

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ELIZABETH PUI-LU CHANG

Appeal No. 95-0015
Application No. 07/869,694¹

HEARD: September 17, 1997

Before KIMLIN, WEIFFENBACH, and OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's rejection of claims 1-3, 5, 6 and 8-17. Claim 4 has been canceled. Claims 7 and 18 stand objected to as being dependent upon a rejected base claim. Claim 1 is illustrative and is appended to this decision.

¹ Application for patent filed April 16, 1992.

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THE REFERENCES

Hirabayashi et al. (Hirabayashi)	4,892,807	Jan. 9, 1990
Mihara et al. (Mihara)(continuation of application filed Nov. 14, 1989)	5,149,619	Sep. 22, 1992
Johnson et al. (Johnson)	5,164,292	Nov. 17, 1992 (filed Dec. 27, 1990)

J. M. Harbison and H. E. Spencer, "Chemical Sensitization and Environmental Effects", in *The Theory of the Photographic Process* 149 (T. H. James ed., Macmillan Publishing Co., 4th ed. 1977) (James).

THE REJECTION

Claims 1-3, 5, 6 and 8-17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Mihara in view of Johnson, James and Hirabayashi.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with the examiner that appellant's claimed invention would have been obvious to one of ordinary skill in the art at the time of appellant's invention over the applied prior art. Accordingly, the aforementioned rejection will be affirmed.

Appellant's claimed invention is a method for sensitizing tabular silver bromiodide grains or silver bromide grains doped with selenium or iridium by contacting the grains with a

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specified benzothiazolium salt or hydrolyzed benzothiazolium salt and a specified mercaptobenzotetrazole and then heating to complete the chemical sensitizing.

Mihara discloses a method for spectrally sensitizing silver halide grains by including in an emulsion containing the grains at least one specified sensitizing dye in combination with at least one compound represented by Mihara's formula (IIa) or (IIb) (col. 1, line 8-14; col. 2, line 65 - col. 4, line 30). When Y in Mihara's formulas (IIa) and (IIb) is sulfur, these formulas can represent compounds which are represented by, respectively, formulas (B) and (A) in appellant's claim 1. Mihara teaches that known antifoggants including 1-phenyl-5-mercaptotetrazole, which is among the mercaptobenzotetrazoles encompassed by formula (C) in appellant's claim 1, can be added to the emulsion (col. 29, lines 43-52).

Mihara indicates that silver halides generally, including silver iodobromide and silver bromide, can be used in the method (col. 28, lines 14-23), but does not disclose use of tabular silver bromiodide or silver bromide grains doped with selenium or iridium. To remedy this deficiency, the examiner relies upon Johnson, which teaches that silver halide emulsions doped with iridium and selenium during crystal growth exhibit reduced

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pressure sensitivity and reduced reciprocity failure without having significantly decreased speed (col. 2, lines 13-21). Johnson's preferred silver halide grains are tabular silver bromiodide grains (col. 2, lines 25-26; col. 2, line 67 - col. 3, line 2).

Mihara teaches that "[t]he compounds represented by formula (IIa) or formula (IIb) may be added to the emulsion before or after the addition of the sensitizing dyes" (col. 24, lines 21-23) and that the sensitizing dyes can be "dispersed at any stage during the preparation of the silver halide emulsion" (col. 23, lines 59-65). Hirabayashi teaches that substituted 1-phenyl-5-mercaptotetrazole compounds are effective antifoggants (col. 5, lines 57-63; col. 9, lines 18-19) and can be added at any time from before forming the silver halide grains to after completing the chemical ripening but before coating (col. 8, lines 47-58). Mihara and Hirabayashi do not specifically disclose adding the compounds represented by formulas (IIa) and (IIb) and a mercaptobenzotetrazole prior to heating. The reference relied upon by the examiner as providing a motivation to do so is James. This reference teaches that heat treatment usually is needed when a silver halide photographic emulsion is chemically sensitized,

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and that the sensitizing reaction should take place at a higher temperature than that at which the sensitizer is added (page 149).

Appellant argues that in Mihara, all of the compounds recited in appellant's claims are added after chemical ripening (brief, page 5). We are not persuaded by this argument because Mihara teaches that the compounds represented by formulas (IIa) and (IIb) may be added before the addition of the sensitizing dyes, and that the sensitizing dyes can be added at any time during the preparation of the emulsion (col. 23, lines 59-65; col. 24, lines 21-23).

