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File Number: T 282/90 - 3.3.2

Application No.: 82 200 346.3

Publication No.: 0 063 389

Title of invention: Spreadable water-in-oil emulsion based on a high-melting
butterfat fraction and a liquid oil

Classification: A23D 3/00

D E C I S I O N
of 14 January 1993

Applicant: Unilever N.V., et al

Opponent: Krayner, Warner Dirk

Headword: Spreadable emulsion/UNILEVER

EPC Article 56

Keyword: "Inventive step (yes) - non-obvious alternative"



Case Number : T 282/90 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 14 January 1993

Appellant :
(Opponent)

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Representative :

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Respondent :

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(Proprietor of the patent)

Representative :

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Decision under appeal :

Interlocutory decision of the Opposition Division
of the European Patent Office dated 17 November
1989, posted on 2 February 1990 concerning
maintenance of European patent No. 0 063 389 in
amended form.

Composition of the Board :

Chairman : P.A.M. Lançon
Members : A.J. Nuss
E.M.C. Holtz

Summary of Facts and Submissions

- I. European patent No. 0 063 389, corresponding to European application No. 82 200 346.3, was granted on the basis of two sets of claims, one for the Contracting States BE, CH, DE, FR, GB, IT, LI, SE comprising sixteen claims and one for the Contracting State AT comprising twelve claims.
- II. The Appellant (Opponent) filed notice of opposition against the European patent, requesting its revocation on the ground of lack of inventive step. Of the documents cited in the course of the proceedings, the following remained relevant for the present decision:
- (1) GB-A-1 217 395
 - (5) NL-A-6 908 382 (English translation)
 - (6) NL-A-7 412 790 or GB-A-1 478 707 (based on the same priority)
 - (7) US-A-3 519 435
 - (9) Österreichische Milchwirtschaft (1971), 7, pages 121-129.
- III. In its interlocutory decision, the Opposition Division decided to maintain the patent in amended form with the text as notified to the parties, comprising one set of fourteen claims instead of the granted sixteen and another set of eleven claims instead of the granted twelve claims.

According to the Opposition Division, the problem to be solved in the present case was that mentioned in the description, namely to improve the spreadable emulsion known from document (1) by providing an emulsion with a reduced amount of the expensive butterfat and an increased amount of oil, preferably vegetable oil having a high content of unsaturated fatty acids which have a favourable

physiological effect, with the further object of obtaining a better spreadability at temperatures ranging from 5-20°C than that of conventional products (see column 1, paragraph 3). It considered that the claimed solution was not obvious because the documents referred to by the Opponent contained no information which would have led the skilled man to replace the unfractionated butterfat of (1) by the butter stearin fraction as defined in Claim 1.

Although it might be the case that with the process described in document (7) butter stearin fractions similar to those of the patent in suit could be obtained, this document contained no information which would have encouraged the man skilled in the art to use one of the described hard fractions for solving the underlying problem. In particular, it was silent as to the precise fraction (olein or stearin) needed in the manufacture of oleomargarine.

Document (5) was considered to have nothing in common with the aim to improve the spreadability at temperatures ranging from 5 to 20°C and that, therefore, it could contribute nothing to the solution of the problem. The same also applied to the remaining documents.

IV. The Appellant lodged an appeal against this decision.

Oral proceedings were held on 14 January 1993.

In their written submissions and/or at the oral proceedings before the Board, the Appellant argued in essence that in order to avoid obtaining a product which was too oily at higher temperature, the man skilled in the art would add a "harder" fat in accordance with the teaching of the prior art such as represented by document

(6), (5) or (9), a measure also known to allow an increase of the proportion of vegetable oil in the final product.

