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Datasheet for the decision of 4 May 2022

Case Number: T 0724/19 - 3.5.02

Application Number: 11870716.5

Publication Number: 2741402

IPC: H02K1/27, H02K1/24

Language of the proceedings: EN

Title of invention:
Motor and rotor thereof

Patent Proprietor:
Gree Electric Appliances, Inc. of Zhuhai
Gree Green Refrigeration Technology Center Co. Ltd. of Zhuhai

Relevant legal provisions:
EPC Art. 100(a), 54, 123(2)
RPBA 2020 Art. 13(2)

Keyword:
Novelty - disclosure in drawings - main request, auxiliary request Ia (no)
Amendments - auxiliary requests I, II, III, IV and V - inadmissible extension (yes)
Amendment after summons - exceptional circumstances (no)

Decisions cited:
T 1488/10, T 0204/83, T 0451/88, T 1664/06, T 0896/92, T 0748/91, T 1353/18, T 1791/19, T 1200/05

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Case Number: T 0724/19 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 4 May 2022

Appellant: (Patent Proprietor 1)	Gree Electric Appliances, Inc. of Zhuhai No.6 Qianshan Jinji West Road Zhuhai, Guangdong 519070 (CN)
Appellant: (Patent Proprietor 2)	Gree Green Refrigeration Technology Center Co. Ltd. of Zhuhai Science and Technologie Building No. 789 Qianshan Jinji Road Zhuhai, Guangdong 519070 (CN)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 21 December 2018 revoking European patent No. 2741402 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	R. Lord
Members:	C.D. Vassoille
	J. Hoppe

Summary of Facts and Submissions

I. The appeal of the patent proprietors lies against the decision of the opposition division revoking European patent no. 2 741 402.

II. The following documents are relevant for the present decision:

E1: T. Tokuda et al.: "Influence of rotor structure on performance of permanent magnet assisted synchronous reluctance motor", International Conference on Electrical Machines and Systems, 2009, IEEE, pages 1-9.

D1: JP 11-275783 A

III. With letter of 5 November 2019, the opponent withdrew their opposition.

IV. In a communication under Article 15(1) RPBA 2020 annexed to the summons to oral proceedings, the board informed the appellants of its preliminary opinion that the subject-matter of claim 1 of the main request and auxiliary request Ia did not seem to be new and that the further auxiliary requests I, II, III, IV and V did not seem to meet the requirement of Article 123(2) EPC.

V. Oral proceedings were held on 4 May 2022.

The patent proprietors (appellants) requested as main request that the decision under appeal be set aside and the patent be maintained as granted, or as an auxiliary measure that the patent be maintained on the basis of one of the auxiliary requests I, Ia, II, III, IV or V, filed with the statement of grounds of appeal, or on

the basis of either of the auxiliary requests VI and VIa filed with letter of 31 March 2022.

VI. Claim 1 of the patent as granted (main request) has the following wording:

"A motor rotor, comprising an iron core (10) and a plurality of sets of permanent magnets (20) provided inside the iron core (10), wherein:

a plurality of sets of mounting slots (30) are circumferentially distributed in the iron core (10); each set of mounting slots (30) comprises two or more layers of mounting slots (30) provided at intervals in radial direction of the iron core (10);

the permanent magnets (20) of each set of permanent magnets (20) are correspondingly embedded into the mounting slots (30) of each set of mounting slots (30);

characterised in that

on a cross section of each of the permanent magnets, which is perpendicular to the axis of the iron core (10), a formula $H/L \geq 1/10$ is satisfied, wherein L is a length of the permanent magnet, H is a width of the permanent magnet;

L is defined as a first distance between two end points of a first side of the permanent magnet (20), said first side is far away from the center of the iron core (10);

H is defined as a second distance from the center point of a second side of the same permanent magnet (20) to a straight line between the two end points of the first

side of the permanent magnet (20), said second side is near to the center of the iron core (10)."

