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D E C I S I O N
of 16 March 2006

Case Number: T 1218/04 - 3.2.06

Application Number: 94110084.4

Publication Number: 0636442

IPC: B23B 27/04

Language of the proceedings: EN

Title of invention:
A metal cutting tool

Patentee:
ISCAR LTD.

Opponent:
Sandvik Aktiebolag

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 84, 54(2), 56
EPC R. 55(c)

Keyword:
"Opposition - admissibility (yes)"
"Amendments - allowable"
"Clarity (yes)"
"Interpretation of claims"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
T 0934/99

Catchword:
-



Case Number: T 1218/04 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 16 March 2006

Appellant: Sandvik Aktiebolag
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
10 August 2004 concerning maintenance of
European patent No. 0636442 in amended form.

Composition of the Board:

Chairman: P. Alting van Geusau

Members: G. Pricolo

K. Garnett

Summary of Facts and Submissions

I. The appeals are from the interlocutory decision of the Opposition Division posted on 10 August 2004 concerning the maintenance in amended form of European patent No. 0 636 442, granted in respect of European patent application No. 94 410 084.4.

In the decision under appeal the Opposition Division considered that the opposition was admissible and that the subject-matter of claim 1 as granted was obvious in the light of the disclosure of documents

D3: US-A-3 798 725; and

D2: EP-A-534 450.

The first, second and fourth auxiliary requests filed by the patent proprietor were also rejected for lack of inventive step, and the third auxiliary request for lack of compliance with the requirements of Article 123(2) EPC. However, the subject-matter of claim 1 according to the fifth auxiliary request was novel and inventive over the available prior art.

II. The patent proprietor and the opponent each lodged an appeal, received at the EPO respectively on 20 and 11 October 2004, against this decision and simultaneously paid the appeal fee. The statements setting out the grounds of appeal were received at the EPO on 20 and 12 December 2004, respectively.

III. In an annex to the summons to oral proceedings pursuant to Article 11(1) of the Rules of Procedure of the

Boards of Appeal the Board informed the parties of its preliminary opinion according to which the Opposition Division was correct in considering the opposition to be admissible. The Board further expressed its doubts concerning inventive step of the subject-matter of claim 1 as granted in the light of the closest prior art represented by document D2.

IV. Oral proceedings took place on 16 March 2006.

The appellant-opponent requested that the decision under appeal be set aside and that the patent be revoked.

The appellant-patentee requested that the decision under appeal be set aside and that the patent be maintained on the basis of the new main request presented during the oral proceedings.

V. Claim 1 according to the appellant-patentee' request reads as follows:

"A metal cutting tool comprising an exchangeable cutting insert (2) having a body portion (3) and a cutting head portion (4); said cutting head portion comprising an upper rake surface (4a) and a front relief flank surface (4b), defining between them a cutting edge (4c); and a cutting insert holder (7) formed with a pair of clamping jaws (5,6) releasably clamping said insert in said holder, a first (5) of said clamping jaws contacting said insert (2) adjacent said rake surface (4a) and a second (6) of said clamping jaws supporting a base (2a) of the insert; wherein said second clamping jaw (6) is formed with a

projecting portion (6a) extending beyond said base edge (2a); said projecting portion has a front end surface (6c) with a bevelled portion (6b), a coolant flow channel (8) is formed in said holder (7) having an inlet adapted to be coupled to a coolant flow supply, a downstream portion (8a) of said channel has an outlet (8b) which is formed at least in part in said bevelled portion (6b) and so formed that a coolant outflow from said outlet (8b) is directed substantially parallel to said relief surface (4b), characterized in that said front relief flank surface (4b) is substantially planar and said bevelled portion (6b) of said holder (7) defines an angle (β) with respect to the remainder of said front end surface (6c) ranging from 0° to 30° , wherein the second clamping jaw (6) comprises an upper surface with a second bevelled portion (9') adjacent said bevelled portion (6b) whilst the bevelled portion (9') of the upper surface of the projecting portion (6a) defines an angle (α) with respect to the clamping surface of the second clamping jaw (6) and wherein the outlet (8b) is formed in the second bevelled portion (9')".

VI. The submissions of the appellant-opponent can be summarized as follows:

Since the patentee was able to present several pages of counter-arguments, he had no difficulty in understanding the attack based on document

D1: FR-B-1 115 922

which was made in the notice of opposition. D1 was a very short document and its relevance to the patent in

suit was immediately apparent from the figures, which were self-explanatory. Accordingly, the opposition was sufficiently substantiated and therefore admissible.

