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D E C I S I O N
of 17 November 2000

Case Number: T 0962/99 - 3.2.4

Application Number: 92300767.8

Publication Number: 0500226

IPC: A24B 3/18

Language of the proceedings: EN

Title of invention:
Improved method and apparatus for expanding cellular materials

Patentee:
Airco Diet

Opponent:
British-American Tobacco (Investments) Limited

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 123, 114(2)

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
T 0951/91, T 0534/89, T 0611/90, T 0472/92, T 0097/92

Catchword:
-

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Case Number: T 0962/99 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 17 November 2000

Appellant: (Opponent)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 28 July 1999 concerning maintenance of European patent No. 0 500 226 in amended form.**

Composition of the Board:

Chairman: C. A. J. Andries
Members: R. E. Gryc
C. Holtz

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal, received at the EPO on 24 September 1999 against the interlocutory decision of the Opposition Division, dispatched on 28 July 1999, which maintained the patent No. 0 500 226 in an amended form. The appeal fee was paid simultaneously and the statement setting out the grounds of appeal was received at the EPO on 6 December 1999.

II. Opposition was filed against the patent as a whole and based on Article 100(a) and (b) EPC. The Opposition Division held that the grounds for opposition cited in Article 100(a)and (b) EPC did not prejudice the maintenance of the patent in the amended version submitted finally as the sole request during the oral proceedings before the first instance, having regard in particular to documents:

D1: US-A-4 165 618,

D3: GB-A-1 444 309 and

D4: GB-A-1 484 536.

III. In his statement setting out the grounds of appeal, the appellant pointed out that the interpretation given by the respondent to the term "independent" used in claim 11 (i.e. absence of connection) is contradicted by the fact that, on the apparatus according to the invention, a connection can be established between the sources of purging and pressurising gas (accumulators 56 and 62) and the process vessel (12) by opening valves 38,42,54 and 60.

The appellant acknowledged that claim 1 was novel. However he contended that the problem of providing a separate gas source was already known and solved and that it was commonplace, even in the context of liquid CO_2 impregnation of tobacco, for the source of liquid CO_2 in a process vessel to be an independent storage vessel of liquid CO_2.

He was of the opinion that, starting from D4, there is nothing new or inventive about the fact of providing a separate liquid CO_2 supply for the process vessel since D4 already teaches (see D4: page 2, lines 84 to 90) that CO_2 residue gas may be returned to a suitable container whereas liquid CO_2 is recycled to another suitable container.

The appellant contended also that the respondent was inventing a non-existent problem since the actual loss of liquid CO_2 and the amount of heating were small and would not disrupt the equilibrium balance in the process vessel.

According to the appellant, the separation of liquid CO_2 and gaseous CO_2 for supply, recovery and subsequent re-use was already done and described in detail in 1983 to visitors of the DIET plant in Corby and said prior use, combined either with the common general knowledge of D3 and D4 or with the teaching of D1, would deprive claims 1 and 11 of inventive step.

To support the alleged public prior use at Corby, the appellant filed in particular the following new documents:

D8: Declaration by Michael Butler dated 3 December

1999

D9: Declaration by Stephen Ross Hemsley dated 13 October 2000

D10: CO_2 process cycle flow charts at the Corby DIET plant (Exhibits 1a-f).

D11: Mimic diagram of the CO_2 process at the Corby plant (Exhibit 2).

The respondent (patentee) considered that D1 could be taken as closest prior art. He pointed out that, in the installation of D1, a transfer of liquid cryogen from the intermediate vessel to the process vessel takes place automatically when the level of liquid cryogen in the process vessel drops so that the intermediate vessel, which is also the source of the purging and pressurizing gas, cannot be considered as independent (in the meaning of the invention) of the liquefied inert gas contained in the process vessel.

The respondent also contended that:

- a combination of documents D 1 and D4 could not lead to the subject-matter of claim 1 since D4 gives no hint in the direction of the invention, and

- the alleged public prior use should be disregarded because the corresponding facts and evidences were not submitted in due time although the opponent was aware of this prior use at the time the grant of the opposed patent was published.

Moreover, according to the respondent, the facts and evidences brought forward by the appellant regarding the public prior use were not sufficient to destroy the novelty of claim 1 since all relevant features of the prior use were not disclosed to the public.

As regards claim 11, the respondent further contended that none of the cited documents shows first and second inert gas accumulators, and none of them teaches to use sources of inert gas for purging and pressurizing the impregnation vessel being independent of the liquefied gas in the process vessel.

