

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen
(D) [] No distribution

**Datasheet for the decision
of 4 December 2006**

Case Number: T 0061/04 - 3.2.07

Application Number: 00935883.9

Publication Number: 1144124

IPC: B05D 1/00

Language of the proceedings: EN

Title of invention:

Process and apparatus for coating articles with liquid coating

Applicant:

The Chinet Company Technology

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 84, 123(2)

Keyword:

"Inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0061/04 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 4 December 2006

Appellant: The Chinet Company Technology
242 College Avenue
Waterville, ME 04903 (US)

Representative: Groeneveld, Yme Geert
Nederlandsch Octrooibureau
P.O. Box 29720
NL-2502 LS Den Haag (NL)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 29 July 2003
refusing European application No. 00935883.9
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: H. Meinders
Members: H. P. Felgenhauer
C. Holtz

Summary of Facts and Submissions

I. The appellant (applicant) filed an appeal against the decision of the Examining Division refusing the European patent application No. 00 935 883.9.

The Examining Division held that the subject-matter of claim 1 does not satisfy the requirement of Article 123(2) EPC due to the introduction of the expression "highly porous" and that it does not involve an inventive step in view of documents D1 and D2.

II. The appellant requests that the decision under appeal be set aside and a patent be granted

(i) based on claims 1-13 filed with fax dated 6 October 2005 (main request);

(ii) based on claims 1-14 filed with letter dated 29 July 2005 (auxiliary request).

Furthermore an auxiliary request for oral proceedings has been filed.

III. The prior art documents underlying the decision under appeal are

D1: US-A-5 240 169 and

D2: US-A-5 545 440.

IV. Claims 1 and 11 according to the main request read as follows:

"1. A process for coating a surface of an article with a liquid coating, comprising a vehicle, which comprises passing the surface into contact with at least one wave of liquid coating to apply an excess of coating to the surface, wherein the at least one wave is created by coating application means positioned below the surface to be coated, characterized in that said vehicle of said coating is water, said article being a moulded pulp article being sized with a sizing agent to prevent or reduce water permeation into said article during the coating process, in that after applying said coating on said article, the coating is spread over the surface of said article and excess coating removed therefrom, said spreading and removal of excess coating being carried out by forced air from air knives, which act to thin and spread the coating over the surface and to remove the excess coating material, in a closed environment in which an atmosphere vaporous with the vehicle of the coating is maintained, the vaporous atmosphere being maintained such that essentially no drying of the liquid coating takes place on the article surface in the closed environment".

"11. An apparatus for coating at least one surface of an article comprising:

- a) coating application means for creating a wave of liquid coating material, which coating application means are positioned below the surface to be coated;
 - b) conveyor means for moving the article through the wave of coating such that an excess of the liquid coating is applied to the surface,
- characterized in that
said apparatus is arranged for coating moulded pulp articles; and comprises

- c) means for sizing the moulded pulp article to be coated;
- d) air knives for spreading the coating across the surface and for removing excess coating from the surface,
- e) means for providing a closed environment in which the air knives for spreading the coating across the surface and removing excess coating from the surface are provided".

V. The appellant argued essentially as follows:

- (i) Claim 1 has been amended as compared to claim 1 underlying the decision under appeal to satisfy the requirements of Articles 84 and 123(2) EPC.
- (ii) The application concerns a process for coating a surface of a moulded pulp article with liquid coating, the vehicle of which is water, and a corresponding apparatus.
- (iii) The objective to be obtained by the process and apparatus according to claims 1 and 11 lies in keeping the consumption of coating as low as possible, while a uniform distribution of the coating over the surface to be coated is achieved.
- (iv) Documents D1 and D2 concern wave coating to coat articles with solder and with a polymer material, respectively, and thus entirely different fields. None of these documents

suggests the solution according to claims 1 and 11.

