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**Datasheet for the decision
of 23 May 2025**

Case Number: T 2575/22 - 3.2.08

Application Number: 16180792.0

Publication Number: 3272310

IPC: A61C17/34, A61C17/22, A46D1/00,
A46B9/04

Language of the proceedings: EN

Title of invention:
BRUSH HEAD AND ELECTRIC TOOTHBRUSH

Patent Proprietor:
Braun GmbH

Opponent:
Trisa Holding AG

Relevant legal provisions:
EPC Art. 54, 56, 123(2)
RPBA 2020 Art. 11, 12(1)(a), 12(2), 12(4), 13(2)

Keyword:

Main request - novelty - (no)

Remittal - (no)

Basis of proceedings - decision under appeal

Amendment after summons - taken into account (no)

Auxiliary request 1 - amendments - allowable (yes)

Auxiliary request 1 - novelty - (yes)

Auxiliary request 1 - inventive step - (yes)



Beschwerdekammern

Boards of Appeal

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Case Number: T 2575/22 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 23 May 2025

Appellant:
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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
22 September 2022 concerning maintenance of the
European Patent No. 3272310 in amended form.**

Composition of the Board:

Chairwoman

P. Acton

Members:

C. Vetter

K. Kerber-Zubrzycka

Summary of Facts and Submissions

- I. The appeal was filed by the patent proprietor (appellant) against the interlocutory decision of the opposition division finding that, on the basis of auxiliary request 5 then on file, the patent in suit met the requirements of the EPC.
- II. The opposition division had decided, *inter alia*, that the subject-matter of the main request and auxiliary requests 1 to 4 extended beyond the content of the application as originally filed.
- III. Oral proceedings were held before the Board.
- IV. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained as granted (main request), alternatively, that the patent be maintained according to auxiliary request 1, filed together with the statement setting out the grounds of appeal.

The respondent (opponent) requested that the appeal be dismissed.

- V. Claim 1 of the main request reads as follows (feature designation added by the Board):

1.1 A brush head (10) for an electric toothbrush (1), in particular a replaceable brush head, comprising:

1.2 a housing (19) attachable to and detachable from a handle (20) of the electric toothbrush (1);

1.3 a carrier (11) having a mounting side (12), in particular having a circular, oval or elliptical mounting side,

1.4 which carrier (11) is mounted at the housing (19) for driven oscillatory rotational motion around a rotation axis (R1) that extends through a center point on the mounting side (12) of the carrier (11);

1.5 a plurality of tufts (14) consisting of filaments (30, 30A; 50),

1.6 the tufts (14) being mounted on the mounting side (12) of the carrier (11);

1.7 wherein each of the tufts (14) has a tufting area (Q1; Q2) of at least about 2.4 mm^2 , in particular of at least about 2.80 mm^2 , and

1.8 the filaments (30, 30A; 50) in each of the tufts (14) have a cross-sectional area perpendicular to their length extension direction that corresponds to a circular cross sectional area having a diameter (r1) in the range of between $127 \text{ }\mu\text{m}$ and $102 \text{ }\mu\text{m}$;

1.9 wherein the brush head (10) comprises only tufts (14) of this area definition and this filament range.

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that feature **1.10** was added at the end of the claim, which requires that

1.10 the tufting area of the plurality of tufts (14) is at least about 25% of the area of the mounting side (12).

VI. In the present decision, reference is made to the following documents:

D2: WO 2017/123146 A1
D3: EP 2 184 032 A1
D4: WO 02/078490 A1
D5: US 2002/0138926 A1
D6: EP 1 713 413 B1
D9: DE 1 532 809 A1
D11: US 5,799,353
D12: DE 35 28 596 A1

VII. The arguments of the parties relevant to the decision are set out below in the Reasons for the Decision.

Reasons for the Decision

1. Main request - novelty

1.1 Document D2 constitutes prior art under Article 54(3) EPC.

1.2 It is undisputed that D2 discloses in claim 1 and Figures 1 and 6a (references in parentheses refer to D2):

1.1 A brush head (10) for an electric toothbrush (1), in particular a replaceable brush head, comprising:

1.2 a housing (20) attachable to and detachable from a handle (2) of the electric toothbrush (1);

1.3 a carrier (30) having a mounting side (42),

1.4 which carrier (30) is mounted at the housing (20) for driven oscillatory rotational motion around a rotation axis (32) that extends through a center point on the mounting side (42) of the carrier (30);

1.5 a plurality of tufts (40) consisting of filaments (43),

1.6 the tufts (40) being mounted on the mounting side (42) of the carrier (30);

1.7 wherein each of the tufts (40) has a tufting area of at least about 2.4 mm² (claim 1: "each tuft having a diameter in the range of about 3 - 4 mm").