IV. Oral proceedings took place on 17 November 2000.

The respondent explained that the term independent used in the claims should be interpreted as meaning "separate and without influence". He specified that, by creating a closed system between the process vessel and the impregnation vessel, one of the objects of the invention was to avoid that the equilibrium of pressure and temperature between the two vessels be affected by the transfer of inert gas during the course of the process.

The respondent was also of the opinion that the system according to the invention was based on a different concept as the one of the system according to D1 i.e. the process and the impregnation vessels were placed in a loop separate from the rest of the system.

Referring to decision T 534/89, the respondent requested that the late submitted prior use not be admitted into the proceedings. The facts in that case were very similar to the facts of the present case. The

respondent therefore contended that the offered evidence of prior use should have been referred to within the nine month period for opposition and that its late submission was an abuse of the proceedings.

The appellant explained that it had believed document D1 to be sufficient at the time to destroy the novelty of granted claim 1, which was confirmed by the further proceedings, since the main request before the opposition division was refused. Only when claim 1 was amended in the oral proceedings before the opposition division did the appellant have reason to refer to its prior use.

The appellant raised no objection against novelty but he was of the opinion that the subject-matter of claims 1 and 11 were obvious with respect to a combination of the teachings of D3 or D4 and of the public prior use.

The appellant contended that the system of D1 also comprised a closed loop between the process vessel and the impregnation vessel and that the sources for the purging and pressurizing gas were independent from the original source of liquefied inert gas, said source being the storage vessel 15 and not the intermediate source 19. Therefore, according to the appellant, the subject-matter of the independent claims of the patent lacked an inventive step.

The appellant also drew the attention of the Board to the teaching of D4 regarding the optional recycling of the carbon dioxide residue gas to a suitable gas container whereas the liquid carbon dioxide is recycled to suitable storage container which is not described as

being the same as the gas container. The appellant also explained that the process according to D4 comprises no purging step due to the fact that the product is removed at the top of the impregnation vessel and not at the bottom according to the invention.

V. At the end of the oral proceedings the appellant requested that the decision under appeal be set aside and that the European patent be revoked.

The respondent requested that the appeal be dismissed.

VI. Claim 1 as maintained by the Opposition Division reads as follows:

"A process for impregnating a cellular material with liquefied gas at a predetermined pressure comprising the steps of charging the cellular material into an impregnation vessel (22), purging the impregnation vessel (22) with inert gas, pressurising the impregnation vessel (22) with inert gas to said predetermined pressure, transferring liquefied inert gas into the impregnation vessel (22) from a process vessel (12), in which the liquefied gas is stored at said predetermined pressure, soaking the cellular material in the liquefied inert gas for a predetermined time period, transferring unabsorbed liquefied gas from the impregnation vessel (22) to the process vessel (12), depressurising the impregnation vessel (22) by venting the inert gas therefrom and removing the impregnated cellular material from the impregnation vessel (22), characterized in that the inert gas used to purge and pressurise the impregnation vessel (22) is the same gas as the liquefied inert gas, but is taken from a source (56, 62) independent of the liquefied

inert gas contained in the process vessel (12), and in that the source of liquefied inert gas contained in the process vessel (12) is independent from the source (56, 62) of the inert gas used to purge and pressurise the impregnation vessel (22)."

Claim 11 as maintained by the Opposition Division reads as follows:

"An apparatus for impregnating a cellular material with a liquefied gas comprising:
(a) a high pressure impregnation vessel (22) having sealable means (24) for permitting the charging of cellular material into said impregnation vessel (22) and sealable means (26) for permitfing the discharge of the cellular material from said impregnation vessel (22);
(b) a liquefied inert gas process vessel (12);
(c) a pipeline (18) for transferring liquefied inert gas between said liquefied inert gas process vessel (12) and said impregnation vessel (22);
(d) a second pipeline (30, 40) providing fluid communication between the upper region of said impregnation vessel (22) and the upper region of said liquefied inert gas process vessel (12) and adapted to maintain a substantially constant pressure in said liquefied inert gas process vessel (12) during the transfer of liquefied inert gas between said impregnation vessel (22) and said liquefied inert gas process vessel (12); characterised by a first inert gas accumulator (56) independent of said liquefied inert gas process vessel (12) for purging said impregnation vessel (22) with low pressure inert gas;

a second inert gas accumulator (62) independent of said liquefied inert gas process vessel (12) for pressurising said impregnation vessel (22) with high pressure inert gas to a pressure substantially equal to the equalibrium pressure in said liquefied inert gas process vessel (12); and vent means (28, 32, 34) for venting said impregnation vessel (22)."

