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D E C I S I O N
of 4 May 2000

Case Number: T 0190/98 - 3.2.1

Application Number: 89306712.4

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IPC: B65D 81/24, A23B 7/148, A23L 3/3418

Language of the proceedings: EN

Title of invention:
Polymeric film

Patentee:
Sidlaw Flexible Packaging Limited

Opponent:
W. R. Grace & Co. - CONN

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
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Case Number: T 0190/98 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 4 May 2000

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 10 December 1997 revoking European patent No. 0 351 116 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: F. Gumbel
Members: S. Crane
J. Willems

Summary of Facts and Submissions

I. European patent No. 0 351 116 was granted on 13 September 1995 on the basis of European patent application No. 89 306 712.4.

II. The granted patent was opposed by the present respondents on the grounds that its subject-matter lacked novelty and/or inventive step (Article 100(a) EPC).

As state of the art the respondents relied in particular on JP-A-62-235 086 (document D1) and the translation of this document into English (document D1a) filed with their letter dated 8 October 1997.

III. With its decision posted on 10 December 1997 the Opposition Division revoked the patent. It held that the subject-matter of claim 1 as granted and the subject-matter of claim 1 according to the second auxiliary request lacked respectively novelty and inventive step with respect to document D1a. As for claim 1 according to the first auxiliary this was held to infringe Articles 123(2) and (3) EPC.

IV. A notice of appeal against this decision was filed on 18 February 1998 and the fee for appeal paid at the same time. The statement of grounds of appeal was filed on 20 April 1998. With the statement of grounds there was submitted a new version of claim 1 on the basis of which maintenance of the patent in amended form was requested.

V. In a communication dated 11 February 1999 the Board made extensive comments on the allowability of the new version of claim 1 having regard to Articles 84 and 123(2) EPC.

Hereupon the appellants (proprietors of the patent) submitted with a letter dated 21 October 1999 a further modified version of claim 1, which reads as follows:

"A package of plant material comprising a sealed enclosure of perforate polymeric film enclosing the plant material, the film having 50 to 1000 perforations/m^2 and the perforations having a mean diameter of 20 to 100 microns, the film having a water vapour permeability which is controlled by the type and thickness of polymer of which the film is composed, and which is not more than 800 g m^2 day^2 at 25°C and relative humidity 75% and having an oxygen permeability which is controlled by the size and frequency of the perforations in the film and which is not more than 200 000 cm^3m^{-2} day^{-1}atmosphere^{-1} at 25°C and relative humidity 75%, the resultant oxygen permeability of the package being such as to give improved storage life of the plant material, while at the same time enabling the water vapour permeability of the package to be controlled to a desired level."

VI. Oral proceedings before the Board were held on 4 May 2000.

At the oral proceedings the appellants submitted a new claim 1 according to a main request for maintenance of the patent in amended form. This claim is worded as follows:

"A package of plant material comprising a sealed enclosure of perforate polymeric film enclosing the plant material, the film having 50 to 1000 perforations/m^2 and the perforations having a mean diameter of 20 to 100 microns, the film having a water vapour permeability which is not more than 800g m^{-2} day^{-1} at 25°C and relative humidity 75% and having an oxygen permeability which is not more than 200 000 cm^3m^{-2} $day^{-1}atmosphere^{-1}$ at 25°C and relative humidity 75%."

The version of claim 1 submitted with their letter of 21 October 1999 was relegated to the status of an auxiliary request.

VII. The arguments put forward by the appellants can be summarised as follows:

The Opposition Division had correctly established that document D1a did not disclose the use of a polymeric packaging film with a perforation frequency of at least 50 perforations m^{-2}, the lower limit required by the claims, but had erred in coming to the conclusion that it was obvious for the person skilled in the art to increase the number of perforations taught by the prior art up to this level. The fact of the matter was that document D1a clearly encouraged the person skilled in the art to use only one perforation per package and gave him precise instructions where the perforation should be located. By providing a significantly larger number of perforations the need to ensure the exact location of a single perforation was obviated. There was nothing in the state of the art which could have pointed the skilled person in this direction.

VIII. In support of their request that the patent be revoked the respondents argued substantially as follows:

Insofar as the appellants sought to argue that a package according to the claimed invention would be necessarily have a large number of perforations, this was incorrect. As stated in the patent specification, the lower limit of 50 perforations m^{-2} was chosen merely to ensure that there would be at least one perforation per package. In any case, document D1a clearly taught that it was the total open area which was of importance and that this could be obtained by a single larger perforation or a plurality of smaller perforations, with smaller perforations being preferred to prevent the entry of dust, insects etc. Thus when a larger total open area was required, eg for a middle or large-sized package, the only sensible way of obtaining this would be by having a corresponding larger perforation frequency.

