

Publication in the Official Journal ~~Yes~~ / No

File Number: T 894/91 - 3.3.1  
Application No.: 88 302 325.1  
Publication No.: 0 283 280  
Title of invention: Novel stoving lacquers and their use

Classification: C09D 5/29

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

Applicant: Hunter Douglas Industries B.V.

Headword: Reflective substrate/HUNTER

EPC Articles 56 and 84

Keyword: "Clarity of claim (yes) - after amendment"  
"Inventive step (confirmed)"

Headnote



Case Number : T 894/91 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 16 June 1992

**Appellant :** Hunter Douglas Industries B.V.  
Piekstraat 2  
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**Representative :** Collier, Jeremy Austin Grey et al,  
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**Decision under appeal :** Decision of Examining Division 021 of the  
European Patent Office dated 3 September 1990  
refusing European patent application  
No. 88 302 325.1 pursuant to Article 97(1) EPC.

**Composition of the Board :**

**Chairman :** K.J.A. Jahn  
**Members :** R.W. Andrews  
J.-C. Saisset

### Summary of Facts and Submissions

- I. European patent application No. 88 302 325.1 (publication No. 0 283 280) was filed on 17 March 1988.
  
- II. By a decision dated 3 September 1990 the Examining Division refused the application on the ground that Claim 1, filed on 26 March 1990, did not comply with the requirement of Article 84 EPC and that its subject-matter did not involve an inventive step in the light of the disclosure of EP-A-0 193 301 (document (1)). The Examining Division held it was a matter of routine for the skilled person to make the adjustments necessary to the compositions disclosed in document (1), which were considered to be identical to the present ones, to render them suitable for different uses.
  
- III. An appeal was lodged against this decision on 2 November 1990 with payment of the prescribed fee. With his Statement of Grounds of Appeal filed on 7 January 1991, the Appellant filed amended claims and argued that Claim 1 of this set of claims was clear and its subject-matter novel having regard to document (1).

With respect to inventive step, the Appellant contended that document (1) was entirely and only concerned with the production of a textured paint with a multitone or multicolour appearance and its disclosure in no way suggested that, if the size of the particles were reduced, the composition would provide a characteristic metallic-look finish if applied to a reflective substrate and stoved.

Furthermore, this document led away from the invention insofar as the beads of the prior art coating provide

texture in the look and feel of the coating and a multicoloured appearance. In contrast the small particles of the present composition form "windows" on stoving to provide a smooth, metallic-look lacquer. Additionally, the binders used in these prior art compositions are intended to be opaque to give the paint some ability to mask minor defects in a substrate.

IV. In reply to a communication of the Rapporteur dated 21 February 1992, the Appellant filed, on 23 April 1992 amended pages 9, 10 and 11 of the description and an amended Claim 1 which reads as follows:

"A reflective substrate provided with a stoved lacquer layer formed from a storable, transparent film-forming binder composition having dispersed therein transparent thermoplastic particles having particle sizes in the range of 2 to 50 micrometers, with a maximum diameter up to 1.2 x (thickness of the stoved layer) in cases where the particles flow appreciably during the stoving operation, and up to substantially the thickness of the stoved lacquer layer in cases where the particles do not substantially flow during the stoving operation, the said binder composition and the said particles being such that one is substantially colourless and the other is coloured with transparent pigment, and that in the stoved lacquer layer, the particles remain as a separate phase and do not substantially protrude from the surface of the stoved lacquer layer, the particle sizes being such that the stoved layer contains both coloured and substantially colourless, transparent zones through the thickness of the said layer and colourless transparent zones extending partly through the said layer, so that the layer has an uneven colour intensity."

- V. The Appellant requests that the decision under appeal be set aside and a patent granted on the basis of Claim 1 filed on 23 April 1992, Claims 2 to 4 and Claim 5 (first three lines) filed on 9 January 1991 and Claim 5 (last line) and Claims 6 to 10 filed on 7 January 1991.

#### Reasons for the Decision

1. The appeal is admissible.
2. In the Board's opinion, there are no objections under Article 123(2) EPC to the present claims since they do not contain subject-matter which extends beyond the content of the application as filed.

