

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	25 June 2020 (25-06-2020)
	<i>(day/month/year)</i>

Applicant's or agent's file reference
P57520PC00

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/CA2020/050386

International filing date *(day/month/year)*
24 March 2020 (24-03-2020)

Priority date *(day/month/year)*
27 March 2019 (27-03-2019)

International Patent Classification (IPC) or both national classification and IPC
IPC: **B29C 48/395** (2019.01)

Applicant
OMACHRON INTELLECTUAL PROPERTY INC.

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 or 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/CA
Canadian Intellectual Property Office
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Gatineau, Quebec K1A 0C9
Facsimile No.: 001-819-953-2476

Date of completion of this opinion

23 June 2020 (23-06-2020)

Authorized officer

Kurtis Ulicny (819) 639-7918

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(b))

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 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 or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-18	YES
	Claims NONE	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-18	NO
Industrial applicability (IA)	Claims 1-18	YES
	Claims NONE	NO

2. Citations and explanations:

- D1: DE102007041486A1 (RUST, H.) 15 May 2008 (15-05-2008)
D2: DE102010026535A1 (RUST, H.) 12 January 2012 (12-01-2012)
D3: CN2579643Y (XIA, G.) 15 October 2003 (15-10-2003)
D4: US2018/0236705A1 (CONRAD, W.) 23 August 2018 (23-08-2018)

Novelty (N)

Claims 1-18 are novel and therefore comply with PCT Article 33(2). Documents D1, D2 and D3 are considered to represent the closest prior art.

Document D1 discloses an extruder comprising:

- (a) an axially extending extruder barrel module (5, 6) having a feedstock inlet end and a feedstock outlet end axially spaced from the feedstock inlet end in a direction of flow through the extruder barrel module (see Figure 1), the extruder barrel module comprising an axially extending barrel in which an extruder barrel screw (11) is removably receivable;
- (b) an axially extending extruder feeder module (4) removably connectable to the feedstock inlet end of the extruder barrel module, the extruder feeder module having an axially extending flow passage aligned with the direction of flow when the extruder feeder module is connected to the barrel module (see Figure 1), the axially extending flow passage having a feedstock outlet end and a screw motor module mounting end axially spaced from the feedstock outlet end of the extruder feeder module in a direction of flow through the axially extending flow passage (see Figure 1);
- (c) a screw motor module (2) removably connectable to the screw motor module mounting end of the extruder feeder module, the screw motor module having a motor drivingly connectable with a screw (7) in the flow passage of the extruder feeder module.

Document D2 discloses an extruder comprising:

- (a) an axially extending extruder barrel module (S1-S3) having a feedstock inlet end and a feedstock outlet end axially spaced from the feedstock inlet end in a direction of flow through the extruder barrel module (see Figure 1), the extruder barrel module comprising an axially extending barrel in which an extruder barrel screw (31-33) is removably receivable;
- (b) an axially extending extruder feeder module (2) removably connectable to the feedstock inlet end of the extruder barrel module, the extruder feeder module having an axially extending flow passage aligned with the direction of flow when the extruder feeder module is connected to the barrel module (see Figure 1), the axially extending flow passage having a feedstock outlet end and a screw motor module mounting end axially spaced from the feedstock outlet end of the extruder feeder module in a direction of flow through the axially extending flow passage (see Figure 1);
- (c) a screw motor module (1) removably connectable to the screw motor module mounting end of the extruder feeder module, the screw motor module having a motor drivingly connectable with a screw (25) in the flow passage of the extruder feeder module.

[X] See Supplemental Box

Supplemental Box

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

Continuation of: **Box V**

Document D3 discloses an extruder comprising:

(a) an axially extending extruder barrel module (2) having a feedstock inlet end and a feedstock outlet end axially spaced from the feedstock inlet end in a direction of flow through the extruder barrel module (see Figure 1), the extruder barrel module comprising an axially extending barrel in which an extruder barrel screw (3) is removably receivable;

(b) an axially extending extruder feeder module (6) removably connectable to the feedstock inlet end of the extruder barrel module, the extruder feeder module having an axially extending flow passage aligned with the direction of flow when the extruder feeder module is connected to the barrel module (see Figure 1), the axially extending flow passage having a feedstock outlet end and a screw motor module mounting end axially spaced from the feedstock outlet end of the extruder feeder module in a direction of flow through the axially extending flow passage (see Figure 1);

(c) a screw motor module (8) removably connectable to the screw motor module mounting end of the extruder feeder module, the screw motor module having a motor drivingly connectable with a screw (3) in the flow passage of the extruder feeder module.

D1 (Figure 2) and D2 (Figure 4) disclose the screw in the flow passage is drivingly connectable with the extruder barrel screw when the extruder is assembled.

D3 (Figure 3) discloses the screw in the flow passage and the extruder barrel screw comprise a single integrally formed screw.

However, none of the cited documents explicitly disclose an electronics module electrically connectable with the screw motor module and mechanically removably mounted as part of the extruder. Claims 1-18 are therefore novel.

Inventive Step (IS)

Claims 1-18 do not involve an inventive step and therefore do not comply with PCT Article 33(3).

D4 discloses an extruder including an electronics module (1424) electrically connectable with the screw motor module and mechanically removably mounted as part of the extruder. To connect the electronics module to any of the modules would have been obvious to the person of ordinary skill in the art, in order to efficiently control the operation of the extruder.

It would have been obvious to a person skilled in the art to arrive at the matter defined in claims 1-18 by combining the teachings of documents D1, D2 or D3 with D4. Documents D1, D2 or D3 when combined with document D4 therefore shows that claims 1-18 do not involve an inventive step.

Industrial Applicability (IA)

The subject matter of claims 1-18 is considered to be industrially applicable and thus complies with the requirements of PCT Article 33(4).