Reasons for the Decision

1. *Admissibility of the appeal*

The appeal is admissible.

2. *Modifications to claim 1 and to the description*

The content of claim 1 on file corresponds to the content of claim 1 as granted completed by the following sentence added at the end of the claim:

"and in that the source of liquefied inert gas contained in the process vessel (12) is independent from the source (56, 62) of the inert gas used to purge and pressurise the impregnation vessel (22)."

It is clear from the description of the application as originally filed that the source of liquefied inert gas contained in the process vessel (12) is storage vessel (2) (see page 14 of the application, lines 9 to 10) whereas the source of the inert gas used to purge and pressurise the impregnation vessel (22) is either the accumulators (56) and (62) or vessel (162) (see from line 27 of page 14 to line 11 of page 15 of the application and page 17, lines 16 to 18) and that these

sources are independent from each other during the whole impregnating process (see Figures 1 and 2).

The modification as accepted by the first instance is thus supported by the description and drawings of the application as originally filed (Article 123(2) EPC) and restricts the protection conferred by the patent (Article 123(3) EPC). It is therefore admissible.

The introduction of the description as granted has been modified in order to adapt it to the new claim 1 on file and no new matter has been incorporated in it. The modification of the description is thus also admissible in application of Article 123 EPC.

3. *Interpretation of claims 1 and 11*

3.1 The term "independent":

According to the proprietor of the patent this term has to be interpreted as meaning "separate and without influence on each other", at least during the whole process for impregnating as defined in claim 1.

Such an interpretation is supported by the figures and the corresponding description of the application as originally filed which clearly show that the sources of gas (accumulators 56, 62 and vessel 162) for purging and pressurising the impregnation vessel (22) are different and separate from the process vessel (12) and the liquefied gas contained therein, and that there is no direct fluid connection at all during the whole impregnation process between the sources of gas for purging and pressurising the impregnation vessel on the one hand and the process vessel and its source (i.e.

storage vessel 2) on the other hand.

Therefore, as it is clearly disclosed in the description of the application (see for example, page 10, second paragraph and page 18, last paragraph), the working conditions of pressure and temperature in the process vessel are not influenced by the purging and pressure equalization steps throughout the course of the impregnation process. Furthermore, it appears clearly from the description of the application (see for example page 3, 2nd paragraph and page 4, last paragraph) that the aim of the present invention is to avoid, throughout the course of the impregnation process, that the equilibrium balance of pressure and temperature inside the storage vessel (as used in the prior art) be influenced by the purging and pressurising steps.

3.2 The expression "predetermined pressure":

The repetition of this expression in claim 1, successively in relation with the impregnation step in general, the pressurising step and the storage of the liquefied gas in the process vessel, indicates implicitely that, during the transfers of the liquefied inert gas and of the corresponding inert gas between the impregnation vessel and the process vessel, the pressure in the process vessel remains constantly at the level of the pressure used for impregnating the cellular material in the impregnation vessel (see the patent specification: from column 6, line 49 to column 7, line 10). The Board considers this feature as an essential feature of the invention which is implicitely present in claim 1 and which therefore must be taken into account when assessing the patentability

of claim 1. Said feature is present in claim claim 11 (see the specification: column 17, lines 26 to 31) under the wording: "substantially constant pressure".

4. *Admissibility into the proceedings of the alleged prior use*

Under the established case law of the boards of appeal, parties are expected to bring all their evidence into the proceedings at the earliest time possible, in order to stream-line the proceedings, to allow the parties and the board to assess what the proceedings will be about and to avoid surprises, see eg. T 951/91, OJ EPO 1995, 202.

The board finds the new piece of evidence of alleged public prior use to have been submitted late, i.e. after the opposition proceedings, particularly since it was available and known to the appellant at an earlier stage than the appeal proceedings. Considering that the original claim 1 was of broader scope than the claim maintained by the opposition division,and that the appellant presented its alleged public prior use as being novelty destroying, there would have been reason for the appellant to have referred to the alleged public prior use already within the period for opposition.

