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File Number: T 745/90 - 3.3.1

Application No.: 83 303 925.8

Publication No.: 0 099 234

Title of invention: Silver halid color photographic light-sensitive material

Classification: G03C 7/26

DECISION  
of 19 January 1993

Applicant: KONICA CORPORATION

Opponent: Agfa-Gevaert AG, Leverkusen

Headword: Photographic material/KONICA

EPC Article 54(3)

Keyword: "Novelty (no) - pointwise disclaimer of specific values derivable from state of art document insufficient if skilled man will understand these values as examples of a wider ranger disclosed generally"



Case Number : T 745/90 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 19 January 1993

**Appellant :**  
(Proprietor of the patent)

KONICA CORPORATION  
26-2, Nishi-shinjuku 1-chome  
Shinjuku-ku  
Tokyo (JP)

**Representative :**

Wood, Anthony Charles  
Urquhart-Dykes & Lord  
91 Wimpole Street  
London W1M 8AH (GB)

**Respondent :**  
(Opponent)

Agfa-Gevaert AG, Leverkusen  
-Patentabteilung-  
Postfach  
W - 5090 Leverkusen 1 (DE)

**Decision under appeal :**

Decision of the Opposition Division of the  
European Patent Office dated 11 July 1990  
revoking European patent No. 0 099 234 pursuant  
to Article 102(1) EPC.

**Composition of the Board :**

**Chairman :** K. Jahn  
**Members :** F. Bauriedel  
S. Perryman

**Summary of Facts and Submissions**

I. European patent No. 0 099 234 was granted on 29 April 1987 on the basis of seven claims in response to European patent application No. 83 303 925.8 filed on 5 July 1983. The only independent claim, Claim 1, reads as follows:

1. A silver halide color photographic light-sensitive material comprising a support carrying at least one silver halide emulsion layer unit having a sensitivity to a predetermined spectral region, the silver halide emulsion layer unit consisting of two or more light-sensitive layers having different photographic speeds, characterized in that the difference between the speed of the fastest layer and that of the second fastest layer of each layer unit is from 0.2 to 0.7 in terms of log I.t, and at least said fastest and second fastest layers each contains at least one monodispersed silver halide emulsion whose granularity distribution is represented by the formula:

$$S/\bar{r} < 0.15$$

where  $S = \sqrt{\sum (\bar{r} - r_i)^2 n_i / \sum n_i}$  and  $\bar{r} = \sum n_i r_i / \sum n_i$

wherein  $r_i$  represents the particle size of each particle and  $n_i$  represents the number of particles, and each of the particles contained in the layer units satisfies the relationship:

$$0.2 < 2\log(x_1/x_2) < 0.60$$

wherein  $x_1$ , in the silver halide particles contained in the fastest layer, represents the largest particle size of the particle sizes giving the maximum value of the granularity distribution, and  $x_2$ , in the silver halide particles contained in the second fastest layer,

represents the largest particle size of the particle sizes giving the maximum value of the granularity distribution, no claim is made to materials in which the silver halide particles are octahedral and the relationship  $2 \log(x_1/x_2)$  is equal to 0.22."

II. Notice of opposition was duly filed requesting the revocation of the patent on the grounds that it does not disclose the invention in a manner sufficiently clear for it to be carried out by a person skilled in the art and that the subject-matter lacked novelty and an inventive step. In the course of the opposition the Opponent further argued under Article 100(b) EPC that as regards the claimed characteristic  $0.2 < 2\log(x_1/x_2) < 0.60$  there was no disclosure of the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art because of the unclear definitions of  $x_1$  and  $x_2$ . However if one followed the explanation of this characteristic given by the Patentee on 5 March 1986, subsequent to filing of the application, then the subject-matter of Claim 1 was directed to materials which had already been disclosed in the following citations, which were under the provisions of Article 54(3) EPC to be considered as comprised in the state of the prior art for all Contracting States designated in the disputed patent:

- (2) EP-A-0 070 182
- (3) EP-A-0 070 183
- (4) EP-A-0 083 377.

