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**Datasheet for the decision
of 14 June 2022**

Case Number: T 0755/19 - 3.2.03

Application Number: 13708240.0

Publication Number: 2825831

IPC: F27D99/00, C21D9/00

Language of the proceedings: EN

Title of invention:
SUPPORT DEVICE FOR RADIANT TUBES

Patent Proprietor:
Bisson, Massimiliano

Opponent:
NICRO S.p.A.

Headword:

Relevant legal provisions:

EPC Art. 54, 56
RPBA Art. 12(4)
RPBA 2020 Art. 13(2)

Keyword:

Novelty - (yes) - common general knowledge - implicit disclosure (no)
Inventive step - (yes) - non-obvious alternative - common general knowledge
Late-filed evidence - submitted with the statement of grounds of appeal - request could have been filed in first instance proceedings (yes) - admitted (no)
Late-filed facts - submitted during oral proceedings
Late-filed auxiliary requests
Amendment after summons - exceptional circumstances

Decisions cited:

G 0003/14

Catchword:



Beschwerdekammern

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Case Number: T 0755/19 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 14 June 2022

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 23 January 2019
rejecting the opposition filed against European
patent No. 2825831 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman G. Patton
Members: R. Baltanás y Jorge
W. Sekretaruk

Summary of Facts and Submissions

- I. European patent No. 2 825 831 relates to a support device for radiant tubes.
- II. An opposition was filed against the patent as a whole based on Article 100(a) EPC together with Article 56 EPC (lack of inventive step). On its own motion, the Opposition Division introduced the ground for opposition based on Article 100(a) EPC together with Article 54(1) EPC (lack of novelty).
- III. The appeal lies from the decision of the Opposition Division to reject the opposition.

The opponent ("appellant") filed an appeal against the Opposition Division's decision. The statement setting out the grounds of appeal was filed on 22 May 2019.

In a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), the Board indicated its preliminary opinion of the case.

Oral proceedings were held on 14 June 2022.

- IV. Requests

The appellant requested that the decision under appeal be set aside and that European patent No. 2 825 831 be revoked.

The respondent (patent proprietor) requested that the patent be maintained as amended in the following version:

Description:

Pages 2 to 6 and 8 of the patent specification

Page 7 received during oral proceedings of 14 June 2022

Claims:

1 to 14 according to auxiliary request 1B filed with the letter of 29 April 2022

Drawings:

Figures 1 to 13 of the patent specification.

- V. Claim 1 of auxiliary request 1B, including the numbering of its features as adopted by the parties, reads as follows:

M1 *A radiant tubes support device, which can be used in furnaces for the thermal treatment, for continuous lines for galvanising and annealing strips or panels made of metal sheet and/or other products made of steel and/or other metals or for revamping pre-existent furnaces, comprising a furnace side wall support (120), constrained to a wall of the furnace, a radiant tube support (110) provided with a tubular element (112),*

M2 ***characterised in that** it comprises at least one anti-sticking means positioned between said tubular element (112) and said furnace side wall support (120) for supporting said radiant tube and allowing the lateral oscillation thereof and the extension in or on said furnace side wall support (120)*

M3 *and for reducing the contact surface between the furnace side wall support (120) and the radiant tube support (110) or the tubular element (112),*

M4 *and in that* said at least one anti-sticking means comprises at least one protrusion (170) which departs from said tubular element (112) of said radiant tube support (110) or from said furnace side wall support (120).

Claim 1 is identical to granted claim 1.

VI. Independent claim 4 of auxiliary request 1B differs from claim 1 essentially in the replacement of feature M4 by the following feature:

M5 *and in that* said at least one anti-sticking means comprises at least one rolling means (30, 130) comprising at least one wheel, one roller, or any other means suitable for the purpose, for said tubular element (12, 112) and/or for said furnace side wall support (20, 120), wherein said wheel, said roller, or said any other means suitable for the purpose is positioned in or on said furnace side wall support (20, 120) or in or on said radiant tube support (10, 110), with the aim of preventing seizing or jamming phenomena of said radiant tubes support (10, 110) on said furnace side wall support (20, 120).

Claim 4 is identical to granted claim 4.

