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**Datasheet for the decision
of 13 February 2014**

Case Number: T 1341/11 - 3.2.03

Application Number: 98959574.9

Publication Number: 1049904

IPC: F27B9/02, F27B9/26, C04B33/32,
C04B35/64

Language of the proceedings: EN

Title of invention:
TUNNEL KILN FOR FIRING CERAMIC HONEYCOMB BODIES

Patent Proprietor:
Corning Incorporated

Opponent:
Riedhammer GmbH

Headword:

Relevant legal provisions:
EPC Art. 100(a), 100(b), 100(c), 56
EPC R. 80

Keyword:

- Sufficiency of description: yes
- Added subject-matter: no
- Main request and first auxiliary request: lack of inventive step of the method-claim
- Auxiliary requests 2 to 4: not allowable (amendments not occasioned by grounds of opposition)
- Auxiliary request 5: inventive step of the apparatus-claim (non-obvious modification)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1341/11 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 13 February 2014

Appellant: Corning Incorporated
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
21 April 2011 concerning maintenance of the
European Patent No. 1049904 in amended form.**

Composition of the Board:

Chairman: U. Krause
Members: Y. Jest
K. Garnett

Summary of Facts and Submissions

- I. By its decision posted on 21 April 2011 the opposition division maintained the European patent Nr. 1 049 904 in amended form on the basis of claims 1 to 7 of a second auxiliary request filed during oral proceedings on 24 March 2011.

In its interlocutory decision, the opposition division held that the grounds of added subject-matter not originally disclosed, of insufficiency of description, and of lack of novelty or inventive step raised by the Opponent against the apparatus of claim 1 of the second auxiliary request corresponding to claim 7 as granted did not prejudice the maintenance of the patent.

- II. The proprietor and the opponent each lodged appeals against this interlocutory decision and paid the appeal fees respectively on 30 and 16 June 2011. The statements of the grounds of appeal were submitted on 1 September 2011 by the proprietor and on 12 August 2011 by the opponent.

- III. At the end of the oral proceedings held on 13 February 2014 the parties made the following final requests:

The opponent (appellant I) requested that the decision under appeal be set aside and the patent be revoked.

The proprietor (appellant II) requested that the decision under appeal be set aside and the patent be maintained as granted (main request), alternatively in an amended form on the basis of one of the auxiliary requests 1 to 4, all filed with its grounds of appeal dated 31 August 2011, alternatively on the basis of

auxiliary request 5 filed during the oral proceedings, alternatively on the basis of auxiliary request 6 filed with its grounds of appeal dated 31 August 2011.

IV. The independent claims of the requests have the following wording:

Note:

The requests differ mainly from each other by amended versions of the method-claim (the respective amendments are distinguishable by added underlining).

The wording of the independent apparatus-claim (i.e. claim 7 of the main request and of auxiliary requests 2 and 4; claim 6 of auxiliary requests 1 and 3; claim 1 of auxiliary requests 5 and 6) remains unchanged and is therefore not repeated for each request.

a) Main request (as granted)

Claim 1:

"A method for the removal of carbonaceous material from a green ceramic honeycomb structural body containing a predetermined amount of raw materials, including an amount of a carbonaceous material, capable of yielding a fired honeycomb body, which comprises firing the green honeycomb structural body in a tunnel kiln in a firing atmosphere to a temperature and for a time sufficient to initiate and sufficiently achieve release of the carbonaceous material into the firing atmosphere, wherein at least a portion of the carbonaceous material is removed prior to reaction thereof within the firing atmosphere."

