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**Datasheet for the decision  
of 15 May 2025**

**Case Number:** T 1430 / 23 - 3.2.07

**Application Number:** 18708421.5

**Publication Number:** 3592516

**IPC:** B26B21/56, B26B21/60

**Language of the proceedings:** EN

**Title of invention:**

RAZOR BLADE

**Patent Proprietor:**

BIC Violex Single Member S.A.

**Opponent:**

The Gillette Company LLC

**Headword:**

**Relevant legal provisions:**

EPC Art. 54, 56, 100(b)

RPBA 2020 Art. 13(2)

**Keyword:**

Grounds for opposition - insufficiency of disclosure (no)  
Novelty - (yes)  
Amendment after summons - exceptional circumstances (no) -  
taken into account (no)  
Inventive step - (yes)

**Decisions cited:**

T 0593/09, T 1862/15, T 1984/15, T 1179/16

**Catchword:**



**Beschwerdekammern**

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**Case Number: T 1430/23 - 3.2.07**

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.07**  
**of 15 May 2025**

**Appellant:**

(Opponent)

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**Respondent:**

(Patent Proprietor)

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**Representative:**

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**Decision under appeal:**

**Decision of the Opposition Division of the  
European Patent Office posted on 22 May 2023  
rejecting the opposition filed against European  
patent No. 3592516 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

**Chairman** G. Patton  
**Members:** S. Watson  
E. Mille

## **Summary of Facts and Submissions**

- I. An appeal was filed by the opponent against the decision of the opposition division to reject the opposition against European patent 3 592 516.

The opposition was based on the grounds for opposition under Article 100(b) EPC, lack of sufficiency of disclosure and Article 100(a) EPC, lack of novelty (Article 54 EPC) and lack of inventive step (Article 56 EPC).

- II. In preparation for oral proceedings, the board gave its preliminary opinion in a communication pursuant to Article 15(1) RPBA, dated 14 February 2025, according to which the appeal was likely to be dismissed.

- III. The opponent responded to this communication with submissions of 21 March 2025, which included new evidence. The patent proprietor responded to the opponent's submissions of 21 March 2025 with submissions of 7 May 2025.

- IV. Oral proceedings before the board took place on 15 May 2025.

At the conclusion of the proceedings the decision was announced. Further details of the oral proceedings can be found in the minutes.

- V. The final requests of the parties are as follows.

The opponent ("appellant") requested that

- the decision under appeal be set aside and
- the patent be revoked.

The patent proprietor ("respondent") requested that

- the appeal be dismissed,

or if the decision under appeal is set aside,

- that the patent be maintained in amended form on the basis of one of the sets of claims of auxiliary requests 1 to 3 filed on 29 November 2021.

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

D2: EP 3 372 361 A1  
D3: US 2015/0328789 A1  
D4: WO 2016/101990 A1  
D6: WO 84/02104 A1  
D10: WO 2015/179217 A1  
D12: Appeal Brief for US patent application 16/491,946 of 6 September 2019  
D13: "Shaving damage evaluation" experimental evidence dated 17 March 2025.

VII. Claim 1 of the patent as granted (main request) reads as follows:

"A razor blade having a symmetrical tapering blade edge (11) ending in a substrate tip (14), the razor blade comprising a substrate (10), wherein the substrate(10) has a thickness (T5) comprised between 1.80 micrometers and 2.40 micrometers measured at a distance (D5) of 5 micrometers from the substrate tip (14), a thickness (T20) comprised between 6.2 micrometers and 7.70 micrometers measured at a distance (D20) of 20 micrometers from the substrate tip (14), a thickness (T40) comprised between 11.60 micrometers and 13.50 micrometers

measured at a distance (D40) of 40 micrometers from the substrate tip (14), and a thickness (T200) comprised between 51 micrometers and 56 micrometers measured at a distance (D200) of 200 micrometers from the substrate tip (14)."

VIII. In view of the decision taken, it is not necessary to reproduce the wording of the auxiliary requests here.

IX. The arguments of the parties relevant for the decision are dealt with in detail below in the reasons for the decision.

## **Reasons for the Decision**

### *1. Sufficiency of disclosure - Article 100(b) EPC*

1.1 The appellant argued that the opposition division was incorrect in finding that the claimed invention was sufficiently disclosed (see decision under appeal, point II.14). According to the appellant, although paragraph [0032] of the patent disclosed that a confocal microscope was used to measure the blade edge, the claims were not limited to this method. Since different measurement methods may give different results, as shown by document D4, table 1 and page 11, line 14 to page 14, line 12, the skilled person could not determine when they were carrying out the invention or whether what is produced would solve the problem posed.

