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**D E C I S I O N**  
**of 2 May 1995**

**Case Number:** T 0873/91 - 3.2.2

**Application Number:** 85850300.6

**Publication Number:** 0178273

**IPC:** B23B 27/14

**Language of the proceedings:** EN

**Title of invention:**  
Single-sided cutting insert

**Patentee:**  
Santrade Ltd.

**Opponent:**  
KRUPP WIDIA GMBH

**Headword:**  
Stable insert/Santrade

**Relevant legal provisions:**  
EPC Art. 56, 114(1)

**Keyword:**  
"Withdrawal of opposition"  
"Examination of own motion"  
"Inventive step (yes), after amendment"

**Decisions cited:**

**Catchword:**



Case Number: T 0873/91 - 3.2.2

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.2**  
**of 2 May 1995**

**Appellant:** Santrade Ltd.  
(Proprietor of the patent) Alpenquai 12  
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**Representative:** Taquist, Lennart  
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**Respondent:** Krupp Widia GmbH  
(Opponent) Münchener Str. 90  
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**Representative:** Vomberg, Friedhelm, Dipl.-Phys.  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office dated 20 September 1991  
revoking European patent No. 0 178 273 pursuant to  
Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** H. Seidenschwarz  
**Members:** M. Bidet  
J. van Moer

### Summary of Facts and Submissions

I. On 11 November 1991 an appeal was filed against the decision of the Opposition Division, issued on 20 September 1991 revoking the European patent No. 0 178 273, the appeal fee being paid on the same date. The statement setting out the grounds of appeal including a set of claims was received on 16 January 1992.

II. The opposition was filed against the patent as a whole and based on Article 100(a) EPC asserting that the subject-matter of this patent was not novel or at least did not involve an inventive step.

The Opposition Division held that lack of inventive step prejudiced the maintenance of the patent having regard to the documents EP-A-0 119 175 (E4) and FR-A-2 061 020 (E7).

III. The Respondent (Opponent) requested by its letter of 13 March 1992 that the appeal be dismissed. With its letter of 9 December 1992 the opposition was withdrawn.

IV. In a communication of the Board of Appeal pursuant to Article 110(2) EPC, issued on 30 September 1994, the Board informed the Appellant that examination of the appeal was continued according to Article 114(1) and Rule 60(2) EPC, and that Claim 1 did not comply with Article 123(2) and (3) EPC.

V. In response to the above mentioned communication the Appellant filed a set of amended claims and a description adapted to the new claims. It requested that the decision under appeal be set aside and the patent be maintained on the basis of:

description: page 1 filed with letter of 3 April  
1995,  
columns 1,2 filed with letter of 3 April  
1995,  
column 3 of the patent as granted,  
claims: 1 to 6 filed with letter of 16 February  
1995,  
drawings: Figures 1 to 5 of the patent as granted.

VII. Claim 1 reads as follows:

"A cutting insert preferably for turning which consists of a wafer having a polygonal basic shape, preferably a triangular basic shape, said cutting insert (11) comprising an upper face (11), a lower face (12) and a plurality of side surfaces (13-15) joining said upper and lower faces (11,12), said surfaces (13-15) joining each other at corners (16-18), cutting edges being formed along facets at the upper part of said corners, said cutting edges being joined in cutting tips (19-21) located in a common plane, said lower face (12) being provided only to abut a base surface (27) of a cutting insert site, characterised in that each lower part of the corners (16-18) comprises a protruding surface (23-25) connected to two side surfaces (13-15), said protruding surface protruding relative to the center part (2) of the lower face (12) such that at least a portion of each protruding surface (13,25) coincides with a plane (A) which is parallel to and distinct from the plane defined by the cutting tips (19-21) and touches the parts of all the support surfaces that are arranged furthest away from the upper face (11), and in that each protruding surface (23-25) seen in a bisector plane inclines either from the radially outermost point of the corner (16-18) in the direction of the upper face (11) towards the central part (26) of the lower face (12) and forms an acute angle ( $\alpha$ ) with the plane (A), or

relative to the central part (26) of the lower face (12) such that the radially outermost point of each support surface is arranged closer to the upper face (11) than its radially innermost point."

Dependent Claim 2 to 6 relate to preferred embodiments of the insert according to Claim 1.

### **Reasons for the Decision**

1. The appeal is admissible.

2. *Amendments*

New Claim 1 is based on Claim 1 to 3 of the patent as granted. The dependent Claim 2 to 6 correspond to the dependent Claim 5 to 9 of the patent as granted.

The description has been adapted to the new Claim and completed by indicating the prior art according to document E7.

Since the amendments are supported by the description as originally filed and also reduce the scope of the protection, there are no objections under Articles 123(2) or (3) EPC to the amended documents.

