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**Datasheet for the decision
of 29 September 2015**

Case Number: T 1870/12 - 3.2.06

Application Number: 04718790.1

Publication Number: 1601483

IPC: B23C5/20

Language of the proceedings: EN

Title of invention:

ROTATABLE CUTTING TOOL TOGETHER WITH CUTTING INSERT FOR CHIP
REMOVING MACHINING

Patent Proprietor:

Sandvik Intellectual Property AB

Opponent:

Kennametal Inc.

Headword:

Relevant legal provisions:

EPC 1973 Art. 54, 56
RPBA Art. 13(1), 12(2), 13(3)

Keyword:

Novelty - (yes)
Inventive step - (yes)

Decisions cited:

T 0204/83, T 0748/91, T 0107/96

Catchword:



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Case Number: T 1870/12 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 29 September 2015

Appellant: Kennametal Inc.
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
4 July 2012 concerning maintenance of the
European Patent No. 1601483 in amended form.**

Composition of the Board:

Chairman M. Harrison
Members: M. Hannam
M.-B. Tardo-Dino

Summary of Facts and Submissions

- I. An appeal was filed by the appellant (opponent) against the interlocutory decision of the opposition division in which it found that European patent No. 1601483 in an amended form met the requirements of the EPC.
- II. The appellant requested that the patent be revoked. The following documents cited by the appellant are relevant to the present decision:
- D2 US-A-4 681 488
D3 US-A-4 954 021
D4 WO-A-01/28722
D5 US-A-5 971 672
- III. The respondent (proprietor) requested that the appeal be dismissed.
- IV. The Board issued a summons to oral proceedings and a subsequent communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 5 appeared to be novel over D2, but that inventive step may require discussion.
- V. Oral proceedings were held before the Board on 29 September 2015.

The appellant requested that the decision under appeal be set aside and that the European patent No. 1601483 be revoked. It further requested an adjournment to provide an opportunity to file evidence of common general knowledge.

The respondent requested that the appeal be dismissed

and that the appellant's request for adjournment be rejected.

VI. Claim 1 of the main request reads as follows:

"Rotatable cutting tool for chip removing machining, comprising a basic body (1) rotatable around a geometrical centre axis (C), and a number of peripherically spaced-apart, detachable cutting inserts (2), which separately are possible to fix in cutting seats (7) adjacent to chip channels (8) formed in the transition between a front end surface (3) and an envelope surface (4) on the basic body, the individual cutting insert (2) being indexable in four different positions by having a square basic shape and having major cutting edges (18) mutually parallel in pairs, characterized in that between the individual major cutting edge (18) and an appurtenant corner (19) on the cutting insert (2), a wiper edge (20) extends, which is shorter than the major cutting edge and inclined in relation to the same so far that a conceived line (F) in extension of the wiper edge forms an acute angle (κ) to the major cutting edge (18), and that the cutting seat (7) is arranged to fix the cutting insert in a position in which a first pair of parallel major cutting edges (18b, 18d) extends in the same acute angle (κ) to the centre axis (C) of the basic body as a major cutting edge to said conceived extension line (F), whereby an inner wiper edge (20a) of a front major cutting edge (18a) is oriented in a plane perpendicular to the centre axis (C) at the same time as another wiper edge (20b) adjacent to an outer corner (19b) is oriented parallel with the centre axis (C); wherein said acute angle (κ) amounts to at least 5° and to at most 15° ."

Claim 5 (with feature references as used by the appellant included) reads:

"Cutting insert having a square basic shape for rotatable cutting tools, comprising

- h) a pair of opposite top and bottom sides (15, 16),
- i) as well as four side surfaces (17) that, in the transitions to at least one of said top and bottom sides, form four major cutting edges (18),
- j) which are spaced apart from each other via corners (19) and are parallel in pairs with each other, characterized in that
- k) between each major cutting edge (18) and a corner (19) associated thereto, a wiper edge (20) is formed,
- l) which is shorter than the major cutting edge (18)
- m5) and inclined in relation to the same so far that a conceived line (F) in extension of the wiper edge forms an acute angle (κ) of at least 5° and at most 15° in relation to the major cutting edge,
- n) all wiper edges (20) being inscribed in a conceived geometrical square (Q), which is twisted at said angle (κ) in relation to the square that is defined by the major cutting edges (18)."

