

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
 ICOSA
 83 Avenue Denfert-Rochereau
 F-75014 Paris
 FRANCE

INVITATION TO PAY ADDITIONAL FEES
 AND, WHERE APPLICABLE, PROTEST FEE
 (PCT Article 17(3)(a) and Rule 40.1 and 40.2(e))

	Date of mailing <i>(day/month/year)</i>
	31 January 2020 (31-01-2020)
Applicant's or agent's file reference CV-1167/PCT	PAYMENT DUE within ONE MONTH from the above date of mailing
International application No. PCT/EP2019/082748	International filing date <i>(day/month/year)</i>
	27 November 2019 (27-11-2019)
Applicant STILLA TECHNOLOGIES	

1. This International Searching Authority

(i) considers that there are 2 *(number of)* inventions claimed in the international application covered by the claims indicated on an extra sheet:

(ii) therefore considers that **the international application does not comply with the requirements of unity of invention** (Rules 13.1, 13.2 and 13.3) for the reasons indicated on an extra sheet:

(iii) has carried out a partial international search (see Annex) will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:
see extra sheet

(iv) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid.

2. Consequently, the applicant is hereby **invited to pay**, within the time limit indicated above, the amount indicated below:

<u>EUR 1.775,00</u>	x	<u>1</u>	=	<u>EUR 1.775,00</u>
Fee per additional invention		number of additional inventions		currency/total amount of additional fees

3. The applicant is informed that, according to Rule 40.2(c), **the payment of any additional fee may be made under protest**, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive, where applicable, subject to the payment of a protest fee.
 Where the applicant pays additional fees under protest, the applicant is hereby invited, within the time limit indicated above, to pay a protest fee (Rule 40.2(e)) in the amount of EUR 875,00 *(currency/amount)*

Where the applicant has not, within the time limit indicated above, paid the required protest fee, the protest will be considered not to have been made and the International Searching Authority will so declare.

4. Claim(s) Nos. _____ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016	Authorized officer BERGSTRÖM, Carina Tel: +31 (0)70 340-2898
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This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 3, 5-7, 9-12

A loading well being an open cavity comprising a lateral wall, a bottom wall and a loading opening wherein the bottom wall part comprises at least one sloped bottom section and comprising an inlet port is located off-center in the bottom wall part.

2. claims: 2, 4, 8

A loading well being an open cavity comprising a lateral wall, a bottom wall and a loading opening wherein the bottom wall part comprises at least one sloped bottom section wherein the loading well is at least partially filled with oil.

1 Lack of unity of invention

1.1 This Authority considers that the application does not meet the requirements of unity of invention.

The reasons, for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

1.2 There are 2 independent claims: apparatus claim 1 and apparatus claim 2.

1.3 The "same" or "corresponding" technical features linking together all the independent claims 1 and 2 are the following:

1.3.1 A loading well being an open cavity comprising a lateral wall, a bottom wall and a loading opening wherein the bottom wall part comprises at least one sloped bottom section.

1.4 This common matter does not comprise a single general inventive concept, based on same or corresponding special technical features within the meaning of Rule 13.2 PCT, because these features are already anticipated by D1 in paragraphs [0167]-[0173] and in figures 21-24).

1.5 The common problem to all the claims is therefore to find a loading well that prevents the loss of sample (cf. description p.1, 18-19). This is a commonly known problem and it is solved by D1 (cf. D1, [0170]).

As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 13.2 PCT is lacking and claims are not so linked as to form a single general inventive concept as required by Rule 13.1 PCT.

1.6 Consequently the application does not meet the requirement for unity of invention.

1.7 Thus, the application is split into 2 groups of (alleged) inventions:

1.7.1 Group I: Claims 1, 3, 5-7, 9-12. The remaining distinguishing technical feature is an inlet port is located off-center in the bottom

wall part. The technical problem that it solves is "to permit to exploit the largest possible surface of the bottom wall part" (cf. description, p.34, 1.12-20).

1.7.2 Group II: Claims 2, 4 and 8. The remaining distinguishing technical feature is: "the loading well being at least partially filled with oil". The technical problem that it solves is that " the droplets are suspended in a continuous phase, such as oil, to form an emulsion " (cf. description, p.10, 1.28-30).

1.8 It is therefore seen that the remaining technical features and addressed problems of each group are different.

1.9 It thus appears possible neither to define the corresponding special technical features within the meaning of Rule 13.2 PCT linking these groups of dependent claims, nor to find a common technical problem underlying these groups of claims which could serve as the single general inventive concept required by Rule 13.1 PCT.

