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Datasheet for the decision of 26 January 2015

Case Number: T 0732/12 - 3.3.05

Application Number: 06841115.6

Publication Number: 1973640

IPC: B01J8/02

Language of the proceedings: EN

Title of invention:
APPARATUS FOR PRODUCING SYNTHESIS GAS

Patent Proprietor:
CASALE SA

Opponent:
Linde AG

Headword:
GAS SYNTHESIS REACTOR/CASALE

Relevant legal provisions:
EPC Art. 54(1), 54(2)

Keyword:
Novelty - main and auxiliary request (no) - implicit disclosure of a feature

Decisions cited:

Catchword:

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Case Number: T 0732/12 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 26 January 2015

Appellant: (Patent Proprietor)	CASALE SA Via Giulio Pocobelli 6 6900 Lugano (CH)
Representative:	Zardi, Marco M. Zardi & Co. SA Via Pioda 6 6900 Lugano (CH)
Respondent: (Opponent)	Linde AG Klosterhofstrasse 1 80331 München (DE)
Representative:	Linde AG Legal Services Intellectual Property Dr.-Carl-von-Linde-Strasse 6-14 82049 Pullach (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 24 January 2012 maintaining European patent No. 1973640 in amended form.**

Composition of the Board:

Chairman	G. Raths
Members:	J.-M. Schwaller
	C. Vallet

Summary of Facts and Submissions

I. The present appeal lies from the interlocutory decision of the opposition division maintaining European patent No. 1 973 640 in amended form on the basis of the claims according to the auxiliary request, independent claim 1 of which read as follows:

"*1. Apparatus (1) for producing synthesis gas comprising a substantially cylindrical shell (2) closed by opposite bottoms (3, 4), at least one inlet opening (8) for feeding a gaseous flow comprising oxygen, at least one inlet opening (7) for a gaseous flow comprising hydrocarbons and at least one outlet opening for a flow of synthesis gas and at least one burner (9) in fluid communication with a reaction chamber (15) for partially oxidising and/or reforming said hydrocarbons obtaining said flow of synthesis gas, the apparatus being characterised in that it comprises a pipe (12) of a ceramic material* ***having a thickness of between 5 and 50 mm*** *extended inside said shell (2), said pipe (12) of ceramic material internally defining said reaction chamber (15).*"

II. In the contested decision, the opposition division held the subject-matter of claim 1 as granted - which lacked the text highlighted in bold above - read as follows:

"*1. Apparatus (1) for producing synthesis gas comprising a substantially cylindrical shell (2) closed by opposite bottoms (3, 4), at least one inlet opening (8) for feeding a gaseous flow comprising oxygen, at least one inlet opening (7) for a gaseous flow comprising hydrocarbons and at least one outlet opening for a flow of synthesis gas and at least one burner (9) in fluid communication with a reaction chamber (15) for*

partially oxidising and/or reforming said hydrocarbons obtaining said flow of synthesis gas, the apparatus being characterised in that it comprises a pipe (12) of a ceramic material extended inside said shell (2), said pipe (12) of ceramic material internally defining said reaction chamber (15)."

to lack novelty over the reactor for gasification of black liquors disclosed in document

E4: US 5 407 455.

In its decision, the opposition division held claim 1 as granted to be novel over the reactor disclosed in document

E1: WO 2004/098766

because the porous foam and/or fibre structure isolation on the reactor wall could not be considered to be a ceramic pipe defining the reaction chamber.

III. With its statement setting out the grounds of appeal dated 4 June 2012, the patent proprietor ("the appellant") contested the admissibility and the relevance of document E4. Further, it submitted an amended set of claims 1 to 30 as an auxiliary request, with claims 1 to 15 being those of the patent as maintained by the opposition division, and claims 16 to 30 corresponding to claims 1 to 15 as granted but rewritten in the "use" form.

Independent claim 16 of the auxiliary request reads as follows:

"*1. **Use of** an apparatus (1) for producing synthesis gas, **wherein the apparatus** comprise**s** a substantially cylindrical shell (2) closed by opposite bottoms (3, 4), at least one inlet opening (8) for feeding a gaseous flow comprising oxygen, at least one inlet opening (7) for a gaseous flow comprising hydrocarbons, at least one outlet opening for a flow of synthesis gas, at least one burner (9) in fluid communication with a reaction chamber (15) for partially oxidising and/or reforming said hydrocarbons obtaining said flow of synthesis gas, and a pipe (12) of a ceramic material extended inside said shell (2), said pipe (12) of ceramic material internally defining said reaction chamber (15).*"

IV. Following the summons to oral proceedings, the opponent ("the respondent") declared that it would not be attending the oral proceedings.

V. At the oral proceedings, which took place on 26 January 2015, the novelty issue was extensively discussed in the light of documents E1 and E4.

VI. After closure of the debate, the chairman established the parties' requests as follows:

The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted or, alternatively, that the patent be maintained in amended form on the basis of the claims of the auxiliary request dated 4 June 2012.

The respondent did not file any requests during the appeal proceedings.