VII. The appellant's arguments may be summarised as follows:

The subject-matter of claim 5 lacked novelty in view of D2 (Article 54 EPC). Feature m5) was disclosed particularly in Figs. 2, 5 and 6 of D2, which detailed the corner of the cutting insert and could be seen as more than just schematic sketches. With D2 being directed to the particular design of the corners, the figures detailing this could be assumed to be precisely drawn, thus accurately indicating the angle between the major cutting edge and the wiper edge; indeed, the proprietor itself deduced that the angle was 15° or larger in col.4, lines 40 to 41 of the patent in suit.

In fact Fig. 2 of D2 depicted an angle of 14° which could be measured from the Figure and, even in the absence of a written disclosure of this angle, could be considered as disclosed to the skilled reader of the document. T204/83 and T107/96 supported such a reading of D2. As regards the proprietor's allegation that feature k) was not known from D2, this was simply a matter of perspective and depended on the reference point from which the configuration of major cutting edge/wiper edge/corner portion was described. D2 clearly disclosed feature k) and the limitation the proprietor wished to have placed on the interpretation of this feature of claim 5 was not justified.

Regarding Article 56 EPC, the subject-matter of claim 5 lacked an inventive step. D2 provided the most promising starting point and the skilled person, even if not being able to extract an exact angle between the major cutting edge and the wiper edge in D2, would take Figs. 2, 5 and 6 as approximate guidance as suitable angles to try. Indeed para. [0015] of the patent suggested setting angles of 3 to 35° , which corresponded to angles (κ) of 3 to 35° , such that the claimed range was obvious to the skilled person. The claimed acute angle range was also within the common general knowledge of the skilled person in this technical field. Page 7, lines 1 to 2 and page 9, lines 13 to 14 of D4 disclosed clearance angles up to 5° so that in combination with D2 this deprived the subject-matter of claim 5 of an inventive step. D5 could also be used in combination with D2 due to it clearly depicting clearance angles within the claimed range of at least 5° and at most 15° . Both D4 and D5 were identified in the letter of grounds of appeal and arguments based on these documents should therefore be admitted during the oral proceedings.

An adjournment of proceedings should be granted to allow the appellant to file evidence of the common general knowledge of the skilled person relating to setting angles (and thus typical angles between the major cutting edge and the wiper edge).

Alternatively, when starting from D3 and combining this with the teaching of D2, the subject-matter of claim 5 also lacked an inventive step. The additional cutting insert comprising the wiper edge in D3 would be incorporated into a single cutting insert by the skilled person when adopting the acute angle of 15° as suggested by D2.

With arguments similar to those presented for claim 5, the subject-matter of claim 1 also lacked an inventive step when starting from D3 and combining this with D2.

VIII. The respondent's arguments may be summarised as follows:

The subject-matter of claim 5 was novel over D2 as this document disclosed neither feature k) nor feature m5). As regards feature k), a corner associated with a main cutting edge in D2 did not have a wiper edge formed therebetween (see col. 2, lines 17 to 19). D2 clearly associated a specific corner to a particular major cutting edge such that the claimed arrangement of cutting edge/wiper edge/corner could not be anticipated by D2. Regarding feature m5), this was not clearly and unambiguously disclosed in D2; taking measurements from schematic drawings in figures did not provide an unambiguous teaching, particularly when the detail in question was not the subject of the invention in D2. The incorrectness of extracting measurements from figures was confirmed, for example, in decisions

T857/91, T272/92, T204/83, T107/96 and T748/91.

The subject-matter of claim 5 involved an inventive step, when considering the document combinations advanced by the appellant. D2 was not a good starting point for an inventive step attack since it was directed to a different problem (see col. 1, lines 27 to 32) to that being addressed by the present patent. The objective problem to be solved could be seen as providing an insert which could be universally used in milling operations. The skilled person received no hint to the claimed solution in the cited documents and no proof of common general knowledge including the claimed range was on file. As regards the reference to setting angles of 3 to 35° in para. [0015] of the patent, this did not unambiguously disclose such angles between the cutting edge and a wiper edge, nor did it even disclose if a wiper edge was present at all. D3 also failed to disclose the claimed angle range, such that a combination of D2 with the teaching of D3 failed to deprive claim 5 of an inventive step. This situation did not change when starting from D3 and combining this with the teaching of D2. Arguments based on D4 and D5 had been presented for the first time during oral proceedings and should not be admitted under Article 13(1) of the Rule of Procedure of the Boards of Appeal (RPBA); both these documents presented very specific structures and it was not self-evident that extraction merely of a single feature for combination with another document was possible such that this resulted in a complex situation. An adjournment for filing of the common general knowledge of the skilled person should also not be granted. The proprietor was also not aware of any information in proceedings which confirmed that such a feature was, or could be considered as, common general knowledge.