1.2 The board follows the established line of case law that the question of whether the skilled person is working within the scope of the claim ("the invention's boundary" in the appellant's words) is related to the

definition of the scope of protection sought (Article 84 EPC) not to the sufficiency of the disclosure (Article 83 EPC) (see Case Law of the Boards of Appeal, 10th edition 2022 ("CLB"), II.C.6.6.4 and II.C.8.2).

- 1.3 It is also established case law that sufficiency of disclosure must be assessed on the basis of the application as a whole (CLB, C.II.3.1). The appellant does not dispute that the claimed dimensions can be measured using a confocal microscope.
- 1.4 Regarding the appellant's contention that the skilled person is unable to determine if a manufactured blade solves the problem underlying the invention or not, the board notes that no technical effect is present in the claim.

It is settled case law that a technical effect is to be taken into account when assessing enablement only if it is explicitly claimed (CLB, II.C.3.2).

- 1.5 The appellant also referred to decision T 593/09 (Reasons 4.1.4) and argued that in the present case the choice of the measurement method would give differing results so that the parameter was so ill-defined that the skilled person was not able, on the basis of the disclosure as a whole and their common general knowledge, to identify without undue burden the technical measures necessary to solve the problem underlying the contested patent.

The board notes that decision T 593/09 is not relevant to the present case as in that decision the competent board found that there was no information in the contested patent as a whole relating to the definition

of the ill-defined parameter (see T 593/09, Reasons 3.3).

In the present case, as is not disputed by the appellant, there is a clear indication of the measurement method (paragraph [0032] and page 2, lines 44 to 45 of the contested patent).

- 1.6 The appellant has therefore not convincingly demonstrated that the decision of the opposition division is incorrect on this point.

## 2. *Novelty - document D2 - Articles 100(a) and 54 EPC*

- 2.1 Document D2 has a filing date of 8 March 2017 with no priority claimed, and a publication date of 12 September 2018. The contested patent has a filing date of 5 March 2018 and claims priority from EP 17159915, filed on 8 March 2017. Document D2 therefore either forms part of the prior art under Article 54(3) EPC, or it does not form part of the prior art at all if the priority of the contested patent is valid.

The opposition division found that document D2 was not prior art under Article 54(3) EPC as the claimed priority was partially valid (see decision under appeal, point II.15).

- 2.2 The appellant argued that the priority of the contested patent was not validly claimed, so that document D2 comprised part of the state of the art under Article 54(3) EPC.

According to the appellant, paragraphs [0047] to [0048] and Tables 1, 2, 3 and 4 on pages 8 to 9 of document D2



disclosed the subject-matter of the contested patent, whereby in particular Table 2 disclosed the thickness ranges claimed in claim 1 of the contested patent. The subject-matter of claim 1 of the main request was consequently not novel with respect to the disclosure of document D2 (Articles 100(a) and 54 EPC).

- 2.3 The respondent argued that as the relevant content of the priority document for the contested patent corresponded exactly to the relevant content of document D2 (Table 2 of both documents), either the subject-matter of claim 1 was novel with respect to the disclosure of D2 or document D2 did not form part of the state of the art as the priority was then (at least partially) validly claimed.

According to the respondent, at least the selected thickness sub-range T200 was sufficiently narrow to render claim 1 novel with respect to document D2. In claim 1 the thickness range at D200 from the tip was comprised between 51 micrometers and 56 micrometers, whereas in D2, Table 2, the lower limit was 42.45 micrometers and the upper limit was 56.01 micrometers.

The respondent argued further that the claimed ranges for two further thicknesses (T20 and T40) also represented narrower sub-ranges from the ranges disclosed in D2, Table 2, and that the claimed sub-range for T200, as well as being narrow, was found at the upper end of the range disclosed in document D2, whereas the claimed sub-range for T40 (between 11.60 and 13.50 micrometers) was in the middle of the range disclosed in document D2 (between 10.81 and 14.26 micrometers), so that D2 did not disclose the combination of the T20, T40 and T200 ranges.

- 2.4 The appellant argued that the sub-ranges claimed were neither narrow nor far-removed from the end-points of the ranges disclosed in D2, such end-points being explicitly disclosed.

