

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

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

To:

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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/B2019/060390

International filing date (day/month/year)  
03.12.2019

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03.12.2018

International Patent Classification (IPC) or both national classification and IPC  
INV. G01M5/00 D07B7/02 G01L1/14 G01L5/10 G01N33/36

Applicant  
GILBOS NV

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

see form  
PCT/ISA/210

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**Box No. I Basis of the opinion**

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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:

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**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**

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1. Statement

Novelty (N)	Yes: Claims	<u>1-16, 19, 20, 22</u>
	No: Claims	<u>17, 18, 21</u>
Inventive step (IS)	Yes: Claims	<u>1-16, 19, 22</u>
	No: Claims	<u>17, 18, 20, 21</u>
Industrial applicability (IA)	Yes: Claims	<u>1-22</u>
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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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**

Reference is made to the following documents:

- D1 US 4 349 784 A (LOEPFE ERICH) 14 september 1982 (1982-09-14)
- D2 EP 0 610 147 A1 (SUPERBA SA [FR]) 10 augustus 1994 (1994-08-10)
- D3 US 4 399 648 A (KATO HISAAKI [JP]) 23 augustus 1983 (1983-08-23)
- D4 EP 1 033 579 A2 (UNIV DRESDEN TECH [DE]) 6 september 2000  
(2000-09-06)in de aanvraag genoemd
- D5 WO 2010/028642 A1 (NEUMANN ELEKTRONIK GMBH [DE]; SCHAEFER  
WOLFGANG [DE] ET AL.) 18 maart 2010 (2010-03-18)

1 **Re Item VIII**

**Certain observations on the application**

- 1.1 The application does not meet the requirements of Article 6 PCT, because claims 7 and 17 are not clear.
- 1.2 Claims 1 and 17 have been drafted as separate independent method claims. Said claims appear to relate to interrelated methods in the sense that the method of claim 1 and the device of claim 7 are destined to be used in a method of claim 17 (see also claim 22). Claim 17 should therefore be reformulated in such a way that it contains all features from claim 1 (e.g. by making it dependent on said claim by deleting the word "preferably" in line 5 of said claim).
- 1.3 Claim 17 is not supported by the description, as its scope is broader than justified by the description and drawings. Claim 17 refers in a general manner to measuring the local rotation at several locations but does not include the means used for said measurement. Since only one kind of sensor is disclosed by the description and the figures (i.e. the sensor of claim 7), but other sensors are possible (see e.g. the optical sensors in D5 or magnetic sensors), which are not supported by the description, the scope is too broad and should be restricted to the example used in the description. Deleting the word preferably, as suggested above, would result in a clear claim.
- 1.4 Claim 7 is not supported by the description, as its scope is broader than justified by the description and drawings.  
Claim 7 claims measuring the local rotation of an "elongated", i.e. a long and

thin object. The description and also claims 17 - 22 state as an example for such an object a yarn, or as further examples "rolls, bars" (page 25, lines 18 - 19). Since the measuring of the rotation throughout the description is done using electrostatic charges, the breadth of the claim is not justified, as there are a large number of long and thin objects that are electrically conductive and would therefore not carry an electrostatic charge, e.g. steel thread, or a steel or copper wire. Therefore the scope of the claim is not justified in its full breadth, and should be restricted in a similar manner as claim 1.

- 1.5 It is noted that this suggestion is only for assisting the applicant in his decision on how to proceed. It in no way precludes consideration of alternative solutions submitted by the applicant. The responsibility for determining the text of the application and in particular for defining the subject-matter for which protection is sought remains with the applicant.

2 **Re Item V**

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

- 2.1 The present application does not meet the criteria of patentability, because the subject-matter of claims 17,18 and 21 is not new.
- 2.2 The present application does not meet the criteria of patentability, because the subject-matter of claims 17,18, 20 and 21 does not involve an inventive step.
- 2.3 Claim 1
- 2.3.1 D1 is considered to be the prior art closest to the subject-matter of claim 1 and discloses a  
Method for contactless measurement of local rotation of an elongated, substantially non-conducting or poorly conductive object, preferably a yarn, (*for monitoring ballooning motion of a thread or yarn ; column 1, lines 46 - 48*)  
the method comprising the following steps:  
a. guiding the object along a longitudinal axis through at least one detection arrangement comprising a plurality of electric charge detecting components, (*through yarn guide body 3, having detector electrodes 31, 31' and ground electrodes 32, 32'; figures 3a and 3b*)  
characterised in that said electric charge detecting components are arranged in a first substantially circular pattern around the longitudinal axis at equal mutual distances, (*electrodes 31 and 31' being arranged on opposite sides of the circle; figures 3a and 3b*)

