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DECISION
of 20 February 2004

Case Number: T 1068/02 - 3.3.6
Application Number: 93106158.4
Publication Number: 0566124
IPC: G03C 1/74
Language of the proceedings: EN

Title of invention:
Coating apparatus

Applicant:
FUJI PHOTO FILM CO., LTD.

Opponent:
-

Headword:
coating apparatus/FUJI

Relevant legal provisions:
EPC Art. 56
EPC R. 67

Keyword:
"Inventive step - main request (no) - technical effect not achievable over the whole area claimed; auxiliary request I (yes) - known technology not transferable."
"Reimbursement of the appeal fee (no)"

Decisions cited:
T 0053/82, T 0201/83, T 0571/89, T 0656/92, T 0522/96,
T 0947/96

Catchword:
-



Case Number: T 1068/02 - 3.3.6

DECISION
of the Technical Board of Appeal 3.3.6
of 20 February 2004

Appellant: FUJI PHOTO FILM CO., LTD.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 27 May 2002
refusing European application No. 93106158.4
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: P. Krasa
Members: G. N. C. Raths
U. J. Tronser

Summary of Facts and Submissions

I. This appeal is from the decision of the Examining Division to refuse European patent application No. 93 106 158.4 concerning a coating apparatus.

During the examination procedure the following documents were cited:

(1) EP-A-0 452 959

(2) DE-A-37 23 149

(4) EP-A-0 437 210

(5) DE-A-25 21 995

During the oral proceedings before the Examining Division held on 2 February 2000, the applicant, now the appellant, filed a main request and an auxiliary request.

The Examining Division informed the appellant that it intended to grant a patent on the basis of the claims of the auxiliary request.

Claim 1 of the main request read:

"1. A coating apparatus for forming one or more coating layers on a substrate (1), comprising:
an extrusion head having an extruding slot (8) therein through which a coating liquid (7) is extruded,

said head including a front edge (2) located on an upstream side of said slot with respect to a moving direction of the substrate and a back edge (3) which is located on a downstream side of said slot in the moving direction of the substrate,

said back edge (3) including a corner portion at an end thereof partially defining said slot, said corner portion being displaced further from the substrate than said front edge (2) in a state in which a precoating solution (6) comprised mainly of an organic solvent is applied in advance on a coating surface of the substrate, wherein

said extrusion head is of the type in which, during operation, no pressurizing force due to the substrate acts on the back edge,

characterized in that

said corner portion of said back edge is chamfered resulting in a chamfered surface,

an angle α formed by said chamfered surface and a downstream inclined surface (4) of said back edge (3) is defined by:

$$40^\circ \leq \alpha \leq 140^\circ,$$

an angle β formed by chamfered surface and an upstream inclined surface of said back edge (3) is defined by:

$$40^\circ \leq \beta < 180^\circ, \text{ and}$$

a width L (mm) of said chamfered surface is defined by:
 $0.002 \leq L$, and wherein

an angle θ formed by said downstream inclined surface (4) of said back edge (3) and the substrate (1) which

extends away from said head is set to not less than 25°."

Claim 1 of the auxiliary request differed from claim 1 of the main request in that " $40^\circ \leq \beta < 180^\circ$ " is replaced by " $110^\circ \leq \beta < 160^\circ$ ".

II. On 14 August 2001 the Examining Division issued a communication under Rule 51(4) EPC to inform the appellant that it intended to grant a patent on the basis of the auxiliary request dated 2 February 2000.

III. The appellant did not approve of the text of the documents according to the auxiliary request proposed for grant and, additionally, informed the Examining Division of its intention to maintain the main request. Thereupon, by decision of the Examining Division dated 16 November 2001, the application was refused according to Article 97(1) and Rule 51(5) EPC.

The appellant lodged an appeal against this decision repeating its main and auxiliary request as submitted during oral proceedings on 2 February 2000. It argued that the Examining Division had not given a reasoned statement why the main request was not allowable. The Examining Division rectified its decision according to Article 109(1) EPC. On 27 May 2002, it issued a decision to refuse the application in suit. It argued that the subject-matter of claim 1 of the main request was not novel in view of document (2). Figure 3 of document (2) would disclose the values of the angles α , β and θ as well as the width L of the chamfered surface. Even if L was not regarded as known from document (2), the subject-matter of claim 1 would lack an inventive

step. While stating that the main request does not meet the requirements of the EPC, the Examining Division was silent on the auxiliary request.

