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Bezeichnung der Erfindung: Flavour composition and use thereof in food
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : A23L 1/226

ENTSCHEIDUNG / DECISION
vom / of / du 12 June 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet : The Procter & Gamble Company

Einsprechender / Opponent / Opposant : Unilever N.V.

Stichwort / Headword / Référence : Flavour/Procter

EPÜ / EPC / CBE Articles 56 and 83

Schlagwort / Keyword / Mot clé : "Inventive step (confirmed)"
"Skilled person - team incorporating a tasting panel"

Leitsatz / Headnote / Sommaire

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Case Number : T 295/88 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 12 June 1989

Appellant : (Opponent)
Unilever N.V.
Patents Division
P.O. Box 137
NL-3130 AC Vlaardingen

Representative :

Respondent : (Proprietor of the patent)
The Procter & Gamble Company
301 East Sixth Street
Cincinnati
Ohio 45202 (US)

Representative :
Brooks, Maxim Courtney et al.,
Procter & Gamble (NTC) Limited
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Decision under appeal :
Interlocutory decision of the Opposition D the European Patent Office dated 29 concerning maintenance of Europea No. 0 021 481 in amended form.

Composition of the Board :

Chairman : K.J.A. Jahn
Members : R.W. Andrews
G.D. Paterson

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 021 481 in respect of patent application 80 200 507.4, filed on 2 June 1980 and claiming priority of 12 June 1979 from a prior application filed in the United States of America, was announced on 16 February 1983 (cf. Bulletin 83/7).

II. On 16 November 1983 a notice of opposition was filed requesting the revocation of the patent on the grounds of insufficient disclosure, lack of novelty and inventive step. The opposition was supported, **inter alia**, by the following documents:

(2) US-A-3 653 921
(3) JP-A-56-36891 (English translation thereof) and
(7) Cereal Science Today, Volume 17(4), pages 107 to 109, 1972.

III. By an interlocutory decision dated 29 April 1988 the Opposition Division maintained the patent in amended form on the basis of the text of Claims 1 and 2 as set out in the communication pursuant to Rule 58(4) EPC of 19 January 1988. These claims read as follows:

"1. An edible oil or fat comprising a butter flavor composition characterised in that the butter flavor composition consists of

(a) a mixture of diacetyl, butanoic acid, and hexanoic acid encapsulated in an oil-insoluble, water-soluble encapsulating agent; and

(b) other unencapsulated flavour material comprising a mixture of deltadodecalactone, octanoic acid and decanoic acid,

wherein the edible oil or fat has a pleasant aroma at room and cooking temperatures and wherein a full balance flavor impression is achieved when the edible oil or fat is eaten or used in preparing foods.

2. A composition according to Claim 1 characterised in that the encapsulating agent is a natural gum".

IV. The Opposition Division considered that the requirements of Articles 83 and 84 EPC were met by the amended patent specification. The Opposition Division also concluded that the claimed subject-matter was novel and involved an inventive step. In the light of the closest prior art as represented by document (3), the Opposition Division saw the technical problem underlying the disputed patent in providing an edible oil or fat having a butter flavour impression and aroma which is considered to be pleasant before and during its use in cooking and which imparted a full balanced flavour impression to the cooked food. In the Opposition Division's view the recognition of the partial encapsulation of the flavour ingredient and the selection of specific ingredients as claimed involved an inventive step since this step was not foreseen in the prior art and the particular effect obtained therewith could not be derived from the combined teaching of the cited prior art.

V. A notice of appeal was filed on 29 June 1988 and the prescribed fee duly paid. A statement of grounds of appeal was filed on 25 August 1988.

In his statement and in the reply to the Respondent's letter of 10 January 1989, the Appellant contended that

document (2) was also concerned with the problem of the off-flavour arising from the rapid volatisation of diacetyl, butyric acid and hexanoic acid and that the alternative solution to this problem provided by the disputed patent was obvious. Thus, it was known from document (2) that the volatisation of flavour compounds may be prevented by encapsulation. Therefore, it would be obvious to overcome the negative flavour effects attributed to the above-mentioned volatile compounds by encapsulating them. Furthermore, it would be self-evident to encapsulate only the off-flavour generating volatile compounds.

