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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte SHADI L. MALHOTRA

_____

Appeal No.1998-0189
Application 08/196,933[1]

_____

ON BRIEF

_____

Before: WILLIAM F. SMITH, Administrative Patent Judge, and McKELVEY, Senior Administrative Judge, and SCHEINER, Administrative Patent Judge.

PER CURIAM

DECISION ON APPEAL

[1]Application for patent filed February 15, 1994. According to appellant the application is a continuation-in-part of Application 08/033,917, filed March 19, 1993 and 08/033,918, filed March 19, 1993. The real party in interest is Xerox.

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1 through 4, 7, 8, 10, 13, 14, 41, and 42.[2]

Claims 1 and 14 are illustrative of the subject matter on appeal and read as follows:[3]

1. A recording sheet for receiving printed images which comprises a substrate and an image receiving coating situated on at least one surface of the substrate, said entire image receiving coating comprising an additive material selected from the group consisting of purine compounds, pyrimidine compounds, benzimidazole compounds, imidazolidine compounds, urazole compounds, pyrazole compounds, triazole compounds of the formula

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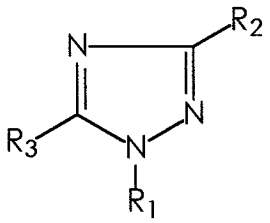
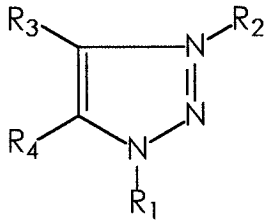
[2]The examiner required appellant under 35 U.S.C. § 121 to elect an ultimate species. Paper No. 10, mailed Oct. 4, 1995, page 1, paragraph 1. Appellant elected 2-aminopyrimidine for the active material, and the substrate of transparent polymeric material. See Paper No. 10, page 1, paragraph 2. (The examiner indicated that appellant elected 2-amidopyrimidine. However, this is a typographic error, because in a previous election, the appellant elected 2-aminopyrimidine (Paper No. 3, filed Nov. 8, 1994, page 2, first full paragraph); and the claims do not recite 2-amidopyrimidine.) Claims 5, 9, 11, 12 and 16 through 34 were withdrawn from consideration because they did not read on the elected species. Appellant "confirmed" the election in Paper No. 11, filed Jan. 5, 1996, page 3, lines 26-29.

Claims 6 and 15 have been allowed. See Paper No. 18, mailed Feb. 4, 1997, page 3, paragraph 8.

[3]The Appeal Brief appendix version of claims 1, 2, 41, and 42 appears to be in error. The record copy of claims 1, 2, 41 and 42 do not recite the phrase "are hydrogen, alkyl, substituted alkyl, amino, mercaptyl, carboxyl, hydrazinyl, aryl, or substituted aryl," but recite "are hydrogen, alkyl, mercapto alkyl, amino, mercaptyl, carboxyl, hydrazinyl, or aryl." See Paper No. 15, filed May 17, 1996.



or



wherein R_1, R_2, R_3, and R_4 each, independently of one another, are hydrogen, alkyl, mercapto alkyl, amino, mercaptyl, carboxyl, hydrazinyl, or aryl, benzotriazole compounds, and mixtures thereof, said substrate being selected from the group consisting of paper and transparent polymeric materials, said image receiving coating being suitable for receiving rapid drying images of an aqueous ink.

14. A recording sheet according to claim 1 wherein the additive is selected from the group consisting of (a) amino pyrimidine compounds; (b) dihydroxyl pyrimidine compounds; (c) pyrimidine dione compounds; (d) thiouracil compounds; (e) orotic acid compounds; (f) pyrimidine trione compounds; (g) guanine compounds; (h) xanthine compounds; (i) pyrazole pyrimidine compounds; (j) pyrimidine acids; and mixtures thereof.

The references relied on by the examiner are:

Tachibana et al. (Tachibana)	5,286,618	Feb. 15, 1994
	(filing date	Nov. 13, 1990)
Takeda et al. (Takeda)	4,970,307	Nov. 13, 1990

Satomura et al. (Satomura)	4,855,282	Aug. 8, 1989
Taylor	4,288,523	Sep. 8, 1981

Additional references discussed by this merits panel are:

Jap. Pat. App. (JP'279)[4]	61-177279	Aug. 8, 1986
Miyamoto et al. (Miyamoto)	4,620,197	Oct. 28, 1986
Sugiyama et al. (Sugiyama)	4,371,582	Feb. 1, 1983

The claims stand rejected as follows:

(1) Claims 1, 10, 13, and 41 stand rejected under 35 U.S.C. § 102(e) as anticipated by Tachibana.

(2) Claims 1, 3, 7, 8, 10, 13, 14, and 41 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Tachibana.

