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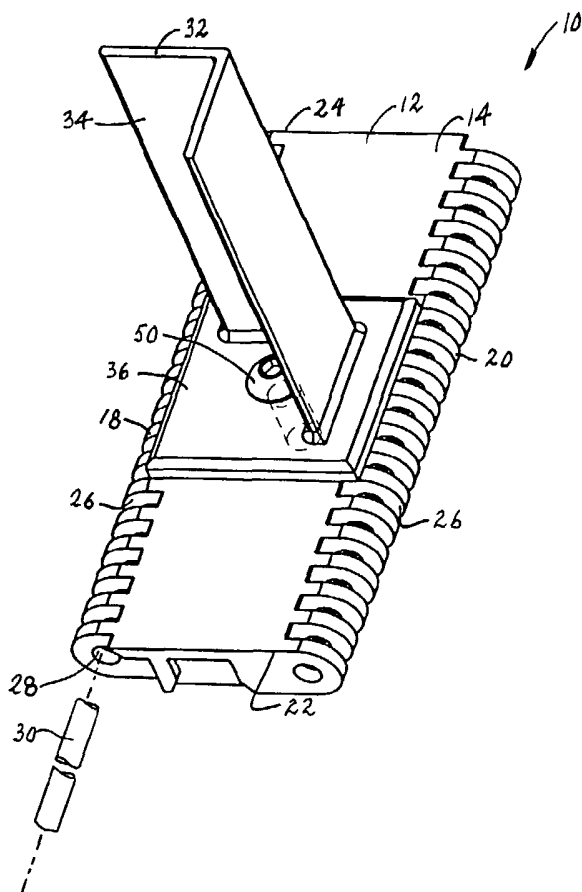
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(54) Title: PLASTIC CONVEYOR BELT MODULE WITH EMBEDDED FASTENERS



(57) Abstract: A plastic conveyor belt module (10) having an embedded high-strength fastener (42) for securely fastening an assortment of attachment elements (32). A fastener, such as a nut, or threaded insert, is press-fit into a countersunk hole (38) that extends through the thickness of the module (10) and opens onto top and bottom surfaces (14, 16). Attachment hardware (50), such as a bolt or screw, extends from the attachment element (32) into the embedded fastener (42) to secure the attachment to the module (10).



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- 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

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, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/013323

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65G17/08

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

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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 277 676 A (HABASIT AG) 22 January 2003 (2003-01-22)	1,3
A	column 3, paragraph 12 - column 4, paragraph 19	2,4-9
A	----- DE 102 09 155 A (DOEMER THOMAS ; BUSFELD WILHELM (DE)) 31 October 2002 (2002-10-31) column 1, lines 3-8; column 2, lines 26-66; figures	1-9
A	----- US 4 582 193 A (LARSSON KARL H) 15 April 1986 (1986-04-15) column 6, line 19 - column 8, line 5; figures 1,2,6-8	1-9
A	----- WO 98/14396 A (ZIMMERMANN DIETER) 9 April 1998 (1998-04-09) the whole document	1-9
	----- -/-	

☒ 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

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12. 01. 2005

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/013323

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.:

1-9

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: 1-9

A plastic conveyor belt module comprising an opening extending through its thickness, a fastener and an attachment element engaging the fastener through said opening, wherein said fastener is a threaded nut.

2. claims: 10-23

A plastic conveyor belt module capable of being connected in end to end relation with other such modules, wherein said module comprises an embedded fastener for attaching an attachment element.

3. claim: 24

A plastic conveyor belt module comprising a countersunk opening extending through its thickness, said module body further including a seat demarcating the interface between a wide region of the countersunk opening inward of one of the top and bottom surfaces and a narrow region of the hole inward of the wide region.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/013323

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 832 183 A (LAPEYRE JAMES M) 23 May 1989 (1989-05-23) the whole document -----	1-9
A	EP 0 172 745 A (LAITRAM CORP) 26 February 1986 (1986-02-26) the whole document -----	1-9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/013323

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1277676	A	22-01-2003	US 2003015406 A1	23-01-2003
			AT 281381 T	15-11-2004
			CA 2380127 A1	19-01-2003
			CN 1398770 A	26-02-2003
			DE 60201786 D1	09-12-2004
			EP 1277676 A1	22-01-2003
			JP 2003054723 A	26-02-2003

DE 10209155	A	31-10-2002	DE 20104371 U1	27-09-2001
			DE 10209155 A1	31-10-2002

US 4582193	A	15-04-1986	NONE	

WO 9814396	A	09-04-1998	AT 2413 U1	27-10-1998
			WO 9814396 A1	09-04-1998

US 4832183	A	23-05-1989	DE 3571020 D1	20-07-1989
			EP 0175483 A1	26-03-1986
			JP 61145007 A	02-07-1986

EP 0172745	A	26-02-1986	DE 3571019 D1	20-07-1989
			EP 0172745 A1	26-02-1986
			JP 61145006 A	02-07-1986
			US 4925013 A	15-05-1990