VII. Claim 2 of auxiliary request I substantially differs from claim 1 of the main request in the following additional and amended features:

- a plurality of sets of mounting slots (30) are circumferentially distributed in the iron core (10); each set of mounting slots (30) ~~comprises~~ consisting of two [sic] ~~or more~~ layers of mounting slots (30) provided at intervals in radial direction of the iron core (10);
- formula $3/10 \leq H_{b1}/L_{b1} \leq 1/2$ is satisfied
- formula $3/10 \leq H_{b2}/L_{b2} \leq 1/2$ is satisfied
- formula $3/10 \leq H_{b3}/L_{b3} \leq 1/2$ is satisfied

VIII. Claim 1 of auxiliary request Ia comprises *inter alia* the following additional features with respect to claim 1 of the main request:

- formula $3/10 \leq H_{a1}/L_{a1} \leq 7/10$ is satisfied
- formula $3/10 \leq H_{a2}/L_{a2} \leq 7/10$ is satisfied

IX. Claim 1 of auxiliary request II comprises *inter alia* the following additional features with respect to claim 1 of the main request:

- formula $4/10 \leq H_{a1}/L_{a1} \leq 6/10$ is satisfied
- formula $4/10 \leq H_{a2}/L_{a2} \leq 6/10$ is satisfied

X. Claim 1 of auxiliary request III is identical to claim 1 of auxiliary request II.

XI. Claim 1 of auxiliary request IV comprises *inter alia* the following additional features with respect to claim 1 of the main request:

- formula $5/10 \leq H_{a1}/L_{a1} \leq 7/10$ is satisfied
- formula $5/10 \leq H_{a2}/L_{a2} \leq 7/10$ is satisfied

XII. Claim 1 of auxiliary request V is identical to claim 2 of auxiliary request I.

XIII. In view of the board's decision on auxiliary requests VI and VIa, it is not necessary to recite these requests here.

XIV. The arguments of the appellants, in so far as they are relevant for the present decision, may be summarised as follows:

Main request - Novelty

E1 did not disclose the dimensions of the magnets as defined in granted claim 1. Figure 11 of document E1 could not be considered to be drawn to scale. The measurement indications present in figure 11 of E1 essentially served the purpose of illustrating the different thicknesses of the permanent magnets and not the purpose of conveying optimal absolute thicknesses of the permanent magnets. There was nothing in the disclosure of E1 that pointed to the particular advantages of the absolute values chosen, but rather the technical teaching of document E1 with respect to figure 11 was directed essentially to the ratios of the relative thicknesses of the permanent magnets. The technical relevance of the magnet curvature was thus not apparent from E1. The manual measurements carried out by the opposition division did not outweigh the

fact that E1 lacked any explicit or implicit indication that figure 11 was drawn to scale. Furthermore, even if the specific thickness values indicated in figure 11 would have led the skilled person to believe that the dimensions in the radial direction of figure 11 were true to scale, this did not apply with sufficient certainty to the other directions of figure 11. This was particularly the case because figure 11 was merely a sectional magnified representation of rotors that had clearly been extracted from a larger overall view of different types of rotors.

Furthermore, the values of the magnet thickness disclosed in figure 11 did not necessarily mean the magnets were dimensioned in a certain and well-defined way. Rather, the values of the thickness were exemplary values for performing further analysis and were not intended to represent a defined dimension of the magnets. Accordingly, the authors in the last section of document E1 stated that the objective problem of reducing the demagnetisation effect was solved by increasing the thickness of the magnet near the surface of the rotor. It did not disclose that specific dimensions (length, width, curvature) of the magnets also solved the objective problem. If doing so was taught by El as solving the objective technical problem, El would very likely have mentioned at least one concrete value of the dimension aimed at in the description. However, no such information was present. Thus, El did not recognise the importance of the dimensions of the magnets. The alleged values of the thickness given in figure 11 were thus merely examples of parameters for performing the FEM-analysis and the authors did not intend any particular dimension of the magnets. Even if an example of the thickness of the magnets was given, this was not sufficient to prove

that the dimensions of the magnets were provided in a certain and well-defined way. The magnets having the given values of the thickness can at least vary in curvature, length and height to fulfil the purpose of the study in E1.