Claim 7:

"A tunnel kiln (10) for firing ceramic honeycomb structural body comprising a vestibule region (12), a carbonaceous material release region (14) having a plurality of removal zones (Z1 -Z11) and located downstream of the vestibule region, a sintering region (16) located downstream of the carbonaceous material release region and an exhaust removal system (18) operatively communicating with the removal zones of the release region for removing released carbonaceous material, the exhaust removal system including at least one offtake opening (20) located in the rooftop of the kiln within each removal zone for removing released carbonaceous material, the offtake openings operatively communicating with a secondary collector conduit (22) wherein each secondary collector conduit operatively communicates with a main collector conduit (24), the exhaust removal system further including a conduit reaction-suppression system comprising a temperature monitoring device and a system for introducing low oxygen gas into the main collector conduit and secondary collector conduit at temperatures above a predetermined temperature."

b) Auxiliary request 1:

Claim 1:

"A method ... *[having all the features of claim 1 as granted]*,
wherein the green ceramic honeycomb structural body is further heated for a time and a temperature sufficient to initiate and sufficiently achieve the conversion thereof into a fired honeycomb body."

c) Auxiliary request 2:

Claim 1:

"A method for the removal of carbonaceous material from a green ceramic honeycomb structural body in a tunnel kiln (10), the tunnel kiln comprising a vestibule region (12), a carbonaceous material release region (14) having a plurality of removal zones (Z1-Z11), and located downstream of the vestibule region, a sintering region (16) located downstream of the carbonaceous material release region and an exhaust removal system (18) which operatively communicates with the removal zones of the release region for removing released carbonaceous material, the green ceramic honeycomb structural body containing a predetermined amount of raw materials, including an amount of a carbonaceous material, capable of yielding a fired honeycomb body, which comprises firing the green honeycomb structural body in the carbonaceous material release region of the tunnel kiln in a firing atmosphere to a temperature and for a time sufficient to initiate and sufficiently achieve release of the carbonaceous material into the firing atmosphere, wherein at least a portion of the carbonaceous material is removed from the plurality of removal zones of the carbonaceous material release region by the exhaust removal system prior to reaction thereof within the firing atmosphere."

d) Auxiliary request 3:

Claim 1:

"A method ... *[having all the features of claim 1 of the auxiliary request 2],*

wherein the green ceramic honeycomb structural body is further heated for a time and a temperature sufficient to initiate and sufficiently achieve the conversion thereof into a fired honeycomb body."

e) Auxiliary request 4:

Claim 1:

"A method for the removal of carbonaceous material from a green ceramic honeycomb structural body in a tunnel kiln (10), the tunnel kiln comprising a vestibule region (12), a carbonaceous material release region (14) having a plurality of removal zones (Z1-Z11), and located downstream of the vestibule region, a sintering region (16) located downstream of the carbonaceous material release region and an exhaust removal system (18) operatively communicating with the removal zones of the release region for removing released carbonaceous material, the exhaust removal system including at least one offtake opening (20) located in the rooftop of the kiln within each removal zone for removing released carbonaceous material, the offtake openings operatively communicating with a secondary collector conduit (22), wherein each secondary collector conduit operatively communicates with a main collector conduit (24), the exhaust removal system further including a conduit reaction-suppression system comprising a temperature monitoring device and a system for introducing low oxygen gas into the main collector conduit and secondary collector conduit at temperatures above a predetermined temperature, the green ceramic honeycomb structural body containing a predetermined amount of raw materials, including an amount of a carbonaceous material, capable of yielding a fired honeycomb body, which comprises firing the green

honeycomb structural body in the carbonaceous material release region of the tunnel kiln in a firing atmosphere to a temperature and for a time sufficient to initiate and sufficiently achieve release of the carbonaceous material into the firing atmosphere, wherein at least a portion of the carbonaceous material is removed from the plurality of removal zones of the carbonaceous material release region by the exhaust removal system prior to reaction thereof within the firing atmosphere."

f) Auxiliary request 5:

Claim 1:

"A tunnel kiln (10)... *[having all the features of claim 7 as granted]*.

Claim 8:

"Use of the tunnel kiln of any of claims 1 to 7 for firing a ceramic honeycomb structural body."

g) Auxiliary request 6

The set of claims of auxiliary request 6 is identical to the set of claims of the second auxiliary request filed during the opposition proceedings and found to be allowable by the opposition division in its interlocutory decision.

