

Internal distribution code:

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

**Datasheet for the decision
of 26 April 2022**

Case Number: T 0830/18 - 3.2.06

Application Number: 11717640.4

Publication Number: 2567010

IPC: D01G15/88

Language of the proceedings: EN

Title of invention:
WIRE PROFILE FOR CARD CLOTHING

Patent Proprietor:
Groz-Beckert KG

Opponent:
Trützschler Group SE

Headword:

Relevant legal provisions:
EPC Art. 100(a), 54, 56
RPBA 2020 Art. 13(2)

Keyword:

Novelty - (yes)

Inventive step - (yes)

Amendment after summons - exceptional circumstances (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0830/18 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 26 April 2022

Appellant: Trützschler Group SE
(Opponent) Duvenstraße 82-92
41199 Mönchengladbach (DE)

Representative: Walther Bayer Faber Patentanwälte PartGmbB
Heimradstraße 2
34130 Kassel (DE)

Respondent: Groz-Beckert KG
(Patent Proprietor) Parkweg 2
72458 Albstadt (DE)

Representative: Weber, Jan Thorsten
Groz-Beckert KG
Parkweg 2
72458 Albstadt (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 9 March 2018
rejecting the opposition filed against European
patent No. 2567010 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman M. Harrison
Members: M. Dorfstätter
J. Hoppe

Summary of Facts and Submissions

- I. An appeal was filed by the appellant (opponent) against the opposition division's decision to reject the opposition to European patent No. 2 567 010. It requested that the decision under appeal be set aside and the patent be revoked.
- II. The respondent (proprietor) requested that the appeal be dismissed.
- III. The following documents are relevant for the present decision:
- | | |
|--------|--|
| D1 | DE 10 2007 062 841 A1 |
| D2 | GB 2 257 164 A |
| D8 | DE 29 35 909 C2 |
| EV1 | affidavit by Mr Bernhard Bocht, including three attachments "A", "B" and "C" |
| E1, E2 | technical drawings for manufacture of card clothing wires |
- IV. The Board issued a summons to oral proceedings and a subsequent communication, in which it indicated *inter alia* that the appellant's comments on the ground for opposition under Article 100(b) EPC were understood to mean that only an objection under Article 100(a) EPC was being made with the grounds of appeal. Concerning the latter, it would have to be discussed whether the embodiment of D1 disclosed angles as defined in claim 1, and in particular whether this could be deduced from the drawings or whether this was a necessity from a geometrical or technical point of view. It also indicated that in D2, the undercut angle α was not (at

least not at each point) identifiably greater than the maximum of the back angle β . As a further point, the Board mentioned that it considered the subject-matter of claim 1 as involving an inventive step when starting from D8 as the closest prior art.

- V. In a letter dated 25 March 2022 the respondent presented further arguments in view of novelty and inventive step and submitted two auxiliary requests.
- VI. During the oral proceedings the respondent withdrew its auxiliary requests. Also during the oral proceedings, the appellant presented two new novelty objections, the first being based on a public prior use of a wire as shown in E1 and E2, the second being based on a new interpretation of a sentence in D8.
- VII. At the end of the oral proceedings, the final requests were as follows:
- The appellant requested that the decision under appeal be set aside and the patent be revoked.
- The respondent requested that the appeal be dismissed.
- VIII. Claim 1 reads as follows (with the feature-by-feature analysis as referred to by the respondent, initially submitted by fax on 28 January 2016 in the proceedings before the opposition division):

M1 "A wire profile (110) for card clothing
comprising

M2 a rib portion and

M3 a plurality of teeth over the length of said rib
portion (114),

- M4 wherein said teeth are sloped with a back slope (112) representing the backbone of said teeth and
- M5 a front slope (118, 120, 122) representing the side in direct contact with fibre,
- M6 said back slope having a tangent forming a back angle (β) with the rib portion,
- M7 said front slope being divided into at least two segments,
- M8 a tip segment and
- M9 an undercut segment,
- M10 wherein said tip segment converges with the said back slope to form a tip (116) of said teeth and
- M11 said tip segment (118) serves to penetrate between fibres,
- M12 said tip segment having a tangent forming a tip angle (μ) with the rib portion,
- M13 said undercut segment (120) is capable of retaining the fibres,
- M14 said undercut segment having a tangent forming an undercut angle (α) with the rib portion, further characterized in that
- M15 said undercut angle (α) being at each point in the undercut segment greater than the maximum of the back angle (β)
- M16 and being smaller than the smallest value of the tip angle (μ) in order to allow rotary punching."

