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**D E C I S I O N**  
of 15 October 2002

**Case Number:** T 0433/00 - 3.5.2

**Application Number:** 91902794.6

**Publication Number:** 0477372

**IPC:** G11B 7/26

**Language of the proceedings:** EN

**Title of invention:**  
Transfer method

**Patentee:**  
SONY CORPORATION

**Opponent:**  
GIESECKE & DEVRIENT GmbH

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**  
"Inventive step - no"

**Decisions cited:**  
-

**Catchword:**  
-



Case Number: T 0433/00 - 3.5.2

**D E C I S I O N**  
**of the Technical Board of Appeal 3.5.2**  
**of 15 October 2002**

**Appellant:** Sony Corporation  
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**Respondent:** Giesecke & Devrient GmbH  
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**Representative:** Klunker, Schmitt-Nilson, Hirsch  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 14 February 2000  
revoking European patent No. 0 477 372 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** W. J. L. Wheeler  
**Members:** M. Ruggiu  
J. H. P. Willems

## Summary of Facts and Submissions

- I. The patentee appealed the decision of the opposition division revoking European patent No. 0 477 372.
- II. The following state of the art was mentioned during the appeal proceedings:
- D1: DE-A-3 527 412;
- D2: DE-C-2 046 611;
- D3: EP-A-0 062 366;
- D4: the abstracts of JP-A-63 244 429 from Patent Abstracts of Japan, vol. 13, No. 54 (P-824) of 8 February 1989 and from the Derwent WPI; and
- D5: the background art described in columns 1 and 2 of the specification of the patent in suit.
- III. Oral proceedings were held before the board on 15 October 2002.

The appellant (patentee) requested that the decision under appeal be set aside and that the patent be maintained in amended form with claims 1 and 2 of the main request filed on 5 November 1999, and description and drawings of the patent specification (now the only request).

The respondent (opponent) requested that the appeal be dismissed.

IV. Claim 1 reads as follows:

"A transfer method for transferring a pattern of projections and valleys on a stamper (10) to a UV curable resin applied on a disc base plate (7) comprising pressing said disc base plate (7) coated with the UV curable resin to said stamper (10), characterized in that said stamper (10) is maintained at a constant temperature at which the UV curable resin in tight contact with the stamper becomes fluid under the heat yielded from the stamper and at which said UV curable resin is at a viscosity suitable for transferring the pattern of projections and valleys on said stamper (10) to said UV curable resin."

Claim 2 is dependent upon claim 1.

V. The arguments of the appellant can be summarised as follows:

Amended claim 1 did not go beyond the content of the application as originally filed. In particular original claim 4 already mentioned the stamper was maintained at a constant temperature. Furthermore, the wording of claim 1 had to be understood in the sense that the stamper was maintained at a particular constant temperature which depended on the particular composition of the UV curable resin used.

D5, the background art described in the patent specification, was part of the state of the art and formed the prior art closest to the invention. According to this closest prior art, in a first step, a UV curable resin was applied on a disc base plate and

the disc base plate, coated with resin, was transported to the stamper. The resin was highly viscous at ambient temperature to facilitate its application on the disc base plate and transport to the stamper. In a second step, the disc base plate was placed on the stamper and pressed for transferring the pattern of projections and valleys on said stamper to the UV curable resin. However, at ambient temperature, the resin did not present optimum properties for imprinting the pattern into the resin and the invention solved this problem by maintaining the stamper at an elevated temperature. Placing the coated disc base plate on the stamper increased the temperature of the resin, thereby reducing its viscosity, so that the pattern on the stamper was accurately transferred to the resin, which was then cured, in a third step, by irradiation with UV rays.

The invention provided an effective solution to the problem of the prior art which placed conflicting requirements on the viscosity of the resin. The invention appeared to be simple only when the solution was known. Furthermore, other solutions were available, for example using a resin presenting a suitable fluidity at ambient temperature, or heating the disc base plate instead of the stamper.

It was not contested that it was known from documents D3 and D4 to heat a stamper. However, the stampers of D3 and D4 were not heated in the second, transfer step, but in the third step, in which the resin was cured. Furthermore, D3 and D4 disclosed transfer methods completely different from the background art described in the patent specification. In the method of D3, a quantity of UV curable resin was first applied on the

stamper, not on the disc base plate, and the resin was already fluid when it was applied on the stamper, so that no heating was required to make the resin fluid. In the method of D4, the resin was injected in a mould and distributed therein by a reduced pressure in the mould and rotation of the mould.

