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Bezeichnung der Erfindung:
Title of invention:
Titre de l'invention : Process for powder coating substrates

Klassifikation / Classification / Classement : B05D 3/00, B05D 7/06

ENTSCHEIDUNG / DECISION

vom / of / du 1 August 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet : Sonneborn & Rieck Ltd.

Einsprechender / Opponent / Opposant : BASF Lacke + Farben AG

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (yes)"

Leitsatz / Headnote / Sommaire

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Case Number : T 360/88 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 1 August 1990

Appellant : (Proprietor of the patent)
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Representative :

Decision under appeal :
Decision of Opposition Division of the European Patent Office dated 10 November 1987, posted on 9 May 1988, revoking European patent No. 0 042 759 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : C.T. Wilson
Members : F. Brösamle
F. Benussi

Summary of Facts and Submissions

I. European patent application No. 81 302 819.8, filed on 23 June 1981 and published on 30 December 1981 under publication No. 0 042 759, was granted with six claims.

Claim 1 as granted reads as follows:

"A process for painting by powder coating a substrate surface comprising applying a dry heat-curable coating powder paint to a dry uncoated substrate which is either a self-supporting panel or can be divided into such a panel, and heat-curing the coating, characterised in that the coating is confined by applying firmly thereto a treatment surface which does not adhere to the coating and is heat-stable up to the curing temperature of the heat-curable coating powder paint, and that the coating is heat-cured whilst so confined."

This Claim 1 is followed by dependent Claims 2 to 6.

II. The patent was opposed in due time and form on 19 November 1985; the Opponent requested revocation of the patent on grounds of Article 56 EPC in the light of the following documents:

D1: DE-B-2 316 289
D2: EP-A-0 001 865
D3: US-A-4 205 028, and
D4: DE-C-847 968.

III. By a decision of 10 November 1987, posted 9 May 1988, the Opposition Division revoked the patent pursuant to Article 102(1) EPC for reasons of Article 56 EPC in the light of D4 and D2.

IV. The proprietor (Appellant) appealed against this decision on 11 July 1988 and paid the appeal fee in due time. The Statement of Grounds of Appeal was received on 15 September 1988 and confirmed by letter received on 16 September 1988.

The Appellant argues in his Statement of Grounds of Appeal that the Opposition Division has interpreted D4 with the benefit of hindsight and that D2 is concerned with an entirely different process, since there a thermoset coating may be applied to the surface of a moulded article by applying to the moulding composition forming that article, in a mould, molten partially polymerized thermosetting resin. Since in D4 a thermoplastic coating is applied to a substrate no reason can be seen to suppose that a skilled man would assume that a thermoset powder coating could be applied to a substrate by means of the method of D4. As a result the patent is defended in its granted form.

V. The Opponent (Respondent) contended, however, that the combination of D4 and D2 would immediately lead to the subject-matter of Claim 1, which is based on the use of a heat-curable powder, since in D2 a heat-curable powder is used, which can readily replace the thermoplastic powder used in the process of D4. The Respondent argues that surprising effects for supporting the inventive step are missing and that no specific efforts had to be made to replace the thermoplastic powder by the known heat-curable powder. The Respondent points moreover to the fact that in D2 the effect of contact-curing paints in powder form is already disclosed.

The Respondent requests therefore to dismiss the appeal and by way of an auxiliary petition oral proceedings were requested.

VI. In the Communication pursuant to Article 11(2) RPBA dated 6 June 1990 the Board gave its provisional opinion of the case i.e. that the main issue to be discussed would be the question of inventive step.

Well before the oral proceedings held on 1 August 1990 the Appellant informed the Board that he had decided not to appear at the oral proceedings and that his case on appeal was that set out in the Statement of Grounds of Appeal.

During the oral proceedings which were held upon the Respondent's request in German no completely new arguments were brought forward by the Respondent. It was felt that the combination of D4 and D2, respectively the combination of D4 and D3, prejudices the maintenance of the patent, since the only step to be followed by the skilled man would be the substitution of the thermoplastic powder according to D4 by a heat-curable powder according to D2. As would be known from D2 this heat-curable powder would be treated by heat and pressure i.e. "contact-hardened". In the opinion of the Respondent the fact that the coating in D2 is pretreated before application to the substrate is irrelevant. It is accepted that the process of Claim 1 achieves advantageous effects, however, it is contended that these effects are not surprising effects, since they are based simply on the properties of heat-curable materials.

The Respondent upheld therefore his request to dismiss the appeal, whereby the Appellant defended the patent in its granted form, see above under remark IV last sentence.