1.10 According to Article 17(3)(a) PCT the ISA shall establish the International Search Report on those parts of the International Application which relate to the invention first mentioned in the claims, i.e., the above mentioned group I.

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
- see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 2019/046987 A1 (NESS KEVIN D [US] ET AL) 14 February 2019 (2019-02-14) paragraphs [0010], [0167] - [0173]; figures 21-24	1,7,9,11
X	----- US 2016/167053 A1 (GRAY MARK A [US]) 16 June 2016 (2016-06-16) paragraphs [0003], [0064] - [0074]; figures 5, 14	1,3,5-7,9,11
X	----- US 2005/266582 A1 (MODLIN DOUGLAS N [US] ET AL) 1 December 2005 (2005-12-01) paragraphs [0180] - [0184], [0201], [0310]; figures 37, 41, 44	1,10,12
A	----- US 2012/219947 A1 (YURKOVETSKY YEVGENY [US] ET AL) 30 August 2012 (2012-08-30) paragraphs [0028] - [0030]; figure 1B	1,10,12

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Patent Family Annex

Information on patent family members

International Application No PCT/EP2019/082748
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2019046987	A1	14-02-2019	CA 2767182 A1 29-09-2011
			EP 2550528 A1 30-01-2013
			JP 2013524171 A 17-06-2013
			US 2012190032 A1 26-07-2012
			US 2017065979 A1 09-03-2017
			US 2019046987 A1 14-02-2019
			US 2019247856 A1 15-08-2019
			WO 2011120024 A1 29-09-2011

US 2016167053	A1	16-06-2016	NONE

US 2005266582	A1	01-12-2005	NONE

US 2012219947	A1	30-08-2012	EP 2673614 A2 18-12-2013
			EP 3412778 A1 12-12-2018
			US 2012219947 A1 30-08-2012
			US 2016346748 A1 01-12-2016
			US 2019134581 A1 09-05-2019
			WO 2012109600 A2 16-08-2012

Application no:
Demande n°: PCT/EP2019/082748
Anmelde-Nr:

DISCLAIMER

The attached provisional opinion on the patentability of the first invention searched serves only as information.
A reply addressing the points raised in the opinion is **not** required and will **not** be taken into account when issuing the final search report and opinion on patentability.

AVERTISSEMENT

L'avis provisoire ci-joint sur la brevetabilité de la première invention recherchée ne sert qu'à titre d'information.
Une réponse abordant les points soulevés dans l'avis n'est **pas** nécessaire et ne sera **pas** prise en compte lors de l'établissement du rapport final de la recherche et de l'avis sur la brevetabilité.

DISCLAIMER

Die beigefügte vorläufige Stellungnahme zur Patentierbarkeit der ersten geprüften Erfindung dient lediglich zur Information.
Eine Antwort auf die erhobenen Punkte in der Stellungnahme ist **nicht** erforderlich und bleibt bei der Erstellung des endgültigen Recherchenberichts und der Stellungnahme zur Patentierbarkeit **unberücksichtigt**.

Reference is made to the following documents:

- D1 US 2019/046987 A1 (NESS KEVIN D [US] ET AL) 14 February 2019 (2019-02-14)
- D2 US 2016/167053 A1 (GRAY MARK A [US]) 16 June 2016 (2016-06-16)
- D3 US 2005/266582 A1 (MODLIN DOUGLAS N [US] ET AL) 1 December 2005 (2005-12-01)

1 **Re Item IV.**

Lack of unity of invention

- 1.1 This Authority considers that the application does not meet the requirements of unity of invention.
The reasons, for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:
- 1.2 There are 2 independent claims: apparatus claim 1 and apparatus claim 2.
- 1.3 The "same" or "corresponding" technical features linking together all the independent claims 1 and 2 are the following:
 - 1.3.1 A loading well being an open cavity comprising a lateral wall, a bottom wall and a loading opening wherein the bottom wall part comprises at least one sloped bottom section.
- 1.4 This common matter does not comprise a single general inventive concept, based on same or corresponding special technical features within the meaning of Rule 13.2 PCT, because these features are already anticipated by D1 in paragraphs [0167]-[0173] and in figures 21-24).
- 1.5 The common problem to all the claims is therefore to find a loading well that prevents the loss of sample (cf. description p.1, 18-19). This is a commonly known problem and it is solved by D1 (cf. D1, [0170]).
- 1.6 As the claims comprise neither the same, nor corresponding special technical features, the technical relationship between the subject-matter of the claims required by Rule 13.2 PCT is lacking and claims are not so linked as to form a single general inventive concept as required by Rule 13.1 PCT.
Consequently the application does not meet the requirement for unity of invention.
- 1.7 Thus, the application is split into 2 groups of (alleged) inventions:

