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**D E C I S I O N**  
**of 12 March 1998**

**Case Number:** T 0609/92 - 3.2.5

**Application Number:** 84420058.4

**Publication Number:** 0121486

**IPC:** B41F 15/08

**Language of the proceedings:** EN

**Title of invention:**

Apparatus and method for decorating articles

**Patentee:**

Permanent Label Corporation

**Opponent:**

Etablissements CER  
Maschinenfabrik Gebr. Balsfulland GmbH

**Headword:**

Decorating articles/CER

**Relevant legal provisions:**

EPC Art. 52, 56, 83

**Keyword:**

"Inventive step (yes)"

**Decisions cited:**

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**Catchword:**

-



Case Number: T 0609/92 - 3.2.5

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.5**  
**of 12 March 1998**

**Appellant:** Permanent Label Corporation  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 24 April 1992  
revoking European patent No. 0 121 486 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A. Burkhart

**Members:** H. P. Ostertag  
C. Holtz



## Summary of Facts and Submissions

I. European patent No. 0 121 486 based on application No. 84 420 058.4 and claiming priority dates of 1 April 1983 and 24 February 1984 was granted with effect of 21 March 1990 on the basis of 25 claims. The four independent claims 1, 6, 11 and 20 read as follows:

"1. Method of decorating the surface of an article having a non-circular cross-sectional configuration and utilizing an apparatus which includes an applicator having a surface for applying a decorating medium to the article surface at successive corresponding portions of the article surface and the applicator surface, the method comprising the step of placing the successive portions of the article surface and the successive portions of the applicator surface at the successive positions in accordance with article-configuration information, the step of placing the article and the applicator at successive positions including rotating the article about a longitudinal first axis relative to a corresponding home position and translating the first axis laterally in directions perpendicular to the first axis relative to a further home position such that each said successive position of the article is defined at least partly by the angular position of the article about the first axis, and the location of the first axis, relative to the corresponding home positions, and the first axis is translated along directions parallel to a second axis, and

the first axis is translated along further directions parallel to a third axis, the first, second and third axes being mutually perpendicular such that each successive position of the article is defined at least partly by the location of the first axis relative to the second and third axes, characterised the following steps.

positioning the article and the applicator at successive positions relative to one another such that in these successive positions successive portions of the article surface will be placed in proper relative position and moved with appropriate velocity with corresponding successive portions of the applicator surface for each corresponding portion of the decorating cycle to obtain in these successive relative positions a relative velocity between the article surface and the applicator surface of essentially zero, wherein the step of positioning the article and the applicator at successive positions is identical to that of placing the article, detecting the successive relative positions and appropriate velocities of the article and the applicator at which the successive portions of the article surface are placed in the proper position and with a relative velocity of essentially zero relative to the corresponding successive portions of the applicator surface to provide article-configuration information determined by the crosssectional configuration of the article and using the article-configuration information provided for placing the article and the applicator in the decorating cycle."

"6. Method of decorating the surface of an article having a non-circular cross-sectional configuration and utilising apparatus which includes an applicator having a surface for applying a decorating medium to the article surface at successive corresponding portions of the article surface and the applicator surface, the method comprising the steps of rotating the article about a longitudinal first axis relative to a corresponding home position, and translating the first axis laterally in directions perpendicular to the first axis relative to a further home position such that each said successive position of the article is defined at least partly by the angular position of the article about the first axis, and the location of the first axis, relative to the corresponding home positions, and the first axis is translated along directions parallel to a second axis, the first axis is translated along further directions parallel to a third axis, the first, second and third axes being mutually perpendicular such that each successive position of the article is defined at least partly by the location of the first axis relative to the second and third axes, characterized by providing configuration information of the article and the applicator at successive positions relative to one another such that successive portions of the article surface will be placed in the proper relative position and moved with the appropriate velocity with corresponding successive portions of the applicator surface to obtain in the successive relative positions a relative velocity between the article surface and the applicator surface of essentially zero for each

corresponding portion of the decorating cycle, identifying the successive relative positions and the appropriate velocities of the article and the applicator, and providing operating information on the basis of the article-configuration information determined by the cross-sectional configuration of the article and the identified positions and velocities for positioning the article and the applicator in the proper relative positions and with a relative velocity of approximately zero in these positions."