V. Relevant state of the art:

D1 DE-C- 44 20 295

VI. The arguments presented by appellant I (opponent) can be summarized as follows:

a) Article 100(c) EPC

Granted independent apparatus-claim 7 contained an originally undisclosed generalisation so as to add fresh subject-matter because it was missing the features of originally filed claim 9, on which originally filed claim 10, - the features of which have been included in claim 7, was dependent. The replacement of the adjective "closed" in dependent claim 14 as originally filed by "closable" in corresponding claim 10 of the patent as granted changed the feature defining the operating mode of suspending carbonaceous material removal as originally filed and therefore infringed Article 100(c) EPC too.

b) Article 100(b) EPC

The last feature of independent claim 7 defining a conduit reaction-suppression system was not sufficiently described, nor was its operating mode. First, the expressions used such as "conduit reaction-suppression system" or "low oxygen gas" had no generally well established meaning. Second the predetermined temperature at which "low oxygen gas" was to be injected was not defined by the patent. Finally this feature resulted into an unsolvable conflicting situation between the object of the patent on one hand, namely releasing part of carbonaceous material via the secondary conduits to the exhaust outlet, and the effect of the "conduit reaction-suppression system" on the other, namely preventing the exhaust of said released carbonaceous material, because the introduction of low oxygen gas into the main and second collector conduits required the closing of the control valve 28 arranged in the main conduit, thereby forcing

any released carbonaceous material back into the tunnel kiln.

c) Method as granted: novelty and inventive step

The method of granted claim 1 for the removal of carbonaceous material from all types (see column 1, line 18) of green ceramic bodies was known in itself from D1. One could not expect the state of the art to disclose an exhaustive list of all possible structures applying to ceramic bodies. The skilled reader would further recognise that the method of D1 was particularly adapted for honeycomb bodies in which the release of carbonaceous material was enhanced by the high surface-mass ratio due to the given structure. The method of granted claim 1 thus lacked novelty or at least inventive step as compared to D1.

d) Apparatus as granted: inventive step

The apparatus defined in claim 7 of the patent as granted lacked inventive step as compared to D1. All the constructional features of the claimed tunnel with exception of the conduit reaction-suppression system were disclosed in D1. The kiln of D1 was obviously adapted for firing honeycomb ceramic bodies. According to a particularity of the arrangement of D1, the released carbonaceous material was burned in the combustion chamber 24 (comparable to the claimed main conduit) before being partially extracted (column 2, lines 56 to 59) or introduced back into the carbonaceous material release section 14 of the kiln. The additional treatment of the released carbonaceous material according to D1 could not provide a relevant distinguishing feature of the claimed device but would rather consist in an advantageous alternative solution.

The problem-solution approach therefore was not applicable. The method-step of introducing low oxygen gas was comparable to the injection into the combustion chamber 24 of combustion gases provided by the burner 26; the predetermined temperature at which said low oxygen gas was introduced into the main conduit 24 corresponding to the working temperature in the preheating area 14 of the kiln.

e) Auxiliary requests 1 to 5

The method-step added into claim 1 of the first auxiliary request was also known from D1 and did not render the claimed method new and/or inventive.

The amendments made to independent method-claim 1 in auxiliary requests 2 to 4 as well as the introduction of a use-claim (claim 8) in auxiliary request 5, some aspects of which were not unambiguously supported by the application as originally filed, did not constitute an appropriately adapted reaction to the grounds of opposition. Auxiliary requests 2 to 5 should not be allowed because they infringed at least Rule 80 EPC.

Furthermore the lack of inventive step of the apparatus defined by claim 7 as granted also applied to single independent claim 1 of auxiliary request 5 being identical in content and scope.

VII. Appellant II (proprietor) submitted essentially the following arguments:

a) Articles 100(b), (c) EPC

The definition of the apparatus in claim 7 as granted was supported by the application as originally filed

and the amendment made to granted dependent claim 10 did not introduce fresh subject-matter either. The ground of opposition under Article 100(c) EPC was thus not substantiated.

