

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 July 2005 (07.07.2005)

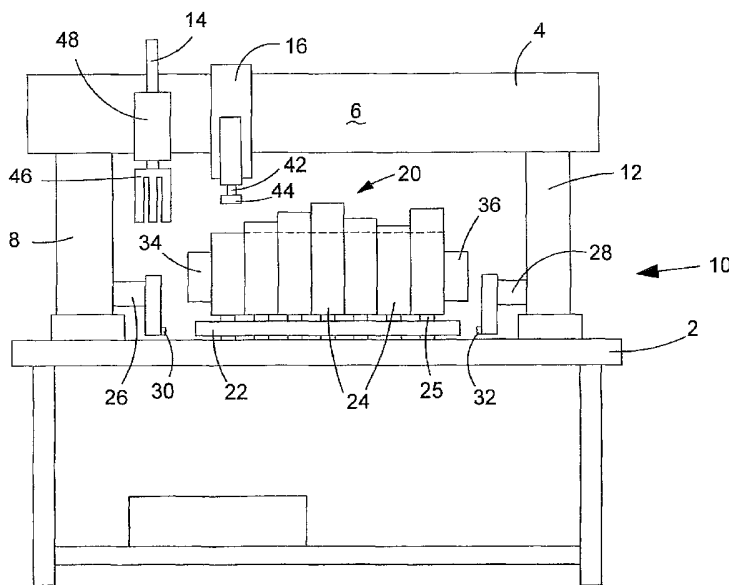
PCT

(10) International Publication Number
WO 2005/061183 A3

- (51) International Patent Classification⁷: **B25B 1/24**, B21D 37/02, B23Q 7/04, 5/40
- (21) International Application Number: PCT/GB2004/005429
- (22) International Filing Date: 23 December 2004 (23.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 0329983.1 24 December 2003 (24.12.2003) GB
- (71) Applicant (for all designated States except US): **SURFACE GENERATION LTD** [GB/GB]; 1B Centurian Business Park, Sturrock Way, Bretton, Peterborough PE3 8YF (GB).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **HALFORD, Ben, John** [GB/GB]; 7 Redland Close, Barrowden, Rutland, Leicestershire LE15 8ES (GB).
- (74) Agents: **STAGG, Diana, C.** et al.; Marks & Clerk, 144 New Walk, Leicester LE1 7JA (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): 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, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, 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, IS, IT, LT, 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).
- Declaration under Rule 4.17:**
— of inventorship (Rule 4.17(iv)) for US only
- Published:**
— with international search report

[Continued on next page]

(54) Title: IMPROVED TOOLING SYSTEM



(57) Abstract: A tooling system comprises a plurality of elements (24) arranged in an array, each element being supported on a cross rail (22) and being moveable relative to the other elements in the array. Each element terminates in a threaded support post (25) extending from a first end of the element, and is associated with a corresponding internally threaded aperture in the cross rail upon which the element is supported. The tooling system further comprises an adjusting component in the form of a fork (46) which is driveable in rotation and engageable with an element of the array to drive the element in rotation, upon rotation of the fork.

WO 2005/061183 A3



(88) Date of publication of the international search report:
27 October 2005

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.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/005429

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B25B1/24 B21D37/02 B23Q7/04 B23Q5/40

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 B25B B21D B23Q

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 02/064308 A1 (PERA INTERNATIONAL; HALFORD, BEN, JOHN) 22 August 2002 (2002-08-22) cited in the application the whole document	1-7
A	EP 0 442 036 A (MORITA IRON WORKS CO., LTD) 21 August 1991 (1991-08-21) abstract; figure 6	1
X	EP 0 808 555 A (GLAESSER, WOLF-ACHIM, DIPL.-ING; SANDHOLZER, HARTWIG) 26 November 1997 (1997-11-26)	8, 9, 12, 13
A	figures 1,18-20	1-7
A	US 5 490 664 A (JUSTUS ET AL) 13 February 1996 (1996-02-13) figures 3,4	11
	----- -/--	

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 2005

Date of mailing of the international search report

28. 07. 2005

Name and mailing address of the ISA
 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Lasa, A

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/005429

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 200 06 030 U1 (PANICK, HANS-DIETER) 9 August 2001 (2001-08-09) figure 3 -----	14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2004/005429

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.:

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: 1-7

Tooling system with a rotatable fork for engaging an element.

Problem solved: adjust the height of the elements of the tooling system.

2. claims: 8-15

Fork with a head portion and a plurality of tines with special inwardly facing surfaces.

Problem solved: provide means for engaging an element.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/005429

Patent document cited in search report	Publication date	Patent family member(s)	Publication date			
WO 02064308	A1	22-08-2002	CA 2453191 A1 22-08-2002			
			EP 1360030 A1 12-11-2003			
			EP 1537942 A1 08-06-2005			
			JP 2004526580 T 02-09-2004			
			US 2004145105 A1 29-07-2004			
EP 0442036	A	21-08-1991	JP 2774976 B2 09-07-1998			
			JP 3238127 A 23-10-1991			
			AT 116881 T 15-01-1995			
			AU 5716690 A 22-08-1991			
			CA 2018903 A1 13-08-1991			
			DE 69015995 D1 23-02-1995			
			DE 69015995 T2 31-08-1995			
			EP 0442036 A2 21-08-1991			
			ES 2069646 T3 16-05-1995			
			KR 169973 B1 18-02-1999			
			US 5187969 A 23-02-1993			
			EP 0808555	A	26-11-1997	DE 29609395 U1 02-10-1996
						DE 29614783 U1 24-10-1996
EP 0808555 A1 26-11-1997						
US 5490664	A	13-02-1996	CN 1140508 A 15-01-1997			
			EP 0742948 A1 20-11-1996			
			JP 9508489 T 26-08-1997			
			MX 9602351 A 22-08-2002			
			WO 9520818 A1 03-08-1995			
DE 20006030	U1	09-08-2001	NONE			