III. By a decision of 11 July 1990 the Opposition Division revoked the patent. The decision was based on amended Claim 1 received on 24 July 1989.

This claim differs from the one as granted in that the weight proportion of the monodispersed emulsion in the

most sensitive layer and in the second most sensitive layer respectively shall each be 30 weight-% as well as in that instead of the grain size definition

$$0.2 < 2 \log(x_1/x_2) < 0.60$$

now the grain size is defined in the claim as

$$0.2 > 2 \log(x_1/x_2) > 0.33 \text{ or}$$
$$0.45 > 2 \log(x_1/x_2) > 0.60.$$

Without giving detailed reasons the Opposition Division held that (a) the European patent did not disclose the invention in a manner sufficiently clear and complete to be carried out by a person skilled in the art, and (b) that Claim 1 extended beyond the content of the application as filed. Referring to its communications, the Opposition Division further held that Claim 1 was not allowable under Articles 52(1) and 54(3) EPC, because its subject-matter was not novel vis-à-vis documents (2), (3) and (4).

IV. On 15 September 1990 Notice of Appeal was lodged on behalf of the Appellant with payment of the prescribed fee. A Statement of Grounds of Appeal and new claims were filed on 19 November 1990. In the course of oral proceedings held on 19 January 1993, the Appellant argued as follows:

The amended Claim 1 overcame the objection to clarity and no longer contained the values 0.33 and 0.45. This revised claim also excluded the values for  $2 \log(x_1/x_2)$  derivable from the examples of the documents (2), (3) and (4). Also because these documents were totally silent about the objects and the advantages of the invention and because they only contained wholly vague statements relating to the ratios of the mean grain sizes of the most sensitive

and the second most sensitive layer of the emulsions to be used, the invention was distinguished over documents (2), (3) and (4). The new claim, therefore, met the requirements of Article 54 EPC.

V. The Respondent countered the patent proprietor's arguments as follows:

The subject-matter of Claim 1 lacked novelty, because novelty of the claims to colour photographic recording material could not be achieved by pointwise disclaimer, from the scope of protection of the claim, of the specific examples of materials having the claimed characteristics and disclosed in the cited publications, because the skilled person in the art would read the cited publications as teaching a range going beyond the specific values given in the examples.

VI. The Appellant (patent proprietor) made the main request that the decision under appeal be set aside and the patent be maintained on the basis of the amended Claims 1 to 6 filed on 19 November 1990. Alternatively he made the auxiliary request that in the last four lines of Claim 1 filed on 19 November 1990 the passage "and no claim ... equal to 0.22" be deleted and that otherwise the order be as asked for in the main request.

The Respondent requested that the appeal be dismissed.

Claim 1 of the main request read as follows:

"A silver halide color photographic light-sensitive material comprising a support carrying at least one silver halide emulsion layer unit having a sensitivity to a predetermined spectral region, the silver halide emulsion layer unit consisting of two or more light-sensitive

layers having different photographic speeds, characterized in that the difference between the speed of the fastest layer and that of the second fastest layer of each layer unit is from 0.2 to 0.7 in terms of log I.t, and at least said fastest and second fastest layers each contains at least 30% by weight of one monodispersed silver halide emulsion whose granularity distribution is represented by the formula:

$$S/\bar{r} < 0.15$$

where  $S = \sqrt{\frac{\sum (\bar{r} - r_i)^2 n_i}{\sum n_i}}$  and  $\bar{r} = \frac{\sum n_i r_i}{\sum n_i}$

wherein  $r_i$  represents the particle size of each particle and  $n_i$  represents the number of particles, and each of the particles contained in the layer units satisfies the relationship:

