BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Publication in the Official Journal Yes / No

File Number: T 657/91 - 3.2.2

Application No.: 86 114 896.3

Publication No.: 0 223 111

Title of invention: An improved method for slicing fruits and vegetables

Classification: B26F 3/00

D E C I S I O N
of 24 January 1992

Applicant: DNA PLANT TECHNOLOGY CORPORATION

Headword:

EPC Article 56

Keyword: "Inventive step (yes)"

Headnote

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 657/91 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 24 January 1992

Appellant : DNA PLANT TECHNOLOGY CORPORATION (under the laws of the state of Delaware)
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Representative : Patentanwälte Grünecker, Kinkeldey,
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Decision under appeal : **Decision of Examining Division of the European Patent Office dated 25.3.91 refusing European patent application No. 86 114 896.3 pursuant to Article 97(1) EPC.**

Composition of the Board :

Chairman : G. Szabo
Members : M. Noel
J. Van Moer

Summary of Facts and Submissions

I. European patent application No. 86 114 896.3 (publication No. 0 223 111) was refused by decision of the Examining Division for the reasons that the subject-matter of the claims did not involve an inventive step with respect to the combination of documents

(1) EP-A-0 039 958, and
(2) FR-A-2 433 453

in the light of the general knowledge of a person skilled in the art.

II. The Appellant lodged an appeal against the decision with the simultaneous payment of the fee and submitted a Statement of Grounds along with a new set of three claims, Claim 1 of which reads as follows:

"1. A method of cutting a fresh fruit or a fresh vegetable which comprises bringing a fresh fruit or a fresh vegetable in contact with a water jet discharging from an orifice characterized in that a water jet discharged from an orifice having a diameter of 0.076 to 0.305 mm (0.003 to 0.012 inches) at a pressure of 206,843 to 344,738 kPa (30,000 to 50,000 psi) is used to cut said fruit or vegetable into pieces in a manner effective to minimize bruising throughout the cut pieces and damaging of tissue in the vicinity of the cut surfaces."

III. In support of his Statement of Grounds, the Appellant asserted essentially that the Examining Division had used hindsight to come to the conclusion that the claimed method was obvious. Owing to the wide divergence of the claimed subject-matter from the disclosures of

documents (1) and (2), it was not obvious to combine the teachings of these documents and, even when combined, the claimed subject-matter was not anticipated.

IV. The Appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the following documents:

- Claims 1 to 3 as filed on 2 August 1991 with the Statement of Grounds, and

- description as originally filed.

Reasons for the Decision

1. The appeal is admissible.

2. Formal aspects

Claim 1 is based on the combination of Claims 1 and 2 of the application as filed. Claims 2 and 3 correspond to Claims 3 and 4 as originally filed, respectively. No amendment was made to the description. Consequently, the application fulfills the requirements of Article 123(2) EPC.

However, units of measure must be expressed in terms of the metric system throughout the description, according to Rule 35(12) EPC.

3. Closest prior art

The precharacterising portion of Claim 1 is based on a prior art such as generally disclosed in the preamble of the application, page 2.

Reference to document (1) may also be accepted as the closest state of the art as far as the wordings "cutting a vegetable" in Claim 1 can be generally interpreted also as removing some vegetable flesh. Document (1) describes in fact a method for hydraulically removing decayed portions from a potato while removing little or no undecayed potato flesh (cf. page 3, second paragraph). This is achieved by applying on the vegetable water jets discharging from a series of water nozzles.

4. Problem and solution

The technical problem to be solved underlying the present application resides in the provision of a method of slicing fresh fruits or vegetables in a manner to minimise tissue damage caused by compression and tearing and thus to prolong the useful shelf life of the fruits or vegetables.

The solution is given by the features according to the characterising portion of Claim 1, in which parameters ranges are specified. In particular, it is preferred to use a water jet discharging from an orifice having a diameter of 0.076 mm to 0.305 mm at a pressure of 206,843 KPa to 344,738 KPa.

The result is that said fruit or vegetable is cut into pieces without damage in the vicinity of the cut surface.

5. Novelty

Document (1) describes that nozzles diameters and water pressures must be selected within the following ranges (cf. page 12), as a function of an optimisation between water and power consumptions:

nozzles diameters from 2.5 mm to 5 mm;
water pressures from 170 KPa to 340 KPa (1 Bar = 100 KPa).

These parameter ranges are clearly outside the above-mentioned ranges, as claimed in Claim 1.

Document (2) discloses a method for slicing tobacco leaves by use of a high pressure jet, the pressure of which is not specified, however.

Since none of the documents describes the whole subject-matter of Claim 1, it is therefore new.

6. Inventive Step

6.1 Document (1) is not directly related to a method of cutting potatoes, but rather to the cleaning and improving the same by removing the decayed portions from the surface. As explained in this document (cf. page 3, third paragraph) the method requires that the water force applied to the surface be within a range strong enough to remove the rot but not strong enough to disrupt the remaining skin and flesh of the potato.

Accordingly, the water pressures used in document (1) (as specified in Point 5. above) for removing decayed portions are much less (cf. about one thousand times) than those used in the application for cutting vegetables. Since water pressures and nozzles diameters are linked together as shown in Fig. 2 of document (1), the diameters selected for a given operation are consequently much larger (of about from fifteen to thirty times) as compared with the diameters of the water jet orifice used in the application.

In the Board's view, the parameters ranges given in document (1) appears to be wholly inappropriate for a cutting operation which requires much higher pressures. On the other hand, the limitations imposed in this document would certainly also deter the skilled person from increasing considerably the water pressure. This is regarded by the Board as an indication that it would be difficult to envisage this art as giving an incentive in the direction of the claimed new method.

6.2 Document (2) describes the use of a high pressure jet of water discharged from a nozzle for a cutting operation. However, neither the diameter of the nozzle orifice nor the pressure applied are specified. Moreover, the method disclosed therein is applicable to cutting rapidly tobacco leaves, which are considerably thinner than fruit or vegetables. Therefore, it can be reasonably assumed that the pressure required here is significantly less than that required for cutting in the mass fruit or hard vegetables such as carrots or celery.

For these reasons, the Board is of the opinion that the skilled person had no reason to consider this document. Even in the unlikely event that he decided to do so, he could not have found in document (2) any indication about parameter values appropriate for the solution of his particular technical problem or likely to persuade him to modify the teaching of document (1) in the sense of Claim 1. Clearly, even a combination of the cited prior art would not have led to the particular use, parameter ranges and technical effects as specified in Claim 1.

6.3 For the foregoing reasons, the Board has come to the conclusion that the subject-matter of Claim 1 cannot be derived in an obvious manner from the prior art and accordingly involves an inventive step within the meaning of Article 56 EPC. Consequently, dependent Claims 2 and 3 are also acceptable.

Order

1. The decision under appeal is set aside.

2. The case is remitted to the Examining Division with the order to grant a patent on the basis of the documents listed in section IV above, with the formal amendments required in Point 2.

The Registrar: The Chairman:

S. Fabiani G. Szabo

04.02.1992 24-2-92

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