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(2) is not binding precedent of the Board.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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte IAN D. MORRISON,
JOHN F. OLIVER, JAMES R. LARSON,
EDWARD ANCZUROWSKI and ANTHONY M. WALLACE

Appeal No. 95-3988
Application 07/986,316[1]

ON BRIEF

Before GARRIS, WARREN and OWENS, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 60, 62, 63, 79 through 83, 88 and 90 and refusing to allow 84 through 87, 89 and 91 as amended subsequent to the final rejection. After the filing of appellants' principal brief, the examiner held claims 84 through 86 and 91 to be allowed and objected to claims 49 through 60, 62 and 63 as being dependent upon a rejected base claim (answer,

[1] Application for patent filed December 4, 1992.

page 2). Thus, claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 48, 79 through 83 and 87 through 90 are before us for consideration on appeal. Claims 19, 21 through 24, 43 and 61 are also of record and have been held to be allowed by the examiner.

Claims 1 and 79 are illustrative of the claims on appeal:

1. A process for forming images which comprises (a) generating an electrostatic latent image; (b) contacting the latent image with a developer comprising a colorant and a substantial amount of a vehicle with a melting point of at least about 25EC, said developer having a melting point of at least about 25EC, said contact occurring while the developer is maintained at a temperature at or above its melting point, said developer having a viscosity of no more than about 500 centipoise and a resistivity of no less than about 10^8 ohm-cm at the temperature maintained while the developer is in contact with the latent image; and (c) cooling the developed image to a temperature below its melting point subsequent to development, wherein excess developer is removed from the developed image subsequent to development, said removal occurring at a temperature above the melting point of the developer.

79. A process for forming images which comprises (a) generating an electrostatic latent image; (b) contacting the latent image with a developer consisting essentially of a colorant, an optional charge control additive, and a substantial amount of a vehicle with a melting point of at least about 25EC, said vehicle consisting essentially of a mixture of a liquid hydrocarbon and a metal soap which is insoluble in the liquid hydrocarbon at a temperature of about 25EC or less, said developer having a melting point of at least about 25EC, said contact occurring while the developer is maintained at a temperature at or above its melting point, said developer having a viscosity of no more than about 500 centipoise and a resistivity of no less than about 10^8 ohm-cm at the temperature maintained while the developer is in contact with the latent image; and (c) cooling the developed image to a temperature below its melting point subsequent to development.

The appealed claims as represented by claims 1 and 79[2] are drawn to a process for forming images wherein an electrostatic latent image is developed by contact with a developer having a melting point of at least about 25EC, while the developer is maintained at a temperature at or above its melting point, subsequent to which the developed image is then cooled to a temperature below the melting point of the developer. In claim 1, the vehicle has a melting point of at least about 25EC. In claim 79, the vehicle also has a melting point of at least about 25EC and consists essentially of a mixture of a liquid

[2] Appellants state in their brief (pages 4-5) that the appealed claims 79 to 83, claims 84 to 86 and each of claims 87, 88, 89 and 90 are separately discussed from appealed claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 48. Thus, we decide this appeal based on appealed claims 1, 79, 84, 87, 88, 89 and 90. 37 CFR § 1.192(c)(5) and (6)(1993).

hydrocarbon and a metal soap which is insoluble in the liquid hydrocarbon at a temperature of about 25EC or less. In claim 1, excess developer is removed from the developed image subsequent to development at a temperature above the melting point of the developer. In appealed claims 87, 88 and 89, the developed electrostatic latent image is transferred to a substrate. In claim 87, the transfer is enhanced by the application of a thermal gradient such that the adhesion of the developed image to the substrate is greater than the adhesion of the image to the imaging member. In claim 88, the transferred image on the substrate is subjected to pressure of from about 100 to 10,000 pounds per square inch. In claim 89, the transferred image on the substrate is subjected to heat and pressure with a pressure roll to enhance the penetration of the solidified developer vehicle material into the substrate. In appealed claim 90, the developed image is transferred to a transparency substrate. According to appellants, the use of a developer vehicle that has a melting point of at least about 25EC reduces or eliminates the use of liquid developers with their attendant odor, emission and disposal considerations (specification, e.g., page 8).

The reference relied on by the examiner is:

Watanabe et al. (Watanabe) 5,229,235 Jul. 20, 1993[3]

The examiner has rejected appealed claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 48, 79 through 83 and 87 through 90 under 35 U.S.C. § 103 as being unpatentable over Watanabe.[4] We affirm with respect to claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 48 and 87 through 90, but reverse with respect to claims 79 through 83.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' principal and reply briefs for a complete exposition thereof.