In particular, present Claim 1 is supported by Claims 1 and 7 as originally filed in combination with page 2, lines 31 to 35, page 3, line 7, lines 22 to 34 and 38 and 39, and Figures 1 and 2 of the published patent application.

Claims 4, 5, 6, 9 and 10 correspond to originally filed Claims 2, 3, 4 and 5 and 8 respectively. Claims 2, 3, 7 and 8 find a basis on page 3, lines 12 and 13, page 3, lines 14 to 16, page 3, lines 1 to 3 and page 3, lines 3 and 4 respectively.

- 2.1 The amendments to Examples I, II and III on pages 9, 10 and 11 respectively are allowable under Rule 88 EPC. It is clear that an error had occurred since the amounts of the components of the wet lacquer, which are expressed as weight percentages based on the wet lacquer, total more than 100%. It is also immediately evident that, in fact, these amounts represent the proportion by weight of each component of the wet lacquer.

3. It is the established jurisprudence of this Board that it is permissible to define technical features in a claim in functional terms if, from an objective viewpoint, such features cannot otherwise be defined more precisely without unduly restricting the scope of the invention, and if these features provide instructions which are sufficiently clear to the skilled person to reduce them to practice without undue burden, if necessary with a reasonable number of experiments (cf. Decision T 68/85, OJ EPO 1987, 228, particularly points 8.4.2 and 8.4.3 and T 139/85 of 23 December 1986 reported in EPOR 1987, 229).

In spite of the fact that in the present case there is an accumulation of functional features in Claim 1, the Board is satisfied that the requirements laid down in this decision are met. It is clear to the skilled addressee of the application that the desired uneven colour intensity is achieved by the colour contrast between binder and particles and the different zones in the stoved lacquer layer and that these depend on the relationship between the thickness of the stoved layer and the numerically defined particle sizes which are selected according to their behaviour during the stoving operation. The flow behaviour of the particles under stoving conditions could readily be determined by the skilled person.

The skilled person in this art would also realise that the volume of the particles and the stoving condition would also contribute to the achievement of the desired optical effect (cf. page 2, lines 31 to 35). It would be well within the competence of the skilled person, particularly in the light of the examples, to select and balance the various parameters to achieve the desired effect.

- 3.1 In the Board's opinion, it is not necessary to specify the actual nature of the binder or thermoplastic particles. Examples of suitable binders and particles are disclosed on page 2, lines 45 to 55 and page 3, lines 7 to 9 respectively. It is also necessary that the binder be capable of being stoved and that the particles are transparent and thermoplastic and are of the correct size and, having regard to this technical teaching, it would be clearly unjustified to limit the scope of protection to binders and particles of a specific nature.
- 3.2 Therefore, in the Board's judgment, the present set of claims satisfies the requirements of Article 84 EPC.
4. : After examination of the cited prior art, the Board has reached the conclusion that the claimed subject-matter is novel. Since in the decision under appeal the Examining Division accepted novelty of the subject-matter it is not necessary to give detailed reasons for this finding.
5. It is the established jurisprudence of the Boards of Appeal that the objective assessment of inventive step has to be preceded by the determination of the technical problem which the invention addresses and solves and that the technical problem is to be formulated in the light of the closest state of the art.

Therefore, in order to apply this approach for objectively assessing inventive step, it is essential to establish the closest prior art. Primarily, this requires the investigation of the prior art in the relevant technical field which is concerned with the same or very similar technical problem as the one underlying the invention. Then, from the state of the art so determined that document, which comes closest to the subject-matter of the invention with respect to the features of the proposed

solution to the technical problem, should be selected. Thus, in the present case, this involves not only comparing the compositions with those of the prior art, but also giving consideration to the intended application. An approach which was not followed by the Examining Division.

- 5.1 The present application relates to a reflective substrate provided with a stoved lacquer layer. This combination simulates the optical effect of a metallic finish.

In contrast, document (1) is concerned with a decorative coating such as would be suitable on a household wall or ceiling surface, which is of a multitone or multicoloured appearance and which is textured in the sense that it has a surface which is pleasing to the touch (cf. page 2, lines 1 to 8).

Thus, the two applications are in completely different fields and are concerned with fundamentally different technical problems. Therefore, document (1) cannot be considered to represent the closest prior art in the light of which the problem underlying the application should be formulated.

