

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 July 2023 (27.07.2023)



(10) International Publication Number
WO 2023/140961 A1

(51) International Patent Classification:

B62B 5/00 (2006.01) **B62B 3/14** (2006.01)
B60D 1/48 (2006.01) **B62D 13/02** (2006.01)
B60P 1/02 (2006.01) **B62D 53/00** (2006.01)
B62B 3/06 (2006.01)

(21) International Application Number:

PCT/US2022/054218

(22) International Filing Date:

29 December 2022 (29.12.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

17/579,089 19 January 2022 (19.01.2022) US

(71) Applicant: **J-TEC INDUSTRIES, INC.** [US/US]; 201
Carver Lane, East Peoria, IL 61611 (US).

(72) Inventors: **KNEPP, Joseph**; c/o J-tec Industries, Inc., 201
Carver Lane, East Peoria, IL 61611 (US). **MERRITT,
Ryan**; c/o J-tec Industries, Inc., 201 Carver Lane, East
Peoria, IL 61611 (US). **SMOCK, Ryan**; c/o J-tec Indus-
tries, Inc., 201 Carver Lane, East Peoria, IL 61611 (US).
KAISER, Nicholas; c/o J-tec Industries, Inc., 201 Carver
Lane, East Peoria, IL 61611 (US). **CAMP, Christopher**;
c/o J-tec Industries, Inc., 201 Carver Lane, East Peoria, IL
61611 (US).

(74) Agent: **REPPER, Kevin, M.**; Kilyk & Bowersox, P.L.L.C.,
3925 Chain Bridge Road, Suite D-401, Fairfax, Virginia
22030 (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, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE,

(54) Title: TUGGER CART SYSTEM WITH AUTOMATED LIFTING AND STEERING

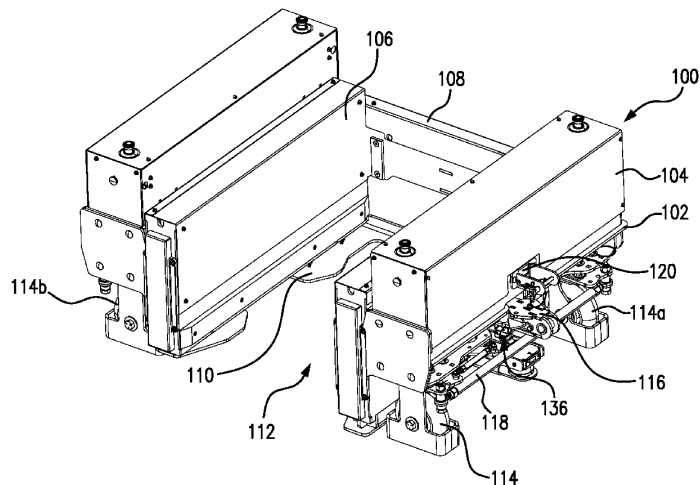


FIG. 1

(57) Abstract: A tugger cart system used in an industrial setting, including a tugger cart and a controller. The tugger cart includes a tugger frame, a bay that is dimensioned to receive a rider cart, a platform configured to secure a rider cart within the bay, and at least one motor that pivots a plurality of wheels from side to side to steer the plurality of wheels. The tugger frame further includes a connector bracket that pivots from side to side along a vertical axis. The connector bracket is configured to attach the tugger frame to an adjacent tugger cart or tugger truck. A sensor system senses a degree that the connector bracket is pivoted relative to the tugger frame and generates an electronic signal. The controller receives the electronic signal from the sensor system and controls the motor to steer the plurality of wheels based on the electronic signal.

[Continued on next page]

WO 2023/140961 A1

KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, ME, 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).

Published:

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