The apparatus of claim 7 as granted was sufficiently disclosed so as to enable a skilled person to perform the invention (Article 100(b) EPC). The provision of a conduit reaction-suppression system as claimed, including temperature monitoring means and gas injection means located between the main and secondary conduits, posed in itself no problem. It also did not contradict the general aim of the invention because it defined a safety system for preventing combustion of carbonaceous material within the conduits. This meant unambiguously for the skilled person that low oxygen gas was not continuously but only occasionally injected into the conduits.

b) Method as granted: novelty and inventive step

The method of granted claim 1 differed from D1 by the honeycomb structure of the green ceramic body to be treated. The skilled person would not have applied the method disclosed in D1 for removing carbonaceous material from a honeycomb body because D1 followed the object of optimising the firing process in terms of the heating energy to be supplied, which differed from the technical problem addressed in the patent, namely preservation of the integrity of the body structure by controlling the firing heat in the tunnel kiln. The method of granted claim 1 thus involved an inventive step.

c) Apparatus as granted: inventive step

The difference of the apparatus defined in claim 7 and the tunnel kiln disclosed in D1 consisted in three features:

- a plurality of released carbonaceous material removal zones;
- an exhaust system for the released carbonaceous material (instead of the recycling system characterising the apparatus of D1);
- a conduit reaction-suppression system for preventing combustion/fire within the conduits extracting the carbonaceous material.

The carbonaceous material released in the preheating area 14 of the kiln of D1 was not extracted and sent to an exhaust but reinjected into said area after combustion in the reactor chamber 24. The passage of column 2, lines 60 to 64 of D1 was ambiguous and referred to the exhaust of excessive fresh air rather than of carbonaceous material. The claimed conduit reaction-suppression system, comprising means for monitoring the temperature and means for injecting low oxygen gas into the main and secondary conduits, was missing in the apparatus disclosed in D1.

d) Auxiliary requests 1 to 5

The addition of the features of granted claim 3 into the method-claim of the first auxiliary request defined the process as a whole and thus made clear that, contrary to the method of D1, all released carbonaceous material was removed.

The additional features defining the apparatus to be used for performing the claimed method according to auxiliary requests 2 to 4 introduced at least

implicitly further distinguishing method steps relating to the full exhaust removal of carbonaceous material as well as to the prevention of combustion within the conduits, thanks to the reaction-suppression system.

In auxiliary request 5 a use-claim of the claimed apparatus (claim 8) replaced the method-claim of the previous requests.

Auxiliary requests 2 to 5 therefore fulfilled the requirements of rule 80 EPC.

VIII. At the end of the oral proceedings on 13 February 2014 the board pronounced its decision.

Reasons for the Decision

1. The appeals are admissible.
2. Article 100(b)/83 EPC

The ground of opposition under Article 100(b) EPC has been dealt with by the opposition division and addressed in the contested interlocutory decision. Therefore it lies within the scope of the issues to be decided on in the appeal proceedings.

The board does not share the appellant's analysis concluding that there is an unsolvable conflicting situation between releasing part of carbonaceous material on one hand and introducing low oxygen gas into the main and second collector conduits and thus stopping releasing material on the other hand.

The skilled person understands from the description ([0035] and [0036]) that the conduit reaction-suppression system functions as an emergency or safety device for preventing combustion of extracted carbonaceous gases within the conduits leading to exhaust. A safety arrangement is not meant to be operated permanently but is activated only when the measured temperature exceeds a predetermined value at which self-combustion may occur and can be stopped as soon as said critical situation is remedied. The person skilled in the art has no difficulty at all in providing an adequate device for monitoring the temperature as well as a system for introducing a low oxygen gas for reproducing the teaching of claim 7 and thus for arriving at the tunnel kiln as defined in the patent.

So far as concerns the operating mode of such a system as explained in the description, it can be agreed with appellant I that the valve 28 of the main conduit, which is normally open for continuous removal of released material, will have to be closed when the temperature in the conduits exceeds a maximum value and to remain closed during the injection of low oxygen gas for preventing burning of material within the conduits. In this context the term "low oxygen gas", which in any case was already present in granted claim 7, can be clearly determined as defining a gas having such a low oxygen content as to prevent the combustion of the released carbonaceous material at the predetermined temperature. Examples are given in lines 36 to 38 of column 8 of the patent as granted.

This operational mode of the arrangement, which actually stops the exhaust of released carbonaceous material and may even cause it to be reintroduced back into the tunnel kiln, applies only for safety reasons and is obviously limited in time.

