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D E C I S I O N
of 4 October 2001

Case Number: T 0867/98 - 3.3.6

Application Number: 89305940.2

Publication Number: 0347154

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Language of the proceedings: EN

Title of invention:
Soft tissue paper

Patentee:
THE PROCTER & GAMBLE COMPANY

Opponent:
(I) GEORGIA-PACIFIC FRANCE
(II) SCA Hygiene Paper GmbH

Headword:
Tissue paper/PROCTER

Relevant legal provisions:
EPC Art. 83, 84, 56

Keyword:
"Inventive step (no)"
"Alternative means found in related technical field"

Decisions cited:
-

Catchword:



Case Number: T 0867/98 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 4 October 2001

Appellant: SCA Hygiene Paper GmbH
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 29 May 1998
rejecting the opposition filed against European
patent No. 0 347 154 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: P. Krasa

Members: G. Dischinger-Höppler
M. Tardo-Dino

Summary of Facts and Submissions

I. This appeal is from the decision of the Opposition Division to reject two oppositions and to maintain European patent No. 0 347 154 on the basis of 15 claims as granted, the only independent claim reading:

"1. Tissue paper having a basis weight of from 10 to 65 grams per square meter, and a density of no more than 0.6 grams/ml, said paper comprising cellulosic fibers and an amount of a polysiloxane material, characterised in that said amount of polysiloxane is from 0.004% to 2% based on the dry fiber weight of said tissue paper and in that said tissue paper is dry and after aging two weeks after its manufacture, has a wetting time of no more than 2 minutes, the outwardly facing surfaces on the tissue paper having a uniform distribution of polysiloxane, and the polysiloxane being present without the aid of additional oils and lotions."

II. The notices of opposition, based on insufficient disclosure (Article 100(b) and 83 EPC) and lack of novelty and inventive step (Article 100(a), 54 and 56 EPC), cited inter alia the following documents:

(1) US-A-3 818 533;

(4) A.J. Sabia and R.B. Metzler, "The Role of Silicones in Nonwoven Fabric Applications", Reprinted from Nonwoven Industry, September 1983;

(11) US-A-3 844 880; and

(14) US-A-4 046 930.

III. In its decision, the Opposition Division found that the invention was sufficiently disclosed in accordance with Article 83 EPC. It was further held that the claimed subject-matter was novel and inventive over the cited prior art. The Opposition Division considered document (11) as the closest prior art and found that any combination with the other cited prior art would not lead in an obvious manner to the claimed subject-matter. The same conclusion was drawn when starting from document (1), which was chosen by the Opponents as the closest prior art.

IV. Oral proceedings were held before the Appeal Board on 4 October 2001.

V. Both, the Appellant (Opponent II) and the party as of right (Opponent I), in writing and at the oral proceedings, maintained that the invention was insufficiently disclosed since the patent did not define the feature "without the aid of additional materials such as oils and lotions".

The Appellant also maintained that it was obvious from document (4) to use a modified polysiloxane, such as UCARSIL EPS, as an alternative softening agent for the debonders used in document (11).

The party as of right started from document (1) as the closest prior art and argued that considering the properties of the hydrophilic silicones described in document (4), the claimed subject-matter lacked an inventive step.

VI. The Respondent submitted in essence

- that the arguments concerning sufficiency were in fact directed to an objection under Article 84 EPC instead of under Article 83 EPC;
- that document (11) was the closest prior art, since it intended to solve the same problem as the patent in suit, namely to provide soft paper tissue of sufficient strength;
- that for solving this problem, document (11) suggested a method which required the application of high amounts of a three component system to a wood pulp slurry, whereas according to the patent in suit, it was sufficient to apply only a polysiloxane in very small amounts for the same purpose; and
- that there was no incentive for a skilled person to look for the silicones described in document (4) for nonwoven fabric application in order to replace the three component system in the tissue paper of document (11), in particular since it was known from document (14) to apply silicones for rendering paper substrate water-repellent.

