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File Number: T 277/89 - 3.3.2  
Application No.: 86 104 044.2  
Publication No.: 0 201 698  
Title of invention: Cryogenic aroma recovery

Classification: A23F 5/48

**D E C I S I O N**  
of 31 January 1991

Applicant: Société des Produits Nestlé S.A.

Proprietor of the patent:

Opponent:

Headword: Cryogenic aroma recovery/NESTLE

EPC Articles 54, 113(1), 114(1)

Keyword: "Novelty (no) - objection raised by the Board - different ground  
as that in contested decision"

**Headnote**



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Boards of Appeal

Chambres de recours

Case Number : T 277/89 - 3.3.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.2  
of 31 January 1991

**Appellant :** Société des Produits Nestlé S.A.  
Service des Brevets  
Case Postale 353  
CH-1800 Vevey

**Representative :**

**Decision under appeal :** Decision of Examining Division 020 of the  
Patent Office dated 8 December 1988 refusing  
European patent application No. 86 104 044.2  
pursuant to Article 97(1) EPC.

**Composition of the Board :**

**Chairman :** P. Lançon  
**Members :** A. Nuss  
C. Holtz

## Summary of Facts and Submissions

- I. European patent application No. 86 104 044.2 was published under No. 0 201 698.
- II. The Examining Division issued a decision refusing the application under Article 97(1) EPC for failure to comply with Articles 56 and 52(1) EPC. The decision was based on Claims 1 to 9 on file, an amended version of original Claims 1 to 10.

Claim 1, the only independent claim, reads as follows:

1. A process for recovering aromas from an aroma-bearing particulate vegetable material comprising stripping aromas from the vegetable material by passing a carrier gas through the vegetable material in a stripping chamber, separating the aroma-laden carrier gas from the vegetable material, condensing the aromas in solid form from the aroma-laden carrier gas by passing the aroma-laden carrier gas into a cryogenic liquid, characterised in that the cryogenic liquid is at a temperature equal to or higher than the boiling temperature of the carrier gas and the solid aromas are separated from the cryogenic liquid.
- III. The ground for the refusal was that, in the opinion of the Examining Division, Claim 1, although novel, lacked inventive step because a person skilled in the art would have considered the differences between the claimed subject-matter and what was disclosed in document DE-A-2 604 685 (1) to be obvious measures. The differences made out by the Examining Division were (a) that present

Claim 1 disclosed a heated stripping chamber and (b) that document (1) did not disclose a filtering step between the stripping step and the condensation step.

- IV. A Notice of Appeal was filed together with a voucher for the appeal fee. On 23 March 1989 a statement setting out the grounds of appeal was received.

The Appellant argued, *inter alia*, that the Examining Division had erroneously concluded that the claims lacked inventive step because document (1) did not contain a mention of direct contact between aromas and liquefied gas, the reason being that either it was never seriously contemplated or it was attempted but found to be inoperable. Moreover, irrespective of the condensation method chosen (either direct or indirect condensation), the uncondensed portion of the gas stream was passed there through a filter to capture entrained frost particles. If direct condensation had really been tried, it would have been immediately apparent that no filter was needed when condensing aromas because of the absence of entrained particles to trap. This document did not suggest the relationship between the boiling temperature of the carrier gas and of the cryogenic liquid used for condensing the aromas in essential pure state.

In addition, Claim 1 of the refused patent recited neither a heated stripping chamber nor a filtering step.

- V. The Board issued a communication pursuant to Article 110(2) EPC which was worded as follows:

"1. As correctly pointed out in the statement setting out the grounds of appeal, Claim 1 prescribes neither a heated stripping chamber nor a filtering step between the stripping step and the condensation step. Since

the differences between the subject-matter of present Claim 1 and that of document DE-A-2 604 685 (1), as stated in the contested decision, manifestly do not exist, it does not seem reasonable to maintain that Claim 1 is novel.