The board cannot recognise herein any conflicting opposite requirements of the claimed apparatus as argued by appellant I.

The subject-matter of the invention as claimed in the patent is therefore sufficiently described in the meaning of Article 100(b)/83 EPC.

3. Main request

3.1 Article 100(c) EPC

3.1.1 Independent claim 7 as granted

Granted independent apparatus-claim 7 is based on the combination of originally filed claims 1, 2, 4, 5, 7, 10 and 11, whereby originally filed claim 10 was dependent on claim 9.

The board considers that the formal dependency between originally filed claims 9 and 10 is not to be interpreted as an indissociable interrelation between the exhaust fan defined in claim 9 and the conduit reaction-suppression system characterising claim 10. It is to be noted that various dependencies of the dependent claims of the originally filed set of claims were obviously incorrect; for instance claim 4 defining the location of the offtake opening should not have referred directly to claim 1 but to dependent claim 2, the latter introducing for the first time the feature of an offtake opening. Another illustration can be found in the dependency of originally filed claim 9, which was dependent solely on claim 7, although it should obviously have referred to claim 8. Furthermore, the skilled person would have considered that both features, namely the exhaust fan of claim 9

and the conduit reaction-suppression system of claim 10, concern individual and separate further developments of the previously defined kiln. In fact, the description of the operation of the reaction-suppression system as described on page 11, second paragraph of the original application makes no reference to an exhaust fan. Rather, it refers to the main (collector) damper valve, as claimed in original claim 8 on which, however, original claim 10 does not depend.

The omission of the features of originally filed claim 9 in the apparatus-claim 7 of the main request (and of corresponding claim 1 of the fifth auxiliary request) is therefore supported by the originally filed application. Thus the subject-matter of claim 7 as granted does not comprise an undisclosed generalisation and does not infringe the requirements of Article 100(c) EPC.

3.1.2 Dependent claim 10 as granted

The definition of the relevant feature in granted claim 10 has been amended as compared to corresponding dependent claim 14 as originally filed. The teaching of the claimed feature remains however substantially unchanged. In the context of the general disclosure of the invention, the board considers that both adjectives characterising the position of the control valve during the phase of suspending carbonaceous material removal, namely "closable" and "closed", are technically wholly equivalent.

The amended wording of the characterising feature of dependent claim 10 as granted (and corresponding claim 4 of the fifth auxiliary request) as compared to claim

14 as originally filed does therefore not contravene Article 100(c) EPC.

3.2 Article 100(a) EPC - Method-claim 1

3.2.1 The method disclosed in D1 concerns the firing of green ceramic structural bodies containing a predetermined amount of raw materials, including an amount of a carbonaceous material, in a tunnel kiln 10. According to the firing process of D1 the ceramic green body is heated or preheated before sintering: see column 1, lines 11 to 16 and column 3, lines 16 to 21.

In a preheating area 14 of the tunnel kiln 10, the green ceramic body is fired in a firing atmosphere to a temperature and for a time sufficient to initiate and sufficiently achieve release of the carbonaceous material into the firing atmosphere: see column 1, lines 59 to 64 and feature 1.2 of claim 1. By removing at least a portion of the carbonaceous material released from the green ceramic body, reaction thereof can be prevented within the firing atmosphere during sintering: see column 1, lines 27 to 38.

At column 1, lines 17 to 21, it is stated in D1 that the ceramic structured bodies concerned by the process of the invention comprise all types of ceramic structures. The specific embodiment of a honeycomb structure is however not explicitly disclosed.

3.2.2 Therefore the claimed method differs from said state of the art disclosed in D1 by the honeycomb structure of the green ceramic body to be fired and meets the requirement of novelty within the meaning of Article 54(2) EPC.

3.2.3 The method known from D1 is fully adapted to be applied to a ceramic body having a honeycomb structure

especially since the high ratio surface/mass of a honeycomb structure enhances release of the binder and carbonaceous materials contained in the green ceramic body.