In its submissions of 21 March 2025 and at the oral proceedings the appellant argued further that the ranges should be considered individually, not as a combination as they all referred to a single parameter of a single substrate such that they were dependent on one another. The blade had a symmetrically tapering blade edge formed by grinding so that it was implicit in document D2 that not all values within each range would be combined with all values of the further ranges but rather that values at the upper (or lower) parts of each range for each measured point should be combined.

The appellant argued further that even if the end-points of the ranges in D2 were not regarded as being specifically disclosed, the skilled person would seriously contemplate working across the full range of thicknesses of document D2, and therefore also within the claimed patent range.

- 2.5 The board agrees with the respondent's argument that the "far-removed" test should not be applied to the end points of combinations of disclosed ranges but rather only to specific examples (see CLB, I.C.6.3.1, particularly the penultimate paragraph). As no specific razor blade examples are found in document D2, the far-removed test cannot be used and a combination of end points of ranges is not regarded as being disclosed as there is no pointer to such a combination.

Contrary to the arguments of the appellant, the board cannot see that it is implicitly disclosed in D2 that

any particular values for the different ranges should be combined, even if all the ranges relate to a single substrate. Although the blade in D2 has a symmetrical continuously tapering edge, this is not necessarily strictly linear, the ranges therefore cannot be seen as strictly dependent on one another. In order to show that a particular combination of values for the ranges has been disclosed, there must be a pointer to that specific combination. The appellant has not shown that there is such a pointer in D2.

As the respondent argued, as well as choosing a narrow range for T200, the skilled person must chose a number of specific sub-ranges for T20, T40 and T200 from the ranges disclosed in D2, sometimes choosing a sub-range in the middle of the disclosed range (such as for T40), sometimes a sub-range in the upper part of the disclosed range (for T200).

It therefore appears that the specific combination of features of claim 1 is not directly and unambiguously disclosed in document D2.

- 2.6 In light of this conclusion regarding the disclosure of document D2, it is not necessary to consider whether D2 forms part of the state of the art or not, taking into consideration that it was published after the filing date of the contested patent.

3. *Novelty - document D3 - Articles 100(a) and 54 EPC*

- 3.1 The opposition division found that document D3 did not directly and unambiguously disclose any explicit values for T5, T20, T40 or T200 as the equation used in D3,  $w=ad^n$ , which defines blade width (w) as a function of the distance from the tip (d), contained two variable

parameters ( $a$  and  $n$ ) which must be given specific values in order to arrive at the claimed thicknesses. The values used by the appellant led to a thickness T40 which was outside the range given in Table 1 of D3. In addition D3 did not directly and unambiguously disclose that the blade was tapered beyond 200  $\mu\text{m}$  from the tip (see decision under appeal, points II.16.2 to II.16.4).

- 3.2 The appellant argued that the opposition division was incorrect as no selection was required when combining the end point of a range with the breadth of a single other range. The appellant also argued that the opposition division's view of the teaching of document D3 was too limited as it considered only the preferred embodiments not the full teaching of D3.
- 3.3 The board finds that the opposition division was correct in its reasoning.
- 3.4 Considering the choice of values for  $a$  and  $n$ , the board is of the view that the choice of 0.62 for  $a$  and 0.76 or 0.80 for  $n$  does represent an arbitrary selection. Although these represent end points of ranges, there is no pointer in D3 to combine specifically these values.
- 3.4.1 Further, even if the end points are combined only the values of  $a=0.62$  and  $n=0.80$  give values at T5, T20 and T40 falling within the claimed ranges. The combinations of the other end points do not.

No values for T200 are explicitly disclosed in document D3.

However, when using  $a=0.62$  and  $n=0.80$ , the value for T40 is 11.86 micrometers. As the opposition division noted this is outside the range of 9.25-10.00

micrometers given for T40 in Table 1 of D3 which is said to "outline the values contemplated in the present invention" (see decision under appeal, point II.16.4).

The same range is present in claim 1 of D3 and in figure 2 (area 32). Therefore it appears contrary to the teaching of D3 to use the value 11.86 micrometers for thickness T40.

3.4.2 The appellant argued that figure 2 only showed exemplary workings of combinations of  $a$  and  $n$  but that D3 was not limited to these.

3.4.3 The board does not agree. As the respondent argued, area 32 of figure 2 is described as representing the edge profile of the present invention, with the further areas within lines 34 illustrating the prior art (see D3, paragraphs [0028] and [0029]).