IX. The appellant's arguments relevant to the present decision may be summarised as follows:

The subject-matter of claim 1 was not novel vis-à-vis D1. Even if indicated in D1 for figures 1a and 1b, figures 2a and 2b were not schematic. The card wires

shown in E1 and E2 were the same as the one in D1. They showed a tip angle μ that was greater than the undercut angle α , which was in turn greater than the greatest back angle β . This was also a necessity from a geometrical point of view.

The subject-matter of claim 1 was not novel vis-à-vis a public prior use as was to be seen from a sales brochure showing the card wires of E1 and E2. The new objection was to be taken into account, as the existence of these brochures had only become known to the appellant's representative in the last week before the oral proceedings.

The subject-matter of claim 1 was not novel vis-à-vis D2. In the intermediate product shown in figure 3A, the distorted tip had a tip angle μ that was greater than the angle of the rest of the front side of the tooth, which could be regarded as an undercut segment with an undercut angle α . The back angle β in figure 3A was to be measured in the straight portion and not at the distorted tip 30. In the contested patent, the back angle β was also depicted in the lower part of the tooth.

During the oral proceedings the appellant argued that the subject-matter of claim 1 was also not novel vis-à-vis D8 when the information in the description was taken into account. When the tooth was ground to make it sharper and thinner at the tip, this would create a contour falling within claim 1.

The subject-matter of claim 1 did not involve an inventive step when starting from D8 and combining this with the teaching of D1. The subject-matter of claim 1 differed from the card wire of D8 only in that an

undercut segment was provided. As also laid out in paragraph 38 of the contested patent, the advantage of the undercut was that the fibres did not drop towards the bottom part of the teeth. The objective technical problem was thus to avoid that the fibres moved too far downwards. The skilled person would consider the teaching of D1 and alter the shape of the tooth according to the contour shown therein. They would thereby arrive at a wire profile falling within claim 1.

- X. The respondent's arguments relevant to the present decision may be summarised as follows:

The subject-matter of claim 1 was novel and involved an inventive step.

As proven by EV1, the drawings in D1 were only schematic such that no angles could be deduced therefrom. They furthermore did not show the angular relationships of features M15 and M16. Based on geometric considerations, even the smallest undercut angle α in D1 could not be smaller than the smallest tip angle μ , whereas this was claimed in feature M16 for each point in the undercut segment and had thus to apply even for the greatest undercut angle α .

The new objection of an alleged public prior use based on E1 and E2 was not to be taken into account.

If the distorted tip in D2 was considered as being part of the tooth, the undercut angle α of this intermediate product was not (at each point in the undercut segment) greater than the maximum of the back angle β (feature M15). If the distorted tip were disregarded, the tooth had no undercut segment (feature M9).

The new objection of a lack of novelty based on D8 was not to be taken into account.

If a problem could be formulated at all when starting from D8, it was to substitute the bevel on the tooth's front contour which was difficult to produce. The skilled person would however not combine D8 showing a drum wire with the teaching of D1 in which a doffer wire was described. Even if these documents were combined, the skilled person would not arrive at the claimed angular relationships of features M15 and M16, since D1 failed to show them.

Reasons for the Decision

1. *Claim construction*

1.1 The 'tip segment' and the 'undercut segment'

Claim 1 defines a tip segment (feature M8) and an undercut segment (feature M9) without defining their respective lengthwise extensions. However, the definitions of their respective function in features M11 and M13 do imply a certain distance from the tip of the tooth. As the tip segment serves to penetrate between fibres (feature M11), it runs from the tip down to a point to which the tooth will in use be able to enter the fibres, at least partly due to the contour and the chosen tip angle at this point. As the undercut segment is capable of retaining the fibres (feature M13), this segment starts at a point where the contour is such that the fibres are impeded from flying off the tooth.

In the embodiment of the contested patent (see figure 1 as reproduced below), the boundary between the tip segment 116 and the undercut segment 120 is clearly visible as a bend point in the otherwise smooth contour. The boundary between the undercut segment 120 and the base segment 122 is located somewhere within the smooth transition from the relatively smaller undercut angle α to the relatively greater base angle λ , but its exact location is not clearly discernible.