"11. Apparatus for decorating the surface of an article (20) having a non-circular cross-sectional configuration, in particular for performing the method according to one of claims 1 to 5, the apparatus including an applicator (90, 290) having a surface for applying a decorating medium to the article surface (22) at successive corresponding portions of the article surface and the applicator surface (294), positioning means (41, 241) for positioning the article (20) and the applicator (90, 290) at successive positions relative to one another during the rating cycle, the positioning means (41, 241) including drive means (44, 102, 106, 244) which include rotating means (44, 56, 244, 256) for rotating the article (20) about a longitudinal first axis (Z), relative to a corresponding home position, and translating means (64, 76, 264, 276) for translating the first axis (Z) laterally in directions perpendicular to the first axis (Z), relative to a further corresponding home position such that the condition of the positioning means (41, 241) when the



article (20) is at each of the successive positions is determined at least partly by the angular position of the article (20) about the first axis (Z), and the location of the first axis (Z), relative to the corresponding home positions, and the translating means (64, 76, 264, 276) including first moving means (62, 64, 262, 264) for moving the first axis (Z) along directions parallel to a second axis (X), and second moving means (74, 76, 274, 276) for moving the first axis (Z) along directions parallel to a third axis (Y), the first, second and third axes (Z, X, Y) being mutually perpendicular such that the condition of the positioning means (41, 241) when the article (20) is at each of the successive positions is determined at least partly by the location of the first axis (Z) relative to the second and third axes (XY), characterised by detecting means (140, 190) for positioning the article (20) in successive positions and for detecting the successive relative positions of the article (20) and the applicator (90, 290) at which the successive portions of the article surface (22) are placed in the proper position and moved with the appropriate velocity with the corresponding successive portions of the applicator surface (294, based upon the cross-sectional configuration of the article (20), to obtain in the successive relative positions a relative velocity between the article surface and the applicator surface of essentially zero and for determining the condition of the positioning means (41, 241) when the article and the applicator are at each of said proper successive relative positions so as to provide article configuration information pertaining to the condition

of the positioning means (41, 241) as determined by the surface contour of the cross-sectional configuration of the article (20),  
information processing means (140, 156) for removing said article-configuration information from the detecting means (190), and for providing operating information for actuation of the positioning means (41, 241), and  
actuating means (130, 132, 134, 142) for actuating the positioning means (41, 241) in accordance with the operating information provided by the information processing means (140) to actuate the drive means (44, 102, 106, 244) such that the proper relative position and the appropriate relative velocity of essentially zero are maintained between the article surface and the applicator surface throughout the decorating cycle."

"20. Apparatus for decorating the surface of an article having a non-circular cross-sectional configuration, in particular for performing the method according to one of claims 6 to 10, the apparatus including an applicator (90, 290) having a surface for applying a decorating medium to the article surface (22) at successive corresponding portions of the article surface and the applicator surface (294), positioning means (41, 241) for positioning the article (20) and the applicator (90, 290) at successive positions relative to one another during the decorating cycle, the positioning means (41, 241) including drive means (44, 102, 106, 244) which include rotating means (44, 56, 244, 256) for rotating the article (20) about a longitudinal first axis (Z), relative to a corresponding home position, and

translating means (64, 76, 264, 276) for translating the first axis (Z) laterally in directions perpendicular to the first axis (Z), relative to a further corresponding home position, such that the condition of the positioning means (41, 241) when the article (20) is at each of the successive positions is determined at least partly by the angular position of the article (20) about the first axis (Z), and the location of the first axis (Z), relative to the corresponding home positions, and the translating means (64, 76, 264, 276) including first moving means (62, 64, 262, 264) for moving the first axis (Z) along directions parallel to a second axis (X), and second moving means (74, 76, 274, 276) for moving the first axis (Z) along directions parallel to a third axis (Y), the first, second and third axes (Z, X, Y) being mutually perpendicular such that the condition of the positioning means (41, 241) when the article (20) is at each of the successive positions is determined at least partly by the location of the first axis (Z) relative to the second and third axes (X, Y), characterised by article-configuration information means (156, 190) for providing information pertaining to successive relative positions of the article (20) and the applicator (90, 290) at which successive portions of the article surface are placed in the proper position and moved with the appropriate velocity with corresponding successive portions of the applicator-surface, based upon the cross-sectional configuration of the article, to obtain in the successive relative positions a relative velocity between the article surface and the applicator surface of essentially zero, and for

identifying the condition of the positioning means (41, 241) when the article (20) and the applicator (90,290) are at each of said successive relative positions so as to provide article-configuration information pertaining to the condition of the positioning means as determined by the cross-sectional configuration of the article (20),  
information processing means (140) for receiving the article-configuration information from the article-configuration information means (156,190) and for providing operating information for actuation of the positioning means (41, 241), and  
actuating means (130, 132, 134, 142) for actuating the positioning means (41, 241) in accordance with the operating information provided by the information processing means (140) to actuate the drive means (102, 106, 244) such that the proper relative position and the appropriate relative velocity of essentially zero are maintained between the article surface and the applicator surface, throughout the decorating cycle."