- IV. The appellant, then, lodged an appeal against the Examining Division's decision to refuse the application according to Article 97(1) EPC.

It also requested the reimbursement of the appeal fee because the Examining Division neither in the communication under Rule 51(4) EPC nor in the rejection decision of 16 November 2001 had made a statement on the rejection of the main request and because the Examining Division by issuing first its rectification decision and by providing, subsequent to this rectification decision, substantive reasons for rejection only at a later stage had delayed the proceedings, what amounts to a substantial procedural violation.

- V. With respect to the main request the appellant argued orally and in writing that dimensions like the angles α , β and θ cannot be derived from a schematic drawing, for instance of the Figure 3 of document (2); further, a chamfered surface of the doctor edge in an apparatus of the pressurizing type of documents (1), (4) or (5) cannot be applied to the back edge of an apparatus of the non-pressurizing type.

- VI. During the oral proceedings on 20 February 2004 before the Board of Appeal, the appellant maintained the auxiliary request as auxiliary request II dated 2 February 2000, filed a new main request and new auxiliary requests I and III. The main request and the

auxiliary request I comprised each 11 claims. Dependent claims 2 to 11 represented preferred embodiments of claim 1.

VII. The only independent claim 1 of the main request differed from claim 1 of the main request dated 2 February 2000 in that the passage "in a state in which pre-coating solution (6) comprised mainly of an organic solvent is applied in advance on a coating surface of the substrate" and the words "characterized in that" had been deleted. Further, some minor editorial amendments were made.

Auxiliary request I differed from the main request in that in claim 1 " $40^\circ \leq \beta < 180^\circ$ " had been replaced by " $40^\circ \leq \beta \leq 160^\circ$ " and in claim 7 "<160°" had been deleted.

The claims of the auxiliary requests II and III comprised further amendments which are of no importance to the present decision.

VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the following points:

- claims 1 to 11 according to the main request filed during the oral proceedings, or
- claims 1 to 11 according to the auxiliary request I filed during oral proceedings, or
- claims 1 to 11 according to auxiliary request II annexed to the communication under Rule 51(4) EPC, or

- claims 1 to 10 according to auxiliary request III filed during the oral proceedings and that the appeal fee be reimbursed.

IX. At the end of the oral proceedings the Chairman announced the decision of the Board.

Reasons for the Decision

1. *Main request*

1.1 Articles 84 and 123(2) EPC

The passage "in a state in which pre-coating solution (6) comprised mainly of an organic solvent is applied in advance on a coating surface of the substrate" was deleted because it represented a process feature in a product claim. This amendment removed an objection raised by the Board under Article 84 EPC, but did not give rise to an objection under Article 123(2) EPC, neither did the deletion of the words "characterized in that".

The Board is satisfied that claim 1 satisfies the requirements of Articles 84 and 123(2) EPC.

1.2 Novelty

Figure 3 of document (2) shows a sectional view of an extruder having a coating head of the non-pressurizing type. The back wall of the back blade (called back edge in the application in suit), which forms part of the

slot section (called slit in the application in suit) and the edge surface facing the coated support at the downstream portion (corresponding to the length L of the Figure 1 of the application in suit) form an angle which corresponds to the angle β of the Figure 1 of the application in suit. On said Figure 3 this angle at the corner portion of the back edge is acute.

However, document (1) did not disclose directly and unambiguously concrete values, or the ranges, of the angles α , β and θ . In particular, it does not give a lower limit of 40° for the said acute angle.

Therefore, the subject-matter of claim 1 satisfies the requirements of Articles 52(1) and 54(1) and (2) EPC.

