

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

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

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/EP2022/057545

International filing date (day/month/year)
22.03.2022

Priority date (day/month/year)
22.03.2021

International Patent Classification (IPC) or both national classification and IPC
INV. E02F9/28 F16B21/06

Applicant
METALOGENIA RESEARCH & TECHNOLOGIES S.L.

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:



European Patent Office
P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040
Fax: +31 70 340 - 3016

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Lantsheer, Martijn

Telephone No. +31 70 340-0



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>1-46, 63-79, 82-88, 93-96</u>
	No: Claims	<u>47-62, 80, 81, 89-92</u>
Inventive step (IS)	Yes: Claims	<u>1-46</u>
	No: Claims	<u>47-96</u>
Industrial applicability (IA)	Yes: Claims	<u>1-96</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 The applicant has requested to have the present application processed under PCT Direct (PCT Guidelines B-IV, 1.2.1). Account taken of the applicant's comments submitted with the PCT Direct letter of 22.03.22, this Authority considers that the claims 47 and 55 do not meet the requirements of the PCT for the reasons below.

2 Reference is made to the following documents:

D1 EP 1 630 426 A2 (NEWFREY LLC [US]) 1 March 2006 (2006-03-01)

D2 US 3 997 989 A (STEPE VISVALDIS A) 21 December 1976
(1976-12-21)

3 **Independent claims 1, 13, 25, 35, 47, 55, 63, 89, 91, 93**

3.1 The present application meets the criteria of Article 33(2) PCT, because the subject-matter of claim 1 is considered new and inventive.

D2 discloses:

A wear assembly of an earth moving machine comprising a wear element (3) and a pin (10), said wear element comprising a cavity (7) where, in an assembled position in which said wear element is assembled on a support element, a nose (Fig. 3) present in said support element is housed in said cavity, where said cavity is demarcated by side walls with two openings (5/6) arranged in two of said side walls opposite one another (Fig. 3), and are aligned with one another and aligned, in said assembled position, with a through nose opening arranged in said nose (Figs.), where said openings and said nose opening are suitable for housing therein said pin (Fig. 3) fixing said wear element in said nose (4) in the assembled position, where the openings define a longitudinal axis, where said longitudinal axis has a direction of insertion corresponding to the direction in which said pin is introduced in the openings to achieve said assembled position (Fig. 3), where said pin defines a longitudinal axis of the pin and has a first end (Fig. 3) with actuation means (tapered end of the pin) suitable for rotating said pin according to its longitudinal axis, and a second end, opposite said first end, where, in said assembled position, said first end is housed in one of said openings, referred to as inlet opening (e.g. 6, Fig. 3), which is a through opening, and said second end is housed in the other one of said through openings (Fig. 3), referred to as outlet opening (e.g. 5, Fig. 3),

~~characterized in that:~~

~~wherein said wear element comprises a retainer (20/22) fixed to the inner face of the side wall comprising said outlet opening (Fig. 3), said retainer being formed from a sheet material (22 is a washer) comprising a perimeter segment fixed to said inner face in a perimeter region of the outlet opening (Fig. 3), and a flexible flange joined at one end to said perimeter segment (2) and extending towards said outlet opening (21), where the free end (4) of said flexible flange (3) is inside said outlet opening (21),~~

~~and in that~~

~~said pin has a fixing region (8/9/14, Fig. 2), where said fixing region coincides, in the direction of the longitudinal axis, with said outlet opening (e.g. Fig. 3) in said assembled position, where said fixing region has a blocking segment (14) having a step,~~

~~where the riser of said step is oriented towards said first end (Fig. 2) and houses said free end of said flexible flange, thereby blocking the axial movement of said pin in the direction opposite the direction of insertion (via retainer 20),~~