1.3 Regarding feature **1.8**, D2 discloses in dependent claim 13 that

each mono filament has a thickness less than about 0.13 mm, or less than about 0.11 mm or between about 0.102 mm and 0.076 mm.

1.4 The appellant argued that this disclosure of D2 was not a numerical range for the "equivalent circular diameter" of the filaments as claimed, but instead a range for the "thickness" of the filaments, which was a different parameter. For filaments having cross-sectional shapes other than circles, e.g. an elliptical shape, the equivalent circular diameter and the thickness were different. In the appellant's view, it was at least credible that claim 13 of D2 was intended to apply to filaments of non-circular shape as mentioned on page 15, lines 10 to 12 of D2. However, it is common ground that a circular cross-sectional shape is most common for filaments.

1.5 It is correct that the disclosure of D2 is not limited to filaments with a circular cross-section. For example, the statement on page 15, lines 10 to 12 of D2 indicates that various cross-sectional shapes are possible, as it states that the cross-sectional shape affects the softness of the filaments. Insofar, D2 discloses filaments of any cross-sectional shape that is conceivable in the technical area.

1.6 Claim 13 is a dependent claim that characterises the brush head of the disclosed invention in terms of the filament thickness. Therefore, the disclosure of claim 13 applies to any embodiment of D2, and hence to filaments of any cross-sectional shape envisaged by D2. D2 thus discloses a thickness of 0.102 mm also for

filaments of circular cross-section, as this is the most common cross-sectional shape for filaments. This thickness corresponds to the diameter as referred to in feature 1.8.

Consequently, D2 anticipates feature **1.8**, which requires that

1.8 the filaments (43) in each of the tufts (40) have a cross-sectional area perpendicular to their length extension direction that corresponds to a circular cross sectional area having a diameter in the range of between 127 μm and 102 μm .

1.7 Page 9, lines 20 to 23 of D2 discloses that *all* tufts have corresponding or same size, i.e. dimension, length, and/or diameter. Furthermore, claim 13 of D2 states that *each* mono filament has a thickness as quoted above. Therefore, D2 also discloses feature **1.9**, i.e. that

1.9 the brush head (10) comprises only tufts (40) of this area definition and this filament range.

1.8 Consequently, the subject-matter of claim 1 of the main request is not novel over the disclosure of D2.

2. Auxiliary request 1 - admittance

2.1 Auxiliary request 1 is addressed in point 14 of the decision under appeal. Therefore, the decision under appeal was based on auxiliary request 1 within the meaning of Article 12(2) RPBA. As the decision under appeal forms the basis of the appeal proceedings (Article 12(1)(a) RPBA), auxiliary request 1, if pursued further, is in principle subject to these

proceedings. For this reason alone, the respondent's request not to admit auxiliary request 1 into the appeal proceedings cannot succeed.

Furthermore, according to point 3.7 of the minutes of the oral proceedings before the opposition division, auxiliary request 1 was expressly maintained. Therefore, auxiliary request 1 is not an amendment to the appellant's appeal case within the meaning of Article 12(4) RPBA.

2.2 The respondent's request not to admit auxiliary request 1 into the proceedings is therefore rejected.

3. Auxiliary request 1 - amendments

3.1 Feature **1.8** as originally filed reads as follows (emphasis added):

the filaments in each of the tufts have a cross-sectional area perpendicular to their length extension direction that corresponds to a circular cross sectional area having a diameter in the range of between 140 μm and 102 μm , in particular of about 127 μm .

3.2 During examination, the feature was amended to read (emphasis added):

the filaments (30, 30A; 50) in each of the tufts (14) have a cross-sectional area perpendicular to their length extension direction that corresponds to a circular cross sectional area having a diameter (r1) in the range of between 127 μm and 102 μm .

