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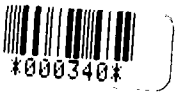

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Aktenzeichen / Case Number / N° du recours : T 153/83

Anmeldenummer / Filing No / N° de la demande : 78 300 201.7

Veröffentlichungs-Nr. / Publication No / N° de la publication : 664

Bezeichnung der Erfindung:
Title of invention:
Titre de l'invention : Hairspray

Klassifikation / Classification / Classement : A 61 K 7/11

ENTSCHEIDUNG / DECISION

vom / of / du 7 October 1986

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent / Titulaire du brevet : Unilever PLC (Respondent)

Einsprechender / Opponent / Opposant : Blendax-Werke R. Schneider GmbH & Co (Appellant)

Stichwort / Headword / Référence : Hairspray/Unilever

EPÜ / EPC / CBE Art. 54, 56, 84, 100, 114(1), 123(2)(3) EPC

Kennwort / Keyword / Mot clé :

"Novelty"-"Inventive step"-"Admissible clarification of the main claim"

Leitsatz / Headnote / Sommaire

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Case Number : T 153 /83

D E C I S I O N
of the Technical Board of Appeal H
of 7 October 1986

Appellant : (Opponent)
Blendax-Werke R. Schneider GmbH & Co.
Rheinallee 88
Postfach 15 80
D-6500 Mainz 1

Representative :

Respondent : (Proprietor of the patent)
Unilever PLC
Unilever House, Blackfriars
PO Box 68
London EC4P 4BQ

Representative :
Doucy, Robert Henry
Unilever PLC
Patents Division
PO Box 68
Unilever House
London EC4P 4BQ

Decision under appeal : **Decision of Opposition Division of the European Patent Office dated 6 September 1983 rejecting the opposition filed against European patent No. 664 pursuant to Article 102(2) EPC.**

Composition of the Board :

Chairman : P. Lançon
Member : A. Nuss
Member : G.D. Paterson

Summary of Facts and Submissions

I. European patent No. 0 000 664 was granted on 28 October 1981 on the basis of fourteen claims, pursuant to European patent application 78 300 201.7 filed on 26 July 1978 which claimed the priority of an earlier application of 28 July 1977 (GB 3 178 077). Independent Claim 1 reads as follows:

"1. A hairspray product consisting of a hairspray composition within a container for spraying the composition onto the hair, wherein the hairspray composition comprises 0.4 to 7.5% by weight of the composition of a hairspray resin, a solvent for the hairspray resin, and optionally a propellant, characterised in that the composition also comprises a drag reducing agent dissolved in the solvent whereby the holding power of the hairspray composition is improved, the weight ratio of the hairspray resin to the drag reducing agent being 10,000 to 2:1 and the amount of the drag reducing agent being less than 0.3% by weight of the hairspray composition.

II. The Appellant filed notice of opposition against the European patent which was received on 28 July 1982, requesting that it be revoked on the ground of lack of inventive step contrary to Article 56 EPC. This ground of opposition was supported by the following prior documents:

(1) A publication of the Union Carbide Corporation entitled "Polyox ^{R}, Watersoluble-Resins" (published in 1968)

(2) A publication of the Hercules firm entitled "Water Soluble Polymers for use in Cosmetic Products" (published in 1974).

A further prior document was relied upon in response to the opposition by the Respondent, namely

(3) A publication of the Union Carbide Corporation entitled "Polyox ^{R}, Watersoluble Resins are Unique (published in 1973).

In the notice of opposition it was also argued that the expression "a drag reducing agent" in Claim 1 does not clearly define what substances can be used in the claimed composition, and that Articles 83 and 84 EPC were therefore not complied with.

III. The Opposition Division rejected the opposition by a decision of 6 September 1983, stating that the patent was sufficiently clear to satisfy the requirements of Article 84, that it contained sufficient technical information for the invention to be put into practice, and that the subject-matter of the patent involved an inventive step having regard to the prior art documents (1) to (3).

The reasoning was essentially the following:

Since it must be assumed that all drag-reducing agents which are soluble in the solvent for the hairspray resin and have drag reducing efficiencies of at least 2% would increase the holding power of the sprayed resin, there is no justification for restricting the scope of Claim 1.

A person skilled in the art would not arrive at the subject-matter of the disputed patent in the course of his routine work for the reason that document (1) contains no suggestion that either the low molecular weight or the high molecular weight (friction reducing) Polyox resins may be combined with conventional film-forming hairspray resins. Moreover, the improved holding power of the hairsprays containing the small amount of Polyox resin could not be predicted from the

disclosure of document (1). Furthermore, after considering document (3) a person skilled in the art would assume that it was no longer believed that Polyox resins were suitable for aerosol hairsprays.

