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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii)) for the following designations AE,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,
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ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD,
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CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
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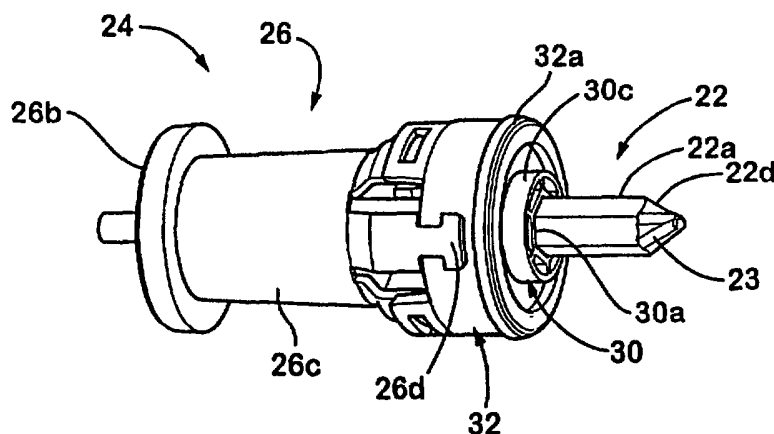
— as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii)) for all designations
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

[Continued on next page]

(54) Title: AXLE CARTRIDGE FOR CONVEYOR ROLLER



(57) Abstract: A conveyor roller (12) includes at least one axle cartridge (24) and is mounted at opposite sidewalls (14) of a conveyor (10). The axle cartridge includes a bearing assembly (26) at an outer end and an inner support (27) at an inner end. The bearing assembly provides rotational support of a roller portion (20) about an axle portion (22). The inner support is spaced from an inner end of the axle portion during normal use of the roller and may provide contact support at the axle portion in response to loading induced deflection of the roller, whereby the inner support limits flexing of the roller portion and may limit binding of the bearing assembly during such

loading conditions. The axle portion may include one or more guide members (23) along a generally conical-shaped axle end (22d) for guiding the axle portion into a correspondingly formed opening in the conveyor sidewall.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/004212

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65G39/12 B65G39/09 F16C13/02

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 7 B65G F16C

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 865 290 A (SCOTT CHARLES WINFIELD) 2 February 1999 (1999-02-02) column 2, line 62 - column 3, line 52; figure 1	1-13
A	----- US 3 353 644 A (FOX WILLIAM R ET AL) 21 November 1967 (1967-11-21) column 2, line 33 - column 3, line 35; figure 2 -----	1-13



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° 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 document 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

28 June 2004

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/004212

Box 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 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 fee, this Authority did not invite payment of any additional fee.
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.:

1-13

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-13

invention 1 relates to an axle bearing cartridge, wherein a portion of the inner support of the cartridge housing defines a gap circumferentially around a stub axle and provides contact support for said stub axle in response to loading induced roller deflections.

2. claims: 14-24

invention 2 relates to a conveyor roller and axle, wherein the axle has a generally conical-shaped end and has at least one raised rib positioned along the conical-shaped end for aligning the axle with a correspondingly formed opening in the sidewall of the conveyor.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/004212

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 5865290	A	02-02-1999	JP	2000034009 A		02-02-2000
US 3353644	A	21-11-1967	FR	1508767 A		05-01-1968
			GB	1118846 A		03-07-1968