

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 15 October 2010**

Case Number: T 0032/08 - 3.2.03

Application Number: 00201097.3

Publication Number: 1043557

IPC: F25J 3/04

Language of the proceedings: EN

Title of invention:

Integrated air separation plant and power generation system

Patentee:

L'AIR LIQUIDE, Société Anonyme pour l'Etude et l'Exploitation
des Procédés Georges Claude

Opponent:

LINDE AKTIENGESELLSCHAFT

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56

Relevant legal provisions (EPC 1973):

-

Keyword:

"Novelty (yes)"
"Inventive step (no)"
"Obvious error (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0032/08 - 3.2.03

DECISION
of the Technical Board of Appeal 3.2.03
of 15 October 2010

Appellant:
(Opponent)

LINDE AKTIENGESELLSCHAFT
Abraham-Lincoln-Strasse 21
D-65189 Wiesbaden (DE)

Representative:

Imhof, Dietmar
Linde AG
Patente und Marken
Dr. Carl-von-Linde-Str. 6-14
D-82049 Pullach (DE)

Respondent:
(Patent Proprietor)

L'AIR LIQUIDE, Société Anonyme pour l'Etude et
l'Exploitation des Procédés Georges Claude
75 Quai d'Orsay
F-75007 Paris (FR)

Representative:

Mercey, Fiona Susan
L'Air Liquide
Service Brevets et Marques
75, quai d'Orsay
F-75321 Paris Cédex 07 (FR)

Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 6 November 2007
rejecting the opposition filed against European
patent No. 1043557 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: U. Krause
Members: C. Donnelly
K. Garnett

Summary of Facts and Submissions

- I. The appeal lies from the decision of the opposition division dated 6 November 2007 rejecting the opposition against European Patent No.1043557.
- II. The opponent (hereinafter: "the appellant") filed a notice of appeal on 28 December 2007 and paid the fee the same day. The grounds of appeal were received on 17 March 2008.
- III. The patentee (hereinafter "the respondent") replied to the appeal by letter of 3 October 2008.
- IV. The appellant referred to the following state of the art in its grounds:

E1: US-A-4557735;

E2: US-A-5386686;

E3: US-A-5081845;

E7: EP-A-357299 (renumbered by the Board);

E8: EP-B-384483 (renumbered by the Board).

Documents E7 and E8 were not cited during opposition proceedings and were introduced at the appeal stage. Documents E7 and E8 were renumbered by the board to avoid confusion since the designations E4 and E5 used by the appellant had already been assigned to different documents in the impugned decision.

- V. In a communication dated 28 June 2010, pursuant to Article 15(1) RPBA annexed to the summons to oral proceedings, the board informed the parties of its provisional opinion. In particular, the board indicated

that documents E2 and E7 appeared relevant to the question of whether the subject-matter of claim 1 as granted lacked novelty since both showed further gas streams consisting of blast-furnace or Corex gases.

- VI. Oral proceedings were held on 15 October 2010. At the end of the debate the parties confirmed the following requests:

Appellant: that the decision under appeal be set aside and that the European Patent No. 1043557 be revoked.

Respondent: that the decision under appeal be set aside and the patent maintained on the basis of the first auxiliary request filed during the oral proceedings.

- VII. Claim 1 according to the first auxiliary request filed during the oral proceedings and constituting the sole request maintained by the respondent reads as follows:

"An integrated air separation process using an air separation unit (1,100) and an expander (21,150), comprising the steps of sending air to the air separation unit, sending a nitrogen enriched stream from the air separation unit to a point upstream of the expander, and sending at least one further gas stream (5,24,31,180) other than a fuel stream to a point upstream of the expander to form a mixture with the nitrogen enriched stream, sending the gaseous mixture to the input of the expander (21) or sending the gaseous mixture to the input of a combustor (160) of an expander (150) of a gas turbine, the at least one further gas (5,24,31,180) containing at least 25mol.% oxygen and/or at least 2 mol.% argon and/or at least 10

mol% carbon dioxide and wherein the at least one further gas is a gas produced by the air separation unit, the at least one further gas containing at least 70mol.% oxygen and/or at least 30 mol.% argon and/or a gas derived from a plant fed by a fluid from the air separation unit, the at least one further gas containing at least 90mol.% carbon dioxide."

VIII. The arguments of the parties relative to the decision can be summarised as follows:

(a) Appellant

The subject-matter of claim 1 according to the first auxiliary request is not new or at least not inventive in view of the teachings of E2.