Finally, a person skilled in the art would infer from document (2) that from the polymers mentioned therein the Klucel resins are the low viscosity types suitable for use in aerosol spray products, which in view of the disclosure in the patent-in-suit are however unsuitable as drag-reducing agents and do not therefore improve the holding power of a hairspray incorporating them.

IV. The Appellant filed a notice of appeal against this decision in a letter received on 14 September 1983, paying the appeal fee at the same time. A Statement of Grounds of Appeal dated 18 November 1983 was filed on 25 November 1983, stating grounds essentially as follows:

(i) In view of the disclosure of merely 4 groups of compounds in the opposed patent, viz. polyoxyethylene, hydroxypropyl-cellulose, polyacrylic elastomers (a broad and vague term) and cationic cellulosic polymers, the claimed protection is too broad, because it covers an immense number of potentially applicable polymers, some of which are probably still unknown. The excess breadth stems from a lack of proof that **all** drag reducing agents are suitable to improve the properties of a hairspray in the way described in the opposed patent.

(ii) It cannot be accepted that the omission in document (3) (which is by the same author as document (1) but published later) of a reference to the possible use of Polyox resins in aerosol hairsprays, would lead the man skilled in the art to assume that Polyox resins were no longer suitable for aerosol hairsprays.

(iii) Since document (1) clearly discloses that Polyox resins are both outstanding friction reducers and suitable film-forming additives in aerosol hairsprays, the claimed subject-matter even lacks novelty.

(iv) Document (2) further teaches that Klucel polymers other than those of the low-viscosity types may be used in hairsprays as an auxiliary resin to provide stiffness i.e. improved holding power.

V. Contesting this view, the Respondent argued that no evidence had been submitted to suggest that not all drag-reducing agents which are soluble in the solvent for the hairspray resin and which have drag-reducing efficiencies of at least 2%, would increase the holding power of the sprayed composition.

The repeated suggestion by the Appellant that the drag-reducing properties of some of the Polyox resins should be associated with aerosol hairspray use is an example of an unacceptable hindsight view because it is in the patent that this association is taught, not in document (1).

Moreover, the teaching of document (2) is that in products designed to provide stiffness another type of hairspray resin (i.e. a conventional hairspray resin) must be present. There is no suggestion that other than low viscosity types of Klucel should be used and that a Klucel polymer can improve the holding power of a conventional stiffening hairspray resin.

VI. In a communication of the Board of Appeal to the Respondent dated 30 September 1985 it was suggested that because, in general, the holding power of a hairspray product would be expected to depend upon the quantity of hairspray resin in it, a fair comparison between the test products and control products for the purpose of showing an unexpected result, should be related to the amounts of resin applied; and it was pointed out that such a comparison was not yet present in the patent or in the file. In the absence of such a fair comparison the inventiveness of the solution as claimed in the patent was questioned, having regard to the problem vis-à-vis the state of the art, as illustrated by US-A-3 876 760 (designated as document (4) hereinafter), as well as documents (1) and (2) relied upon by the Appellant. Furthermore, it was suggested that the presence of a drag reducing agent having an efficiency of at least 2% was in reality an essential feature of the claimed invention.

As a result of the objections raised by the Board, the Respondent requested an amendment to Claim 1 which defined the term "drag reducing agent" as having a drag reduction efficiency of at least 2%"; and he submitted further experimental data concerning three of the products employed in Experiment 1 described in the patent viz. Test Product IA, Test Product IC and Control Product I. Such experimental data was subsequently amended in response to a further query from the Board. The Respondent submitted that the results of the comparisons show that the improved holding power of Test

Product IC over Test Product IA cannot only be due to the slight increase in the rate of discharge of the resin. The Appellant submitted no observations in response to the amendment to Claim 1 or the experimental data.

VII. Oral proceedings took place on 7 October 1986, during which the Appellant confirmed his previous submissions as summarised in IV above, and also relied upon document (4).

Also during the hearing the Board questioned the scope of Claim 1, in relation to the point IV(iii) above, as regards a possible lack of distinction between the "hairspray resin" and the "drag reducing agent" as a matter of definition. As a result the Respondent submitted a further amendment to Claim 1 during the oral proceedings in order to bring the literal scope of Claim 1 into conformity with what was submitted to be its intended scope. The Appellant stated that he had no formal objections to the amended wording of Claim 1.

