

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MASARU SUGIE, CHIAKI SEKIOKA, YOSHIAKI YANAGIDA,
HISASHI UEMURA, MASAYUKI KUBOTA and HIROBUMI HAGA

Appeal No. 1997-2499
Application No. 08/228,449¹

HEARD: November 16, 1999

Before JOHN D. SMITH, GARRIS and LIEBERMAN, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 7, 9, 11, 13 through 42, 44 through 50, and 52 through 71 which are all the claims

¹ Application for patent filed April 15, 1994.

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remaining in the application. Claims 10 and 12 were canceled by amendment executed March 13, 1996. Claims 43 and 51 were canceled in an amendment executed September 12, 1995. Claim 8 was canceled in an amendment executed August 14, 1995. Claims 1 through 6 stand withdrawn from consideration by the examiner as being drawn to a non-elected invention. See 37 C.F.R. § 1.142(b).

THE INVENTION

The invention is directed to a method of erasing a recording agent and an erasing apparatus. The apparatus comprises a liquid state catalyst coating means, an erasing processing means/heating and irradiation means for heating and irradiating the recording medium. A feeding path P is provided along which the liquid state catalyst coating means and the erasing processing means are disposed. The coating means is located upstream of the erasing means. Both the method and apparatus claims recite that the feeding speed is changed in accordance with a change in the temperature of the feeding path.

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In a separate embodiment claims 68 through 71 provide for a portable erasing apparatus having a feeding path, a casing means, a liquid state catalyst coating means as well as a heating and irradiation means.

THE CLAIMS

Claims 7, 11 and 68 are illustrative of appellants' invention and are reproduced below.

7. A method of erasing a recording agent on a recording surface of a recording medium recorded by a catalyst-containing recording agent comprising a near IR erasable dye, said method comprising the steps of:

feeding the recording medium along a feeding path with respect to a thermal emission and near IR irradiation source such that a heating of the recording medium and an irradiation of near infrared rays onto the recording surface of the recording medium are simultaneously carried out by said thermal emission and near IR irradiation source; and

varying a feeding speed of the recording medium in accordance with a temperature change of said feeding path, a temperature of said feeding path being controlled to be within a temperature range from approximately 200°C through 410°C.

11. An erasing apparatus for erasing a recording agent on a recording surface of a recording medium recorded by a recording agent comprising a near IR-erasable dye, said apparatus comprising:

liquid-state catalyst coating means for coating a liquid-state catalyst on the recording surface of the recording medium; and

erasing processing means for heating the recording medium on which the liquid-state catalyst is coated by said liquid-state catalyst coating means, and for irradiating the near infrared rays onto the recording surface of said recording medium, thereby erasing the recording agent of said recording surface, wherein:

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said liquid-state catalyst coating means and said erasing processing means are disposed along a feeding path (P) through which the recording medium is unidirectionally fed, and wherein said liquid-state catalyst coating means is positioned at an upstream side of said erasing processing means;

a feeding speed of the recording medium is changed in accordance with a temperature change of the feeding path; and

a temperature of the feeding path is controlled to be within a temperature range from approximately 200°C to 410°C.

68. A portable erasing apparatus for erasing a recording agent on a recording medium recorded by the recording agent comprising a near IR erasable dye, said apparatus comprising:

a feeding path for feeding the recording medium in a direction;

casing means;

liquid-state catalyst coating means, provided in a part of said casing means, for coating a liquid-state catalyst on the recording surface of said recording medium; and

heating and near IR irradiation means, provided in a part of said casing means, for heating the recording surface of the recording medium coated with the liquid-state catalyst by said liquid-state catalyst coating means, and for irradiating near infrared rays onto said recording surface, wherein the feeding speed of the recording medium is changed in accordance with a temperature change of the feeding path and wherein the temperature of the feeding path is controlled to be within a temperature range from approximately 200°C to 410°C.

THE REFERENCES OF RECORD

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As evidence of obviousness, the examiner relies upon the following references.

Nagae et al. (Nagae)	5,164,287	Nov. 17, 1992
Japanese Abstract (MITA)	5,125,323	May 21, 1993

THE REJECTIONS

Claims 7, 9, 11, 13 through 42, 44 through 50 and 52 through 67 stand rejected under 35 U.S.C. § 103 as unpatentable over the admitted prior art in view of Nagae.

Claims 68 through 71 stand rejected under 35 U.S.C. § 103 as unpatentable over MITA in view of Nagae.