VII. Independent claim 7 of auxiliary request 1B differs from claim 1 essentially in the replacement of features M3 and M4 by the following features:

- M6** *and in that said at least one anti-sticking means comprises a coating (14) comprising a low friction material, or a material obtained from specific thermal treatments based on carbon tungsten or zirconium or any other material, or a material with the function of creating a determined roughness and preventing the seizing and sticking or a hardening material or having a hardness greater than that of the material on which it is applied or a different roughness or a different coefficient of friction, or a welding filler material,*
- M7'** *wherein said coating (14) is applied on at least part of said tubular element (12, 112) of said radiant tube support (10, 110).*

VIII. Granted claim 7 differs from claim 7 of auxiliary request 1B in the presence of the following feature M7 instead of feature M7' (differences marked in bold):

- M7** *wherein said coating (14) is applied on at least part of **at least one from among said radiant tube support (10, 110) and/or said furnace side wall support (20, 120) and/or** said tubular element (12, 112) of said radiant tube support (10, 110).*

IX. State of the art

The following documents have been cited, both in the grounds of appeal and during the opposition proceedings, and are relevant for this decision:

- D1: US 2012/0200015 A1
D4: US 2004/0138058 A1
D7: KR 2005 0017781 A

D10: English translation of D7

The following documents have been cited by the appellant for the first time in the statement setting out the grounds of appeal and are relevant for this decision:

D12: GB 2 119 892 A

D13: GB 287,664 A

D14: GB 1,129,764 A

D15: GB 946,887 A

X. The appellant's arguments can be summarised as follows.

Admittance of auxiliary request 1B

No exceptional circumstances under Article 13(2) RPBA 2020 could be observed which might justify the late filing of auxiliary request 1B. The respondent did not provide any cogent reason and, consequently, the request should not be admitted into the proceedings.

Novelty, claim 7, D1

The embodiment disclosed in Figure 3 of D1 comprises anti-sticking means including a coating ("*sliding layer 15*") which allows the lateral oscillation of the radiant tube. This is so because of the ratio between the curvature of the tubular element ("*journal 9*") and that of the insert (16) comprising the coating ("*sliding layer 15*"), these last two elements having the same radius of curvature as the side wall support ("*journal receptacle 10*") to which they are connected. It is an undeniable physical principle that a tube received within another tube of a longer radius of curvature can move laterally to some extent.

Document D1 discloses an embodiment in which the insert (16) is applied on the furnace side wall support ("*journal receptacle 10*"), as is also claimed in dependent claim 2 of D1. However, document D1 discloses previously in a more general manner that the insert forming the sliding layer is provided "in the support area of the bearing journal" (see paragraph [0005], lines 4 and 5 of the right-hand column on page 1 or the last four lines of claim 1). The skilled person understands from this preceding general disclosure that the insert can also be applied on the tubular element ("*journal 9*") since this is the only other option available when locating the insert "in the support area of the bearing journal" while not applying it on the furnace side wall support ("*journal receptacle 10*") as in the embodiment. Consequently, feature M7' is disclosed in the general disclosure of D1.

Inventive step, claim 7, admittance of line of attack

The line of attack based on D1 alone or combining it with D4 and possibly with the common general knowledge of the skilled person should be admitted into the proceedings since it is a proper reaction to new auxiliary request 1B filed on 29 April 2022. Claim 7 of auxiliary request 1B changes the focus for the first time to the application of the coating on the tubular element, and the proposed lines of attack are a timely reaction to this.

Inventive step, claim 7

The difference between the subject-matter of claim 7 and D1 is the application of the coating on the tubular element. The effect of the distinguishing feature is an

easier application of coating. Consequently, the objective technical problem is to make the work of the operator applying the coating easier and safer.

D1 itself focuses on providing a longer life of the furnace elements by reducing wear (paragraph [0005]). To do so, a coating is provided "*in the support area of the bearing journal*" (paragraph [0005] and claim 1). When reading this general teaching and the embodiment where the insert is applied on the furnace side wall support, the skilled person would immediately think of the alternative solution of applying the coating on the tubular element to solve the objective technical problem.

D4 would also help the skilled person to implement this alternative solution. The document teaches the skilled person about coating metals in general (see title, column 1, lines 22 to 25 and 56 to 60 or column 7, lines 1 to 3 and 39 to 41) for a variety of purposes, including anti-sticking functions (see column 10, lines 14 to 20) in a broad range of applications, including some under heat constraints (see column 6, line 60 or column 16, line 59 to column 17, line 42).