- and comprising a plurality of grounding electrodes equal to the plurality on electric charge detecting components, (*ground electrodes 32 and 32'; figures 3a and 3b*)
- which grounding electrodes are arranged in a second substantially circular pattern around the longitudinal axis at equal mutual distances, (*ground electrodes 32 and 32' being arranged on opposite sides of the circle; figures 3a and 3b*),
- the second substantially circular pattern staggered with respect to the first substantially circular pattern, (*the second pattern is directly on top of the first pattern but offset, and therefore falls within the meaning of a "crossed" pattern; figures 3a, 3b*);
- ~~the grounding electrodes functioning as a screen between the successive charge detecting components and thereby acting as a spatial filter;~~
- b. detecting one or more electrical charges on the object by a plurality of the charge detecting components, and processing the detection into an output signal; (*implicit from the term "collector" electrode*)
- c. combining the output signals of each of the charge detecting components (*using evaluation circuitry in figure 7*);
- d. deriving one or more, preferably one, dominant frequencies from the combined output signals (*frequency discriminating means; column 4; lines 66-68*).
- 2.3.2 The subject-matter of claim 1 therefore differs from this known Method in that the grounding electrodes are functioning as a screen between the successive charge detecting components and thereby acting as a spatial filter.
- 2.3.3 This feature has the technical effect of achieving a purer signal (page 21, lines 25 - 32) and therefore solve the problem of improving signal quality.
- 2.3.4 **The solution proposed in claim1 of the present application is considered to involve an inventive step (Article 33(3) PCT).**
- 2.3.5 The skilled person, who is always motivated to improve signal quality, would not however use the ground electrodes 32, 32' of D1 to screen the collector electrodes 31 and 31' from each other. The ground electrode in D1 is used to shield the collector electrodes from outside influences only. He would also not consider the interdigitated electrodes of D4, figure 8 in order to solve the given problem, as the sensor of D4 serves a different purpose than the sensor in D1 and, in addition has a shape that is incompatible with the space present in D1.

## 2.4 Claim 7

2.4.1 The objections under § 1.4 notwithstanding, the above argumentation for claim 1 also applies to claim 7.

2.5 Claim 17

2.5.1 D3 discloses a  
Method for contactless determination of undergone rotation (*A method of evaluation of balloons;abstract*) of a yarn extending substantially along a longitudinal axis (*yarn-like material 4; figure 1*),  
at a predetermined longitudinal point on a yarn over a certain path along the longitudinal axis or duration of time (*during the process for preparing spun yarns at points A, B and C; figure 1, column 2, lines 30 - 39*) during the twisting of said yarn in an air jet device (*pneumatic spinning method; column 2, lines 30 - 39*), comprising the following steps:  
a. measuring local rotation, ~~preferably according to a method according to any of the preceding claims 1 to 6 (optional),~~ at at least one, ~~preferably at least 2, 3, 4, 5 or more (optional),~~ immobile, separated positions along the longitudinal axis of the yarn, (*at points A, B or C; figure 1*),  
said positions being upstream along the yarn relative to, and/or at the level of the location where the yarn is provided with torsion by an external actuator (*jet nozzles 2 and 3 being downstream of position A or A and B respectively*), preferably wherein at least one of the positions is at a distance of at most 10 cm from where the yarn is provided with torsion by an external actuator, preferably wherein at least one of the positions is in the air jet device itself; (*optional; position B is between the two air nozzles and therefore "in" the air-jet device.*)  
b. calculating, on the basis of the measured rotation, the total undergone rotation of the yarn at the predetermined longitudinal point of the yarn over said path (*to know the rotation number, variations of this rotation and the spinning speed; column 5, line 66 - column 6, line 21*).

2.5.2 **The subject-matter of claim 17 is therefore not new.**

2.6 Claim 22

2.6.1 The above argumentation for claim 7 also applies to claim 22, which as such also meets the requirements of the PCT with respect to novelty and inventive step.

2.7 Claims 2-6, 8-16 and 18-21

- 2.7.1 Claims 2-6 and 8-16 are dependent on claim 1 and 7, respectively, and as such also meets the requirements of the PCT with respect to novelty and inventive step.
- 2.7.2 Dependent claims 18, 20 and 21 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of novelty and/or inventive step.
- 2.7.3 D3 additionally discloses the subject-matter of claim 18 (*analyzing detection results ... fiber bundle; column 5, line 66 - column 6, line 21*) and claim 21 (*air-jet nozzles 2 and 3; figure 1*)
- 2.7.4 The subject-matter of claims 18 and 21 is therefore not new.
- 2.7.5 D3 is regarded to be the closest prior art to the subject-matter of claims 19 - 20.
- 2.7.6 **The solutions proposed in claim 20 of the present application cannot be considered as involving an inventive step.**
- 2.7.7 Claim 19 corresponds to claim 22 and the argumentation made (§2.6) for claim 22 applies mutatis mutandis also to claim 19.
- 2.7.8 Claim 20 relates to measuring at two locations and subtracting the results at the two locations and is a usual step in the incremental determination of rotation which offers no surprising effect and which the skilled person would apply to the method of D3 without exercising inventive skill.