The Appellant also accepted that the amended wording of Claim 1 overcame his objection concerning lack of novelty with respect to document (1) (point IV(iii) above), but he maintained that nevertheless the claimed subject-matter was still not new having regard to the teaching of document (4). With respect to the ground of lack of inventive step, however, (this being the only ground of opposition in the notice of opposition), his position remained unchanged.

The Board asked the Appellant in relation to the experimental report submitted by the Respondent: the Appellant said that he had no objections either to the methods used in the report, or to the results contained therein.

VIII. At the end of the hearing the Appellant requested that tne decision under appeal be set aside and the patent be revoked. The Respondent requested that the appeal be dismissed and that the patent be maintained, but amended as submitted during the oral proceedings.

Claim 1 as considered during the oral hearing reads as follows, with amendments underlined:

"1. A hairspray product consisting of a hairspray composition within a container for spraying the composition onto the hair, wherein the hairspray composition comprises 0.4 to 7.5% by weight of the composition of a hairspray resin which is not a drag-reducing agent having a drag reduction efficiency of at least 2%, a solvent for the hairspray resin, and optionally a propellant, characterised in that the composition also comprises a drag reducing agent having a drag reduction efficiency of at least 2% dissolved in the solvent whereby the holding power of the hairspray composition is improved, the weight ratio of the hairspray resin to the drag reducing agent being 10,000 to 2:1 and the amount of the drag reducing agent being less than 0.3% by weight of the hairspray composition.

Reasons for the Decision

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

2. The requested amendment to Claim 1 raise no objections on formal grounds under Article 123 EPC, for the reasons set out below, since they are adequately supported by the original description and do not broaden the claim.

2.1 The first amendment defines the nature of the hairspray resin to be used in the hairspray composition viz. a hairspray resin which is not a drag-reducing agent having a drag reduction efficiency of at least 2%, and thus provides a clear distinction between the main constituent of the composition and the minor constituent, i.e. the drag reducing agent, or auxiliary resin. This amendment finds support in the description between page 5, line 29 and page 6, line 59, and especially page 6, lines 56 to 59, which clearly state that the hairspray resins used in commercial products are themselves not drag-reducing agents, and furthermore are of relatively low molecular weight compared to the drag-reducing agents as described, i.e. having a drag reduction efficiency of at least 2% (cf. page 2, line 36). Accordingly, the hairspray resin which is the main constituent must be different from the drag-reducing agent to be used in the composition. This requirement is expressed by the first amendment, and ensures that the scope of Claim 1 conforms with the inventive concept as expressed at page 2, lines 12 and 13 for example.

The second amendment specifies that the drag-reducing agent must have a drag-reduction efficiency of at least 2%. This requirement is disclosed as an essential feature of the invention in the description, (in particular at page 2, lines 36 and 37 and at page 3, lines 59 to 61).

Both these amendments have the effect of clearly restricting the claims to the invention as disclosed in the description; thus the protection conferred by Claim 1 as amended is not extended, neither is the subject-matter of the patent extended. These amendments are therefore, not contrary to Article 123(2) and (3) EPC, and are allowed.

3. In relation to the Appellant's objection to Claim 1 on the basis of what was suggested to be its excessive breadth, as compared to the particular polymer compounds which have been shown in the specification to provide the claimed effect of an improved holding power, this objection is in reality an objection based upon that part of Article 84 EPC which requires that "the claims shall define the matter for which protection is sought... shall be supported by the description". The possible grounds of opposition are set out in Article 100 EPC, and they do not include a ground corresponding to the requirements of Article 84 EPC. Thus the Opponent's objection cannot be considered as part of the opposition. Nevertheless, Article 114(1) EPC provides that "the European Patent Office shall examine the facts of its own motion...".

In the present case, the representative of the Respondent stated during the oral hearing that as far as the Respondent was aware, all compositions within the scope of Claim 1 as amended would produce the claimed effect of an improved holding power. No evidence to the contrary is within the knowledge of the Board. In this circumstance, the Board has no basis for challenging the scope of Claim 1 on the basis that Article 84 EPC is contravened.

4. The subject-matter of the patent concerns hairsprays. According to the introductory part of the disputed patent, hairsprays are products containing a film-forming resin which when applied to the hair help to hold the hair in place. The composition sprayed onto the hair comprises a solution of the hairspray resin in a suitable solvent usually an alcoholic or aqueous alcoholic solvent.