Auxiliary request I, II, III, IV and V

The ratios H/L defined in auxiliary requests I, II, III, IV and V were directly and unambiguously derivable from original figure 6, in particular in combination with original claim 4.

Figure 6 of the application as filed provided more information than a schematic diagram. It disclosed ranges of the ratio H/L, where the performance of the motor was best. The skilled person therefore would directly and unambiguously derive from figure 6 more than just measurement points and corresponding axis labels. In particular, the skilled person would derive preferred ranges of the H/L ratio where the motor efficiency was best. It was in particular clear from figure 6 that a ratio H/L = 0.3 provided a higher motor efficiency than the ratio H/L = 0.1. The skilled person therefore would understand that H/L = 0.3 is a better starting point. The skilled person would therefore have changed the lower limit of claim 4 from 0.1 to 0.3.

Auxiliary request Ia - Novelty

The subject-matter of claim 1 of auxiliary request Ia was new in view of document D1. D1 did not contain any teaching about the technical meaning of the curvature. According to the established case law, the claimed ratio H/L therefore could not be derived from D1, because in order to do so the skilled person would have

needed to recognise the technical relevance of the magnet curvature. Document D1 did not disclose anything to that effect.

Paragraph 25 of Dl explicitly taught a gap of about 1 to 3 % of the permanent magnet width inserted into the punching holes (13a, 13b), which was not shown in figure 1 of Dl. It was therefore clear that the structure of the magnets was not sufficiently clear from figure 1 of Dl.

Dl disclosed to sufficiently utilise reluctance torque effectively without reducing magnetic flux due to permanent magnets. Dl did not suggest any dimensions of the height or the length of the permanent magnet. A skilled person therefore could not infer from figure 1 of Dl a teaching which could lead towards restricting the relative dimensions of the height and the length of the permanent magnet, generally, and even less in the specific manner defined in claim 1.

Furthermore, the established criteria for the novelty of selection inventions were not applicable to the present case. In particular, D1 did not disclose any ranges of the ratio H/L.

Auxiliary requests VI and VIa - Admittance

Auxiliary requests VI and VIa should be taken into account in the appeal proceedings. The appellants only learned from the annex to the summons to oral proceedings of the board's preliminary opinion. The reply to it had been the first opportunity for the appellants to react to this opinion. The fact that the opposition had been withdrawn led the appellants to believe that there was a better chance that new

auxiliary requests would be admitted into the appeal proceedings. Furthermore, the appellants did not expect that all requests submitted with the statement of grounds of appeal would be assessed negatively.

Reasons for the Decision

1. The appeal is admissible.

2. Procedural matters

As mentioned above (point III.), the sole opponent withdrew the opposition and consequently is no longer a party to the proceedings.

It is established case law of the Boards of Appeal that a withdrawal of the opposition in appeal proceedings has no immediate procedural significance if the opposition division has revoked the European patent. The board must then re-examine the substance of the opposition division's decision of its own motion, setting it aside and maintaining the patent only if the latter meets the requirements of the EPC (see the Case Law of the Boards of Appeal, 9th edition 2019, III.Q. 3.3).

3. Main request - Novelty (Article 100(a) in combination with Article 54 EPC)

3.1 The appellants did not contest that document E1 discloses:

A motor rotor, comprising an iron core and a plurality of sets of permanent magnets provided inside the iron core, wherein a plurality of sets of mounting slots are circumferentially distributed in the iron core; each set of mounting slots comprises two or more layers of mounting slots provided at intervals in radial direction of the iron core, the permanent magnets of each set of permanent magnets are correspondingly embedded into the mounting slots of each set of mounting slots.

3.2 It was however in dispute whether the following remaining features of claim 1 are directly and unambiguously derivable from figure 11 of document E1:

on a cross section of each of the permanent magnets, which is perpendicular to the axis of the iron core, a formula $H/L \geq 1/10$ is satisfied, wherein L is a length of the permanent magnet, H is a width of the permanent magnet;

L is defined as a first distance between two end points of a first side of the permanent magnet, said first side is far away from the center of the iron core;

H is defined as a second distance from the center point of a second side of the same permanent magnet to a straight line between the two end points of the first side of the permanent magnet, said second side is near to the center of the iron core.

