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D E C I S I O N
of 13 May 2003

Case Number: T 0696/00 - 3.2.5

Application Number: 94914836.5

Publication Number: 0696245

IPC: B41M 5/38

Language of the proceedings: EN

Title of invention:
Laser-induced thermal transfer process

Patentee:
E.I. DU PONT DE NEMOURS AND COMPANY

Opponent:
Imation Corp

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0696/00 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 13 May 2003

Appellant: Imation Corp
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 29 March 2000
rejecting the opposition filed against European
patent No. 0696245 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: W. Moser
Members: W. Widmeier
P. E. Michel

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division rejecting the opposition against European patent No. 0 696 245.

In the decision under appeal the Opposition Division held that the ground of opposition under Article 100(a) EPC (lack of inventive step, Article 56 EPC) did not prejudice the maintenance of the patent in suit as granted.

- II. The appellant requested that the decision under appeal be set aside and that the patent in suit be revoked.

The respondent (patent proprietor) requested as a main request that the appeal be dismissed, or that the decision under appeal be set aside and the patent be maintained on the basis of the following documents filed on 11 April 2003:

- (a) claims 1 to 10 as first auxiliary request; or
- (b) claims 1 to 10 as second auxiliary request; or
- (c) claims 1 to 10 as third auxiliary request; or
- (d) claims 1 to 3 as fourth auxiliary request; or
- (e) claims 1 to 10 as fifth auxiliary request.

III. Claim 1 according to the main request reads as follows:

"1. A laser-induced melt transfer process which comprises:

- a) imagewise exposing to laser radiation a laserable assemblage comprising
 - 1) a donor element comprising a support having at least one layer and bearing on a first surface thereof (i) at least one imageable component, (ii) at least one resin which is capable of undergoing a curing reaction, and (iii) at least one melt viscosity modifier, wherein (i) and (ii) or (ii) and (iii) can be the same or different provided that (i), (ii) and (iii) are not all the same, and further wherein (i), (ii) and (iii) can be in the same or different layers, and
 - 2) a receiver element situated proximally to the surface of the donor element wherein a substantial portion of (i), (ii) and (iii) is transferred to the receiver element; and
- b) separating the donor element from the receiver element; and
- c) exposing the receiver element of step (b) to a post-transfer treatment which comprises hardening or curing."

Independent claim 5 according to the main request reads as follows:

"5. A laser-induced melt transfer method for making a lithographic printing plate which comprises:

- a) imagewise exposing to laser radiation a laserable assemblage comprising

- 1) a donor element having at least one layer and bearing on a first surface thereof (i) at least one oleophilic resin, (ii) at least one resin which is capable of undergoing a curing reaction, and (iii) at least one melt viscosity modifier, wherein (i) and (ii) or (ii) and (iii) can be the same or different provided that (i), (ii) and (iii) are not all the same, and further wherein (i), (ii) and (iii) can be in the same or different layers, and
- 2) a receiver element situated proximally to the surface of the donor element wherein a substantial portion of (i), (ii) and (iii) is transferred to the receiver element; and
- b) separating the donor element from the receiver element; and
- c) exposing the receiver element of step (b) to a post-transfer treatment which comprises hardening or curing."

Independent claim 8 according to the main request reads as follows:

- "8. A laser-induced melt transfer method for making a color image which comprises:
- a) imagewise exposing to laser radiation a laserable assemblage comprising
 - 1) a donor element comprising a support having at least one layer bearing on a first surface thereof (i) at least one colorant, (ii) at least one resin which is capable of undergoing a curing reaction, and (iii) at least one melt viscosity modifier, wherein (ii) and (iii) can be the same or different, and

further wherein (i), (ii) and (iii) can be in the same or different layers, and

2) a receiver element situated proximally to the surface of the donor element wherein a substantial portion of (i), (ii) and (iii) is transferred to the receiver element; and

b) separating the donor element from the receiver element; and

c) exposing the receiver element of step (b) to a post-transfer treatment which comprises hardening or curing, steps (a) - (c) being repeated at least once using the same receptor and a different donor element having a colorant the same as or different from the first colorant."

IV. The following documents were in particular referred to in the appeal procedure:

D1: English translation of JP-A-4-94937

D2: US-A-4 491 432

D4: English translation of JP-A-63 319 192

D10: Journal of Imaging Science and Technology,
Vol. 37, No. 2, Mar./Apr. 1993, pages 167 to 170

D11: US-A-5 238 778

V. In the written and oral proceedings the appellant argued essentially as follows:

Closest prior art is document D1. The subject-matter of claims 1 and 5 of the main request differs from this

prior art only by the use of a laser. In the technical field of thermal transfer, to which document D1 belongs and to which the patent in suit belongs, a meltable substance is transferred from a donor sheet to a receiver sheet by the application of heat. The source of the heat is not relevant. Thus, a laser can be used just as a thermal head can be used. Document D1 refers to lasers as prior art. Claim 1 of document D1 refers to a thermal head whereas claim 2 leaves it open which kind of heat source is used. Document D1 prefers a thermal head for economical reasons. A laser is more expensive than a thermal head. A person skilled in the art is taught by document D1 that a laser is not necessary so that the cheaper thermal head can be used, but document D1 does not exclude the use of, or teach away from, lasers.

Documents D2, D4 and D10, among others, confirm that a laser and a thermal head are alternatives. Also document D11 which claims priority from document D1 shows that the thermal transfer method of document D1 can be performed either with a thermal head or with a laser.

It is therefore obvious to replace the thermal head of document D1 by a laser and thus to arrive at the subject-matter of claims 1 and 5 of the main request.