Inventive step, claim 1, D1 combined with D7

The skilled person would arrive at the claimed invention starting from D1 and combining it with the embodiment of Figures 1 to 4 of D7 - a document seven years older than D1, which is a development of D7. The objective technical problem is providing alternative anti-sticking means, and D7, which deals with providing anti-sticking means for furnaces like the one of D1, discloses a solution for it. It would be obvious for the skilled person to apply the protrusion (200) of

Figures 1 to 4 of D7 to the tubular element ("journal 9") of D1, thus arriving at the invention.

Inventive step, claim 4, admittance of lines of attack

The line of attack based on the combination of D1 and D7 had been used and discussed in opposition proceedings and should therefore be admitted in appeal proceedings. This is furthermore so since the preliminary opinion of the Board was that proposed documents D12 to D15 supporting an alternative line of attack should not be admitted.

Concerning the admittance of D12 to D15, the technical problem of lateral oscillation only became "*very important*" during the oral proceedings of the opposition proceedings in the discussion on the novelty of claim 7, and the proposed new evidence is highly relevant for the outcome of the appeal proceedings.

Amended description

Paragraph [0122] of the patent specification should be amended since it contains an embodiment in which the coating is applied on the furnace side wall support and not on the tubular element of the radiant tube support.

XI. The appellant's arguments can be summarised as follows.

Admittance of auxiliary request 1B

The only amendment in auxiliary request 1B with respect to the patent as granted - corresponding to the then main request in the reply to the statement setting out the grounds of appeal - consists of the deletion of alternatives in claim 7, with the coating now having to

be applied on the tubular element. This restores novelty *prima facie* with regard to D1 and does not raise any new issue. Therefore, the request does not create any difficulty for the Board or the appellant and should be admitted.

Novelty, claim 7, D1

The anti-sticking means of D1 ("*insert 16*") supports the radiant tube (1) and allows its extension in or on the furnace side wall support (8, 10, 11), but it does not allow its lateral oscillation. This capability of the insert (16) is not explicitly disclosed in D1, and the device of D1 is unsuitable for this purpose since the raising edges of the insert (16) would damage the tubular element (9).

D1 does not explicitly or implicitly disclose the application of the insert (16) on the tubular element (9). The general teaching of placing the insert (16) "*in the support area of the bearing journal*" does not imply an application on the tubular element (9) or on any other element since it merely defines a location for the insert.

Inventive step, claim 7, admittance of line of attack

The alternative solution which remains in amended claim 7 (application of coating on the tubular element) was already defined in granted claim 7. This alternative was never attacked on grounds of lack of inventive step based on the proposed line of attack. The line of attack is therefore late filed and should not be admitted into the proceedings under Article 13(2) RPBA 2020.

Inventive step, claim 7

The appellant did not provide any analysis based on the problem/solution approach which could be persuasive. There is no suggestion in D1 to apply a coating on the tubular element to solve the problem of providing a simplified and safer construction. Document D4 could not help in solving the technical problem since it is a general teaching about coating metals and does not mention radiant tubes or the concerned problem.

Inventive step, claim 1, D1 combined with D7

The embodiment of Figures 1 to 4 of D7 is an alternative solution to the one disclosed in D1 in which the protrusion (200) is an alternative support means to the tubular element ("journal 9") of D1. The skilled person would therefore not combine the tubular element (9) of D1 with the protrusion (200) of D7 but would implement one **or** the other. They would also not combine the protrusion (200) with the tubular element (9) in view of the resulting distribution of efforts on the radiant tube and the problem of distribution of temperatures along this tube, which would be worsened by increasing the length of the device (see fourth paragraph from the bottom on page 2 of D10). Furthermore, the first paragraph of page 3 of D10 discloses that the embodiment of Figures 1 to 4 does not work satisfactorily, thus teaching the skilled person away from adopting this construction.

Inventive step, claim 4, admittance of lines of attack

Claim 4 of auxiliary request 1B is identical to granted claim 4. Therefore, the appellant could and should have raised the line of attack based on the combination of

D1 and D7 in its statement setting out the grounds of appeal. Since this was not the case, the line of attack should not be admitted under Article 13(2) RPBA 2020.

Documents D12 to D15 could and should have been filed during the opposition proceedings since the point about "lateral oscillation" was known at this stage.

Therefore, no surprise arose at the oral proceedings before the Opposition Division or from the contested decision which could justify the late filing of these documents. They should not be admitted under Article 12(4) RPBA 2007.

Amended description

Paragraph [0122] of the description does not need to be amended since it is not in contradiction with amended claim 7.