The question therefore arises whether decision T 534/89, OJ EPO 1994, 464, warrants the prior use to be discarded without the board looking into the relevance of what has been offered as evidence. However, in decision T 534/89 the circumstances were somewhat different from those of the present case in that the opponent admitted that it had deliberately

abstained from referring to the alleged public prior use within the opposition period, and in that the amendment of the main claim in the opposition proceedings was of no relevance in that case to the objection of alleged public prior use raised on appeal or at least the opponent did not contend that this was the case. In the present case however, the board accepts the explanation given by the appellant that only the amendment made during the opposition proceedings made it necessary to refer to the alleged public prior use, the objection being that this use anticipated the amended characterising portion of the claim in issue. The board therefore cannot conclude that there has been any abuse of proceedings or breach of the principle of good faith. In accordance with the case law established under Article 114(2) EPC, see eg. T 611/90, OJ EPO 1993, 50, the board therefore will consider the relevance of the late filed evidence.

The standard of proof with regard to public prior use, as exemplified by decision T 472/92, OJ EPO 1998, 161, requires in cases where the evidence lies within the power and knowledge of the opponent that the alleged public prior use is proven beyond any reasonable doubt, or in the words of that board, that the opponent proves his case up to the hilt. Furthermore, it should be remembered that the later an alleged public prior use is brought forward , the more complete the substantiation should be (see decision T 97/92, unpublished in the OJ).

In the present case, the only evidence going back to the time when the appellant alleges that their installation (the Corby installation) was disclosed to members of the public is a drawing (i.e. D11: exhibit

2). In addition, two declarations (i.e. D8 and D9) have been filed by two employees of the appellant, Mr Butler and Mr Helmsley. None of these declarations seems to have been given as affidavits under oath. Furthermore, Mr Butler has appeared in the appeal proceedings by the strength of a power of attorney as a representative of the appellant. Under these circumstances, none of the declarations can be considered as having probative value as independent evidence, but must be examined as opinions expressed by the appellant as party to the proceedings.

The drawing submitted as Exhibit 2 (D11) represents a mimic diagram alleged to be displayed in the control room of the Corby plant. This diagram represents an installation comprising two impregnator vessels connected in particular to a charge vessel, a liquefaction vessel and a process vessel communicating with a storage vessel. According to D8 (see section 6) and D9 (see sections 6.2, 6.3, 6.5, 7 and 8), the charge vessel and the liquefaction vessel are the sources of the purging and pressurising gas and the source of the liquid CO_2 supplied to the process vessel is the storage vessel.

The diagram of D11 shows two portions of line at the lower right hand side representing two parts of a duct, connected respectively to the liquid layer of the process vessel and to the bottom of the liquefaction vessel. On the drawing, the opposite free ends of these two portions of line are separated by a gap but they are represented in aligment with each other so that they seem to belong to an interrupted common line i.e. a common duct which connects the process vessel to the liquefaction vessel. Solely a CO_2 pump is present in

that duct.

Therefore, in view of D11, whether said two vessels (process and liquefaction) are actually independent or not from each other in the meaning of the invention remains doubtful.

The declarations of Mr Butler (D8) and Mr Helmsley (D9) cannot fill these gaps.

On the contrary, D9 raises another doubt about the similarity between the alleged public prior use and the invention since it is implicit from section 6.5 of the declaration that, during the pressurising step of the process implemented at Corby, the impregnation chamber is pressurised at a lower pressure than the pressure inside the process vessel in contradiction to the invention which teaches to pressurize the impregnation vessel to a pressure substantially equal to the equilibrium pressure in the process vessel in order to avoid modifying said pressure (see for example column 7 of the european patent specification, lines 30 to 44 and claims 1 and 11).

Therefore, even if the declarations D8 and D9 were accepted as evidence, they only contain general statements which do not unequivocally disclose to whom the installation was shown and under what circumstances, nor is there any corroborating evidence to unequivocally clarify how the installation was explained to visitors, such as records of visits, written instructions on what to disclose or any limitations. The installation is of such a complexity that the board has doubts that even visitors skilled in the art would have been able to assess how the

circulation system worked and where the sources of the inert gas were located and possibly connected within the system, let alone the specific pressures being present into the different vessels, particularly since that was considered to be part of the know how. Indeed the respondent has stated that it was offered the know how of the modified Corby installation. When asking what the modifications were, the respondent was told that this could not be disclosed, unless the respondent first signed a secrecy agreement. The board observes that such a condition seems to be standard practice for most commercial activities. Such an approach, however makes it once more very doubtfull that the same available know how would have been made available to the public. Furthermore, there is no proof which unequivocally defines which know how was available to the public, and the moment when the proper know how of the appellant , which was apparently kept secret during a certain period, was made available to the public.