(3) Claims 1, 10, and 41 stand rejected under 35 U.S.C. § 102(b) as anticipated by Takeda.

(4) Claims 1, 2, 10, 13, 41, and 42 stand rejected under 35 U.S.C. § 102(b) as anticipated by Satomura.

(5) Claims 1 through 4, 7, 8, 10, 13, 41, and 42 stand rejected under 35 U.S.C. § 103 (a) as unpatentable over Satomura.

(6) Claims 1, 2, 10, 13, 14, 41, and 42 stand rejected under 35 U.S.C. § 102(b) as anticipated by Taylor.

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[4]Patent & Trademark Office (PTO) English-language translation of JP'279.

We reverse rejections (1) through (6). In addition, we enter a new ground of rejection under the provisions of 37 C.F.R. § 1.196(b), and raise other issues for the examiner and the appellant to consider.

BACKGROUND

The claims are directed to a recording sheet that comprises a paper or a transparent polymeric substrate and a coating thereon. The coating comprises an active material, which includes 2-amino-pyrimidines. The claims require that the recording sheet be suitable for receiving printed images, and that the coating be suitable for receiving rapid drying images of an aqueous ink.

DISCUSSION

Rejections (1) through (5)

The following findings of fact are supported by a preponderance of the evidence.

1. Both Tachibana and Takeda describe light-sensitive materials that comprise a support having thereon a light sensitive silver halide-containing layer.

2. Tachibana's light sensitive layer comprises a silver halide emulsion layer that can be stabilized by the compounds listed at column 10, lines 36-56, which include pyrimidine compounds (column 10, lines 46-51). The silver halide emulsion layer comprises silver halide, developing agents, inhibitors, and a hydrophilic colloid. The developing agents and inhibitors enhance the developability of the silver halide

emulsion layer. Tachibana, column 10, line 61, through column 11, line 10; and column 13, line 53, through column 14, line 10.

3. Takeda's light sensitive layer comprises silver halide, a reducing agent, a polymerizable compound, a base precursor, and a catalyst for decomposing the base precursor to a base. Column 18, lines 8-35; and column 44, lines 25-31. In the heat development process of the light sensitive layer, the catalyst accelerates the formation of base, and the polymerization reaction proceeds rapidly and smoothly in the presence of the formed base. Column 18, lines 59-65. The reducing agent has the function of reducing the silver halide and/or the function of accelerating or "restraining" polymerization of the polymerizable compound. The agent includes, among a list of 20 compounds, 4,5-dihydroxy-6-aminopyrimidines. Column 28, lines 42-65.

4. Satomura describes a recording material that comprises a support having thereon a recording layer. The recording layer comprises an electron-donating colorless dye, and at least one electron-accepting compound. The electron-donating colorless dye is a copolymer of at least one polymerizable colorless dye monomer and at least one comonomer. Column 2, lines 9-15. The polymerizable colorless dye monomer can include a pyrimidine compound attached to a polymerizable monomer. Column 3, lines 45-48; and column 4, lines 1-21, and 25. The two components react with each to form a color.

5. None of the references teach that their respective materials would be suitable for receiving printed images or that their respective layers would be suitable for receiving rapid drying images of an aqueous ink.

6. In the statements of the rejections, the examiner does not explain how the prior art materials meet the properties of the recording sheet required by the claims. See Paper No. 16, mailed Jul. 31, 1996, pages 2 through 3.

7. In response to appellant's arguments that the prior art does not disclose that their respective materials would be suitable to receiving printed image or rapid drying images of an aqueous ink, the examiner asserts that "[t]he cited prior art teaches appellant's claimed coating on appellant's claimed substrate. Consequently, if appellant's claimed article functions as a recording material, then the prior art articles also must function as recording material." Answer, page 5, line 18, through page 6, line 1.

8. Appellant disagrees with the examiner's position as set out in finding 7. Appellant argues that "the examiner must provide factual and technical grounds establishing that the inherent feature <u>necessarily</u> flows from the teachings of the prior art" (emphasis in the original). Appellant further argues that "[t]hat the prior art may <u>possibly</u> have the same features as the claimed invention will not substantiate a finding of inherency; rather, inherency must flow as a necessary conclusion from the prior art,

not simply a possible one" (emphasis in the original), citing In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981). Brief, paragraph bridging pages 29 and 30.

9. In response to appellant's arguments in finding 8, the examiner argues that the prior art teaches "articles possessing all of appellant's claimed structural limitations." Answer, page 6, lines 11-13. The examiner further argues that, unlike the facts in Oelrich,

> the instant case deals with a limitation which does naturally flow from a prior art teaching. . . The four references here do not require interpretation since they simply teach the existence of a known material on a generic substrate. These are the only limitations in the claims on appeal. It 'naturally flows' that if applicant's claimed additive functions as an ink receiving material then the identical additive in the prior art also functions in the same manner (i.e., as an ink jet receiving material) (emphasis in the original).