Reasons for the Decision

1. The appeal is admissible.

2. The claims of the patent in suit are not open to formal objections under Article 123 EPC.

2.1 Granted Claims 1 to 6 are not open to an objection under Article 123(2) EPC, since Claim 1 is fully covered by the original Claim 1 in that only "substrate" has been changed into "substrate surface" and the "dry curable coating powder" has been changed to a "dry heat-curable coating powder paint". Original Claim 1 contains sufficient information in itself to allow the latter amendment, (see lines 6/7 thereof ("heat-stable up to the curing temperature...") or line 1 thereof ("process for painting")), under Article 123(2) EPC, whereby the first mentioned amendment is of a linguistic nature and is clearly supported for instance by the original Figs. 1 to 3.

2.2 Granted Claims 2 to 6 correspond to the original Claims 2 to 6 and are not open to an objection under Article 123(2) EPC either.

2.3 Since the granted claims are defended unamended they also meet the requirements of Article 123(3) EPC.

3. The nearest prior art document is D4. From D4 it is known (references in brackets relate to D4):

3.1 A process for painting (page 2, lines 45/46) by powder coating a substrate surface (wood, paper, cardboard) comprising: applying a dry heat-treatable coating powder paint to a dry uncoated substrate which is self-supporting and heat-treating the coating, whereby the coating is confined (page 1, lines 21 to 23 and page 2, lines 55 to

57) by applying firmly thereto a treatment surface which does not adhere to the coating (page 1, lines 18 to 20, page 2, lines 20 to 25 and lines 52,53) and is heat-stable up to the heat temperature of the heat-treatable coating powder paint and that the coating is heat-treated whilst so confined.

3.2 The subject-matter of Claim 1 differs from the process according to D4 in that

(a) the substrate is a self-supporting panel or can be divided into such a panel and in that

(b) the coating powder is heat-curable.

4. From 3.1 and 3.2 above follows that the subject-matter of Claim 1 is novel, and therefore meets the requirements of Article 54 EPC.

Novelty has not, in fact, been disputed by the Respondent so that no further discussion is necessary, (see also Communication pursuant to Article 11(2) RPBA dated 6 June 1990, remark 2).

5. The assessment of inventive step leads to the following result:

5.1 The above-mentioned distinguishing feature (a) appears to be readily available to a skilled person, since no great difficulty to modify the substrate can be seen, since stiff, self-supporting substrates such as wood, cardboard, metal (see page 2, lines 3/4 of D4) are mentioned in D4. Whether or not this substrate is already a self-supporting panel or can be divided into such a panel lies in the design freedom of a practitioner and has nothing to do with the application of paint on a substrate surface.

Feature (a) cannot therefore support in itself the inventiveness of the subject-matter of Claim 1.

5.2 It has therefore to be decided whether it would be obvious to apply feature (b) to the subject-matter as indicated above under 3.1, when the substrate is a self-supporting panel or can be divided into such a panel.

5.3 The teaching of D4 can be summarised as a process for producing either coatings or foils from polyethylene. The production of foils is not the issue to be dealt with in the present case and need not therefore be considered. It is true that according to D4 a powder is applied to a dry uncoated substrate which is self-supporting. Self-supporting panels or substrates which can be divided into such panels are, however, not mentioned in D4. The coatings of D4 are of a thermoplastic material.

5.4 Since D4 is basically concerned with the problem how transparent foils from polyethylene can be obtained, (see page 1, lines 12,13, page 2, lines 8 to 11 and lines 62 to 68), the Board cannot see any reason why a skilled person should envisage other foil materials such as heat-curable materials, since then the basic property of polyethylene i.e. its flexibility, would disappear. From the teaching of D4 there is therefore no direct lead to the use of heat-curable materials as coating of self-supporting panels.

5.5 During the oral proceedings the Respondent pointed to D2 and in particular to its page 2, line 8 and lines 14 to 16, to demonstrate that heat-curable materials were applied to self-supporting materials such as wood and were contact-hardened, that is hardened by application of heat and temperature.

In D2 the powder used in the coating process is a heat-curable material. This powder is, however, not applied to the substrate itself, but to a mould, in which state it is melted and polymerized after which step the moulding material (= substrate to be coated) is installed. Thus, at the beginning of the process the substrate does not yet exist. It is rather shaped in a later stage when the coating has already been melted and polymerized. The indication of "wood" in D2, page 2, line 8 can therefore not be combined with page 2, lines 14 to 16 but relates to the prior art which is discussed in D2 on page 1, line 8 to page 2, line 13. This view is backed up by page 2, lines 14 to 16 of D2 where it is stated that "the purpose of the invention is to apply to the face of a three-dimensional object to be shaped moulding". From this text is is clear that the object does not exist in the beginning of the process, since the object should be "shaped-moulding". A skilled person is therefore taught from D2 that first the coating is shaped whereafter the mould is filled with the moulding material. It is therefore the Board's conviction that it is not justified to derive from D2 that wood was envisaged to be coated, since wood cannot be shape-moulded in a mould where the coating has already been applied.