As it was self-evident to the skilled person to use a "harder" milk fat when increasing the desirable amount of vegetable oil, it was quite obvious to use the known butter stearin fraction recommended for that purpose in document (7); correct reading of this document would indeed indicate that any milk fat fraction mentioned there could be used to great advantage in the manufacture of oleomargarine. Moreover, as stated in document (9), spreads used by the US forces during the second world war were required not to exude oil during a 24-hour period when exposed at a temperature of +44°C, a goal which was achieved at that time by addition of hardened palmfat (see reference to Schulz). Nowadays, however, such requirements could be easily met by using a hard milkfat fraction.

- V. The Respondent (Proprietor of the patent) argued that the opposed documents did not foreshadow the use of natural butter stearin, together with a high amount of liquid vegetable oil, in the manufacture of a product spreadable at temperatures ranging between refrigerator temperature and room temperature because no suggestion was made in the state of the art to remove the olein fraction from butterfat and to use the resulting butter stearin together with added vegetable oil for preparing a spread.
- VI. The Appellant requested that the decision under appeal be set aside and the European patent No. 0 063 389 be revoked.

The Respondent requested that the appeal be dismissed.

- VII. (i) Independent Claims 1 and 9 for the Contracting States BE, CH, DE, FR, GB, IT, LI, SE read as follows:

"1. Spreadable water-in-oil emulsion comprising:

(i) an aqueous phase having a pH of from 4.0 to 7.0 and constituting at most 70 percent by weight of the total emulsion;

(ii) a fatty phase containing

a) a liquid oil which at 10°C is substantially free of solid fat crystals and

b) butter stearin fraction having the following solid fat contents:

$N_{10}=50-80$; $N_{20}=25-45$; $N_{35}=3-18$

containing 20-65 percent by weight of stearin and from 35-80 percent by weight of oil and is characterized in that the ratios between the components of the fatty phase are such as to impart to the fatty phase the following solid fat contents:

$N_{10}=15-40$; $N_{20}=8-20$; $N_{35}=0-5$.

9. Process for preparing a spreadable emulsion according to claim 1, characterised in that

(a) butterfat is liquefied and subsequently a high-melting butter stearin is separated therefrom by fractionation, having the following solid fat contents:

$N_{10}=50-80$; $N_{20}=25-45$; $N_{35}=3-18$;

- (b) a fatty phase according to claim 1 is prepared, starting from the butter stearin fraction obtained in step (a) and a liquid oil which at 10°C is substantially free of solid fat crystals;
- (c) the fatty phase thus obtained and an aqueous phase of pH=4.0-7.0 are subjected to cooling and working to obtain a spreadable product of the desired texture and plasticity."

(ii) Independent Claim 1 for the Contracting State AT reads as follows:

"1. A process for producing a spreadable water-in-oil emulsion characterized in that

(a) butterfat is liquefied and the liquid butterfat is fractionated to obtain a stearin having the following solid fat contents:

$N_{10}=50-80$; $N_{20}=25-45$; $N_{35}=3-18$;

(b) said stearin is mixed with a liquid oil which at 10°C is substantially free of solid fat crystals, to obtain a fatty phase containing 20-65 percent by weight of stearin and from 35-80 percent by weight of oil and characterized in that the ratios between the components of the fatty phase are such as to impart to the fatty phase the following solid fat contents:

$N_{10}=15-40$; $N_{20}=8-20$; $N_{35}=0-5$;

(c) the fatty phase thus obtained and an aqueous phase of pH=4.0-7.0 are cooled and worked to obtain a

spreadable product of the desired texture and plasticity."

Reasons for the Decision

1. The appeal is admissible.
2. The present Claims 1 and 9 for the Contracting States BE, CH, DE, FR, GB, IT, LI, SE raise no objections under Article 123(2) and (3) EPC, since they are adequately supported by the original disclosure and do not lead to extend the protection conferred when compared to the claims as granted (see granted, i.e. originally filed, Claims 1, 2, 6 and 11 and page 1, line 22 to page 3, line 5 of the original description). Similar considerations also apply to present Claim 1 for the Contracting State AT (see granted, i.e. originally filed, Claims 1 and 7, and page 2, line 34 to page 3, line 5 of the original description).
3. The patent in suit relates to a spreadable water-in-oil emulsion based on a high-melting butterfat fraction and a liquid oil, and a process for preparing said spreadable emulsion.
 - 3.1 Contrary to the opinion expressed by the parties at the oral proceedings and which may also be found in the contested decision, document (1) does not qualify as closest state of the art because it does not represent the most promising springboard towards the invention (see T 254/86, OJ EPO 1989, 115, paragraph 15 of the Reasons for the Decision). As pointed out by the Board at the hearing, this criterion is met by document (5) for the reason that the edible fat product (in particular suitable for use as an oil for margarine) described there comprises

