

Internal distribution code:

- (A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

**Datasheet for the decision
of 13 March 2014**

Case Number: T 0945/10 - 3.2.06

Application Number: 03706875.6

Publication Number: 1480774

IPC: B23B27/16, B23B27/08

Language of the proceedings: EN

Title of invention:

TANGENTIAL CUTTING INSERT AND INSERT HOLDER

Patent Proprietor:

Iscar Ltd.

Opponent:

Kennametal Inc.

Headword:

Relevant legal provisions:

EPC Art. 100(a), 54, 101(3)(b), 111(1)
RPBA Art. 13(1)

Keyword:

Main request - novelty (no)
Auxiliary request 1 - admittance (no) - not prima facie
allowable
Auxiliary request 2 - admittance (no) -
complexity and complete change of direction contrary to proced
ural economy

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0945/10 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 13 March 2014

Appellant:
(Patent Proprietor)

Iscar Ltd.
P.O. Box 11
24959 Tefen (IL)

Representative:

Vossius & Partner
Siebertstrasse 4
81675 München (DE)

Appellant:
(Opponent)

Kennametal Inc.
PO Box 231
Latrobe, PA 15650-0231 (US)

Representative:

Sties, Jochen
Prinz & Partner
Rundfunkplatz 2
80335 München (DE)

Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
19 February 2010 concerning maintenance of the
European Patent No. 1480774 in amended form.**

Composition of the Board:

Chairman: M. Harrison
Members: T. Rosenblatt
W. Sekretaruk

Summary of Facts and Submissions

I. In its interlocutory decision dated 19 February 2010 the opposition division found that the subject-matter of claim 1 of the European patent No. 1 480 774 lacked novelty in view of

D3 : WO-A-00/76707.

The opposition division further considered that the patent as amended according to a first auxiliary request met the requirements of the EPC.

II. Appeals against this decision were filed by the patent proprietor and the opponent.

III. The notice of appeal by the appellant-proprietor was received by the European Patent Office on 30 April 2010, the corresponding fee was paid simultaneously. The appeal grounds were received by the EPO on 21 June 2010 together with a set of auxiliary requests A1 to A10.

IV. The notice of appeal of the appellant-opponent was received by the EPO on 29 April 2010. The corresponding fee was paid simultaneously and the appeal grounds were received on 30 June 2010.

V. By way of its letter dated 16 November 2010, the appellant-proprietor replied to the appeal grounds of the appellant-opponent and submitted auxiliary requests XI to XIII.

VI. The appellant-opponent replied to the appeal grounds of the appellant-proprietor with letter dated 17 November 2010.

VII. In a communication dated 10 February 2014 sent in preparation for oral proceedings, the Board informed the parties of its preliminary view on the case. In regard to the subject-matter of claim 1 as granted, the Board noted that it related to an indexable cutting insert in general and was not limited to any particular type of cutting work to be performed therewith. It appeared therefore that the only point of dispute between the parties in the assessment of novelty of the subject-matter of granted claim 1 in regard to D3 was the meaning of the expressions "major side surface" and "minor side surface". The Board opined that these terms did not imply any clear limitation regarding the relative dimensions of the respective surfaces so that it appeared that the decision of the opposition division concerning novelty of the subject-matter of granted claim 1 should not be overturned.

In regard to the auxiliary request considered allowable by the opposition division, the Board opined that it appeared questionable whether the amendments to claim 1 met the requirements of Articles 123(2) and 84 EPC.

VIII. The appellant-opponent submitted further arguments in reply to the Board's preliminary opinion on 20 February 2014, and the appellant-proprietor likewise with its letter of 26 February 2014. The appellant-proprietor also submitted auxiliary requests 1 to 7, 7-1 to 7-7 and the following documents:

Annex 1: pages 51, 52 of "*Fertigungsverfahren Band 1, Drehen, Fräsen, Bohren*", W. König, VDI-Verlag GmbH, 4. Aufl. 1990;

Annex 2: pages 2, 3 of ISO 3002/1-1982(E).

IX. Oral proceedings were held before the Board on 13 March 2014. During the oral proceedings the appellant-proprietor submitted auxiliary requests 1 and 2 in replacement of the auxiliary requests filed previously in writing. At the end of the oral proceedings the Board announced its decision.