5.6 Without inadmissible ex-post-facto analysis the teaching of D2 is the following:

In step 1 a thermosetting powdery material with pigment, (see page 4, lines 9/10 thereof), is placed in the mould (not on the substrate surface!); in step 2 this coating is melted and polymerized; in step 3 a pretreated moulding material (male or female mould, see page 2, line 34 to page 3, line 1 and page 2, lines 14 to 16) is placed into the mould, whereafter the whole is subject to heat and pressure (se page 1, lines 6/7) so that the coating and the core material are linked together.

To the substrate of D2 no dry heat-curable powder is applied, but a partially polymerized thermosetting resin finish-forming composition. The dry powder in D2 is thus not applied to the substrate surface, but to the mould.

5.7 The situation in D3 is quite similar to that of D2, since again the dry powder with pigment is not applied to a substrate surface, but to a mould, where it forms a film or skin lining under the influence of heat, (see column 2, lines 15 to 19). The substrate to be coated does thus not exist in the beginning of the process. It is shaped after the film or skin lining of the mould has been achieved, since according to D3 column 2, lines 21 to 26 a filler resin is added to the mould and upon application of heat is heat-cured. The teaching of D3 is thus not closer to the teaching of Claim 1 than that of D2.

5.8 From D1 the skilled person is taught that liquid coatings with colour substances (see column 3, lines 3/4 thereof) can be heat-cured by the application of pressure and heat, whereby the substrates to be coated/painted can be wood, chipboard, cardboard, paper and so on (see column 4, lines 24 to 26 of D1). D1 is silent however, on what has to be done if a dry heat-curable coating powder is applied to the substrate surface.

The Board is of the opinion that the technology useful for liquid coatings cannot be considered to be readily transferrable to the treatment of a dry powder coating simply because in both cases the coating is heat-cured. D1 as a result appears to be irrelevant.

5.9 D2 and D3 both relate therefore to in-mould coating processes, whereas the claimed invention according to Claim 1 relates to the production of a powder-paint layer on a preformed panel or similar part and does not involve the use of a mould at all. The Board is therefore not

convinced that the skilled person would combine the teachings of D1, D2 and D3 with that of D4 to arrive at the subject-matter of Claim 1.

As a result of the foregoing, the subject-matter of Claim 1 also involves an inventive step and granted Claim 1 is maintainable.

6. The arguments brought forward by the Respondent are not convincing for the following reasons:

The Respondent contended inter alia that there is a direct lead from D4 to the subject-matter of Claim 1. No specific reasons were, however, brought forward to support this view, since it is a mere assumption that a skilled person would have envisaged heat-curable materials to be applied instead of a thermoplastic material.

In the present case it has to be decided whether or not the process of Claim 1 is based on an inventive step. As set out above under 5.9 the Board comes to the conclusion that Claim 1 meets the requirements of Article 56 EPC. It is of no importance whether one step or several steps had to be made to obtain, starting from D4, the subject-matter of Claim 1, if the claimed process is patentable. In this context it is also irrelevant whether the advantages of the inventive process according to Claim 1 could be foreseen or if these advantages are surprising. What had to be decided was the question, whether Claim 1 contains an inventive process or not.

The argument of the Respondent that pretreating of the coating as carried out according to D2 and D3 would not be excluded by the wording of Claim 1 has no basis in the attacked patent, since neither in the claims nor in the description is such a pretreatment of the coating described or aimed at.

As a result granted Claim 1 is valid.

7. The dependent Claims 2 to 6 are likewise valid in combination with valid Claim 1.

8. Since the granted claims are valid, the patent can be upheld unamended though the description does not meet all the requirements of the EPC, Rule 27(1)(c) and (d) EPC in particular. However, it is pointed out in this respect that the proceedings before the Board are not to be considered as a suitable stage at which to tidy up the patent.

Order

For these reasons, it is decided that:

1. The impugned decision is set aside.

2. The case is remitted to the first instance with the order to maintain the patent as granted.

The Registrar: **The Chairman:**

N. Maslin **C.T. Wilson**

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