

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PG20148PC00	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/SE2014/050432	International filing date (<i>day/month/year</i>) 08.04.2014	Priority date (<i>day/month/year</i>)	
International Patent Classification (IPC) or national classification and IPC INV. D04H18/04			
Applicant SCA Hygiene Products AB			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (<i>sent to the applicant and to the International Bureau</i>) a total of <u>5</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned conclusion under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application			
Date of submission of the demand 25.01.2016		Date of completion of this report 14.06.2016	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465		Authorized officer O'Sullivan, Paul Telephone No. +49 89 2399-3076 	

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-11 as published

Claims, Numbers

1-13 filed in electronic form on

03-05-2016

Drawings, Sheets

1/3-3/3 as published

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/SE2014/050432

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 12.05.2016 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-13</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-13</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-13</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1 WO 02/066089 A2 (PROCTER & GAMBLE) 29 August 2002
 (2002-08-29)
- D2 WO 02/36084 A2 (PROCTER & GAMBLE) 10 May 2002 (2002-05-10)

Art 33(2) PCT

Claims 1-13 are novel over the disclosures of D1 and D2 . D1 differs from the subject-matter of claim 1 at least in that according to D1, weakenings are made during initial forming of the web, while according to claim 1, weakenings are produced in the hydroentangled web during hydroentanglement (D1, page 9, lines 7-19; page 13, lines 14-27; page 15, lines 11-19)

D2 is related to tissue paper and teaches to make weakenings in the web during initial formation thereof by means of a forming wire which may have upstanding protuberances (page 20, lines 3-4). D2 is silent about hydroentangling and does not disclose a hydroentangling fabric.

Art 33(3) PCT

D1 is the closest prior art. As noted in the letter of the applicant dated 22.01.2016 (page 3, second paragraph), the effect of the difference in claim 1 over the disclosure of D1 (producing weakenings in the hydroentangled web) is that there will be a higher amount of long fibres crossing the weakened area. In initial forming as in D1, the fibres follow the flow direction of the water during dewatering of the web, and aggregate in the interspaces between the protruding elements: the fibres are mainly deposited on top of each other and oriented in the x-y plane. The problem underlying claim 1 is thus the provision of an alternative method for obtaining weakenings in a nonwoven web.

The solution is not obvious in the light of D1 taken alone since the skilled person is not taught to implement the changes required in order to arrive at the subject-matter of claim 1. Furthermore, the skilled person would not turn to D2 since it is silent about hydroentangling and does not disclose anything about a hydroentangled fabric. Rather, D2 teaches the skilled person to use a aqueous slurry when forming the web.

It follows that the subject-matter of claims 1-13 involves an inventive step.

European Patent Office
D-80298 München
Germany



Göteborg: May 3, 2016
Our ref: PG20148PC00

Re: International PCT Application No. PCT/SE2014/050432
Applicant: SCA Hygiene Products AB

Dear Sirs,

This is in reply to your Written Opinion dated 11.03.2016.

We wish to proceed further with the above-mentioned PCT application based on the enclosed amended claim set of which a marked-up copy and a clean copy are enclosed.

The reasons for patentability are set out below.

CITED DOCUMENTS

D1: WO 02/066089 A2
D2: WO 02/36084 A2

AMENDMENTS

Claim 1 has been amended by adding "during hydroentangling" and by adding claim 14 "said moving support is a hydroentangling fabric".

Claim 14 has therefore been deleted.

Basis for the amendments is found in the text, see page 5, lines 7-8 + lines 20-21, page 6, lines 15-18 and page 7, lines 20-23. Further, the Examples given in Table 1 and 2 are all "*made by hydroentangling fibrous webs on a hydroentangling fabric comprising protruding elements in different configurations*", see page 8, lines 23-24.

NOVELTY

The Examiner concludes that all claims are novel. We agree.

Valea AB, providing intellectual property consulting services since 1894.

Our offices are located in
Gothenburg, Linköping, Lund,
Malmö and Stockholm.

INVENTIVE STEP: CLAIM 1

D1

As explained in our letter of 22.01.2016, D1 discloses that weakenings are made during initial forming of the web, see D1 page 15, lines 14-15. According to amended claim 1, weakenings are produced in the hydroentangled web during hydroentangling.

Amended claim 1 thus makes clear that the weakenings are produced during hydroentangling. The same moving support is used both when forming the web and when hydroentangling it. See the embodiment illustrated in Figure 1.

The skilled person would understand that even if some patterning may be imparted to the web during initial forming by the protruding elements of the moving support, it would be the last patterning step, i.e. the hydroentangling, that would have the greatest effect, for making the weakenings.

The letter filed with Demand detailedly describes the different mechanisms of patterning the web during initial forming and during hydroentangling. See 2nd last line of page 2 – line 26 of page 3 of the Demand.

