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D E C I S I O N
of 17 December 1997

Case Number: T 0406/94 - 3.3.5

Application Number: 89306991.4

Publication Number: 0352930

IPC: D21H 17/67

Language of the proceedings: EN

Title of invention:
Pressure-sensitive copying paper

Patentee:
The Wiggins Teape Group Limited

Opponent:
Stora Publication Paper AG

Headword:
Pressure-sensitive copying paper/WIGGINS

Relevant legal provisions:
EPC Art. 54(1), (2), 56

Keyword:
"Novelty (yes) - interpretation of a prior art document"
"Inventive step (yes)"

Decisions cited:
T 0017/85, T 0450/89, T 0511/92

Catchword:
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Case Number: T 0406/94 - 3.3.5

D E C I S I O N
of the Technical Board of Appeal 3.3.5
of 17 December 1997

Appellant:
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Respondent: Stora Publication Paper AG
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Representative: -

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 17 March 1994
revoking European patent No. 0 352 930 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: R. K. Spangenberg
Members: G. Dischinger-Höppler
S. C. Perryman

Summary of Facts and Submissions

I. The appeal is from the Opposition Division's decision revoking European Patent No. 0 352 930. The decision under appeal was based on the claims as granted, Claim 1 reading as follows:

"1. Microcapsule-coated paper for use in a pressure-sensitive copying set and containing an inorganic filler loading, characterized in that the inorganic filler loading is at a level of from 15% to 23% by weight, based on the total weight of the paper."

II. The opposition was based on the grounds that the claimed subject-matter was not novel and not inventive.

During the opposition proceedings five documents were considered, the following remaining relevant:

D1: DE-A-2 601 864 (& US family member
US-A-4 131 710),

D2: DE-A-2 601 865 (& US family member
US A 4 109 048),

D3: DE-B-1 471 717,

D4: Tappy/May 1970, Vol. 53, Nr. 5, Pages 831 to 834.

The Opposition Division held that the subject-matter of Claims 1 to 4 lacked novelty over D1. In particular it was held that D1 disclosed in Claims 4 and 22 a paper for use in a pressure-sensitive copying set, containing 2-20 wt % gamma aluminium oxide as a filler and colour donating capsules. Reference was made to page 12 of D1 where it was stated that the paper carried the capsules

on its reverse side. The term "Gesamtstoff" used in D1 was held to indicate the total weight of the paper (fibre plus filler) and not only the fibre weight, so that the filler content in D1 was given on the same basis as in the opposed Claim 1.

III. The Appellant (Proprietor), in his statement of grounds of appeal, relied upon the following further documents:

D6: Elsevier's Dictionary of the Printing and allied Industries in Six Languages, page 570.

D7: a certified translation of D1 filed at the British Patent Office in support of a priority claim for the British Counterpart of D1, ie GB-A-1 523 852.

IV. Oral proceedings were held on 17 December 1997 in the absence of the Respondent (Opponent), who had in advance informed the Board of his intention not to attend the hearing.

V. The Appellant's written and oral submissions can be summarized as follows:

According to D6 and D7 the term "Gesamtstoff" had the meaning of "total stock". This was confirmed by all examples of D1 wherein the percentage values were quoted in terms of the starting paper stock. Attention was drawn to various expressions containing the term "Stoff", such as e.g. 'Stoffdichte', 'Gesamtfaserstoff' and 'der fertige Stoff', as used in the examples, which all show that it generally relates to the papermaking stock. Hence, the content of 2-20% of aluminium oxide referred to in D1 was also related to the starting

papermaking stock and not to the total weight of the finished paper. The latter definition which was adopted by the Opposition Division was inconsistent with the rest of the document.

Due to the poor retention of the filler, its content in the paper was lower than in the starting paper stock. Reference was made to Example 1 of D3 to show that such loss was usually considerable. In addition, the retention was dependent on factors like type of fibres and fillers or papermaking equipment, and, therefore, unpredictable. Further, D1 did not contain any information about how to determine the filler content in the paper and it was doubtful whether in the presence of the asbestos fibres, the filler content in the finished paper of D1 could have been analysed at all.

Concerning D2, the Appellant submitted that the filler content in the papermaking stock of Example 15 could, at best, have been 15.25%. Due to the fact that 100% retention was never obtained, the filler content in the final paper was certainly below 15%. In addition, it was not disclosed in D2 that the paper of Example 15 was actually coated with microcapsules.