X. The appellant-proprietor requested that the decision under appeal be set aside and the European patent be maintained as granted, or on the basis of one of the auxiliary requests 1 or 2, both filed 13 March 2014.

XI. The appellant-opponent requested that the decision under appeal be set aside and that the European patent No. 1 480 774 be revoked.

XII. Claim 1 of the patent as granted has the following wording:

"An indexable cutting insert (38) comprising:
two identical opposing end surfaces (40) having 180° rotational symmetry about a first axis (R1) passing therethrough,
a peripheral side surface (42) extending between the two opposing end surfaces. (40), and a peripheral edge (50) formed at the intersection of each end surface (40) and the peripheral side surface (42), at least two sections of each peripheral edge (50) constituting cutting edges;
the peripheral side surface (42) comprising:
two identical opposing major side surfaces (46) having 180° rotational symmetry about a second axis (R2) passing therethrough, the second axis (R2) being perpendicular to the first axis (R1); and
two identical opposing minor side surfaces (44) having 180° rotational symmetry about a third axis (R3)

passing therethrough, the third axis (R3) being perpendicular to the first axis (R1) and the second axis (R2);
a major plane (P2) defined by the first axis (R1) and the second axis (R2);
a minor plane (P1) defined by the first axis (R1) and the third axis (R3);
a median plane (M) being defined by the second axis (R2) and the third axis (R3);
each end surface (40) having four corners (58, 58', 60);
in a side view of one of the minor side surfaces (44), all four corners (58, 58', 60) are equidistant from the minor plane (P1);
in a side view of one of the major side surface (46), all four corners (58, 58', 60) are equidistant from the major plane (P2);
characterised in that two of said four corners are lowered and two corners are raised the lowered corners (60) being closer to the median plane (M) than the raised corners (58, 58')."

XIII. Compared to granted claim 1 the following features were added at the end of claim 1 of auxiliary request 1:

"adjacent major and minor edges (52, 54) extend from the corner edge (56) of a given raised corner (58) with a variable slope to a respective lowered corner 60, wherein, in a side view of the cutting insert (38), adjacent each raised corner (58), the slope of each major edge (52) is generally constant with the major edge (52) substantially parallel to the median plane M, and wherein, moving along the major edge 52 towards an adjacent lowered corner 60, the slope gradually increases and finally decreases adjacent the lowered corner 60, and wherein each minor edge (54) has a

generally similar form to that of the major edges (52)."

XIV. Compared to granted claim 1, the following features have been added at the end of claim 1 of auxiliary request 2:

"wherein, the cutting insert (38) has a maximum distance D1 between the minor side surfaces (44) that is greater than a maximum distance D2 between the major side surfaces (46), and
wherein, in an end view of the cutting insert (38), each major side surface (46) is recessed, and
wherein, in an end view of the cutting insert (38), each minor side surface (44) is recessed,
wherein, in an end view, the distance between the opposing major side surfaces (46) varies from the maximum distance D2 adjacent the corners of the cutting insert (38) to a minimum distance d2 at the intersection of the major side surfaces (46) with the major plane (P2),
wherein, in an end view, the distance between the opposing minor side surfaces (44) varies from the maximum distance D1 adjacent the corners of the cutting insert (38) to a minimum distance d1 at the intersection of the minor side surfaces (44) with the minor plane (P1),
wherein, each minor side surface (44) merges with an adjacent major side surface (46) at a corner side surface (48), wherein each corner side surface (48) extends between a given raised corner (58, 58') of one of the two opposing end surfaces (40) and a given lowered corner (60) of the other of one of the two opposing end surfaces (40),

