



- (51) International Patent Classification:
G01C 21/02 (2006.01)
- (21) International Application Number:
PCT/US2011/054980
- (22) International Filing Date:
5 October 2011 (05.10.2011)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
12/902,023 11 October 2010 (11.10.2010) US
- (71) Applicant (for all designated States except US): **CON-TAINERTRAC, INC.** [US/US]; 4905 Central Avenue, Suite 200, Richmond, CA 94804 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **TAN, Han-Shue** [US/US]; 1181 Sunlight Circle, Concord, CA 94518 (US). **HUANG, Jihua** [CN/US]; 116 Schooner Court, Richmond, CA 94804 (US). **BU, Fanping** [CN/US]; 1071 Foster City Boulevard, Apt. B, Foster City, CA 94404 (US). **SONG, Hongjun** [CN/US]; 3271 Mt. Diablo Court, Apt. #204, Lafayette, CA 94549 (US). **WARF, Gregory, Keith** [US/US]; 516 Emerald Hills Circle, Fairfield, CA 94533 (US).
- (74) Agents: **WARD, Thomas, A.** et al.; Fliesler Meyer LLP, 650 California Street, Fourteenth Floor, San Francisco, CA 94108 (US).

- (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, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, 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, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

- (88) Date of publication of the international search report:
10 April 2014

(54) Title: METHOD OF AUTOMATIC POSITIONING FOR LOADING AND UNLOADING OF CONTAINER SHIPS IN CONTAINER TERMINALS

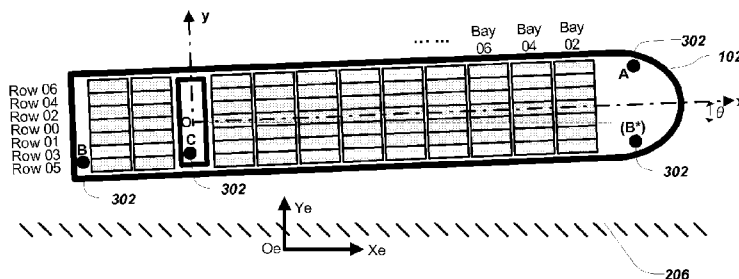


Fig. 3A

(57) Abstract: A method is provided for automatically locating a container in a stowage location of a container ship for loading and unloading of the container ship in container terminals. The method includes the following steps: obtaining the position information of the container ship from container ship positioning units, obtaining the position information of the container from container positioning units when the container is in its stowage location, and determining the stowage location of the container in the container ship by first computing a relative position of the container in the container ship based on both the position information of the container ship and the position information of the container and then correlating the relative position with a stowage plan of the container ship.

WO 2012/051024 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/054980

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G01C 21/02 (2012.01)

USPC - 701/32.4

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(8) - G01C 21/00, 21/02; H04Q 1/30 (2012.01)

USPC - 340/539.1, 539.13; 701/32.4

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)

MicroPatent; Google Patent; Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/0281618 A1 (MERMET et al) 13 November 2008 (13.11.2008) entire document	1, 2, 4, 6-8
Y		3, 5, 9-14
Y	US 2009/0177394 A1 (WALZ et al) 09 July 2009 (09.07.2009) entire document	3, 5, 12
Y	US 2002/0024598 A1 (KUNIMITSU et al) 28 February 2002 (28.02.2002) entire document	9
Y	US 4,973,219 A (BRICKNER et al) 27 November 1990 (27.11.1990) entire document	10-14
A	US 2008/0117040 A1 (PEEL et al) 22 May 2008 (22.05.2008) entire document	1-14

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

20 February 2012

Date of mailing of the international search report

28 FEB 2012

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774