Concerning D3 it was held that the term "pressure-sensitive" related to the copying set and not to the paper in the form of a single sheet.

Hence, neither of D1 to D3 disclosed the subject-matter of Claim 1.

In respect of inventive step, the Appellant argued that the relevant technical problem in the present case was to increase the number of legible copies in a pressure-sensitive copying set. As a solution to this problem the claimed range of filler content was found. A

skilled person could not expect that within this range a beneficial effect was obtained. D1 to D3 neither addressed this problem nor pointed to a solution. D4 which was dated 1970 was concerned only with carbon paper and did not teach the existence of a critical range of filler loadings. The best energy transfer was obtained with a filler content of 30%. It was, therefore, not a matter of routine to go back to a lower value in order to further improve the transfer.

VI. The Respondent's submissions can be summarized as follows:

The claims of D1 referred to a recording paper. It was, therefore, reasonable that the filler content in D1 was based on the weight of the paper and not on the paper stock which was not even mentioned in the claims.

From the different uses disclosed for the paper of D1, its use as a middle sheet containing on its reverse side a layer of encapsulated colour formation precursors was particularly preferred. Hence, the whole range of filler content of 2-20 % wt in D1 was valid for this particular embodiment.

The Respondent further submitted that the present case was rather similar to that decided in decision T 17/85 where the exemplified values in the citation also lay outside the later claimed range. This was insofar important for the present case as in the examples 2-4 of D1 the same filler content of 14% wt based on the total fibre stock was given, which indicated that filler contents up to 20% wt had to be considered, even if there was a loss of filler during paper production. Moreover, in D1 said loss was minimal, since the fillers (clays in colloidal form) used therein were attached to the fibres and therefore particularly well retained.

For substantially the same reasons, Claim 1 was not novel over the paper of D2 which was disclosed to be useful as a capsule-coated middle sheet in a copying set. The amount of filler given in example 15 was over the threshold of the claimed range.

In respect of D3, it was submitted that one skilled in the art would interpret this document as relating to sets of more than two sheets and comprising middle sheets wherein both, a high filler content and a coating of microcapsules, were combined. This was confirmed by the term "pressure-sensitive copying paper" used in D3, because a paper without such coating was not pressure-sensitive. Since D3 further exemplified a paper having a filler content of 20.5% in terms of ash content, the Respondent argued that the subject-matter of Claim 1 was, likewise, not novel over D3.

Finally, it was submitted that the claimed subject-matter was not based on an inventive step, because the correlation between legibility of the copies and filler content in recording paper was common general knowledge as is shown in D4. Starting from this knowledge, there existed no problem for one skilled in the art to find the optimum composition, and hence the claimed filler content.

VII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as granted.

The Respondent had requested in writing that the appeal be dismissed.

At the end of the oral proceedings the decision of the Board to maintain the patent as granted was announced.

Reasons for the Decision

1. The appeal is admissible.
2. *Novelty*

Novelty of the subject-matter of Claims 1 to 4 was contested in respect of D1, D2 and D3. (All citations from D1 and D2 refer to hand-written page-numbering).

- 2.1.1 D1 relates to a recording paper with colour acceptor properties for the production of copies according to the colour reaction process in which the colour acceptors together with colour formation precursors permit the colour to be formed (see page 5, first paragraph). It was the object of D1 to avoid disadvantages in the art concerning the production of the recording paper having colour acceptor properties. Such disadvantages consisted in particular either in the requirement of expensive procedures of applying the colour acceptors to the surface of the paper or in unavoidable losses of colour acceptor when added to the paper stock thereby contaminating the water used in the manufacture (see page 6, paragraphs 1 and 2). This object was attained in D1 by **admixing** 3-30 % wt based on the total fibrous stock of colour reactive asbestos fibres (see page 6, last paragraph). This feature is expressed in Claim 1 of D1 by a "recording paper ... characterized in that 3 to 30% wt of the total fibrous stock of the recording paper are colour reactive asbestos fibres". Therefore, Claim 1 of D1 relates to a product-by-process as the paper is characterized by a feature which represents a distinct step in the process of its manufacture, ie the addition of asbestos fibres to the papermaking stock in an amount based on the total fibrous stock contained therein.