Reasons for the Decision

1. Novelty (Article 54 EPC 1973)

- 1.1 Document D2 discloses the following features of claim 5, the references in parentheses referring to D2: Cutting insert (col.1, lines 5-8) having a square basic shape (see Fig. 2) for rotatable cutting tools, comprising
- a pair of opposite top and bottom sides (11, 12), as well as four side surfaces (13-16) that, in the transitions to at least one of said top and bottom sides, form four major cutting edges (40), which are spaced apart from each other via corners (see Fig. 2; 43) and are parallel in pairs with each other, wherein
 - between each major cutting edge (40) and a corner (43) associated thereto, a wiper edge (42) is formed, which is shorter than the major cutting edge (see Fig. 2) and inclined in relation to the same so far that a conceived line in extension of the wiper edge forms an acute angle (see Fig. 2) in relation to the major cutting edge, all wiper edges (42) being inscribed in a conceived geometrical square (see Fig. 2; col.2, lines 37 to 39 and lines 47 to 49), which is twisted at said acute angle in relation to the square that is defined by the major cutting edges (see Fig. 2; 40).
- 1.2 The respondent's contention that D2 fails to disclose feature k), that 'between each major cutting edge and a corner associated thereto, a wiper edge is formed', is not accepted. The wording 'associated thereto' in claim 5 with respect to each major cutting edge and a corner

'associated thereto' does not restrict the associated corner to just one of the two located at opposite ends of each major cutting edge; the associated corner can be either of the two or even both. With respect to D2, this has the consequence that the 'associated corner' can at least be either of the two located at opposite ends of the major cutting edge. The reference to col.2, lines 17 to 19 which suggests a corner portion having 'an associated main cutting edge' does not restrict the interpretation of this main cutting edge in D2 to having just a single associated corner. Indeed, as argued also by the appellant, the interpretation of where an associated corner lies is a matter of perspective and depends upon the reference point from which the configuration of major cutting edge/wiper edge/corner portion is observed. If observed from one end of a major cutting edge in D2, the wiper edge will not be between the major cutting edge and a corner; however, if viewed from the opposite end of the same major cutting edge and in the opposite direction to that above, the wiper edge will be located between the major cutting edge and the corner at the opposite end of the major cutting edge. Since the wording of claim 5 does not restrict its meaning to one of the above possibilities in D2, D2 is found to disclose feature k) of claim 5 at at least one of the two associated corners of each major cutting edge.

- 1.3 The subject-matter of claim 5 thus differs from the cutting insert known from D2 in that the acute angle is at least 5° and at most 15°.

- 1.4 The appellant's contention that Figs. 2, 5 and 6 of D2 allow the angle between the cutting edge and wiper edge to be ascertained is not persuasive. The figures of D2 can only be seen as schematic drawings apt to depict

the essential elements of the invention to which D2 is directed. Col.1, lines 28 to 40 of D2 details the problems with cutting edge damage which the invention of D2 is intended to overcome by way of a plurality of chamfers defining the corner portion (col.2, lines 48 to 49). Whilst angles between these chamfers are disclosed in the description (col.2, lines 59 to 67), the angle between the main cutting edge 40 and the minor cutting edge 42 is not discussed. This angle is thus evidently of no importance for the invention claimed in D2, such that the depiction of this angle in the figures can also not be taken as to have been drawn accurately enough for direct measurements of this angle to be taken from the figures.

The appellant's argument that the detail of the corner portions depicted particularly in Figs. 5 and 6, which are of enlarged scale, allowed dimensions to be derived therefrom is also not persuasive. The figures depict a variety of features as regards the invention disclosed in D2 but no dimensions can unambiguously be extracted from the figures themselves, even those relating to the claimed invention in D2; these dimensions can only unambiguously be taken from the written description. The figures can also clearly not be considered to be construction drawings. The appellant's reference to T748/91 does not change the Board's view. That decision found that, under certain circumstances, relative dimensions could be extracted even from a schematic drawing (see Reasons 2.1.1). The case concerned extraction of relative layer thicknesses which were deemed to be accurately represented in the drawing. However, in the present case, no relative dimensions are being extracted, rather the appellant wishes to extract a definite value for an acute angle, which is not directly and unambiguously possible from a

schematic drawing.