3.3 The board first notes that the above definition of H/L in extensive terms defines nothing other than the degree of curvature of the magnet. It is also to be noted that the lower limit of the claimed ratio of H/L

= 1/10 is so low that, if the ratio is reduced any further, the magnet already approaches an almost flat shape. In other words, the curvature of the magnet at the claimed lower limit of the H/L ratio is very small, while it increases as the ratio increases.

It must further be noted in this context that claim 1 does not claim a provision for measuring two parameters and determining the ratio of these parameters. Rather, it claims a range of the ratio H/L, which the skilled person would immediately understand to correspond to the degree of curvature of two or more magnets ranging from a very low degree of curvature (i.e. 0.1) to an unlimited upper degree of curvature.

3.4 Figure 11 of E1 discloses details of different types of rotor designs A, B and C. For each rotor design, three layers of magnets are illustrated. Furthermore, it is readily apparent from figure 11 that the magnets are curved (or arc-shaped). This was not disputed by the appellants. They disputed however that the skilled person could directly and unambiguously derive from figure 11 a curvature that falls within the claimed range of $H/L \geq 1/10$.

3.5 As stated under point 3.3 above, the claimed lower limit of $H/L \geq 1/10$ is so low that a correspondingly shaped magnet is only slightly curved. The skilled person, when considering figure 11, would immediately recognise that the magnets have not only very slight but, albeit to varying degrees, at least appreciable curvature. No hint is necessary to recognise this, but this fact results directly and unambiguously from figure 11.

Hence, it is readily apparent from figure 11 of E1 that the curvature of the illustrated magnets is at least not small and thus, no measurements at all are required for the skilled person to derive from figure 11 something that falls within the claimed ratio of $H/L \geq 1/10$.

3.6 However, even if measurements were considered a necessary condition for deriving the subject-matter of claim 1 as granted directly and unambiguously from figure E1, the skilled person would, on the one hand, be able to do so without further difficulty and, on the other hand, would not need any further motivation to do so.

3.7 Figure 11 indisputably contains illustrations generated by a computer aided simulation program that contains a concrete value for the thickness of each magnet shown. Figure 11 thus clearly goes beyond a mere schematic drawing, because it leads the skilled person to assume that the dimensions of the magnets are of particular importance due to the different thickness indications. Of course, the skilled person is well aware that this includes not only the thickness of the magnets, but also the other essential parameter, namely the shape of their curvature. This is confirmed by the written description of document E1, where it is stated, for example, above figure 11 on page 11, section V.A.:

"*However, the shape of the magnet has not been discussed, and must be taken into consideration when attempting to produce high torque while preventing irreversible demagnetization*."

The fact that document E1 contains no explicit reference to the nature of the drawings (whether

schematic or to scale) is irrelevant against this background.

Document E1 in the above paragraph thus does not explicitly speak of only the thickness of the magnets, but generally of their shape, whereby it is clear to the skilled person that the shape includes the degree of curvature of the magnets (see also E1 in section V.D on page 6) and this had specific advantages for solving a technical problem.

The board therefore does not share the appellants' view that the skilled person would not recognise that E1 contains a relevant technical teaching on magnet curvature. Not only is the curvature of the magnets evident from figure 11, but the description also explicitly refers to the shape of the magnets, which the skilled person would clearly understand as comprising the curved magnet shape illustrated in figure 11.

The board is therefore convinced that the emphasis on the shape of the magnets as well as the dimensions given in figure 11 already give the skilled person reason to determine the curvature of the magnets by taking the dimensions in the drawings into account, even if in the board's view the question of motivation to carry out measurements is not decisive.

In the light of the claimed wide range of the ratio H/L, it is also irrelevant that the measurements are not based on an accurate technical drawing. The dimensions are in fact so precisely identifiable in figure 11 that they directly and unambiguously disclose to the skilled person a motor rotor which, with regard to the claimed ratio H/L, falls within the claimed

range (for a similar case see also T 1791/19, reasons 3.5.2).