2.1.2 According to Claim 4 of D1, this paper is further characterized in that it contains 2-20 % wt of gamma aluminium oxide based on the "Gesamtstoff". With reference to D6 and D7, the Appellant argues that the term "Gesamtstoff" has the meaning of the starting papermaking stock and hence, represents the total solids content in the pulp. In contrast, the Respondent alleges that it represents the total weight of the paper, since the claims refer to the paper and not to the paper stock. The Board finds the interpretation argued for by the Respondent to be in contradiction with the basis chosen for characterising the amount of asbestos fibres in Claim 1 of D1. The Respondent has not relied on any other support for such an interpretation. It is in the Board's judgment rather unusual in the art to express the total weight of the paper by said term.

The Board therefore concludes that the term "Gesamtstoff" has to be taken as meaning "total stock" in the sense of "Ganzstoff" (see D6), which in the papermaking art relates to the total content of solids, ie fibres and auxiliary material in the aqueous papermaking stock. Thus, by analogy to Claim 1 (see point 2.1.1 above), Claim 4 is considered to be also in the style of a product-by-process claim, wherein the amount of filler is defined as the amount to be added to the papermaking pulp, based on the total solids content thereof.

Due to the different retention properties of fillers and fibres, the amount of filler (based on filler + fibre) in the finished paper is always lower than that in the starting stock.

This was not contested by the Respondent who admitted that, after all, a "minimal" loss occurs during the manufacture of the paper, even if filler particles like

colloidal clay are used which attach to the fibres. The Board can also agree with the Appellant's further assertion that the loss of filler depends inter alia upon the kind of fibres and fillers, the presence of additives in the pulp and the papermaking device and procedure. Hence, the filler content in the finished paper is not reliably predictable from the filler content in the paper stock (see also in D4, page 833, right-hand column, paragraphs 2 and 3 and table VI). The actual loss occurring in D1 was not shown by the Respondent. This means that no definite filler content or range of filler content in the finished paper is disclosed in or derivable from D1. Hence, T 17/85 (OJ EPO 1986, 406, see Reasons 7.4) relating to selections out of known lists or ranges, is not applicable in the present case.

According to constant jurisprudence a finding of lack of novelty can only be based on a **clear and unmistakable disclosure** of the claimed subject-matter in the prior art document (see e.g. T 450/89 of 15 October 1991, reasons no. 3.11), so that the claimed subject-matter can be **derived directly and unambiguously** from that document (see e.g. T 511/92 of 22 May 1993, reasons no. 2.2). As explained hereinbefore, this is not the case here, so that for this reason alone the range of filler content given in Claim 1 is to be regarded as novel over the teaching of D1.

2.2 D2 also refers to a paper having colour accepting properties, but only Example 15 describes a filler containing starting paper stock. According to Example 16, the paper produced from the stock of Example 15 is coated with a colour developer composition, but not with microcapsules. All other examples are silent about any filler content in the paper stock. They merely describe paper coated with a

receptor composition. The use of colour donating capsules together with the receptor sheet of D2 is merely mentioned in the description as one of several possible uses of the paper (see page 13, last paragraph to page 15, line 3). There is nothing in D2, which suggests that it is indeed the paper of Example 15, whatever its filler content, which should be used in the capsule-coated embodiment.

The actual filler content of the paper obtained in Example 15 is derived from a mixture consisting of 10% of gamma aluminium oxide and "8% of a swollen Attagel in a 5% solution", whatever the meaning thereof is. As admitted by the Appellant it can, nevertheless, be deduced from the corresponding Example 11 of the US family member US-A-4 109 048 of D2 that the total filler content based on the total weight of the solids in the paper stock may be considered to amount to 15.25 % wt. However, for the reasons set out in point 2.1 above, it is not possible to simply estimate therefrom the actual content in the finished paper.

Hence, the disclosure of D2 does not destroy the novelty of the claimed subject-matter.

- 2.3 The object of D3 is to provide an electron acceptor sheet which is easier to produce while having the same good colour-developing properties as those of the prior art (see column 1, line 43 to column 2, line 20). The object is attained by a paper containing as a filler clays and one or more compounds of cobalt, manganese or lead (column 2, lines 21 to 27). The Board can agree with the Appellant's submission that D3 clearly discloses that the acceptor sheets are used in combination with **another** sheet having on its reverse side a coating of a donor such as colour donating capsules, which combination constitutes a pressure sensitive copying set (see column 1, lines 6 to 42). By

contrast, however, the Board was unable to find any disclosure in D3 supporting the Respondent's allegation that the term "pressure-sensitive copying paper" would unambiguously have the meaning of one single sheet. Hence, the Board is unable to follow the Respondent's assertion that D3 in column 1, lines 6 to 11 discloses a middle sheet comprising both, the filler and the capsule-coating.