- 1.5 The appellant's argument that para. [0015] of the patent, when referring to D2, indicates an angle of 15° or larger is not persuasive with respect to what is directly and unambiguously disclosed in D2. That which a party infers from, and states in relation to, a particular document does not change what the skilled person would see as unambiguously disclosed therein, its disclosure being constant over time and unchanged by any such statements at a later point in time. The claimed acute angle of at least 5° and at most 15°, as found under point 1.4, is thus not unambiguously disclosed in the Figures of D2.
- 1.6 The appellant's reference to T204/83 does not change this finding. In that decision a diagrammatic representation of an element was found not to disclose specific dimensions of that element. Contrary to the opinion of the appellant, the figures in D2 are indeed simply a diagrammatic representation of the corner of the cutting insert which thus show the general design of the essential features of the corner, rather than very specific dimensions relating to the angle subtended by the wiper edge to the major cutting edge. This conclusion is also in line with established jurisprudence of the Boards of Appeal that dimensions obtained merely by measuring a diagrammatic representation of a document do not form part of the disclosure (see e.g. Case Law of the Boards of Appeal of the EPO, 2013, page 112, paragraph 3.6; T107/96 reasons 2.3).
- 1.7 It thus follows that feature m5) of claim 5 is not known from D2. No further document was cited with respect to objections of novelty. The subject-matter of

claim 5 is thus novel over the cited prior art (Article 54 EPC 1973).

2. *Inventive step (Article 56 EPC 1973)*

2.1 D2 and common general knowledge of the skilled person

2.1.1 D2 presents the most promising starting point for an inventive step attack since this document is directed to similar subject-matter to that claimed in claim 5 (a cutting insert having a square basic shape for rotatable cutting tools) and, of all the cited documents, it has the greatest number of features in common with the claimed subject-matter. Indeed the sole feature of claim 5 not disclosed in D2 is that the wiper edge is inclined in relation to the major cutting edge so far that a conceived line in extension of the wiper edge forms an acute angle of at least 5° and at most 15° in relation to the major cutting edge (see point 1.3 above).

2.1.2 Based on this differentiating feature with respect to the disclosure in D2, the objective technical problem may be seen as finding a suitable angle between the major cutting edge and the wiper edge.

2.1.3 No hint is to be found in the cited documents which would guide the skilled person to select, as a suitable angle, the claimed range of at least 5° and at most 15° , nor has the appellant shown that this range is common general knowledge for the skilled person. Whilst the appellant referred to para. [0015] of the patent which cites a setting angle within the range of 3 to 35° in US 6 413 023 B1, the appellant raised this argument for the first time during oral proceedings, which thus constitutes a change of the appellant's case

within the meaning of Article 13(1) RPBA and for this reason alone might have been held inadmissible. Even considering the merits of the argument however, the cited setting angle range cannot be regarded as indicative of the common general knowledge of the skilled person since it specifically relates to setting angles in just this one particular piece of prior art. The cited range also specifically relates to setting angles rather than to the angle between the major cutting edge and any wiper edge which might be present. Whilst the setting angle and the angle between the major cutting edge and the wiper edge would usually be the same, no evidence has been provided that a wiper edge is present at all in the cited US patent.

2.1.4 The appellant's argument, that starting from D2, the skilled person would take Figs. 2, 5 and 6 as approximate guidance as to which angles were suitable, is not accepted. As found for novelty above, D2 fails to unambiguously disclose any specific angle, such that the skilled person would not be guided to extract any angle from the teaching, be that an exact angle or an approximate angle.