The fact that D1 follows the main object of optimising the firing process in terms of heating energy to be supplied as argued by appellant II, does not alter other merits of the method defined in D1. The extraction of released carbonaceous material from the preheating area of the tunnel kiln of D1, as analysed above, obviously also enables the preservation of the integrity of the body structure by controlling the firing heat in the sintering section of the tunnel kiln.

The board is thus persuaded that the skilled person would have applied the method disclosed in D1 for firing a ceramic body having a honeycomb structure and thus for removing carbonaceous material therefrom. The method of granted claim 1 thus lacks an inventive step within the meaning of Article 56 EPC.

4. Auxiliary request 1 - Method-claim 1

The characterising features of dependent claim 3 as granted, which are comprised in the amended method-claim 1 of the first auxiliary request, are known from D1 in combination with the features of granted claim 1 (see column 1, lines 11 to 16) and can therefore add nothing inventive to the method.

Contrary to the assertion of appellant II, the method defined in claim 1 of the first auxiliary request cannot be interpreted as being limited as a whole to the two claimed method-steps (preheating, final heating). The whole firing process of ceramic bodies

comprises several additional steps such as for instance cooling down the fired bodies. Claim 1 of the first auxiliary request can thus not be further distinguished over D1 by the absence of any combustion step.

5. Auxiliary requests 2 to 4 - Rule 80 EPC

In the independent method-claim (claim 1) of each of the auxiliary requests 2 to 4, features characterising the apparatus in which carbonaceous material is removed from a green ceramic body have been incorporated into claim 1 as granted or claim 1 of the first auxiliary request. In other terms, no further method-step has been added to the method as claimed in the granted patent or in the first auxiliary request.

The question whether some constructional details of the tunnel kiln, in which a green ceramic body is fired and from which carbonaceous material is removed, may provide a further distinction of the method is in the current case to be answered negatively.

For instance the presence of a conduit reaction-suppression system in the tunnel kiln in which the ceramic body is treated does not imply that the claimed method must comprise a corresponding method-step in the form of monitoring a temperature and of introducing a low oxygen gas into conduits of the kiln when the monitored temperature exceeds a predetermined value. More generally and independently of that, the board considers that this type of amendment of a method-claim, i.e. the addition of constructional features to an apparatus in which a product is to be treated, can cause major clarity issues, because it cannot be determined in a clear and objective manner what method-step is actually derivable from a given constructional feature. This is the case with the present amendment.

If a method of the patent in dispute is to be distinguished from a process known in the state of art (in the present case, D1), it should contain explicit and unambiguous features by which additional and distinguishing method-steps are defined.

It follows from this consideration that the amendments made to the independent method-claim according to the auxiliary requests 2 to 4 do not provide an adequate basis for meeting the ground of opposition under Article 56 EPC raised against claim 1 as granted or claim 1 of the first auxiliary request. Auxiliary requests 2 to 4 thus contravene the requirements of Rule 80 EPC and are therefore unallowable.

6. Auxiliary request 5

6.1 Amendments - Article 100(c) EPC - Rule 80 EPC

6.1.1 The set of claims of the fifth auxiliary request is limited to the apparatus-claims as granted with claim 1 corresponding to claim 7 as granted. The method-claims of the patent as granted have been deleted and replaced by use-claim 8, which is supported by the application as originally filed.

The description of the patent specification has merely been adapted to the amended definition of the invention as set out in the claims.

These conclusions are not disputed.

6.1.2 The requirement of Rule 80 EPC is also fulfilled by the fifth auxiliary request since use-claim 8 is not newly introduced but is merely a replacement of the method-claim as granted and belongs to the same category.

6.1.3 The amended documents of the patent according to auxiliary request 5 thus meet the requirements of the EPC, in particular of Article 123 EPC and Rule 80 EPC.