From all of the above, the board can only conclude that at least the two first requirements for a prior use to be acknowledged have not unequivocally been met, ie. *what* was disclosed and *to whom* it was disclosed. The first deficiency alone makes it impossible for the board to assess the relevance of the Corby installation and the second puts in doubt that the installation was even available to the public.

Since it is not immediately evident that the alleged prior use was available to the public and therefore not prior art within the meaning of Article 54(2) EPC, the alleged prior use is not admitted into the proceedings under the present circumstances.

5. *Novelty of the independent claims (Article 54 EPC)*

The board is satisfied that none of the cited documents taken into consideration (i.e. D1, D3 and D4) discloses a method and an apparatus for impregnating a cellular material comprising in combination all the features described respectively in claims 1 and 11.

Since, this has not been disputed by the appellant with respect to the aforementioned prior art publications, there is no need for further detailed substantiation and the subject-matter as set forth in claims 1 and 11 is considered as novel within the meaning of Article 54 EPC.

6. *The state of the art closest to the claimed invention*

6.1 The Board considers that D1 discloses the prior art closest to the process of claim 1 since this document describes most of the essential features of the precharacterising portion of claim 1 and also the first feature of the characterising portion regarding the nature of the inert gas used in the system.

However, D1 teaches to pressurise the impregnation vessel to the pressure of the storage vessel (intermediate vessel 19), i.e. 915 psia (see column 5, lines 19 to 25) and not to the pressure of the process vessel 31 as according to the invention.

The inert gas used to purge and pressurise (through the vapor line 47) is thus taken from the intermediate vessel 19, which also supplies liquefied inert gas to the holding tanks 31 (process vessels). Additionally the intermediate vessel 19 also provides vapor to the

line 53, located between the impregnation vessel 11 and the process vessel 31, to maintain a desired minimum pressure in that line 53 (see column 5, lines 33 to 37). Threrefore, it cannot be upheld that the inert gas to purge and pressurise the impregnation vessel 11 is taken from a source (vessel 19) which is independent of the liquefied inert gas contained in the process vessel 31. Indeed, during the whole process for impregnating, the process vessel 31 can be connected if needed to the intermediate vessel 19 for liquid supply (via 27, 29b and 33) and for gas supply (via 41, 45, 53, 92 and 47). Moreover, in D1, the transfers of liquefied CO_2 respectively from the process vessel to the impregnation vessel and vice-versa are caused by a pressure differential between these two vessels (i.e. the higher gas pressure of the compressor is applied to the starting vessel - see the abstract of D1; column 3, lines 42 to 48; column 5, lines 38 to 48 and from line 63 of column 5 to line 12 of column 6) whereas, according to the claimed invention, during these transfers, the pressure within the process and impregnation vessels remains constantly equal to the pressure used for impregnating the cellular material as claimed in claims 1 and 11 (see section 3.2 above).

Furthermore, in D1, the pressurising pressure (915 psia) is different from the minimum pressure (920 psia) maintained in the impregnation vessel and different from the pressure of the liquid cryogen during soaking (900 psia).

To sum up, the process claimed in claim 1 of the opposed patent differs from the method disclosed by D1 in that:

- the impregnation vessel is pressurised at the impregnating pressure,

- the pressure in the process vessel is maintained constantly equal to said impregnating pressure,

- the liquefied inert gas is thus transferred between the process vessel and impregnation vessel at said impregnating pressure,

- the inert gas used to purge and pressurise the impregnation vessel is taken from a source independent of the liquefied inert gas contained in the process vessel, and

- the source of liquefied inert gas contained in the process vessel is independent from the source of the inert gas used to purge and pressurise the impregnation vessel.

6.2 The Board considers also that D1 discloses the state of the art closest to the apparatus claimed in claim 11 since the apparatus of D1 comprises most of the essential features of the precharacterising portion of claim 11 with the exception of the adaptation to maintain a substantially constant pressure in the process vessel. Additionnally,the apparatus of D1 comprises an inert gas accumulator (intermediate vessel 19) for purging the impregnation vessel and also vent means 87 for venting said vessel. The accumulator 19 is also used for pressurising the impregnation vessel 11 and for supplying liquefied inert gas (via 27) or inert gas (via 47) to the process vessel 31.

