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- (71) Applicant: DEMATIC CORP. [US/US]; 507 Plymouth Avenue N.E., Grand Rapids, Michigan 49505 (US).
- (72) Inventors: GERMAN, H., Thad; 5744 Dumon, Belding, Michigan 48809 (US). BERGHORN, David, M.; 1732 E. Sanderling Court, Grand Rapids, Michigan 49505 (US). BRAYMAN, Matthew, T.; 865 Pine Valley Drive N.E., Ada, Michigan 49301 (US). JOHNSON, James, P.; 7080 - 9 Mile N.E., Rockford, Michigan 49341 (US). TAYLOR, Bruce, E.; 16255 - 1 Mile Road, Morley, Michigan 49336 (US). BRAY, William, P.; 14014 Taft Road, Spring Lake, Michigan 49456 (US).
- (74) Agent: ONDERSMA, Karl, T.; Gardner, Linn, Burkhardt and Flory, LLP, 2851 Charlevoix Drive, S.E., Suite 207, Grand Rapids, Michigan 49546 (US).

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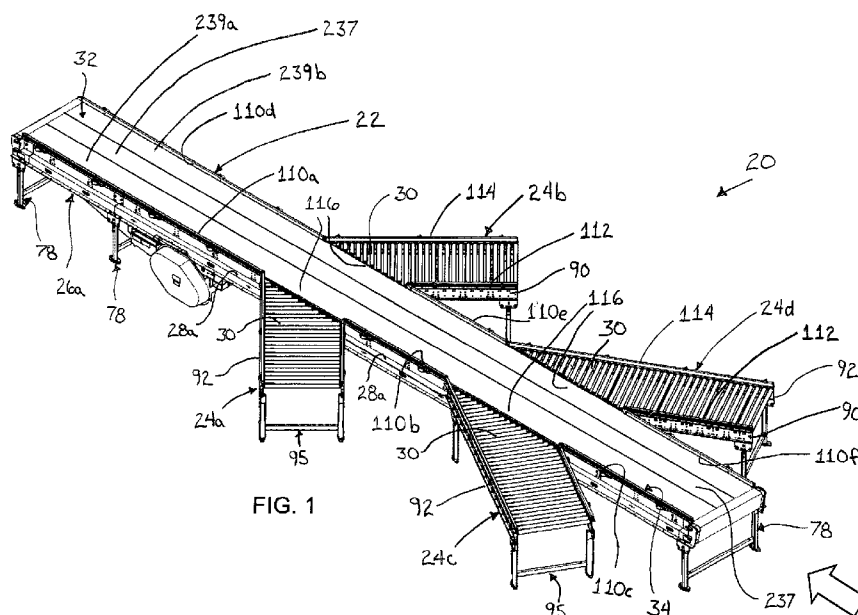
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- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

(54) Title: CONVEYOR MERGE ASSEMBLY



(57) Abstract: A conveyor assembly (20) comprising a main conveyor (22) having a first side frame (26a) and a second side frame (26b), with the first and/or second side frames including a side portion (70) and a support surface (28). One or more input conveyors (24) having a discharge end (30) are joined to the main conveyor (22) with a bottom portion (98) of the discharge end (30) being positioned on the support surface (28) whereby the input conveyors (24) are accurately mounted in close proximity to the main conveyor (22) to promote the conveyance of items from the input conveyors (24) onto the main conveyor (22).



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 14/40249

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B65G 47/46 (2014.01)

CPC - B65G 47/46

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): B65G 47/46 (2014.01)

CPC: B65G 47/46

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

IPC(8): B65G 47/54, B65G 15/16 (2014.01); USPC: 198/447, 198/448, 198/601, 198/602, 198/583, 198/457.03

CPC: B65G 47/54, B65G 15/16, B65G 47/681 (search term limited; see below)

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

PatBase (All); Google (Web, Patents, Scholar)

Search terms: merg*, conveyor*, merge, belt, angle*, conveyor belt, side rail*, rail, frame, roll*, endless, roller, tooth, sawtooth, branch

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2,366,279 A (MITCHELL) 02 January 1945 (02.01.1945), entire document, especially Fig 1-4	1-3 and 19-21
X --- Y	US 1,815,549 A (DIETZ) 21 July 1931 (21.07.1931), entire document, especially Fig 1-2, col 1, in 35-49	23-25 ----- 1-3 and 19-21
Y	US 4,526,266 A (DIETZ) 02 July 1985 (02.07.1985), entire document, especially Fig 1-3	1-3 and 19-21
A	US 2,901,083 A (MCGRATH) 25 August 1959 (25.08.1959), entire document	1-3, 19-21 and 23-25
A	US 7,422,098 B2 (BONHAM et al) 09 September 2008 (09.09.2008), entire document	1-3, 19-21 and 23-25
A	GB 2123375 A (THE POST OFFICE) 01 February 1984 (01.02.1984), entire document	1-3, 19-21 and 23-25