There was no support in the application as filed for the general definition of claim 1 as amended. Furthermore, claim 1 did not make clear whether the second bevelled portion was inclined longitudinally, as the first bevelled portion, or rather towards the side of the tool.

The wording of claim 1 was such as to encompass an embodiment of a tool in which the second bevelled portion consisted of a portion of the coolant flow channel immediately adjacent the outlet. Such an embodiment was known from D2, which disclosed a tool having a cutting insert holder with a first bevelled portion within the meaning of the patent in suit and a coolant flow channel outlet formed in said bevelled portion. Furthermore, claim 1 encompassed an embodiment in which the angle β defined by the bevelled portion of the front end surface was 0° , and the angle α defined by the second bevelled portion was either 0° or 360° . In such embodiment, the first and second bevelled portions could be identified with arbitrarily delimited portions of the front end surface and of the clamping surface of the lower clamping jaw, respectively. A tool corresponding to this embodiment was known from either D2 or D3. Finally, claim 1 encompassed the possibility that the first and second bevelled portions were formed by two adjacent portions of a same surface. Also this possibility corresponded to the disclosure of D2. Accordingly, the claimed subject-matter was not novel. In any case, it did not involve an inventive step.

Claim 1 covered embodiments in which the angles α and β formed by the bevelled portions were very close to 0° , in which embodiments no appreciable technical effect was obtained. Furthermore, in order to improve the accessibility of the tool to large workpieces, the skilled person would have regarded as obvious the provision of the tool of D2 with a bevelled portion having an angle β within the claimed range. He also would have it regarded as obvious to provide a second bevelled portion with an angle α within the claimed range in order to facilitate the insertion of the insert in the space between the clamping jaws of the tool of D2.

VII. The appellant-patentee essentially argued as follows:

The very short arguments provided in the notice of opposition, which contained only one paragraph in respect of claim 1, did not allow a skilled person to objectively understand the objections formed in the notice of opposition. The patentee thus had to speculate in its reply about what possible attacks were made by the opponent. Accordingly, the opposition did not meet the requirements of Rule 55(c) EPC. It was therefore not admissible.

The amendments made to claim 1 were based on the disclosure of the application as filed. The wording of claim 1 made it clear that the second bevelled portion was adjacent to the first bevelled portion and that both bevelled portions were inclined longitudinally.

Although the claim referred to a bevel angle β ranging from 0° to 30° , it was clear for a skilled person that

the value of 0° was excluded, because a bevel must have by definition an inclination with respect to adjacent surfaces. Accordingly, the appellant-opponent's argument that D3 was prejudicial to the novelty of the subject-matter of claim 1 was flawed because it was based on the premise that the claim encompassed bevel angles of 0°. D3 in fact was silent about any bevelled portions provided in the lower clamping jaw. As regards D2, it disclosed in Fig. 2 a bevelled portion in the projecting portion of the front end surface of the lower clamping jaw. This figure was however in contradiction with the disclosure of Fig. 1, in which no bevelled portion was shown, and with the relevant disclosure in the description. The skilled person would recognize that Fig. 2 was erroneous, and therefore this figure did not form part of the technical disclosure of D2. In any case, D2 did not disclose the additional second bevelled portion referred to in claim 1 of the patent in suit. The provision of first and second bevelled portions in a corresponding relation with the outlet of the coolant flow channel solved the technical problem of ensuring an effective direction of the coolant over the entire relief flank surface. Since the prior art did not contain any indications leading towards the claimed solution to this technical problem, the subject-matter of claim 1 involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.
2. *Admissibility of the opposition*

2.1 As already stated in the communication annexed to the summons to attend oral proceedings, it is clear from the arguments presented in the notice of opposition that the opponent starts from the assumption that a metal cutting tool having the features defined in the preamble of claim 1 as granted is known. Indeed, after having generally described a tool according to the preamble of claim 1, the opponent states that "*the alleged patentable novelty in connection with this kind of tool*" is to be found in the characterising portion of the claim. The assumption that a metal cutting tool according to the preamble of claim 1 is known is justified by the fact that the claim is in a two-part form in accordance with Rule 29(1) EPC and additionally by the statement in par. [0001] of the patent in suit, where it is stated that a metal cutting tool according to the preamble of claim 1 is known from D2. The opponent then discusses the features of the cutting tool disclosed by D1 which correspond to the features in the characterizing portion of the claim. In the present case, the general reference to Fig. 3 of D1 is sufficient for a skilled person to understand which are the relevant features in question. In fact, Fig. 3 is a sectional view of the front end of a cutting tool, which clearly shows the front relief flank surface of the cutting insert and further indicates that the front end surface of the lower clamping jaw has a portion which is at an angle (b) with the remainder of the front end surface.

