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**Datasheet for the decision
of 9 February 2021**

Case Number: T 0160/17 - 3.2.08

Application Number: 10189749.4

Publication Number: 2450138

IPC: B23C5/20

Language of the proceedings: EN

Title of invention:

Cutting insert with grooved surface defining plural support surfaces

Patent Proprietor:

Seco Tools AB

Opponent:

Iscar Ltd.

Headword:

Relevant legal provisions:

EPC Art. 100(b), 100(a), 54, 56

RPBA Art. 13(3)

Keyword:

Sufficiency of disclosure - (yes)

Novelty - (yes)

Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 0160/17 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 9 February 2021

Appellant: Iscar Ltd.
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 12 October 2016 rejecting the opposition filed against European patent No. 2450138 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman C. Herberhold
Members: M. Foulger
P. Schmitz

Summary of Facts and Submissions

- I. With the decision dated 12 October 2016, the opposition division rejected the opposition against European patent No. 2 450 138 B1.
- II. The opponent filed an appeal against this decision.
- III. Oral proceedings took place before the Board on 9 February 2021.
- IV. At the end of the oral proceedings the parties' requests were as follows:

The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked. Additionally it requested that a witness be heard should doubts remain concerning the public prior use in connection with D12.

The respondent (proprietor) requested that the appeal be dismissed or in the alternative that the patent be maintained in amended form according to one of auxiliary requests 1 - 5 filed with the reply to the appeal on 10 July 2017.

- V. Claim 1 as granted reads:

"**(1.1)** A cutting insert (21, 21'), comprising:
a first mounting surface (23, 23');
a second mounting surface (25, 25') on an opposite side of the insert (21, 21') from the first mounting surface (23, 23');
(1.2) a first side surface (27, 27') between the first mounting surface (23, 23') and the second mounting

surface (25, 25');

characterized in that

(1.3) the insert (21, 21') comprises:

a first groove (35) extending substantially diagonally across the first side surface (27, 27') and

(1.4) dividing the first side surface (27, 27') into discrete, separated, triangular first and second first side support surfaces (37 and 39),

(1.5) the first and second first side support surfaces (37 and 39) each being bounded along first and second edges thereof by rake surfaces (59, 65)

(1.6) forming non-zero angles with the first and second side support surfaces

(1.7) and along third edges thereof by the groove (35)."

(Feature numbering as used by the parties added in bold)

VI. The following documents are referred to in this decision:

D2: EP 1 462 199 A1

D3: US 2009/0047078 A1

D4: DE 196 00 172 A1

D5: US 4 074 949 A

D9: US 5 876 160 A

Prior use D12:

D12a: DXT424-101, "INSERT BLANK"

D12b: DXD424-101, "WENDEPLATTE"

D12c: DXD424-105, "WENDEPLATTE"

D12d: DXD424-102, "WENDEPLATTE"

D12e: Invoice No. 0654766 (redacted)

D15: "Modern Metal Cutting", 1996

VII. The appellant argued essentially the following:

a) Sufficiency of disclosure

Features 1.5 and 1.6 of claim 1 required that the rake surfaces formed non-zero angles with the first and second support surfaces.

In cases where this angle was very large, it would be impossible to make an insert with the triangular support surfaces. Moreover, when this angle was very close to zero, there was no technical effect. Hence, the patent did not sufficiently disclose the invention.

b) Novelty

The subject-matter of claim 1 was not new with respect to D3, D5 or D12.

The claim was not specific about the form of the support surfaces. The term "triangular" was believed to be broader than a triangle, added to which was the qualifier "substantially" which meant that considerable deviation from a strict triangle was possible.

Moreover, the claim did not include any details of the groove; thus, the feature of the groove was to be interpreted broadly and could encompass a groove formed simply by the junction of two surfaces. This interpretation was supported by the definition of the groove being a specific separate entity - and not simply the junction of two surfaces - only being made in dependent claims 10 and 11, which indicated that the independent claim, which was not so limited, had to be construed in a broader manner.

D3 disclosed a cutting insert with the features 1.1 and 1.2 of claim 1. In Fig. 1 a groove 21 was shown which extended substantially diagonally across the side surface (feature 1.3). This groove divided the side surface into two support surfaces which were triangular (feature 1.4), or at least truncated triangles. As the insert had cutting edges these were forcibly bounded by rake surfaces, the skilled person would recognise that these formed non-zero angles with the side support surfaces.

Hence all features of claim 1 were known from D3.

D5 similarly disclosed all features of claim 1. In particular, D5 showed the side surface being divided by a diagonal groove, see e.g. column 3, lines 20-28 and the Figures, to form triangular support surfaces.

D12 also disclosed, see e.g. Figure 12a, all features of claim 1. This insert also had two support surfaces divided by a substantially diagonal groove. Should the public availability of D12 be doubted it was requested that the offered witnesses be heard.