wherein, each cutting edge comprises a major edge (52, 52'), a minor edge (54, 54') and a corner edge (56, 56') therebetween, and
wherein, each major edge (52, 52'), corner edge (56, 56'), and minor edge (54, 54') is formed at the intersection of adjacent major side surface (46), corner side surface (48), and minor side surface (44), respectively with an adjacent end surface (40),
wherein, the major edges (52, 52') are recessed in an end view,
wherein, the distance between the opposing major edges (52, 52') varies from the maximum distance D2 adjacent the corner edges (56, 56') to the minimum distance d2 at the intersection of the major edges (52, 52') with the major plane (P2),
wherein, the minor edges (54, 54') are recessed in an end view,
wherein, the distance between the opposing minor edges (54, 54') varies from the maximum distance D1 adjacent the corner edges (56, 56') to the minimum distance d1 at the intersection of the minor edges (54, 54') with the minor plane (P1), and
wherein, each raised corner (58, 58') forms a corner cutting edge (56') and adjacent major and minor edges (52, 52', 54, 54') form major and minor cutting edges (66, 68), respectively, and
wherein, the cutting insert (38) further comprises an insert through bore (86) extending between the major side surfaces (46) and having a bore axis coinciding with the second axis (R2)."

XV. The arguments of the appellant-proprietor, as far as relevant to the present decision, may be summarised as follows:

a) Main request:

The patent concerned tangential inserts and claim

1 as granted was limited to a tangential insert. The terms "major" and "minor" were not mere general terms but implied specific technical content, in particular different thickness in different directions of the insert, as disclosed in paragraph [0002] of the patent (see also column 7, lines 8 to 10 and Figures 5, 6) and in line with the general understanding of the person skilled in the art as documented by the standard and by text books (see Annexes 1 and 2). Clearly this meant different dimensions for the insert's side surfaces; otherwise the skilled person would have used other terminology, like "first" and "second". In regard to the planes, the terms "major" and "minor" were however just geometrical aids to distinguish other features but had no technical meaning. Based on this understanding granted claim 1 could not be read on the camshaft milling cutter disclosed in D3; the side surfaces 4 thereof being of equal size could thus not be equated to the major and minor side surfaces according to claim 1 of the granted patent. Therefore upper and lower surfaces (2 and 3) of the cutter of D3 corresponded to the major side surfaces. D3 also failed to disclose raised and lowered corners, rather it disclosed the provision of a normal level, i.e. the plane in which upper and lower surfaces 2, 3 extended wherein the insert comprised raised areas 8 which could be arranged as desired (see e.g. page 9, middle paragraph). In the insert of D3 all four corners were equidistant to the median plane (Figures 4 and 5). Claim 1 was thus novel over D3.

b) Auxiliary request 1:

The amendment to claim 1 replied to the objections

under Articles 84 and 123(2) raised against auxiliary request 1 as originally submitted. The claim was based on granted claim 1 and paragraph [0037]. The wording of granted claim 1 clearly related to a tangential cutting insert, as implied by the different dimensions of the side surface, so did the features disclosed in paragraph [0037]. Other features of the disclosed embodiment were not relevant as regards the invention. Moreover, the expression "generally similar form" meant that the adjacent major and minor edges extending from a given corner, at which these edges met, had the same course in the sense that the shape of the minor edge could be thought of as being obtained by compressing the shape of the adjacent major edge, while maintaining its overall shape (cf. Figures 5 and 6).

c) Auxiliary request 2

Claim 1 was a combination of only granted claims. The amendments were also not complex, because many of the issues had already been discussed during the appeal proceedings. The amendment was basically in line with auxiliary request 1 filed previously in writing and thus did not constitute a change of direction in the proceedings. The objections raised in regard to the former auxiliary request could not be resolved without going back to the granted claims. The combination of granted claims was also supported by the general description of the invention. For example, the features of granted dependent claim 6, which were included in claim 1, were recited in paragraph [0015] of the general description of the invention. This section of the description distinguished between features pertaining to the

present invention, without however referring to a tangential insert, and features which related only to specific embodiments, which could be excluded from the combination of the granted claims.

