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D E C I S I O N
of 21 November 2001

Case Number: T 0074/96 - 3.3.2

Application Number: 88402446.4

Publication Number: 0312420

IPC: A23L 1/24

Language of the proceedings: EN

Title of invention:

Sauce having flavor like mayonnaise sauce and the method of the production thereof

Patentee:

TOKINO KABUSHIKI KAISHA

Opponent:

Unilever N.V.

Headword:

Mayonnaise Sauce/TOKINO

Relevant legal provisions:

EPC Art. 54, 56, 84, 111(1), 123(2), (3)
EPC R. 57, 57a

Keyword:

"Main request, first and second auxiliary requests: filed late, admissibility (no): substantially modified requests filed for the first time during oral proceedings"
"Third and fourth auxiliary requests: inventive step (no): use of egg yolk as thermally coagulable protein source for preparing (able) a mayonnaise-like sauce obvious in the light of the state of the art"

Decisions cited:

T 0153/85

Catchword:

-



Case Number: T 0074/96 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 21 November 2001

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 30 November 1995
revoking European patent No. 0 312 420 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: J. Riolo
Members: G. F. E. Rampold
S. U. Hoffmann

Summary of Facts and Submissions

I. The appellant is proprietor of European patent No. 0 312 420. The patent was granted with 9 claims in respect of European patent application No. 88 402 446.4; independent claims 1 and 3 as granted read as follows:

"1. A mayonnaise-like sauce prepared with ingredients consisting of vinegar, condiment, salt, water and egg, characterized in that the thermally coagulated egg is dispersed in a heated, stirred mixture to form a sauce having a flavour similar to mayonnaise and in that said sauce is in a semisolid state with fluidity equivalent to mayonnaise.

3. A process for preparing a sauce according to the claim 1 or 2."

Claim 2 was a dependent claim, directed to an elaboration of the sauce according to claim 1; dependent claims 4 to 9 related to elaborations of the process according to claim 3.

II. The respondent originally filed notice of opposition requesting revocation in full of the European patent under Article 100(a) EPC on the grounds of lack of novelty and inventive step. These grounds for opposition were supported by the following citations:

(1) GB-A-2 187 075,

(2) DE-A-2 243 692.

III. During oral proceedings before the opposition division, the proprietor presented an amended set of claims 1 to 8 and requested maintenance of the patent on the basis of the amended claims, claim 1 reading as follows:

"1. A mayonnaise-like sauce prepared with ingredients consisting of vinegar, condiment, salt, water and egg yolk, characterized in that the thermally coagulated egg yolk is dispersed in a heated, stirred mixture to form a sauce having a flavour similar to mayonnaise and in that said sauce is in a semisolid state with fluidity equivalent to mayonnaise, characterized in that said heating is carried out to a temperature of 90°C to 100°C."

IV. After considering the grounds for opposition, the opposition division revoked the patent under Article 102(1) EPC at the end of the oral proceedings. The stated ground for the revocation was lack of inventive step. The essence of the reasoning in the opposition division's decision posted on 30 November 1995 was as follows:

In view of the limitation of claim 1 to thermally coagulated egg yolk forming the proteinaceous coagulum used as the base for preparing the mayonnaise-like sauce according to claim 1, the disclosure of the cited documents was no longer detrimental to the novelty of the claimed subject-matter in the patent in suit.

As to inventive step, the opposition division found that the cited state of the art according to citations (1) and (2) was confronted with essentially the same problem as the patent in suit, namely that of providing low-calorie pseudo oil-based sauces, especially pseudo

emulsion sauces such as, for example, a "pseudo mayonnaise". It observed further that, although the preferred proteinaceous coagula used in citation (1) as the base for preparing low-calorie pseudo oil-based sauces or pseudo emulsion sauces were derived from milk products, the use of other coagula, in particular those resulting from thermal coagulation of egg, raw egg or egg white as the protein source, was for this purpose also already envisaged in the cited documents (1) and (2).

Consequently, the opposition division concluded that the claimed subject-matter in the patent as amended basically differed from the state of the art according to (1) and (2) in that egg yolk instead of raw egg, egg or egg white was used as the protein source for the coagulum. It recognised a further difference in the feature that this protein source was subjected to heat treatment at a temperature of 90°C to 100°C during formation of the thermally coagulated egg yolk and its subsequent dispersion in the aqueous medium to produce the mayonnaise-like sauce.