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

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Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 14/40249

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.: 4-18, 22 and 29
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:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I: Claims 1-3, 19-21 and 23-25 drawn to a conveyor assembly comprising a main conveyor having a first side frame and a second side frame, the first side frame having a side portion and a support surface, and an input conveyor having a discharge end, the input conveyor being mounted to the first side frame of the main conveyor.

Group II: Claims 26-28 drawn to a conveyor assembly comprising a belt conveyor having a top surface and a belt with said belt having a first edge and a second edge defining a width of said belt and being moveable over the top surface, wherein the belt has a first portion joined together with a second portion; with said first portion and said second portion comprising a conveying surface configured to support items for conveyance on the main conveyor, and wherein the first portion provides greater frictional surface resistance than said second portion.

-*-Continued in Supplemental Box-*

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 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.: 1-3, 19-21 and 23-25

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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 14/40249

-Box III - Observations where unity of invention is lacking-

Group III: Claim 30 drawn to a conveyor assembly, said conveyor assembly comprising a belt conveyor having a top surface and a belt with said belt having a first edge and a second edge defining a width of said belt and being moveable over said top surface, wherein said main conveyor includes an input end and a discharge end, and wherein at least one of said input end and said discharge end include an end pulley assembly around which said belt travels to enable said belt to travel in a direction opposite that from which it enters said end pulley assembly, and wherein said end pulley assembly comprises a top roller and a bottom roller having parallel axes of rotation with the axis of rotation of said top roller being positioned vertically higher than the axis of rotation of said bottom roller

The inventions listed as group I through III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I requires the special technical feature of a main conveyor having a first side frame and a second side frame, the first side frame having a side portion and a support surface, and an input conveyor having a discharge end, the input conveyor being mounted to the first side frame of the main conveyor, not required by groups II and III.

Group II requires the special technical feature of a belt conveyor having a belt, wherein the belt has a first portion joined together with a second portion, with said first portion and said second portion comprising a conveying surface configured to support items for conveyance on the main conveyor, and wherein the first portion provides greater frictional surface resistance than said second portion, not required by groups I and III.

Group III requires the special technical feature of a belt conveyor wherein at least one of an input end and an discharge end include an end pulley assembly around which said belt travels to enable said belt to travel in a direction opposite that from which it enters said end pulley assembly, and wherein said end pulley assembly comprises a top roller and a bottom roller having parallel axes of rotation with the axis of rotation of said top roller being positioned vertically higher than the axis of rotation of said bottom roller, not required by groups I and II.

The only feature shared by groups I through III that would otherwise unify the groups, is a conveyor assembly comprising a "main conveyor". However this technical feature does not represent a contribution over prior art, because the shared technical feature is anticipated by US 7,422,098 B2 to Bonham et al. (hereinafter 'Bonham').

Bonham teaches a main conveyor (11, Fig 1, col 3, ln 41-51) for use in a conveyor assembly (10, Fig 1, col 3, ln 41-51).

As the common technical feature was known in the art at the time of the invention, this cannot be considered a common technical feature that would otherwise unify the groups.

The only feature shared by groups II and III that would otherwise unify the groups, is the element/technical feature a belt conveyor having a top surface and a belt with said belt having a first edge and a second edge defining a width of said belt and being moveable over said top surface.

Bonham teaches a belt conveyor (11, Fig 1, col 3, ln 41-51) for use in a conveyor assembly (10, Fig 1, col 3, ln 41-51) having a top surface (top conveying surface 20, Fig 1, col 5, ln 25-26) and a belt (19, Fig 1, col 4, ln 41-43) with said belt having a first edge (belt merge edge 29, Fig 1-4, col 6, ln 7-11) and a second edge (edge adjacent guide rail 30, Fig 1-4, col 6, ln 7-11) defining a width of said belt and being moveable over said top surface.

As the common technical feature was known in the art at the time of the invention, this cannot be considered a common technical feature that would otherwise unify the groups.

Therefore, Groups I-III lack unity under PCT Rule 13.

Note: claims 4-18, 22 and 29 are determined unsearchable because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).