- 5.2 However, it is well known to employ, especially in the automobile industry, coating compositions which contain metallic pigments, whereby a differential light reflection, depending on the viewing angle, is achieved (cf. discussion of the prior art in FR-A-2 388 869, document (2), page 1, lines 4 to 8 and present application, page 2, lines 4 to 9).

In the light of this common general knowledge, which is considered to represent the closest state of the art, the technical problem underlying the application is to provide



a lacquer composition which when applied to a reflective substrate and stoved gives an optical effect similar to that of a metallic lacquer.

According to the application, this technical problem is essentially solved by a lacquer composition comprising a storable, transparent film-forming binder having dispersed therein thermoplastic particles of a certain size which remain as a separate phase and do not protrude from the surface of the stoved lacquer layer, and either the binder composition or the particles are substantially colourless and the other is coloured with transparent pigment. When such a stoving lacquer is applied to a reflective substrate and stoved, minute "windows" are formed in the stoved lacquer layer, through which the reflective substrate may be seen.

In the light of the examples, the Board considers that this technical problem has been solved.

- 5.3 Document (2) discloses a process for the production of a multilayer protective and/or decorative coating upon the surface of a substrate by applying to the surface a base-coat composition comprising a film-forming polymer (other than a polyester or alkyd resin), a volatile organic liquid diluent in which the polymer is dissolved, polymer microparticles, having a diameter of 0.01 to 10  $\mu\text{m}$ , which are insoluble in and are stably dispersed in the solution of film-forming polymer in the liquid diluent, and pigment particles, e.g. metallic flake pigments, and applying to the base-coat film a transparent top-coat composition comprising a film-forming polymer and a volatile carrier liquid for the polymer (cf. Claim 1 in combination with page 6, lines 9 to 12 and page 17, lines 15 to 31).

The object of this earlier invention was to enable a clear top-coat to be satisfactorily applied to a pigmented base-coat without necessarily resorting to an intermediate baking operation (cf. page 2, lines 18 to 24).

Therefore, this earlier patent application which addresses and solves a different problem, from the one underlying the present application, would not provide the skilled person with any indication of how to provide a lacquer finish, that when applied to a reflective substrate, gives a metallic look.

- 5.4 As previously mentioned, document (1) relates to decorative, multitone or multicolour, textured coatings and to coating compositions which are suitable for producing such coatings on a substrate, particularly when using a roller applicator. The coating comprises 15 to 95% by volume, based on the total dry coating volume, of rigid, spheroid, polymeric beads distributed in random pattern and embedded in a coherent dry coating film which comprises a film-forming polymer. The polymeric beads are of a specified size and there is a contrast in tone or colour between the coherent dry coating and at least some of the rigid polymeric beads (cf. Claim 1).

From this document the skilled person would conclude that, if these prior art compositions are to fulfil the intended purposes of providing a coating with a "suede-like" feel (cf. page 2, lines 6 and 7, page 13, lines 16 and 17 and line 29 and page 14, line 13), it is essential that the rigid spheroidal polymeric beads comply with the requirements regarding their size specified in Claim 1, i.e. somewhat larger with respect to thickness of the coating than the present particles, and that they form resolvable domains of different bead density within the coating.

In the light of this teaching, the skilled person would not be led to the idea that by combining a storable binder with thermoplastic particles of the sizes specified in the present Claim 1 and ensuring that either the binder or particles is colourless and the other is coloured with a transparent pigment would result in a stoved layer having the necessary structure to produce a metallic-look when applied to a reflective substrate.

Therefore, in the Board's judgment, the proposed solution to the technical problem underlying the application in suit is not obvious. Thus, Claim 1 is allowable. Claims 2 to 10, which relate to preferred embodiments of the main claim, are also allowable.

Order

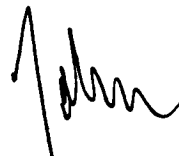
For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to grant a patent on the basis of Claims 1 to 4 and 5 (first three lines) and pages 9, 10 and 11 of the description filed on 23 April 1992, Claim 5 (last line) and Claims 6 to 10 filed on 7 January 1991 and pages 1 to 8 of the description to be amended to bring it into agreement with the claims.

The Registrar:

  
E. Görgmaier

The Chairman:

  
K.J.A. Jahn