1.3 Inventive step

As was stated in the application in suit (page 2, line 30 to page 3, line 3) several problems were not yet solved by the coating apparatus according to document (2) which the appellant took as state of the art to be improved. The improvement concerned problems related to disturbances of the coating. As a result of these disturbances, the coating solution adheres to the inclined surface of the back edge on the downstream side thereof resulting in a smear which is slightly hardened near the corner portion (page 2, lines 57 and 58). The smear damages the coating surface resulting in coating defects such as streaks. Similar coating defects occur due to the breaking off of the corner portion of the back edge (page 2, last line to page 3, lines 1 to 3).

The Board can agree to take document (2) as the starting point for evaluating inventive step since this document relates to a coating head being of the non-pressurizing type.

The technical problem to be solved according to the application in suit was to stably form uniform thin-layered coating films free of streaks and the like at high speed (page 2, lines 5 to 7 and page 3, lines 5 and 6).

Having regard to the Tables 1, 2, 3, 4 and 5, the Board notes that there are some embodiments of claim 1 which solve the problem underlying the application in suit.

However, according to Table 3, a configuration with $\alpha=110^\circ$, $\theta=25^\circ$ and $\beta=180^\circ$ shows that "the coating cannot be used in practical applications". $\beta=180^\circ$ in the application in suit corresponds to a back edge prolonging the slit 8, thus arriving at an apparatus similar to the one of Figure 3 of document (2).

Therefore, at the corner portion of the back edge according to the application in suit the same problem arises as in the prior art. The configuration with $\alpha=110^\circ$, $\theta=25^\circ$ and $\beta=160^\circ$ of Table 3 shows that the coating is "good in practical application" (application in suit, page 8, line 29). The Board drew the appellant's attention to the missing information regarding the range $160^\circ < \beta < 180^\circ$.

There is no evidence on file that a configuration with $\alpha=110^\circ$, $\theta=25^\circ$ and $\beta=170^\circ$, or more generally, with $160^\circ < \beta < 180^\circ$ would credibly solve the problem of avoiding streak-like coating defects occurring due to the tip of the back edge being broken owing to contact

with the substrate or the coating solution (application in suit, page 5, lines 1 to 3).

Hence, the technical effect is not achievable over the whole area claimed and, thus, the technical problem as defined above is not solved over the whole claimed range.

Therefore a reformulation of the above defined problem is necessary. So, the problem underlying the application in suit can be redefined as the provision of an alternative coating head of the non-pressurizing type.

If there are no restrictions on the choice of the β values, the skilled person is free to select any values of β . However, chamfering under these conditions is then only an additional step in designing the coating head and does not lead to any significant technical effect. Hence, the subject-matter of claim 1 does not involve an inventive step.

Therefore, the main request is not allowable.

2. *Auxiliary request I*

2.1 Articles 84 and 123(2) EPC

Auxiliary request I differed from the main request in that in claim 1 " $40^\circ \leq \beta < 180^\circ$ " had been replaced by " $40^\circ \leq \beta \leq 160^\circ$ " and in claim 7 "<160°" had been deleted.

The range " $40^\circ \leq \beta < 180^\circ$ " was disclosed by claim 1 as originally filed. The preferred range " $110^\circ \leq \beta \leq 160^\circ$ "

was disclosed in the application as originally filed (page 7, line 18; see application in suit, page 4, line 35). In the present case, there is a disclosure of both a general range (" $40^\circ \leq \beta < 180^\circ$ ") and a preferred range (" $110^\circ \leq \beta \leq 160^\circ$ "); therefore, a combination of the upper value of " $\beta \leq 160^\circ$ " of the preferred narrower range and of the lower value " $40^\circ \leq \beta$ " of the overall range was unequivocally derivable from the original disclosure of the application in suit. (T 925/98, T 201/83 (OJ EPO 1984, 481), T 53/82, T 571/89, T 656/92, T 522/96, T 947/96). Also, since the ranges regarding the angle β are disclosed in the description together with the respective ranges of the angles α and θ (page 4, lines 57), there is no problem of singling out a particular angle or a particular combination of angles. Thus, claiming a coating head with the features " $40^\circ \leq \beta \leq 160^\circ$ " does not contravene Article 123(2) EPC.

The Board is satisfied that claim 1 meets the requirements of Articles 84 and 123(2) EPC.

