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D E C I S I O N
of 18 September 1998

Case Number: T 0284/93 - 3.3.4

Application Number: 87200775.2

Publication Number: 0244903

IPC: A23L 2/26

Language of the proceedings: EN

Title of invention:
Fruit juice beverages and juice concentrates nutritionally supplemented with calcium

Patentee:
The Procter & Gamble Company

Opponents:
Niederrhein-Gold Tersteegen GmbH & Co. KG
Deutsche Granini
Peter Eckes GmbH

Headword:
Fruit juice/PROCTER

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Main request: novelty (yes) - inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0284/93 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 18 September 1998

Respondent: (Proprietor of the patent)
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Decision under appeal: Decision of the Opposition Division of the European Patent Office posted 1 March 1993 revoking European patent No. 0 244 903 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: U. M. Kinkeldey
Members: D. D. Harkness
W. Moser

Summary of Facts and Submissions

I. European patent application No. 87 200 775.2 having the title "Fruit juice beverages and juice concentrates nutritionally supplemented with calcium" was granted as European patent No. 0 244 903 having 19 claims. Claim 1 read as follows;

"1. A calcium-supplemented single-strength fruit juice beverage characterized in that it is substantially free of added protein and further characterized in that it comprises:

a. from 0.05 to 0.26% by weight solubilized calcium;

b. from 0.4 to 4% by weight of an acid component comprising a mixture of citric acid and malic acid in a weight ratio of citric acid:malic acid of from about 5:95 to 90:10.

c. at least 45% fruit juice;

d. a sugar content from 2 to 16° Brix; and

e. no more than 0.07% by weight chloride ion."

II. The patent was opposed by three opponents on the grounds of lack of novelty (Article 54 EPC) and inventive step (Article 56 EPC) and that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC), (Article 100(a) and (b) EPC).

III. The following documents of the prior art were referred to:

(1): EP-A-0 117 653 A1

(5): JP-A-548767

(6): JP-A-5696248

(9): US-A-2 325 360

The patent was maintained in amended form by the opposition division (Art. 102(3) EPC) on the basis of an amended set of claims filed on 2 June 1992.

IV. The appellants I and II (opponents 01 and 02) filed appeals, paid the appeal fees and filed statements of grounds.

V. The respondent (patentee) replied to the appeals.

VI. Oral proceedings took place on 18 September 1998 during which the respondent filed a new main request. Claims 1, 5 and 14 of this request read as follows:

"1. A calcium-supplemented single-strength fruit juice beverage comprising a cation component characterized in that it is substantially free of added protein comprises:

a. from 0.05 to 0.26% by weight solubilized calcium as the cation component

b. from 0.4 to 4% by weight of an acid component comprising a mixture of citric acid and malic acid in a weight ratio of citric acid:malic acid of from about 5:95 to 90:10;

c. at least 45% fruit juice;

d. a sugar content from 2 to 16° Brix; and

e. no more than 0.07% by weight chloride ion,

with the exclusion of beverages comprising 0.3 vol. or more of CO_2 under ordinary room conditions."

"5. A calcium-supplemented fruit juice concentrate characterized in that it is substantially free of added protein and comprises:

a. from 0.15 to 1.30% by weight solubilized calcium;
b. from 1.2 to 20% by weight of an acid component comprising a mixture of citric acid and malic acid in a weight ratio of citric acid:malic acid of from about 5:95 to 90:10;
c. concentrated fruit juice; and
d. a sugar content from 6 to 75° Brix, the content of the concentrated fruit juice being such that reconstitution with water yields a fruit beverage comprising at least 45% fruit juice."

"14. A method for preparing a calcium-supplemented fruit juice product according to anyone of claims 1 to 13, characterized in that it comprises the steps of:

a. forming an at least meta-stable aqueous premix solution of solubilized calcium from water, an acid component comprising from 0 to 90% by weight citric acid and from 10 to 100% by weight malic acid, and calcium source selected from the group consisting of calcium carbonate, calcium oxide, and calcium hydroxide; and
b. combining the premix solution of solubilized calcium with fruit juice material comprising concentrated fruit juice having a sugar content of from 20 to 80°Brix, to provide a calcium-

supplemented fruit juice product having: (1) at least 0.05% solubilized calcium; (2) at least 45% fruit juice; and (3) a sugar content of from 2 to 75°Brix."

VII. The appellants' and the other party (opponent 03) arguments can be summarised as follows;

New documents namely;

(13): Alete ABC plus Multivitaminsaft ddf-Journal 13/83 and

(15): Schobinger, Handbuch der Getränketechnologie. Frucht- und Gemüsesäfte. Eugen Ulmer GmbH & Co. Stuttgart 1978 pages 43 to 46,

were filed on 12 February 1996 as evidence of prior use.