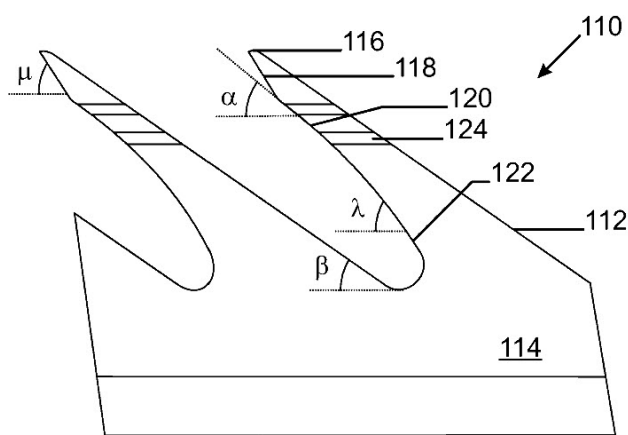


Fig. 1

Figure 1 of the contested patent

In the figure 2 embodiment, the boundary between the tip segment 218 and the undercut segment 220 is again at the location of the clear bend in the contour. In this embodiment, there is also a clearly defined bend at the transition from the undercut segment 220 to the base segment 222.

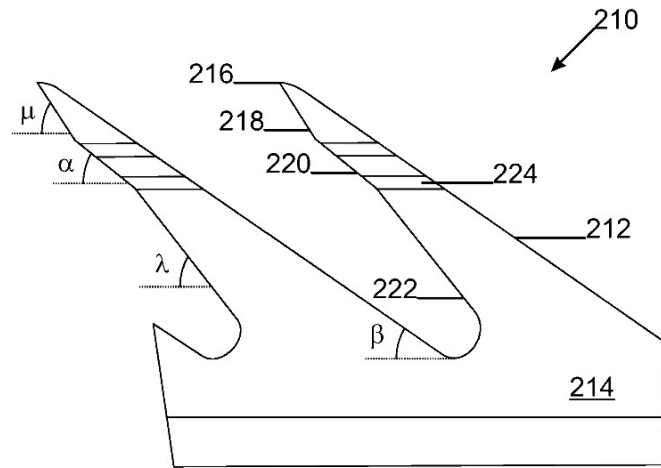


Fig. 2

Figure 2 of the contested patent

It is thus justified to look for points in the contour of the tooth which show a lesser degree of continuity in order to define the different segments in the prior art, in addition to the functional requirements as set out in features M11 and M13.

1.2 Feature M15

The condition of feature M15 refers to 'the undercut angle (α) ... at each point in the undercut segment' and to the 'maximum of the back angle (β)'. In other words, even the smallest undercut angle α , measured anywhere in the undercut section, must still be greater than the greatest back angle β . This was not contested by the parties. Expressed as a mathematical formula, feature M15 reads as follows:

$$\alpha_{\min} > \beta_{\max}$$

1.3 Feature M16

Although not explicitly repeated in the wording of claim 1, the condition of feature M16 refers to 'the

undercut angle (α) ... at each point in the undercut segment'. Feature M16 defines this undercut angle α in relation to 'the smallest value of the tip angle (μ)'. In other words, even the greatest undercut angle α , measured anywhere in the undercut section, must still be smaller than the smallest tip angle (μ). This was also not contested by the parties. Expressed as a mathematical formula feature M16 reads as follows:

$$\alpha_{\max} < \mu_{\min}$$

2. *Novelty with regard to D1*

The subject-matter of claim 1 is novel vis-à-vis the card wire disclosed in D1.

2.1 Based on the claim construction as given above, the portion running from the tip of the tooth to the point of inflection (where the contour transitions from convex to concave) is the 'tip segment'. The 'undercut segment' runs from the point of inflection towards the bottom of the tooth, where it somewhere transitions to a base segment. This was also the common understanding of the parties.