- 1.7.1 Group I: Claims 1, 3, 5-7, 9-12. The remaining distinguishing technical feature is an inlet port is located off-center in the bottom wall part. The technical problem that it solves is "to permit to exploit the largest possible surface of the bottom wall part" (cf. description, p.34, l.12-20).
- 1.7.2 Group II: Claims 2, 4 and 8. The remaining distinguishing technical feature is: "the loading well being at least partially filled with oil". The technical problem that it solves is that "*the droplets are suspended in a continuous phase, such as oil, to form an emulsion*" (cf. description, p.10, l.28-30).
- 1.8 It is therefore seen that the remaining technical features and addressed problems of each group are different.
- 1.9 It thus appears possible neither to define the corresponding special technical features within the meaning of Rule 13.2 PCT linking these groups of dependent claims, nor to find a common technical problem underlying these groups of claims which could serve as the single general inventive concept required by Rule 13.1 PCT.
- 1.10 According to Article 17(3)(a) PCT the ISA shall establish the International Search Report on those parts of the International Application which relate to the invention first mentioned in the claims, i.e., the above mentioned group I.

2 **Re Item V**

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

- 2.1 The subject-matter of the independent apparatus claim 1 is not considered to be novel over D1 in the sense of Art. 33(2) PCT because all its technical features are disclosed in the paragraphs cited. D1 discloses in paragraphs [0168]-[0171] and in figures 22-24: A loading well (618) configured to receive a drop of sample (cf. D1, [0169]-[0173]), wherein the loading well (618) is an open cavity (cf. D1, [0169]-[0190] and fig.23, wherein it is unambiguously derivable that the loading well (618) is open on its top surface) comprising a wall and a loading opening (cf. D1, fig.23, top side of loading well (618)), wherein the wall comprises a bottom wall part (cf. D1, fig.23, bottom side of loading well (618)) globally extending according to a bottom plan (wbp) parallel to the base plan (x/y) (note 1: the "bottom plan (wbp)" is understood to be the plan which perimeter is defined by the edge between the bottom wall and the lateral wall of the well (618)) and a lateral wall part extending along a well lateral direction (wld) disposed according to an angle $0^\circ < \alpha < 180^\circ$ relatively to the bottom plan (wbp), wherein the loading opening is defined by a free end of the lateral wall part opposite to the bottom plan (wbp), and wherein:

- the bottom wall part comprises at least one sloped bottom section (inherently disclosed in figure 23),
 - an inlet port is located off-center in the bottom wall part (cf. D1, fig. 23, wherein the opening leading to the port (622) is unambiguously disclosed to be off-center).
- 2.2 D2 also discloses all the technical features of the independent claim 1 in the passages cited: D2 discloses in the paragraphs [0064]-[0066] and in figure 5: A loading well (503) configured to receive a drop of sample, wherein the loading well is an open cavity comprising a wall and a loading opening (cf. D2, fig.5: open upper side of loading well (503)), wherein the wall comprises a bottom wall part globally extending according to a bottom plan (wbp) parallel to the base plan (x/y) (wherein the note 1 (see above) applies, mutatis mutandis, to D2) and a lateral wall part extending along a well lateral direction (wld) disposed according to an angle $0^\circ < \alpha < 180^\circ$ relatively to the bottom plan (wbp) (unambiguously disclosed in fig. 5 of D2), wherein the loading opening is defined by a free end of the lateral wall part opposite to the bottom plan (wbp) (cf. D2, fig.5), and wherein:
- the bottom wall part comprises at least one sloped bottom section (cf. D2, [0064] and fig. 5),
 - an inlet port is located off-center in the bottom wall part (cf. D2, fig.5, wherein several ports (509) located off-centered in the bottom wall part are disclosed).
- 2.3 Furthermore, D3 also discloses the subject-matter of claim 1 in the embodiment anticipated in the figures 37 and 41 and in the paragraphs [0180]-[0184] and in the figures 37 and 41 wherein it is disclosed: a loading well comprised by the conical well (642) and the access port (643) (see in fig. 37 the references named), comprising a wall and a loading opening (cf. D3, fig.41, opening of the the bottom wall of (482)), wherein the bottom wall part comprises at least one sloped bottom section (cf. D3, fig. 41), an inlet port is located off-center in the bottom wall part (cf. D3, fig. 41). The further technical features of claim 1 not specified are unambiguously anticipated by the previous passages and figures cited.
- Therefore, the subject-matter of the independent claim 1 is not considered to be novel over D1, D2 and D3 in the sense of Art. 33(2) PCT.
- 2.4 The passages of D1 cited above against the novelty of claim 1 also disclose all the technical features of claim 7.
Moreover D2 discloses also the further technical features of claim 7 in the paragraphs [0071]-[0074] and in figures 14-16.