Reasons for the Decision

1. Applicable legal framework under the Rules of Procedure of the Boards of Appeal (RPBA)

The revised Rules of Procedure of the Boards of Appeal (RPBA 2020) entered into force on 1 January 2020. Subject to the transitional provisions (Article 25 RPBA 2020), the revised version also applies to appeals pending on the date of its entry into force.

In the current case, the statement of grounds of appeal was filed before 1 January 2020, and the reply to it was filed in due time. Thus, Article 12(4) to (6) RPBA

2020 does not apply. Article 12(4) RPBA 2007 applies to both the grounds of appeal and the reply (Article 25(2) RPBA 2020).

Article 13 RPBA 2020 applies to any further submission of the parties in this appeal proceedings.

2. Admittance of auxiliary request 1B - Article 13(2) RPBA 2020

2.1 The appellant argued that no exceptional circumstances within the meaning of Article 13(2) RPBA 2020 existed which might justify the late filing of auxiliary request 1B after the notification of the summons, in particular in the absence of cogent reasons from the respondent.

2.2 The Board does not agree.

Granted claim 7 encompassed three possible locations for the coating in feature M7, namely that the coating is to be "*applied on at least part of at least one from among said **radiant tube support** and/or said **furnace side wall support** and/or said **tubular element** of said radiant tube support*".

Two out of the three possible locations have been deleted in amended claim 7 of auxiliary request 1B, such that the coating is now applied on at least part of the **tubular element** of the radiant tube support.

This amendment does not change in substance the focus of the discussion since the disputed feature remains essentially the same (application of a coating in the area of contact between the radiant tube and the side wall support). The aspect of how and where a coating

was provided in the prior art was discussed at length during opposition and appeal proceedings in the context of granted claim 7.

Moreover, the amendment *prima facie* addresses the novelty objection based on D1, and it does not give rise to any new issues. The disclosure of the embodiment of Figure 3 of D1 concerns a coating connected to the furnace side wall support, i.e. a distinct solution to that of amended feature M7'. Since the amendment consists of the straightforward deletion of alternative solutions, no extension of subject-matter can stem from it. Finally, as the amendment merely results in subject-matter already explicitly recited in the granted claim 7, examination of clarity is excluded pursuant to G 3/14.

In view of the above, there is no prejudice to the appellant, the Board or the principle of procedural economy.

Consequently, the Board can see exceptional circumstances to admit auxiliary request 1B into the proceedings within its discretionary power under Article 13(2) RPBA 2020.

3. Novelty, claim 7 in view of D1 - Article 54(2) EPC

3.1 It is undisputed that D1 discloses the following features.

A radiant tubes support device (see first sentence of paragraph [0011]), which can be used in furnaces for the thermal treatment, for continuous lines for galvanising and annealing strips or panels made of metal sheet and/or other products made of steel and/or

other metals (see first sentence of paragraph [0010]), comprising a furnace side wall support ("*journal receptacle 10*"), constrained to a wall of the furnace, a radiant tube support provided with a tubular element ("*tubular bearing journal 9*"), comprising at least one anti-sticking means ("*sliding layer 15*") positioned between the tubular element (9) and the furnace side wall support (10) for supporting the radiant tube and allowing the extension of it in or on the furnace side wall support (10; see paragraph [0012]), in which the anti-sticking means comprises a coating (15) comprising a low friction material (see the function of sliding layer 15 in paragraph [0012]).

3.2 Feature M7' (coating applied on the tubular element)

3.2.1 The appellant argued that the general disclosure part of D1 disclosed that the insert forming the sliding layer is provided "*in the support area of the bearing journal*" (see paragraph [0005], fourth and fifth lines of the right-hand column on page 1 and also the last four lines of claim 1). This disclosure, together with the embodiment, where the insert is applied on the journal receptacle (10), would have made the skilled person understand that the insert could also be applied on the tubular element ("*bearing journal 9*"). This was so since this second way of applying it was the only remaining possibility for providing the insert "*in the support area of the bearing journal*" without applying it as in the embodiment (i.e. on the journal receptacle).

3.2.2 This is not persuasive for the following reasons.

Firstly, the appellant has disputed the novelty of feature M2 (anti-sticking means allowing the lateral

oscillation of the radiant tube) only on the basis of the **embodiment disclosed in Figure 3** of D1. This, however, was the result of the arrangement of this embodiment, which is not recited in combination with the general statements of the disclosure of D1 pointed out by the appellant for arguing that feature M7' was disclosed. Hence, these general statements do not comprise feature M2 and do not anticipate the subject-matter of claim 7 of auxiliary request 1B for this reason alone.