Since in the notice of opposition it is indicated that the opposition is based on the ground of lack of inventive step (see EPO Form 2300.2), and that in the

arguments presented in support of this ground it is indicated that a tool according to the preamble of claim 1 is known and that the features of the characterising portion are known from D1, there is no doubt for a skilled person that the opponent's allegation is that the combination of the features of the known tool with those of D1 results in a tool according to claim 1 of the patent in suit.

Accordingly, the line of reasoning in the notice of opposition can be objectively understood and is thus sufficient to meet the requirements of Rule 55(c) EPC.

2.2 In this respect it is noted that Rule 55(c) EPC does not imply the requirement of a logical line of reasoning in the sense that the arguments brought forward in the notice of opposition must be cogent or convincing. Rather, the criterion is whether the arguments presented are relevant and, where necessary as the result of a reasonable interpretive effort, specific enough for allowing a person skilled in the art to form a reasoned opinion of whether the line of reasoning on which the opponent apparently relies is (logically) correct ("convincing") or not (i.e. wrong) (see T 934/99, point 6 of the reasons). As explained above, this is the case here.

2.3 The appellant-patentee submitted that the insufficiency of the notice of opposition was rendered evident by the fact that in order to reply to the opposition he had to speculate about what possible attacks were being made by the opponent.

This, however, is not an objective criterion for assessing whether the notice of opposition is sufficient within the meaning of Rule 55(c) EPC. In opposition proceedings, parties are free to choose the line of action they judge the best. The fact that in the present case the patentee wrote a long reply in response to the short submissions made in the notice of opposition in respect of claim 1, does not per se constitute evidence of an insufficiency of those submissions. The long reply could in fact be seen as an attempt of the patentee to better defend its position by exploring all possible attacks that could have been made by the opponent.

3. *Amendments - Article 123 EPC*

- 3.1 Claim 1 includes the combination of features of claim 1 as granted. In addition, it defines the feature of claim 5 as granted according to which "*the second clamping jaw (6) comprises an upper surface with a second bevelled portion (9') adjacent said bevelled portion (6b)*". This feature is disclosed as such (not necessarily in combination with the specific range for the angle α as defined in claim 5 as granted) in the application as filed (page 7, lines 9 to 13). Furthermore, claim 1 recites the feature: "*whilst the bevelled portion (9') of the upper surface of the projecting portion (6a) defines an angle (α) with respect to the clamping surface of the second clamping jaw (6)*" which is literally taken from the description of the application as filed (see page 7, lines 10 to 12), apart from the term "lower" which is replaced by "second" for conformity with the wording of claim 1 (where the clamping jaws are identified with "first and

second" rather than "upper and lower" as in the description). Finally, the feature added according to which "*the outlet (8b) is formed in the second bevelled portion(9')*" is clearly derivable from the passage on page 6, lines 24 to 28 and Fig. 4 of the application as filed.

With these amendments the claimed subject-matter is restricted to the embodiments of Figs. 4 and 5 in which the second bevelled portion is present.

- 3.2 Claims 2 to 4 correspond to granted claims 2 to 4 and claim 5 to part of claim 5 as granted.

The description is amended to be in conformity with the new claims and the figures are the same as in the patent as granted.

- 3.3 The appellant-opponent generally contested the allowability of the amendments under Article 123(2) EPC. However, as explained above, the claimed subject-matter is clearly and unambiguously derivable from the application as filed. Accordingly, the amendments do not give rise to objections under Article 123(2).

- 3.4 Since the amendments result in a limitation of the extent of protection, they also do not give rise to objections under Article 123(3) EPC.

4. *Clarity and interpretation of the claims*

- 4.1 It is a fact that the adjective "bevelled" has a general accepted meaning in the art, which implies an inclination of the surface to which it refers with

respect to adjacent surfaces. Accordingly, the expression "bevelled portion" can only be interpreted by a skilled person as meaning that the portion in question is inclined with respect to adjacent surfaces.

From this it follows that the expression "bevelled portion" in claim 1 is inconsistent with the requirement of the same claim 1 that "*said bevelled portion [...] defines an angle (β) with respect to the remainder of said front end surface (6c) ranging from 0° to 30°*", because an angle β of 0° rules out the presence of a bevelled portion.