VII. The Appellant and the party as of right requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent requested that the appeal be dismissed and that the patent be maintained.

Reasons for the Decision

1. *Sufficiency of disclosure*

The Board is satisfied that the claimed subject-matter is disclosed in the patent in suit in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Articles 100(b) and 83 EPC). Since the appeal succeeds for other reasons, it is not necessary to consider this issue in more detail.

2. *Inventive step*

During the appeal proceedings, the Appellant did not object to lack of novelty. It remains, therefore, to assess whether or not the claimed tissue paper is based on an inventive step.

2.1 Technical background

The patent in suit relates to tissue paper having a soft, silky, flannel-like feel (page 2, lines 5 to 6).

Known methods for enhancing softness of tissue paper are said to adversely affect tensile strength so that tissue paper production requires balancing softness against tensile strength (page 2, lines 10 to 12).

2.2 Closest prior art

The patent in suit makes reference to several prior art tissue paper products, inter alia to that of document (11) (page 2, lines 38 to 41).

2.2.1 This document is the only citation on file which explicitly mentions the same problem, ie that any

increase in softness would result in a decrease in tensile strength and vice versa (column 1, line 63 to column 2, line 17). Therefore, document (11) qualifies as a suitable starting point for assessing inventive step which was also accepted by the Appellant and the Respondent.

2.2.2 Document (11) discloses a particular combination of additives to be used in the fibre slurry in order to overcome the problem of balancing softness and strength (column 2, lines 24 to 32). The additives are (1) an anionic or cationic surface active agent as a debonder in amounts ranging preferably from 0.15 to 2% OD (0.15 to 2% of the oven dry weight of the fibres); (2) at least one anionic or nonionic resin selected from the group consisting of acrylic emulsions and anionic styrene butadiene latices, preferably in amounts of from 3 to 15% OD; and (3) a deposition aid for the resin, preferably 0.1 to 3% OD (column 1, lines 9 to 19, column 3, lines 30 to 36, column 4, lines 16 to 24 and 53 to 61 and Claim 1).

2.2.3 Document (11) is silent about dryness, uniformity of additive distribution, basis weight and density of the tissue paper. However, no evidence is on file which would allow any unbiased distinction over the prior art or any contribution to inventiveness based on these features. Nor did the Respondent rely on any of these properties as essential with respect to inventiveness of the claimed subject-matter over the tissue paper of document (11). Therefore, it is neither possible nor necessary to further consider these features of Claim 1.

2.3 Technical problem

2.3.1 As already indicated, document (11) is concerned with the technical problem of increasing the softness of tissue paper while maintaining its strength. The Respondent relied in addition on wettability of the claimed tissue paper. According to Claim 1, it has a wetting time of no more than 2 minutes after aging two weeks after its manufacture or - as stated in the description of the patent - a high wettability within the ranges desirable for toilet paper application (page 7, lines 27 to 28). However, the Respondent did not assert that there was something exceptional in a wetting time of 2 minutes, nor did he contest that the paper products of document (11) which are useful for similar, if not the same purposes, such as paper towels, tissues or sanitary napkins and diapers (column 1, lines 31 to 35 and column 6, lines 6 to 11) are wettable as well. Since, furthermore, no comparison has been made between products of the patent in suit and the products of document (11), no evidence is on file showing any difference in wettability or in softness or in strength.

2.3.2 Since, consequently, both the patent in suit and document (11) provide tissue paper which is soft, strong and sufficiently wettable, the technical problem to be solved in view of document (11) can only be seen in the provision of an alternative paper tissue.

2.4 Solution of the problem

2.4.1 The Respondent argued that this problem was solved by substituting the combination of the three additives which were used in document (11) in high amounts (see 2.2.2 above) by low amounts of only one additive, namely at most 2% OD of a polysiloxane.

