

(19)



(11)

EP 2 415 559 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
03.09.2014 Bulletin 2014/36

(51) Int Cl.:
B24C 1/00 (2006.01) B24C 1/08 (2006.01)

(43) Date of publication A2:
08.02.2012 Bulletin 2012/06

(21) Application number: **11175687.0**

(22) Date of filing: **28.07.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **06.08.2010 US 851572**

(71) Applicant: **BHA Altair, LLC**
Franklin, TN 37067 (US)

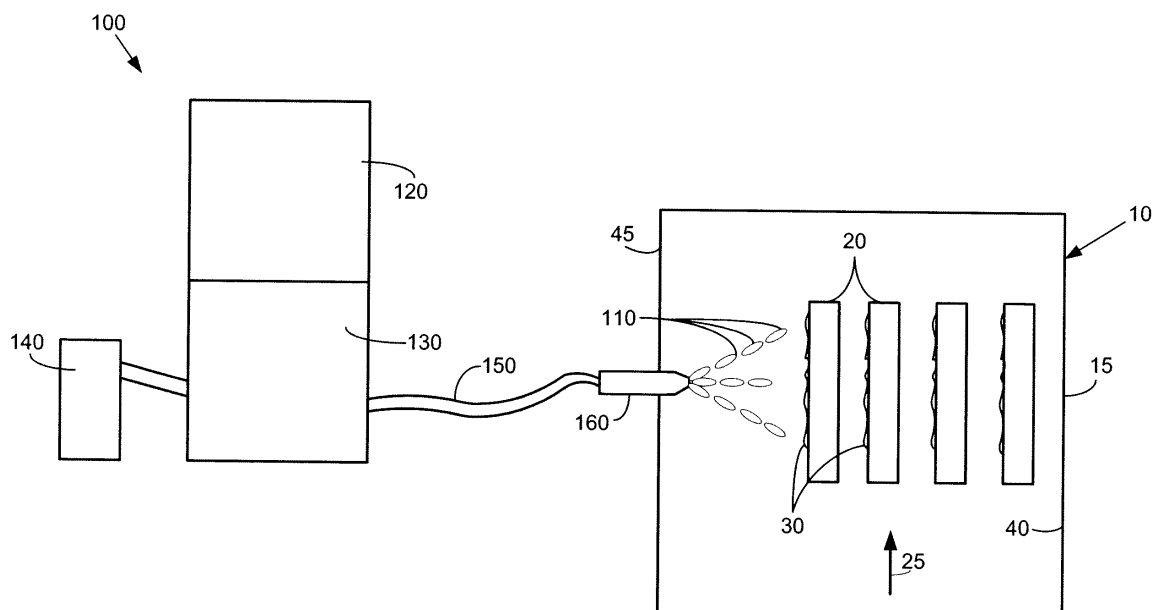
(72) Inventors:
• **Zhang, Tian Xuan**
Raytown, MO Missouri 64133 (US)
• **Chapin, David Michael**
Raytown, MO Missouri 64133 (US)
• **Taylor, Robert Warren**
Ponte Vedra Beach, FL Florida 32082 (US)

(74) Representative: **Pronovem**
Office Van Malderen
Avenue Josse Goffin 158
1082 Bruxelles (BE)

(54) **Ice blast cleaning systems and methods**

(57) The present application provides an ice blast cleaning method for a layer of slag (30) on a surface (40). The ice blast cleaning method may include the steps of maintaining the surface (40) with the layer of slag (30) thereon at an elevated temperature, shooting a number of ice pellets (110) at the layer of slag (30) on the surface

(40), and loosening the layer of slag (30) on the surface (40) via a mechanical impact of the ice pellets (110) on the layer of slag (30) and a thermal shock caused by a temperature differential between the ice pellets (110) and the layer of slag (30).



EP 2 415 559 A3



EUROPEAN SEARCH REPORT

Application Number
EP 11 17 5687

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 03/011485 A2 (TECH BUERO STEUR GMBH [DE]; MARTINEZ MARIO [IT]) 13 February 2003 (2003-02-13) * page 1, line 7 - page 3, line 20 * * figures 1,2c * * abstract *	1-13	INV. B24C1/00 B24C1/08
X	US 5 932 169 A (STRELBISKY MICHAEL J [CA]) 3 August 1999 (1999-08-03) * figures 1,2 * * abstract *	1,3-5	
X	US 2010/031973 A1 (BEAR PHILIP [US] ET AL) 11 February 2010 (2010-02-11) * paragraphs [0001], [0002], [0006] - [0008], [0012] - [0020] * * figures 1,3 * * abstract *	6-12	
			TECHNICAL FIELDS SEARCHED (IPC)
			B24C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 22 July 2014	Examiner Eder, Raimund
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 17 5687

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-07-2014

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03011485 A2	13-02-2003	AU 2002325365 A1	17-02-2003
		IT RM20010448 A1	27-01-2003
		WO 03011485 A2	13-02-2003

US 5932169 A	03-08-1999	CA 2232445 A1	25-09-1998
		US 5932169 A	03-08-1999

US 2010031973 A1	11-02-2010	US 2010031973 A1	11-02-2010
		US 2013074880 A1	28-03-2013

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82