In its decision, the opposition division observed that egg, raw egg and egg white on the one hand, and egg yolk, on the other, were disclosed in the patent in suit as being entirely equivalent alternatives of protein sources for the preparation of the coagulum for the claimed mayonnaise-like product. According to the opposition division, this was in line with the disclosures of citations (1) and (2), which already envisaged the possibility of using a coagulum derived from any denatured protein source, including cooked egg white, hard-boiled egg or raw egg, for preparing a "pseudo mayonnaise". Thus, in the absence of any

unexpected beneficial effect associated with the use of egg yolk, the opposition division considered that the choice of thermally coagulated egg yolk forming the proteinaceous coagulum used in the patent in suit for preparing the mayonnaise-like sauce was plainly obvious to a person skilled in the art.

Similarly, it found that no particular effect associated with the specific conditions of the heat treatment specified in claim 1 was recognisable in the patent in suit. With reference to citations (1) and (2) and additionally citation (3), [ie O. Hess, Wiener Küche, 33. Auflage, 1962, pages 176-183, cited in the examining proceedings and introduced by the opposition division into the opposition proceedings], it was recalled in the opposition division's decision that the application of heat was already well known and commonly used in the cited state of the art not only in the preparation of classic mayonnaise itself, but also in the preparation of pseudo emulsion sauces, in order to induce thermal coagulation, as the heating proceeds, of the proteinaceous material used, eg egg, raw egg or egg white, and to obtain by dispersion of the proteinaceous coagulum in an aqueous medium a homogeneous sauce with the typical flavour and fluidity similar to mayonnaise.

- V. An appeal against the decision of the opposition division was lodged. In the course of the written proceedings the appellant (proprietor) requested oral proceedings. The board, in its communications under Article 110(2) EPC (Article 11(2) RPBA) dated 28 December 2000 and 7 June 2001, expressed in the light of the cited state of the art, *inter alia*, some doubts as to the patentability of the claimed mayonnaise-like products *per se*, which were defined in

all product claims in terms of the process for their preparation. It raised moreover certain doubts as to the admissibility of the disclaimer introduced in claim 1 as amended in the appellant's request filed on 28 February 2001, requiring that the mayonnaise-like sauce be free of milk and oil.

VI. In its reply of 5 October 2001, the appellant cancelled the product claims and filed a first set of six process claims forming the new main request. It presented further another set of six process claims forming a new auxiliary request. Claim 1 of the main request, filed on 5 October 2001 read as follows:

"A process for preparing a mayonnaise-like sauce prepared with ingredients consisting of vinegar, condiment, salt, water and egg yolk only, characterized in that the thermally coagulated egg yolk is dispersed in a heated, stirred mixture to form a sauce having a flavour similar to mayonnaise and in that said sauce is in a semisolid state with a fluidity equivalent to mayonnaise, said heating being carried out to a temperature of 90°C to 100°C".

VII. Following the chairman's introductory remarks at the oral proceedings, held on 21 November 2001, the appellant cancelled all previously-filed requests and presented, instead, three further amended sets of claims forming a new main request and new first and second auxiliary requests, respectively. The independent claims of the newly filed main request read as follows:

"1. A process for preparing a mayonnaise-like sauce from vinegar, condiment, salt, water and

coagulable egg matter as ingredients, said process comprising at least a step of coagulation and a step of mixing, characterized in that said coagulable egg matter consists in egg yolk only, in that the step of mixing comprises the preparation of a mixture of the ingredients in which water is present in an amount of 30 ml to 50 ml per one egg yolk, and in that the step of coagulation is carried out by heating said mixture under stirring to a temperature of 90°C to 100°C, whereby thermally coagulated egg yolk is dispersed in the heated and stirred mixture to form a sauce having a flavour similar to mayonnaise, and whereby said sauce is in a semisolid state with a fluidity equivalent to mayonnaise.

8. A sauce having a flavour like mayonnaise, which comprises thermal-coagulated egg matter dispersed in a mixture containing vinegar, condiment, salt and water, and which is in a semisolid state, characterized in that thermal-coagulated egg matter only consists in thermal-coagulated egg yolk, and in that water is present in an amount of 30 ml to 50 ml per 20 g of thermal-coagulated egg matter."