Secondly, the disclosure of an *"insert forming a sliding layer" being "provided in the support area of the bearing journal between the journal receptacle of the bearing and the bearing journal"* does not disclose in an implicit manner by itself any manner of holding or applying the insert. The Board is not persuaded by the argument that only two possibilities would be open to the skilled person, one of them being the connection to the journal receptacle (10) as in the embodiment and the other one consisting of an application on the journal (9). When reading the general part of the disclosure, the skilled person would be able to think about other possibilities, like a floating insert or an insert connected to the side wall of the furnace at the end of the journal receptacle.

Consequently, the arguments of the appellant on the novelty of feature M7' are based on obviousness considerations, and not on what was implicitly disclosed for the skilled person when reading D1, i.e. what the skilled person would have understood as being **necessarily** present in the disclosed device.

3.3 In view of the above, the subject-matter of claim 7 differs from the disclosure of D1 at least by feature M7' (coating applied on the tubular element of the radiant tube support) and is therefore novel. Thus, it is not necessary to discuss the disclosure of feature M2 (anti-sticking means allowing the lateral oscillation of the radiant tube).

4. Admittance of lines of attack against inventiveness of claim 7 - Article 13(2) RPBA 2020

4.1 The respondent argued that since the alternative solution which remains in claim 7 (application of coating on the tubular element) was already present in granted claim 7, the appellant could and should have presented the line of attack at an earlier stage of the procedure.

4.2 However, the Board shares the view of the appellant and considers the new lines of attack as a proper and timely reaction to the amended request of the respondent.

Granted feature M7 comprised three possible locations for the application of the coating (radiant tube support, furnace side wall support and tubular element). The coating was defined as being applied on "at least part from at least one among" these three locations, with the locations being linked by "and/or" expressions. Thus, the claim encompassed seven embodiments for the location where the coating was to be applied, in addition to the further embodiments in which the coating could be applied on the whole or just part of the concerned location(s). It is only with the filing of auxiliary request 1B that the respondent for

the first time in the appeal proceedings focused on one of the seven solutions.

The respondent filed auxiliary request 1B six months after reception of the preliminary opinion of the Board and around one month before the oral proceedings. Thus, the filing of the auxiliary request 1B did not happen at the first possible occasion and was only carried out when the last stage of the proceedings was approaching, i.e. oral proceedings.

Finally, the new lines of attack are based on timely filed documents and do not involve new aspects which the respondent or the Board could not handle in an easy and straightforward manner.

Consequently, the Board considers that the new lines of attack must be admitted on grounds of procedural fairness which qualify as "exceptional circumstances" within the meaning of Article 13(2) RPBA 2020.

- 5. Inventive step, claim 7 - Article 56 EPC
 - 5.1 Line of attack based on D1 alone
 - 5.1.1 According to the respondent, the subject-matter of amended claim 7 only differs from the device of D1 in feature M7' (coating applied on the tubular element). The Board agrees that M7' is a distinguishing feature (see point 3.2 above).

The technical effect of this distinguishing feature is that application of the coating can be carried out outside the furnace, as stated by the parties.

The objective technical problem considered by the parties is to make the work of the operator applying the coating easier and safer. This is a realistic problem in view of the technical effect of the distinguishing feature.

- 5.1.2 The disclosure of feature M2 (anti-sticking means allowing the lateral oscillation of the radiant tube) in D1 is disputed by the respondent.

However, in view of the following assessment of inventive step of the subject-matter of claim 7 on the basis of distinguishing feature M7' alone, there is no need to further discuss this feature (see also point 3.3 above).

- 5.1.3 The appellant argued that D1 focuses on providing a longer life of the furnace elements by reducing wear (paragraph [0005]) by means of a coating provided "*in the support area of the bearing journal*" (paragraph [0005] and claim 1). When reading this general teaching and the embodiment - where the insert is applied on the furnace side wall support - the skilled person would immediately think of the alternative solution of applying the coating on the tubular element of the radiant tube support to solve the objective technical problem.

- 5.1.4 This reasoning is not persuasive.

The only embodiment of D1 allegedly disclosing feature M2 (according to the arguments of the appellant) is the embodiment disclosed in Figure 3 (see point 3.2.2 above), where the coating (15) is held on the side wall support ("*journal receptacle 10*") instead of on the tubular element ("*bearing journal 9*"). The arguments of

the appellant confirm that it is proposed to start from the embodiment disclosed in Figure 3 since the only distinguishing feature according to the appellant is M7'.

