

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

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|--|--|--|
| Applicant's or agent's file reference  | <b>FOR FURTHER ACTION</b>  | See item 4 below   |
| International application No.<br>PCT/MD2017/000005   | International filing date ( <i>day/month/year</i> )<br>24 June 2017 (24.06.2017) | Priority date ( <i>day/month/year</i> )<br>27 June 2016 (27.06.2016) |
| International Patent Classification (8th edition unless older edition indicated)<br>See relevant information in Form PCT/ISA/237 |  |  |
| Applicant<br>COVALENCO, Andrei   |  |  |

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

|                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

|   |   |
|---|---|
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland<br><br>Facsimile No. +41 22 338 82 70 | Date of issuance of this report<br>01 January 2019 (01.01.2019)                     |
|   | Authorized officer<br><br>Athina Nickitas-Etienne<br><br>e-mail: pct.team4@wipo.int |

**PATENT COOPERATION TREATY**

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

|                                     |                   |
|-------------------------------------|-------------------|
| Date of mailing<br>(day/month/year) | <b>28.09.2017</b> |
|-------------------------------------|-------------------|

|                                       |  |
|---------------------------------------|--|
| Applicant's or agent's file reference | <b>FOR FURTHER ACTION</b><br>See paragraph 2 below |
|---------------------------------------|--|

|   |   |   |
|---|---|---|
| International application No.<br><b>PCT/MD2017/000005</b> | International filing date (day/month/year)<br><b>24.06.2017</b> | Priority date (day/month/year)<br><b>27.06.2016</b> |
|---|---|---|

International Patent Classification (IPC) or both national classification and IPC  
**B64C 27/08 (2006.01)**

Applicant  
**COVALENCO, Andrei**

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 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 66.1bis(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/RU | Date of completion of this opinion | Authorized officer |
| Facsimile No.                          |                                    | Telephone No.      |

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/MD2017/000005

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 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:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

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|--|
| International application No.<br>PCT/MD2017/000005 |
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|                  |   |
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| <b>Box No. V</b> | <b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b> |
|------------------|---|

|                               |        |     |     |
|-------------------------------|--------|-----|-----|
| 1. Statement                  |        |     |     |
| Novelty (N)                   | Claims | 1-5 | YES |
|                               | Claims |     | NO  |
| Inventive step (IS)           | Claims |     | YES |
|                               | Claims | 1-5 | NO  |
| Industrial applicability (IA) | Claims | 1-5 | YES |
|                               | Claims |     | NO  |

|                                |  |
|--------------------------------|--|
| 2. Citations and explanations: |  |
|--------------------------------|--|

D1 - MD 4413 B1  
D2 - CN 203740123 U  
D3 - US 2016/0114887 A1  
D4 - RU 2550909 C1  
D5 - RU 2467924 C1

D1 (abstract, page 3, line 57 - page 4, line 3, figures 1 and 2) discloses an octocopter comprising: a body, in which an electric power source and a monitoring and control device are fastened; four arms, at the ends of which, at the corners of an imaginary rectangle, load-bearing rotors having electric motors are mounted in the same plane, while at the same time the load-bearing rotors are arranged symmetrically with respect to both the center of gravity and to the longitudinal axis of symmetry of the octocopter; a landing gear; and two pairs of rotors having electric motors, thus providing and increase in speed, resistance to wind and lift of the multicopter.

The invention according to claim 1 differs from D1 in

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/MD2017/000005

**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**

that the four aforementioned arms are rigidly secured to the body, in which, on the transverse axis of symmetry of the aircraft an arm is rotatably mounted in a hinge, and at the ends of said arm a pair of auxiliary (lift and cruise) rotors is mounted symmetrically relative to the longitudinal axis of symmetry of the aircraft, wherein said rotors are arranged on mutually spaced brackets.

Thus, the invention according to claims 1-5 satisfies the criterion of novelty.

D2 (abstract, figures 1-3) discloses a multicopter, in the body of which, on the transverse axis of symmetry, arms are rotatably mounted in hinges, and at the ends of said arms lift and cruise propellers having electric motors are mounted symmetrically in relation to the longitudinal axis of symmetry of the multicopter.

D3 ([0037]-[0051], figures 1-7) discloses an aircraft in which the lift and cruise propellers are rotatably mounted on one arm, wherein two pairs of lift and cruise rotors are arranged on a rotating arm (wing) on mutually spaced brackets which are oriented differently and parallel to the longitudinal axis of the multicopter, the planes of rotation of said rotors being different and parallel to the transverse axis of the multicopter.

Thus, the invention according to claim 1 and dependent claim 2 does not meet the criterion of inventive step.

D4 (page 9, lines 43-46) discloses a multicopter, in which the ratio of the dimensions of the load-bearing

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/MD2017/000005

**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

propellers and the lift and cruise propellers is  $\sqrt{2}$  (1.42).

D5 (page 5, lines 47-49) discloses an aircraft designed with a wing having an angle of installation of 3.8 degrees relative to the horizontal plane.

The features of dependent claim 4, characterized by the ratio of the propeller pitch of an auxiliary rotor and the propeller pitch of a load-bearing rotor, which is 1.4-4.0, consist in the selection of specific working parameters from a limited range of possibilities, which can be determined by applying routine design procedures since said ratio depends on the ratio of diameters of the corresponding propellers and the powers of the drives.

Thus, the invention according to dependent claims 3-5 does not satisfy the criterion of inventive step.

The invention according to claims 1-5 satisfies the criterion of industrial applicability.