In the appeal procedure the appellant had not brought forward particular arguments with respect to claim 8.

VI. In the written and oral proceedings the respondent argued essentially as follows:

Document D1 represents the closest prior art. This document explains the problems the use of a laser in a thermal transfer process may cause and does not teach that either a thermal head or a laser can be used. Document D1 uses a thermal head not only in order to save costs but primarily in order to avoid the technical disadvantages of a laser. Claims 1 and 2 of this document do not specify different inventions. Also claim 2 is intended for the use of a thermal head as is explained on page 4, penultimate paragraph. Also documents D2 and D4 point to problems the use of a laser creates. Moreover, document D2 is related to a different kind of material comprising a chemical heat amplifier. Document D10 does not relate to a thermal transfer process, it relates to a dye diffusion process and is therefore not comparable.

In the light of document D1 the problem underlying the patent in suit may have to be modified. This problem is now to be understood as providing an alternative to the process of document D1. However, document D1 does not teach a laser as a suitable alternative. It teaches away from the use of a laser.

Neither document D1 alone nor a combination of this document with other documents can therefore render the subject-matter of claims 1, 5 and 8 of the main request obvious.

Reasons for the Decision

Main request

1. Document D1 is considered to be the closest prior art. This document discloses a thermal melt transfer process with the same process steps as specified in claim 1 of the patent in suit, except for the use of a laser, and with a transfer material similar to the material used in the process of claim 1 of the patent in suit. Thus, the main difference between the process of document D1 and the process of claim 1 of the patent in suit is the energy source for applying heat to the transfer material. In document D1 a thermal head is used as energy source whereas the process of claim 1 of the patent in suit uses a laser.

The process of claim 1 of the patent in suit is therefore novel. Novelty was not in dispute in the appeal procedure.

2. Document D1 is based on two objects. One object is saving of energy and costs, the other object is to ensure good ink adhesion and durability (cf. page 3, lines 16 to 21). Document D1 explains the problems that arise when a laser beam is used as energy source, as in the state of the art (cf. page 2, line 21 to page 3, line 6), for transferring the meltable substance from the donor sheet to the receiver sheet. These problems are not only economic problems due to the high costs of a laser. There is also a technical problem, namely that the high energy of a laser may affect other parts and may therefore lead to a reduced reliability (cf. page 3, lines 6 to 9).

Document D1 does not disclose a laser as an alternative for a thermal head. Lasers are cited as prior art, however, the description of the invention refers only to a thermal head as energy source for the thermal transfer. This applies also to claim 2 of document D1 (cf. page 2), which by its wording is not restricted to a thermal head as energy source. The description (cf. page 4, lines 19 to 26) shows that claim 2 does not relate to an independent invention which uses either a thermal head or a laser. The description instructs a skilled reader of document D1 that also claim 2 is to be seen exclusively in context with a thermal head.

A person skilled in the art is therefore taught by document D1 not to use a laser in combination with a donor/receiver assemblage consisting of a donor element, comprising the imageable component and a curable resin, and of a receiver element.

The appellant was of the opinion that documents D2, D4 and D10 show that a laser is an obvious alternative for a thermal head. The Board could not follow this opinion.

Document D2 is based on a thermal transfer process providing chemical heat amplification in the donor element (cf., for example, the title and claim 1). Such a donor element is not comparable to a donor element without a heat amplifying substance as it is used in the process of document D1 and of the patent in suit. The melt viscosity modifier which is additionally comprised in the donor element of the patent in suit is not to be understood as a heat amplifier. It lowers the

melting point and the melt viscosity of the meltable substance on the donor element (cf. page 5, lines 50 and 51 of the patent in suit) rather than amplifying the heat.

Document D4 does not disclose a thermal head and a laser as alternatives. It contrasts these two energy sources of a thermal transfer process (cf. page 11, chapter "Practical Examples" to page 12, end of chapter "Comparative Example"). A person skilled in the art is not motivated by document D4 to replace the thermal head of document D1 by a laser.

Document D10 is a study concerning the use of a laser in a thermal transfer process based on dye diffusion from the donor to the receiver. This document does not mention a thermal head and a laser as alternatives.

Document D11, which claims priority from document D1, was published after the priority date of the patent in suit. Document D11 has therefore, irrespective of its content and its relation to document D1, to be disregarded.

The Board concludes that, even if there were a document showing that a thermal head and a laser are alternatives, a skilled person would not be motivated by such a document to replace the thermal head of document D1 by a laser because of the clear teaching of document D1 not to use a laser.

Nevertheless, against this clear teaching of document D1, the process of claim 1 of the patent in suit is a laser-induced melt transfer process. A person

skilled in the art, starting from document D1, had to overcome a prejudice, namely the prejudice that a laser is not a suitable energy source for a thermal transfer process with a material as used in document D1 and as specified in claim 1 of the patent in suit. For this reason the subject-matter of claim 1 of the patent in suit is based on an inventive step.

3. Independent claim 5 specifies the process of claim 1 in combination with the production of a lithographic printing plate. The imageable component is constituted by at least one oleophilic resin. Independent claim 8 specifies the process of claim 1 in combination with the production of a colour image. The imageable component is constituted by at least one colorant.

Since claims 5 and 8 relate to a special use of the process of claim 1, the same conclusions as found for claim 1 apply also for claims 5 and 8. These claims are therefore also based on an inventive step.

4. Claims 2 to 4 are dependent claims of claim 1, claims 6 and 7 are dependent claims of claim 5, and claims 9 and 10 are dependent claims of claim 8. Thus, also these dependent claims involve an inventive step.
5. In these circumstances, it was not necessary to consider the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Dainese

W. Moser