- 3.3 The respondent argued that the application as originally filed disclosed "127 μm " merely as a preferred absolute value and not as an upper limit, as in the amended claim. According to the respondent, therefore, a value range of 127 μm to 102 μm could not be inferred from the original application.
- 3.4 However, the skilled person directly and unambiguously understands from the disclosure of original claim 1 that the invention pertains (also) to a brush head with filaments having a diameter in the lower end of the originally disclosed broad range, i.e. starting from 102 μm and up to 127 μm . Therefore, the skilled person would have considered the originally disclosed value of 127 μm to mark a possible end-point for a particular sub-range.
- 3.5 The respondent further argued that the wording of amended claim 1 effectively excluded "127 μm " from the claimed range due to the word "between". In addition, the respondent objected that the term "about", which preceded "127 μm " in original claim 1, was missing in the amended claim.
- 3.6 The appellant requested that these arguments not be admitted into the appeal proceedings under Article 13(2) RPBA, as they had not been raised previously.
- 3.7 These arguments were in fact raised by the respondent for the first time during the oral proceedings before the Board. They are therefore to be regarded as an amendment to the respondent's appeal case.
- 3.8 Pursuant to Article 13(2) RPBA, any amendment to a party's appeal case made after notification of a

communication under Article 15(1) RPBA, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

3.9 The respondent has not put forward any exceptional circumstances to explain why these arguments were not raised earlier.

3.10 Therefore, these arguments are not admitted into the appeal proceedings.

3.11 In summary, auxiliary request 1 complies with the requirement of Article 123(2) EPC.

4. Remittal

4.1 The respondent requested that the case be remitted to the opposition division for further prosecution. In the respondent's view, auxiliary request 1 constituted new subject-matter that had not been examined by the opposition division.

4.2 Pursuant to Article 11 RPBA, the Board shall not remit a case to the department whose decision was appealed for further prosecution, unless special reasons present themselves for doing so.

4.3 In the present case, the grounds of lack of novelty and lack of inventive step were discussed in the proceedings before the opposition division in respect of auxiliary request 5. In this context, the evidence relied upon by the respondent in relation to auxiliary request 1, in particular D1 and D3, was considered.

The respondent has not substantiated why the differences in the subject-matter of auxiliary request 1 compared to auxiliary request 5 gave rise to "special reasons" within the meaning of Article 11 RPBA.

4.4 The respondent's request to remit the case to the opposition division for further prosecution is therefore rejected.

5. Auxiliary request 1 - novelty

5.1 It is common ground that the disclosures in documents D1 and D3 are essentially identical. Since D1 is written in English, which is the language of the proceedings in the present case, reference will be made to D1 in the following.

5.2 It is undisputed that D1 discloses the following in Figures 1 and 2 and on page 15, last paragraph, to page 17, last paragraph (references in parentheses refer to D1):

1.1 A brush head (4) for an electric toothbrush (1), in particular a replaceable brush head, comprising:

1.2 a housing (3) attachable to and detachable from a handle (2) of the electric toothbrush (1);

1.3 a carrier (7) having a mounting side,

1.4 which carrier (7) is mounted at the housing (3) for driven oscillatory rotational motion around a rotation axis (9) that extends through a center point on the mounting side of the carrier (7);

1.5 a plurality of tufts (11, 13a, 13b, 13c, 31) consisting of filaments (page 1, last line, to page 2, line 4),

1.6 the tufts (11, 13a, 13b, 13c, 31) being mounted on the mounting side of the carrier (7).

5.3 With regard to the tufting area defined in feature **1.7**, the respondent referred to page 23, lines 13 and 14 of D1, which read as follows:

A brush head wherein the cross-sectional area of the middle bristle tufts 13a, 13b, 32 is in the range of $1.75 \pm 0.25 \text{ mm}^2$.

A cross-sectional area of 1.75 mm^2 plus 0.25 mm^2 is a cross-sectional area of 2.00 mm^2 .