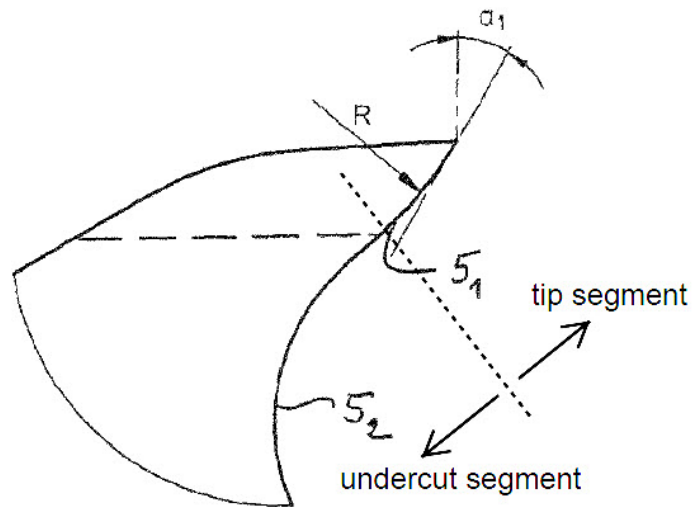


Fig 2a of D1 (short dashed line and identification of the segments added by the Board)

2.2 The Board finds that feature M16 is not fulfilled by the tooth of D1. As the condition of feature M16 applies to each point in the undercut segment, it would only be necessary to look at the point where the undercut angle α is greatest ($\alpha_{\max} < \mu_{\min}$). However, the condition is not even fulfilled for its smallest value. The smallest undercut angle α is located at the transition point from the concave to the convex contour of the front face of the tooth, in other words at the point of inflection. All other values of the undercut angle α further down are greater (see figure 2a of D1 as reproduced below).

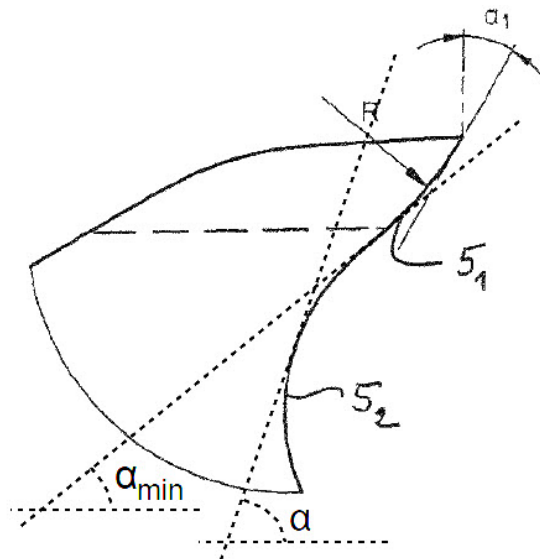


Fig 2a of D1 (with the short dashed lines and undercut angles α and α_{\min} added by the Board)

During the oral proceedings the appellant made a drawing on the flip-chart, explaining that the undercut angle first became smaller when moving away from the inflection point downwards along the undercut segment. This however does not hold true. The inflection point is, per definition, the point where the angular change turns from the negative to the positive (or vice versa). In figure 2a of D1, all points of the curve (i.e. the line representing the front side of the tooth) to the right of the inflection point lie above the tangent in this point, while all points to the left of the inflection point lie below this tangent. If, when starting from a selected point on the curve and moving to the left (i.e. downwards), the angle first became smaller and then greater again, the selected point would not be the inflection point. There is however no reason to select an arbitrary point on the curve, while there is good reason to choose the inflection point as the boundary between the convex portion and the concave portion in D1 as also forming the boundary between the tip segment and the undercut

segment in the sense of the patent (see also Reasons 1.1 above).

In order to fulfil feature M16, all undercut angles α need to be smaller than the smallest value of the tip angle μ (μ_{\min}). The tip section extends from the very tip (where the tip angle μ is greatest, i.e. μ_{\max}) to the transition point from the concave to the convex contour (the point of inflection) where the tip angle μ is smallest (μ_{\min}).

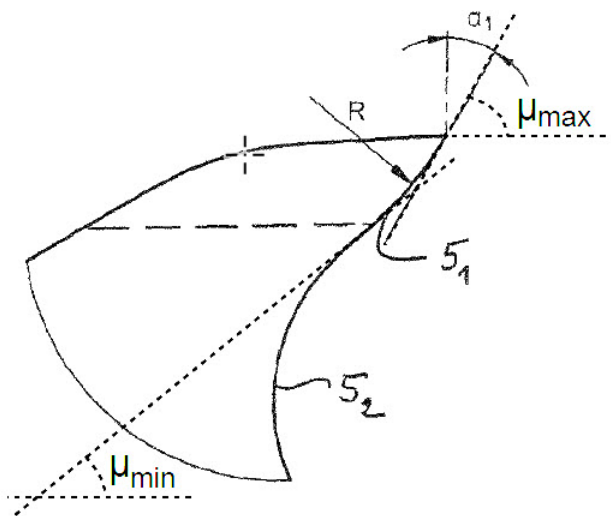


Fig 2a of D1 (with the short dashed lines and tip angles μ_{\max} and μ_{\min} added by the Board)