The delay was due to the difficulties in searching literature and thus excusable. It had been a coincidence that the "Alète" reference had been found and following up of this evidence was difficult as the juice composition had been changed since 1984 and was not now available although at that earlier time it was still on the market and its constitution was known.

The claimed subject-matter was also not novel having regard to document (1) because all features of claim 1 would be found there. The teaching of document (1) was to be determined by reading the whole disclosure and not just by a restricted interpretation of the examples. There were references to calcium as a nutritional supplement and to its content in the juices (see figure 1) the nearest example being example 4 giving values just below the level of calcium required by claim 1. The beverages were of single strength and

did not contain any protein. The last sentence on page 9 referred to 50% of fruit juice being employed in carbonated beverages. A listed comparison of features present in the claims of the patent in suit and of document (1) showed that document (1) disclosed all features of claim 1.

The same arguments applied in respect of the other independent claims 5 and 14.

Document (1) represented the closest prior art for the establishment of inventive step and described beverages having a solubilised calcium supplement there being 0.045% present in example 4. The citric and malic acid content was the same since natural orange juice was employed in amounts of 5 to 50% of the beverage. The process of claim 14 was obvious in the light of the disclosure of this document at page 16 and examples 1 to 5 and 9 in which first a concentrate containing the calcium salts and acids was made and then the flavouring components added followed by dilution with water.

It was further argued that a combination of documents (1) with (5) and (6) would solve the problem of solubilising calcium in a fruit juice because this problem was referred to in document (1) and all the documents related to the same field of activity. Documents (5) and (6) disclosed the use of calcium carbonate, calcium oxide and calcium hydroxide as well as the mixture of citric and malic acids used in the patent in suit, and further document (6) disclosed a method of solubilising calcium citrate by mixing it in specific proportions of 3:2 with calcium maleate.

The beverages claimed differed from natural orange juice only in that the content of solubilised calcium was higher. Natural orange juice contained no added protein, little chlorine, no carbon dioxide, and has the required citric acid/malic acid content. The problem lay simply in the addition of solubilised calcium to the required level. Conventionally more soluble calcium salts eg, calcium lactate, had been employed, thus the use of less soluble calcium carbonate, hydroxide and oxide had created another problem being that of odd flavours associated with those salts. The claim was therefore wider than it should be since there existed no odd flavours when using calcium lactate. The disclaimer relating to carbon dioxide might be suited to establish novelty vis-à-vis document (9) but was not suited to establish inventive step as there could be no improvement in flavour because document (9) relied upon the same calcium salts and carbon dioxide had no influence on the flavour of juices.

VIII. The respondent's arguments can be summarised as follows:

The belated filing of document (13) allegedly showing the prior use was not excusable, nor was it well founded on documents (13) and (15) which between them did not describe what was in the fruit juice or when it was first placed on the market. The letter dated 14 July 1995 from Nestlé to Mrs Simson showed that the 1984 product had been considerably changed and that it was not proven that the product then on the market was novelty destroying.

It was odd that the opposition division referred to all the features of the claim being present explicitly or implicitly in document (1) and nevertheless had decided that the subject matter was novel. Claim 16 of this

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document was ambiguous in respect of the calcium content in the juice because it specified a combined total of the content of at least two cations. The 0.045% Ca in example 4 was less than that required by the terms of claim 1 and there was no example which contained any fruit juice. There was no disclosure of at least 45% fruit juice being used and the reference to 50% juice on page 9 was linked to the flavour component.

The subject-matter of all independent claims was also inventive because the patent in suit sought to solve the problems of solubilising calcium in a fruit juice for nutritional purposes and to comply with taste requirements whilst employing calcium carbonate, oxide and hydroxide as sources of calcium. This problem was not the same as those solved by documents (1) and (9). The former solved the problem of increasing the body of the beverage by combining at least two cations from calcium, magnesium and potassium but there was no suggestion to increase the calcium content to a level at or above that present in milk. The latter related to the avoidance of oxidation in juices caused by oxygen present at manufacture, this being replaced by carbon dioxide. Neither of the two documents related to problems relating to beverages having 45% of fruit juice nor was there any disclosure concerning the required amounts of citric and malic acids. These documents did not teach the combination of features necessary to solve the problem now solved by the patent in suit, nor did they lead to the process of the opposed patent which process first produced a soluble metastable acidic calcium salt mixture which was then stabilized by the sugar in the fruit juices.

IX. The appellants requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of

(a) main request: claims 1 to 19 submitted during oral proceedings; or

(b) first auxiliary request: claims 1 to 19 filed on 20 January 1997; or

(c) second auxiliary request: claims 1 to 19 filed on 4 September 1998; or

(d) third auxiliary request: claims 1 to 19 filed on 14 September 1998;
or

(e) fourth auxiliary request: claims 1 to 6 filed on 14 September 1998.