Holding the insert (16) and sliding layer (15) on the side wall support ("*journal receptacle 10*") has an explicit purpose in D1, namely to render possible a replacement when the sliding layer (15) is worn (see last two sentences of paragraph [0012] or claim 2). The skilled person would not consider modifying an embodiment providing extra advantages (replaceability of the sliding layer) related to the proposed connection of the insert without a strong incentive.

The general part of the description of D1 does not provide such a strong incentive, nor does the claimed solution, since it merely discloses that the insert forming the sliding layer is provided in the support area of the bearing journal (see paragraph [0005] and claim 1), a condition complied with in the embodiment disclosed in Figure 3.

Furthermore, the solution provided in the embodiment comprises a journal receptacle (10) with a longer radius of curvature than the tubular element ("*bearing journal 9*") lodged in it. The insertion journals (17) of the insert (16) are oriented opposite the concave-shaped portion where the tubular element rests. The disclosed construction has obvious implications for the skilled person with a background in mechanics concerning the properties of the connection between the insert and the journal receptacle. The distance between the point where the friction occurs (around the bottom of the bearing journal 9) and the connecting points provided by the insertion journals (17), the angles

formed by the acting forces and the connecting points, and the area of contact between the involved surfaces (which leads to a corresponding resulting pressure) imply a particular effect of the disclosed construction on the proposed connection. As correctly argued by the respondent, holding the insert (16) of D1 on the bearing journal (9) would require a complete re-design of the connecting means which falls beyond a straightforward modification.

5.1.5 In view of the above, the skilled person would not consider modifying the device of D1 in the direction of the invention in light of D1 alone.

5.2 D1 in combination with D4 and possibly with common general knowledge

5.2.1 Document D4 does not concern radiant tubes *"which can be used in furnaces for the thermal treatment, for continuous lines for galvanising and annealing strips or panels made of metal sheet and/or other products made of steel and/or other metals"*, even if furnaces in general are mentioned as a possible field of application of some embodiments of the disclosed invention (see column 8, lines 21 to 26).

D4 does not discuss the posed technical problem either.

D4 concerns the provision of new materials for coating metal and alloy parts to protect them against wear (among other factors, see column 1, lines 17 to 26).

Thus, D4 does not provide the strong incentive needed to modify the device disclosed in Figure 3 of D1 in the direction of the invention (see point 5.1.4 above)

since it does not concern the objective technical problem or the technical field of radiant tubes.

At most, D4 could motivate the skilled person to apply a coating as disclosed in D4 on a metal part. The result would be that the sliding layer (15) would be provided in the form of such a coating on the insert (16), but this would not imply any change in terms of the connection of the insert (16), which would remain held on the journal receptacle (10). Applying the coating of D4 on the tubular element (9) would run against the teaching of the embodiment of D1 since the sliding layer would not be replaceable any more. The skilled person would therefore not contemplate such a possibility.

- 5.2.2 Taking the common general knowledge of the skilled person into consideration does not lead to a different result.

As explained in point 5.1.4 above, the general considerations of the skilled person in mechanics teach away from the proposed modification. Thus, even if making the work of the operator applying the coating easier and safer could be considered a general aim of the skilled person, the solution for this problem could still not be considered an obvious modification of the device disclosed in Figure 3 of D1.

- 5.3 In view of the above, the subject-matter of claim 7 involves an inventive step with regard to D1 alone or in combination with D4 by itself or together with the common general knowledge of the skilled person.

6. Inventive step, claim 1 - Article 56 EPC

6.1 The appellant argued that the skilled person would arrive at the claimed invention starting from the device disclosed in Figure 3 of D1 and combining it with the teaching of D7.

6.2 The disclosure of feature M1 in D1 is undisputed (see point 3.1 above).

6.3 Distinguishing feature(s)

Both parties agree that feature M4 (anti-sticking means comprising at least one protrusion) is a distinguishing feature of claim 1 with regard to D1.

The Board agrees with this.

The disclosure in D1 of features M2 (anti-sticking means allowing the lateral oscillation of the radiant tube) and M3 (reducing the contact surface between the furnace side wall support and the radiant tube support) is disputed by the respondent.

However, in view of the following assessment of inventive step of the subject-matter of claim 1 on the basis of distinguishing feature M4 alone, there is no need to further discuss these features.