Hence, the subject-matter of claim 1 was not new.

c) Inventive step

The subject-matter of claim 1 lacked an inventive step in consideration of either D3 or D4 as closest prior art.

i) D3 in combination with D2 and D9

D2 and D9 had both been addressed in the statement setting out the grounds of appeal. They showed features

which were common and well-known in the art, i.e. a diagonal groove and the rake surfaces as claimed.

The skilled person in seeking to improve the cutting insert known from D3 would, motivated by D2 and D9, have applied these features to the insert known from D3 and would thereby have arrived at the subject-matter of claim 1 without the exercise of inventive activity.

This line of attack, being based on aspects which were included in the statement setting out the grounds of appeal, should be admitted.

ii) D3 in combination with the common general knowledge.

The features mentioned above from D2 and D9 also belonged to the common general knowledge. For the skilled person it would thus have been obvious to integrate these features in the insert known from D3.

iii) D4 as closest prior art

D4 disclosed a cutting insert with upper and lower mounting surfaces. The side surface joining the mounting surfaces had a groove which could be either inclined ("schräg") or diagonal (col. 2, l. 41 - 43).

The subject-matter of claim 1 merely differed from the insert of D4 in that rake surfaces were provided at a non-zero angle to the support surfaces.

This feature was well known in the art, in particular from D9 where it contributed to a stronger cutting edge.

Thus the skilled person would apply the teaching from D9 to the insert known from D4 without the exercise of inventive activity.

The subject-matter of claim 1 did not involve an inventive step.

VIII. The respondent argued essentially the following:

a) Sufficiency of disclosure

The patent disclosed at least one way of carrying out the invention.

Neither the unavailability of non-inventive examples nor a possibly reduced technical effect could hinder the skilled person from carrying out the claimed invention.

Thus the patent disclosed the invention in a manner sufficiently clear and complete for the skilled person to carry it out.

b) Novelty

Neither D3, D5 nor D12 disclosed an insert with the features of claim 1.

The insert shown in D3 did have a side surface divided into two support surfaces. The support surfaces were however neither triangular nor separated as required by the claim. Furthermore, the groove formed by the intersection of the support surfaces was not diagonal. The disclosure of D3 was therefore not novelty-destroying for the subject-matter of the claim.

D5, firstly, had not so far been used in the proceedings to attack novelty and this objection should not be admitted. Secondly, it disclosed an insert with a side surface made up of two support surfaces. The two support surfaces met to form a groove but were not separated.

D12 disclosed an inclined, i.e. not diagonal, groove and two support surfaces which were not however triangular.

c) Inventive step

i) D3 in combination with D2 and D9

This objection was raised for the first time during the oral proceedings. Given the large number of documents cited during the written proceedings it was not possible for the respondent to prepare for further attacks. This attack should not therefore be admitted into the proceedings.

ii) D3 in combination with common general knowledge

D3 did not disclose features 1.3 through to 1.7 of the claim. It was not apparent why and how the skilled person would change D3. The changes were extensive in nature and the skilled person would have no reason to change D3.

iii) D4 as closest prior art

D4 disclosed upper and lower mounting surfaces which were connected by side surfaces. The illustrated groove on the side surface was merely inclined rather than being diagonal. Moreover, there was no information

about the rake surfaces. Thus, first of all the skilled person would have to decide which surface to modify. This in itself meant that the argumentation of the appellant was mere supposition. Furthermore, the top surface of the cutting insert shown in D4, Figure 1 showed typical chip guiding structures. It was thus clear to the person skilled in the art that the rake surface was the top surface of said insert. Thus, even if providing a rake surface with a land was considered obvious, such a modification would not result in features 1.5 and 1.6 as claimed.

Hence, the subject-matter of claim 1 involved an inventive step.

Reasons for the Decision

1. Sufficiency of disclosure

The patent concerns a cutting insert. Such inserts are known generally in the art.

The claim in feature 1.5 specifies that the rake surfaces form non-zero angles with the first and second support surfaces. An example of this is shown in Fig. 1E of the patent. Thus, there is a teaching in the patent of at least one way of carrying out the invention. This has not been disputed.

If the non-zero angle were to be very large, as argued by the appellant, it may be correct that it would not be possible to provide triangular support surfaces. However, without triangular support surfaces this theoretical insert would not fall under the scope of the claim. The non-availability of non-inventive variants does not prejudice the sufficiency of

disclosure of the patent.

The appellant further argued that the alleged advantages of the invention were not realised when the angle was only slightly non-zero. This does not hinder the skilled person from carrying out the claimed invention.

Hence, the invention is disclosed in a manner sufficiently clear and complete such that the skilled person could carry it out.

2. Novelty

2.1 With respect to D3

D3 discloses a cutting insert in which between the two mounting surfaces there is a first side surface comprising two inclined planes which join to form a groove structure (see Figure 1).

According to the claim, the groove should extend substantially diagonally across the side surface and divide the first side into discrete, separated, triangular first and second support surfaces.