3.8 The appellants referred to the established case law of the Boards of Appeal, according to which claimed dimensions cannot be considered to be directly and unambiguously disclosed in a prior art document, if the sole basis for the dimensions are drawings, which, due to their schematic character, do not allow the person skilled in the art to directly and unambiguously determine specific values and ratios falling within the claimed range (see for example T 1488/10, reasons 3.5 and T 204/83, reasons 7, T 451/88, reasons 2.3 and 2.4, T 1664/06, reasons 2.1.1 to 2.1.3).

As explained under point 3.6 above, the conclusions drawn in these decisions are not directly applicable to the specific case at hand, because the skilled person would have understood figure 11 in E1, in view of the emphasis on the shape and in particular on the specified thicknesses of the magnets, to be more than a mere schematic drawing, and to thus contain a specific technical teaching about the shape of the magnets. Figure 11 further clearly allows for a sufficiently accurate measurement in view of the broad range of the ratio H/L in claim 1 as granted.

These findings are also supported by the case law of the Boards of Appeal stating that depending on the specific circumstances of the case dimensions or proportions might be derivable from schematic drawings in particular if they reflect a certain teaching, significance or advantage as explained in the description (T 1488/10, reasons 3.4; T 748/91, reasons 2.1.1; T 1353/18, reasons 4.3.4) or appear very precise

compared to broad ranges in the claimed subject-matter (T 1791/19, reasons 3.5.2; T 1200/05, reasons 2.2).

3.9 Moreover, the board does not understand appeal decisions T 896/92 (reasons 2.2) and T 204/83 (reasons 4) to mean that the skilled person must be able to recognise the advantages resulting from the invention from the drawings. He or she would only need to be able to recognise that the features in question concern a practicable technical teaching. However, this requirement is fulfilled in the present case because, as explained above, the skilled person could readily recognise from figure 11 and the related text in the description that the shape of the magnets constitutes an essential technical element of figure 11 and the general teaching of E1. Furthermore, the skilled person was clearly in a position to recognise the notably curved shape of the magnets at first sight.

3.10 Consequently, the board has arrived at the conclusion that the subject-matter of claim 1 is not new in view of E1 and therefore that the ground for opposition under Article 100(a) in combination with Article 54 EPC prejudices the maintenance of the patent as granted.

4. Auxiliary requests I, II, III, IV and V - Amendments (Article 123(2) EPC)

4.1 None of auxiliary requests I, II, III, IV and V meets the requirements of Article 123(2) EPC. Figure 6 of the application as filed does not provide a direct and unambiguous support for the ranges specified in these requests, in particular the following claimed ranges:

- Auxiliary request I, claim 2 and auxiliary request V, claim 1: $3/10 \leq H_{b1}/L_{b1} \leq 1/2$, $3/10 \leq H_{b2}/L_{b2} \leq 1/2$, $3/10 \leq H_{b3}/L_{b3} \leq 1/2$
- Auxiliary requests II and III, claim 1: $4/10 \leq H_{a1}/L_{a1} \leq 6/10$, $4/10 \leq H_{a2}/L_{a2} \leq 6/10$
- Auxiliary request IV, claim 1: $5/10 \leq H_{a1}/L_{a1} \leq 7/10$, $5/10 \leq H_{a2}/L_{a2} \leq 7/10$

4.2 Figure 6 is a graph illustrating the relationship of H/L to the efficiency of the motor. It was not in dispute that figure 6 is not described in detail in the application as filed.

4.3 The person skilled in the art would understand figure 6 to illustrate a sequence of measurement points forming part of a single experiment. The claimed ranges as recited under point 4.1 above cannot be directly and unambiguously derived from this sequence of measuring points. At most, it can be deduced from figure 6 that the efficiency of the motor is highest (i.e. around 0.30 %) for H/L ratios 0.3, 0.4, 0.5 and 0.6.

The claimed ranges (see point 4.1 above), however, do not correspond to any direct and unambiguous teaching that the person skilled could derive from figure 6. Rather, they give the impression that they correspond to arbitrarily chosen combinations of H/L ratios marked on the axis of the diagram shown in figure 6. In any case, the mere sequence of measuring points, without any further reference, does not give any indication of the specific ranges claimed.

