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(54) Title: INJECTION MOLDED SCREENING APPARATUSES AND METHODS

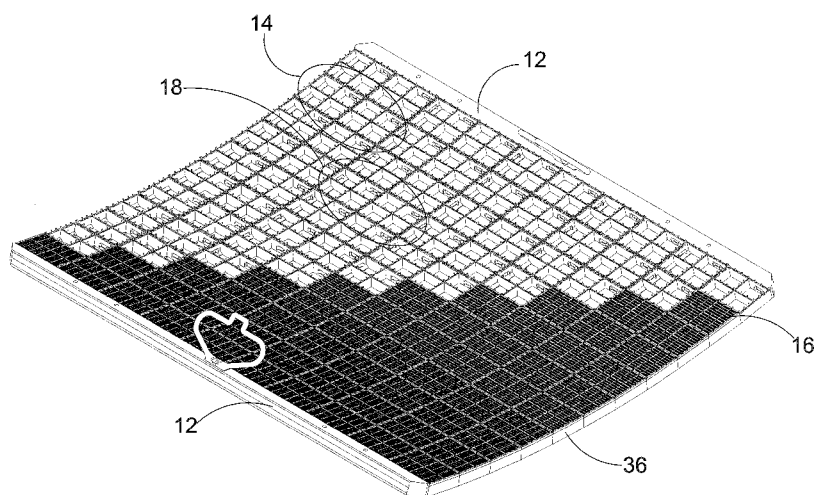


FIG. 8

(57) Abstract: Screening members, screening assemblies (10), methods for fabricating screening members and assemblies and methods for screening materials are provided for vibratory screening machines that incorporate the use of injection molded materials. Use of injection molded screen elements (16) provide, inter alia, for: varying screening surface configurations; fast and relatively simple screen assembly fabrication; and a combination of outstanding screen assembly mechanical and electrical properties, including toughness, wear and chemical resistance. Embodiments of the present invention use a thermoplastic injection molded material.



INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/030960

A. CLASSIFICATION OF SUBJECT MATTER

INV. B07B1/46 B01D25/00
ADD.

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)

B07B B01D

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 practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2 269 314 A1 (NIXON) 20 October 2000 (2000-10-20)	17,21, 22, 33-37, 45-48, 52,53, 65-67, 71,72, 74-79, 85, 91-94, 97, 100-104, 106,108, 109, 126-148, 153
Y	abstract page 2, line 1 - page 4, line 22 page 6, line 1 - page 8, line 32 -/--	1-16, 18-20, 23-32,



Further documents are listed in the continuation of Box C.



See patent family 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 application or patent but published on or after the international filing date

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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

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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PCT/US2013/030960

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	claims figures	38-44, 49-51, 54-64, 68-70, 73, 80-84, 86-90, 95,96, 98,99, 105,107
Y	----- DE 35 42 635 C1 (STEINHAUS GMBH) 19 February 1987 (1987-02-19)	1-16, 18-20, 23-32, 38-44,73
A	abstract column 2, line 30 - column 4, line 24 claims figure	17,33, 54-58, 61,62, 65-67, 75-79, 85, 89-91, 93,94, 126,127, 130-134, 137,138, 141-145, 148
Y	----- US 2005/133465 A1 (DERRICK ET AL) 23 June 2005 (2005-06-23)	14, 49-51, 54-64, 68-70, 80-83, 105,107
A	abstract paragraph [0090] - paragraph [0092] claims figures	1,11,12, 15-17, 21,22, 32,36, 37,44, 45,52, 53,65, 71,72, 108,126, 127,138
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/030960

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 29 24 571 A1 (HERRMANN SCREENS MANUFACTURING CO. (PROPRIETARY) LTD.) 22 January 1981 (1981-01-22)	84, 86-90, 95,96, 98,99
A	page 6, line 1 - line 9 page 15, line 8 - page 19, line 9 page 22, line 8 - page 23, line 8 page 24, line 1 - line 19 claims figures	1-5,9, 15-19, 23-33, 38, 42-44, 54-58, 61,62, 65-67, 73, 75-79, 85,93, 94,97, 126,127, 130-134, 137,138, 141,145, 148
A	----- WO 2008/115673 A1 (DERRICK CORPORATION ET AL) 25 September 2008 (2008-09-25) abstract page 2, line 3 - line 22 page 9, line 25 - line 30 claims figures -----	1,7, 14-20, 28-35, 43-45, 61-63, 65,74, 75,80, 84-92, 95-100, 102-108, 126,127, 135-138, 146-148, 153

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/030960

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.:
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:

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 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.:

1-109, 126-148, 153

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-109, 126-148, 153

Screen assembly and method for fabricating the screen
assembly

2. claims: 110-118

Screen element

3. claims: 119-125, 151, 152

Thermoplastic screen element

4. claims: 149, 150

Method of screening

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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