Therefore, although the filler content of the paper disclosed in Example 1 of D3 is within the claimed range, it is not disclosed in combination with a coating of microcapsules.

Hence, the claimed subject-matter is also novel over D3.

2.4 The subject-matter of present Claim 1 is also novel in respect of the disclosure of D4. Since novelty was not contested in view of this document there is no need to give reasons for this finding.

3. *Inventive Step*

3.1 The patent in suit relates to pressure-sensitive copying paper (also known as carbonless paper) in particular to a base paper containing an inorganic loading and being coated with microcapsules, for use as an upper sheet or intermediate sheet in a pressure-sensitive copying set (see in the specification, page 2, lines 3 to 19 and Claim 1). Such papers are mentioned in D1 on pages 12 and 14, in D2 on pages 14/15 and in D3 in column 1, lines 9 to 36.

3.2 According to page 2, lines 20 to 26 of the patent in suit conventional pressure-sensitive carbonless copying papers of this type only permitted an insufficient

number of copies to be made. Hence, the problem existed to provide a pressure-sensitive carbonless copying paper comprising a coating of microcapsules, which permitted an increased number of copies to be made.

3.3 The patent in suit proposes to solve this problem substantially by providing a paper containing an inorganic filler loading at a level of from 15% to 23% by weight, based on the total weight of the paper.

3.4 As is credibly shown by the examples given in the patent in suit, a maximum number of legible copies is obtained with papers having a filler content within this range.

3.5 The question to be answered, is therefore, whether, in the light of the cited prior art, it was obvious for one skilled in the art to solve the problem posed in the claimed manner.

As explained in point 2 above, none of the prior art documents D1 to D3 contains a clear and unambiguous disclosure of a definite amount of filler in the coated paper, let alone a suggestion that the filler content may influence the number of copies obtainable when such a paper is used in a pressure-sensitive copying set.

3.6 The only document representing a possibility for answering this question is, therefore, D4 which is concerned with factors affecting energy transfer in copying sets. This document does not mention pressure-sensitive copying paper containing colour donating microcapsules. On the contrary it is clearly concerned with copying using carbon paper as the transfer sheet (see page 831, middle column, "Evaluation of Samples"). It was found in D4, that the best relative energy transfer was obtained for sheets containing 30% ash, when compared with sheets containing 0% or 5% ash. The

ash content is in this context based on the pulp (see page 833, middle column to right-hand column, "Effect of Filler" and Table VI).

The Board does not, however, agree with the Respondent's submission that one skilled in the art would, as a matter of principle, infer any definite results for a pressure-sensitive copying set from results obtained with a carbon-containing copying set, in particular where energy transfer is concerned. On the contrary, the Board considers that one skilled in the art would not have combined the disclosure of D4 with a microcapsule-coated paper according to any one of D1-D3, since he would have expected that such papers behave quite differently under impact (see D4, page 831, left-hand column, paragraphs 3 and 4).

This consideration is further confirmed by the fact that D4 is dated some 18 years before the priority date of the present patent. In the absence of any further evidence concerning filler-related energy transfer in papers, it cannot be assumed that what is taught in D4 was generally routine in the art, such as looking for a specific filler content as a necessity for optimizing energy transfer in any kind of copying paper.

Moreover, even if the Board would have assumed, in the Respondent's favour, that the skilled person, nevertheless, had combined D4 with any of D1 to D3, this combination would have led him to the use of a much higher filler content (30% or more), since according to D4, Table VI (see page 833) such a higher filler content promised the best energy transfer. There is nothing in D4 which would have suggested that there was an "optimum window" of filler content below 30% in which an improved performance of the paper could be reasonably expected.

Hence, neither D4 alone nor in combination with the disclosure of any one of D1 to D3, would have suggested to provide the claimed copying paper.

3.7 Therefore, the subject-matter of Claim 1 is considered to be based on an inventive step as required by Article 56 EPC. Claims 2 and 3 relate to specific embodiments of Claim 1. The copying set claimed in Claim 4 comprises a paper according to Claim 1 and, therefore, its subject-matter derives its patentability from that of Claim 1.


Consequently, the patent can be maintained as granted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is maintained as granted.

The Registrar:


E. Gorgmaier

The Chairman:


R. Spangenberg