4.4 The appellants further referred to claim 4 in combination with figure 6. Claim 4 recites a lower limit of H/L = 0.1 and a maximum limit of H/L = 0.5. The appellants argued that the skilled person could

derive from figure 6 that H/L = 0.3 was a better lower limit, as figure 6 showed that the motor efficiency was higher at this ratio than at H/L = 0.1. This provided a direct and unambiguous teaching for the skilled person to change the lower limit of claim 4 from 0.1 to 0.3.

The board is not convinced that, in view of claim 4 in combination with figure 6, the skilled person would understand that the range of 0.3 to 0.5, according to claim 2 of auxiliary request I, implicitly forms part of the direct and unambiguous disclosure of the application as filed. In particular, the board does not agree with the appellant that figure 6 provided a direct and unambiguous teaching for the person skilled in the art to increase exclusively the lower limit specified in claim 4 to 0.3 in view of the higher efficiency of the motor at this ratio. In particular, the board does not recognise any basis for changing only the lower limit, but not the upper limit.

On the contrary, it can be seen from figure 6 that the efficiency at H/L = 0.6 is substantially the same as at H/L = 0.3 and also at H/L = 0.5. If anything, the skilled person would therefore also have derived an increased upper limit, if he had wanted to extract an optimised range from figure 6. This is however not what is claimed in claim 2 of auxiliary request I or in claim 1 of any of the other auxiliary requests II, III, IV or V.

4.5 The board has therefore come to the conclusion that auxiliary requests I, II, III, IV and V do not meet the requirement of Article 123(2) EPC.

5. Auxiliary Request Ia - Novelty (Article 54 EPC)

5.1 The subject-matter of claim 1 of auxiliary request Ia is not new in view of document D1.

5.2 The appellant did not contest that document D1 discloses the features of the preamble of claim 1 of auxiliary request Ia. In particular, document D1 discloses that each set of mounting slots consists of two layers of mounting slots (see figure 1).

5.3 It was however contested by the appellant that the characterising features of claim 1 of auxiliary request Ia were disclosed by D1, and in particular the following specified ranges for the first and second widths H_{a1}, H_{a2} and lengths L_{a1},L_{a2}:

- formula $3/10 \leq H_{a1}/L_{a1} \leq 7/10$ is satisfied
- formula $3/10 \leq H_{a2}/L_{a2} \leq 7/10$ is satisfied

5.4 The board notes that the reasons under point 3.3 given with respect to the main request in principle also apply to claim 1 of auxiliary request Ia. In particular, the claimed range of 0.3 to 0.7 is a relatively wide range of magnet curvatures, ranging from a lower curved magnet (H/L = 0.3) to a stronger curved magnet (H/L = 0.7). Beyond these limits, the shape of the magnets goes to the extreme, i.e. they are either almost flat or strongly curved.

5.5 The board agrees with the decision under appeal in that figure 1 of D1 directly and unambiguously discloses magnets whose degree of curvature, i.e. the ratio H/L, falls within the claimed range of 0.3 to 0.7 (see points 13.3 and 15.6 of the reasons for the decision under appeal).

5.6 There cannot be any doubt that the arrangement and dimensioning of the magnets form part of the relevant technical teaching of D1 (see figure 1 in particular in combination with paragraphs 25 and 29). In particular, it is evident to the person skilled in the art that document D1 is concerned with the shape of the magnet in general, including curvature ("arc-shaped", see paragraph 25 and figure 1, "opening angles" Θa and Θb, paragraph 29), and not exclusively with its thickness. The skilled person thus recognises these shape-related features of the magnets, which are immediately apparent from figure 1, as a relevant technical teaching contained in this document.

5.7 The question whether figure 1 of D1 is drawn to scale or not, can be left open. It may be true that the skilled person would not take measurements on a purely schematic drawing to derive practicable dimensions from it (see the related case law cited under point 3.8 above). However, in view of the indication of the magnet thicknesses ta and tb as well as the magnet opening angles Θa and Θb, in connection with the disclosure in paragraph 29 of the description, figure 1 provides information to the skilled person that goes beyond that of a mere schematic drawing. Thus, the skilled person would not be discouraged from taking measurements because of the way the magnets are shown in figure 1. On the contrary, the technical teaching of D1, concerning the dimensioning of the magnets, would motivate the skilled person to do so. However, the board does not consider the latter criterion to be relevant to the question of novelty.