The process claims are slightly differently worded in the newly filed first and second auxiliary requests, but both these requests contain a product claim which is identical with product claim 8 of the main request.

- VIII. After hearing the appellant on the admissibility of the newly filed requests and adjournment for deliberation, the board's decision was announced that these requests had been refused. The appellant then presented the set

of claims 1 to 6 filed as the main request on 5 October 2001 (see paragraph VI above) as a new auxiliary request (for the purpose of this decision hereinafter referred to as third auxiliary request). Towards the end of the oral proceedings the appellant filed a last auxiliary request (for the purpose of this decision hereinafter referred to as fourth auxiliary request). As is the case in the third auxiliary request, this last (fourth) auxiliary request likewise consists of claims 1 to 6 filed as the main request on 5 October 2001, the first sentence of the characterizing portion of claim 1 differing slightly as follows:

<.....> characterized in that the **thermal-coagulating** egg yolk is dispersed in a heated stirred mixture <.....>".

IX. In its submissions in writing and during oral proceedings the appellant stressed in particular that, contrary to the view of the opposition division in the decision under appeal, the difference between low-calorie pseudo oil-based sauces disclosed in the state of the art according to citations (1) and (2) and the mayonnaise-like sauce obtained by the claimed process in the patent in suit could not simply be reduced to the absence of egg white as part of the proteinaceous coagulum. In its opinion, this view represented a gross and unacceptable simplification of the claimed invention.

Whereas egg yolk essentially consisted of phospholipids, proteins and water and was sterile from a bacteriological point of view, the components of egg white were essentially albumin, ie protein, and water. Both citations (1) and (2) provided the clear teaching

that egg white should be used to form a blend comprising a proteinaceous coagulum, water, condiment and a non-toxic acid and to convert this blend or mixture into a pseudo emulsion having a consistency comparable with that of an oil-in-water emulsion. However, neither of these citations, taken either individually or in combination, suggested to the skilled person preparing such a pseudo emulsion sauce by mixing egg yolk with a definite proportion of water per egg yolk under stirring and heating. To the contrary, the cited state of the art would have dissuaded the skilled person from trying to use egg yolk as the sole protein source for preparing pseudo emulsion sauces such as a "pseudo mayonnaise", since egg yolk as such contained a certain proportion of lipids which were not acceptable in a low calorie, "pseudo mayonnaise".

- X. The respondent disagreed, essentially relying on the following arguments:

Citation (1) mentioned that classic mayonnaise was a mixture of oil and an aqueous medium, egg yolk. This citation stated moreover that the proteinaceous coagulum may be a separated coagulum derived from any source, for example egg. It also emphasised that the coagulum should have a flavour profile consistent with the desired end use. Since classic mayonnaise included egg yolk, it necessarily had a flavour profile including egg yolk. Consequently, citation (1) pointed the skilled person clearly and directly towards the choice of egg yolk as a particularly suitable protein source for the preparation of the coagulum of a "pseudo mayonnaise".

On the basis of the disclosure in (1) and common general knowledge, a skilled person would not be directed away from heating a mixture incorporating egg yolk in order to make a "pseudo mayonnaise". On the contrary, he was likely to consider such an option favourably, particularly as heating the mayonnaise sauce would destroy microorganisms therein, and thereby deliver sterility.

In the opposed patent no advantages were stated for use of egg yolk over the use of raw egg consisting of egg yolk and egg white. In contrast it was stated that egg white had a function as a medium.

- XI. The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the first, second or third auxiliary request filed at the beginning of the oral proceedings or, alternatively, on the basis of the auxiliary request filed during oral proceedings, consisting of claims 1 to 6 of the main request as filed on 5 October 2001 (third auxiliary request), or, as a further alternative, on the basis of the last auxiliary request filed towards the end of the oral proceedings (fourth auxiliary request).

The respondent requests that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

*Main request; first and second auxiliary requests:
admissibility*

2. As is apparent from paragraph VII above, the three sets of claims forming the present main request and first and second auxiliary requests were brought to the board's and the respondent's attention as well **for the first time** only at the beginning of the oral proceedings before the board. They were thus filed almost at the last possible moment: that is more than five years after the statement of grounds of appeal was filed.