Appellant argues that there is no disclosure by Hirabayashi that there is any advantage to adding a mercaptotetrazole at a particular time (brief, page 5). In view of the teaching by Hirabayashi that such a compound can be added at any time from before forming the silver halide grains to after chemical ripening but before coating, it would have been *prima facie* obvious to one of ordinary skill in the art to add the compound before chemical ripening.

Appellant argues that "while the Examiner is correct that there are general teachings of addition of stabilizers to emulsions prior to chemical ripening, there is no teaching or

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suggestion that would lead one to the combination of materials and processing conditions set forth in the instant invention (brief, page 7). We do not find this argument to be convincing because it would have been *prima facie* obvious to one of ordinary skill in the art to use Johnson's grains in the Mihara method to obtain reduced pressure sensitivity and reduced reciprocity failure without having significantly decreased speed (col. 2, lines 13-21), and to sensitize the grains prior to heating in view of James' teaching that the sensitizing reaction should take place at a higher temperature than that at which the sensitizer is added (page 149).

Appellant argues regarding claims 2 and 8 that the applied references do not suggest use of chemical sensitizers of gold and sulfur and heating after adding the chemical and spectral sensitizers (brief, pages 7-8). Mihara (col. 29, lines 10-37) and Johnson (col. 6, lines 5-7) both disclose use of chemical sensitizers of gold and sulfur. One of ordinary skill in the art would have been motivated to add the chemical and spectral sensitizers prior to heating in view of the teaching by James as discussed above.

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Appellant argues concerning claims 3 and 9 that the prior art does not show particular benefits of using the recited concentrations of compounds of formulas A or B in appellant's claim 1 (brief, page 8). The examiner finds that the amounts of these compounds disclosed by Mihara (col. 24, lines 3-9) overlap with the amounts recited in appellant's claims 3 and 9 (answer, page 9). Since this finding appears to be reasonable and has not been controverted by appellant, we accept it as fact. See *In re Kunzmann*, 326 F.2d 424, 425 n.3, 140 USPQ 235, 236 n.3 (CCPA 1964). Accordingly, we conclude that the invention recited in appellant's claims 3 and 9 would have been *prima facie* obvious to one of ordinary skill in the art. See *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Appellant argues that selection of the preferred structures of compounds A or B in claims 5 and 6 and structure C in claims 16 and 17 would not have been obvious to one of ordinary skill in the art (brief, page 8). As pointed out by the examiner (answer, pages 9-10), Mihara's formulas IIa and IIb (col. 4, lines 1-30) encompass the compounds recite in appellant's claims 5 and 6. Mihara discloses (col. 29, lines 51-52) the mercaptobenzotetrazole recited in claim 17 and Hirabayashi discloses (col. 5, lines 57-63) that recited in claim 16.

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Accordingly, use of these compounds would have been *prima facie* obvious to one of ordinary skill in the art for the reasons given above.

Appellant argues that the references would not have suggested using the amounts of selenium and iridium recited in appellant's claims 13 and 14 (brief, page 8). The examiner finds (answer, page 10) that these amounts overlap with the amounts disclosed by Johnson. Since this finding appears to be reasonable and has not been challenged by appellant, we accept it as fact. See *Kunzmann*, 326 F.2d at 425 n.3, 140 USPQ at 236 n.3. Thus, we conclude that the invention recited in appellant's claims 13 and 14 would have been *prima facie* obvious to one of ordinary skill in the art. See *Malagari*, 499 F.2d at 1303, 182 USPQ at 553.

For the above reasons, we conclude that appellant's claimed invention would have been *prima facie* obvious to one of ordinary skill in the art over the applied references.

Appellant argues that Figs. 1 and 2 of appellant's specification indicate that appellant's invention achieves better speed and a lower fog growth rate in the chemical ripening step

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(brief, page 5). For the following reasons, these figures are not sufficient for overcoming the *prima facie* case of obviousness.

First, appellant has not established that the tests whose results are shown in these figures provide a comparison with the closest prior art. See *In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984). Appellant has not discussed what the closest prior art is or explained why the data relied upon provide a comparison with this art.