The Appellant also maintained that the patent in suit does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by the skilled person insofar as the present Claim 1 contains indefinite functional features.

VI. The Respondent contended that document (2) solved the problem of providing a food additive concentrate having improved shelf-life and low calorie content and which, when added to foodstuffs in small amounts, imparts a "true" butter flavour by blending a lipase-modified milk fat containing diacetyl and butyric acid with a buffering agent and a diluent and spray drying the resulting blend. However, buffering the flavour concentrate in order to suppress the aroma and volatility of the lower fatty acids would also suppress the aroma of all fatty acids, including, for example octanoic and decanoic acids, and, therefore, would not achieve the object of the disputed patent of providing an edible oil or fat with an authentic buttery aroma and flavour balance. Although micro-encapsulation is widely applied in the food industry, there is no disclosure, teaching or suggestion in the prior art of selective encapsulation of only the water-soluble

flavour components of the total butter flavour composition.

The Appellant has also argued that the patent specification is addressed to the skilled person as represented by a trained tasting panel and that such a panel would have no difficulty in reaching agreement on the meaning of "full balanced flavour" or in understanding the expression "cooking temperatures". Therefore, the objection on the grounds of insufficiency would appear to be speculative and not supported by any evidence that the skilled person would be unable to carry out the invention.

VII. The Appellant requests that the decision under appeal be set aside and the patent revoked. The Respondent requests that the appeal be dismissed.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.

2. There are no formal objections under Article 123 EPC to the present Claims 1 and 2, since they are adequately supported by the original disclosure and do not extend the protection conferred. Claim 1 is based on Claims 1, 3, 6 and 7 as filed and granted in combination with page 2, lines 12 to 20 of the printed patent application (cf. also column 1, lines 44 to 59 of the published patent specification). Claim 2 corresponds to Claim 5 as filed and granted.

3. The patent in suit claims an edible oil or fat comprising a butter flavour composition which consists of a mixture of encapsulated and unencapsulated flavour components. Document (3), the accuracy of the English translation of

which has not been contested, is considered to represent the closest state of the art. This document discloses an edible oil or fat in which an encapsulated flavour is dispersed. The edible fat or oil, which is suitable for the preparation of fried foods, may contain an encapsulated butter flavour (cf. Claim 1 and Examples 1 to 4).

3.1 A disadvantage of these prior art compositions was considered to lie in the fact that the butter flavour was only released when the edible oils or fats were used in cooking. Thus, only foods which have been fried in these prior art edible oils or fats acquire the desired butter-like flavour. Therefore, in the light of this closest prior art, the technical problem underlying the patent in suit may be seen in providing an edible oil or fat which has a pleasant buttery aroma and balanced flavour, irrespective of the temperature of the oil or fat and of whether it has been used in cooking or not.

3.2 According to the disputed patent this technical problem is essentially solved by adding to an edible oil or fat a mixture which consists of diacetyl, butanoic acid and hexanoic acid encapsulated in an oil-insoluble, water-soluble encapsulating agent and other unencapsulated flavour ingredients comprising deltadodecalactone, octanoic acid and decanoic acid.

3.3 In the light of the results reported in the declaration of D.H. Millison filed on 23 May 1985 and the Example in the disputed patent, the Board is satisfied that the technical problem as defined above is plausibly solved. The above-mentioned declaration reports that an edible fat containing a partially encapsulated butter flavour was considered by a tasting panel to have a buttery aroma and flavour and that the same composition was judged as imparting a butter flavour to foods cooked by using the said edible fat.

Similarly, the Example of the patent in suit discloses that an edible oil in accordance with the present Claim 1 had a pleasant aroma at room temperature and food fried in this oil had a buttery taste.

4. After examination of the cited prior art the Board has reached the conclusion that the subject-matter of the disputed patent is novel. Since novelty is no longer in dispute it is not necessary to consider this matter in detail.

5. It still remains to be examined whether the requirement of inventive step is met by the claimed subject-matter.

5.1 As previously mentioned, document (3) describes edible fat and oil compositions containing encapsulated butter flavour ingredients. These prior art compositions, which have no or practically no aroma, nevertheless impart the desired flavour to foods which have been fried in them (cf. first paragraph of the detailed description on page 1 and the paragraph bridging pages 5 and 6 of the English translation of this document). It is also clear from this latter paragraph and the first complete paragraph on page 7 that the flavour ingredients are encapsulated in oil-insoluble, water-soluble materials.