Consequently, the apparatus according to claim 11

differs from the apparatus disclosed by D1 in that:

- the pipeline connecting the top of the impregnation vessel to the top of the process vessel is adapted to maintain a substantially constant pressure in said process vessel during the transfer of liquefied inert gas between the impregnation vessel and the process vessel (12);

- a first inert gas accumulator is provided independent of the process vessel for purging the impregnation vessel with low pressure inert gas;

- a second inert gas accumulator is provided independent of the process vessel for pressurising the impregnation vessel with high pressure inert gas to a pressure substantially equal to the equilibrium pressure in process vessel.

7. *Problem and solution*

Starting from the process and the apparatus of D1 and taking into account the above-mentioned differences the problem to be solved by the skilled person is to improve said known process and apparatus in order, in particular, to provide a significant reduction in operating costs (see the patent specification: column 3, lines 43 to 53 and column 14, lines 31 to 37).

The Board is satisfied that the invention as claimed in claims 1 and 11 does solve this problem.

8. *Inventive step (Article 56 EPC)*

8.1 Claim 1

According to the invention, the liquid and gaseous CO_2 are circulated through a specific closed system (see the patent application: column 11, lines 42 to 47) in which the pressure is equal to the pressure used for impregnating the cellular material as claimed in claim 1 (see also from column 6, line 49 to column 7, line 10 of the patent specification). Moreover, the source of the purging and pressurising gas is independent from the liquefied gas contained in the process vessel and from the source of said liquefied gas (i.e. the storage vessel).

On the contrary, as already pointed out in section 6.1 above, a basic feature of the system according to D1 is the use of a compressor for establishing a pressure differential between the process vessel 31 and the impregnation vessel 11 in order to transfer liquid CO_2 between said vessels (see claims 1 and 9 of D1) with the result that, throughout the transferring circuit, the pressure does not remain constant and equal to the impregnating pressure. Furthermore, the system according to D1 has only a single vessel (i.e. the intermediate vessel 19) used for purging and pressurising the impregnation vessel 11 and for supplying liquefied inert gas or inert gas to the process vessel 31.

Without good reasons and serious incentives provided by the state of the art, the skilled person would not replace a feature condidered as essential for the implementation of the process of D1, by new conditions of functioning based on a closed system with a constant pressure.

Such incentives cannot be found in D3 since this document teaches to store the liquid CO_2 in a process vessel at a pressure much lower (i.e. from 215 to 305 psig) than the pressure (i.e. 600 to 900 psig) maintained in the impregnation vessel during the impregnation step (see D3 respectively page 3, lines 76 to 98 and page 4, lines 7 to 10). Moreover, although D3 teaches that, before introducing the liquefied CO_2, the impregnation vessel should preferably be purged (see page 3, lines 66 to 75) at a pressure at least sufficient to maintain the CO_2 in a liquid state (see page 3, lines 92 to 98) , no indication is given in this document as regards the source(s) of the purging and pressurising gas(es). Therefore, a combination of the teachings of D1 and D3 would not lead the skilled person in direction of the invention.

In the method taught by D4, as according to the process claimed in claim 1, the impregnation vessel 25 is pressurised at the pressure of the process vessel 17 (i.e. 515 psia) before transferring the liquid CO_2 between said vessels (see D4: page 3, lines 75 to 80 and 112 to 121 and from line 126 to page 4, line 3). However, the method of D4 does not comprise a purging step and the source of the pressurising gas being the process vessel 17 itself (see Figure 1 and page 3, lines 112 to line 115), it can be independent neither from the liquefied inert gas which it contains nor from the source (i.e. storage vessel 10) providing said vessel 17 with liquid CO_2.

Consequently, here again, a combination of the teachings of D1 and D4 also would not lead the skilled person to the subject-matter of claim 1.

Furthermore, since the independance of the source of liquefied gas contained in the process vessel from the source of the gas used to purge and pressurise the impregnation vessel can be found neither in D1 nor in D3 and D4, even a combination of the teachings of these three documents would not lead the skilled person to the claimed invention.

8.2 Claim 11

The same argumentation remains valid with regard to the subject-matter of claim 11 since even by assembling together all the means and features described in D1, D3 and D4, the skilled person would not arrive at an embodiment comprising an accumulator independent from the process vessel for pressurising the impregnation vessel with high pressure inert gas to a pressure substantially equal to the equilibrium pressure in said process vessel.

9. *Conclusion*

For the foregoing reasons, the Board considers that to improve the process and apparatus disclosed in D1 in order to arrive at the teaching of respectively claim 1 and claim 11 does not follow plainly and logically from the cited prior art and that the reasons given by the appellant do not prejudice the maintenance of the patent in the version maintained by the opposition division.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Magouliotis C. Andries