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File Number: T 462/90 - 3.3.2  
Application No.: 83 111 792.4  
Publication No.: 0 113 418  
Title of invention: Hair cosmetic composition

Classification: A61K 7/06

D E C I S I O N  
of 16 December 1992

Applicant: Kao Corporation

Opponent: Henkel Kommanditgesellschaft auf Aktien

Headword: Hair cosmetics/KAO

EPC Articles 54, 56

Keyword: "Novelty - yes - no disclosure of specific ranges in combination"  
"Inventive step - no - obvious solution"

Case Number : T 462/90 - 3.3.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.2  
of 16 December 1992

**Appellant :**  
(Opponent) Henkel  
Kommanditgesellschaft auf Aktien  
TFP/Patente  
Postfach 1100  
Henkelstrasse 67  
W-4000 Düsseldorf 1 (DE)

**Representative :**

**Respondent :**  
(Proprietor of the patent) Kao Corporation  
14-10, Nihonbashi Kayabacho 1-chome  
Chuo-Ku  
Tokyo 103 (JP)

**Representative :** Wächtershäuser, Günter, Dr.  
Tal 29  
W-8000 München 2 (DE)

**Decision under appeal :** Interlocutory Decision of the Opposition Division  
of the European Patent Office dated 21 February  
1990, posted on 17 April 1990 concerning  
maintenance of European patent No. 0 113 418 in  
amended form.

**Composition of the Board :**

**Chairman :** P.A.M. Lançon  
**Members :** I.A. Holliday  
R.L.J. Schulte

Summary of Facts and Submissions

I. European patent No. 0 113 418 was granted on the basis of the single claim contained in European patent application No. 83 111 792.4.

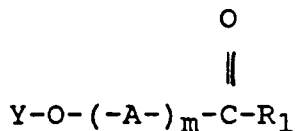
II. The Appellant filed an opposition against the granted patent. Of the documents cited the following remain relevant to the present decision:

- (1) EP-A-0 092 932
- (2) US-A-4 170 637
- (3) Handbuch der Kosmetika und Riechstoffe,  
Dr. Alfred Hüthig Verlag, Heidelberg, 1978,  
(a) Band I, pp. 38 and 515  
(b) Band III, pp. 256, 260-264, 274, 326, 372.

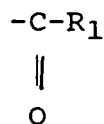
III. The Opposition Division, in the interlocutory decision under appeal, proposed the maintenance of the patent in amended form. The single claim reads as follows:

"Aqueous hair cosmetic composition of the basis of an oxidising agent and known additives for hair cosmetics having a pearl-like appearance which comprises

- (1) 1 to 10 weight-% of the oxidizing agent,
- (2) 0.1 to 5 weight-% of xanthan gum, and
- (3) 0.1 to 10 weight-% of glycol esters of fatty acids represented by the following general formula:



wherein R<sub>1</sub> is a straight-chain or branched, saturated or unsaturated, hydrocarbon group containing 13 to 21 carbon atoms, Y is a hydrogen atom or



A means a group derived from ethylene oxide or propylene oxide, and m stands for an integer of 1 to 3."

In the opinion of the Opposition Division the amendment specifying that the composition contained known additives for hair cosmetics was sufficient to establish novelty over document (1) which relates to a household bleaching composition.

The Opposition Division also considered that Claim 1 represented an inventive selection from the closest prior art represented by document (2). Although (2) disclosed ingredients and amounts falling into and overlapping with the claimed figure ranges, there was no hint as to how the problem of "running down" could be solved by using the glycol esters specified in Claim 1 together with xanthan gum. The Opposition Division also expressed the view that the Opponent had failed to demonstrate that the compositions claimed did not show the desired effects of long term stability and oxidation resistance.

IV. The Appellant lodged an appeal against the decision of the Opposition Division.

Oral proceedings took place on 16 December 1992. Pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, the summons to oral proceedings was accompanied by a communication expressing the Board's doubts concerning the novelty and inventive step of the claimed composition.