$$0.2 < 2\log(x_1/x_2) < 0.60$$

wherein  $x_1$ , in the silver halide particles contained in the fastest layer, represents the largest particle size of the particle sizes giving the maximum value of the granularity distribution, and  $x_2$ , in the silver halide particles contained in the second fastest layer, represents the largest particle size of the particle sizes giving the maximum value of the granularity distribution, the silver halide contained in the silver halide emulsion layer units is silver iodobromide with not less than 0.1 mole percent of silver iodide; no claim is made to materials in which the relationship  $2 \log(x_1/x_2)$  is equal to 0.22; 0.32; 0.36; 0.39; 0.41; 0.42; 0.43 or 0.44 and no claim is made to materials in which the silver halide particles are octahedral and the relationship  $2 \log(x_1/x_2)$  is equal to 0.22."

Reasons for the Decision

1. appeal complies with the requirements of Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.
2. There are no objections to the amended claims under Article 123 EPC since they are supported by the original disclosure and do not extend the protection conferred.

The Claim 1 of the main and that of the auxiliary request each is a combination of Claims 1, 4 and 6 as granted, and of Claims 1, 2, 3, 4, 6 and 9 as filed.

Main request

3. The disputed patent is concerned with light-sensitive colour photographic material which exhibits a very high photographic speed and which forms dye images having excellent graininess (see the disputed patent page 2, lines 44 to 45). The Board holds that in the light of the description and the Examples 1 and 2, Claim 1 is sufficiently clear to enable a person skilled in the art to produce a photographic material with the desired properties. Thus it can be seen from Examples 1 and 2, that - in agreement with the definition of grain size in Claim 1 - the most light sensitive and the second most sensitive layer of the same layer unit must each contain at least one monodispersed silver halogen emulsion, wherein the mean particle diameter  $x_1$  of the monodispersed silver halide particles of the most sensitive layer and the mean particle diameter  $x_2$  of the monodispersed silver halide particles of the less sensitive layer are to be in a ratio to one another which is determined by the inequality

$$0.2 < 2\log(x_1/x_2) < 0.6$$

From Claim 1 taken together with page 3, lines 51 to 53 and Examples 1 and 2 it can further be seen that when several component emulsions are present in one layer, then the value of the mean particle size for that component emulsion is to be inserted into this relation for  $x_1$  or  $x_2$  respectively which is larger than for any other component emulsion in the same layer.

This mathematically formulated rule means substantially that the monodispersed emulsion added to the most sensitive layer should show a larger mean grain size than that added to the less sensitive layer, and also that mean particle size of the respective monodispersed emulsions added to these two layers should not differ too greatly or too little within the limits defined in the patent claim.

This meaning of the definitions of  $x_1$  and  $x_2$  contained in Claim 1, which meaning is recognisable on careful reading, corresponds to that in the explanation given by the Patentee on 5 March 1986. The so explained claim characteristics were no longer attacked by the Opponent as regards clarity or the practicability of their being carried out, so that further comment on these aspects is unnecessary.

4. On the basis of this meaning for the claim parameters  $x_1$  and  $x_2$ , light-sensitive colour photographic materials having the characteristics required by Claim 1 were, however, already disclosed as part of the state of the art under the provisions of Article 54(3) EPC as follows:

4.1 In Example 1 of document (4) in relation to specimens 2 and 3 there are described colour photographic materials which are characterised by

- silver halide emulsion layer units having a sensitivity to a predetermined spectral region -
- consisting of two light-sensitive layers having different photographic speeds -
- with a difference in speed between the fastest layer and that of the second fastest layer from 0.2 to 0.7 in terms of log I.t, -
- these light sensitive layers containing each at least 30% by weight of one monodispersed silver halide emulsion -
- a silver halide which is silver iodobromide with not less than 0.1 mole percent of silver iodide -

(cf. Table 2 "specimen 2" green sensitive layer unit of layer 5 (emulsions 5 and 9) and layer 6 (emulsion 3), which involve monodispersed emulsions as appears from Table 1 in combination with page 5, lines 5 to 23, which satisfy the condition  $S/r < 0.15$  and which contain not less than 0.1 mole - % silver iodide according to the information on page 96, lines 22 to 25 taken in connection with page 7, lines 4 to 6. As is shown in Table 2, lowest row, there exists - as required by Claim 1 - a difference in sensitivity of between 0.2 and 0.7 log I.t units of 0.36. Substantially similar ratios occur in "specimen 3" of the example in the layers 5 (emulsions 7 and 11) and 6 (emulsion 2).