In any case, the skilled person objectively could derive from figure 1 the ratios H/L of the magnets by

measuring. Corresponding measurements of the magnets illustrated in figure 1 reveal that the degree of curvature of the magnets according to the ratio of H/L lies within the claimed range (see in particular the reasons and references under point 15.6 of the decision under appeal).

5.8 As regards the disclosure of a gap of about 1 to 3 % of the width of the permanent magnets (D1, paragraph 25), the board observes that this gap is explicitly described as making it possible to insert the permanent magnets in the mounting slots. The board is therefore convinced that it does not lead the skilled person to believe that the dimensions of the magnets are not sufficiently clear from figure 1 of D1. Rather, the skilled person would be aware that the gap is negligibly small in this order of magnitude compared to the width of the magnets.

5.9 Furthermore, the board considers that the criteria established for selection inventions are not applicable to the present case, since it does not concern the selection of individual elements, subsets or sub-ranges not expressly mentioned within a larger known set or range. Rather, curvatures of different degrees are claimed and the anticipation of only one of these claimed curvatures is sufficient for novelty-destroying anticipation.

5.10 Finally, the board notes that, to anticipate the subject-matter of claim 1 of auxiliary claim 1, D1 does not need to disclose a particular width or length of the magnets. Indeed, claim 1 only claims a certain ratio of width and length of the magnets, and not absolute values for these parameters.

5.11 The subject-matter of claim 1 of auxiliary request Ia is therefore not new in view of D1 (Article 54 EPC).

6. Auxiliary Requests VI and VIa – Admittance (Article 13(2) RPBA 2020)

6.1 Pursuant to Article 13(2) RPBA 2020, applicable in the present case under Article 25(1) RPBA 2020, any amendment to a party's appeal case made after notification of the 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.

6.2 After notification of the summons to oral proceedings, the appellants with letter of 31 March 2022 submitted new auxiliary requests VI and VIa that were intended to establish novelty over the prior art. The new auxiliary requests constitute thus an amendment of the appellants' appeal case, which is subject to the admissibility requirements laid down in Article 13(2) RPBA 2020.

6.3 The appellants essentially argued that they only learned from the annex to the summons to oral proceedings (communication under Article 15(1) RPBA 2020) of the board's preliminary opinion. Furthermore, the reply to it had been the first opportunity for the appellants to react to this opinion.

6.4 As regards the question of novelty, the communication under Article 15(1) RPBA 2020 did not contain anything that went beyond what was said in the decision under appeal. The board therefore does not consider the appellants' corresponding argument to constitute

exceptional circumstances that would justify admittance of auxiliary requests VI and VIa at this late stage of the appeal proceedings.

6.5 It is further to be noted that the mere fact that the opposition had been withdrawn at the time the new auxiliary requests were filed, does not lead to a different application of Article 13(2) RPBA 2020. The appellants' arguments in this respect therefore also do not convince the board.

6.6 Furthermore, the appellants had to expect that the board, as a reviewing body, might not positively assess the requests filed with the statement of grounds of appeal. This is particularly true in view of the novelty objections of the opposition division with regard to the main request and auxiliary request Ia. Consequently, the appellants should have considered that the board might agree with the opposition division in its assessment. Any auxiliary requests which were intended to establish novelty could and should therefore have been filed already with the statement of grounds of appeal.

6.7 In conclusion, the board cannot see any convincing reasons for the appellants to have filed new auxiliary requests for the first time in the appeal proceedings after notification of the summons to oral proceedings.

6.8 The board has therefore exercised its discretion under Article 13(2) RPBA 2020 not to take into account auxiliary requests VI and VIa in the appeal proceedings.

7. Result

As the appellants' requests were either not allowable or not taken into account in the appeal proceedings, the appeal had to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

U. Bultmann R. Lord

Decision electronically authenticated