As an objective technical problem in view of distinguishing feature M4, the appellant proposes the provision of alternative anti-sticking means. The Board considers this to be a realistic problem in view of the anti-sticking means (insert (16) forming a sliding layer (15)) disclosed in the embodiment of Figure 3 of D1.

6.4 The appellant argued that D1 is a development of D7, which is seven years older, and that the skilled person would simply add the protrusion disclosed in Figures 1 to 4 of D7 to the development of D1, i.e. to the tubular element (9). The skilled person would do so when addressing the objective technical problem since D7 deals with providing anti-sticking means for furnaces like the one of D1.

6.5 The Board does not find these arguments persuasive.

Firstly, document D7 discloses that the prior-art embodiments shown in Figures 1 to 4 generate "*large friction*" between the radiant tube support and the side wall support, such that damage to the side wall support and reduced lifespan of the radiant tube occur (see the translation of D7 in D10, starting from the seventh paragraph from the bottom of page 2 to the first paragraph of page 3).

Therefore, the skilled person would be taught away from the teaching of Figures 1 to 4 of D7 and would not take it into consideration as an alternative solution to the arrangement of D1. D1 provides a satisfactory solution for the issues mentioned in D7 (i.e. D10) (see paragraphs [0003] and [0004] of D1), and the skilled person would have no motivation to combine the device of D1 with a solution explicitly disclosed as inferior in D7 itself.

Even if the skilled person were motivated to combine the device of D1 with the teaching of the embodiment of Figures 1 to 4 of D7, they would still not arrive at the invention.

The skilled person would learn from document D7 that a protrusion (200) directly connected to the radiant tube (see Figures 1 and 2) can be used. The skilled person would derive from D7 that alternative supporting means can be arranged in this way to replace the tubular element (9) of D1, which performs the **same function**, i.e. provides a connection between the radiant tube and the side wall support. The skilled person would have no incentive to connect the disclosed protrusion to the tubular element (9) instead of to the radiant tube of D1 since the only role of the tubular element (9) of D1 is the same as the one played by the protrusion (200) of D7 (i.e. connecting the radiant tube to the side wall support). Thus, it would be absurd to combine both elements, one after the other. Doing so would result in a prolongation of the radiant tube structure without any apparent utility and, even worse, in a wider temperature gradient along the radiant tube due to its increased length, something which is identified as a problem in D7 (see D10, page 2, fifth and fourth paragraphs from the bottom).

- 6.6 In view of the above, the subject-matter of claim 1 involves an inventive step with regard to the combination of D1 with D7.

- 7. Inventive step, claim 4 - Article 56 EPC

- 7.1 Admittance of documents D12, D13, D14 and D15 - Article 12(4) RPBA 2007

- 7.1.1 The appellant argued that documents D12, D13, D14 and D15, filed for the first time with the statement setting out the grounds of appeal, should be admitted into the proceedings since the technical problem of lateral oscillation only became "*very important*" during

the first-instance oral proceedings in the discussion on the novelty of claim 7. Furthermore, the proposed evidence is highly relevant for the outcome of the appeal proceedings.

- 7.1.2 The Board considers that documents D12, D13, D14 and D15 could and should have been filed during the opposition proceedings.

The importance of the aspects related to "lateral oscillation" could not come as a surprise for the appellant during the oral proceedings before the Opposition Division.

The respondent argued on page 2 of its reply to the notice of opposition that "*Document D1 does not mention the problem of lateral oscillation*". This argument was provided in the discussion on novelty and/or inventive step of all independent claims. The argument was thus not a new fact arising during the oral proceedings or shortly before them. Moreover, the fact that the Opposition Division changed its mind during the proceedings on the disclosure of lateral oscillation in D1 is a usual development which cannot alone justify a surprise for a party.

Consequently, documents D12, D13, D14 and D15 could and even should have been filed during the opposition proceedings. Admitting them in the appeal proceedings would force the Board either to rule for the first time on this issue (which is not the aim of the opposition-appeal proceedings; see Case Law of the Boards of Appeal, 9th edition, V.A.4.11.1, third paragraph and V.A.4.11.3.a)) or remit the case to the Opposition Division for a first ruling on it, the latter running contrary to the principle of procedural economy.