Reasons for the Decision

1. The appeals are admissible.

Main request

Articles 84 and 123(2) and (3) EPC

2. In specifying more clearly both feature (b) and the subject-matter to be disclaimed, no objection to the clarity of new claim 1 is seen and the disclaimer is properly based upon the disclosure of document (9). Thus the requirement of Article 84 EPC is met.

The amendments in claim 1 as compared to claim 1 as granted are the replacement of the word "the" in feature (b) by the word "a" and the insertion of "under ordinary room conditions" at the end of claim 1. They do not extend the disclosure of the patent in suit beyond the content of the European patent application as filed, nor do they extend the scope of the patent as granted and therefore meet the requirements of Article 123 EPC.

Novelty, Article 54 EPC

Prior use

3. The letter from Nestlé to Mrs Simson dated 14 July 1995 supporting document (13) gave details of the Alete ABC fruit juice produced in 1983, but made no reference to calcium content and stated that an analysis of the citric and malic acid content was no longer available. The letter also indicated that the product first marketed in 1983 has been changed in essential features since 1984. From the above it follows that the prior use objection based upon the Alete ABC fruit juice is not well founded. Furthermore, since this letter bears the date of 14 July 1995, the prior use objection could have been made earlier. Consequently the Board considers that the evidence concerning the alleged prior use was filed late and that it can be disregarded (Article 114(2) EPC). The prior use objection is thus rejected.

4. The only document cited as novelty destroying was document (1).

5. To establish a sound novelty objection, it is necessary to show that the combination of all the features of the claim are obtainable directly and unambiguously from the citation.

6. The listed details filed on 26 April 1991 according to the comparison made by appellant II were formulated by taking features from the whole disclosure of document (1), i.e. from the description plus more than one example. Even if one ignored the fact that this document does not refer to protein or chloride contents as claim 1 does, the table on page 20 of document (1) does not show a figure for solubilised calcium which falls within the required range of this claim. The calculation made in paragraph 3.3 of the written submissions of 26 April 1991 involving claim 17 (not claim 11) and examples 1 and 5 of the table are not pertinent since neither of these examples involves the use of fruit juice. The use of up to 50% of fruit juice as flavour component was disclosed at the bottom of page 9 and in claim 19 of document (1), but there is no link between claim 19 and claim 17 to bring the features of 50% fruit juice and solubilised calcium together. In any case the 50% fruit juice feature serves as flavour.

7. The general disclosure in document (1) is such that lower levels of solubilised calcium and of fruit juice than are necessary in the beverages of the patent in suit were envisaged for the beverages therein disclosed. In order to arrive at the beverages now claimed there needed to be at least a pointer in this direction. There is no positive indication towards such a combination and in particular it was an aim of document (1) to provide a product with "desirable sweetness intensity and control of sourness over a pH range" (page 3). However, from page 12 paragraph 2 it follows that "sweetness became less and sourness became more as the weight percentage of citric and malic acids increased". Thus the preferred compositions contained

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phosphoric acid which increased sweetness, whereas claim 1 of the patent in suit shows just that acid mixture which increases sourness, and which should, according to the teaching of document (1), be avoided.

The aims of the disclosure of document (1) were not solely to provide multivalent cations in solution and insofar as this pertained to calcium it was only one of three cations under consideration all of which contributed towards other characteristics, eg, body and flavour, of the beverages.

8. The subject-matter of claim 1 is therefore novel. The appellants relied upon the same arguments in respect of the other independent product claim 5 relating to concentrates. This subject-matter is thus also novel for the same reasons as given above. Novelty of process claim 14 was not attacked and the Board considers this claim also to be novel because it relates to a method for preparing the novel products claimed in claims 1 to 13.

This decision is consistent with the established jurisprudence of the Boards of Appeal. In particular Technical Board of Appeal decision T 666/89 (OJ 1993 495) relied upon by the appellants, which suggested that the disclosure in the prior art is only novelty destroying if the skilled person would seriously contemplate applying the technical teaching of a document belonging to the state of the art in a way which would anticipate the claims of the patent in suit. The Board sees no comparable case in this instance for the reasons given above.

Inventive step, Article 56 EPC

9. The Board, in agreement with the parties, is satisfied that document (1) represents the closest prior art as it relates to liquid beverages containing a flavour component, a cation component (Ca, Mg, K) and an acid component (citric, malic and phosphoric). The disclosure at page 3 discusses several objects to be achieved, one of which is to provide beverages containing polyvalent cations which are stable against precipitation of salts for an extended period of time. The other aims pertain to obtaining an overall flavour impression which involves improving body and controlling sweetness and sourness.

Thus, this prior art related to the problem to provide a fruit juice beverage with increased levels of solubilized cations including calcium.

The technical problem

10. Starting from this prior art the problem to be solved can be seen in the provision of a single strength fruit juice supplemented with calcium and a fruit juice concentrate and a process to prepare it.

