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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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(54) Title: ARTICLE METERING APPARATUS, SYSTEM & METHODS

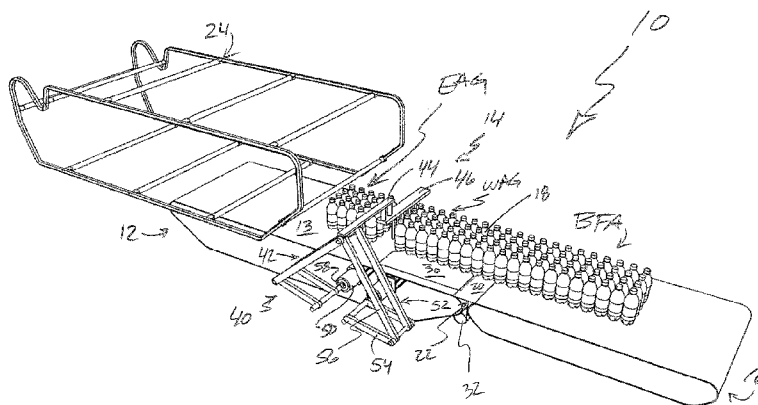


FIG. 2

(57) Abstract: An article metering system is primarily comprised of a conveyor section, for receipt of a bulk flow of articles and conveyance of spaced apart metered article groups downstream of an ingress portion thereof, and an article metering station characterized by an article metering apparatus characterized by a drive assembly and a driven member driven thereby. The driven member includes an end effector for select positioning between adjacent articles of articles of the bulk flow of articles received by the conveyor section in furtherance of delimiting a downstream spaced apart metered article group characterized by a select number of columns. The drive assembly includes cooperatively driven servo drives to effectuate travel of the end effector in either of a downstream article flow direction or an upstream article flow direction, and an up/down direction in relation to articles of the bulk flow of articles received by the conveyor section.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 13/22158

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B65G 47/26 (2013.01)

USPC - 198/418.8

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)

USPC: 198/418.8

IPC: B65G 47/26 (2013.01)

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

USPC: 198/418, 418.5, 418.7, 418.8, 419.1, 426, 429, 459.1, 459.6, 460.1

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

Patbase; Google Patents; Google Scholar; Search terms: Convey* meter divide separate portion group collate space article bottle can jar containers products effector arm servo articulate translate frangible team cooperate group collect collaborate robot delta stop halt pause restrict actuator gate barricade block pin bar plate up down upward downwa

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2008/0099307 A1 (FLECK et al); 01 May 2008 (01.05.2008); Fig. 1, 2, 3a-c; para. [0029]-[0031], [0034].	1-4, 9-11, 13, 15-16, 19, 22-23 ----- 5-8, 12, 14, 17-18, 20-21
Y	US 2010/0101191 A1 (LINDEE); 29 April 2010 (29.04.2010); para. [0046]-[0049]; Fig. 8.	5, 12, 21
Y	US 7,533,768 B2 (FLODING et al.); 19 May 2009 (19.05.2009); Fig. 1; col. 4, ln. 46-61.	6-8
Y	US 2007/0125239 A1 (BALLEZA et al.); 07 June 2007 (07.06.2007); Fig. 1, 2A, 2B; para. [0012], [0033]-[0042].	14, 17-18
Y	US 2011/0067975 A1 (PAZDERNIK); 24 March 2011 (24.03.2011); fig. 2A; para. [0025], [0032].	20
A	US 7,980,381 B2 (TREJO); 19 July 2011 (19.07.2011); Fig. 1-4; col. 2, ln. 17-47.	1, 23

 Further documents are listed in the continuation of Box C.

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

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"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

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