- 2.5 Furthermore, claims 6, 9 and 11, in view of the clarity objections described below, do not seem to comprise further technical features differing from the subject-matter of the independent claim 1.
Therefore, claims 6, 7, 9 and 11 are not considered to be novel over D1 and D2 under Art. 33(2) PCT.
- 2.6 Moreover, the further technical features of claims 3 and 5 are considered to be mere design features of the loading well disclosed in claim 1 that the person skilled in the art would apply to D2 (cf. D2, fig.5), depending on the circumstances, and reach the subject-matter of claims 3 and 5, without involving an inventive step under Art.33(3) PCT.
- 2.7 The subject-matter of the independent method claim 10 (see clarity objections) is anticipated by D3 in the passages cited against the novelty of claim 1 and in the paragraph [0310], wherein the technical feature of "placing a drop of sample in the loading well is anticipated" (cf. D3, [0310], "*injection and/or or removal of a continuous series of very small fluid droplets into or out of the inlet and output access ports, respectively*"). Similar objection applies, mutatis mutandis to the independent claim 12.
Therefore, claims 10 and 12 are not considered to be novel over D3 under Art. 33(2) PCT

Re Item VIII

Certain observations on the international application

The application does not meet the requirements of Article 6 PCT, because the subject-matter of claims 6, 9-12 is not clear.

- 2.8 In regards to claims 5 and 6: the technical feature "a curved section of the lateral wall part" is claimed to be as an "or feature". Therefore, the further technical features of claim 6 "*wherein the curved section of the lateral wall has a curvature radius*" do not seem to limit the subject-matter of the claim because such feature is considered to be "optional" and claim 6 do not seem to include further technical features from the claim 5, from which is dependent and it is therefore not considered to be clear under Art. 6 PCT.
- 2.9 Claims 9 and 11 do not meet the requirements of Article 6 PCT because the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved (cf. claim 9: "*wherein the system is configured to locate the drop of sample at a distance in the base plan (x/y) ranging from 0 to 1 diameter of the drop of sample*") and (cf. claim 11, "*wherein the system is configured to allow the drop of sample to be trapped and/or moved in a defined location of the loading well*"), which merely

amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result. For the scope of the search, the broadest meaning of this wording has been understood.

- 2.10 In regards to the independent claim 10: It is clear from the description on page 3, lines 1-2, that feature "wherein the inlet port is located at a distance in the base plan (x/y) ranging from about 1 mm to about 5 mm from the bottom wall part's deepest depth relatively to the loading opening" is essential to the definition of the invention.
Since independent claim 10 does not contain this feature it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.
- 2.11 Furthermore, it is not clear from the wording of the independent method claim 12 which are the further technical features that make the drop to be trapped and/or moved in a defined position. It is furthermore not clear which are the technical features of such "defined position". Furthermore, in view of this objection, it is not clear which are of the further technical features of claim 12 that differ from the independent method claim 10. Therefore, the independent claim 12 is also not considered to be clear under Art. 6 PCT and the wording from the two last lines of this claim do not seem to limit the subject-matter of the claim. Similar objection applies, mutatis mutandis, to the wording of the two last lines of claim 10.

3 **Final remarks**

The following remarks will become relevant on entry into the examination phase:

- 3.1 The attention of the applicant is drawn to the fact that the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (Article 19(2) PCT).
- 3.2 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 19(2) PCT, the applicant should clearly identify the amendments made, irrespective of whether they concern amendments by addition, replacement or deletion, and indicate the passages of the application as filed on which these amendments are based.
- 3.3 The independent claims should, whenever appropriate be drafted in the two-part form (Rule 6 PCT).

- 3.4 To meet the requirements of Rule 5.1 PCT, the documents cited in the Search Opinion should be identified in the description and the relevant background art disclosed therein should be briefly discussed. The applicant should ensure that it is clear from the description which features of the subject-matter of independent claims are known from said documents.