6.2 Novelty - Inventive step

6.2.1 Apparatus - State of the art D1

From D1 is known a tunnel kiln 10 for firing ceramic body comprising a vestibule region ("Eingang"), a heating area 14 ("Aufheizzone") located downstream of the vestibule region and a firing area 16 ("Brennzone") located downstream of the heating area: see column 1, lines 11 to 16. By analogy to the previous discussion with regard to the method claimed in the patent as granted, the tunnel kiln of D1 is perfectly suitable for firing a green ceramic body having a honeycomb structure. Within the heating area 14 of the tunnel kiln 10 of D1, binders and/or carbonaceous materials contained in the green ceramic body get partly released: see column 1, lines 59 to 64, claim 1 and the figure. The heating area 14 of the tunnel kiln 10 comprises a plurality of removal zones (see figure and column 1, line 60: "mehreren") for removing released gaseous material, including carbonaceous material, from the heating area 14 through conduits 22 (see also claim 1, feature 1.2).

The removed carbonaceous material is then sent to a combustion chamber 24 located externally of the tunnel kiln 10 and fired by a independent burner 26. According to the description at column 2, lines 60 to 64, part of released carbonaceous material is withdrawn from said combustion chamber 24 and sent to an exhaust chimney for removal. The information of said passage of the description is not ambiguous for the skilled person in the sense that the term "Überschußluft" clearly refers

to exhaust gases and cannot mean an excess of fresh air as argued by appellant II. This can be readily ascertained when referring to the conduit 28 which is denominated as "Heissluftleitung" (hot air conduit) although combustion gases are passing therethrough.

The apparatus of D1 thus comprises an exhaust removal system as defined in claim 1, namely a system including:

- at least one offtake opening located in the rooftop (this location is considered by the board to be implicitly known from D1 because the material to be extracted is in the gaseous phase) of the kiln for each removal zone for removing released carbonaceous material,
- the offtake openings operatively communicating with a secondary collector conduit 22 wherein each secondary collector conduit operatively communicates with a main collector conduit (combustion chamber 24 and (hot air) conduit 28).

6.2.2 The apparatus of claim 1 differs from D1 by the additional feature defining a conduit reaction-suppression system comprising a temperature monitoring device and a system for introducing low oxygen gas into the main collector conduit and secondary collector conduit at temperatures above a predetermined temperature.

In this respect, the board considers that, contrary to the comparison suggested by appellant I, the apparatus disclosed in D1 comprises neither a system for monitoring the temperature to be monitored nor means for introducing a low oxygen gas into the main collector.

The combustion gases introduced by the burner 26 into the combustion chamber 24 do not corresponded to the claimed low oxygen gas to be introduced into the main collector conduit

for the reason that in the patent the introduction of low oxygen gas is a safety measure for preventing uncontrolled combustion of the released carbonaceous material being conveyed by the main and secondary collector conduits when the monitored temperature exceeds a predetermined value, whereas forced combustion of the released carbonaceous material is continuously applied in the combustion chamber (compared to the main collector conduit by appellant I) according to D1.

But even then part of the distinguishing feature would still be missing, namely the introduction of low oxygen gas not only into the main collector conduit but also into the secondary collector conduits as claimed. The combustion exhaust gases delivered by burner 26 into the combustion chamber 24 are obviously not to be introduced into the collector conduits 22.

6.2.3 Apparatus - Non-obvious difference

The conduit reaction-suppression system as claimed is not known per se from the cited available prior art.

The skilled person has thus no reason to depart from the combustion system characterising the apparatus claimed in D1 and to replace it by a safety system according to the patent under dispute. Such an alteration is not within the range of normal activity of the skilled person using his general knowledge.

Claim 1 of the fifth auxiliary request thus meets the requirements of Article 100(a)/52(1) EPC.

6.2.4 Use-claim

The apparatus being novel and inventive, the particular use of the apparatus as defined in claim 8 meets this requirement of the EPC too.

7. Auxiliary request 6

Since the amended documents of auxiliary request 5 fulfill the requirements of the EPC, an examination of further auxiliary request 6 is not necessary.

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 on the basis of:
 - (a) Claims 1 to 8 according to auxiliary request 5 filed during the oral proceedings before the board of appeal;
 - (b) The amended description pages numbered 2 to 6 as filed during the said oral proceedings; and
 - (c) Figures 1 to 3 as granted.

The Registrar:

The Chairman:



C. Spira

U. Krause

Decision electronically authenticated