XVI. The arguments of the appellant-opponent, as far as relevant to the present decision, may be summarised as follows:

a) Main request

Although the Figures indeed disclosed an insert with a major side surface larger than the minor side surface, this was not defined in granted claim 1. The insert would achieve the same technical effects if the major and minor side surfaces had the same dimensions. The skilled person would have understood that the terms "major" and "minor" were used merely for designating different portions of the cutting insert. This was also apparent from the terms "major plane" and "minor plane" used in the claim, since a "minor plane" had no other dimension than a "major plane". Moreover, as was clear from Annex 1, the terms "major" and "minor" were commonly understood by the skilled person as referring to features of a cutting insert in relation to the orientation of its cutting edge with respect to the feed-direction during its use ("Hauptschneide", "Nebenschneide"). Consequently it was correct to identify two of the side surfaces (4) in D3 as major and the other two as minor side surfaces.

b) Auxiliary request 1

Paragraph [0037] related to an embodiment of a tangential cutting insert, which was still not defined by claim 1. Also a number of other

features of this specific embodiment were not defined in the amended claim. It was moreover unclear what "generally similar" meant. According to Figures 5 and 6, it could not simply mean "scaled", since from Figure 6 the contour of the major edge appeared symmetrical, whereas in Figure 5 the corresponding minor edge was not symmetrical.

c) Auxiliary request 2

The amendment to claim 1 was not allowable under Article 84 and 123(2) EPC. The structure of the granted claims excluded certain combinations of dependent claims, see for example granted claims 6 or 9, which had nevertheless been combined in amended claim 1. In regard to the general description, the features mentioned in paragraphs [0026] and [0027] were not included in the claim. Furthermore, the claim was still not directed to a tangential insert (see for example paragraphs [0001] and [0010]) and a number of features were omitted, for example features concerning the recesses. Also, the amendment resulted in a complete change of direction in the case: the amendments according to the previous auxiliary request(s) related to the feature "variable slope of the major and minor edges", whereas this request addressed different subject-matter, despite the indications by the Board given to the appellant-proprietor of the objections that might arise for the proprietor by changing direction.

Reasons for the Decision

1. The appeals are admissible.
2. Claim 1 as granted - lack of novelty in view of D3
 - 2.1 The arguments of the appellant-proprietor in reply to the Board's preliminary opinion (see item VII. above) submitted in writing prior to and orally during the oral proceedings, did not cause the Board to alter its opinion. To the contrary, the Board accepts the argument of the appellant-opponent that the terms "major" and "minor" used in the claim do not have a specific meaning in regard to the dimensions of the respective side surfaces. As pointed out by the appellant-opponent, the claim also refers to a "major plane" and a "minor plane". Planes however have infinite extension so that a distinction in terms of their dimensions would be meaningless. The Board concludes that the terms "major" and "minor" do not unambiguously imply different dimensions. The language of claim 1 therefore does not exclude that the major and minor side surfaces have the same dimensions. This understanding is furthermore supported by the more restrictive definition given in dependent claim 2 which defines that the maximum distance between the (opposing) minor side surfaces is greater than that between the (opposing) major side surfaces, hence explicitly defining a preferred embodiment with different dimensions of major and minor side surfaces. The Board thus concludes that the independent claim encompasses inserts with equally dimensioned major and minor side surfaces as well as surfaces of different dimensions. The shape of an indexable cutting insert according to claim 1, in which the major and minor side surfaces have the same dimensions is then not distinguished from that of the indexable cutting insert disclosed in Figures 4 and 5 of D3. In this prior art

cutting insert, the equally sized surfaces 4 correspond to the major and minor side surfaces according to claim 1. Based on this understanding, the appellant-proprietor did not argue that any other difference in terms of structural features were present between the insert according to granted claim 1 and the insert of D3, and the Board itself is also unable to identify any such difference. The Board therefore finds that the subject-matter of claim 1 lacks novelty in regard of the insert disclosed in D3.

2.2 The Board was not convinced by the appellant-proprietor's arguments for the following reasons.

Although, as argued by the appellant-proprietor, the description indeed repeatedly mentions that the invention underlying the opposed patent relates to tangential cutting inserts (see for example paragraph [0001]) and further contains indications in regard to the particular geometry of such inserts ([0002]), claim 1 itself does not explicitly define a "tangential" cutting insert. Nor is a tangential geometry implicit from the structural features and their geometrical relationship defined in claim 1. In particular it is not implied by the terms "major" and "minor" used in the claim, since these terms have no specific meaning in regard of the dimensions of the respective side surfaces (see above).