Document (4) is the closest state of the art document. It relates to hair dressing compositions of this kind which may be applied to hair in the form of aerosol sprays to maintain hair in place (cf. column 1, lines 5 to 8 and column 2, lines 11 and 12). The composition comprises a hair fixative quaternary cellulose ether resin and as a second essential component a hair grooming agent, dissolved in an aqueous alcoholic solvent, wherein on the total weight of the composition:

(a) said resin is present in the range of from 0.1 to 7% by weight;

(b) said hair grooming agent is present in the range of from about 1 to 60% by weight;

(c) the ratio of said resin to said hair grooming agent being present in the ratio of about 1 part of resin to 10 to 30 parts of grooming agent.

In order to modify the properties of the hair dressing composition, it is possible to include therein one or more auxiliary resins comprising among others polyvinyl pyrrolidone (PVP), hydroxypropylcellulose and polyoxyethylene resins in an amount of from 0 to 3% by weight of the total composition.

Of special interest as hair fixative resins are Union Carbide's JR-1 Resins, in that they impart holding properties without excessive stiffness at low concentrations (0.1%). The molecular weight of the resins are in the range 200 000 to 2 000 000. One of them is the low viscosity grade

JR-1L Resin which has at 25°C a viscosity of about 50 to 1000 cps (2% aqueous solution). The other grade is a high viscosity grade (JR-1H Resin) which has a viscosity of above 1000 cps (2% aqueous solution). The JR-1 Resin used in the examples is always the low viscosity grade (JR-1L). (cf. Claim 1, column 4, line 51 to column 5, line 34; column 8, lines 31 to 48; column 9, Table I; examples).

5. The technical problem in respect of the closest art was the finding of a hairspray composition of the known kind with improved holding power.

In order to solve this problem, the patent-in-suit proposes to include in the hairspray composition a small amount of a drag reducing agent having a drag-reduction efficiency of at least 2% dissolved in the solvent for the hairspray resin, in addition to a conventional hairspray resin present in the composition in the range of from 0.4 to 7.5% by weight which is not a drag-reducing agent having a drag reduction efficiency of at least 2%. Furthermore, the weight ratio of the hairspray resin to the drag reducing agent is adjusted at 10 000 to 2:1, and the drag-reducing agent is less than 0.3% by weight of the hairspray composition.

The experimental data submitted in the course of proceedings before the Board, show that the problem is indeed solved by this proposal. The comparisons of the discharge rates of Test Products IA, IC and Control Product I show that the inclusion of the drag-reducing agent, while increasing the discharge rate of the hairspray resin merely by less than 18% (i.e. 17.5%), has brought about a paramount increase in holding power equivalent to an increase in resin discharge rate of 325%. As stated previously, the Appellant did not challenge this data.

6. Although the Appellant admitted during the oral hearing that as a result of the amendments present Claim 1 was new with respect to the prior art document (1), he nevertheless maintained that this was still not the case with respect to document (4). The Board cannot, however, accept this view.

There is no suggestion in document (4) to include in the composition a small amount (i.e. less than 0.3% by weight of the hairspray composition) of a drag-reducing agent having a drag-reduction efficiency of at least 2% in addition to a conventional hairspray resin which is not such a drag-reducing agent. Although in this document conventional hairspray resins (e.g. PVP) may be included as auxiliary resins, the presence of an auxiliary resin is not necessarily required in the composition, the quaternary cellulose ether resin being the main hair-fixative resin. Moreover from the two JR-1 Resins mentioned in this document, it is the low viscosity grade (JR-1L Resin) and not the high viscosity grade (JR-1H Resin) which is used in the examples. The former, however, has a viscosity which is too low to be a drag-reducing agent. It is this low viscosity grade JR-1 Resin which is used in example 26 in combination with PVP. As far as hydroxypropylcellulose and polyoxyethylene resins as possible auxiliary resins are concerned, document (4) does not contain positive product information. There are no indications of molecular weight or viscosity, and it is therefore not possible to deduce from this document more than a general suitability of these groups of compounds as auxiliary resins, independently of their molecular weight and viscosity. Furthermore, the second essential component of these prior art hair dressing compositions is a grooming agent which constitutes in general between 1.0 to 60% by weight of the total composition, the ratio of quaternary resin to grooming agent being 1:10 to 30. This feature is alien to the opposed patent.

Consequently, in the absence of any document which discloses the essential features of the hairspray product of the opposed patent, the subject-matter of Claim 1 is new.

7. As to inventive step, the question is whether the man skilled in the art would need an inventive step in order to find a hairspray composition with improved holding power when starting from a hairspray product such as described in document (4).