3. *Prior art*

3.1 Document E4 discloses a cutting insert for turning which consists of a wafer having a triangular basic shape and comprising the faces and cutting edges as defined in the precharacterising portion of new Claim 1 of the patent

in suit. According to the Figures 2 and 4, the lower face is a plane surface. The object of the known device is to perform the cutting tips in such a manner that the cutting insert will not be subjected to large cutting forces (see page 1, line 19 to page 2, line 3; Claim 1).

3.2 Document E7 relates to a cutting insert for turning, having a triangular shape and comprising an upper face, a lower face parallel to the upper face and side faces, the latter joining each other at corners. The cutting tips are located in a common plane and the lower face is intended to be mounted directly on a tool holder. According to this document, the tool holder is fitted with a threaded central hole, two abutting surfaces for the side surfaces of the cutting insert and a recess in its base surface defining three support surfaces which protrude from the bottom of the recess. The cutting insert is mounted on the tool holder by a screw going through the central hole, thus the lower face of the cutting insert rests on the three protruding support surfaces. These protruding support surfaces are parallel to the contacting surface of the lower face of the cutting insert. This embodiment reduces the wobble tendencies of the cutting insert and saves the need for accurate machining of the bottom surface of the recess. (see page 3, lines 18 to 27; page 4, lines 26 to 28, 37 to 39; page 5, line 33 to page 6, line 10 Figures 2 to 5).

3.3 The documents E4 and E7, however, do not disclose the feature that each lower part of the corners of the cutting insert comprises a protruding surface as specified in the characterising part of new Claim 1 of the patent in suit.

3.4 The other documents cited during the opposition procedure (US-A-4 028 782 (E1), US-A-2 870 523 (E2), EP-A-0 081 775 (E3), FR-A-2 160 197 (E5), GB-A-2 030 899 (E6)) describe cutting inserts which do not have more features in common with the subject-matter of new Claim 1 of the patent in suit than the cutting insert according to the documents E4 and E7 cited in the decision of the Opposition Division.

4. *Novelty*

From the above, it results that there is no document disclosing a cutting insert provided at its lower face with protruding surfaces at each corner which are inclined relatively to the upper face of the cutting insert site for the purpose of securing it to the tool holder as specified in new Claim 1 of the patent in suit.

The subject-matter of this Claim 1 is therefore novel within the meaning of Article 54(2) EPC.

5. *Inventive step*

5.1 According to the description of the patent in suit, it is an object of the invention to design the lower face of the insert in such way that the cutting insert has well-defined abutment surfaces for abutment against the base surface of the cutting insert site to achieve a stable and wobblefree clamping of the cutting insert (see column 1, lines 38 to 40 and column 3, lines 10 to 17).

5.2 According to the characterising portion of new Claim 1, this object is achieved in essence by the protruding surfaces which are at each lower part of the corners being inclined relative to the plane (A) and also to the

upper surface of the insert, and therefore also inclined relative to the lower face of the cutting insert on which the insert is to be mounted on the tool holder.

With the inclination of the protruding surfaces, each contact of these protruding surfaces with the base surface of the tool holder is defined as a line or a point (see column 2, lines 58 to 61). It is therefore possible to attain better stability of the cutting insert since it rests now against a plurality of locations separated from each other, resulting in the reduction and in some cases eliminating the tendency to wobble.

- 5.3 Document E4 teaches the adaptation of the cutting insert as specified in the precharacterising portion to the problem of large cutting forces by providing the cutting surface with a positive cutting geometry. This document therefore does not give any hint to developing the cutting insert in the way as specified in Claim 1 of the patent in suit.

Document E7 shows the use of the **principle of parallel contacting surfaces** between a cutting insert and a cutting insert site which surfaces always mate for solving the same problem which underlies the subject-matter of new Claim 1 of the patent in suit, namely to obtain a stable and wobblefree clamping of the cutting insert.

Therefore none of the documents cited during the opposition procedure give - alone or in combination with another one - any hint to the person skilled in the art of providing surfaces which permit line or point contact between the lower face of the cutting insert and the corresponding base surface of the cutting insert site.

5.4 It follows from the above that it was not obvious to arrive at the claimed insert in view of the cited prior art. Therefore, the subject-matter of Claim 1 is considered to involve an inventive step set out in Articles 52(1) and 56 EPC.

6. Claim 1 being allowable, the same applies to the dependent Claim 2 to 6 whose patentability is supported by that of Claim 1.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside
2. The case is remitted to the first instance with the order to grant a patent in the following version:

description: page 1 filed with letter of 3 April 1995,  
columns 1, 2 filed with letter of 3 April 1995,  
column 3 of the patent specification,  
claims: 1 to 6 filed with letter of 16 February 1995,  
drawings: Figures 1 to 5 of the patent specification.

The Registrar:

The Chairman:



S. Fabiani



H. Seidenschwarz