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**Declarations under Rule 4.17:**

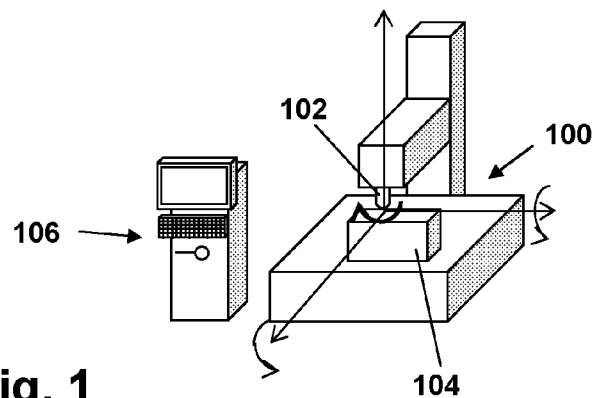
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

- (54) Title: A MACHINE TOOL



**Fig. 1**

(57) Abstract: A machine tool (100; 1106) arranged to deliver an energy source through a processing head (102; 200; 1100; 1150) onto a work-piece (104), wherein; the machine-tool has a clamping mechanism (202; 1102; 1152) arranged to temporarily receive the processing-head (102; 200; 1100; 1150), or another machining or processing-head, to process a work-piece (104); the processing-head (102; 200; 1100; 1150) comprising one or more guiding mechanisms (212, 218, 220, 222; 520) arranged to direct the energy source (206; 1110) onto a work-piece (104) and a processing-head docking-manifold (201; 1602) arranged to have connected thereto one or more media to be, in use, supplied to the processing-head (102; 200; 1100; 1150) to facilitate processing of the work-piece (104); wherein the processing-head docking-manifold (201; 1602) allows the one or more media to be supplied to the processing-head (102; 200; 1100; 1150) when the processing-head (102; 200; 1100; 1150) is connected to the clamping mechanism (202; 1102; 1152); and wherein the machine-tool (100; 1106) also comprises at least one mechanism arranged to move a supply docking-manifold (200; 600) into and/or out of connection with the processing-head docking-manifold (201; 1602) such that when the two manifolds are connected the or each media is supplied to the processing head (102; 200; 1100; 1150).



**(88) Date of publication of the international search report:**  
17 April 2014

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/GB2013/051906

A. CLASSIFICATION OF SUBJECT MATTER  
INV. B23P23/04 B23K26/14  
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)  
B23K B23P

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 Y A	US 7 020 539 B1 (KOVACEVIC RADOVAN [US] ET AL) 28 March 2006 (2006-03-28) the whole document	15  20-22 1-14, 16-19, 23-26
X Y	DE 20 2010 007364 U1 (FRONIUS INT GMBH [AT]) 12 August 2010 (2010-08-12) the whole document	1-19, 23-27 20-22, 28-30
X Y A	US 3 865 297 A (STIEFEL RICHARD ET AL) 11 February 1975 (1975-02-11) the whole document	15  28-30 1,2,7,8, 17-19, 22,27

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
- "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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03/03/2014

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2013/051906

## 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.:  
  
1-30
  
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 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.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2013/051906

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7020539	B1	28-03-2006	NONE
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DE 202010007364	U1	12-08-2010	AT 13190 U1 15-08-2013
			AT 508286 A2 15-12-2010
			DE 202010007364 U1 12-08-2010
			WO 2010135752 A2 02-12-2010
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US 3865297	A	11-02-1975	DE 2412273 A1 19-09-1974
			FR 2327020 A1 06-05-1977
			GB 1461971 A 19-01-1977
			JP S5648274 B2 14-11-1981
			JP S49122458 A 22-11-1974
			US 3865297 A 11-02-1975
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

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

1. claims: 1-26

Machine tool with a processing head connectable via a clamping mechanism

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2. claims: 27-30

Processing head comprising a media supply

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3. claims: 31-45

Machine tool with a processing head moving relative to a work piece and a controller for the movement of the processing head and a delivered amount of powder

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