Further, in the general description of a tangential cutting insert the terms "major" and "minor" are employed with respect to the thickness of the insert along two different directions (see [0002]). The Board notes that the respective insert's side surfaces are not mentioned or named here. Similarly, in column 7, lines 8 to 10, the different width and length

dimensions are mentioned, but there is no statement that the terms "major side surface" and "minor side surface" should imply such difference in thickness. Granted claim 1 anyway does not comprise a reference to the thickness of the insert along its axes of symmetry. The Board is furthermore unable to find support in any other part of the description or in the drawings for a clear definition of the expressions "major side surface" and "minor side surface" in the manner argued by the appellant-proprietor. Consequently, the argument that the patent constituted its own dictionary is also not persuasive.

Similarly, the two documents submitted by the appellant-proprietor (see item VIII. above) as support for its argument that the terms "major side surface" and "minor side surface" had a well-defined meaning for the skilled person, do not disclose any description or definition of "major" and "minor" side surfaces, let alone that the respective attributes would refer to different dimensions of such surfaces. To the contrary, both documents, which relate to cutting tools in general (and do not even mention tangential cutting inserts), disclose that the terms "major" and "minor" are commonly employed with respect to the orientation of the cutting edges in relation to the feed direction of the cutting tool and in relation to the surface cut in the workpiece (Annex 1, page 52, penultimate paragraph; Annex 2, for example, paragraphs 3.4.1.1). There is also no indication in these documents that a major cutting edge is necessarily always longer than a minor cutting edge. Whether a cutting edge is a major or minor cutting edge, and therefore whether an adjacent (relief) side surface may be attributed to a major or minor cutting edge, depends on the orientation of the tool with respect to the workpiece during its

use and does not imply any particular dimension of the side surfaces involved.

The Board finally notes, in regard to the comprehensive discussion of common general knowledge and the meaning of certain terms in its letter dated 26 February 2014 (see pages 2 to 22), that granted claim 1 is directed to an indexable cutting insert in general, without being limited to any particular use. In particular, claim 1 does not specify the exact position of the cutting edge on the peripheral edge formed at the intersection of side and end surfaces, nor does it define any feature which would clearly limit any of the side or end surfaces to a particular function (e.g. acting as a rake or relief surface) during a cutting operation. Therefore, the fact that D3 is directed to a camshaft milling cutter - which might in a typical implementation even have particular micro-features on some of its faces, but is not directed to the particular application intended by the patent in suit (tangential indexable cutting insert for use in metal cutting of radial and axial turning of a stepped square shoulder, see e.g. [0001] of the patent specification) - is irrelevant when considering novelty of the subject-matter of claim 1, because claim 1 is not limited to such specific subject-matter.

- 2.3 Since the subject-matter of granted claim 1 lacks novelty in view of the indexable cutting insert disclosed in D3, the ground for opposition of Article 100(a) in combination with 54 EPC prejudices maintenance of the patent as granted. The appellant-proprietor's main request is therefore not allowable.
3. Auxiliary request 1 - Article 13(1) RPBA

- 3.1 The appellant-proprietor did not maintain the auxiliary request considered allowable by the opposition division.
- 3.2 During the oral proceedings before the Board the appellant-proprietor filed an amended auxiliary request 1. This request constitutes an amendment to the appellant-proprietor's case according to Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA) and it may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter, the current state of the proceedings and the need for procedural economy. At least in regard of the need for procedural economy, for a request to be admitted into the proceedings at such a late stage, the request should at least be *prima facie* allowable in the sense that it should overcome all outstanding objections without introducing any new ones.
- 3.3 The amendments introduced by way of claim 1 of auxiliary request 1 however result in subject-matter which does not meet the requirement of Article 123(2) EPC. In claim 1 of this request wording taken from paragraph [0037] of the patent specification has been added to granted claim 1. The features disclosed in this paragraph relate to the path of the major and minor edges adjacent the corner edges at the raised corners. The cited paragraph, referring to Figures 5 and 6, is part of the description of the single embodiment of a tangential indexable cutting insert. This is apparent from, for example, the first sentence of paragraph [0032] which reads: "Attention is first drawn to Figs. 4 to 8, showing a tangential indexable cutting insert 38 in accordance with the present invention." The amendments to claim 1 however still do

