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[Continued on next page]

(54) Title: PIVOTING HOPPER FOR PARTICLE BLAST APPARATUS

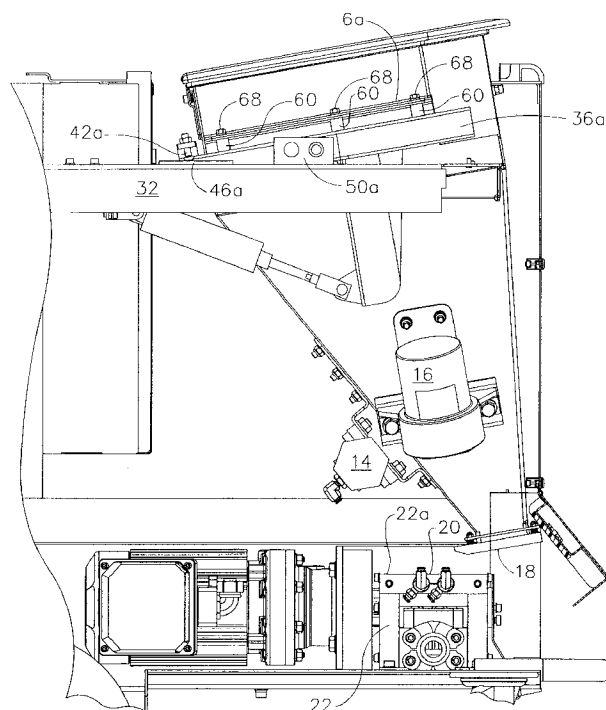


FIG. 6

(57) Abstract: A particle blast apparatus has a pivoting hopper, allowing the hopper exit to move from or between a first position at which the exit is aligned with the feeder entrance to a second position where the hopper exit is not aligned as such. The hopper may be emptied or cleared in this manner. The hopper may be provided with a device configured to impart energy to the hopper while the hopper exit is located at the second position.



(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

— *before the expiration of the time limit for amending the
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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER

INV. B24C1/00 B24C7/00 B24C9/00

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)

B24C

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	WO 02/20217 A (COLD JET INC [US]) 14 March 2002 (2002-03-14) page 1, lines 8-14 figures 2-6,4A	1-5
A	US 2003/017792 A1 (RIVIR MICHAEL E [US] ET AL RIVIR MICHAEL E [US] ET AL) 23 January 2003 (2003-01-23) cited in the application the whole document	1-5

☐ 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 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)
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- *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

29 September 2009

Date of mailing of the international search report

27/01/2010

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/086534

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.:

see additional sheet(s)

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: 1-5

A method of operating a particle blast apparatus having a hopper with an exit and having a particle feeder with an inlet for receiving particles, the exit being disposable at a first position at which said exit is aligned with said inlet and a second position in which the exit is not aligned with said inlet

comprising the step of applying mechanical energy as impulses to said hopper while said exit is disposed at said second position.

2. claims: 6-14

A particle blast apparatus having a particle feeder with an inlet for receiving particles, a hopper with an exit, the hopper being moveable between a first hopper position at which the exit is at a first exit position at which the exit is aligned with the inlet and a second hopper position at which the exit is not aligned with the inlet

wherein the moveability of the hopper is a pivotability about a pivot axis.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/086534

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0220217	A	14-03-2002	AU 8880401 A 22-03-2002
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