In the Board's view, since the presence of a "bevelled portion" is an essential feature of the claimed invention, the skilled person would consider that the use of the term "bevelled" in connection with the given range for the angle β only makes sense if the value of 0° itself is excluded from that range. Accordingly, claim 1 must be understood as referring to a bevelled portion forming an angle β (with respect to the remainder of said front end surface) which is greater than 0° and smaller than or equal to 30°.

- 4.2 The appellant-opponent objected that claim 1 did not make clear whether the second bevelled portion was inclined longitudinally, as with the first bevelled portion, or rather towards the side of the tool.

According to the wording of claim 1, the second bevelled portion (9') is adjacent the first bevelled portion (6b) and the clamping surface of the second clamping jaw. Since both the first bevelled portion and the clamping surface are inclined longitudinally (for

ensuring the tool's functionality), the second bevelled portion must also be inclined longitudinally (for ensuring the continuity between these surfaces). Accordingly, the wording of claim 1 is clear in respect of the orientation of the second bevelled portion.

4.3 From the above it follows also that since the first (6b) and second bevelled portions (9') are adjacent, they are necessarily inclined with respect to one another in the longitudinal direction. Hence, claim 1 does not encompass an embodiment in which the first and second bevelled portions are not inclined with respect to one another, being portions of a same surface.

5. *Novelty*

5.1 Using the wording of claim 1 of the patent in suit, D2 discloses (see Figs. 2 and 3) a metal cutting tool comprising an exchangeable cutting insert (3) having a body portion and a cutting head portion; said cutting head portion comprising an upper rake surface (5) and a front relief flank surface (6), defining between them a cutting edge (4); and a cutting insert holder (2) formed with a pair of clamping jaws releasably clamping said insert in said holder, a first (upper) of said clamping jaws contacting said insert (3) adjacent said rake surface (5) and a second (lower) of said clamping jaws supporting a base (7) of the insert; wherein a coolant flow channel (9) is formed in said holder having an inlet adapted to be coupled to a coolant flow supply.

Furthermore, it can be derived from the disclosure of Fig. 2 that said second clamping jaw is formed with a

projecting portion extending beyond said base edge (7), that said projecting portion has a front end surface with a bevelled portion (corresponding to reference 10), and that a downstream portion of said channel (9) has an outlet (10) which is formed at least in part in said bevelled portion and so formed that a coolant outflow from said outlet is directed substantially parallel to said relief surface (6).

Contrary to the opinion of the appellant-patentee, the Board takes the view that the disclosure of Fig. 2 belongs to the technical content of document D2. It is true that Fig. 2 shows a tool which in some aspects is different from that shown in Fig. 1, although it is stated in the description (see col. 3, lines 16 to 20) that Fig. 2 is a side elevation of the tool shown in Fig. 1. However, the skilled person would recognize that these two figures show different embodiments of the invention according to D2, because both embodiments are plausible ways of carrying out the invention underlying D2. Both embodiments are congruent with the description, in particular with the passages referred to by the appellant-patentee, according to which the coolant channels communicate with the recesses of the insert and extend into and through the base of the insert (see col. 5, lines 11 to 32). In fact, in Fig. 1 the coolant channel extends completely, and in Fig. 2 partially, into and through the base of the insert.

Moreover, as submitted by the appellant-opponent, although recesses (27) are provided in the relief flank surface of the insert shown in Fig. 9 of D2, the transverse dimensions of these recesses can be quite small (the total sum of the transverse dimensions of

the recesses can be 0.2 times the transverse width of the insert; see col. 4, lines 29 to 37) with respect to the remainder of the relief flank surface, which is planar (see Fig. 9). Accordingly, the front relief flank surface of the cutting insert can be regarded as substantially (i.e. to a major extent) planar.

D2 does not indicate any specific bevel angle for the bevelled portion, which is shown in Fig. 2 as being immediately adjacent to the upper surface of the second (lower) clamping jaw. Considering that claim 1 excludes bevel angles of 0° or 360° for the bevelled portions and that it requires the second bevelled portion to be inclined with respect to the first bevelled portion (see section 4 above), D2 does not disclose a second bevelled portion within the meaning of claim 1. In this respect, it is noted that, contrary to the opinion of the appellant-opponent, a portion of the outlet of the coolant flow channel cannot be regarded as a bevelled portion. Although such a portion is at an angle with the surface on which the outlet's edge lies, it is not at an angle with the remainder of the coolant flow channel.