- V. The arguments of the Appellant both in the written procedure and at the oral proceedings may be summarised as follows:

The Appellant argued that the compositions of document (1) contained the three essential components of the claimed composition in the required concentrations and further that the insertion "known additives for hair cosmetics" was insufficient to establish novelty, especially since one of the components referred to in Example 2 of the patent could not be identified.

As far as inventive step was concerned, the Appellant argued that there was nothing surprising in the fact that xanthan gum remained stable in the presence of oxidising agents referring to the text book "Industrial Gums", Whistler and BeMiller, Academic Press, New York and London 1973 (5). Since xanthan gum was a well known thickening agent and the fatty acid glycol esters were known pearling agents, the Appellant could see nothing inventive in using them together, especially having regard to the fact that no synergistic effect had been demonstrated.

- VI. The Respondent both in the written procedure and at the oral proceedings argued essentially as follows:

The novelty of Claim 1 was defended by the Respondent, arguing that document (1) related to a household bleach composition and was silent concerning any possible application in the field of hair cosmetics, especially having regard to the sensitive nature of the skin on the head. A further distinguishing feature was the presence of the enol esters which must contain a double bond in the glycol structure in order to activate the oxidising agent. The Respondent also argued that the compositions of (1)

were emulsions whilst those of the patent in suit were single phase aqueous systems and offered to make any amendment that the Board deemed appropriate to make this clear.

The Respondent considered that document (2) was not a suitable starting point to consider inventive step, arguing that (2) related to a "kit of parts" for preparing a hair treating composition. The persulphates used in (2) were sensitive even to atmospheric moisture and the purpose of the compositions described and claimed therein was to encapsulate the persulphates in a moisture impervious organic layer so as to provide a paste or cream which would exhibit long term stability when exposed to atmospheric moisture. This cream would be mixed with aqueous hydrogen peroxide in a hair dressing salon immediately prior to use. In contrast, the patent in suit disclosed shelf stable aqueous compositions which could be directly used without any requirement for premixing.

It was further argued that the patent in suit solved a three-part problem. Firstly an oxidising agent was presented in a one component form which was directly usable for bleaching or waving of hair and which did not "run down" during use. Secondly the composition was shelf stable and finally it improved the feel of the hair after use. In support, the Board's attention was directed to Example 2 of the patent in suit.

In the Respondent's view, document (5) did not demonstrate the stability of xanthan gum in the presence of an oxidising agent; dilute sulphuric acid could not be regarded as an oxidising agent, at least in the context of hair cosmetics.

VII. The Appellant requested that the decision of the Opposition Division be set aside and that the patent be revoked.

The Respondent requested that the appeal be dismissed.

#### Reasons for the Decision

1. The appeal is admissible.
  
2. The Board has no reason to differ from the Opposition Division concerning the formal allowability of the amendment which included a reference in Claim 1 to "known additives for hair cosmetics". However, in the opinion of the Board, the said amendment was unnecessary. The use of the word "comprises" would permit the presence of further additives and the fact that the composition was designated an "aqueous hair cosmetic composition" would clearly exclude the presence of any material which might have a detrimental effect on the hair, on the skin under the hair and on the facial skin.
  
3. The Board is satisfied that the subject-matter of Claim 1 at issue is novel vis-à-vis document (1).
  - 3.1 It must be admitted that document (1) refers to the three materials claimed in the patent in suit. Claim 1 of (1) relates to compositions containing an oxidising agent, namely hydrogen peroxide. Xanthan gum is mentioned as a possible thickening agent and is used in the Examples of (1) (cf. page 16, lines 20-25). Several glycol esters falling within the definition of component (3) of the patent in suit are also mentioned as emulsifiers in the

Table spanning pages 10 and 11 of document (1). However, not one of the said glycol esters is actually used in the working examples of (1) (cf. Table on p. 17).