4.2 The Appellant himself admitted that all characteristics required by the claim except the relation

$$0.2 < 2\log(x_1/x_2) < 0.60$$

are known from the cited state of the art. The Board holds, however, that this is not a characteristic conferring novelty on the claim when from the "mean crystal sizes" listed in Table 1 of document (4) it can be calculated that monodispersed emulsions used in the layers in the green sensitive layer units satisfy the above relationship concerning mean grain size. If the values of the grain size given for emulsions 2 and 3 (respectively  $x_1$ ) and emulsions 5 and 7 (respectively  $x_2$ ) in Table 1 are substituted into the above relation then the resulting values of  $2 \log (x_1/x_2)$  are 0.36 and 0.32 which fall within the range claimed in the above relation:

$$\text{specimen 2, layers 5/6} \quad 2 \log (x_1/x_2) = 0.36$$

$$\text{specimen 3, layers 5/6} \quad 2 \log (x_1/x_2) = 0.32$$

- 4.3 The situation is similar in the respective Examples 1 of documents (2) and (3), which disclose double layer materials where the ratio of the mean grain sizes  $2 \log (x_1/x_2)$  in the most light sensitive layer and the second most light sensitive layer of a layer unit can take the values 0.22; 0.39; 0.41; 0.43; or 0.44.
- 4.4 Ultimately this factual position was no longer disputed by the Appellant. The latter however argued that Claim 1 could be sufficiently delimited against this state of the art by a disclaimer excluding the specific values for  $2 \log (x_1/x_2)$  of 0.22; 0.32; 0.36; 0.39; 0.41; 0.43 and 0.44 for the double layer materials disclosed in the examples documents (2), (3) and (4).

The Board does not accept this argument. From the relationship between the mean grain sizes  $x_1$  to  $x_2$

calculable from the statements on, for example, page 6 lines 18 to 23 of document (4), according to which the more sensitive layer should preferably have a mean grain size between 0.4 to 1.5  $\mu\text{m}$ , and those in the second most sensitive layer should have an mean grain size between 0.1 and 0.8  $\mu\text{m}$ , the skilled person would deduce without any difficulty that of course the possibility exists that monodispersed emulsions are used in each of the layers, which as far as their mean grain size is concerned have values in the claimed region other than the values specifically mentioned in the examples.

As materials having identical composition must have identical properties, novelty cannot be conferred on the claimed materials by the fact that, as argued by the Appellant, the problem which is prominently stated in the patent in suit - high photographic sensitivity combined with excellent graininess - is not expressly mentioned in documents (2), (3) and (4). Achieving high sensitivity and good graininess is in any case a basic requirement for every technically useful colour-photographic material without any need for this to be expressly stated. However where - as here - an identical or similar technical problem has already been solved in the same technical field by identical means, the disclosure of this earlier solution destroys the novelty of what is claimed in the later patent.

- 4.5 This conclusion is in conformity with the principles on which the Board's Decision T 188/83 of 30 July 1984 (EPO OJ 1984, 555 - Vinyl acetate/FERNHOLZ) is based (see Reasons for the Decision, paragraphs 4 to 6, summarised in Headnote I. and II.).
- 4.6 In the absence of a patentable independent claim, the main request as a whole must be rejected.

5. Compared to Claim 1 of the main request, independent Claim 1 of the auxiliary request merely differs by a simplification of the language of the disclaimer without any material change of scope of the claim compared to that in the main request. Thus the auxiliary request too must be rejected for lack of a patentable independent claim.

**Order**

**For these reasons, it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

E. Martorana

K.J.A. Jahn