The subject-matter of all three requests differs in various aspects and to a substantial degree from the claims filed with the grounds of appeal and the claims filed on 5 October 2001, themselves the successors of earlier filed amended claims with the filing date of 28 February 2001 (see paragraphs V and VI above). Consequently, the first question to be decided in relation to the amended sets of claims in the main request and the first and secondary auxiliary requests is whether such alternative sets of claims should be admitted for consideration in this appeal.

- 2.1 In relation to appeal proceedings, the normal rule is as follows: If an appellant wishes the allowability of one or more alternative sets of claims, which differ in subject-matter from those considered at first instance, to be considered by the board when deciding on the appeal, such alternative sets of claims should be filed **with the grounds of appeal, or as soon as possible thereafter**. When deciding on an appeal during oral proceedings, the board, exercising its power of discretion under Article 111(1) EPC, may disregard alternative claims which have been submitted after a time limit set by the board has expired or which have not been submitted in good time prior to oral

proceedings (as a rule at least four weeks before the date set for the oral proceedings), but at a very late stage, for example, during oral proceedings.

The above principles are in keeping with Article 11(1) and (3) of the Rules of Procedure of the Boards of Appeal (RPBA) and were set out clearly and concisely in the "Guidance for parties to appeal proceedings and their representatives", issued by the EPO and published in the Official Journal (OJ EPO 1996, 342-356, see especially page 353, point 3.3, first two paragraphs). These statements refer specifically to the submission of amendments but are clearly applicable to the submission of alternative sets of claims by way of auxiliary requests. An auxiliary request is a request for amendment which is contingent on the main request being held to be unallowable. This means that auxiliary requests should likewise be filed as early as possible (OJ EPO 1996, see especially page 353, point 3.3, third paragraph).

- 2.2 The admissibility of all late-filed requests is subject to the general principle applied, *inter alia*, in case T 153/85 (OJ EPO 1988, 1) to the facts of that case. This principle, namely that it is for the public good that legal conflicts be brought to an early close ("*expedit rei publicae ut sit finis litium*"), is a legal maxim that is said to belong to the laws of all countries (Black's Law Dictionary; 6th edition). This is particularly so where the new requests, as in the present case, were filed for the first time during oral proceedings in the appeal, at the end of which a final decision should normally be given - thereby bringing the legal conflict (ie the opposition appeal) to a close.

It needs to be stressed that decision T 153/85 and other decisions in the substantial body of case law which has been developed by the boards of appeal in this respect (see eg "Case Law of the Boards of Appeal of the European Patent Office", 3rd edition, 1998, VII. D. 14.1, 14.2 pp 504-509) are essentially specific applications, pursuant to Article 125 EPC, of the above maxim in that they provided certain guidelines and criteria for the admissibility of late-filed requests: the board may justifiably consider late-filed requests to be inadmissible, for example, if the alternative claims contain subject-matter which has not previously been claimed and which was brought to the board's and the other parties' attention for the first time at the oral proceedings, thereby preventing the board from reaching a decision at the end of the oral proceedings and causing the final decision itself to be reserved, although the oral proceedings before the board are closed (cf. continuation of the appeal in writing or referral to the department of first instance for consideration of subject-matter newly introduced in the claims for the first time at the appeal stage).

- 2.3 The submission of amendments to the description , claims or drawings of a patent is regulated by Articles 84 and 123 EPC in general and Rules 57 and 57a EPC. In the present case, the wording of the amended claims gives cause to call into question compliance of the above-mentioned, late-filed requests with all of the requirements of the EPC and their validity for forming the basis of an allowable patent.

In particular, the mayonnaise-like sauce is defined in claim 1 of the patent as granted by the indication of the **definitive list** of its ingredients, using the

terminology: "a mayonnaise-like sauce prepared with ingredients **consisting of** vinegar, condiment, salt, water and egg <.....>". As can be seen from paragraphs I and VII above, this originally closed definition in the claims as granted has been replaced in claims 1 and 8 of the new main request by entirely open-ended definitions, reading in claim 1:

"a mayonnaise-like sauce **from** vinegar, condiment, salt, water and coagulable egg matter as ingredients <.....>";

and in claim 8:

"a sauce having a flavour like mayonnaise **which comprises** thermal-coagulated egg matter dispersed in a mixture **containing** vinegar, condiment, salt, water <.....>".