not define features of a tangential cutting insert. The appellant-proprietor did not indicate any other part of the patent specification from which the combination of the features disclosed in paragraph [0037] with those of a general (not necessarily tangential) indexable cutting insert, as defined in the portion of the claim based on granted claim 1, could be considered to be directly and unambiguously derivable. The Board itself was also unable to find such basis and thus concludes that, at least for this reason, claim 1 of auxiliary request 1 does not meet the requirement of Article 123(2) EPC. The Board notes that reference has only been made to the patent specification, instead of to the application as filed; the conclusion is nevertheless the same when the relevant passages of the application as originally filed are considered.

- 3.4 The amended claim moreover lacks clarity (Article 84 EPC), because the expression "generally similar form" in the feature "each minor edge (54) has a generally similar form to that of the major edges (52)" is unclear, leaving the shape of the minor edges indefinite. The Board does not accept the appellant-proprietor's argument, that the skilled person would understand from the comparison of the contours of the minor and major edges in Figures 5 and 6 that "generally similar form" meant "scaling or squeezing the contour while keeping its overall shape". The Board considers that the wording of a claim must anyway be clear by itself, without requiring recourse to the description or the drawings. Even if such recourse were made, the skilled person is still left in doubt as to what the terminology means.

- 3.5 Since auxiliary request 1 was thus not *prima facie* allowable, the Board exercised its discretion not to admit it into the proceedings.
4. Auxiliary request 2 - Article 13(1) RPBA
- 4.1 Auxiliary request 2 was also submitted during the oral proceedings so that its admittance into the proceedings involves similar considerations as above (item 3.2).
- 4.2 The features added by way of claim 1 of auxiliary request 1, defining the path of the major and minor edges, have been deleted. Instead, claim 1 is now based on a combination of selected granted claims, in particular claims 1 to 4, 6, 7, 9 to 16 and 19. None of these dependent claims defines features specifying the path of the major and minor edges. The amendment of claim 1 thus constitutes a complete change of direction in regard to the claimed subject-matter of the preceding auxiliary request. The appellant-proprietor's argument that the subject-matter was not entirely new but corresponded to subject-matter which was already submitted in writing in some other auxiliary request is not persuasive, since the appellant replaced the earlier filed requests by auxiliary request 1 dealt with above.

Moreover, this amendment, although relying exclusively on granted claims, is far too complex to be dealt with by the Board and the other party at such a late stage of the proceedings. It raises new issues under Article 123(2) EPC which have never been discussed before. For example, the granted dependent claims (which correspond to the originally filed dependent claims) do not comprise back-references from which the particular selection of features according to claim 1 of auxiliary

request 2 would be directly and unambiguously derivable by the skilled person. The general part of the description, in particular the section entitled "SUMMARY OF THE INVENTION", to which the appellant-proprietor referred as further support for the claimed combination, also does not allow such a conclusion to be immediately drawn. On the contrary, in this section of the specification (which is identical with the text of the description as originally filed) some of the features defined in the granted dependent claims are introduced by "In accordance with the present invention...", whereas others are preceded by the expressions "In accordance with a preferred embodiment of the invention", "In accordance with a specific application of the present invention..." or simply by the term "Generally...". In the Board's view it would have been a far too complex task to work out and distinguish from these statements and possibly even other parts of the description, which of the features referred to there in combination with which others could be regarded as directly and unambiguously derivable by the skilled person as constituting subject-matter to be claimed as an invention in an independent claim.

- 4.3 The complete change of direction resulting from this amendment and the level of complexity involved at least in regard to the disclosure of the resulting subject-matter are in clear conflict with the required need for procedural economy. The Board therefore exercised its discretion according to Article 13(1) RPBA not to admit auxiliary request 2 into the proceedings.
5. In the absence of a request which meets the requirements of the EPC, the European patent has to be

revoked (Article 101(3)(b) EPC in combination with Article 111(1) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The European patent is revoked.

The Registrar:

The Chairman:



M. H. A. Patin

M. Harrison

Decision electronically authenticated