- 3.2 It is to be noted that Claim 1 of the patent in suit relates to a composition of the said three components in specific narrow ranges. When challenged at the oral proceedings to indicate exactly where in document (1), a composition in accordance with Claim 1 of the patent in suit could be found, the Appellant referred to decision T 666/89 (Headnote published in OJ EPO, June 1992), arguing that the entire disclosure of document (1) embraced the composition currently claimed.
- 3.3 The Board cannot agree with this interpretation of document (1). Although Claim 8 of (1) specifies ranges of hydrogen peroxide and emulsifier which could overlap the ranges of the patent in suit and Examples 1-4 of (1) apparently contain xanthan gum, the above must always be used in association with a specific enol ester which serves to activate the peroxide. The Appellant cited, in the statement of appeal, several patent documents indicating that such activators are known in hair cosmetic compositions. It must also be acknowledged that the use of the word "comprises" in the claim of the patent in suit would permit the presence of additional components. Nevertheless, having regard to the fact that the patent in suit contains no hint of using such an activator, the Board is convinced that the narrow ranges which define the composition of Claim 1 are not anticipated by the broad disclosure of document (1). Novelty can accordingly be recognised.
4. The patent in suit relates to a hair cosmetic composition containing an oxidising agent which is thickened by

xanthan gum. In the opinion of the Board, the closest prior art is document (2).

4.1 Document (2) also relates to hair cosmetic compositions which contain oxidising agents. As argued by the Respondent, the compositions of (2) contain an organic phase which in effect encapsulates the moisture sensitive persulphate oxidising agent to form a cream or paste which is stable against decomposition by atmospheric moisture (col. 1, lines 31-42). The said paste or cream is also sufficiently hydrophilic so that it can readily be dispersed in an aqueous solution of hydrogen peroxide (Claims 1 and 6; col. 1, line 66 to col. 2, line 6). The resultant compositions contain a thickener so as to form a net composition of a gel to cream consistency but which has sufficient fluidity for selective application to strands of hair (col. 3, lines 61-66). A preferred thickener is xanthan gum (col. 2, line 55; Examples 4, 14 and 15).

4.1.1 Calculations made by the Board, which were included in the communication accompanying the summons to oral proceedings, showed that when the composition of Example 14 of (2) was mixed with 6% aqueous hydrogen peroxide in a weight ratio of 1:4, in accordance with the instructions in col. 3, lines 61-66, a net composition would be obtained which contained ca. 10% by weight of oxidising agent (peroxide plus persulphate) together with 0.15% xanthan gum. Thus aqueous compositions containing components (1) and (2) of Claim 1, together with known additives for hair cosmetics, were known at the priority date of the patent in suit.

4.2 In relation to the said prior art, the problem to be solved can only be seen in providing alternative

compositions for treating hair with a view to its appearance.

4.2.1 The problem is solved by adding a pearling agent to the compositions known from (2). Having regard to the tests and comparisons of Example 2 of the patent in suit, the Board is satisfied that the problem has been solved.

5. It remains to consider whether or not the claimed composition satisfies the requirements of Article 56 EPC in respect of inventive step.

5.1 The essential difference between the compositions of document (2) and those of the patent in suit lies in the presence of a pearling agent of specific formula. At the oral proceedings, the Respondent argued that (2) relates to an organic composition which is unstable in the presence of moisture. However, according to Claims 1 and 7 of (2), the said composition must be sufficiently hydrophilic to be dispersible in water. In the acknowledgement of (2) which appears on page 2, lines 37-55 of the patent in suit, it is stated that any thickener present is latent in effect. This is true, insofar as it relates to the organic paste but when the said paste comes into contact with aqueous hydrogen peroxide, the thickener is activated to obtain the desired hair cosmetic composition in the form of a viscous cream (see (2) col. 1, lines 46-48 and col. 2, lines 38-46). Thus the effect of the thickener is precisely the same as that required in the composition of the patent in suit. The above-mentioned acknowledgement in the contested patent indicates that there is no special emphasis in (2) on xanthan gum. The Board agrees with this point of view which merely indicates that xanthan gum was one of a known range of thickeners used in hair cosmetics at the priority date.