Answer, paragraph bridging pages 6 and 7.

We agree with appellant's position. The examiner does not explain why the prior art materials would be suitable for receiving printed images or rapid drying images from an aqueous ink. Contrary to the examiner's position as set forth in finding 9, the prior art does not simply teach the existence of a known compound on a generic substrate. As seen in findings 2 through 4, the Tachibana and Takeda light sensitive silver halide containing-layers and the Satomura recording layer are complex compositions that comprise reactive components. The examiner ignores the complexity of the prior art layers. The examiner fails to provide any factual basis stemming from the prior art or

technical reasoning which would reasonably support her determination that the prior art inherently discloses the suitability of the prior art's light-sensitive materials for receiving printed images and rapid drying images of an aqueous ink. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-1951 (Fed. Cir. 1999), citing Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991).

Accordingly, we find that none of the references, Tachibana, Takeda and Satomura, describe the claimed recording sheet required under 35 U.S.C. § 102, or render obvious the claimed sheet. Rejections (1) through (5) are reversed.

Rejection (6)

The examiner states that the article described by Taylor at column 25, lines 32-51, anticipates the claimed recording sheet. Paper No. 16, page 2, paragraph 5. The article at column 25 is a test structure shown in Fig. 3. The article comprises a transparent support having thereon in order: (1) a dye forming layer comprising a cyan developer and gelatin, (2) a layer comprising a polymeric material, (3) an opaque alkaline processing composition, and (4) a transparent sheet. The processing composition contains an opacifying agent, titanium oxide, suspended in an aqueous alkaline solution comprising 4-amino-pyrazolo(3,4)pyrimidine. See also column 11,

lines 31-33; and column 13, lines 4-7. Taylor teaches that the alkaline processing composition is usually applied to a photoexposed diffusion transfer film unit. The composition permeates the emulsion layers of the transfer film unit to initiate development of the latent images therein. Column 12, lines 8-11; and column 13, lines 22-26.

Both the examiner and the appellant ignore the fact that the processing composition relied on by the examiner for the bases of her rejection is in the form of a liquid. The examiner has not explained how such a liquid composition would be suitable for receiving printed images, let alone rapidly absorbing images of an aqueous (liquid) ink.

Accordingly, we find that the examiner has failed to establish a prima facie case of anticipation. Rejection (6) is reversed.

NEW GROUND OF REJECTION UNDER 37 C.F.R. § 1.196(b)

We enter the following new grounds of rejection regarding the elected species "pyrimidine" under the provisions of 37 C.F.R. § 1.196(b). We have not considered the patentability of the other claimed species.

(1) Claims 1 through 4, 7, 10, 13, 41, and 42 are rejected under 35 U.S.C. § 103(a) as unpatentable over JP'279[5] (see PTO English-language translation for cites).

The following findings of fact are supported by a preponderance of the evidence.

10. JP'279 describes an ink jet recording medium that is capable of recording images using a water-based ink containing a water-soluble dye. The recording medium is said to have excellent absorption characteristics so that the printed images can be well preserved. Translation, page 1, lines 4-5, and 15-19.

11. The recording medium of JP'279 comprises a support having thereon an ink-receiving layer. The layer comprises a mercapto-containing nitrogen-containing-hetero-ring compound of formula (I). Translation, page 6, lines 12-23, and page 7, line 16, through page 8, line 5. JP'279 lists eleven compounds as examples of said hetero-ring compounds, including 5-mercapto-1-methyl tetrazole, 2-mercapto-pyrimidine, and 2-mercapto-4-methyl-pyrimidine. Translation, page 7, lines 1-6.

12. The recited "pyrimidine" compound in claim 1 reads on the pyrimidine compounds named in finding 11.

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[5]The Patent Abstract of Japan JP'279 was cited as an "X" reference in the European Search Report that was filed in the Information Disclosure Statement (IDS) filed Jul. 14, 1997, attached to Paper No. 24. The IDS was filed before the mailing of the examiner's answer. According to the European Patent Office, an "X" reference is considered to be "particularly relevant, if taken alone," to the claimed subject matter.

13. JP'279 teaches that the hetero-ring compound (I) is present in an amount of from 0.2 to 100 mmol/m^2, preferably from 1.0 to 50 mmol/m^2, of the support. Translation, page 7, lines 13-15.

14. JP'279 teaches that the support includes paper or transparent thermoplastic films. Translation, page 11, lines 18-25.