Documents D1 and D2 related to methods further away from the invention and thus were not relevant.

VI. The respondent argued essentially as follows:

The patent specified that the temperature of the stamper was perpetually 22°C to 35°C but did not disclose that a selected temperature should be kept constant. Thus, the term "constant temperature" in claim 1 infringed Article 123(2) EPC. Furthermore, this term was not clear, contrary to Article 84 EPC.

Claim 1 did not include a step in which the disc base plate coated with UV curable resin was transported to the stamper. Thus claim 1 concerned the transfer step exclusively. The resin had to be viscous in the first step of the method of D5, to facilitate its application on the disc base plate, and it was apparent that high viscosity of the resin would complicate the second, transfer step. The problem of the invention was therefore to facilitate transfer of the pattern on the stamper to the resin when the disc base plate was pressed on the stamper. This problem was obvious and thus did not involve an inventive step in itself. It was general knowledge that the viscosity of a resin, in particular a UV curable resin, was inversely dependent on the temperature, at least as long as the resin was not irradiated with UV rays. It was therefore obvious

to the skilled person to fluidify the resin by heating it during the second, transfer step. Furthermore, it was known from documents D3 and D4 that heating the resin could be achieved by heating the stamper, so that the subject-matter of claim 1 did not involve an inventive step.

### **Reasons for the Decision**

1. The appeal is admissible.
2. According to the patentee, the background art (D5) described in columns 1 and 2 of the patent specification can be regarded as part of the state of the art.

D5 corresponds to the pre-characterising portion of claim 1 and, in particular, mentions:

applying a UV curable resin on a surface of a disc base plate and placing the coated disc base plate on a stamper carrying a pattern;

pressing the coated disc base plate against the stamper to transfer the pattern to the UV curable resin on the plate; and

curing the resin by irradiation with UV rays.

3. In the method of D5, the resin should be relatively viscous during the first step, in which the disc base plate is coated with resin and placed on the stamper, but should be relatively fluid during the second step to ensure that the pattern is faithfully transferred to

the resin.

The invention solves this problem essentially by maintaining the stamper at a constant temperature at which the resin becomes fluid under the heat yielded by the stamper and has a suitable viscosity for transferring the pattern to the resin.

4. The skilled person is aware that the pattern on the stamper can be faithfully transferred to the resin only if the resin is sufficiently fluid. The problem solved by the invention is therefore obvious to the skilled person.
5. The fact that the fluidity of a resin depends on, and in particular is inversely related to temperature, is notorious. The skilled person considering a problem which requires the resin to have a suitable viscosity would be lead by this notorious fact to heat the resin so as to obtain the required fluidity. Since the stamper is pressed against the resin, and thus is in intimate contact therewith during the transfer step, it is obvious to the skilled person to maintain the temperature of the stamper constant at a level which results in the required temperature for the resin. In the view of the board, the notional skilled person arrives thereby in an obvious manner at a transfer method having all the features of claim 1.
6. The board agrees with the appellant that, in the methods of D3 and D4, the resin is heated for curing it and not for fluidifying it. However, this would not dissuade the skilled person from fluidifying the resin by heating it during the transfer step of the method of D5, which step occurs before the resin is irradiated



with UV rays.

7. The board considers that it is immediately apparent to the skilled person that the resin has to be sufficiently fluid during the transfer step. In view of the well known dependence of viscosity upon temperature, this necessity constitutes a direct incentive to the skilled person to control the temperature of the resin during that step, which makes this measure obvious to the skilled person. Furthermore, it is apparent to the skilled person from document D4 that the stamper can be used to heat the resin.
8. For the above reasons, the subject-matter of claim 1 is not considered as involving an inventive step in the sense of Article 56 EPC, so that the ground for opposition mentioned in Article 100(a) EPC prejudices the maintenance of the patent.
9. In the circumstances, there is no need to give consideration to the other objections raised by the respondent.

## **Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

D. Sauter

W. J. L. Wheeler