II. The respondents (opponents) filed notices of opposition requesting the revocation of the patent pursuant to Articles 100(a) EPC (lack of novelty and inventive step) and 100(b) EPC (disclosure not sufficiently clear and complete). The respondents' arguments in support of the ground pursuant to Article 100(a) were based on documents D1 to D9. From these documents, only the following are of importance for the present decision:

D1: BE-A-690 386  
D2: US-A-3 970 831  
D3: US-A-3 247 786  
D4: US-A-3 249 043

III. By the decision posted on 24 April 1992, the Opposition Division revoked the patent pursuant to Article 102(1), on the grounds that independent claims 1, 6, 11 and 20 of the of the contested patent did not meet the requirements of Articles 52 and 56 EPC.

IV. The appellant (patentee) lodged an appeal against this decision on 26 June 1992 and paid the corresponding fee on the same date. A statement of grounds of appeal was filed on 26 August 1992. Oral proceedings were held on 12 March 1998.

V. The parties argue essentially in as follows:

The appellant (patentee):

According to the prior art on purely mechanical decorating devices, it is very difficult to obtain full synchronization between article and applicator, that is, to attain a relative velocity of zero. Smearing could only be reduced up to a certain degree. According to the prior art as shown in document D1 the complete gear and coulisse design has to be changed for a new cross-sectional configuration of the article.

It is the main objective of the patent that it does not necessitate specially contoured gears and cams.

Inventive step is considered present since the invention identifies the successive relative positions and the appropriate velocities of the article and the applicator, and uses these data for the information processing means, which significantly improves printing quality.

According to the decision T 176/84 a criterium for the appliance of prior art of a different technical field is that similar or identical problems have to appear, and the skilled person has to be aware of this different technical field. This is not the case relating to document D2.

The respondents:

Respondent (Opponent) I:

The feature "relative velocity zero" is already known, see document D4, column 1, lines 27 to 29 and column 3, lines 53 to 57. In relation to the machine claims 6 and 20, a machine is also known in the art, where the printing velocity could be chosen at any point and where there is no limitation as to the form of the objects to be decorated. See in this respect documents D3, D1 and D4.

Respondent (Opponent) II:

Claim 6 is not novel vis-à-vis document D1, this applies in an analogous manner to claim 20. As stated by the Opposition Division, the subject matter of independent claims 1 and 11 does not involve an

inventive step.

VI. The appellant (patentee) requested the cancellation of the impugned decision and the maintenance of the European patent

(a) as granted (main request), or

(b) according to the auxiliary request of 21 August 1992, or

(c) according to the auxiliary request II of 12 February 1998, or

(d) according to the auxiliary request III of 12 February 1998.

VII. The respondents (opponents) requested that the appeal be dismissed.

### **Reasons for the Decision**

1. The appeal is admissible.

2. *Opposition according to Article 100(b) EPC*

2.1 The respondent (Opponent I) has objected that the patent is directed to all articles to be decorated, although it disclosed only a single article. Articles with corners, for instance, preclude constant velocity. Apart from that, calculation of zero relative velocity

speed is not disclosed, e.g. the applicator is not used to detect it.

- 2.2 One example is described in full detail in the patent which relates to a bottle with an elliptic cross-section. The board is of the opinion that this example is sufficiently substantiated and allows calculation of velocities also for articles of more complex form, eventually taking into account a lower given velocity. The only example of an elliptic bottle is therefore considered sufficient for the skilled person to work the invention also for other forms.

3. *Novelty*

Document D1 (BE-A-690 386) has been considered as the closest prior art in the present patent. Equally, the Opposition Division in their decision has considered the document D1 to represent the most relevant state of the art. Both opponents, in the oral proceedings, have expressed that they do not attack novelty.

4. *Inventive step*

- 4.1 Independent claims 6 and 20 are of broader scope than claims 1 and 11, respectively, because these claims do not specify how the information referred to in the characterising part thereof are to be obtained, whereas according to claims 1 and 11 these informations are obtained by a learning mode. Consequently, the respondents have primarily attacked claims 6 and 20 and in the following, these claims will be dealt with first.



4.2 The Board is in agreement with the decision under appeal and the parties that document D1 represents the closest prior art and discloses a method and an apparatus with all the features recited in the preamble of claims 6 and 11 respectively.

It should be noted, however, that the apparatus disclosed in document D1 is a purely mechanical one: the translatory movement of the first axis along directions of the second and third axis is controlled by means of one or two cams (Figures 3 and 4 respectively) and associated cam followers. The control of the rotatory movement of the first axis (carrying the article) and the movement of the applicator surface is not clearly disclosed.