The skilled person, reading D3 understands that the thicknesses T5, T20 and T40 should be chosen such that they lie within the suggested general range and then also fulfil the equation  $w=ad^n$ .

There is therefore no direct and unambiguous disclosure of the combination of thicknesses T5, T20 and T40 falling within the claimed range.

3.4.4 The appellant's calculation for the thickness T200 is based on the value of T40 being 11.86  $\mu\text{m}$ . As this value is not considered to be disclosed, the range for T200 is also not considered to be disclosed.

3.5 The subject-matter of claim 1 is novel with respect to document D3.

- 3.6 Regarding the appellant's reference to document D10, the teaching of this document does not overcome the lack of disclosure of the claimed ranges as set out above. It is therefore not necessary to consider whether the reference to document D10 constitutes an objection of lack of novelty with respect to the disclosure of D10.
4. *Inventive step - document D4 alone or with document D6 - Articles 100(a) and 56 EPC*
- 4.1 The opposition division found that the subject-matter of claim 1 was inventive over document D4 alone as the distinguishing features (ranges for thicknesses T40 and T200) solved the objective technical problem of improving blade durability without negatively impacting the fluidity, and the skilled person had no motivation to modify the ranges of T40 or T200 to fall within the claimed range (see decision under appeal, point II.17).
- 4.2 For the first time at the oral proceedings before the board, the appellant argued that the thickness range T40 was also disclosed in document D4 because the measurement resolution achievable when determining the thickness of the substrate by using a confocal microscope as disclosed in the patent, paragraph [0032], could not differentiate between values of 11.54µm (the upper limit of the T40 range in D4, Table 2) and 11.60µm (the lower limit of the claimed range for T40) (see point 11.2 of the board's communication dated 14 February 2025). The appellant also raised a new line of argument starting from the substrate of D4, Table 7, rather than that of D4, Table 2.
- 4.2.1 The respondent objected to the admittance of these new facts and arguments under Article 13(2) RPBA.

4.2.2 According to Article 13(2) RPBA, an amendment to a party's appeal case made after the notification of a communication under Article 15(1) RPBA should not be taken into account unless there are exceptional circumstances justified with cogent reasons for such an amendment.

4.2.3 In the present case, the appellant admitted that they were new submissions presented for the first time at the oral proceedings before the board and did not provide any arguments relating to exceptional circumstances.

The board cannot see any justification for submitting the new lines of argument, which included new factual assertions, at such a late stage of the proceedings. The admittance of the amendment to the appellant's case would have put an undue burden on the respondent and the board and might have led to postponement of the oral proceedings, which would have been detrimental to procedural economy.

The board therefore did not admit the amendments to the appellant's case (Article 13(2) RPBA).

4.3 As the board did not admit the new line of argument relating to thickness range T40, the distinguishing features over document D4 are taken to be the claimed thickness ranges T40 (11.60-13.50µm) and T200 (51-56µm) as in the decision under appeal.

4.4 The appellant argued that there was no technical effect demonstrated with respect to the blade of document D4 associated with these distinguishing features. With its

submissions of 21 March 2025 the appellant filed documents D12 and D13 in support of this contention.

According to the appellant, in the absence of any technical effect, the objective technical problem could only be the provision of an alternative blade shape.

- 4.5 The board is of the view that even if the objective technical problem is taken to be that of providing an alternative blade shape, the subject-matter of claim 1 as granted is inventive.

There is therefore no need to consider whether a technical effect is demonstrated by the distinguishing features, and it is unnecessary to consider the respondent's request, made in its submissions of 7 May 2025, not to admit documents D12 and D13.

- 4.6 The appellant argued that as there is no benefit related to increasing the thicknesses at T40 and T200, that no patent should be granted, as the purpose of the patent system is to reward inventors.

The board notes that it is established case law that it is not necessary when determining inventive step to show improvement over the prior art (see CLB, I.D.4.5). Therefore, just the formulation of the objective technical problem as providing an alternative cannot alone lead to a finding of lack of inventive step.

- 4.7 The appellant argued that if the objective technical problem to be solved is to provide an alternative blade shape then no incentive or pointer is necessary to increase the thickness at T40 and T200. All possible options are equally obvious. The appellant referred in particular to decisions T 1862/15 (Reasons 7.6 and



8.4), T 1984/15 and T 1179/16 (Reasons 3.4.4) in support of its case in its submissions of 21 March 2025 and at the oral proceedings.