2. Under Article 97(1) EPC, a European patent application which fails to meet one of the requirements of the Convention has to be refused in its entirety, without it being necessary to consider whether the application as a whole, e.g. a dependent claim, might contain material indicative of an inventive step (see T 5/81, OJ EPO 1982, 249).
3. Under the circumstances, it seems unlikely that the decision of the first instance will be reversed."

VI. In his response the Appellant objected to the fact that the Office's position on novelty had been reversed without given reasons therefor. A further argument was that there existed no basis for the reversal since in the contested decision the differences between the present invention and document (1) were not stated accurately as already pointed out in the Statement of Grounds of Appeal. Therefore, both novelty and inventive step should be recognised.

VII. The Appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the claims in their present form.

#### Reasons for the Decision

1. The appeal is admissible.

2. There is no formal objection to the present claims under Article 123(2) EPC.

In accordance with original Claim 7 it has now been specified in Claim 1 that "contacting the aroma-laden carrier gas with a cryogenic liquid" occurs by "passing the aroma-laden carrier gas into a cryogenic liquid". In addition, the original wording "the carrier gas employed has a boiling temperature equal to or lower than the temperature of the cryogenic liquid" has been reworded to "the cryogenic liquid is at a temperature equal to or higher than the boiling temperature of the carrier gas". Since this amendment does not alter the meaning of the original clause, no new subject-matter is generated by the amendment.

Dependent Claims 2 to 9 correspond to adequately renumbered original Claims 2 to 6 and 8 to 10.

3. The present European application concerns a process for cryogenic aroma recovery from aroma-bearing particulate vegetable material, such as roast and ground coffee or tea leaves.

The process as now claimed comprises:

- (a) stripping aromas from the particulate vegetable material by passing a carrier gas through the vegetable material in a stripping chamber,
- (b) separating the aroma-laden carrier gas from the vegetable material,
- (c) condensing the aromas in solid form from the aroma-laden carrier gas by passing the aroma-laden carrier gas into a cryogenic liquid which is at a temperature

equal to or higher than the boiling temperature of the carrier gas,

(d) separating the solid aromas from the cryogenic liquid.

4. Before dealing with the question of inventive step, it has to be established first whether or not the process as claimed is novel.
- 4.1 Document (1) relates to a coffee aroma condensation process in which nitrogen is the only gas disclosed to be used to strip aroma-bearing grinder gas from the ground coffee. The composite gaseous stream thus obtained is then cooled preferably to below  $-101^{\circ}\text{C}$  ( $-150^{\circ}\text{F}$ ), and more preferably to below  $-123^{\circ}\text{C}$  ( $-190^{\circ}\text{F}$ ), by such a means as a liquefied inert gas, preferably liquid nitrogen (bp.  $-196^{\circ}\text{C}$ ), whereby the cooling leads to condensation of at least a portion of the aromas and carbon dioxide of the gas stream to a frost or snow. The condensation is usually accomplished within a heat exchanger, e.g. a vertically-mounted, jacketed, scraped-wall exchanger, although direct contact between the gaseous stream and an evaporating liquefied gas is possible. In either event, the uncondensed portion of the gaseous stream is then vented through a filter member which collects entrained frost particles. The frost collection vessel may be an insulated vessel, such as a Dewar flask, which is periodically emptied of frost (see page 2, last paragraph to page 3, first paragraph; page 6, lines 10 to 17; page 8, third paragraph; page 5, lines 24 to 32; Figure 1).
- 4.2 Although this document does not mention that the stripping of aroma-bearing grinder gas from the ground coffee is carried out in a "stripping chamber" it is implicit to a

person skilled in the art that such treatment must necessarily take place in a closed vessel or chamber in order to avoid uncontrolled dissipation of most of the aroma-bearing gas needed for further processing. This is not contested by the Appellant. Consequently, steps (a) and (b) are disclosed in document (1).

- 4.3 It is clear from what is stated in document (1) that the condensation is usually accomplished within a scraped-wall heat exchanger. However, in view of the additional statement that "direct contact between the gaseous stream and an evaporating liquefied gas is possible", this document also teaches, as an alternative to the cooling in a heat exchanger (indirect cooling), to cool aroma-laden nitrogen gas from the stripping operation by passing the composite gaseous stream directly into the preferred coolant, viz. liquid nitrogen with a boiling temperature of  $-196^{\circ}\text{C}$ . Consequently, the coolant (liquid nitrogen) is at the boiling temperature of the stripping or carrier gas (nitrogen).