Claim 8 of the first auxiliary request and claim 7 of the second auxiliary request are identical in their wording with claim 8 of the main request.

In view of the foregoing observations, the board could, *prima facie*, not exclude the possibility that the above-mentioned claims in the main request and the first and second auxiliary requests extend the scope of protection conferred by the claims as granted and that such claims would therefore not be allowable under Article 123(3) EPC.

2.4 Further, claims 1 and 8 in the main request and likewise in the first auxiliary request and claims 1 and 7 in the second auxiliary request include certain additional technical features from the description.

These features require that, in the mixture of the ingredients of the mayonnaise-like sauce, **water be present in an amount of 30 ml to 50 ml per one egg yolk** (see claim 1) or that **water be present in an amount of 30 ml to 50 ml per 20 g of thermal-coagulated egg matter** (see claims 7 or 8).

It would appear, *prima facie*, that the feature "30 ml to 50 ml water per one egg yolk" lacks sufficient clarity, contrary to the requirements of Article 84 EPC, since egg yolk itself contains water, the actual amount and proportion of which may vary broadly from egg yolk to egg yolk. Accordingly it appears at least not entirely clear, what is actually and precisely meant by the feature "30 ml to 50 ml water per one egg yolk". On the other hand, the feature "30 ml to 50 ml water per 20 g of thermal-coagulated egg matter" seems to lack adequate support in the disclosure the application as filed contrary to the requirements of Article 123(2) EPC.

- 2.5 Apart from their potential deficiencies on the grounds of lack of clarity and support, all late-filed requests contain subject-matter which has not previously been claimed. The features mentioned in point 2.4 above can be found neither in any of the claims filed during examination of the application and examined by the examination division, nor in any of the claims filed in the course of the opposition proceedings. They are similarly not present in any of the claims filed at the appeal stage prior to the oral proceedings before the board. These newly introduced features shift the claimed invention in a direction neither envisaged in the application as filed nor in the patent as granted.

Accordingly, the first instance, in both the examination and opposition proceedings, had never had the opportunity to examine the invention as presently claimed. Moreover, the impact of the newly introduced features is, in the board's judgment, rather unclear and nearly impossible for the board to assess without further investigation.

2.6 Finally, in the present case the appeal had already been filed as far back as January 1996. Consequently, as a matter of principle, the board considers the filing of the above-mentioned new requests in the present opposition appeal proceedings for the first time during the oral proceedings before the board, ie at the last possible moment, to represent a severe violation of procedural fairness, which can be said to amount to an abuse of procedural rights. When filing these requests, the appellant has, moreover, entirely ignored the board's express invitation and request [in its communication pursuant to Article 11(2) RPBA dated 7 June 2001] to file amended claims at least one month before the date fixed for the oral proceedings. Since the amendments incorporated in the main request and the first and the second auxiliary requests resulted in a shift of the invention or a new principle thereof (see point 2.5 above), filing of all three requests in writing in good time before the oral proceedings would clearly have been necessary for their proper consideration and examination by the board and the respondent. Thus, in the circumstances of the case, the appellant must be deemed to have been fully aware that it would be impossible for the respondent and also the board to deal properly with these substantially modified requests during oral proceedings. An adjournment, possibly to another day, or remittal to

the department of the first instance, in order to deal properly with these new requests, might have been necessary, if these requests were to be admitted. This should however be avoided in the interests of both the respondent and the public.

- 2.7 Consequently, in view of the fact that the appellant's main request and first and second auxiliary requests were filed late during the oral proceedings before the board, without any proper justification for such late filing in respect of the present proceedings and in view of the conclusion reached in points 2 to 2.6 above, the board rejects these requests as inadmissible.

Third auxiliary request: admissibility; allowability

3. The third auxiliary request, filed during oral proceedings before the board, consists of claims 1 to 6, which were presented in identic form as the main request on 5 October 2001 with the appellant's letter dated 2 October 2001 (see paragraph VI above). This means that this request was in fact available to the board and the respondent more than six weeks before the oral proceedings scheduled to take place on 21 November 2001 and, accordingly, within time limit for filing amended claims specified in the board's communication under Article 110(2) EPC of 7 June 2001.

