

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

To:
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Date of mailing (<i>day/month/year</i>) 04 July 2019 (04.07.2019)		FOR FURTHER ACTION See paragraph 2 below	
Applicant's or agent's file reference 85038492			
International application No. PCT/US 2018/064384	International filing date (<i>day/month/year</i>) 07 December 2018 (07.12.2018)	Priority date (<i>day/month/year</i>)	
International Patent Classification (IPC) or both national classification and IPC B41J 29/38 (2006.01) B41J 29/42 (2006.01)			
Applicant HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.			

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 43*bis*.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 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 66.1*bis*(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/RU: Federal Institute of Industrial Property, Berezhkovskaya nab., 30-1, Moscow, G-59, GSP-3, Russia, 125993 Facsimile No: (8-495) 531-63-18, (8-499) 243-33-37	Date of completion of this opinion 03 April 2019 (03.04.2019)	Authorized officer A. Himachev Telephone No. 499-240-60-15
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 2018/064384

Box No. I Basis of this 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 43*bis*.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 filed or furnished:
 - 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 13*ter*.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 13*ter*.1(a)).
 - on paper or in the form of an image file (Rule 13*ter*.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 in 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 and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 8, 12, 14, 15	YES
	Claims	1, 3-7, 9-11, 13	NO
Inventive step (IS)	Claims		YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations:

D1: US 5947469 A;

D2: US 5333547 A;

D3: US 8931874 B1;

1. Document D1 is considered to be the closest prior art to independent claims 1, 9 and 15, document D1, as well as claim 1, discloses lateral adjustment apparatus (col. 3 line 25 – col. 4 line 36, fig. 3, 4, abstract) comprising:

- a gripper to grip a print substrate (fig. 3, 4 ref. no. 8), the gripper being mounted on a rotor (fig. 3, 4 ref. no. 6, 25) rotatable about a lateral axis; and
- a lateral adjustment motor (fig. 3, 4 ref. no. 38, 9) to drive movement of the gripper laterally along the rotor to adjust a lateral position of the print substrate;
 - wherein the lateral adjustment motor is mounted on the rotor.

Therefore independent claim 1 is not novel.

In addition, document D1, as well as claim 9, discloses a printing device (abstract) comprising lateral adjustment apparatus (col. 3 line 25 – col. 4 line 36, fig. 3, 4), the lateral adjustment apparatus comprising:

- a gripper (fig. 3, 4 ref. no. 8) to grip a print substrate, the gripper being mounted on a rotor (fig. 3, 4 ref. no. 6) rotatable about a lateral axis; and
- a lateral adjustment motor (fig. 3, 4 ref. no. 38) to drive movement of the gripper laterally along the rotor to adjust a lateral position of the print substrate;
 - wherein the lateral adjustment motor (fig. 3, 4 ref. no. 9) is mounted on the rotor.

Therefore independent claim 9 is not novel.

In addition, document D1, as well as claim 15, discloses lateral adjustment apparatus (col. 3 line 25 – col. 4 line 36, abstract) comprising:

- a rotor rotatable about a lateral axis (fig. 3, 4 ref. no. 6);
- a gripper to grip a print substrate, the gripper being movably mounted on the rotor by way of a laterally extending rail (fig. 3, 4 ref. no. 34);

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of V:

- a lateral adjustment motor (fig. 3, 4 ref. no. 38), mounted on the rotor, to drive lateral movement of the gripper along the rail.

The invention differs from D1 in that the lateral adjustment apparatus further comprises a rotor motor to drive rotation of the rotor about the lateral axis.

Therefore independent claim 15 is novel.

The foregoing features distinguishing the invention from D1 are obvious to a person skilled in the art since they relate to the need to ensure the rotation of the rotor about the lateral axis, for example, using a rotary motor.

Therefore independent claim 15 does not involve an inventive step.

2. As for dependent claims 2-8 and 10-14:

The features added by dependent claim 3 are also disclosed in document D1, namely, that the lateral adjustment motor is within a lateral extent of the gripper (fig. 3).

The features added by dependent claim 4 are also disclosed in document D1, namely, that the lateral adjustment motor is located in the same region of a housing as the gripper (fig. 3).

The features added by dependent claim 5 are also disclosed in document D1, namely, that the lateral adjustment motor is mounted on the rotor so as to rotate together with the rotor (fig. 3 ref.no. 25).

The features added by dependent claim 6 are also disclosed in document D1, namely, that the gripper is mounted on the rotor by way of being movably mounted on a rail and the lateral adjustment motor is to drive movement of the gripper laterally along the rail (fig. 3 ref.no. 34).

The features added by dependent claim 10 are also disclosed in document D1, namely, that the printing device further comprises: a camera to capture an image of at least a portion of the print substrate; and a controller to determine a location of the substrate from the image to determine a distance of the print substrate from a predetermined location (col. 3 lines 40-55, fig. 2).

The features added by dependent claim 11 are also disclosed in document D1, namely, that the controller is to control the lateral adjustment apparatus to adjust the lateral position of the print substrate based on the determined distance of the print substrate from the predetermined location (col. 3 lines 40-55, fig. 2).

The features added by dependent claim 13 are also disclosed in document D1, namely, that the printing device further comprises: feed apparatus and print apparatus, the lateral adjustment apparatus being located between the feed apparatus and the print apparatus (col. 3 lines 40-64, fig. 1, 2).

The features added by dependent claim 7 are also disclosed in document D1, namely, that the lateral adjustment motor is operatively coupled to the gripper (col. 4 lines 10-15, fig. 3 ref.no. 9, 32, 28). The features relating to the connection by way of a ball screw are obvious to a person skilled in the art.

The features added by dependent claim 8 are also disclosed in document D2, namely, that a rotor motor to drive rotation of the rotor and/or a gripper motor to drive actuation of the gripper, the gripper motor being mounted on the rotor (col. 6 lines 1-10, fig. 1-3 ref.no. 3, 4, 10, abstract).

The features added by dependent claim 12 are also disclosed in document D2, namely, that the

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of V:

controller is to determine a location of a portion of a side edge of the print substrate or a location of a corner of the print substrate from the captured image and to control the lateral adjustment apparatus to adjust the lateral position of the print substrate such that the portion of the side edge of the print substrate or the corner of the print substrate is relocated to a predetermined location (col. 4 line 68 – col. 5 line 20, fig. 5).

The features added by dependent claim 14 are also disclosed in document D2, namely, that the feed apparatus comprises skew correction apparatus to rotate the print substrate to correct skew (claim 11).

The features added by dependent claim 2 are also disclosed in document D3, namely, that the lateral adjustment motor is electrically connected to a power supply by way of a slip ring (col. 15 lines 40-45, fig. 5).

Therefore dependent claims 3-7, 10, 11 and 13 are not novel.

Given the above novelty objection, claims 1, 3-7, 9-11 and 13 do not involve an inventive step.

Therefore dependent claims 2, 8, 12 and 14 are novel and do not involve an inventive step.

The inventions according to the claims 1-15 meet the criterion of industrial applicability.