~~said fixing region also comprising an unblocking segment (rounded part between ridges 14) arranged at the same distance as the blocking segment, in the direction of said longitudinal axis of the pin, with respect to said first end, said unblocking segment being displaced angularly, according to a rotation of said longitudinal axis of the pin, with respect to said blocking segment, where said unblocking segment does not have said step but rather has a smooth segment, in which the side surface of the pin extends continuously to the end of the second end (turning the pin onto the rounded section such that retainer does not prevent pin from coming out).~~

- 3.1.1 Claim 1 distinguishes over D2 in that it comprises a flexible flange joined at one end to said perimeter segment and extending towards said outlet opening, where the free end of said flexible flange is inside said outlet opening and the free end is housed in the step.
- 3.1.2 The problem to be solved can be considered to provide an alternative pin retention.
- 3.1.3 From a general working principle D2 is very close to the invention, however, the use a sheet material with flexible flange in the opening does not seem evident to apply when starting from D2. D2 based on different principle, in essence a sort of paper clip retainer. As a result the claimed invention is considered to be inventive alternative to D2.

- 3.1.4 For a similar reason as claim 1, *mutatis mutandis*, the subject matter of independent claim **13, 25, 35** is also considered to involve an inventive step over D2
- 4 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim **47** is not new in the sense of Article 33(2) PCT. The arguments of the applicant in the PCT-direct letter have been considered, but not been found convincing. Although the search division notes indeed that perhaps, part 18 is not suited as a snap connection, as argued by the applicant, it can be easily argued that the flexible flange is part 18 and the snap fit is 15, such that:

D1 discloses:

a retainer (2, Figs. 1-5) suitable for blocking a pin (1), <said pin being suitable (suitable for indeed) for fixing a wear element in a support element of an earth moving machine, said wear element comprising a cavity where, in an assembled position in which said wear element is assembled on said support element, a nose present in said support element is housed in said cavity, where said cavity is demarcated by side walls with at least one through opening arranged in one of said side walls, where said nose has a nose opening which, in said assembled position, is aligned with said through opening of said wear element, where, in said assembled position said pin is housed in said through opening (Fig. 1/2) and said nose opening, where said through opening defines a longitudinal axis, said longitudinal axis having a direction of insertion corresponding to the direction in which said pin is introduced in said through opening to achieve said assembled position>,*
said retainer is formed from a sheet material (Fig. 5) comprising a perimeter segment (17), <suitable for being fixed to a perimeter region of said through opening or of said nose opening>, and a flexible flange (18) joined at one end to said perimeter segment and <suitable for extending towards said through opening or said nose opening>*, where the free end of the flexible flange is <suitable for staying shifted forward (Figs. 1-5), according to said direction of insertion, with respect to said perimeter segment>*, ~~characterized in that,~~ wherein said perimeter segment (17) has first snap-fitting means (15 one side) suitable for being assembled on second snap-fitting means (15 other side) present in said perimeter region of said opening, thereby fixing said retainer to said perimeter region.*

<>*: It is noted that none of the technical features mentioned are not part of the scope of the claims, they are just to be suitable for this arrangement, being a common arrangement e.g. as seen in D2. Hence it is considered that the retainer in D1 is suitable for this arrangement in D2.

In fact claim **75/79** does not appear to add much more to independent claim 47, such that this claim lacks an inventive step over D1 and D2 for the reasons as just mentioned.

Hence similarly, independent use claim **89** appears to lack novelty over D1 for a similar reason as claim 47.