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[3] According to Watanabe, the effective filing date of this reference is June 15, 1989.

[4] The examiner has withdrawn the ground of rejection the appealed claims under § 103 as being unpatentable over of Watanabe in view of copending application 08/013,132 and of the ground of rejection of appealed claim 90 under 35 U.S.C. § 112, first paragraph (answer, page 2).

Opinion

We have carefully reviewed the record on this appeal and based thereon find ourselves in agreement with the examiner that the claimed process for forming images encompassed by appealed claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 48 and 87 through 90 would have been obvious over the teachings of Watanabe to one of ordinary skill in this art at the time the claimed invention was made.

As pointed out by the examiner, Watanabe discloses the basic process of developing an electrostatic image with a developer comprising a vehicle which has a melting point of not lower than 30E C, wherein the developer is heated above its melting point prior to development and, of course, subsequently cooled after the image has been developed (answer, pages 4-6). With respect to the requirement of appealed claim 1 that "excess developer is removed from the develop image subsequent to development, . . . at a temperature above the melting point of the developer," the examiner contends that this step would have been obvious to one of ordinary skill in this art from the teachings of Watanabe (answer, page 5, lines 15-17, page 6, lines 14-17, and pages 8-10, particularly the sentence abridging pages 8-9). Indeed, the examiner principally points to col. 6, lines 30-34, which reads as follows:

> Finally, the colorant particles **6** affixed to the unnecessary portion in the course of the fixation process are eliminated and, after the process of elimination of the electrical charges, the image is formed on the sensitized base material.

We agree with the examiner because we find that one of ordinary skill in this art would have reasonably inferred that the "colorant particles **6**" (e.g., col. 5, lines 18-31) would have adsorbed on the surface thereof the melted developer vehicle, and together would constitute the "developer."[5] One of ordinary skill in this art would also have reasonably inferred from this passage and from such further

[5] In evaluating the teachings of this reference, we must consider the specific teachings thereof and the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom. *In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

disclosure of Watanabe as Example 2 (e.g., col. 15, lines 41-53), that the developer is maintained above its melting point in order to remove excess "colorant" after the image is developed so that the final image is formed.

Appellants contend that Watanabe teaches away from the invention of appealed claim 1 because (1) the reference requires highly porous materials as "the substrate upon which the image ultimately resides" while the claimed process "enables the use of non-porous substrates" including, *inter alia*, "transparency materials" (principal brief, page 10; reply brief, page 2); and (2) the reference "does not teach or suggest removal of excess developer from the developed image subsequent to development" (principal brief, page 11), that is, does not teach or suggest "the removal of residual liquid (containing no colorant particles) in nonimage areas or excess liquid in image areas" (reply brief, page 2).

We are not persuaded of error in the examiner's position by appellants' arguments for two reasons. First, appellants' arguments do not reflect the limitations of appealed claim 1. We construe the clause of claim 1 considered here to require only that "excess developer" is "removed from the developed image" at a "temperature above the melting point of the developer." It is also clear from claim 1 that the "developer" comprises "a colorant" and "a vehicle" as specified. Thus, there is no requirement in claim 1 that only the "liquid" or "vehicle" of the developer is removed subsequent to development. It is also clear that the substrate on which the latent image is formed or on which the image "ultimately resides" is not specified in any limitation set forth in claim 1. Thus, any substrate capable of participating in the process for forming an image comprising at least the steps set forth in claim 1 is encompassed by the claimed processes. And, second, appellants have identified no disclosure in Watanabe which in fact teaches away from the invention encompassed by claim 1 either by discouraging a process for forming images as set forth in this claim or by teaching a process that functions in a manner divergent from the claimed process. *In re Gurley*, 27 F.3d 551, 552-53, 31 USPQ2d 1130, 1131-32 (Fed. Cir. 1994).