The board agrees with the appellant that the skilled person generally does not need an incentive to choose an arbitrary solution from a number of known possible solutions (see CLB I.D.9.21.9a) and T 1862/15, Reasons 8.4).

However, the board does not agree that any and all blade shapes are to be regarded as known possible solutions to the blade shape of document D4. There may also be non-obvious alternatives.

This is illustrated by decision T 1984/15, where the objective technical problem to be solved was to provide an alternative printing ink. The competent board in that case found that multiple selections from the same paragraph in the closest prior art were not regarded as inventive (T 1984/15, Reasons 4.5). However, the further choice of a particular acid, already known to the skilled person, but not present in the closest prior art was not obvious for the skilled person (Reasons, 10). The board found that the skilled person had no reason to assume that the claimed acids, although already known in the art, would be suitable for the same purpose as those present in the closest prior art.

In other words, formulating the objective technical problem as providing an alternative does not necessarily lead to all known possible alterations to the closest prior art being considered as equally obvious alternatives, it also depends on the closest prior art itself.

In the present case, even if the objective technical problem is said to be to provide an alternative blade shape, this does not mean that the teaching of document D4 can be ignored and certain thicknesses can be altered whilst others are kept the same. This is also recognised in T 1179/16, which notes that the skilled reader will take into account any known alternative "unless the closest prior art teaches away from it" (Reasons 3.4.4).

The skilled person has no reason to assume that altering the blade thicknesses at T40 and T200 of D4, while keeping the other thicknesses the same, will arrive at a blade shape which still functions as intended in D4.

The appellant argued at the oral proceedings before the board, that an inventive step cannot be acknowledged for a foreseeable disadvantage (see CLB I.D.9.21.1). However, in the present case there is not necessarily a foreseeable disadvantage and the appellant did not provide any evidence of one. It consists therefore in an unfounded allegation which cannot be convincing.

- 4.7.1 There is no teaching in document D4 to increase the values of only T40 and T200 while maintaining the narrow overlap for the values of T5 and T20.

The appellant cited a passage on page 18 of document D4 and argued that this passage suggested that thicknesses at T200 could be described by the formula given there, so that document D4 suggested modifying the thickness values.

The board does not find this argument convincing. As the respondent argued, document D4 teaches that only thicknesses up to T100 are decisive, so that there is no teaching that the thickness T200 should be modified. The formulas set out in D4 (page 18, lines 9 to 18) do not represent an alternative teaching in D4 but rather additional criteria for the blade thickness values (see claim 1 of D4).

4.8 Regarding the combination of D4 with D6, although the blade in D6, figure 1, may be shown through calculation to have values for T40 and T200 which fall within the claimed ranges for these thicknesses, the skilled person would not regard these values as known alternative solutions for the values of T40 and T200 in D4. As the respondent argued, document D6 does not teach that thicknesses at T200 are of importance or should be measured. Document D6 teaches the importance of the cross-sectional shape of the blade up to 40µm from the tip. Therefore the skilled person would not consider D6 as disclosing alternative solutions for thicknesses at T40 and T200 from the blade tip. As set out above, the skilled person would in any case not consider modifying the thicknesses of D4 at T40 and T200 whilst keeping the other thicknesses the same.

4.9 Therefore, the board is of the view that the subject-matter of claim 1 is inventive in view of D4 alone or with D6.

5. *Inventive step - document D3 alone - Articles 100(a) and 56 EPC*

5.1 The opposition division found that the combination of the ranges for thicknesses T5, T20, T40 and T200 was not disclosed in D3 and that there was no motivation

for the skilled person to change the blade shape of D3 to arrive at thicknesses within the claimed ranges of claim 1 of the main request.

5.2 The appellant considered only the thickness T200 as the distinguishing feature and argued that the opposition division was incorrect in finding that there was a technical effect, for the same reasons as set out starting from document D4, so that the claimed range for T200 is an arbitrary choice.

5.3 As set out above with respect to novelty with respect to document D3 (see point 3. of this decision), the board is of the view that none of the ranges for T5, T20, T40 or T200 have been disclosed in D3.

As the appellant has not considered the further distinguishing features its argument cannot be convincing.

## 6. *Conclusion*

The appellant has not convincingly demonstrated that the opposition division was incorrect in finding that none of the objections raised prejudices the maintenance of the patent as granted.

## Order

### For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Nachtigall

G. Patton

Decision electronically authenticated