The wording and content of the claims in this requests is essentially based on the claims of the patent as granted. Moreover, the limitation of this request so as to contain process claims only by deleting the product claims and the amendments to the process claims can fairly be said to arise out of the grounds of

opposition and, similarly, to constitute a *bona fide* attempt by the appellant to deal with the observations and objections in the board's communications under Article 110(2) EPC of 28 December 2000 and 7 June 2001.

Further, the amendments to present claims 1 to 6 mentioned above do not change the particular purpose or character of the claimed invention as set out in the application as filed and, therefore, did not prevent the present case from being ready for decision at the conclusion of the oral proceedings. Consequently, in the circumstances of the case, the board decided during the oral proceedings to admit the third auxiliary request into the proceedings for its consideration.

4. There are no formal objections under Article 84 and Article 123(2) and (3) EPC to the present version of the claims, since all claims 1 to 6 are adequately supported by the original disclosure and do not extend the scope of protection conferred by those of the patent as granted.

Novelty

5. As regards novelty of the claims under consideration in this decision, the board has no reason to depart from the reasoning and the conclusions of the opposition division in the decision under appeal and does not consider further discussion of this issue to be appropriate. In any case, novelty of the claimed process was no longer in dispute in the appeal.

The closest state of the art; problem and solution

6. The usual or classic mayonnaise sauces essentially consist of semi-solid oil-in-water emulsions of edible oils or fats comprising egg-yolk, flavouring agents such as vinegar, condiment and water (see patent specification, column 1, lines 19 to 41). The claimed invention essentially relates to a process for preparing a low-calorie, acceptable replacement for such classic mayonnaise sauces, ie a so-called "pseudo-mayonnaise", without using oil or fats as a main raw material for its preparation. The "mayonnaise-like sauce" or "pseudo-mayonnaise" produced by the claimed process is based on the dispersion of a proteinaceous coagulum derived from egg yolk in an aqueous medium (see claim 1), rather than on the classic emulsion of oil or fat in an aqueous medium comprising egg yolk.

6.1 Suitable methods for preparing pseudo oil-based sauces, especially pseudo emulsion sauces such as a "pseudo-mayonnaise" are already disclosed in both citations (1) and (2). According to the cited state of the art such sauces can be prepared by forming a mixture or blend essentially comprising either a preformed proteinaceous coagulum or an *in situ* coagulable protein source, an aqueous medium, and the desired additives, such as, for example, salt, vinegar and flavouring agents. This mixture or blend is then subjected [when using an *in situ* coagulable protein source] to chemical or thermal coagulation of this protein source prior to homogenisation of the blend or mixture under stirring or whisking so as to obtain a homogeneous dispersion in the aqueous medium, thereby converting the mixture into a sauce having a consistency comparable with that of an oil-in-water emulsion (see citation (1): the whole

document, especially page 1, lines 33 to 47; page 2, lines 3 to 16, lines 44 to 54, examples; citation (2): the whole document, especially page 1, second paragraph, page 2, first paragraph, paragraph bridging pages 3 and 4, Example II).

6.2 The board considers Example II in citation (2) to represent the closest state of the art with respect to the claimed process in the patent in suit. This example discloses a process for preparing a pseudo oil-based sauce comprising the steps of

- (i) preparing a blend or mixture consisting of 60 parts of raw egg, 5 parts of sugar, 1 part of salt, 0.5 parts of powder of sweet paprika, 0.5 parts of a food acid, 0.15 parts of benzoic acid, 2 parts of fruit meal as a binder, and sufficient water to make up to 100 parts, followed by
- (ii) hard-boiling the blend or mixture from step (i) to achieve *in situ* thermal coagulation of the egg material and dispersion of the mixture containing the coagulum in the aqueous medium to convert it into a homogeneous pseudo oil-based sauce.

Consequently, citation (2), contrary to the appellant's opinion, does not leave the choice of the heat treatment in the process of Example II in (2) to the discretion of the skilled reader, but gives a clear teaching that raw egg is thermally coagulated by hard-boiling. The generally accepted meaning of the technical term hard-boiling in the context of boiling eggs is that of exposing eggs to boiling water (ie around 100°C depending on the pressure) for a period sufficient to achieve, as the heating proceeds, thermal

coagulation of both egg white and egg yolk.