The support surfaces formed on the insert of D3 are however not triangular. Even if the patent allows some divergence from strictly triangular by using the qualifying term "substantially", the surfaces shown in D3 can at best be regarded as "truncated triangles", i.e. they are in fact four-sided.

Moreover, the feature that the support surfaces should be "discrete, separated" is not met by the insert of D3. The claim enunciates three elements on the side

surface, i.e. the two triangular support surfaces and the groove. The groove divides the side surfaces into the separate support surfaces and forms the boundary along the third edge thereof.

Thus, the claim excludes inserts, as in D3, where the groove is not a separate entity because then the support surfaces would not be separate and the groove would not be able to form the boundary.

Furthermore, D3 discloses no information regarding the rake surfaces - features 1.5 and 1.6. These features may be well known in the art as argued by the appellant but this does not make them "inherent". Rather they are not directly and unambiguously disclosed in D3.

Hence, the subject-matter of claim 1 is new with respect to D3.

2.2 With respect to D5

D5 discloses a cutting insert in which the side surface is formed by two support surfaces which intersect (see e.g. Figures 3-6).

As discussed above with regards to D3, the claim requires the groove to be a separate entity. This is not present in the insert shown in D5 - the groove is at most integral with the support surfaces. Moreover, the support surfaces are not "separate" because they connect with each other.

In view of this finding, there is no necessity to decide on admittance of the novelty objection based on D5 into the appeal proceedings.

2.3 With respect to D12

The support surfaces are not triangular as required by the claim. As in D3, they are at most truncated triangles. Thus, at least for this reason, the subject-matter of claim 1 is new with respect to D12. Accordingly, no witness hearing is necessary.

3. Inventive step

3.1 D3 as closest prior art

3.1.1 Late filed submissions

During the oral proceedings the appellant argued that the subject-matter of claim 1 lacked an inventive step when considering D3 in combination with D2 and D9 or in combination with D2 and the common general knowledge as exemplified by D15. The combination of documents D3 and D2 had not been mentioned in the written proceedings and were thus a change in the parties' case raised for the first time at the oral proceedings.

According to Article 13(3) RPBA 2007 (the original summons being dated 4 November 2019), amendments sought to be made after oral proceedings have been arranged shall not be admitted if they raise issues which the Board or the other party cannot reasonably be expected to deal with without adjournment of the oral proceedings. The Board considered that, in the current case where numerous documents were in the proceedings, an inventive step attack based for the first time on a closest prior art document (D3) which had never before in the appeal proceedings been used as closest prior art in combination with a further document (D2) went beyond that which the respondent could be reasonably

expected to deal with.

Consequently, the Board did not admit any line of attack based on a combination of the teaching of documents D3 and D2 into the proceedings.

3.1.2 D3 in combination with common general knowledge

As discussed above, D3 does not disclose features 1.3 to 1.7 of claim 1. In order to arrive at the subject-matter of claim 1, the skilled person would have to have radically altered the cutting insert of D3. Such a comprehensive redesign cannot be derived from the common general knowledge alone and would have required the exercise of inventive skill.

3.2 D4 as closest prior art

It is common ground that D4 discloses the features of the preamble of claim 1 as follows:

(1.1) A cutting insert (1), comprising:

a first mounting surface (top surface in Fig. 1);
a second mounting surface (bottom surface in Fig. 1) on an opposite side of the insert from the first mounting surface;

(1.2) a first side surface (shown in views in Figs. 2 - 5) between the first mounting surface and the second mounting surface.

Moreover, D4 discloses that

(1.3) the insert comprises:

a first groove (3) extending substantially diagonally across the first side surface (see col. 2, l. 41 - note that "schräger oder diagonaler Verlauf" is disclosed with 3a being the inclined i.e. "schräge" alternative (col. 2, l. 58)) and

(1.4) dividing the first side surface into discrete,

separated, triangular first and second first side support surfaces (if the groove 3 is indeed diagonal then it extends between the vertices), (1.7) [the first and second first side support surfaces each being bounded] along third edges by the groove (Fig. 5).

References to D4 added in the above in parentheses.

D4 does not disclose rake surfaces (features 1.5 and 1.6); it is neither disclosed which surfaces should be regarded as the rake surfaces nor in which direction the cutting edges are to be used.

Thus, any choice about which surfaces the skilled person would modify would be purely arbitrary. To arrive at the subject-matter of claim 1 would require the skilled person in a first stage to determine which was the cutting edge and then in a second stage the rake surfaces would have to be determined.

Indeed, as pointed out by the respondent, the structures on the top surface of the cutting insert (see D4, Figure 1) resemble chip guiding structures, thereby implying that the rake surface is indeed the top surface of said insert. Consequently, the person skilled in the art would at best provide the top surface with a land, not the side surfaces. Thus, even a teaching in the prior art from e.g. D9 or D15 to strengthen the cutting edge would not lead the skilled person to the claimed invention without the exercise of inventive activity.

3.3 The subject-matter of claim 1 involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Magliano

C. Herberhold

Decision electronically authenticated