2.2 Inventive step

The replacement of the range " $40^\circ \leq \beta < 180^\circ$ " by the range " $110^\circ \leq \beta \leq 160^\circ$ " restricts the design flexibility of the back edge in such a way that the objection raised under 1.3.3. is waived. Hence, the technical problem as defined in the application in suit (see point 1.3.2) can be accepted as plausibly solved.

The question which remains to be decided is whether the subject-matter of claim 1 involves an inventive step.

It is true that Figure 3 of document (1), Figure 1 of document (4) and Figure 2 of document (5) show a chamfered surface being similar to the one of Figure 1 of the application in suit. However documents (1), (4) and (5) do not concern a coating apparatus of the non-pressurizing type, but of the pressurizing type.

The coating apparatus of the application in suit differs from a coating apparatus of the pressurizing type in that a pressurizing force is acting on the downstream coating flowing between the doctor edge and the web. However, in a coating apparatus according to the application in suit, on the downstream side, no pressurizing force is acting on the coating between the back edge and the web since there is a distance between the corner portion of the back edge and the substrate, the angle θ formed by said downstream inclined surface of the back edge and the substrate being not less than 25° .

There is no evidence that designing a chamfered surface at the doctor edge of a coating apparatus of the pressurizing type can be applied to the back edge of a coating apparatus of the non-pressurizing type with the expectation of the same technical effect.

Therefore, it was not foreseeable that chamfering the surface of the back edge of the apparatus according to document (2) (see Figure 3) would "prevent the occurrence of streak-like coating defects".

Hence, the subject-matter of claim 1 involves an inventive step. claim 1 meets the requirements of Article 56 EPC.

- 2.3 Dependent claims 2 to 11 derive their patentability from claim 1.

The deletion of " $\beta < 160^\circ$ " in claim 7 is a consequence of the amendment of claim 1. In claim 8 the change from "102" into "120" is a correction of an obvious typing error according to Rule 88 EPC.

- 2.4 For all these reasons the Board concludes that auxiliary request I is allowable.

3. *Reimbursement of the appeal fee*

- 3.1 According to Rule 67 EPC the reimbursement of the appeal fee shall be ordered, *inter alia*, when the Board deems an appeal to be allowable and reimbursement to be equitable by reason of a substantial procedural violation.

- 3.2 The appellant was of the opinion that the first instance had delayed the proceedings because it had to correct a former substantial procedural violation. This delay would have amounted to a substantial procedural violation (letter dated 15 July 2002, page 16, two last lines).

On 16 November 2001, the Examining Division issued a decision to refuse the application in suit in accordance with Article 97(1) and Rule 51(5) EPC. The appeal against this decision was filed on 17 January 2002. The Examining Division rectified its decision under Article 109(1) EPC. The decision was set aside and the appeal fee reimbursed on 15 May 2002. The

reasoned decision to refuse the application was issued on 27 May 2002. The chronology shows that there was no substantial delay. Hence, there was no substantial procedural violation.

- 3.3 Further, in the decision issued on 27 May 2002, the Examining Division, when rectifying its appealed decision by issuing the reasons for rejecting the main request, should have addressed the auxiliary request too, i.e. the Examining Division's intention to grant a patent on the basis of the documents of the auxiliary request should have been mentioned again.

But with the appeal against this decision of the Examining Division, the Appellant intended not only to pursue its auxiliary request but returned to the main request. Thus, the failure in the appealed decision to address the auxiliary request was not the only reason for this appeal.

Moreover, the main request, in spite of the amendment before the Board, failed. The auxiliary request succeeded. Hence the appeal did not succeed entirely.

- 3.4 Therefore, in this case, there was neither a substantial violation nor did the appeal succeed entirely.
4. The request for reimbursement of the appeal fee does not meet the requirements of Rule 67 EPC and is, therefore, rejected.

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 grant a patent with claims 1 to 11 according to auxiliary request I filed during the oral proceedings, a description to be adapted thereto and Figures 1 to 5 as originally filed.
3. The request for reimbursement of the appeal fee is dismissed.

The Registrar:

The Chairman:



G. Rauh



P. Krasa

