

# 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/EP2020/076861

International filing date (day/month/year)  
25.09.2020

Priority date (day/month/year)  
27.09.2019

International Patent Classification (IPC) or both national classification and IPC  
INV. H05H1/24 H05H1/48 H01J37/32 B23Q1/44 B23Q1/70

Applicant  
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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>2, 4-6, 8-11</u>
	No: Claims	<u>1, 3, 7, 12-16</u>
Inventive step (IS)	Yes: Claims	<u>2, 4-6, 8-11</u>
	No: Claims	<u>1, 3, 7, 12-16</u>
Industrial applicability (IA)	Yes: Claims	<u>1-16</u>
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

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

Reference is made to the following documents:

- D1 WO 2009/142400 A2 (PSM INC [KR]; LEE KEUN HO [KR] ET AL.) 26 November 2009 (2009-11-26)
- D2 US 2013/306100 A1 (WANDKE DIRK [DE] ET AL) 21 November 2013 (2013-11-21)
- D3 US 4 306 175 A (SCHLEICHER ROBERT G ET AL) 15 December 1981 (1981-12-15)
- D4 DE 10 2014 105233 A1 (KUNIG GMBH [DE]) 15 October 2015 (2015-10-15)

**1 INDEPENDENT CLAIMS**

**1.1 Claim 1**

The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claim 1 is not new. D1 discloses (references in parenthesis apply to this document):

A plasma device (abstract, Fig.2) comprising:

- a mounting support (Z-transfer part 140),
- at least one first lever (one of the two bars of the X-lever 142) rotatably mounted on the mounting support (the rotation is around the lower pivot in Fig.2),
- at least one second lever (the other bar of the X-lever 142) rotatably mounted on the at least one first lever (the rotation is around the centre point h of the X-lever), and
- a first electrode (192) attached to the at least one second lever (through cleaning module 190, see Fig.6).

The subject-matter of claim 1 is therefore not new (Art.33(2) PCT).

It is noted that the subject matter of claim 1 is not novel also w.r.t. to:

D2 (see Fig.1 the rotation axis 4 has also the function of mounting support and the two levers 2 and 3);

D3 (see Fig.2 supports 62,64, levers are bar 66 and piston 68 and igniter is electrode 36);

D4 (see Fig.2, the guide beam 2 is the support, 3 and 4 are the coupled pivotable levers and the tool 11 is the plasma torch comprising the electrode).

It must be noted that claim 1 as drafted has a scope so broad that encompasses the above mentioned prior art, even if apparently quite different.

#### 1.2 Claim 16

The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claim 16. It is also noted that in the case of D2, the electrode and the workpiece both move one with respect to the other. Claim 16 is therefore not novel over D2.

### 2 DEPENDENT CLAIMS

Dependent claims 3,7,12,13,14,15 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to novelty and/or inventive step, for the following reasons:

#### 2.1 D1 (and/or D2,D3,D4) also disclose:

- a second electrode attached to the at least one second lever (claim 3): see D2 Fig.1 electrodes 13 and 14;
- the outer surface of the first electrode has at least partially a round cross-section (claim 7): see D3, electrode 36 of Fig.3;
- the at least one first lever consists of a pair of first levers and the at least one second lever may consist of a pair of second levers (claim 12): see D4, Fig.2;
- a driving unit to move the work piece with respect to the mounting support (claim 13): see D1, x-axis conveying part 120, in Fig.3;
- the mounting support is configured such that the position of a pivot point of the first lever adjustable (claim 14): see D1 Fig.2: the position of the higher pivots of the X-lever is adjustable;
- the length of the first lever is adjustable (claim 15): see D3, Fig.2 piston 68 is adjustable in length.

2.2 The combination of the features of dependent claims 2,4-6, 8-11 is neither known from, nor rendered obvious by, the available prior art.