

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
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 PATENT LAW FIRM WITTMANN
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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 (day/month/year) 25 January 2019 (25-01-2019)
Applicant's or agent's file reference 21647-P-PCT	PAYMENT DUE within ONE MONTH from the above date of mailing
International application No. PCT/IB2018/001099	International filing date (day/month/year) 31 August 2018 (31-08-2018)
Applicant WAYRAY SA	

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 GALLEGO, Antonio Tel: +49 (0)89 2399-8102
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This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-20

Independent claims 1, 11 and 16 and dependent claims 2 - 10, 12 - 15 and 17 - 20, directed to a speckle diffuser apparatus, a method for operating a speckle diffuser apparatus and an optical system, respectively, the special technical feature alleged to make a contribution over the prior art being a torsion spring. This special technical feature solves the problem of allowing for a greater variation of the amplitude of the current supplied to the actuator and causes the effect of making the configuration more reliable.

2. claims: 21-25

Independent claim 21 and dependent claims 22 - 25, directed to a speckle diffusing subassembly, the technical feature alleged to make a contribution over the prior art being interacting means. This special technical feature solves the problem of increasing the efficiency of power transmission between the actuator and the movement means and causes the effect of saving battery power.

The closest prior art has been identified as document D1 (see the first document cited in the search report), disclosing the subject matter according to claims 1 and 11. Furthermore, also for claim 16, the respectively solved problems and their solutions are different. Therefore, no common general inventive concept links the alleged inventions and the groups of claims are not linked by common or corresponding special technical features as required by Rule 13.1 PCT. The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

**Annex to Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS
OF THE PARTIAL INTERNATIONAL SEARCH**

International Application No
PCT/IB2018/001099

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 A	US 2009/185251 A1 (CHEN GANG [US] ET AL) 23 July 2009 (2009-07-23) figure 5a paragraph [0039] paragraph [0035] paragraph [0037] -----	1,11-15 2-10, 16-20

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/IB2018/001099

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009185251	A1	NONE	23-07-2009

Application no:
Demande n°: PCT/IB2018/001099
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**.

Re Item IV

Lack of unity of invention

- 1 The closest prior art has been identified as document D1 (see the first document cited in the communication relating to the results of the partial international search), disclosing the subject matter of claims 1 and 11.
- 2 This Authority considers that there are 2 inventions covered by the claims indicated as follows:
 - I: Independent claims 1, 11 and 16 and dependent claims 2 - 10, 12 - 15 and 17 - 20, directed to a speckle diffuser apparatus, a method for operating a speckle diffuser apparatus and an optical system, respectively, the special technical feature alleged to make a contribution over the prior art being a torsion spring. This special technical feature solves the problem of allowing for a greater variation of the amplitude of the current supplied to the actuator and causes the effect of making the configuration more reliable.
 - II: Independent claim 21 and dependent claims 22 - 25, directed to a speckle diffusing subassembly, the technical feature alleged to make a contribution over the prior art being interacting means. This special technical feature solves the problem of increasing the efficiency of power transmission between the actuator and the movement means and causes the effect of saving battery power.
- 3 The closest prior art has been identified as document D1 (see the first document cited in the search report), disclosing the subject matter according to claims 1 and 11. Furthermore, also for claim 16, the respectively solved problems and their solutions are different. Therefore, no common general inventive concept links the alleged inventions and the groups of claims are not linked by common or corresponding special technical features as required by Rule 13.1 PCT. The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V

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

- 1 Reference is made to all or some of the following documents; the numbering will be adhered to in the rest of the procedure.
- D1 US 2009/185251 A1 (CHEN GANG [US] ET AL) 23 July 2009
(2009-07-23)
- 2 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of below mentioned claim(s) is not new in the sense of Article 33(2) PCT. It is noted that unclear features cannot be used to distinguish an invention from the prior art.
- 3 The document D1 discloses in accordance with claim 1:
A speckle diffuser apparatus to be employed in an optical system, (D1, par. 21)
the apparatus comprising: a torsion spring; (D1, par. 35, spring 430, see also fig. 5a)
an interaction element coupled with a first end of the torsion spring; (D1, par. 39, electromagnet 450b is coupled, via substrate 420m to the first end of the torsion spring)
and a speckle diffuser element coupled with a second end of the torsion spring (D1, par. 3, mirror 410, see fig. 5A)
- 4 The subject matter of claim 1 thus lacks novelty.
- 5 Furthermore, D1 discloses the corresponding method described by claim 11, see the text passages cited above with respect to claim 1 and furthermore D1, par. 37 regarding the oscillation feature.
- 6 The subject matter of claim 16 does not seem to be disclosed or rendered obvious by the cited prior art for the following reasons.
- 7 D1 is considered to represent the closest prior art because it also concerns an optical system for projection and is directed to the same problem, i.e. how to reduce speckles and because it has more features in common with claim 16 (i.e. torsion spring).
- 8 D1 does not disclose that the permanent magnet is attached to a first end of the torsion spring, the second end being coupled to the speckle diffusing element. The subject matter of claim 16 is thus new. According to D1, the positions of the permanent magnet and the electromagnet are reversed.

- 9 The objective technical problem may therefore be regarded as to how to provide an alternative solution for the arrangement of the actuator.
- 10 The solution according to claim 16 is not obvious because a skilled person would refrain, in the configuration known from D1, to place the electromagnet at the mirror 410 because he would then impair the desired oscillation of the mirror due to electrical wiring needed to power the electromagnet.
- 11 Below mentioned dependent claims do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, for the following reasons.
- 12 A diffuser frame being coupled to the speckle diffuser element according to claims 2 - 6 is not disclosed or rendered obvious by the cited prior art.
- 13 Perpendicular ends (claim 7 - 10) are not disclosed or rendered obvious by the cited prior art.
- 14 A permanent magnet and an electromagnet according to claim 12 are known from D1, par. 39. Likewise, D1 discloses the function of the magnets as described in claim 13 - 14.
- 15 As the direction of a lateral movement according to claim 15 is not clearly defined, D1, par. 39 can be read on claim 15.
- 16 Claims 17 - 20 depend on novel and inventive claim 16 and thus are also considered novel and inventive.
- 17 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 is not mentioned in the description, nor are these documents identified therein.
- 18 All claims of the application meet the requirements of industrial applicability according to Article 33(4) PCT.

Item VIII

Certain observations on the international application

- 1 The application does not meet the requirements of Article 6 PCT for the following reasons.
- 2 The direction of a lateral movement as recited in claim 15 is not clearly defined.