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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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(54) Title: UNMANNED AERIAL VEHICLE PICK-UP AND DELIVERY SYSTEMS

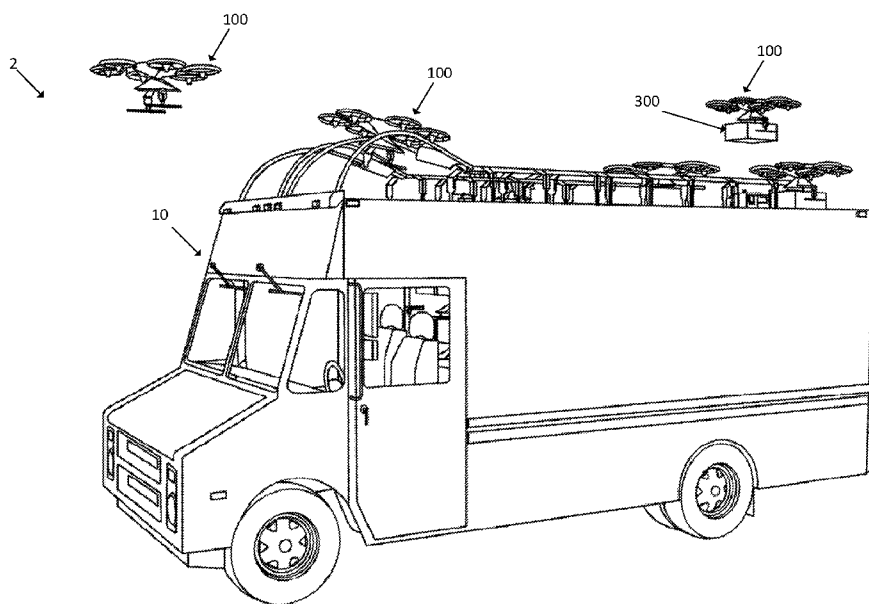


FIG. 1

(57) Abstract: Systems and methods include UAVs that serve to assist carrier personnel by reducing the physical demands of the transportation and delivery process. A UAV (100) generally includes a UAV chassis (110) including an upper portion, a plurality of propulsion members (102) configured to provide lift to the UAV chassis, and a parcel carrier (200) configured for being selectively coupled to and removed from the UAV chassis. UAV support mechanisms are utilized to load and unload parcel carriers to the UAV chassis, and the UAV lands on and takes off from the UAV support mechanism to deliver parcels to a serviceable point. The UAV includes computing entities that interface with different systems and computing entities to send and receive various types of information.



EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,  
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
KM, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.1 7(ii))*

**Published:**

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

**(88) Date of publication of the international search report:**

05 April 2018 (05.04.2018)

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2017/030157

A. CLASSIFICATION OF SUBJECT MATTER  
**INV. B64C39/02 G06Q10/08**  
 ADD.  
 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)  
**B64C G06Q**

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
**EPO-Internal , WPI Data**

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	wo 2015/061008 A1 (AMAZON TECH INC [US] ) 30 April 2015 (2015-04-30)	1-40
Y	paragraphs [0033] , [0035] , [0037] , [0039] - [0044] , [0060] - [0066] , [0069] , [0107] , [0125] ; figures 2,3a-3f -----	47,56,58
X	wo 2015/076886 A2 (GOOGLE INC [US] ) 28 May 2015 (2015-05-28)	44,45 , 48,49 , 51,52 , 55,57
Y	paragraphs [0022] - [0025] , [0033] ; figures 1A-2B.4	41-48, 50,53 , 54,56,58
A	-----	1-40
Y	cn 105 438 472 A (WUXI MI RA TECH CO LTD) 30 March 2016 (2016-03-30)	41-48, 53,54
A	paragraphs [0022] - [0029] ; figure 1 ----- -/- .	49

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

\* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search <b>20 February 2018</b>	Date of mailing of the international search report <b>06/03/2018</b>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer <b>Busto, Mari o</b>
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2017/030157

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	GB 2 530 626 A (CARRICONDE GUSTAVO [AE]) 30 March 2016 (2016-03-30)	43,50
A	page 7, line 19 - page 8, line 8; figure 1 -----	44,51
A	US 2016/068264 A1 (GANESH SHRIRAM [US] ET AL) 10 March 2016 (2016-03-10) paragraphs [0038] - [0041]; figures 1A-1D -----	1-40
A	US 4 478 379 A (KERR JOHN P [CA] ) 23 October 1984 (1984-10-23) abstract; figure 1 -----	41-58

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2017/030157

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos. :
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos. :

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-40

parcel delivering UAV with a plurality of propulsion members and a parcel carrier configured for being selectively coupled to and removed from the UAV chassis, said parcel carrier comprising an engagement housing and a parcel carrying mechanism

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2. claims: 41-58

UAV with upper and lower portion presenting a width variable in the vertical direction (hourglass shaped) and a parcel carrying mechanism

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No <b>PCT/US2017/030157</b>
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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