As there is no clear boundary between the undercut segment and the base segment in D1, it is not discernible where the undercut angle α is greatest. But as it must increase further down the tooth (until it somewhere transitions to a base angle λ , or it is even 90°), any other position can be selected for the comparison with the smallest tip angle μ as defined in feature M16. But even the smallest undercut angle α (α_{\min}) is only identical with the smallest tip angle μ (μ_{\min}), as these points essentially coincide. The undercut angle α thus cannot be smaller, i.e. not at

any point in the undercut segment, and even less so at each point as defined in feature M16.

Therefore, the Board cannot accept the appellant's argument that the conditions as set out in feature M16 were a necessity in the tooth of figure 2a in D1 from a geometrical point of view.

2.3 To arrive at this conclusion, it is not necessary to know the exact location of the lower boundary of the undercut segment. Nor is it necessary to take any measurements from the drawings, such that the related questions of the lower boundary of the undercut segment and whether Figures 2a and 2b are schematic can be left unanswered.

2.4 The Board thus concludes that the subject-matter of claim 1 is novel vis-à-vis D1.

3. *Public prior use based on E1 and E2 - Admittance*

During the oral proceedings before the Board, the appellant requested the presentation of a new novelty objection based on E1 and E2 as a public prior use.

3.1 Under Article 13(2) of the Rules of Procedure of the Boards of Appeal 2020 (RPBA 2020), "[a]ny amendment to a party's appeal case made after ... notification to a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned" (emphasis added by the Board). Article 13(2) RPBA 2020 is applicable (see Article 25(1), (3) RPBA 2020) as the Boards summons was sent in 2021.

3.2 A new objection based on a prior use that has never been raised before, clearly constitutes an amendment to the appellant's appeal case. That the existence of these brochures had only become known to the appellant's representative a week before the oral proceedings, is not considered as exceptional circumstances in the sense of Article 13(2) RPBA 2020. Any sales brochures of the card wires shown in E1 and E2 (which are technical drawings from products manufactured by the appellant itself) are completely within the appellant's control and within its sphere of access. It was thus up to the appellant to have presented such evidence as part of its complete appeal case, i.e. at the latest together with the grounds of appeal (Article 12(3) RPBA 2020). No exceptional circumstances therefore exist which justify making such an amendment to its appeal case.

3.3 The Board thus exercised its discretion not to take into account the new objection based on a public prior use of the wires of E1 and E2 (Article 13(2), 25(1) RPBA 2020).

4. *Novelty with regard to D2*

The subject-matter of claim 1 is novel vis-à-vis the card wire disclosed in D2. Even the 'intermediate product', in which the distorted tip has not yet been cut off (see figure 3A of D2) does not show both of features M15 and M16 at the same time, no matter how they are interpreted.

4.1 The appellant argued that the front of the distorted tip had a tip angle μ that was greater than the angle of the remaining portion of the front of the tooth and that this remaining portion could be regarded as an

undercut segment with an undercut angle α , such that feature M16 was fulfilled.

Even if this were accepted, the same intermediate product, i.e. including the distorted tip, needs to fulfil the condition of feature M15. Thus, at each point in the undercut segment, the undercut angle α would have to be greater than the maximum of the back angle β . With the distorted portion not yet having been cut off, the maximum of the back angle β is to be found at the very tip. As the back is drawn at the tip in a vertical direction, the back angle β at this position (representing β_{\max}) is clearly greater than the undercut angle α anywhere in the undercut segment.

- 4.2 The appellant's argument that the back angle β in figure 3A was to be measured in the straight portion and not at the distorted tip 30, is not accepted. Even if, in the contested patent, the back angle β was depicted in the lower part of the tooth (as argued by the appellant), this is only so because the back angle is the same over the whole height of the tooth. The reference in claim 1 to the 'maximum' of the back angle makes it however clear that this angle is to be measured where its value is greatest.
- 4.3 Only for the sake of completeness, the Board also notes that the conditions of features M15 and M16 are also not fulfilled after the distorted tip 30 has been cut off from the tooth. In this case, and as can be seen in figure 5A, there is no separate tip section (or no separate undercut section, however this is interpreted).
- 4.4 The subject-matter of claim 1 is thus novel vis-à-vis D2.