OPINION

We have carefully considered all of the arguments advanced by appellants and the examiner. We agree with appellants that neither of the aforementioned rejections is well founded. Accordingly, we will not sustain either of the rejections.

The Method Claims

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a prima facie case of unpatentability." See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The examiner relies upon the admitted prior art on pages 1 and 2 of the specification. We find that the admitted prior art teaches a near infrared erasable dye, which decomposition is promoted under the presence of an appropriate catalyst such as a tetra butyl ammonium butyl triphenyl borate. The admitted prior art further teaches that the infrared erasable dye is decomposed due to such a catalyst by irradiation of near infrared rays thereby erasing the recording agent.

The claimed subject matter requires process steps of "varying a feeding speed of the recording medium in accordance with a temperature change." It is the examiner's position that since the claims do not specify any particular speed or temperature change, the claimed limitation encompasses a condition wherein neither speed nor temperature are changed. Hence the process claims need not be disclosed by the art of record. See Final Rejection, page 6. We disagree. The

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method claims require a feeding path operated at a temperature of 200°C to 410°C and varying a feeding speed of the recording medium in accordance with a temperature change. The method claims further require heating the recording medium to a temperature between 200°C and 410°C. Accordingly, we conclude that the heating step, the temperature range and variation of feeding speed in accordance with a temperature change constitute positive method limitations which must be shown by the examiner in order to establish a prima facie case of obviousness. Their absence in the applied prior art constitutes reversible error. Based upon the above analysis, we have determined that the examiner's legal conclusion of obviousness is not supported by the facts. "Where the legal conclusion [of obviousness] is not supported by the facts it cannot stand." In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967).

The Apparatus Claims

When the terms in the claims are written in a "means-plus-function" format we interpret them as the corresponding structure described in the specification or the equivalents

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thereof consistent with 35 U.S.C. § 112, paragraph 6. In re Donaldson, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994)(in banc). The manner in which a "means-plus-function" element is expressed, either by a function followed by the term "means" or by the term "means for" followed by a function, is unimportant so long as the modifier of that term specifies a function to be performed. Ex parte Klumb, 159 USPQ 694, 695 (Bd. App. 1967). Nevertheless, the term "means" as used above is not treated as a means-plus-function element if the claimed "means" includes sufficient structural limitations. See Al-Site Corp. v. VSI International Inc., 174 F.3d 1308, 1319, 50 USPQ2d 1161, 1167 (Fed. Cir. 1999); Unidynamics Corp. v. Automatic Products International Ltd., 157 F.3d 1311, 1319, 48 USPQ2d 1099, 1104-1105 (Fed. Cir. 1998).

Applying the above statutory interpretation to the present case, we determine that the terms "liquid state catalyst coating means" recited in claim 11 is one of the means-plus-function elements. Accordingly, we look to the specification for the structure corresponding to the term and the equivalents thereof to determine the scope of claim 11.

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The "liquid state catalyst coating means" is defined in the specification at page 7, line 23 through page 9, line 7. We find the liquid-state catalyst coating means 10 is described as a liquid state catalyst coating unit 10. We observe that the specification defines the coating means as follows (page 8, line 13 to page 9, line 7)

The liquid-state catalyst coating means 10 comprises a retaining tank 10a for retaining the liquid-state catalyst and a roller assembly arranged inside this retaining tank 10a. The liquid state catalyst retained inside the retaining tank 10a has a catalyst concentration preferably within a range from about 0.5 to about 5 percent by weight. As the solvent, an alcohol, acetone, water, or the like is used. The roller assembly comprises a lower roller 10b, a middle roller 10c, and an upper roller 10d, which three rollers are aligned in as vertical direction. In addition, two adjoining rollers are brought into contact with each other. Note that, at the time of operation of the erasing apparatus, the rollers are driven to rotate in the direction indicated by the arrow in the figure. The lower roller 10b acts as a feeding roller of the liquid-state catalyst. Preferably roughening is applied to the surface thereof so as to enhance the feeding property of the liquid-state catalyst. The middle roller 10c acts as a liquid-state catalyst coating roller, and the periphery thereof is covered by the liquid-state catalyst fed from the lower roller 10b. The upper roller 10d acts as a backup roller with respect to the middle roller 10c. The recording paper is made to pass between the middle roller 10c and the upper roller 10d, and at this time, the recording surface of the recording medium, that is the recording agent retaining surface on which a

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recording is performed by the non-catalyst-containing recording agent composed of the near IR erasable dye is directed so as to come into contact with the middle roller 10c, whereby the recording agent on the recording paper coated by the liquid-state catalyst.