a hard fat phase and a high concentration of liquid oil (above 30%) containing a high content of essential fatty acids, having the advantage of exhibiting substantially constant consistency over a very wide temperature range, as a consequence of which the fat product can be used with the same facility both at refrigerator temperature and at room temperature (see claims; page 3, line 23 to 28 and examples 1 to 3). These are precisely the requirements to be satisfied by the claimed product; nothing of this kind can be found in document (1) (see point 5.4 below and column 1, line 7 to 25 of the patent in suit). There can thus be no doubt that document (5) is closer to the claimed invention than document (1).

3.2 In view of the above, the technical problem in respect of document (5), i.e. the closest prior art, could only be seen in providing an alternative for the known spreadable margarine product containing a high content of edible oil.

3.3 The solution to this problem consists in a spreadable water-in-oil emulsion as defined or prepared in accordance with the present claims, comprising a fatty phase containing (butter) stearin.

In view of the examples provided in the patent in suit, the Board is satisfied that this problem has been plausibly solved by the measures referred to in the present claims.

4. In the absence of any document which discloses the subject-matter of the present claims, they must be regarded as new. This was not contested by the Appellant.

5. The question which remains to be decided is thus whether the requirement for inventive step is met by the present claims.
- 5.1 Although the edible fat product described in document (5) allows the preparation of margarines which exhibit the same properties as the spreadable water-in-oil emulsion obtained in accordance with the patent in suit (see point 3.1 above), the man skilled in the art would have noticed that the said properties are clearly due to the use of a very specific hard fat phase, namely a hard fat mixture composed of synthetically prepared triglycerides containing at least 90% of saturated fatty acids and of which at least 90% of the triglycerides have such a configuration that the carbon number has a value of $X \pm Y$, in which X ranges from 34-44 and Y is maximally 10 (see Claim 1). He would therefore have realised that, as far as the hard fat is concerned, specific requirements must be met in order to obtain margarines exhibiting a wide spreadability range, especially since he knew from the introductory part of document (5) that by using a completely hardened oil as the hard fat component the products finally obtained would show inferior properties as regards melting characteristics (see page 2, first full paragraph).

In view of the preceding, the Board is of the opinion that it was clear to the man skilled in the art that the chemical composition of the hard fat phase was a highly critical parameter and that therefore, when trying to find an alternative for the spreadable fat product known from document (5), he would not have considered any hard fat product as a suitable component to be combined with an edible oil but only one which would allow the preservation in the final product of both a high content of edible oil and a wide spreadability range.

5.2 Thus, when taking account of the above, there can be no doubt that document (7) does not suggest the solution as now claimed. This document deals neither with the aspect of using high amounts of edible oil nor with that of spreadability between refrigerator temperature and room temperature. The main object there is to provide efficient and economical fractionation of milk fats of varying melting points from 99-100% milk fat, and production of products, including butter, containing the separated fats in a desired ratio having the most desirable characteristics for the production of butter or other products containing the fractionated fats. The fractionated hard and soft fats can be combined in a selected ratio to provide desired characteristics, such as a particular melting point for use in manufacture of butter and other various products (see column 1, lines 49 to 66, column 3, lines 57 to 73 and column 4, lines 1 to 15). However, tailoring of "a particular melting point" by combining hard and soft milk fat fractions is a technique which is completely different from that used in the patent in suit by the fact that the latter does not require any addition of low melting point milk fats. In addition, although document (7) provides many examples of products in which the soft and/or hard milk fat fractions can be used there is no mention at all of using butter stearin and the only reference to margarines is the following statement at the end of the first paragraph of column 4: "The milk fat fractions can be used to great advantage in the manufacture of oleomargarine". In the view of the Board, this statement is very vague and it is thus not even clear whether "the milk fat fractions" concern the separated soft and hard fractions or the tailored fat mixture discussed above. Under these circumstances, it does not seem realistic to consider that document (7) suggested to replace the hard fat phase described in document (5) by