As stated in the description of the patent (column 1, lines 26 to 44), mechanical control means such as cams and the like must be tailored specifically to each surface contour to be decorated. Thus, the method and apparatus disclosed in document D1 is only suitable for decorating large production runs.

4.3 It is the object of the invention, therefore, to provide a method and apparatus by which articles having a wide variety of non-circular cross-sectional configurations may be decorated with consistent high quality (column 2, lines 13 to 17).

4.4 This problem is solved by the characterising features of claims 6 and 20 respectively which may be numbered (a), (b) and (c) as follows (in accordance with the

decision under appeal):

Claim 6:

- (a) providing configuration information of the article and the applicator ... a relative velocity between the article surface and the applicator surface of essentially zero for each corresponding portion of the decorating cycle
- (b) identifying the successive relative positions ... article and the applicator and
- (c) providing operating information on the basis of ... velocity of approximately zero in these positions.

Claim 20:

- (a) article-configuration information means (156, 190) for providing information ... as determined by the cross-sectional configuration of the article (20),
- (b) information processing means (140) ... for actuation of the positioning means (41, 241), and
- (c) actuating means (130, 132, 134, 142) ... throughout the decorating cycle.

4.5 Generally speaking, the basic idea underlying this solution is to replace the purely mechanical drive and control mechanism of document D1 by an electronic control system. The respondents have argued that there is a general trend in technology throughout to replace complex mechanical drive and control mechanisms by

electronic control systems and that it was obvious to follow this trend also in the technical field under consideration.

However, it must be acknowledged that the patent in suit for the first time proposes to adopt this trend in the field of decorating articles of complex shape and this fact should be considered as indicating the presence of inventive step rather than the contrary.

- 4.6 Moreover, the patent in suit does not claim this general idea as such, but is limited to a specific way of how to proceed, as set out in claims 6 to 20.

Contrary to the findings of the decision under appeal, the Board does not consider feature (a) of the claims 6 and 20 as forming part of the disclosure of document D1.

Certainly, the cam means disclosed in document D1 may be regarded as an equivalent to information storage means of an electronic control system. However, these cam means only contain information with respect to successive positions of the first axis in the second and third direction such that successive portions of the article surface will be placed in proper position relative to the applicator surface. Since document D1 does not disclose any drive means for driving the applicator surface, the article itself and the cams (Figure 4) or the cam followers (Figure 3), nor any means for synchronizing these movements, it cannot be said that it discloses velocity information within the meaning of claims 6 and 20.

4.7 The Board agrees with the respondent that a decorating apparatus as disclosed in document D1 necessarily must include drive means which synchronise the movement of the article and the applicator such that the relative velocity becomes substantially zero, because otherwise smearing would occur. However, as stated above, document D1 is silent in this respect and cannot, therefore, give any suggestion or teaching - by way of analogy - to obtain this synchronization in the manner as defined in feature (a) of claims 6 and 20 nor to provide that information in a form suitable for carrying out feature (b) of these claims.

It follows that the subject-matter of claims 6 and 20 is not rendered obvious by the teaching of document D1 alone.

4.8 The respondents have also referred to document D2. However, this document relates to another technical field, namely the art of manufacturing articles of complex shape made of reinforced plastic composite materials, such as motor casings, rotor blades, tubular members or the like. The reinforcement in the form of a tape is applied to a mould by means of a tape placement head. Mold and head are movable along or around a plurality of axes, the movements being controlled by a numeric control apparatus which is programmed by a learning mode. However, the problem of synchronizing velocities does not exist, since the tape is taken off a roll during application. Hence, this document cannot provide any suggestion on how to solve the synchronisation problems of a decorating apparatus.

4.9 In contrast to this, document D3 (US-A-3 247 786) relates to noncircular sectional articles decoration techniques. A corresponding feature can be seen in the fact that there is no relative movement between the screen and the article (column 3, line 15). However, this is the only corresponding feature, since the control of the movement of article and screen is done in an entirely mechanical manner by cam and gear means like in document D1.

4.10 Also document D4 (US-A-3 249 034) relates to the same decoration technique whereby the article is rotated in good registration with the screen design, "and without slippage", the linear velocity of the bottle surface at its line of contact being equal to the linear velocity of the screen.

Since the control is also done mechanically by a rack and gear mechanism, document D4 is not more relevant than documents D1 or D3.

5. Independent claims 6 and 20 therefore involve an inventive step. This also applies to claims 1 and 11 which are narrower in scope, as explained above.

5.1 Hence, the independent claims of the appealed patent as granted (according to the main request) meet the requirements of the EPC, as well as the dependent claims. Under these circumstances the three auxiliary requests on file do not need to be considered by the Board.

## **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: The Chairman:

A. Townend

A. Burkhart