(b) Respondent

E2 includes an error of translation in column 2, line 66 where it can be read that there is an additional flow of impure oxygen to the combustion line. However, the original French text of the priority document E4 which states on page 3, lines 29 to 31 which refers to "*un débit additionnel d'azote impur dans la ligne de combustion*" (an additional flow of impure nitrogen to the combustion line).

Further, the skilled person reading the whole of E2 learns that the composition of a mixture to be added to a fuel gas may be varied by adding gaseous nitrogen (see column 2, lines 59 to 60, column 3, lines 62 to 68 and claim 3). If it were the case that oxygen were mentioned for the first time in column 2, this would

not make sense to the skilled reader, who would understand that the last paragraph of column 2, starting with the word "Thus", restates what has previously been said rather than introducing new features.

Thus, the skilled reader will understand that the word "oxygen" in column 2, line 66 should read "nitrogen" and E2 does not disclose the sending of an oxygen enriched stream to the gas turbine.

Reasons for the decision

1. *Novelty, Inventive step, Articles 54 and 56 EPC*

1.1 The appellant argued that E2 fully anticipated or at least rendered obvious the subject-matter of claim 1 according to the first auxiliary request.

1.2 In the board's view E2 describes:

an integrated air separation process using an air separation unit (7) and an expander (3), comprising the steps of sending air to the air separation unit (7), sending a nitrogen enriched stream (9) from the air separation unit (7) to a point (6) upstream of the expander (3), and sending at least one further gas stream other than a fuel stream to a point ("combustion line" - see column 2, line 66) upstream of the expander (3), the at least one further gas containing at least 70mol.% oxygen (i.e. "impure oxygen" - see column 2, line 66).

1.3 However, the skilled person reading E2 is not explicitly informed as to where the impure oxygen comes from nor as to exactly where it should be fed into the combustion line 5.

1.4 Thus, the subject-matter of claim 1 is new and differs from the process disclosed in E2 by the steps of:

the at least one further gas forming a mixture with the nitrogen enriched stream,
sending the gaseous mixture to the input of the expander or sending the gaseous mixture to the input of a combustor of an expander of a gas turbine wherein the at least one further gas is a gas produced by the air separation unit.

1.5 The skilled person faced with the problem of providing the required impure oxygen supply to the combustion line would look no further than the air-separation unit 7 since this is shown as having "at least one other outlet 10 to 13 for an air gas" (see abstract and column 2, lines 56) and inevitably produces impure oxygen as a consequence of separating air. It would also be an obvious choice to feed this supplementary oxygen into the enriched nitrogen line leaving the compressor 21 before being fed into the combustion chamber 6 since this is where the gaseous fuel 24 is supplied. Selecting such a point would allow the basic requirements for good combustion to be obtained by ensuring complete mixing of the gases before entry into the combustion chamber and permitting adjustment of the stoichiometric balance of the feed as a function of the composition of gaseous fuel actually supplied which can vary widely (see column 3, lines 42 to 46).

- 1.6 The respondent has argued that the skilled person would recognise that the sentence at column 2, lines 65 to 66 of E2 reading "supplying an additional flow of impure oxygen to the combustion line" is an error and would understand that "impure nitrogen" is meant. This is said to be borne out by the corresponding passage in E4 which is the French priority document for E2, where mention is made at page 3, line 29 of "*un débit additionnel d'azote impur*" (i.e. an additional flow of impure nitrogen).
- 1.7 However, the board considers that, taking E2 by itself, the skilled person would not inevitably come to the conclusion that there is an error since the supply of impure oxygen to the combustion line in the installation described in E2 could make technical sense in some circumstances. Indeed, as has been shown above, when faced with the problem of implementing such a characteristic the skilled person would arrive at one embodiment of the claimed invention in an obvious manner. It may be that this a matter of the feature being found in translation, but this does not detract from the teaching of E2 as made available to the public nor the conclusions that the skilled person would draw from it.
- 1.8 The respondent's argument that the skilled person would recognise that "impure nitrogen" was meant instead of "impure oxygen" since the paragraph containing the term started with the word "Thus..." is also not convincing. The text preceding this word in column 2, lines 57 to 60 refers to selective and alternative connections of the inlet of the ASU rather than to the supply of its

outlets to the combustor or expander of the gas turbine group. Therefore, it cannot be understood as restating what has previously been said even if the term "impure oxygen" is replaced with "impure nitrogen".

- 1.9 Thus, the subject-matter of claim 1 according to the sole request maintained by the respondent does not meet the requirements of Article 56 EPC since it does not involve an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

Registrar:

Chairman:

A. Counillon

U. Krause