- 2.4.2 The Appellant who carries the burden of proof in this respect has not provided any evidence to refute this argument. The Board, therefore, has no reason to doubt that the technical problem is actually solved by substituting the additive combination of document (11) by polysiloxane in amounts of 0.004 to 2% OD.
- 2.5 It remains to be decided whether, in view of the available prior art documents, it was obvious for someone skilled in the art to solve the problem of providing an alternative tissue paper by the means claimed.
- 2.5.1 Document (11) does not contribute to a solution of this problem since it does not mention any polysiloxanes or contain any suggestions of means to be used alternatively to its own essential disclosure.
- 2.5.2 In the patent in suit, several commercially available polysiloxanes are exemplarily mentioned. One of these is UCARSIL EPS from Union Carbide (page 3, lines 16 to 17).
- 2.5.3 This particular material is mentioned in document (4) (page 4, from the middle of the left-hand column onwards) as a "recently developed silicone molecule" which "combines many of the desirable surface active features of PAO-modified silicones with the durability of organo-reactive silicones." It is said that this material is "a durable hydrophilic softener" and that "the PAO-modified group makes this product ideally suited for use with low add-on textile finishing equipment". An example is given in Table VI where it is shown that with only 0.9% of the active silicone on polyester nonwoven substrate, wettability and tear

strength are substantially improved. Document (4) goes on to state that also tests on "50/50 polyester/cotton and 100% cotton fabrics show that beyond softening and enhanced physical attributes, improved hydrophilic properties" can be obtained.

Thus, it is known from document (4), that UCARSIL EPS as one of those commercially obtainable polysiloxanes suggested in the patent in suit, when applied in amounts as low as in the patent in suit (0.004 to 2%), can provide all those properties which are desired for the claimed tissue paper, namely softness, strength and wettability, on nonwoven polyester and cotton fabrics.

2.5.4 The Respondent argued that document (4) was concerned with nonwoven fabric application, a technical field quite different to the field of tissue paper, so that a person skilled in the art would not have considered this document in an attempt to find suitable means for providing an alternative to the tissue paper of document (11). Moreover, the skilled person would not have looked for polysiloxanes at all, since it was known from document (14) that - opposite to the wettability sought after in the patent in suit - paper was rendered water-repellant by this material (see e.g. Claim 1).

2.5.5 The Board does not accept these arguments. Document(4) mentions silicone application in paper several times (page 1, left-hand column, second paragraph and right-hand column, first full paragraph, page 2, left-hand column, lines 6 to 9), thereby putting non-woven fabric and paper on the same footing in this respect. Therefore, the Board concludes that the technical fields of nonwoven fabrics and paper technology, in

particular the field of tissue paper, are closely related to each other. This conclusion is corroborated by document (14) pertaining to "paper and textile fabrics" (e.g. title) and document (1) which is concerned with "tissue paper and nonwoven material" (column 1, lines 9 and 10).

It follows that a skilled person seeking for means alternative to those in document (11) of making tissue paper soft, strong and wettable, would also search in the related technical field of nonwoven fabrics.

Finally, document (4) already distinguishes between reactive and organo-reactive silicones that impart water-repellency and hydrophobicity to textiles and paper substrates (page 2, lines 1 to 28) and silicones like UCARSIL EPS which are made hydrophilic by further modification with PAO (polyalkyleneoxide) groups, such that they can impart wettability to the substrate (page 3, left-hand column, last paragraph and right-hand column, line 15; page 4, left-hand column, lines 5 to 4 from the bottom).

Therefore, document (14) which relates to a particular kind of polysiloxane imparting water-repellency to a substrate would not have prevented a person skilled in the art concerned with a quite different purpose to look for silicones having other properties. Thus, a skilled person aiming at hydrophilicity would have considered the UCARSIL EPS described in document (4).

2.6 The Board, therefore, concludes that, for the purpose of providing another strong, soft and wettable tissue paper, the skilled person, with reasonable expectation of success, would have readily tried the particularly

modified polysiloxane UCARSIL EPS described in document (4) in the recommended low amounts as an alternative to the comparatively high total amount of additives used in document (11). Consequently, the subject-matter of Claim 1 lacks an inventive step and does not meet the requirement of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

G. Rauh

P. Krasa