- 6.3 As has already been mentioned in point 6 above, classic mayonnaise sauce consists of solid oil-in-water emulsions of edible oils or fats comprising, as the egg material, egg-yolk in the substantial absence of egg white [see eg citation (1): page 1, lines 31 to 32; citation (3): page 178 ("Mayonnaise kalt gerührt") to page 179 ("Mayonnaise warm zubereitet")]. It is derivable from the introductory portion of the description (see especially column 1, lines 5 to 10) that it would clearly be desirable to have mayonnaise-like products with normal mayonnaise characteristics, such as mayonnaise-like flavour and appearance, but being produced without using oils and fats as main raw materials.
- 6.4 Consequently, starting from Example II in citation (2) as representing the closest state of the art (see point 6.2 above), the technical problem the claimed invention sets out to solve may be seen as that of providing a process for producing a pseudo oil-based sauce, more specifically a "pseudo mayonnaise", which comes closer with respect to its flavour and appearance to classic mayonnaise than the sauce obtained in Example II of citation (2).
- 6.5 The solution to the problem offered in the patent in suit was the process according to claim 1. This process basically differs from that according to Example II of (2) in that the proteinaceous coagulum is formed by thermally coagulating egg yolk only as the sole protein source in place of raw egg used in (2) and in that no fruit meal as a binder is used.

Example 2 of the patent in suit states that a sauce prepared in accordance with the process of present claim 1, by substituting water for egg white of raw eggs and using egg yolk as the sole protein source, showed a flavour like classic mayonnaise sauce and was thicker than the one obtained in Example 1 of the patent in suit [using egg yolks and raw egg]. All in all the sauce prepared by the method of Example 2 is said in the patent in suit to be more mayonnaise-like. Thus, on the basis of the results reported in Example 2 of the patent in suit and in the absence of any evidence to the contrary, the board is satisfied that the problem posed is solved by the process according to claim 1.

Inventive step

7. It still remains to be examined whether the proposed solution to the problem underlying the patent in suit involves an inventive step.
- 7.1 The skilled person seeking a solution to the stated problem would have learned from citation (1) that any denatured protein product can be employed as the proteinaceous coagulum forming the basis for the preparation of a pseudo emulsion sauce in accordance with the claimed invention. More specifically, the teaching in (1), to the effect that the proteinaceous coagulum used should be derived from protein material which has a flavour profile consistent with the desired end use (see especially page 1, lines 37 to 38), points those skilled in the art, faced with the actual technical problem, clearly and straightforwardly to the use of egg yolk as the most appropriate protein source. It follows from the references in point 6.3 above that

classic mayonnaise includes as the protein component egg yolk and, as an inevitable consequence of this, that such classic mayonnaise has a flavour profile typically incorporating an egg-yolk flavour. The person skilled in the art would thus reasonably expect the substitution of thermally coagulated egg yolk for thermally coagulated raw egg in the known process for preparing pseudo oil-based sauces, especially pseudo emulsion sauces according to (2), to result in a "pseudo mayonnaise" closer with respect to its flavour and appearance to classic mayonnaise than a sauce prepared from raw egg including egg white.

- 7.2 The appellant has failed to provide a reasoned argument or evidence which would have distracted or dissuaded the skilled person from solving the problem defined above by substituting egg yolk for raw egg as the coagulable protein source. Apart from the fact that citation (1) clearly suggests any denatured protein product and any coagulum of protein material as suitable for use as the base for a pseudo oil-based sauce, especially a pseudo emulsion sauce, it was at the priority date of the patent in suit part of the general common knowledge of the skilled person that, compared with egg white (protein content 10.6%), egg yolk has an increased protein content of 16.6% (see, as an example only, for the skilled person's general common knowledge in this respect: Römpp, Lexikon-Lebensmittelchemie, 1995, page 232). Those skilled in the art would thus have considered egg yolk to be a particularly suitable coagulable protein source for preparing a "pseudo mayonnaise" sauce. This is consistent with the skilled person's everyday experience that exposing egg yolk for a sufficient period of time to the temperature of boiling water

results in a proteinaceous coagulum having a consistency superior to that of thermally coagulated egg white.