- 5.1.1 It is thus apparent that the original problem seen by the Applicant (Respondent) before considering the prior art revealed in the European Search Report and which problem is also referred to in the decision under appeal, i.e. to prevent running down in use (original application, page 2, lines 1-7 and p. 3, lines 20 ff) had already been solved by the use of xanthan gum in the aqueous compositions known from (2).
- 5.2 At the oral proceedings, the Respondent argued that the advantage of the patent in suit is that it provides a one component hair cosmetic composition ready for immediate use whilst the compositions according to (2) require mixing prior to use. The Board agrees that the creamy organic compositions according to (2) must be mixed with aqueous hydrogen peroxide before use but can see nothing in document (2) which might suggest that once mixed the resultant aqueous compositions are unstable (cf. col. 3, lines 49-66 and col. 7, lines 35-39). Having regard to its position, i.e. directly following the reference to addition of aqueous hydrogen peroxide, it is by no means clear, as argued by the Respondent at the oral proceedings, that the passage in col. 4, lines 9-18 refers only to the long term stability of the organic compositions prior to aqueous addition. In any event, according to the patent in suit, p. 3, lines 28-29, the hair cosmetic composition may be prepared as a concentrate which is "suitably diluted with water upon its application to hair". It is accordingly the Board's view that document (2) unambiguously discloses aqueous hair cosmetic compositions containing components (1) and (2) claimed in the patent in suit.
- 5.3 It is also clear from document (3)(b), "Perlglanz shampoos" (p. 261) and from the specific formulations on the following pages, that compounds of formula (3)

according to the claim of the disputed patent were known in shampoos at the priority date. Another example of the use of one such compound, diethylene glycol stearate, in conjunction with an oxidising agent occurs in the "Neutralisations-Lösung" at the foot of p. 372 in document (3)(b). Accordingly, if the person skilled in the art wished to improve the appearance of an aqueous composition known from (2), the use of a pearling agent of the specified formula would be an obvious choice.

5.4 The Respondent has argued that the feeling or handling of the hair reported in Example 2 is an unexpected effect demonstrating the presence of inventive step. The Board cannot accept this argument since, as pointed out by the Appellant, the effect seems merely to be additive without any evidence of synergy. In other words, use of the pearling agent alone gives a quite significant improvement as does the sole use of xanthan gum. Having regard to the individual effects, the combined effect amounts to nothing more than might be expected by one skilled in the art.

5.5 In the Board's opinion, a similar conclusion would have been reached had document (3)(b) been chosen as the closest prior art. The "Neutralisations-Lösung" which is exemplified at the foot of p. 372 contains an oxidising agent, i.e. sodium bromate used in Example 1 of the patent in suit, together with polyethylene glycol (400) monostearate and diglycol stearate. The last mentioned must be construed as diethylene glycol stearate, i.e. a pearling agent within the general formula of the patent in suit. Had it been desired to thicken the said composition in order to prevent "running down", the choice of xanthan gum, known in hair cosmetics from document (2), would have been an obvious one.

5.6 It must also be added that none of the amendments offered provisionally by the Respondent at the oral proceedings would have been sufficient to substantiate inventive step. As indicated above, there is no clear evidence that the net aqueous compositions known from (2) lack shelf stability. Also having regard to the pearly appearance of the compositions of the patent in suit, the Board is by no means convinced that an amendment to specify a single non-organic phase would have been appropriate.

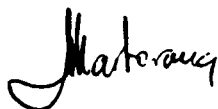
5.7 Having regard to the preceding paragraphs, the subject-matter of Claim 1 lacks the inventive step required by Article 56 EPC and accordingly the patent in suit must be revoked.

Order

For these reasons, it is decided that:

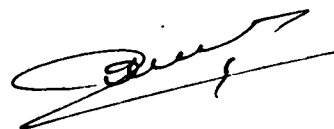
1. The decision under appeal is set aside.
2. European patent No. 0 113 418 is revoked.

The Registrar:



P. Martorana

The Chairman:



P.A.M. Lançon

*Submitted 11-1-93*

7.1.93