

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)**

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/B2019/057599

International filing date (day/month/year)
10.09.2019

Priority date (day/month/year)
26.11.2018

International Patent Classification (IPC) or both national classification and IPC
INV. F16H25/22 F16H19/00 F16H19/06

Applicant
MPS MICRO PRECISION SYSTEMS AG

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- 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 statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and 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

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - 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 (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-15</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-15</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-15</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

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 the following documents:

Reference is made to the following documents:

- D1 US 2017/043865 A1 (QUENERCH'DU MARC [FR] ET AL) 16 February 2017 (2017-02-16)
- D2 GB 2 134 210 A (SKF NOVA AB) 8 August 1984 (1984-08-08)
- D3 DE 10 2012 022438 B3 (FESTO AG & CO KG [DE]) 20 February 2014 (2014-02-20)
- D4 US 2009/308192 A1 (LIN MING-YAO [TW] ET AL) 17 December 2009 (2009-12-17)
- D5 US 3 025 647 A (MOODY HARVEY H) 20 March 1962 (1962-03-20)
- D6 DE 10 2010 062561 A1 (HANNING ELEKTRO WERKE [DE]) 14 June 2012 (2012-06-14)

2 Independents claim 1 and 15

2.1 Independent claim 1

2.1.1 D1 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses (reference signs in parentheses refer to the figures of D1)

Angular transmission device comprising :

An input shaft (25) rotating around a first rotation axis and an output shaft (6, 7) rotating around a second rotation axis,

An assembly (9) arranged to couple the input shaft with the output shaft so that the output shaft can be rotationally driven by the input shaft said assembly transforming the rotation of the input shaft around said first rotation axis into the rotation of the output shaft around the second rotation axis;

the assembly (9) comprising a rotary actuator (25) and a linear mobile (8), the rotary actuator being coupled with the input shaft (the rotary actuator in D1 is the input shaft) and arranged for moving the linear mobile (8) in a translation

motion relative to the actuator (25), the linear mobile being coupled with the output shaft so that the rotation of the input shaft can drive the rotation of the output shaft;

see therefore especially figure 1 of D1 and the related text passages.

The subject-matter of claim 1 therefore differs from this known angular transmission device in that D1 does not disclose

a flexible blade fixed to said linear mobile and looped around the output shaft, so that when the actuator moves the linear mobile, the flexible blade drives the rotation of the output shaft.

and is therefore new (Article 33(2) PCT).

D2 shows a similar angular transmission device but also fails to disclose the distinguishing features.

2.1.2 The problem to be solved by the present invention may be regarded as how to find an alternative for converting motion in a angular transmission device.

2.1.3 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

None of the cited documents disclose or suggest a solution as defined by the distinguishing features.

D3-D6 show different transmission systems which use flexible members to convert rotating motion or oscillating motion into reciprocating motion or vice versa.

The person skilled in the art has on the one hand no hint or motivation to combine those documents with the angular transmission devices of D1 or D2 and on the other hand such a combination would not directly lead to an angular transmission device as defined by claim 1.

Hence it seems that claim 1 meets the requirements of Article 33(2) and 33(3) PCT.

3 Independent claim 15

Independent claim 15 is a method claim of claim 1 and therefore also seems to meet the requirements of Articles 33(2) and 33(3) EPC.

4 Dependent claims 2-14

Claims 2-14 are dependent on one or more independent claims whose subject-matter is considered as being new and inventive, as discussed above, and as such said dependent claims also meet the requirements of the PCT with respect to novelty (Article 33(2) PCT) and inventive step (Article 33(3) PCT).

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1-D6 is not mentioned in the description, nor are those documents identified therein. At least documents D1/D2 and D3 should be mentioned in the description and be briefly discussed.

Re Item VIII

Certain observations on the international application

- 1 Claim 1 is not clear because in line 13 the expression "the actuator" leaves doubts which actuator is meant. It seems that "the rotary actuator" is meant. The feature should therefore be repeated completely.
- 2 Claims 5, 10 and 13 are unclear because the words "preferably" and/or "in particular" used in those claims is a non limiting expression. Therefore the features following those expressions are only regarded as optional and not part of the subject matter of the claim, see PCT Guidelines 5.44. Thus those technical features have not been searched.