- 5 Similarly, the pin of independent claim **55** was argued by the applicant in the PCT-direct letter to be novel over D2 since it does not comprise an actuation means. However, the search division still considers the flattened end part of the pin the actuation means. Note that claim 55, similar to claim 47 refers to many features in a suitability. Hence, the flattened end of the pin could be used (suitable) to turn the pin with a plier and unlock the pin from the retainer 20, even though this is not explicitly disclosed in D2. Hence claim 55 is considered to lack novelty over D2

D2 discloses:

a pin (10, Fig. 2) suitable for fixing a wear element (3) in a support element of an earth moving machine, said wear element comprising a cavity (4) where, in an assembled position in which said wear element is assembled on said support element, a nose (Fig. 4) present in said support element is housed in said cavity, where said cavity is demarcated by side walls (Figs. 1-3) with at least one through opening (5) arranged in one of said side walls, where said nose has a nose opening which, in said assembled position, is aligned with said through opening of said wear element (Fig. 1), where, in said assembled position said pin is housed in said through opening and said nose opening (Fig. 3), where said through opening defines a longitudinal axis, said longitudinal axis having a direction of insertion corresponding to the direction in which said pin is introduced in said through opening to achieve said assembled position, where said pin defines a longitudinal axis of the pin (Figs. 1-4) and has a first end with actuation means (flattened nose parts Fig. 2/3) suitable for rotating the pin (e.g. by means of pliers) according to its longitudinal axis, and a second end (the other end of the pin), opposite said first end (Fig. 2), ~~characterized in that:~~ wherein said pin has a fixing region (8), where said fixing region coincides, in the direction of said longitudinal axis, with said through opening or with the beginning of said nose opening in said assembled position, where said fixing

region has a blocking segment having a step (14, grooved), where the riser (slant of the groove 14) of said step is oriented towards said first end (Fig. 2) and is suitable <suitable for use with e.g. retainer of D1, since not part of the scope of protection of claim 4) for housing the free end of a flexible flange of a retainer (e.g. according to D1), when said retainer is formed from a sheet material comprising a perimeter segment and said flexible flange joined at one end to said perimeter segment, said perimeter segment being fixed to a perimeter region of said through opening or of said nose opening, and said flexible flange extending towards said through opening or said nose opening, where the free end of said flexible flange stays shifted forward, according to said direction of insertion>,*

with respect to said perimeter segment, thereby blocking the axial movement of the pin in the direction opposite the direction of insertion, said fixing region also comprising an unblocking segment (rounded sides of the pin 10) arranged at the same distance as said blocking segment, in the direction of said longitudinal axis of the pin, with respect to said first end, said unblocking segment being displaced angularly (Fig. 2),

according to a rotation of said longitudinal axis of the pin, with respect to said blocking segment, where said unblocking segment does not have said step but rather has a smooth segment (smooth sides Fig. 2), in which the side surface of the pin extends continuously to the end of the second end.

For a similar reason claim **80/81** does not appear to be novel over D2.

Hence similarly, independent use claim **91** appears to lack novelty over D2 for a similar reason as claim 55.

Again, although not explicitly disclosed in D2 that the pin is rotated to be removed, it is known from D2 that the spring needs to rotate, i.e. in essence there is relative movement between pin and springs. Hence, although it appears options [a] and [b] of method claim **93** are to be considered novel and inventive, it seems option [c] can be considered to lack an inventive step in view of D2 and common knowledge of a person skilled in the art.

- 5.1 Similarly, the wear element of independent claim **63** does not appear to involve an inventive step in view of D2 in combination with D1. In fact claim 63 merely claims the wear element with a retainer. Hence, a person skilled in the art would not hesitate to use the retainer of D2.

6 **Dependent claims 2-12, 14-24, 26-34, 36-46, 48-54, 56-62, 64-88, 90, 92 94-96**

- 6.1 Dependent claims 2-12, 14-24, 26-34, 36-46 are dependent on a novel and inventive independent claim and therefore considered novel and inventive as well.
- 6.2 The subject matter of further claims 48-54, 56-62, 64-88, 90, 92, 94-96 do not appear to contain any further features compared to their respective dependent independent claim, that would render these claims novel and inventive over D1, D2 or a combination thereof.

Re Item VII

Certain defects in the international application

- 7 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 or D2 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

- 8 Although claims **1, 13, 25, 35, 47, 55, 63, 89, 91** have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.