In view of this, the Appellant cannot be heard with the argument that direct contact between aromas and liquefied gas was never seriously contemplated in document (1). The further argument that it was attempted but found to be inoperable is not convincing either because the Appellant did not provide any technical reason for such assertion.

- 4.4 According to document (1), the frost collection vessel (e.g. Dewar flask) is periodically emptied of frost, so that the step of separating the solid aromas from the liquid gas is also clearly described there. This was not in dispute.
- 4.5 As to the filter mentioned in document (1), the Board must point out that this additional feature has a limiting



effect on the known process of aroma recovery which is, therefore, without any consequence to the question of novelty of the claimed process. As stated in this document, the purpose of this filter is only to retain or collect those frost particles which might otherwise escape with the uncondensed portion of the gas stream. Since the process for recovering aromas as claimed by the Appellant is in no way restricted to the measures indicated in Claim 1 as a consequence of the formulation "a process ... comprising ...", Claim 1 cannot be construed as to prohibit such additional filter means.

According to the grounds of appeal, the Appellant seems to be of the opinion that in the case of direct condensation or cooling of the aroma-laden stripping no filter is needed and that, therefore, the presence of such a means in document (1) is an indication that direct condensation had not been really tried in the prior document. However, in view of the nature of the material formed, namely frost, the Board is not convinced that in the known process no frost particles will be entrained by emerging gas. Since there is nothing in the file from which the Board could conclude that the Appellant had ever tried to repeat the known process, this argument is not convincing. The Board agrees, however, that no filter is indeed needed if, as mentioned in the present application, other means may be used to trap the frost particles (see page 3, lines 23 to 32).

- 4.6 It follows from the above that steps (a) to (d) of the process as claimed (see point 4 above) are entirely foreshadowed by document (1). Consequently, Claim 1 is not novel and the claim, therefore, cannot be allowed.
5. As may be seen from point V above, the Appellant was informed by the Board that it seemed unlikely that the

decision of the first instance would be reversed. It was thus clear from the official communication that, as far as the question of novelty was concerned, the Board was not intending to endorse the positive assessment made by the Examining Division.

The way the Board proceeded in the present case is fully in agreement with Article 114(1) EPC which provides that "In proceedings before it, the European Patent Office shall examine the facts of its own motion" whereby the Board may, of course, "exercise any power within the competence of the department which was responsible for the decision appealed" in accordance with Article 111(1) EPC. Although it is thus clearly within the competence of the Board to investigate during appeal proceedings the matter of novelty of Claim 1 and to draw its own conclusion, which might well be different from that of the first instance, the Board normally cannot in such a situation issue a decision without informing the Appellant that an adverse decision might be taken by the Board on the basis of a different ground than that indicated in the contested decision.

Article 113(1) EPC requires indeed that a decision "may only be based on grounds ... on which the parties concerned have had an opportunity to present their comments". This provision ensures that no party can be taken by surprise by grounds for a decision against his application on which he did not have an opportunity to present his comments. The content of the communication of the Board leaves no doubt that the Board acted in accordance with this requirement. The Appellant's letter of reply shows, moreover, that he made use of his right to file observations on the objection of lack of novelty raised by the Board.

It follows from the foregoing that under the EPC the Board is not prevented from taking a decision on a different ground as that put forward by the Examining Division provided the Appellant's right to be heard under Article 113(1) EPC is respected. In the present case, this condition is clearly met.

6. In view of the communication of the Board, the Appellant is aware that under the circumstances the European application has to be refused in its entirety, without being necessary to consider whether the application as a whole might contain material indicative of an inventive step (see point V above).

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**Order**

**For these reasons, it is decided that:**

The appeal is dismissed.

The Registrar:

M. Beer

The Chairman:

P. Lançon