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D E C I S I O N
of 26 September 1995

Case Number: T 0385/93 - 3.2.5

Application Number: 85116340.2

Publication Number: 0187352

IPC: B41J 2/045

Language of the proceedings: EN

Title of invention:
A method of ink jet colour printing

Patentee:
HOWTEK, INC.

Opponent:
TEKTRONIX INC.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0385/93 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 26 September 1995

Appellant: (Opponent)
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Respondent: (Proprietor of the patent)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office dated 17 March 1993 concerning maintenance of European patent No. 0 187 352 in amended form.**

Composition of the Board:

Chairman: C. V. Payraudeau
Members: A. Burkhart
W D. Weiß

Summary of Facts and Submissions

I. Opposition was filed against the patent No. 0 187 352 as a whole and based on Article 100(a) (lack of inventive step).

II. The wording of Claim 1 of the patent as granted reads as follows:

"A method of color printing on a printing medium by a jet melt method comprising the steps of

1.) providing at least a first, a second and a third phase change subtractive color printing ink, each consisting essentially of a wax-based thermoplastic base material which can exist in solid and liquid phases and which is optically clear in both phases, and a subtractive color dye which is soluble in the base material in both phases and does not appreciably affect the viscosity of the base material,

2.) jetting the inks onto the printing medium as successive liquid drops (16) each of which solidifies prior to the impingement of a succeeding drop, for forming at least three layers (18a, b, c) of different colors which are superimposed exactly, each layer with a controlled thickness and a well defined boundary (22a, b, c) with any adjacent layer and all of said layers being optically clear and non-turbid so that specular reflection of ambient light occurs in each layer whereby the observed color of the print on said printing medium is a vivid subtractive mixture of the colors of all of said ink layers."

III. The Opposition Division gave the interlocutory decision that the patent could be maintained in amended form on the basis of an amended Claim 1 according to the

auxiliary request presented by the patent Proprietor during the oral proceedings held before the Opposition Division.

The Opposition Division found that the method of Claim 1 of the patent as granted did not involve an inventive step having regard to document D4 (English translation of JP-A-55/54368), which document disclosed a method wherein molten ink was ejected in order to obtain a spot adsorbed on the surface of the printing substrate, and which document suggested the superposition of different colours.

The Opposition Division found, however, that the method of Claim 1 as amended according to the auxiliary request was both novel and involved an inventive step having regard to the prior art documents under consideration.

IV. The Appellant (patent Proprietor) lodged an appeal against this interlocutory decision of the Opposition Division and requests that the decision of the Opposition Division be set aside and the patent be maintained as granted (main request), or that the patent be maintained in amended form on the basis of an amended Claim 1 according to the first auxiliary request, filed on 6 September 1995, or that the patent be maintained in amended form on the basis of an amended Claim 1 according to the second auxiliary request, filed on 6 September 1995. The Appellant further requests oral proceedings in the event that the Board would not be able to accede to any of the above requests.

V. With letter of 7 February 1994 the sole Opponent withdrew its opposition.

VI. The Appellant essentially argued as follows:

The method of Claim 1 of the granted patent was not obvious in view of the teaching of document D4.

While document D4 did describe printing using hot melt or phase change inks which could be jetted onto a recording medium, that reference did not clearly teach subtractive colour printing by superimposing different colour, optically clear or non-turbid ink in controlled thickness layers as claimed. Nor was there any teaching in document D4 of a printing process which requires allowing drops to solidify before the impingement of succeeding drops in order to obtain a translucent subtractive colour. Since all of the examples of document D4 referred to one-colour printing, this document could not give any teaching to the requirements of clause 2 of Claim 1.

The single statement of document D4 on page 6, item 2 referring to multi-colour printing said nothing about the superimposed colours being in the form of distinct layers having well defined boundaries and controlled thicknesses, with all of the layers being optically clear and non-turbid so that specular reflection of ambient light occurs in each layer. One might even question whether that single sentence even referred to printing by superimposing semi-transparent or translucent inks. The sentence would apply equally well to a process of overprinting using wax-based inks which were opaque.

Reasons for the Decision

1. *Main request*

1.1 Novelty

None of the documents cited by the former Opponent discloses a method comprising all the features of Claim 1. Novelty, in fact, has not been in dispute in these proceedings.

Therefore, the method of Claim 1 of the patent in suit is novel.

1.2 Inventive step

The Opposition Division found that the method of Claim 1 did not involve an inventive step. For this finding the following reasoning was given (see page 6, third paragraph of the decision of the Opposition Division):

"The proposed solution is obvious having regard to the content of document D4, especially as its printing method consists in ejecting molten-ink (containing e.g. solvent dyes) in order to obtain a spot adsorbed on the surface of the printing substrate (Claims 1 and 4) allowing the superposition of different colours (page 6, item 2), thus the chromatic printing in general, as it is contained in the broadest scope of the present patent has been already suggested."

The Board does not agree with this contention, for the following reasons.

Document D4 refers to specific printing inks which can be used in a printing method, wherein the printing is conducted by forming a liquid with a specified viscosity and surface tension during the operation of a device by heating a printing medium that is a solid at ambient temperature and contains at least a printing agent which is the principal component in forming a print and a medium for dissolving or dispersing said printing agent, and the liquid thus formed is discharged towards the surface of a printing material from a discharge orifice, and is allowed to adsorb onto the surface of the printing material (see Claim 4 of document D4). All examples of document D4 refer to one-colour printing. Only a single sentence in document D4, namely the statement on page 6, item 2 that the printing ink "is quite suitable for multi-colour printing that involves the superposition of different colours", mentions multi-colour printing.

The method of Claim 1 of the granted patent differs substantially from the method disclosed in document D4 by the following features:

(a) the colour printing method is a **subtractive** colour printing method,

(b) the thermoplastic base material of each colour ink is optically clear in both the liquid and solid phases,

(c) the subtractive colour inks are jetted onto the printing medium as successive liquid drops each of which solidifies prior to the impingement of a succeeding drop for forming at least three layers of different colours which are superimposed exactly,

(d) each layer has a controlled thickness and a well-defined boundary with any adjacent layer,

(e) all of said layers are optically clear and non-turbid so that specular reflection of ambient light occurs in each layer whereby the observed colour of the print on said printing medium is a vivid subtractive mixture of the colours of all of said ink layers.

Due to the provision and interaction of the above-mentioned new features (a) to (e) the method claimed in Claim 1 provides jet-printed coloured indicia which can be printed on ordinary paper and which are characterised by high colour brightness, optical density and colour contrast (see page 4, lines 6 to 11 and lines 22 to 25 of the patent in suit).

Since document D4 is silent about any of the above-mentioned features (a) to (e) - which features are essential for carrying out the method of Claim 1 of the patent in suit - this document cannot render obvious the method of Claim 1.

Therefore, the method of Claim 1 of the patent in suit also involves an inventive step.

1.3 Consequently, the main request is allowable and the patent can be maintained as granted.

2. *Auxiliary requests*

Since the main request of the Appellant can be granted, there is no need to deal with the auxiliary requests of the Appellant.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is maintained unamended.

The Registrar: The Chairman:

A. Townend C. Payraudeau