We now turn to appealed claims 87 through 90, which we have separately considered. Each of claims 87 through 89 entails a limitation involved with the transfer of the developed electrostatic latent

image to a substrate while claim 90 specifies that this substrate is a transparency (*see supra* pages 2-3). With respect to claims 87 through 89, the examiner points to certain disclosure of Watanabe (col. 8, lines 46-59, col. 9, lines 1-17, and col. 10, lines 22-55) which evinces that the transfer "may be conducted by heat or pressure," including the use of a "pressure roller," to a substrate that can be impregnated by the developer. We find that one of ordinary skill in this art would have reasonably inferred from this evidence that, as submitted by the examiner, (1) "adhesion to the [substrate] would be greater than to the photosensitive member" with respect to claim 87; (2) that the use of a "pressure roller would have suggested the use of sufficient pressure to "bring about the transfer and impregnation" with respect to claim 88; and (3) a "combination" of heat and pressure could be used for image transfer with respect to claim 89 (answer, pages 5 and 11-12). With respect to claim 90, the examiner finds that Watanabe discloses transparency substrates "for image retention" (col. 9, lines 18-25) as well as the "production of transparencies for overhead projection" and concludes that the use of transparency substrates was within the ordinary skill of the art (col. 10, lines 26-30) (answer, pages 5 and 12).

Upon carefully considering appellants' arguments, we must agree with the examiner's position. We find that appealed claim 87 sets forth the limitation that a "thermal gradient" is applied to "the developed image" in such manner "that adhesion of the developed image to the substrate is greater than the adhesion of the image to the imaging member." We give these terms their plain meaning, and thus we agree with the examiner that the method of image transfer using heat as set forth in the reference would inherently satisfy this claim provision. Appellants' arguments with respect to this issue (principal brief, pages 17 and 20; reply brief, pages 3-4) merely describe the transfer event according to the claim and do not address whether the same conditions occur in the transfer method taught in Watanabe. With respect to appellants' arguments as to the pressure applied according to the transfer method specified in claim 88 (principal brief, pages 18 and 20), we observe that the pressure can be as low as "about 100 . . . pounds per square inch." It is not apparent from appellants' arguments that the "high pressure" discussed therein encompasses the entire pressure range set forth in the claim. We are also unconvinced by appellants' allegation (principal brief, pages 18-19 and 20) that one of ordinary skill in this art would not have combined heat and pressure in a transfer method as provided for in claim 89.

Indeed, we find that one of ordinary skill would have recognized that the use of both heat and pressure would combine the advantages taught by Watanabe for transferring an image prepared with the solid developer vehicle. Furthermore, with respect to appealed claim 90, we recognize that, as pointed out by appellants (principal brief, pages 19-20 and 20-21), the passages from Watanabe cited by the examiner do not specifically teach a transfer method wherein a transparency is the substrate. However, as we set forth above, the examiner points out that Watanabe does disclose the use of transparency substrates "for image retention." We take notice that ordinary transparency film can be impregnated to some extent and thus one of ordinary skill would have been motivated to use such film as the substrate in the bonding transfer method taught in Watanabe (col. 10, lines 22-55) with the reasonable expectation of obtaining a transferred image.

Accordingly, based on our consideration of the totality of the record before us, we have carefully weighed all of the evidence of obviousness found in Watanabe and all of appellant's countervailing evidence of and arguments for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1 through 14, 17, 18, 20, 25 through 42, 44 through 48 and 87 through 90 would have been obvious as a matter of law under 35 U.S.C. § 103. *In re Eli Lilly & Co.*, 902 F.2d 943, 948, 14 USPQ2d 1741, 1743 (Fed. Cir. 1990); *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

We do not reach the same conclusion with respect to appealed claims 79 through 83. We must agree with appellants (principal brief, pages 13-15) that there is no evidence in the passages of Watanabe cited by the examiner (answer, page 5; see also pages 10-11) of a developer "vehicle with a melting point of at least about 25EC" that consists essentially of "a mixture of a liquid hydrocarbon and a metal soap which is insoluble in the liquid hydrocarbon at a temperature of about 25EC or less" as specified in claim 79. Indeed, there is no developer that is liquid "at a temperature of about 25EC or less" disclosed in the reference as Watanabe instructs that the "electrically insulating organic material **5** has a melting point of not lower than 30EC" (col. 4, lines 56-57). It is well settled that in order to establish a *prima facie* case of obviousness, "[b]oth the suggestion and the reasonable expectation of success must be found in the prior art and not in applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442

(Fed. Cir. 1991). In the absence of a suggestion in Watanabe of the developer vehicle required in claim 79 or a scientific explanation why the disclosure of this reference would have reasonably suggested said vehicle, we are left with the inference that the examiner has relied on information gleaned from appellants' disclosure in formulating this ground of rejection. Accordingly, we reverse the ground of rejection of appealed claims 79 through 83 under § 103 as being unpatentable over Watanabe.

The examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

BRADLEY R. GARRIS Administrative Patent Judge	)	
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