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[Continued on next page]

(54) Title: WHEEL RECUTTING

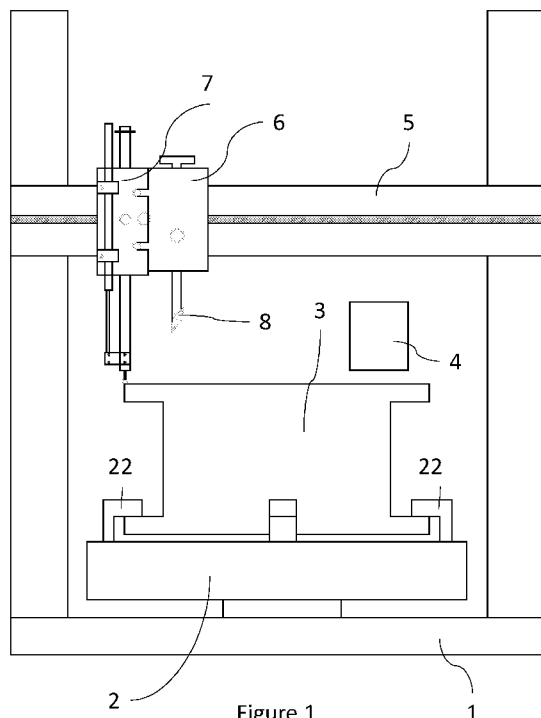


Figure 1

(57) Abstract: A method of, an apparatus for, recutting the surface of a wheel (3), whereby the wheel (3) is mounted on a rotatable mount (2) and a probe (7) is moved across the wheel's surface between an outer and an inner radial position to obtain a radial surface profile. During rotation of the wheel (3), the position of a cutting tool (8) with respect to the surface of the wheel (3) is controlled to recut the surface of the wheel (3) in accordance with the cutting profile. The wheel (2) is tagged with a unique wheel identifier, and the unique wheel identifier is recorded into a database in association with an indication of an amount of material which has been removed from the surface of the wheel (3). The probe (7, see figure 4) comprises a support arm (72,74) and a probe arm (76,78), the probe arm having a sensor which detects the position of a shaft (78) within a sleeve (76). A fault detector (4) is provided that induces eddy currents within the wheel (3) in order to check for faults. The tyre (32, see figure 3) can be urged away from the front face of the wheel (3') and a clamp (34) fitted to wheel to keep the tyre out of the way of the recutting operation.

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29 June 2017

- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/053589

A. CLASSIFICATION OF SUBJECT MATTER

INV. B23Q15/24 B23Q17/22 B23B5/28 B23P6/00 G05B19/12
G05B19/418 B23Q17/20

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)

B23Q B23B B23P G05B B60B G06K

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.
Y	WO 2012/050859 A2 (LEN BRIAN [US]) 19 April 2012 (2012-04-19)	1-4,6,7
A	the whole document	5
Y	US 2004/034999 A1 (BLASER DANNY O'NEIL [US]) 26 February 2004 (2004-02-26)	1-4,6,7
A	paragraphs [0014], [0020], [0029] figure 2A	5
A	US 2010/305901 A1 (STRETCH ROBERT G [US]) 2 December 2010 (2010-12-02) paragraphs [0002], [0004], [0006], [2123], [0024], [0027], [0034], [0047] - [0060] figures	1-7
	----- -/-	



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

28 February 2017

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22/05/2017

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/053589

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2014/087332 A1 (MAMCZUR MAREK [GB]; MCBRIDE PAUL) 12 June 2014 (2014-06-12) page 1, line 1 - page 2, line 20 page 6, line 38 - page 7, line 10 page 8, line 17 - page 9, line 31 page 14, line 30 - page 15, line 3 figures 1A-3 -----	1-7
A	EP 1 568 583 A1 (HONDA MOTOR CO LTD [JP]) 31 August 2005 (2005-08-31) paragraphs [0039], [0052] figures 2-4 -----	2,3
A	WO 2005/084884 A1 (SMYTH LARRY C [US]) 15 September 2005 (2005-09-15) the whole document -----	1-7
A	WO 02/39314 A1 (BRIDGESTONE FIRESTONE INC [US]; PARKS STEFAN A [US]) 16 May 2002 (2002-05-16) the whole document -----	1-7
A	US 2007/144007 A1 (SMYTH LARRY C [US]) 28 June 2007 (2007-06-28) abstract figures -----	1-7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2016/053589

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.: 17, 18
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:
see FURTHER INFORMATION sheet PCT/ISA/210
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.:
1-7

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: 1-7

Method of, and apparatus for, recutting a wheel including a unique wheel identifier and a database

2. claims: 8-11

Apparatus for recutting a wheel having a probe with a probe arm and a support arm

3. claims: 12, 13

Method of detecting structural damage to a wheel and apparatus for recutting a wheel including a device to detect structural damage to the wheel

4. claims: 14-16

Method of, and apparatus for, recutting a wheel without removing the tyre from the wheel

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 17, 18

No meaningful search is possible for claims 17 and 18 as they contain no clearly defined technical features, relying only on the method and apparatus being "substantially as hereinbefore described with reference to the accompanying drawings". In the present case, the reference to the description and drawings is not "absolutely necessary" as it is possible to define the method of, and apparatus for, recutting a wheel in terms of their own technical features. Claims 17 and 18 therefore do not comply with the requirements of Article 6 PCT in conjunction with Rule 6.2(a) PCT and consequently no meaningful search is possible.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2016/053589

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