2.1.5 The appellant's argument that the claimed acute angle range is within the common general knowledge of the skilled person in this technical field, is not, as also argued by the respondent, substantiated by any evidence on file. A mere allegation in this respect cannot provide a basis for this feature to be considered obvious to the skilled person. Regarding the appellant's request for adjournment to file evidence of common general knowledge, filing such evidence for the first time at such a late stage of the appeal proceedings, also requiring an adjournment, would be an amendment to the party's case contrary to procedural

economy and thus the request was not admitted under Article 13(1) RPBA. Also, as specifically stated in Article 13(3) RPBA, amendments to a party's case (and this is indeed such, since there is no statement within the party's case filed in accordance with Article 12(2) RPBA, that such an angle formed part of the skilled person's general knowledge) shall not be admitted if they raise issues which the Board or other party cannot reasonably be expected to deal with without adjournment of the oral proceedings.

The request for adjournment was thus rejected.

2.1.6 The subject-matter of claim 5 thus involves an inventive step (Article 56 EPC 1973) when starting from D2 and combining this with the common general knowledge of the skilled person as available to the Board from the information on file.

2.2 *Non-admittance of D4 and D5*

2.2.1 These documents were included merely as part of the list of pertinent documents presented by the appellant in its grounds of appeal. However no arguments based on D4 or D5 were formulated prior to oral proceedings. The appellant's arguments based on D4 and D5 thus involved an amendment to its case. According to Article 13(1) RPBA, any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion.

2.2.2 Regarding D4, page 9, lines 14 to 15 discloses an angle of clearance within the range of 0.5 to 5° and thus meets the lower limit of the claimed angle range of at least 5° and at most 15°. However, document D4 concerns a double negative cutting insert of considerable complexity such that it is not immediately apparent

whether further considerations of such an insert are of importance as regards an angle between the major cutting edge and a wiper edge. As a consequence the issue of whether the feature of 5° can by itself be extracted from this document and then combined with a different type of tool as in D2 was held to be of such complexity that it should not be admitted into the proceedings at such a late stage.

2.2.3 Regarding D5, whilst Fig. 4 showed a clearance between the main cutting edge 5A and the workpiece along with a parallel land cutting edge 16A subtending an angle to the main cutting edge, there was no indication of this angle being within the claimed range of 5 to 15° . Thus, D5 was not *prima facie* highly prejudicial to maintenance of the patent, even if it were to have been introduced, since it would not present a teaching of how to modify the insert known from D2 in order to reach the subject-matter of claim 5; it thus fails to provide a more relevant line of attack against the presence of an inventive step in claim 5 than the lines of attack already on file.

2.2.4 For the above reasons the Board exercised its discretion not to admit D4 and D5 into the proceedings (Article 13(1) RPBA).

2.3 D3 + D2

2.3.1 D3 discloses a cutting insert 30 (see Fig. 5) with major cutting edges 30a and a supplementary cutting insert 26 with a wiper edge 24a. When compared to claim 5, D3 thus fails to disclose a single cutting insert with a major cutting edge and a wiper edge as well as the acute angle between the two being at least 5° and at most 15° .

Based on these differentiating features, the objective technical problem when starting from D3 may be seen as how to improve the finish on a milled surface.

Even if, as argued by the appellant, the combination of major cutting edge and wiper edge into a single cutting insert can be considered obvious to the skilled person in view of D2, there is no persuasive reason as to why the provision of the acute angle from 5 to 15° should be. As found above (see points 1.3 to 1.7), D2 fails to directly and unambiguously disclose an inclination of the major cutting edge relative to the wiper edge by an acute angle of at least 5° and at most 15°, so that a combination of the teaching of D2 with the disclosure of D3 can also not result in this feature being realised and thus the cutting insert of claim 5 being reached.

- 2.3.2 The subject-matter of claim 5 thus involves an inventive step (Article 56 EPC 1973) starting from D3 when combined with the teaching of D2.
- 2.4 The Board thus finds that the subject-matter of claim 5 involves an inventive step (Article 56 EPC 1973) with respect to the arguments and evidence presented.
- 2.5 Claim 1 is directed to a rotatable cutting tool having a number of cutting inserts comprising all the features of claim 5. The subject-matter of claim 1 thus comprises further features in addition to those included in claim 5 such that the finding regarding the subject-matter of claim 5 involving an inventive step holds true also for the subject-matter of claim 1. The appellant also submitted no additional arguments questioning the presence of an inventive step in the subject-matter of claim 1 to those already presented

with respect to claim 5.

The subject-matter of claim 1 thus also involves an inventive step (Article 56 EPC 1973) with respect to the arguments presented and the evidence on file.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. H. A. Patin

M. Harrison

Decision electronically authenticated