Reasons for the decision

1. *Admissibility of amended claims 1 and 11 according to the main request*
- 1.1 Amended claim 1 differs from the one underlying the decision under appeal in that the expression "highly porous" objected to in the decision under appeal under Article 123(2) EPC, has been deleted. Furthermore it has been clarified by the article "being a moulded pulp article", in that "the vehicle of said coating is water" and in that spreading and removal of excess coating is carried out "by forced air from air knives". The function of these air knives "which act to thin and spread the coating over the surface and to remove the excess coating material" has been added. These features are disclosed by the description of the application as filed (cf. page 2, lines 1, 2; page 3, lines 8 - 10; page 4, lines 28, 29; page 7, lines 4 - 6). Furthermore the features have been added that the moulded pulp article is "sized with a sizing agent to prevent or reduce water permeation into said article during the coating process" (cf. page 10, lines 14 - 17) and that "the at least one wave is created by coating application means positioned below the surface to be coated" (cf. figures 1 and 2; page 12, lines 7 - 25).
- 1.2 Apparatus claim 11 comprises corresponding features.

1.3 The Board is convinced that claims 1 and 11 now satisfy the requirements of Articles 84 and 123(2) EPC.

2. *Novelty*

According to the decision under appeal the process of claim 1 is novel. To the Board, the process of claim 1 and the apparatus of claim 11 are novel (Article 54 EPC), see the following considerations with respect to inventive step.

3. *Inventive step*

3.1 According to the decision under appeal the subject-matter of claim 1 underlying the decision lacks inventive step in view of the documents D1 and D2.

3.2 In this decision apparently document D2 has been considered as closest prior art and as disclosing a process for coating a surface of an article with a liquid coating comprising a polymer solution as vehicle, the coating being applied in a closed environment in which an atmosphere vaporous with the vehicle of the coating is maintained, such that essentially no drying of the liquid coating takes place on the article surface in the closed environment (grounds, no. 2.1).

3.3 Contrary to the reasoning of the Examining Division in the decision under appeal (grounds, no. 2.2), the Board is of the opinion that D2 does not disclose the feature of claim 1, according to which "said spreading and removal of excess coating being carried out by forced air from air knives ... in a closed environment in which an atmosphere vaporous with the vehicle of the

coating is maintained, the vaporous atmosphere being maintained such that essentially no drying of the liquid coating takes place on the article surface in the closed environment".

Even if, as indicated in the decision under appeal, the apparatus according to D2 is considered as comprising a reservoir for the coating material (cf. figures 1, 2: reservoir 16) which is closed (despite the statement according to which polymer solution flowing out of the nozzle returns to the reservoir (column 1, lines 62 - 64; figures 1, 2)), such a closed reservoir cannot be considered as having the structure or the function of the closed environment defined in present claim 1. The reason is that according to claim 1 spreading and removal of excess coating takes place **within** the closed environment, whereas according to document D2 no treatment is intended to take place within the reservoir.

For completeness sake the Board also wishes to point out that the low evaporation loss referred to in document D2 (column 4, lines 1 - 7) which has been considered in the decision under appeal as being caused by a closed reservoir (grounds, no. 2.2) needs to be seen in the context in which it is referred to in document D2, namely in connection with other means provided to obtain this effect and in comparison to the prior art processes referred to. Thus this low evaporation loss cannot be attributed exclusively to a closed reservoir.

- 3.4 The processes according to claim 1 and document D2 have the features of the preamble of claim 1 in common,

according to which the process is for coating a surface of an article with a liquid coating, comprising a vehicle, which comprises passing the surface into contact with at least one wave of liquid coating to apply an excess of coating to the surface, wherein the at least one wave is created by coating application means positioned below the surface to be coated.

3.5 Consequently the process according to claim 1 differs from the one according to document D2 by the features of the characterising portion of claim 1, according to which (shorter version of features (d) and (e) for the sake of clarity):

- (a) said vehicle of said coating is water,
- (b) the article being a moulded pulp article being sized with a sizing agent to prevent or reduce water permeation into said article during the coating process,
- (c) an excess of liquid coating being applied to the surface,
- (d) after applying said coating on said article, the coating is spread over the surface of said article and excess coating removed therefrom, ... carried out by forced air from air knives, said
- (e) spreading and removal of excess coating being carried out ... in a closed environment in which an atmosphere vaporous with the vehicle of the coating is maintained ... such that essentially no

drying of the liquid coating takes place on the article surface in the closed environment.