5.4 The respondent argued that, due to a "manufacturing tolerance range" as well as rounding rules and measurement tolerances implied by the word "about", the requirement of feature **1.7** for each of the tufts to have a tufting area of "at least about 2.4 mm^2 " covered tufts having a tufting area of 2.0 mm^2 or even less.

5.5 However, claim 1 relates to a brush head and not to a manufacturing process for making it, so that manufacturing tolerances are not to be considered when interpreting the claim.

5.6 Measurement tolerances in turn, which are of relevance for the present case particularly due to the word "about", are based on the measurement accuracy rather than on general rounding rules.

5.7 The respondent has not demonstrated that the tufting area of a filament tuft can only be measured with an accuracy in the order of square millimetres or greater. Such a restriction is also not apparent to the Board. In fact, both the quoted disclosure of D1 and the

wording of claim 1 of the patent in suit make it clear that the tufting area can be determined with sub-millimetre accuracy.

5.8 Therefore, the tufting area of 2.0 mm^2 or less disclosed in D1 does not fall within the claimed range of at least about 2.4 mm^2 . Consequently, feature **1.7** is a distinguishing feature over the disclosure of D1.

5.9 With regard to feature **1.8**, the respondent referred to page 23, lines 19 to 21 of D1, which read as follows:

A brush head wherein the bristles used have a cross-sectional area in the range from 0.01 to 0.025 mm^2 or a diameter of between 4.5 and 7 mil.

5.10 A diameter of between 4.5 and 7 mil equates to a diameter of between $114.3 \text{ }\mu\text{m}$ and $177.8 \text{ }\mu\text{m}$.

5.11 Notably, feature **1.8** requires that the filaments in *each* of the tufts have a diameter in the range of between $102 \text{ }\mu\text{m}$ and $127 \text{ }\mu\text{m}$. It is common ground that this does not mean that *all* the bristles must have the *same* diameter. However, feature **1.8** does exclude filaments with a diameter greater than $127 \text{ }\mu\text{m}$.

5.12 The filaments disclosed in D1, in turn, have (different or identical) diameters of up to $177.8 \text{ }\mu\text{m}$, i.e. potentially greater than $127 \text{ }\mu\text{m}$. This means that D1 does not directly and unambiguously disclose that in *each* tuft the filaments have a diameter of no more than $127 \text{ }\mu\text{m}$. Consequently, feature **1.8** is also a distinguishing feature compared to the disclosure in D1.

- 5.13 It follows from the above that D1 also does not disclose feature **1.9**, which requires that the brush head comprises *only* tufts of the area definition of feature **1.7** and the filament range of feature **1.8**.
- 5.14 Consequently, the subject-matter of claim 1 of auxiliary request 1 is novel over the disclosure of D1 and D3 due to distinguishing features **1.7**, **1.8** and **1.9**.
6. Auxiliary request 1 - inventive step
- 6.1 It is common ground that the objective technical problem solved by distinguishing features **1.7**, **1.8** and **1.9** is to provide a brush head having improved softness and cleaning performance.
- 6.2 With regard to the claimed solution according to feature **1.7**, the respondent referred to claim 9 of D1 which teaches that the cross-sectional area of the outer bristle tufts 11 and of the two centre bristle tufts 13c is at least twice as large as the cross-sectional area of a bristle tuft 13a, 13b on the middle ring. A similar teaching can be found on page 23, lines 14 to 18 of D1, which suggest a ratio of 4 to 1 for the cross-sectional areas of some bristle tufts and a ratio of 2 to 1 for others. The respondent argued that this would have motivated the skilled person to increase the cross-sectional area of *all* the bristle tufts, thereby arriving at bristle tufts with a cross-sectional area within the range of feature **1.7**.
- 6.3 However, the teaching that the cross-sectional area of some bristle tufts is at least twice (or four times) as large as others does not mean that larger tufts are *per se* preferred. A general conclusion derivable from these passages, if any, is rather that it is useful to

provide tufts of different cross-sectional area. This does, however, not motivate the skilled person to modify the cross-sectional area of the small middle bristle tufts, which is in the range of $1.75 \pm 0.25 \text{ mm}^2$ (D1, page 23, lines 13 and 14).