Reasons for the Decision

1. Main request - novelty

1.1 For the board, the disclosure of document E1 destroys the novelty of the subject-matter of claim 1 as granted in the following respects.

E1 (page 1, lines 3 to 6) discloses a device for reacting streams of gas at temperatures exceeding 1000°C. The production of synthesis gas by partial oxidation of hydrocarbons is in particular disclosed at page 6, lines 4 and 5 or in claim 25. E1 (page 2, lines 6 to 9) further discloses that the reactor wall should have low heat conduction in order to reduce heat loss, and that it should withstand high temperatures between 1500 and 2000°C. Therefore, it is proposed to thermally insulate the reaction chamber with a layer having a porous foam and/or fibre structure. In the specific reactors illustrated in Figures 2 and 3, the inner wall surface in contact

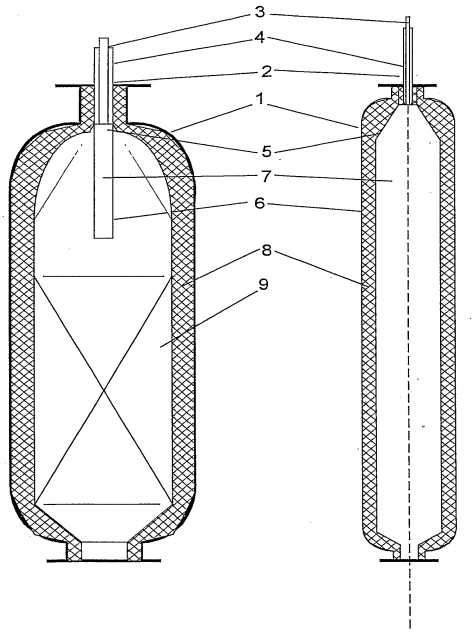

Fig. 2 Fig. 3

with the reaction space is in particular coated with a high-temperature heat-insulating layer (8) advantageously made of an alumina foam.

The reactor according to E1 furthermore has a cylindrical shell (1), an inlet opening (3) for feeding the oxidant, an inlet opening (4) for feeding the fuel, and a burner (2) in fluid communication with the reaction chamber (7) (see E1: page 7, lines 9 to 30).

From Figures 2 and 3 above it is furthermore clear that the high-temperature heat-insulating layer (8) has the form of a "pipe internally defining the reaction chamber".

It follows from the above considerations that E1 discloses all the structural features of the reactor defined in claim 1 as granted.

1.2 The appellant argued that the claimed subject-matter was novel over the disclosure of E1.

Claim 1 as granted required a ceramic material, whereas E1 disclosed a porous and/or fibrous structure that was extremely porous and had a low density. According to the appellant this was not a ceramic material, because according to E1 the gas would enter the porous structure, whereas according to the patent in suit the gas would just flow along the smooth surface of the pipe through the ceramic pipe.

1.3 The point at issue dealt with the question whether E1 disclosed a "ceramic material".

1.4 The board refers to paragraph [0039] of the patent:

"*... the inner surface of the ceramic pipe* ***can*** *be subjected to a vitrification to eliminate surface porosity.*"

It results from this passage that the claimed ceramic can be porous, but if not, a vitrification process would make no sense.

Moreover, claim 1 at issue is not limited to any specific kind of ceramic, let alone to a high-density and/or non-porous ceramic.

The board now turns to document E1 and to the material of the high-temperature heat-insulating layer (8), in particular the alumina foam disclosed at page 7, lines 28 and 29 of E1.

The question to be answered is whether this material is a "ceramic material".

For the board, there is no doubt that this material is implicitly a "ceramic material" because:

- on the one hand, the material at issue is supposed to withstand temperatures up to 2000°C (E1: page 2, lines 6 to 8)

- on the other hand, it is described as being in particular Al_2O_3, SiO_2 and/or ZrO_2 (E1: page 4, lines 5 to 6) or even more specifically an alumina foam (E1: page 7, lines 28 and 29).

For the skilled person, these two conditions imply directly and unambiguously that the material has to be a "ceramic material" within the meaning of claim 1 as granted.

Therefore claim 1 as granted lacks novelty under Article 54(1) and (2) EPC.

1.5 It follows that the main request is not allowable.

2. Auxiliary request - novelty

The subject-matter of claim 16 of this request relates to the "use of an apparatus for producing synthesis gas" with the apparatus corresponding mutatis mutandis to the apparatus of claim 1 as granted.

As explained in point 1.1 above, the production of synthesis gas is one of the potential uses of the reactor disclosed in E1 (see page 6, lines 4 and 5 or claim 25). The other features of claim 16, namely the features of the apparatus according to claim 1 as granted, being also disclosed in combination in document E1 (see in this respect points 1.1 to 1.4 above), it follows that the subject-matter of claim 16 is also not novel.

Claim 16 of this request therefore does not meet the requirements of Article 54(1) and (2) EPC. In consequence, the auxiliary request is also not allowable.

3. Since the interlocutory decision of the opposition division to maintain the patent in amended form has not been contested by the respondent, the principle of *reformatio in peius* applies, so that the decision of the opposition division becomes final.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Vodz G. Raths

Decision electronically authenticated