- 3.6 In view of document D2 as closest prior art the problem to be solved is the one which can be derived from the application (cf. page 2, lines 15 - 20) and which is referred to in the grounds of appeal, namely to provide a process for coating a surface of a moulded pulp article wherein the vehicle of coating is water, such that an uneven coating is avoided and efficient use is made of the coating material.

This problem is solved by the process according to claim 1.

- 3.7 Due to the fundamental lack of information with respect to the article to be coated, the vehicle of coating and the manner in which the coating is performed as referred to above (features (a) to (e)) document D2 cannot give any indication with respect to the process according to claim 1.

- 3.8 Since document D1, like document D2, does not relate to a moulded pulp article to be coated nor to water as the coating vehicle as defined in claim 1, the person skilled in the art, even when starting from document D2 and attempting to solve the problem underlying the present application, will not consider document D1, irrespective of D2 referring to the possibility to employ existing equipment used for wave soldering (column 3, lines 26, 27).

- 3.9 Even if the person skilled in the art would have considered document D1 by itself or in combination with

the teaching of document D2 it could not have led to the process according to claim 1.

Document D1 relates to wave soldering of elements such as printed wiring boards and more specifically to solder coating of wettable metallized surfaces or solder joining of at least two wettable metallized surfaces on wiring boards in a solder wave, wherein the wave is blanketed with a reduced oxygen atmosphere when a board passes through the solder wave followed by a gas jet to remove excess solder (claim 1; column 1, lines 13 - 20). Due to the difference in the article to be coated (printed wiring boards versus moulded pulp articles treated with a sizing agent) and the type of coating applied to the article (solder versus coating with water as a vehicle), document D1 cannot be considered as giving an indication leading to the process according to claim 1 of the present application.

- 3.10 This applies irrespective of D1 disclosing, in correspondence with features c) and d) of claim 1, that a linear jet of gas is directed against the underside of the article and blows off any excess solder (column 5, lines 42 - 47), since no indication is given how these method steps should be applied in case different articles are to be coated and a different vehicle of coating is to be used, as it is the case according to the process of claim 1. Likewise no indication is given to replace the method of application of coating as employed according to D2 (column 1, line 59 - column 2, line 2) by the method steps of D1 referred to above.

3.11 For completeness sake the Board wishes to point out that document D1 discloses various embodiments for an apparatus to carry out the method. One of these apparatuses comprises no enclosure at all (cf. figure 1). According to other disclosed apparatuses an enclosure or tunnel is provided to enclose the conveyor, the conveyor and a solder pot without a gas knife or the conveyor, the solder pot and the gas knife respectively (column 6, lines 11 - 23; figures 3 - 5).

No indication is given, however, to select from this variety of embodiments the one according to figure 5 having an extended tunnel and even less to maintain within such a tunnel "an atmosphere vaporous with the vehicle of the coating ... such that essentially no drying of the liquid coating takes place on the article surface", as claimed in claim 1, feature (e).

The other documents cited in the Search Report not relied upon in the decision under appeal do not come closer.

4. Claim 1 thus involves an inventive step (Article 56 EPC).

4.1 For reasons corresponding to the ones given above with respect to claim 1, the coating apparatus as defined in claim 11 also involves an inventive step (Articles 54, 56 EPC).

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 in the following version:

Description:

Pages 1, 2, 4, 6, 8, 9 as filed under cover of the letter dated 29 July 2005.

Pages 3, 5, 7 and 10 filed with fax dated 6 October 2005.

Claims:

Claims 1 to 13 filed with fax dated 6 October 2005.

Drawings:

Sheets 1/2, 2/2 as originally filed.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders