicator can be made from many different materials but is preferably injection moulded from plastic like for example polypropylene or polystyrene.

[0033] The lip product area 4 comprises an interconnected open channel structure being composed of channel forming elements 6 having the shape of small sticks. 100% of the interconnected channel structure is open to the surroundings. The entire lip product area 4 is designed as a recess in the sheet-like support 1. The circumference 7 of the recessed lip product area 4 is formed by a raised edge delimiting said lip product area 4. In this embodiment intended for use with especially lipstick the underside of the applicator is designed similarly and on both sides the lip product areas 4 can be filled with lipstick, which will be described in connection with fig.2.

[0034] Fig. 2 shows a magnified schematic cross-section of the applicator shown in fig. 1. 8 denotes lipstick deposited in the respective lip product areas 4. Lipstick can be deposited on both sides at the same time. The method according to the invention comprises the following steps.

[0035] First the applicator according to fig. 1 is transported to a pad printing arrangement wherein the applicator is on both sides provided with an amount of lipstick 8 by pad printing. The pad printing method does not have to be very accurate as long as the lipstick 8 is deposited inside the lip product areas 4 roughly following the shape of the inner circumference of the lip product areas 4. Then the applicator comprising lipstick 8 on both sides inside the respective lip product areas 4 is conveyed into a heating chamber in which the entire assembly is heated such that the lipstick is brought to a temperature above the melting point thereof, preferably with forced air heating. During the heating the applicator is transported in a substantial horizontal fashion and is shaken with a relatively low frequency. After a suitable heating time depending on the temperature of the heating chamber, the melting point and the amount of the lipstick 8, such that all the lipstick 8 is in a melted state, the applicator is transported out of the heating chamber and allowed to cool. Said cooling may be forced cooling.

[0036] The actual heating temperature is not limited to the melting point of the lip product and can be much higher as long as the duration of the heat treatment is adapted thereto and the favourable effects of the present invention are obtained..

[0037] As a consequence of the presence of the small interconnected channels between the channel forming elements 6 during heating when the lipstick 8 is completely melted the lipstick will display an automatic covering effect. It flows out to fill the channels between the channel forming elements 6 up against the raised edge 7 of the lip product area 4.

[0038] In fig. 2 it can be clearly seen that the rounded tips of the channel forming elements 6 stay free from lipstick 8. This is advantageous when lateron when the applicator is packaged the packaging material will come in contact with substantially only the material of the applicator itself and not with the lipstick.

[0039] It will be clear that the specific practical embodiment of the lip product area with the raised edge and the interconnected channel structure is not limited and that many variations thereof may be used. A recessed lip product area is not necessary as the raised edge may also be formed in the shape of a circumferential ridge or protrusion.

[0040] Fig. 3(a-g) show seven different embodiments of possible interconnected channel structures formed by channel forming elements. Fig. 3(d) is the embodiment used in fig. 1.

[0041] When using the applicator the mouth end por-

tion 1 of the applicator will be positioned inside the mouth and the lips on the respective lip product areas 4. This can be done by grabbing the applicator with the fingers of one hand at the holding end portion 3 preferably at the location of the opening 5 for improving alignment of the applicator with the mouth. By bending the applicator up and down lipstick 8 is transferred from the lip product areas 4 onto the lips. During bending the channel forming elements 6 exert a mixing action on the lipstick, whereby the transfer thereof is further improved.

Claims

1. Method for depositing a relatively small amount of semi-solid lip product (8) which is meltable by heat and which is non flowable at room temperature on an applicator for containing said lip product (8), said applicator comprising a thin flexible sheet-like support (1) with a surface with a lip product area (4) which is designed to comprise the lip product (8), said lip product area comprising an interconnected open channel structure therein, which is formed by channel forming elements (6), like for example small projections and/or cutouts, in the surface thereof, at least comprising the steps of

   - depositing the necessary amount of lip product in the lip product area (4),
   - subjecting the the lip product (8) to a heat treatment,
   - cooling the assembly of applicator and lip product (8),

   characterized in that
   the circumference of the lip product area (4) of the applicator comprises a raised edge (7) accurately delimiting said circumference, having such dimensions that it can at least accommodate the intended thickness of the lip product (8) to be deposited in the lip product area (4), and that the heat treatment is such that all of the lip product (8) is heated to above the melting point thereof.

2. Method according to claim 1, **characterized in that** the deposition of the lip product (8) is performed by pad printing.

3. Method according to claim 1 or 2, **characterized in that** during heating the assembly is shaken in a substantially horizontal direction.

4. Method according to one or more of the preceding claims, **characterized in that** the applicator has lip product areas (4) on both sides and that lip product (8) is deposited on said both sides and that both sides are subjected to the heat treatment at the same time.