8.1 The prior art document (1) relates to water-soluble Polyox resins which are outstanding friction reducers suitable to be included in numerous products including aerosol hairsprays. In Table 1 there is a list of commercially available Polyox grades corresponding to a great extent to those described on page 3 of the disputed patent, including the Polyox WSRN-10 having an approximate molecular weight of 10^5 and a viscosity of from 10 to 20 cps in a 5% solution at 25°C. The latter corresponds to the Polyox 10 resin (average molecular weight about 1×10^5), which is described in the opposed patent as not being a suitable drag-reducing agent for the claimed hairspray product, the only suitable polymers being those having a drag-reduction efficiency of at least 2% (see page 3, line 51 to 61 of the patent-in-suit). This means that in the patent a selection is made on the basis of the drag reduction efficiency, which is not the case in document (1).

Moreover, document (1) is silent with respect to the conventional hairspray resin to be included in the composition of the hairspray, and with respect to the respective amounts of components to be used.

In view of the evidence contained in the disputed patent (i.e. experiment 1) together with the further unchallenged experimental data submitted by the Respondent in the course of the proceedings, it is plainly established that these features are together technically advantageous, since the holding power of the applied hairspray resin is very considerably enhanced and to a degree which far exceeds what could have been predicted. As mentioned previously, the shown improvement in holding power is equivalent to an increase in resin discharges of 325% when increasing the discharge rate of the hairspray resin merely by 17.5%.

Under the circumstances, in the Board's view the general statement in document (1) that Polyox resins provide toughness and flexibility of films would not have helped the man skilled in the art when starting from the closest prior art hairspray product as described in document (4) if he tried to improve the holding power of the hairspray composition according to the actual underlying technical problem in the present case.

8.2 The Appellant suggests that it would be inferred from document (2) that Klucel polymers other than of the low-viscosity types, i.e. the high-viscosity types corresponding to those used in the opposed patent, may be used in hairsprays as an auxiliary resin to provide stiffness, i.e. improved holding power.

The Board's view is that, even if one assumes that this suggestion is correct, the question is not whether the Klucel polymers could be used in hairsprays as auxiliary resin, but whether the skilled man in the present case would have done so in the expectation of achieving some quantifiable improvements in the holding power of the hairspray composition. However, nothing in the third paragraph of the section headed "Hair-Grooming Aids" of

document (2) suggests such an improvement in the holding power. It is merely stated in the document that the Klucel polymer may be used as an auxiliary resin in hairsprays designed to provide stiffness, and that Klucel as the sole binder is not considered to impart the necessary stiffness generally required in this type of hairspray. The function of the auxiliary resin in the hairspray is to build solids and plasticize the system. The composition thus obtained confers nothing more than the necessary or usual stiffness, and the Board is therefore unable to extract from the third paragraph a teaching going beyond that.

The teaching of document (2) is clearly distinct from that of the opposed patent, which imperatively prescribes a small amount (i.e. less than 0.3% by weight) of a high-viscosity Klucel polymer whose function is to act as a drag-reducing agent, in addition to a conventional hairspray resin which must not be a drag-reducing agent in view of the deleterious effect caused by the inclusion of high levels of such an agent (cf. page 6, lines 56 to 59 of the patent). The technical difference results in an unexpectedly high improvement in the holding power, as the unchallenged evidence submitted by the Respondent shows. In the Board's view, this outcome was not predictable on the basis of document (2).

8.3 Document (3) is not closer to the subject-matter of the disputed patent and provides no additional information. Like document (1) it relates to commercial grades of water-soluble Polyox resins, their friction-reducing properties and their various uses. It differs merely from document (1) in that it makes no reference to the use of Polyox resins in aerosol hairsprays.

8.4 Finally, an important practical consequence of the solution to the technical problem of the opposed patent is that not only the inclusion of a drag-reducing agent in the hairspray product improves the holding power of the product, but that it enables one to substantially reduce the level of hair-spray resin without loss of product efficiency.

8.5 It follows from the above that in the Board's judgement the subject-matter of Claim 1 involves an inventive step (Article 56 EPC).

9. Claim 1 is hence allowable (Article 52 EPC).

Since dependent Claims 2 to 14 concern particular embodiments of the hairspray product according to Claim 1, they too are allowable.

10. The description has been brought into line with the amended wording of the claims. It accordingly does not give rise to any objections.

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 European patent No. 664 in amended form on the basis of the following documents:

(1) Description:
Pages 3 to 19 as originally granted;
Page 2 as submitted during the oral proceedings on 7 October 1986.

(2) Claims:
Claims 1 to 14 as submitted during the oral proceedings on 7 October 1986.