butter stearin, especially when taking into account that the requirements to be met by the hard fat phase used in the latter do not fit with butter stearin, as pointed out by the Respondent at the oral proceeding and which was not contested by the Appellant.

The fact that, as shown by the Appellant at the opposition stage, the fractionating method disclosed in document (7) may lead to a hard fraction characterised by N values close to those of the butter stearin used in the patent in suit cannot lead to a different assessment of the teaching of document (7) because it is not relevant, for the question of inventive step, whether the man skilled in the art could have used that fraction but whether he would indeed have done so in the expectation of solving the underlying technical problem, which is not the case here (see T 2/83, OJ EPO 1984, 265; T 411/89 of 20 December 1990, point 8.2 of the Reasons for the Decision; T 267/88 of 18 December 1990, point 4.1 of the Reasons for the Decision).

5.3 Document (9) does not foreshadow the claimed solution either. This publication merely teaches that by adding hard or soft butter fractions to butter fat a product with practically any desired hardness can be obtained (see page 123, right column, first paragraph). It therefore concerns a problem which is different from that to be solved in the patent in suit, namely the provision of a spreadable margarine containing a high content of edible oil.

It is true that the Schulz reference cited in document (9) mentions the problem of oil exudation in spreads stored at high temperatures (+44°C) and also that this problem could be easily met nowadays by adding a hard milk fat fraction, whereby butter suitable for the tropics is given as an

example. However, apart from the fact that there is no reason to believe that the man skilled in the art would have considered this as an invitation to use butter stearin, there are no indications that there exists any link between preventing oil exudation at high temperatures in butter-like spreads and preservation of spreadability between refrigerator temperature and ambient temperature in the case of margarines containing a high content of edible oil.

5.4 Document (6) describes the fractionation of milk fat into a number of fractions some of which are blended in proportions such that the ratio of liquid fat content to solid fat content of a soft dairy spread including such fat content remains substantially constant over a temperature range of 5°C to 22°C (see Claim 1 and page 2, lines 33-36). Here, a butter-like spread with a satisfying spreadability range is obtained by imperatively recombining specific milk fat fractions without using any edible oil at all. Therefore, this document concerns a product which is completely different from that of the patent in suit and in which the spreadability problem is also solved in a completely different way. It is thus clear that the statement "because the solid fat content of butter-like products is the principal factor in determining their rheological properties" (see page 1, lines 22-24) could not have suggested to the man skilled in the art the solution as now claimed in the patent in suit. The same applies of course to the corresponding English equivalent GB-A-1 478 707 (see Claim 1 and page 1, lines 42-45).

Document (1) also fails to suggest the claimed solution because there a mixture of cream and refined vegetable triglyceride oil, in an amount of 5-30% by weight of the fat content of the food product obtained by the churning

of the mixture, is used for making a butter-like spread (see Claim 1). As already set out in point 3.1 above, this product has neither the required spreadability nor a satisfying amount of edible oil incorporated.

6. It follows from all the above that neither the claimed product nor the process for preparing it is foreshadowed by the documents cited by the Appellant. Therefore, the subject-matter of the claims of both sets must be considered to involve an inventive step in the sense of Article 56 EPC.
7. In the absence of any ground which would prejudice the maintenance of the patent in the form as amended at the opposition stage, the appeal must fail.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

P. Martorana

P.A.M. Lançon