5. Applicator obtainable with the method according to one or more of the preceding claims.

6. Applicator according to claim 5, **characterized in that** the channel forming elements (6) in the lip product area have rounded top edges.

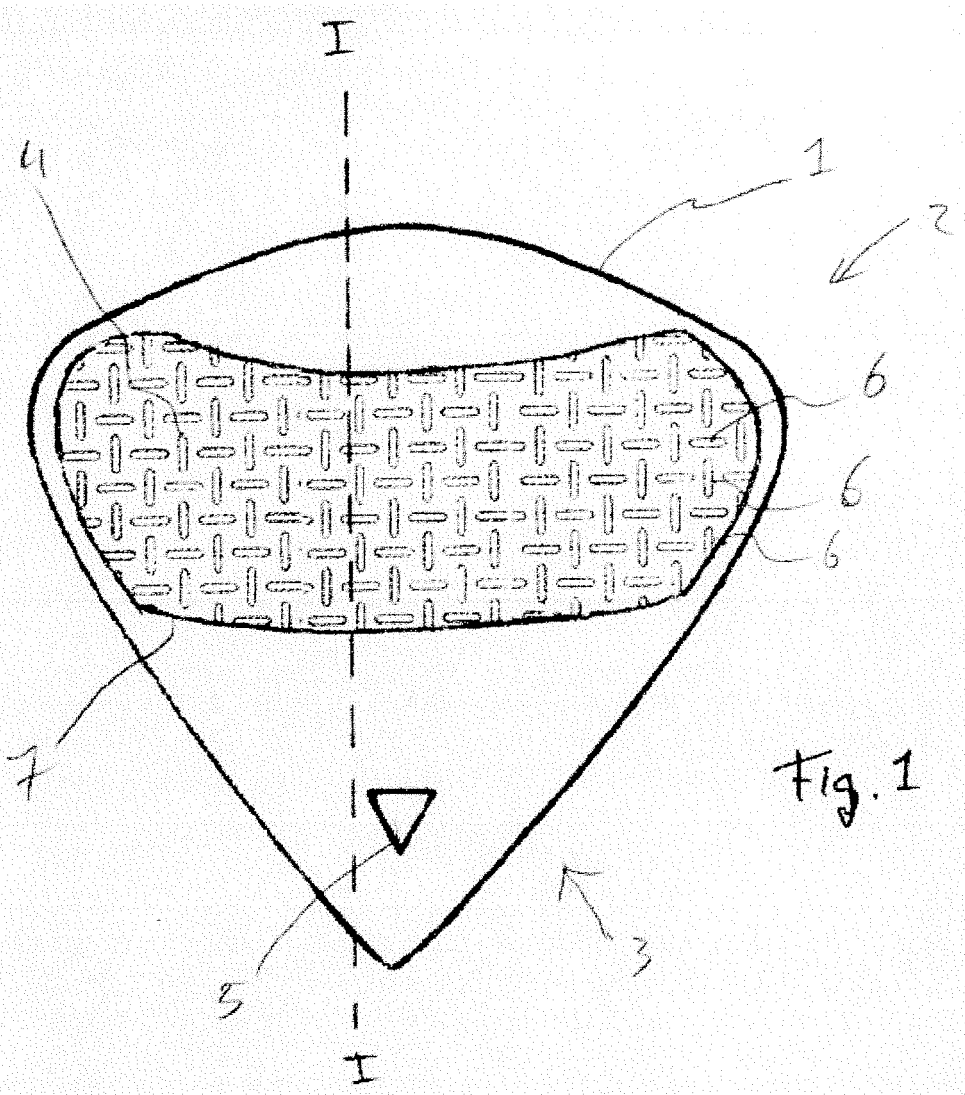


Fig. 1

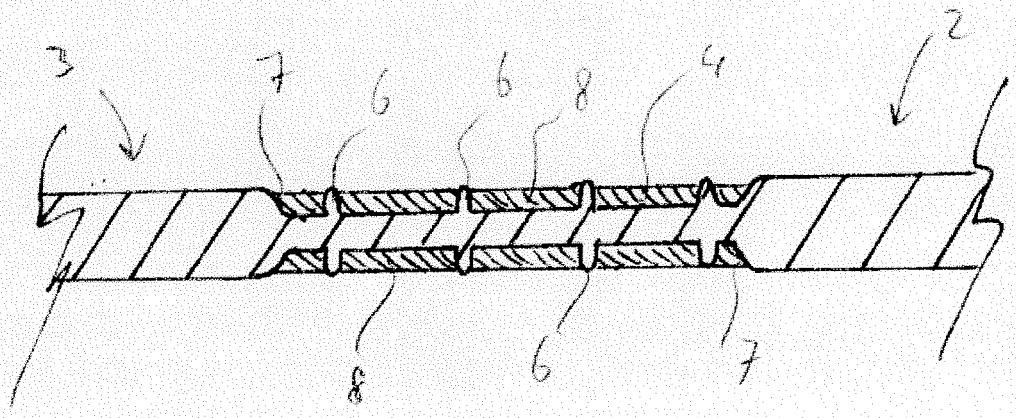
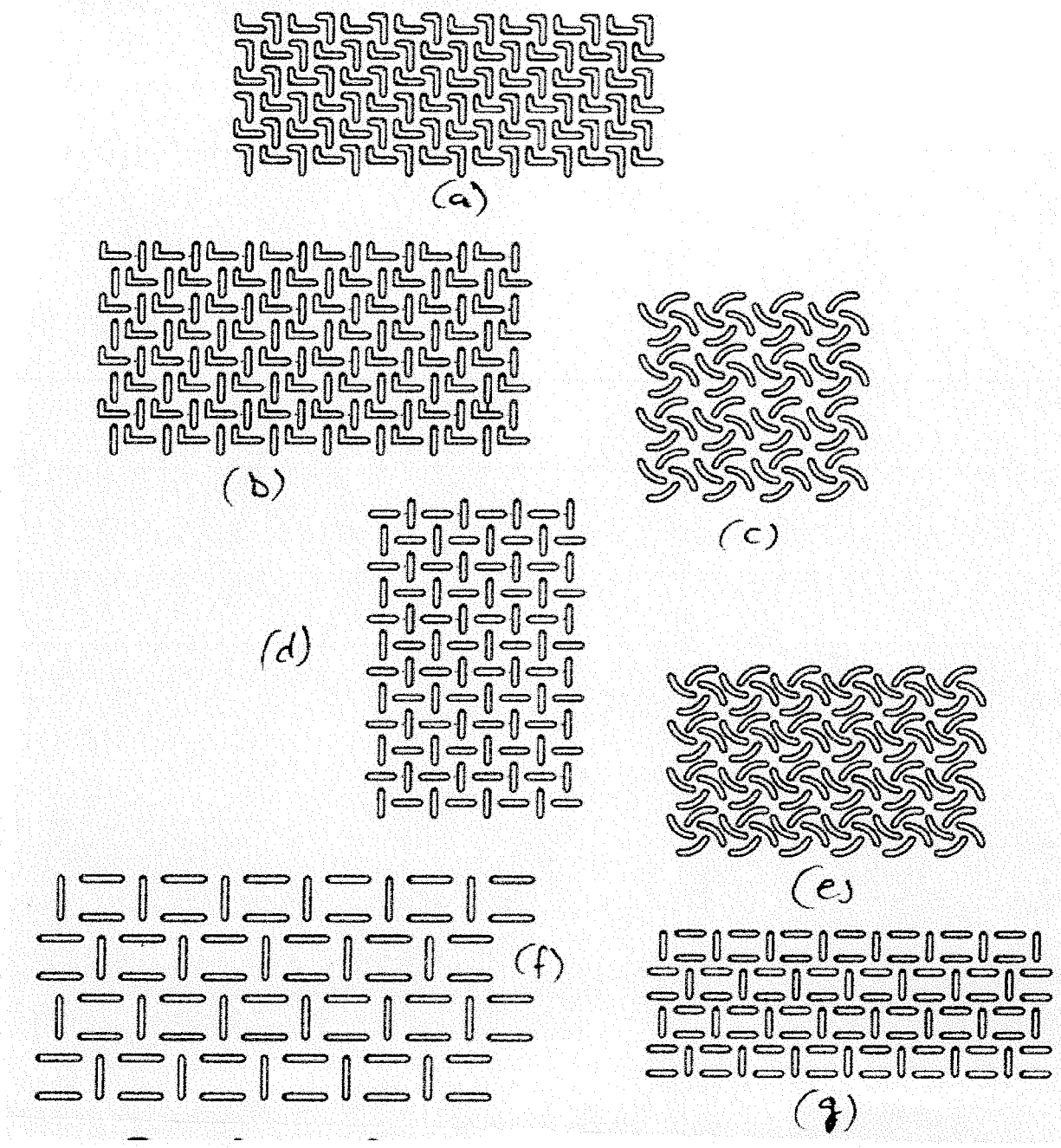


Fig. 2

Fig. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 11 18 9573

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	US 2009/211591 A1 (HWANG REN I [US]) 27 August 2009 (2009-08-27) * paragraphs [0060] - [0072], [0095], [0096]; figures 1-7 * -----	1-6	INV. A45D40/26 A45D40/24 A45D40/30
			TECHNICAL FIELDS SEARCHED (IPC)
			A45D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 July 2012	Ionescu, C

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

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19-07-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009211591 A1	27-08-2009	NONE	

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- US 4611611 A **[0010]**
- US 4747782 A **[0011]**
- WO 2007006559 A **[0028]**