Accordingly, the subject-matter of claim 1 of the patent in suit is distinguished from the metal cutting tool of D2 in that said bevelled portion of said holder defines an angle with respect to the remainder of said front end surface ranging from 0° to 30° , wherein the second clamping jaw comprises an upper surface with a second bevelled portion adjacent said bevelled portion whilst the bevelled portion of the upper surface of the projecting portion defines an angle with respect to the clamping surface of the second clamping jaw and wherein

the outlet is formed in the second bevelled portion.

- 5.2 Document D3 discloses (see Fig. 1) a metal cutting tool comprising an exchangeable cutting insert (31) having a body portion and a cutting head portion; said cutting head portion comprising an upper rake surface and a front relief flank surface, defining between them a cutting edge; and a cutting insert holder formed with a pair of clamping jaws (38, 39) releasably clamping said insert in said holder, a first (38) of said clamping jaws contacting said insert adjacent said rake surface and a second of said clamping jaws (39) supporting a base of the insert; wherein a coolant flow channel (49) is formed in said holder having an inlet adapted to be coupled to a coolant flow supply, a downstream portion of said channel has an outlet, and said front relief flank surface is substantially planar.

As shown in Fig. 1, the front end surface (3) of the lower clamping jaw (39) consists of an inclined surface which is immediately adjacent the upper surface of the lower clamping jaw. Thus, there is no bevelled portion within the meaning of claim 1 of the patent in suit (see above section 4) at either the front end surface or at the upper surface of the clamping jaw.

Furthermore, for the same reasons given in respect of D2 (see point 5.1 above), a portion of the outlet of the coolant flow channel (49) cannot be regarded as a bevelled portion. Accordingly, D3 does not disclose the features of claim 1 of the patent in suit relating to the first and second bevelled portions.

- 5.3 Document D1 relates to a metal cutting tool of the kind in which the cutting insert (see Fig. 3) is joined to

the body portion of the tool. It does not relate to a tool having a pair of clamping jaws for clamping a cutting insert therebetween. D1 discloses the provision of a coolant flow channel (4), not, however, any bevelled portions in a corresponding relation with the outlet (3) of said coolant flow channel.

5.4 It follows that the subject-matter of claim 1 is novel over the available prior art.

6. *Inventive step*

6.1 The closest prior art is undisputedly represented by document D2. The features distinguishing the subject-matter of claim 1 from the metal cutting tool according to D2 (see above point 5.1) provide the technical effect of ensuring the effective direction of the coolant over the entire relief flank surface (see par. [0030] of the patent in suit).

6.2 The appellant-opponent contested that any appreciable result was achieved if the bevel angles of the first and second bevelled portions were very close to 0°. However, the claimed subject-matter must be read by a skilled person, who would not only understand that an angle β of 0° is excluded (see point 4.1 above), but also that the bevel angles must differ from 0° such that technically meaningful bevels can be appreciated. The technical effect obtained with small, yet still technically meaningful, bevel angles may be small. This, however, does not necessarily mean that the technical effect would not be appreciable.

6.3 Accordingly, the technical problem solved can be seen in ensuring effective direction of the coolant over the entire relief flank surface.

6.4 There is no indication in the available prior art that the provision of first and second bevels in a corresponding relation with the outlet of the coolant flow channel might have an effect on the direction of the flow of coolant.

The appellant-opponent submitted that the skilled person would regard it as obvious to provide a second bevelled portion in the tool of D2 in order to facilitate the insertion of the insert in the space between the clamping jaws. This argument cannot be accepted. As a matter of fact, in the tool of D2 the space between the clamping jaws is V-shaped, thereby allowing for easy insertion of the cutting insert. Moreover, the rear portion of the cutting insert is V-shaped in the opposite direction (see Fig. 2). This feature also contributes to an easy insertion of the cutting insert. Therefore, since D2 already presents the skilled person with sufficient measures allowing for the easy insertion of the cutting insert, he would not consider the provision of an additional measure for the same purpose, such as an additional bevel.

6.5 Therefore, the skilled person would not arrive in an obvious manner at the subject-matter of claim 1 which, consequently, involves an inventive step (Article 52(1), 56 EPC).

7. Dependent claims 2 to 5 define further embodiments of the metal cutting tool of claim 1 and likewise involve an inventive step.
8. Therefore the patent specification amended in accordance with the appellant-patentee's request forms a suitable basis for maintenance of the patent in amended form.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is referred to the Opposition Division with the order to maintain the patent on the basis of the following documents:

claims: 1 to 5 as filed during the oral proceedings of 16 March 2006;

description: columns 1 to 5 as filed during the oral proceedings of 16 March 2006;

drawings: figures 1 to 5 as granted.

The Registrar:

The Chairman:

M. Kiehl

P. Alting van Geusau