

**PATENT COOPERATION TREATY**  
**PCT**

**INTERNATIONAL SEARCH REPORT**  
(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>JD-G1 7092-00003</b>	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No. <b>PCT/CA2020/050387</b>	International filing date ( <i>day/month/year</i> ) 25 March 2020 (25-03-2020)
(Earliest) Priority date ( <i>day/month/year</i> ) 28 March 2019 (28-03-2019)	
Applicant 10270725 CANADA CORP.	

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out 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)).

b.  This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2.  **Certain claims were found unsearchable** (see Box No. II).

3.  **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 13

- as suggested by the applicant.
- as selected by this Authority, because the applicant failed to suggest a figure.
- as selected by this Authority, because this figure better characterizes the invention.

b.  none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/CA2020/050387**A. CLASSIFICATION OF SUBJECT MATTER  
IPC: *B64C 27/08* (2006.01), *B64C 15/12* (2006.01), *B64C 27/52* (2006.01), *B64C 39/02* (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC: *B64C 27/08* (2006.01), *B64C 15/12* (2006.01), *B64C 27/52* (2006.01), *B64C 39/02* (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Database: Questel-Orbit

Keywords: main, rotor, propeller, second, smaller, diameter, size, larger, threecopter, tricopter, yaw, helicopter, tail, tilt, rotate, pivot, antitorque, shroud, multicopter.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP2690012 A1 (FINK, A. et al.) 29 January 2014 (29-01-2014) * The entire document *	1-97
X	US20140158816 A1 (DELOREAN, P.J., et al.) 12 June 2014 (12-06-2014) * The entire document *	1-97
X	CN102730189 A (ZHENG, P.) 17 October 2012 (17-10-2012) * The entire document *	1-97
X	CN204895855 U (WANG, Q.) 23 December 2015 (23-12-2015) * The entire document *	1-97

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
“A” document defining the general state of the art which is not considered to be of particular relevance	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
“D” document cited by the applicant in the international application	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
“E” earlier application or patent but published on or after the international filing date	“&” document member of the same patent family
“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	
“O” document referring to an oral disclosure, use, exhibition or other means	
“P” document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
08 April 2020 (08-04-2020)Date of mailing of the international search report  
27 May 2020 (27-05-2020)Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
Place du Portage I, C114 - 1st Floor, Box PCT  
50 Victoria Street  
Gatineau, Quebec K1A 0C9  
Facsimile No.: 819-953-2476Authorized officer  
  
Jean-Francois Goulet (819) 639-1568

## INTERNATIONAL SEARCH REPORT

International application No.

**PCT/CA2020/050387**

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO2007014531 A1 (HAN, P.) 8 February 2007 (08-02-2007) * The entire document *	1-97
A	CN107416198 A (HE, C.) 1 December 2017 (01-12-2017) * The entire document *	
A	US20150274289 A1 (NEWMAN, D.I., et al.) 1 October 2015 (01-10-2015) * The entire document *	
A	US20160244157 A1 (WELSH, R.D.) 25 August 2016 (25-08-2016) * The entire document *	
A	US20160325829 A1 (AHN, H.S., et al.) 10 November 2016 (10-11-2016) * The entire document *	
A	US20180362160 A1 (GRONINGA, K.L., et al.) 20 December 2018 (20-12-2018) * The entire document *	
A	WO2018084261 A1 (SUZUKI, H., et al.) 11 May 2018 (11-05-2018) * The entire document *	
A	CN107697279 A (JIANG, F.) 16 February 2018 (16-02-2018) * The entire document *	

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/CA2020/050387**

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
EP2690012A1	29 January 2014 (29-01-2014)	None	
US2014158816A1	12 June 2014 (12-06-2014)	US9085355B2 AU2013376864A1 AU2013376864B2 BR112015013134A2 CA2893294A1 EP2928772A2 EP2928772A4 IL239205D0 IL239205A JP2016501154A JP6322647B2 US2015274292A1 US9862486B2 US2018222580A1 US2019185155A1 WO2014120331A2 WO2014120331A3	21 July 2015 (21-07-2015) 16 July 2015 (16-07-2015) 05 October 2017 (05-10-2017) 11 July 2017 (11-07-2017) 07 August 2014 (07-08-2014) 14 October 2015 (14-10-2015) 11 January 2017 (11-01-2017) 30 July 2015 (30-07-2015) 28 February 2019 (28-02-2019) 18 January 2016 (18-01-2016) 09 May 2018 (09-05-2018) 01 October 2015 (01-10-2015) 09 January 2018 (09-01-2018) 09 August 2018 (09-08-2018) 20 June 2019 (20-06-2019) 07 August 2014 (07-08-2014) 23 October 2014 (23-10-2014)
CN102730189A	17 October 2012 (17-10-2012)	CN102730189B	23 February 2018 (23-02-2018)
CN204895855U	23 December 2015 (23-12-2015)	None	
WO2007014531A1	08 February 2007 (08-02-2007)	CN1907806A	07 February 2007 (07-02-2007)
CN107416198A	01 December 2017 (01-12-2017)	None	
US2015274289A1	01 October 2015 (01-10-2015)	AU2014277866A1 AU2014277866B2 CA2876492A1 CN104943861A EP2927122A1	15 October 2015 (15-10-2015) 08 February 2018 (08-02-2018) 30 September 2015 (30-09-2015) 30 September 2015 (30-09-2015) 07 October 2015 (07-10-2015)
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US2016325829A1	10 November 2016 (10-11-2016)	CN106114851A KR20160131631A KR101767943B1	16 November 2016 (16-11-2016) 16 November 2016 (16-11-2016) 17 August 2017 (17-08-2017)
US2018362160A1	20 December 2018 (20-12-2018)	EP3415423A1 EP3415423B1	19 December 2018 (19-12-2018) 06 November 2019 (06-11-2019)
WO2018084261A1	11 May 2018 (11-05-2018)	JPWO2018084261A1 JP6487607B2	01 November 2018 (01-11-2018) 20 March 2019 (20-03-2019)

INTERNATIONAL SEARCH REPORT

International application No.

**PCT/CA2020/050387**

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
		US2019256191A1	22 August 2019 (22-08-2019)
		US10526066B2	07 January 2020 (07-01-2020)
		WO2018083839A1	11 May 2018 (11-05-2018)
CN107697279A	16 February 2018 (16-02-2018)	None	