D1 alone

The skilled person starting from D1 would not go against the teaching of D1, i.e. making weakenings during initial forming of the web.

D1+D2

D2 is related to tissue paper and teaches to make weakenings in the web during initial forming of the web by means of the forming wire, which may have upstanding protuberances. See page 20, lines 3-4. D2 is silent about hydroentangling and does in particular not disclose anything about a hydroentangling fabric.

D1 only discloses hydroentangling once, and then in conjunction with air laid web, i.e. a dry forming method, while D2 teaches to use an aqueous slurry when forming the web, i.e. a wet forming method.

If the skilled person were to combine D1 and D2, he/she would not obtain the invention as described by amended claim 1, since both D1 and D2 disclose making weakenings in the web during initial forming.

There is no lead, neither in D1, nor in D2, to make weakenings in the web during hydroentangling of the web by means of the hydroentangling fabric. D1 only mentions hydroentangling in conjunction with air laid web, see page 9, line 11. D2 does not mention hydroentangling at all. Further both D1 and D2 are silent about using a hydroentangling fabric comprising protruding elements.

Conclusion

Amended claim 1 involves an inventive step over the cited prior art documents, taken alone or in combination, and is hence patentable.

Valea AB, providing intellectual property consulting services since 1894.

Our offices are located in Gothenburg, Linköping, Malmö and Stockholm.

CLAIMS 2-13

Dependent claims 2-13 refer directly or indirectly to patentable independent claim 1 and are thus also patentable.

CONCLUSIONS

In summary, it is submitted that the pending claims meet the requirements of the PCT, and a positive IPRP is expected.

Yours faithfully,
Valea AB

Anna Månsson

Enclosures:
Amended claim set, marked-up copy and clean copy

Valea AB, providing intellectual property consulting services since 1894.

Our offices are located in Gothenburg, Linköping, Malmö and Stockholm.

CLAIMS

1. A method for producing a flushable wipe or hygiene tissue comprising a hydraulically entangled nonwoven material impregnated with a wetting composition, said method comprises the steps of: dry- wet- or foam-forming a
5 fibrous web (14) on a moving support (10), hydroentangling said fibrous web in a hydroentangling station (15) to form a hydroentangled nonwoven web (19), wherein said moving support (10) is a hydroentangling fabric, which comprises a plurality of protruding elongated elements (17) protruding above the plane of the moving support (10), wherein said protruding elements (20) will produce
10 weakenings in the hydroentangled web during hydroentangling.
2. A method as claimed in claim 1, characterized in that said protruding elongated elements (17) have a height (h) protruding above the plane of the moving support (10) of at least 0.5 x the thickness of the hydroentangled nonwoven web in dry
15 condition and not more than 1.5 x the thickness of the hydroentangled nonwoven web in dry condition.
3. A method as claimed in claim 1 or 2, characterized in that said protruding elongated elements (17) have a width (W) between 0.5 and 2 mm.
20
4. A method as claimed in any of the preceding claims, characterized in that said protruding elongated elements (20) have a length (L) between 3 and 30 mm, preferably between 10 and 25 mm and more preferably between 20 and 25 mm.
- 25 5. A method as claimed in any of the preceding claims, characterized in that said protruding elongated elements (17) have a length/width (L/W) relationship between 1.5 and 60, preferably between 5 and 50 and more preferably between 10 and 50.
- 30 6. A method as claimed in any of the preceding claims, characterized in that said protruding elongated elements (17) have their length (L) direction oriented at an angle of $\pm 45^\circ$ with respect to the machine direction (MD) of the moving support (10).

7. A method as claimed in claim 6, characterized in that said protruding elongated elements (17) have a length (L) direction oriented in the machine direction (MD).
8. A method as claimed in any of the preceding claims, characterized in that said protruding elongated elements (17) are arranged in a plurality of rows, wherein said rows extend at an angle of $\pm 45^\circ$ with respect to the machine direction (MD) of the moving support (10) .
9. A method as claimed in claim 8, characterized in that said rows extend in the machine direction (MD).
10. A method as claimed in claim 8 or 9, characterized in that the distance (a1) between adjacent protruding elongated elements (17) in said rows is between 10 and 45 mm, preferably between 15 and 40 mm and more preferably between 20 and 35 mm.
11. A method as claimed in any of claims 8-10, characterized in that said rows are arranged at a distance (a2) from each of between 5 and 40 mm, preferably between 10 and 30 mm.
12. A method as claimed in any of claims 8-11, that the protruding elongated elements (17) in a row are oriented with their length (L) direction aligned.
13. A method as claimed in any of the preceding claims, characterized in that said protruding elongated elements (17) have a straight configuration.