- 7.1.3 In view of the above, the Board does not admit documents D12, D13, D14 and D15 into the proceedings pursuant to Article 12(4) RPBA 2007.
- 7.1.4 The line of attack starting from document D1 and combining it with D12, D13, D14 or D15 must therefore fail since it is based on documents which do not form part of the proceedings.
- 7.2 Admittance of the line of attack starting from D1 in combination with D7 - Article 13(2) RPBA 2020
 - 7.2.1 The appellant argued that this line of attack had been presented and discussed in opposition proceedings and should therefore be admitted in appeal proceedings, in particular in view of the non-admittance of the documents D12, D13, D14 and D15 used in the alternative line of attack.
 - 7.2.2 The Board does not admit the line of attack for being late filed. The reasons are the following.

The fact that the line of attack was presented in opposition proceedings cannot remedy its non-presentation in a timely manner during the appeal proceedings. The statement setting out the grounds of appeal shall contain a party's complete case (Article 12(3) RPBA 2020, which is identical to Article 12(2) RPBA 2007), and the submissions carried out during the opposition proceedings cannot supplement what was omitted in this statement. The appellant deliberately decided not to include this line of attack when filing its statement of grounds and, hence, presenting it later at the oral proceedings represents an amendment

to its case, the admission of which must be considered in accordance with Article 13(2) RPBA 2020.

The appellant's letter of 5 August 2020 in the appeal proceedings contained a vague and short reference to the content of D7 with regard to claim 4 (see page 5, second paragraph). This was, however, only presented in a general manner by merely stating that D7 disclosed the claimed solution in Figures 5 to 7, without providing any substantiation in which manner the solution was to be combined with the disclosed radiant tubes support device of D1 and for which reasons the reasoning provided by the Opposition Division was wrong (see impugned decision, point B.2.3.1.4). Hence, this falls short of what could be considered a substantiated objection and, hence, for this reason, it cannot be seen to have been filed by the letter of 5 August 2020.

The fact that the line of attack based on late-filed documents D12, D13, D14 and D15 failed after the non-admittance of these documents cannot justify that a chance for a new line of attack is granted to the appellant. It was the appellant's decision to present such a line of attack in the appeal proceedings, and it is known to authorised representatives that the filing of new prior art with the statement setting out the grounds of appeal entails the risk that this prior art may be disregarded if the Board considers that it could and should have been filed before the first instance. Therefore, the decision of the Board on the line of attack against claim 4 presented with the statement setting out the grounds of appeal could not come as a surprise to the appellant. In fact, the essentials of it had been explained in the preliminary opinion of the Board, whereas the appellant waited until the last

possible moment of the proceedings to present the line of attack based on the combination of D1 and D7.

In view of the above, the inventive-step objection against the subject-matter of claim 4 starting from D1 in combination with D7 is not admitted into the proceedings in accordance with Article 13(2) RPBA 2020.

7.3 Consequently, no line of attack has been validly presented which could put into question the inventiveness of the subject-matter of claim 4.

8. Amended description

8.1 The appellant argued that paragraph [0122] of the patent specification contains an embodiment in which the coating is applied on the furnace side wall support and not on the tubular element of the radiant tube support, contrary to the subject-matter of amended claim 7.

8.2 This is correct. However, the content of paragraph [0122] does not concern only the subject-matter of claim 7 but also that of claim 1.

Paragraph [0122] includes an "or" formulation which results in the disclosure of two different embodiments.

In the first embodiment, the coating is applied *"on at least part of the surface of the tubular element 12 [...] of the radiant tube support 10 and on at least part of the surface of the tubular element 22, 122 of the furnace side wall support 20, 120"*. This falls within the scope defined by claim 7 since a coating is applied on the tubular element of the radiant tube support.

In the second embodiment, the coating is applied "on at least part of [...] the protrusion 170 of the radiant tube support 10 and on at least part of the surface of the tubular element 22, 122 of the furnace side wall support 20, 120". This embodiment is encompassed by the subject-matter of claim 1 based on the presence of a protrusion in the anti-sticking means.

Consequently, there is no discrepancy between paragraph [0122] and the claims.

9. Conclusion

Taking into consideration the amendments made by the respondent during the appeal proceedings, the patent and the invention to which it relates meet the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent as amended in the following version:

Description:

Pages 2 to 6 and 8 of the patent specification

Page 7 received during oral proceedings of 14 June 2022

Claims:

1 to 14 according to auxiliary request 1B filed with the letter of 29 April 2022

Drawings:

Figures 1 to 13 of the patent specification

The Registrar:

The Chairman:



C. Spira

G. Patton

Decision electronically authenticated