15. JP'279 exemplifies two ink-jet recording media that comprise a paper support that is coated with size-pressing liquids (60g/m^2) comprising 2% of polyvinyl alcohol (PVA 117, Kurarei), 5% of white carbon (NIPSHEL LP, Nihon Silica), and 5-mercapto-1-methyl tetrazole salt in amounts of 2.0 or 4.0%. Translation, page 19, Operational examples 5 and 6.

16. JP'279 does not exemplify a jet ink recording medium that is coated with either pyrimidine compound in finding 11.

Although not exemplified, the ink jet recording medium taught by JP'279 meets the requirements of the claims on appeal in regard to: (1) the paper or transparent polymeric substrate, (2) the active pyrimidine compound, (3) the amounts of the active compound and binder resin, and (4) the suitability of the recording medium to receive printed images and images of rapidly absorbing aqueous ink. Accordingly, we hold that the substitution of 1-methyl-5-mercapto tetrazole with either 2-mercapto-pyrimidine or 2-mercapto-4-methyl-pyrimidine, as the hetero-ring compound, in the recording media in finding 15, would have been obvious to the person having ordinary skill in the

art. Such a person would have had a reasonable expectation of successfully obtaining an ink jet recording medium that is capable of recording images using a water-based ink containing a water-soluble dye, and has the benefits described in finding 10.

OTHER ISSUES

If prosecution is resumed in this application, the examiner and appellant should consider the following issues:

(1) Do the recited active benzimidazole compounds in the claims encompass the weakly cationic benzimidazole compounds described by Miyamoto[6], in light of the disclosure of this application?

The instant specification discloses that the benzimidazole compounds are those represented by the general formula at page 52, lines 1-5. The formula does not limit the substituent groups on the benzimidazole structure. Miyamoto describes an ink jet recording sheet. The sheet comprises a paper support and a coating layer thereon that comprises oxidized starch (MS 3800, manufactured by Nihon Shokuhin Kako Co., Ltd.) and a weakly cationic benzimidazole derivative, as a cationic fluorescent brightening agent. See Examples 1 and 2, at column 6, and column 5, lines 43-44.

[6]Miyamoto was cited as an "X" reference in the European Search Report that was filed in the Information Disclosure Statement on Jul. 14, 1997, attached to Paper No. 24.

(2) The examiner and appellant should reconsider the patentability of claim 6 in light of combined teachings of JP'279 and Sugiyama[7].

In view of the disclosure at page 79, lines 6-15, of the instant specification, the term "quaternary acrylic copolymer latex" recited in claim 6 is interpreted by this merits panel to refer to acrylic copolymer latexes that comprise a quaternary ammonium moiety.

As set forth in finding 15, JP'279 describes an ink jet recording medium that comprises 1-methyl-5-mercapto tetrazole. Claim 6 recites that the active compound can be a "tetrazole." JP'279 further teaches that if the water-resistance of the ink image on the recording medium needs to be enhanced, the recording medium can comprise a cationic resin. The cationic resin includes polymers comprising a quaternary ammonium moiety. Translation, page 8, lines 7-9, and page 8, line 23, through page 9, line 11.

Sugiyama describes an ink jet recording sheet that comprises a basic polymer latex. The polymer latex includes quaternary ammonium-containing acrylic copolymers. Column 4, lines 22-41, and 60-65; column 7, line 26, through column 8, line 25; and for example, polymers (4), (5), (7), and (8), at columns 8 through 9. Sugiyama teaches that since the basic polymer latex is insoluble in water and has a strong mordanting

[7]Sugiyama is cited on the form PTO-1449 filed Oct. 31, 1994, attached to Paper No. 4.

power for the dye in an aqueous ink, the water resistance properties of the images formed by ink jet recording are excellent. In other words, when recorded images are splashed with water, or immersed in water for a long period of time, the images are not affected. Column 3, lines 59-64. This is the property sought by JP'279.

The examiner should determine whether the subject mater recited in claim 6 as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which this subject matter pertains over the combined teachings of JP'279 and Sugiyama.

SUMMARY

Rejections (1) through (6) are reversed. We have entered a new ground of rejection of claims 1-4, 7, 10, 13, 41, and 42 under the provisions of 37 C.F.R. § 1.196(b). We have raised other issues for the examiner and the appellant to consider in the event of further prosecution.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63,122 (Oct. 21, 1997)). 37 C.F.R. § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 C.F.R. § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .
>
> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

REVERSED; 37 C.F.R. § 1.196(b)

William F. Smith Administrative Patent Judge	))))) BOARD OF PATENT
Fred E. McKelvey Administrative Patent Judge	)) APPEALS AND)) INTERFERENCES
Toni R. Scheiner Administrative Patent Judge	)))

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