- 7.3 It was entirely clear to the skilled person from the teaching of the cited documents and the disclosure of the claimed invention in the patent in suit that the significant reduction in calories of the "pseudo mayonnaise", compared with classic mayonnaise, results from the replacement of oils and fats, which are present in classic mayonnaise sauces in a range from 50% to more than 80% of the total weight of classic mayonnaise sauces (see citation (2), page 2, first paragraph, lines 6 to 8) by a proteinaceous coagulum. Therefore, the appellant's argument that the rather modest lipid (fat) content of egg yolk would have dissuaded the person skilled in the art, faced with the problem of providing a low calorie sauce, from replacing raw egg used in (1) and (2) by egg yolk, is not acceptable. Apart from the fact that the potential increase in the lipid content resulting from using egg yolk in place of raw egg is negligible compared to the oil or fat content of classic mayonnaise, the person skilled in the art, faced with the real problem to be solved by the claimed invention vis-à-vis the state of the art, would readily accept a small increase in the lipid content, in order to obtain a "pseudo mayonnaise", which is essentially free from oils and fats and, at the same time, comes as close as possible to classic mayonnaise with respect to its flavour and appearance.

- 7.4 It forms part of the common knowledge of the skilled person in the food industry that coagulated egg yolk has the capability of acting as a thickening agent or

binder in various kinds of foods, especially in sauces. Moreover, the skilled person would have learned from the methods of preparing pseudo oil-based sauces, especially pseudo emulsion sauces, disclosed in (1), and likewise from the preparation of classic mayonnaise itself, as disclosed in citation (3), that no binder is necessary to obtain a sauce in a semi-solid state having an acceptable fluidity. Since binders are used in the food industry only if necessary and the fluidity of mayonnaise sauces may vary within broad ranges, it was plainly obvious for a person skilled in the art to establish whether the use of a binder, such as, for example, fruit meal, in the preparation of a pseudo mayonnaise could be dispensed with if thermally coagulated egg yolk was used in place of a coagulum derived from raw egg.

- 7.5 Apart from the fact that the water content of the mayonnaise-like sauce according to the claimed invention is not reflected by any technical feature in the present claims and could not therefore contribute to the acknowledgment of an inventive step, determination of the appropriate water content required to obtain a mayonnaise-like product in the desired semi-solid state with a fluidity similar to that of classic mayonnaise was merely a matter of routine experimentation for the skilled practitioner. Moreover, as was demonstrated by the respondent during the oral proceedings, the water content of the sauce prepared in Example II of citation (2) is not strikingly different from that of the mayonnaise-like product in Example 2 of the patent in suit. Example 2 is incidentally the only of four examples in the contested patent illustrating the use of a coagulum solely derived from egg yolk as the protein source.

Fourth auxiliary request

8. As is apparent from paragraph VIII above, claim 1 in the fourth auxiliary request was amended so as to relate to a process wherein thermal coagulation of the egg yolk and its dispersion in the aqueous medium are carried out simultaneously in one step (cf. "the **thermal-coagulating** egg yolk is dispersed in a heated stirred mixture"). The board has difficulties to accept that the proposed amendment is adequately supported by the disclosure in the application as filed. Moreover, it considers the definition "**thermal-coagulating** egg yolk" as lacking clarity (Article 84 EPC). In the board's judgment, it appears difficult, if not impossible, for the skilled person to determine the precise starting and end point of the period when egg yolk is in the state of "thermo-coagulating"

8.1 In the process according to Example II in (2), both the thermal coagulation (hard-boiling) of the protein source (raw egg) and the dispersion of the mixture in the aqueous medium to convert it into a homogeneous pseudo emulsion sauce are carried out in a closed vessel and accordingly in a one-step procedure. Moreover, the process of homogenizing or dispersing the mixture in an aqueous medium necessarily requires stirring or whisking this mixture to obtain a homogeneous mass. Consequently, even if it were to be assumed, for the appellant's benefit, that a process, which comprises carrying out the thermal coagulation of egg yolk and mixing the blend of components simultaneously under stirring in a one-step procedure to prepare the mayonnaise-like sauce, was indeed adequately supported by the disclosure of the

application as filed and that the corresponding features in claim 1 of the fourth auxiliary request were sufficiently clear, this could not be considered as a contribution to inventive step in the present case in the light of the teaching in cited state of the art which already refers to such a one-step process.

9. In view of what has been said above, the board considers that neither the third auxiliary request nor the fourth auxiliary request relate to subject-matter involving an inventive step as required for patentability by Article 52(1) in conjunction with Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

A. Townend

J. Riolo