5. *Novelty D8 - Admittance*

During the oral proceedings before the Board, the appellant presented a novelty objection based on D8 for the first time.

As already explained above (see Reasons 3.1), "[a]ny amendment to a party's appeal case made after ... notification to a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned" (emphasis added by the Board).

Asked explicitly, the appellant did not argue that there were any exceptional circumstances for presenting this new objection only during the oral proceedings, nor can the Board see that there are any.

Absent any exceptional circumstances, the Board exercised its discretion not to take into account the new objection of a lack of novelty based on D8 (Articles 13(2), 25(1) RPBA 2020).

6. *Inventive step in regard to the combination of D8 and D1*

The subject-matter of claim 1 involves an inventive step (Article 56 EPC).

6.1 The parties agreed that D8 (see figure 6) shows and describes a doffer wire which comes closest to the subject-matter of claim 1. It does not have an undercut section (as defined in features M9, M13, M14) and, as a consequence, does not disclose the geometric

relationships between the undercut angle, tip angle and back angle (M15, M16). This was also not contested.

- 6.2 The parties disagreed however in what was the objective technical problem solved by these differences. The appellant referred to paragraph [0038] of the patent, stating that with the contour as claimed, more fibres were held on the teeth and less fibres 'dropped'. It thus argued that the objective technical problem was to avoid the fibres being moved too far downwards. The respondent argued that if a problem could be formulated when starting from D8 at all, it was to substitute the bevel on the tooth's front contour which was difficult to produce.

Either way, the Board considers that the undercut segment serves to find the right balance between the different capabilities of picking, retaining and releasing the fibres as required on a doffer. In D8, these functions are achieved by the front contour of the tooth with its combination angle created by punching in an inclined direction (the resulting bevel being referred to as a 'knife-like blade' in D8). The Board can accept the appellant's argument that this bevel, as such, would not impede the skilled person from additionally applying an undercut segment. It is thus not important for the present decision whether the objective technical problem was to find an alternative to the bevel or whether it was to achieve a further effect whilst keeping the bevel. Either way, and as explained below, the skilled person finds no motivation, and particularly not in D1, to apply an undercut segment fulfilling the geometric conditions of features M15 and M16 in the card wire of D8.

6.3 D1 discloses a card wire for a carding cylinder. Other than on a doffer, the wires of a cylinder serve a different function. The teeth are there to rip out single fibres from the raw material (e.g. cotton) supplied by a taker-in roll. These teeth are thus lower in height and need to be more aggressive than the teeth on a doffer. This was also not contested by the parties.

The Board finds that the skilled person would not consider D1 when trying to find a solution to any of the above stated problems due to the fundamental differences in the respective tooth purposes. The appellant however argued that D8 was not restricted to being a doffer wire and was related simply to carding wires more generally, as was D1. The Board disagrees, but even assuming *arguendo* that the skilled person were to turn to D1 to find a solution, D1 would not lead the skilled person to the claimed subject-matter, because the geometric relation of at least feature M16 is not derivable therefrom (see Reasons 2.2 above with respect to novelty). If the skilled person thus simply took over the geometry of D8 and applied it to the wire of D1, feature M16 would still not be fulfilled.

6.4 The appellant also argued that the skilled person could also apply only the convex tip portion as known from D1 to the tooth of D8. This would however also not lead to the claimed geometry either.

In doing so, the skilled person would merely arrive at a tip angle μ that is smallest (i.e. μ_{\min}) at the point of transition to the (still straight) remaining portion of the tooth's front with its constant angle (in such a scenario corresponding to the undercut angle α). In other words, the undercut angle α would be the same at

each point in the undercut segment, and it would be equal to the smallest value of the tip angle μ (i.e. μ_{\min} at the point of transition). Thereby, the undercut angle α would never be smaller than the smallest value of the tip angle μ . The condition of feature M16 would thus not be fulfilled.

6.5 Therefore, the combination of the teaching of D8 with the teaching of D1 would not lead the skilled person to the claimed wire profile unless an inventive step were involved. The subject-matter of claim 1 thus involves an inventive step (Article 56 EPC).

7. The Board thus concludes that the ground for opposition under Article 100(a) EPC does not prejudice maintenance of the patent.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Grundner

M. Harrison

Decision electronically authenticated