Reasons for the Decision

1. The appeal complies with the formal requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is therefore admissible.

2. *Main request*

According to claim 1 of document D1a it is proposed to pack mushrooms in a polymeric film having one or more perforations the open area of which is related to the packed weight of the mushrooms. More specifically the open area should, for each 500g of mushrooms by equal to the area of a circular perforation with a diameter of 0.1 mm to 5.0 mm. As explained in general terms in the right-hand column of page 2 and the left-hand column of page 3 the main purpose of the perforation or perforations in the film is to allow the escape of volatile odour-inducing substances (eg alcohol and

acetal); the open area in the film should on the other hand not be so large as to cause excessive moisture loss and to prevent adequate control of the oxygen concentration in the package.

According to the last paragraph of the right hand column of page 3 the water vapour permeability of the film is most preferably less than or equal to 100g m^{-2} day^{-1}. One preferred film material is of polyethylene with a water vapour permeability of 70g m^{-2} day^{-1}, see the right-hand column of page 5. This same film material is stated there to have an oxygen permeability of 13 000cm^3 m^{-2} day^{-1}. These figures relate to the inherent characteristics of the unperforated film material. In order to make a comparison with the claimed invention it is necessary to investigate what effect the provision of perforations in the film material will have on those permeability characteristics.

To this end the Opposition Division made a series of calculations on a variety of assumptions. The general appropriateness of these assumptions and correctness of the resulting calculations is not under challenge. On the basis of its calculations the Opposition Division came to the conclusion that the water vapour and oxygen transmission rates of the perforated film lay within the respective limits set in claim 1, which given that these limits are both of least an order of magnitude greater than the inherent values for the film material in question does not seem in any way unreasonable. Referring for instance to Example 4 of the present patent specification, which also relates to the packaging of mushrooms, it was assumed that the area of polyethylene film required for packaging the 150 g of mushrooms in Example 1 of document D1a was 0.07 m^2. With the single 0.2 mm diameter perforation of Example 1(2)(2) of D1a that equates to a perforation

area of 0.44 mm^2 which lies well within the range disclosed in Example 4 of the patent specification as being suitable for packaging mushrooms (the corresponding values for films (L) and (M) are 0.56 mm^2 per m^2 and 0.27 mm^2 per m^2).

The conclusion of the Opposition Division is also supported by experimental data submitted by the appellants with their letter of 21 October 1999. From this data it can be seen that the provision of 88 perforations m^{-2} with a diameter of 90 μm, equivalent to a perforation area of 0.55 mm^2 per m^2, increases the water vapour permeability of a 25 μm polyethylene film by only 4g m^{-2} day^{-1} and the oxygen permeability by 18 400 cm^3 m^{-2} day^{-1}.

Lastly, mention should be made of the fact that the conditions under which the water vapour transmission rate and oxygen permeability are measured are started in present claim 1 (ie at 25°C and 75% relative humidity) whereas this is not the case in document D1a. Given that these are the standard conditions under which such measurements are made, coupled with the wide separation of the values which can be derived from document D1a and the limits specified in claim 1, it is apparent that this difference cannot undermine in any fashion the conclusion that the prior art document discloses a perforated polymeric film with water vapour and oxygen transmission rates as required by the claim. The appellants did not in fact dispute this.

Nor did they dispute that document D1a specifically discloses the use of perforations having a diameter of 0.1 mm (ie 100 microns) corresponding to the upper limit defined in present claim 1, see Examples 1(1)(2) and 2(2) of document D1a.

As a consequence of the above it is apparent that the only feature which distinguishes the subject-matter of claim 1 from this state of the art is the requirement that the frequency of the perforations is from 50 to 1000 m^{-2}. Referring again to the Example 1(2)(2) of document D1a this has a single perforation of 0.2 mm diameter in a piece of film with an assured area of 0.07 m^{-2}, which equates to a frequency of approximately 14 perforations m^{-2}. The document contains however numerous references to providing a plurality of perforations, see for example the last paragraph of the right-hand column of page 4, where it is emphasised that it is the total open area of all the perforations which is of importance. It is also stated in paragraph 2 of the left-hand column of page 5 that a relatively small perforation is preferred for preventing the entry of dust, insects, water etc into the package. Taking that into account it would be obvious for the person skilled in the art to replace the single 0.2 mm diameter perforation by for example four 0.1 mm diameter perforations of the same total open area, resulting in a frequency of approximately 56 perforation m^{-2}, ie within the range claimed. So doing would also obviate the need for placing a single perforation at a specific location as mentioned in paragraph 3 of the left-hand column of page 5. In this context the Board cannot agree with the assertion of the appellants that the skilled person would understand this passage as actively encouraging the use of a single perforation in preference to a plurality of perforations.

It must also be noted that the Examples of document D1a are of a more of less experimental nature concerned with demonstrating the relationship between the open area and the effect on the mushrooms, with the single perforation being made in the film of the wrapped package. On a larger commercial scale it would be

obvious for the person skilled in the art to provide sufficient perforations in the film before it is wrapped around the plant material to be packaged. In order to ensure that the piece of the film associated with any one package has at least one perforation a certain minimum frequency will be required, which is stated in the last sentence of column 3 of the patent specification to be 50. This is a routine consideration for the person skilled in the art which does not require the exercise of any inventive skill or judgement.

The Board therefore has come to the conclusion that the subject-matter of claim 1 lacks inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

S. Fabiani

The Chairman:

F. Gumbel