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(54) Sharpening apparatus, particularly for drilling bits

(57) A sharpening apparatus (1), particularly for drilling bits, comprising, within a containment enclosure (2), a frustum-shaped grinding wheel (10), which is connected to a shaft (11) turned by motor means (12), the apparatus further comprising, on the containment enclosure (2), a registration assembly (20) for the axial positioning

of a bit (26) to be sharpened in a supporting mandrel (22); on the containment enclosure (2), a sharpening seat (50) being also provided for accommodating the supporting mandrel (22) with a presettable positioning angle of the sharp edge of the bit (26) to be sharpened with respect to the frustum-shaped grinding wheel (10).

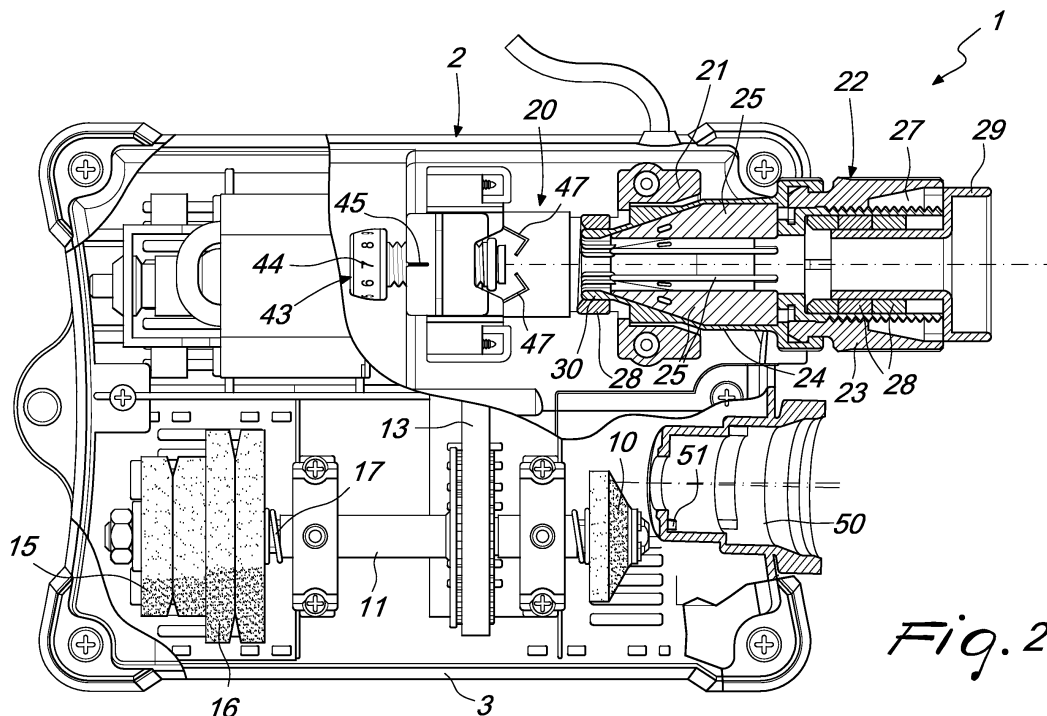


Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 09 15 1927

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	US 2006/205328 A1 (LIAO MING-KO [TW]) 14 September 2006 (2006-09-14) * paragraphs [0023] - [0038]; figures *	1,3,4,7,9	INV. B24B3/24
Y	* paragraphs [0023] - [0038]; figures *	6,8	B24B3/52
A	-----	5	B24B3/54
Y	EP 0 471 490 A2 (MARTEK LTD [GB]) 19 February 1992 (1992-02-19) * column 5, line 5 - column 7, line 40; figures *	6,8	
X	----- US 6 676 494 B1 (CHING CHUAN-CHIEN [TW]) 13 January 2004 (2004-01-13) * columns 2,3; figures *	1	

			TECHNICAL FIELDS SEARCHED (IPC)
			B24B
<p>1 The present search report has been drawn up for all claims</p>			
Place of search Munich		Date of completion of the search 10 April 2013	Examiner Gelder, Klaus
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- 1, 3-9
- ☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1, 3-9

Sharpening apparatus, particularly for drilling bits, comprising a frustum-shaped grinding wheel and a registration assembly for the axial positioning of a bit to be sharpened in a supporting mandrel, and a sharpening seat for accommodating said supporting mandrel with a presettable positioning angle of the sharp edge of the bit to be sharpened with respect to said frustum-shaped grinding wheel.

2. claims: 2, 3, 7

An apparatus for sharpening tools comprising on a single shaft a frustum-shaped grinding wheel for sharpening drilling bits at a sharpening seat, a first slot at a first pair of grinding wheels for sharpening blades of knives, a second slot at a second pair of grinding wheels for sharpening the blades of equipment and tools in genera, there being also a front slot for sharpening scissor blades.

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

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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
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10-04-2013

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