This document additionally teaches that both unencapsulated and encapsulated flavour ingredients may be added to the edible oil or fat, provided that the unencapsulated flavour ingredients are ones which the consumer would consider to be appropriate to fried foods. Furthermore, the unencapsulated and encapsulated flavour ingredients may have the same or different taste (cf. the paragraph bridging pages 6 and 7).

However, there is no suggestion or teaching in this document of the selective encapsulation of the volatile, water-soluble flavour ingredients of the total butter flavour or that this would solve the problem underlying the patent in suit.

5.2 Document (2) discloses a concentrated food additive comprising a lipase enzyme modified milk fat or butter oil, a buffering agent, an edible diluent and at least one flavour and aroma principle including butyric acid and a compound selected from esterified butter oil, diacetyl and mixtures thereof (cf. column 2, lines 40 to 45). These concentrates have a characteristic, pleasing butter-like flavour and aroma which, when added in small amounts, will impart a typical butter flavour to food material (cf. column 2, lines 17 to 21).

According to this document the buffering agent serves to stabilise and control the pH of the composition by converting free fatty acids into acid salts. This is important in suppressing undesirable (pungent) aroma notes associated with lower fatty acids and also helps to retain and control the normally volatile fatty acid fractions contributing to the desirable butter-like characteristics of the product during processing and storage. The fatty acid fractions are released when the concentrate is added to normally acidic foods (cf. column 3, lines 36 to 46).

Thus, according to this document an essential feature of the solution to the problem of achieving flavour concentration without adversely effecting odour is to convert all fatty acid aroma principles, i.e. both volatile and non-volatile fatty acids, into their corresponding salts by means of buffering agents. Therefore, the teaching of this document would not provide the skilled person with any motivation for undertaking the selective encapsulation

of the volatile, water-soluble ingredients of the whole butter flavour in the expectation of solving the problem of providing an edible fat or oil having a sweet buttery aroma and such that the flavour of product is fully balanced and remains authentic both upon storage and heating and that foods fried in the product acquire a full balanced butter flavour impression.

5.3 Document (7) is an article dealing with the use of micro-encapsulation in food additives. One of the potential uses of encapsulation in the food industry suggested in this article is the encapsulation of volatile compounds to be retained for release under selected conditions (cf. bottom of the right-hand column on page 108). However, this very unspecific reference would not lead the skilled person to consider encapsulation in place of buffering agents in the products of document (2) or to the concept of selective encapsulation to overcome the flavour and aroma negatives in edible fats and oils.

6. Therefore, in the Board's judgement the subject-matter of Claim 1 involves an inventive step. Claim 2, which relates to a preferred embodiment of the product of Claim 1, derives its patentability from this claim.

7. In the Board's view the Appellant's allegation that the disputed patent does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a skilled person is without foundation. In view of the subject-matter of the disputed patent the skilled person referred to in Articles 83 and 100(b) EPC must be assumed to be a team incorporating a trained tasting panel. In the Board's judgement this panel would have no difficulty in establishing whether an edible oil or fat had a pleasant aroma at room and cooling temperatures or whether a full balance flavour impression is achieved when the product is

eaten or used in preparing foods. Similarly, the expression "cooking temperature" would be clear to such a trained panel.

Furthermore, in view of the above, the Board is satisfied that the requirements laid down in the decision of this Board T 68/85 (cf. OJ EPO 1987, 228) are met by the present Claim 1.

8. The Board does not consider it necessary to amend the present Claim 1 in order to specify that the edible fat or oil is water free since this feature is already implicitly contained therein. Thus, if the claimed compositions are not substantially free from water the encapsulated volatile flavour and aroma components would be released prematurely, since the encapsulating agent is water-soluble. It is essential that the encapsulated flavour and aroma components are only released when water is added externally. The normal source of the water will be the foods being fried, cooked or grilled or otherwise prepared therein or the saliva of the mouth.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

F. Klein K. Jahn