The solution to the problem

The solution was to be seen in the provision of beverages and concentrates having the components as defined in claim 1 above, and process for their manufacture.

Assessment of inventive step

11. The question to be answered is whether it was obvious for the skilled person at the priority date of the patent in suit, a) to provide beverages or concentrates of the claimed composition (claims 1 and 5), and b) to prepare the beverages and concentrates by the process claimed (claim 14).

12. (a) Beverages and concentrates according to claims 1 and 5.

The combination of features defining the beverages of claim 1 differs from prior art document (1) beverages by the features already indicated in points 3 to 8 above relating to the question of novelty.

It was not possible to derive the combination of beverage or concentrate ingredients from document (1) alone because its disclosure pertaining to cations leads to a combination of calcium, magnesium and potassium, the calcium only in amounts less than those of the patent in suit. This was because the citation also sought to improve the "body" of the beverage, see page 3, and this was done by reducing the calcium content, see page 12 and Figure 3, hence this disclosure leads away from the relatively high calcium values claimed.

The compositions disclosed in document (5) contained 4% of juice, 90% of water and 3% of calcium in the insoluble form (RCOO)2Ca, thus these beverages give no indication of those claimed in the patent in suit.

Document (6) disclosed a more soluble form of calcium citrate ie, a mixture with calcium maleate in a ratio of 3:2 whereby the calcium citrate showed improved solubility due to changes in the molecules of the two

salts together, see page 7. It was not indicated that solubilized acidic salts of calcium citrate or maleate were formed, nor was there any connection with beverages or concentrates having at least 45% fruit juice.

The subject-matter of document (9) describes a deaerated, pasteurised, carbonated fruit juice. There were no details given which lead to the composition of the beverages or concentrates of the patent in suit and therefore this document does not give any indication of the compositions claimed.

No combination of the above mentioned documents leads to a tenable obviousness objection.

13. (b) Process for the preparation of beverages according to claim 14.

0.05 to 0.26% by weight of solubilized calcium has been dissolved in a beverage containing at least 45% of fruit juice. This was achieved by a method of preparation which produced calcium in an improved soluble form as explained at page 6 line 43 et seq of the specification of the patent in suit where soluble calcium acidic salt forms of citrate and maleate eg, CaHcitrate, being the result of the premix process were described. The solubilised calcium was then stabilised in the juice by the sugar component which prevents conversion to insoluble citrate and maleate salts which would precipitate. This process was not described in any of the prior art disclosures and it was nowhere suggested that calcium stabilised in this form has been used in this way.

At page 3 lines 22 to 25 of document (1) it is said that it was the object to provide beverages which contain polyvalent cations stable against precipitation. This was done by using the acids and mixture of cations, (see page 7 last paragraph of document (1)). Thus the solution to the problem lay in the balance of acids and mixture of cations employed and there was no description relating to a differing form of calcium salt, ie, to acidic salts of calcium and therefore the solution to the problem of preparing the compositions of the patent in suit is not suggested.

The disclosure of document (5) is directed to the problem of production of drinks having a calcium supplement which supplement is in the form of calcium salts of organic acids eg, citric , malic, tartaric and milk acids in the insoluble form $(RCOO)_2Ca$ which is not an acidic salt ie, containing a hydrogen atom. Accordingly this document is not relevant to the process claimed by the patent in suit.

Document (6) refers to the problem of making insoluble calcium citrate more soluble in water and this was done by mixing it with calcium maleate in a ratio of 3:2 whereby the calcium citrate showed improved solubility due to changes in the molecules of the two salts together, see page 7. It was not indicated that solubilized acidic salts of calcium citrate or maleate were formed. Thus the solution to the problem of preparing the compositions claimed by the patent in suit is not suggested by this document.

Document (9) refers to a process in which fruit juice is deaerated, heated to a pasteurising temperature and calcium carbonate added in an amount to generate on cooling to ordinary room conditions a similar gaseous content to the air which was removed. Thus carbon

dioxide is generated in order to avoid oxidation during storage and to stop the drink from becoming flat. There were no details given which lead to the process by which the compositions of the patent in suit were prepared and therefore this document does not give any indication of the claimed process.

There is no combination of these documents which substantiates an obviousness objection against the process claimed by the patent in suit.

Claims 2 to 4, 6 to 13, 15 to 19 are appendant to allowable claims 1, 5 and 14 and thus they are also allowable.

The subject-matter of the claims according to the main request therefore complies with the requirements of Article 56 EPC.

14. In these circumstances it is not necessary to consider any of the auxiliary requests.

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Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent with claims 1 to 19 and the description, pages 2 to 10, as submitted during oral proceedings, and the drawings as granted.

The Registrar: The Chairwoman:

D. Spigarelli U. Kinkeldey