Based upon the above disclosure we interpret the "liquid-state catalyst coating means" as an integral part of the apparatus wherein liquid state catalyst from a retaining tank is coated onto a recording medium by the utilization of rollers.

In comparison, the admitted prior art does not describe a "liquid-state catalyst coating means." We can infer from the admitted prior art that an appropriate catalyst, for example, a tetra butyl ammonium butyl triphenyl borate is applied to the recording surface of the recording medium. We can moreover infer that the catalyst is applied upstream of the "erasing processing means." However, we cannot infer from the admitted prior art whether the catalyst is necessarily in a liquid state. Nor can we infer whether the catalyst was coated on the medium as opposed to being sprayed on the medium or the medium being dipped into the catalyst. Indeed, there is no requirement in the admitted prior art that the liquid-

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catalyst coating means be part of the apparatus. Treatment of the recording medium could have occurred at another time or in a different place.

Based upon the above considerations, even if the examiner was correct in combining the admitted prior art and Nagae in the manner supra, the structure created would, in any event fall short of the invention defined by the claimed subject matter, as the aforesaid claimed subject matter requires features that cannot be achieved by combining the admitted prior art and Nagae. See Uniroyal Inc. v Rudkin-WileyCorp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert denied, 488 U.S. 825 (1988).

As to independent claim 42, we observe that the claim requires the presence of, "temperature detection means," "temperature determination means" and "heat stopping means" which we determine to be means-plus-function elements. We observe that the specification defines these terms in substantial detail at pages 42 to 46 and 48 to 50. Based upon the disclosure therein we determine that the "temperature detection means" constitutes one or more temperature sensors. The "temperature determination means" contains control

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circuits, fans and other equipment which relate to the temperature determination. The "heat stopping means" constitutes a switch for turning off the halogen lamp when the temperature exceeds a preset value.

In comparison neither the admitted prior art nor the reference to Nagae discloses the structural components of the apparatus additionally required by claim 42. Nor has the examiner argued in either the Answer or the Final Rejection that these features are taught by the admitted prior art or Nagae. Based upon the above considerations, the rejection is not sustainable as the structure created in the claimed subject matter requires features that are not achieved by combining the references.

We refer next to the rejection of claims 68 to 71 over MITA in view of Nagae.² We observe that claim 68 requires the presence of "heating and near IR irradiation means, provided in a part of said casing means," which we determine to be means-plus-function elements. We observe that the

² We refer to a translation of the MITA by the United States Patent & Trademark Office received November 1999.

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specification defines these terms in reference to figure 19 on pages 37-38 of the specification. Based upon the disclosure therein we determine that the heating and near IR irradiation unit 164 is provided in a cylindrical casing 158 and additionally contains a concave surface reflecting mirror element 164a and a halogen lamp 164b arranged at the focus of this concave surface reflecting mirror element 164a.

In comparing the claimed subject matter to MITA, the reference discloses an apparatus devoid of "heating and near IR irradiation means, provided in a part of said casing means." The color of MITA's coloring pen is erased or changed by light irradiation. See pages 1, 2 and 6. The light may even have wavelengths including near infrared rays. However, we find no heating means present in MITA's apparatus. Neither do we find near IR irradiation means present in MITA's pen. Indeed the only light source specifically taught is sunlight. See pages 11 and 12. Based upon the above considerations, we find no teaching or suggestion to incorporate either near IR irradiation means or heating means into the erasing apparatus of MITA. Nor do we find any teaching or suggestion in Nagae that a heating and near infrared irradiation means may be

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incorporated into a portable erasing apparatus. We accordingly conclude that the rejection is not sustainable as there is no basis for creating a structure containing the requisite "heating and near IR irradiation means" as required by the claimed subject matter.

DECISION

The rejection of claims 7, 9, 11, 13 through 42, 44 through 50 and 52 through 67 under 35 U.S.C. § 103 as unpatentable over the admitted prior art in view of Nagae is reversed.

The rejection of claims 68 through 71 under 35 U.S.C. § 103 as unpatentable over MITA in view of Nagae is reversed.

The decision of the examiner is reversed.

REVERSED

JOHN D. SMITH)
Administrative Patent Judge)
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BRADLEY R. GARRIS
Administrative Patent Judge

PAUL LIEBERMAN
Administrative Patent Judge

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