- 6.4 Concerning feature **1.8**, the respondent argued that using a single type of filament, with the result that *all* the bristles are of the *same* diameter, was cost-effective and convenient and hence obvious to the skilled person.
- 6.5 However, even if it was obvious for the skilled person to use a single type of filament, so that all filaments have the same diameter, the respondent did not provide an explanation as to why the skilled person would have been motivated to use a filament with a diameter of 127 μm or smaller instead of another diameter between 114.3 μm and 177.8 μm , i.e. above 127 μm .
- 6.6 The respondent also referred to the statement on column 3, lines 9 to 13 of the patent in suit, which states that by increasing the tufting area of a tuft, the lower bending stiffness of the individual thin filaments is counterbalanced in a manner that keeps the gentleness feeling but increases the stability of the tuft and thus supports effective cleaning.
- 6.7 Notably, this is the finding of the invention underlying the patent in suit - and not the teaching of D1 or a general rule comprised in the common general knowledge. In fact, D1 does not provide any pointer to counteracting the higher softness of the (thinner) filaments by bundling them in larger tufts. In D1, the size of the tufts is not related to the thickness of the filaments. This also applies to the passage on page

2, lines 6 to 10 of D1, to which the respondent referred. This passage merely states that it is a desire to provide an improved electric toothbrush and an improved brush head therefore, which prevent the disadvantages of the prior art while developing the art further in advantageous manner.

- 6.8 The respondent also referred to document D4 and argued that the teaching of this document, particularly on page 11, lines 2 to 4, would have led the skilled person to the claimed solution. The passage referred to by the respondent reads as follows (translation by the Board):

The oval-shaped bristle tufts all measure approximately 1.45 mm x 2.9 mm. The bristle tufts with round cross-sections all have a diameter of approximately 1.5 mm.

- 6.9 The tufting area taught in D4 for the tufts with round cross-section is even smaller than in D1, since a diameter of 1.5 mm results in a cross-sectional area of 1.77 mm^2 . Hence, D4 does at least not teach that each of the tufts has a tufting area of at least about 2.4 mm^2 , as required by features **1.7** and **1.9**.

- 6.10 The respondent also referred to documents D5 (paragraph [0044], Figure 6), D6 (paragraph [0045]), D9 (page 3, paragraph 3 and Figure 1), D11 (column 3, lines 34 to 60) and D12 (Figure 1) as allegedly rendering the claimed solution obvious.

- 6.11 The disclosure of D5 essentially corresponds to that of D4. Paragraph [0044] of D5, to which the respondent referred, also discloses a diameter of 1.5 mm for the tufts with round cross-section, which again results in

a cross-sectional area of 1.77 mm^2 . Therefore, also D5 does at least not teach that *each* of the tufts has a tufting area of at least about 2.4 mm^2 , as required by features **1.7** and **1.9**.

- 6.12 D6 discloses in paragraph [0045] that the bristles are of circular cross-section with a diameter of from 0.1 to 0.25 mm. This disclosure is in essence comparable to that of D1 discussed above under point 5.12. It means that the filaments have (different or identical) diameters of up to $250 \text{ }\mu\text{m}$, i.e. potentially greater than $127 \text{ }\mu\text{m}$. Hence, D6 does not teach or suggest that in *each* tuft the filaments have a diameter of no more than $127 \text{ }\mu\text{m}$. Consequently, at least features **1.8** and **1.9** are not rendered obvious by D6.
- 6.13 D9, page 3, third paragraph, and D12, Figure 1, to which the respondent referred, do not provide any information on the tufting area or the filament diameter at all. Therefore, features **1.7**, **1.8** and **1.9** are not rendered obvious by D9.
- 6.14 D11, Figure 1, to which the respondent referred, does not provide any information on the filament diameter. Therefore, at least features **1.8** and **1.9** are not rendered obvious by D11.
- 6.15 Consequently, the subject-matter of claim 1 of auxiliary request 1 is based on an inventive step starting from D1 or D3.

Order

For these reasons it is decided that:

The decision under appeal is set aside. The case is remitted to the opposition division with the order to maintain the patent with the following claims and a description to be adapted thereto:

Claims:

No. 1 to 15 according to the auxiliary request 1 filed with the letter of 2 February 2023

The Registrar:

The Chairwoman:



C. Moser

P. Acton

Decision electronically authenticated