Second, it is not enough for appellant to show that the results for appellant's invention and the comparative examples differ. The difference must be shown to be an unexpected difference, and appellant has not done so. See *In re Freeman*, 474 F.2d 1318, 1324, 177 USPQ 139, 143 (CCPA 1973); *In re Klosak*, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). Particularly, appellant has not explained why the results in Fig. 2 for appellant's method of Example 5 are unexpected compared to the similar results for the comparative method of Example 3.

Third, the evidence relied upon by appellant is not commensurate in scope with the claims. See *In re Grasselli*,

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713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980). *cert denied*, 488 U.S. 986 (1988). Appellant's claims encompass a wide range of benzothiazolium and mercaptobenzotetrazole compounds, yet in the tests relied upon by appellant, only a small number of them were used. We find in the evidence of record no reasonable basis for concluding that the great number of compounds encompassed by appellant's claims would behave as a class in the same manner as the particular compounds tested. See *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972).

For the above reasons, the evidence and arguments of record, on balance, lead us to conclude that appellant's claimed invention would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103.

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DECISION

The rejection of claims 1-3, 5, 6 and 8-17 under 35 U.S.C. § 103 as being unpatentable over Mihara in view of Johnson, James and Hirabayashi is affirmed.

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
)	
)	
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)	BOARD OF PATENT
CAMERON WEIFFENBACH)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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TERRY J. OWENS)	
Administrative Patent Judge)	

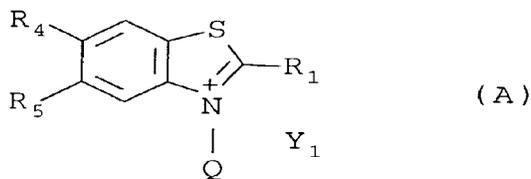
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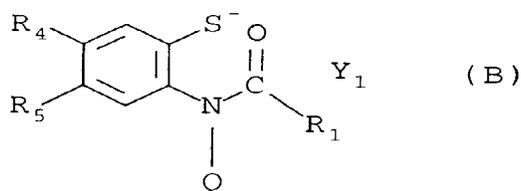
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APPENDIX

1. A method of sensitizing comprising providing tabular silver bromiodide grains or silver bromide grains doped with Se and Iridium, bringing said grains into contact with a benzothiazolium salt or hydrolyzed benzothiazolium salt comprising



or



wherein

R₁ is hydrogen, alkyl of from 1 to 8 carbon atoms, or aryl of from 6 to 10 carbon atoms,

R₄ and R₅ are independently hydrogen or halogen atoms, aliphatic or aromatic hydrocarbon moieties optionally linked through a divalent oxygen or sulfur atom; or cyano, amino, amido, sulfonamido, sulfamoyl, ureido, thioureido, hydroxy, or -C(O)M groups, wherein M is chosen to complete an aldehyde, ketone, acid, ester, thioester, amide, or salt;

Y₁ is a charge balancing counter ion; and

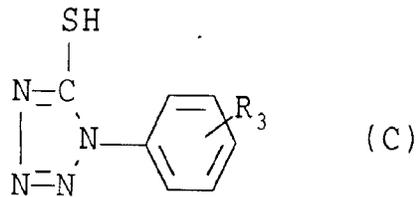
Q is a substituent of the formula:

-LCONHSO₂R, -LCONHSO₂NHCOR alkyl, sulfoalkyl, phosphoalkyl, hydroxyalkyl, or L-CONH₂, wherein

L is an alkyl group of from 1 to 8 carbon atoms and

R is an alkyl group of from 1 to 8 carbon atoms or a primary amino group,

bringing said grains into contact with a mercaptobenzotetrazole in an amount between about 5×10^{-6} and 1×10^{-4} mole/Ag mole, said mercaptobenzotetrazole comprising



wherein

R₃ is -CH₂CONH₂, -NHCOR₂, -NHCONHR₂, -LCONHR₂, -COOH, -SO₃, -OH, -SO₂NH₂, -SO₂NHR₂, halogen, alkyl, hydrogen, alkoxy, or aryloxy,

R₂ is an alkyl with 1-8 carbon or an aryl of 6-10 carbon atoms,

and heating to complete chemical sensitizing of said grains with the proviso that compounds A or B, and C are added prior to said heating to complete chemical sensitizing.

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APPLICATION NO. 07/869,694

APJ OWENS

APJ KIMLIN

APJ WEIFFENBACH

DECISION: *AFFIRMED*

Typed By: Jenine Gillis

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