Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JERROLD N. POSLUSNY,
PAUL B. MERKEL,
LAWRENCE G. ANDERSON,
JARED B. MOOBERRY,
and
DAVID H. BOWN

Appeal No. 1997-3701
Application No. 08/141,457

ON BRIEF

Before GARRIS, LIEBERMAN, and JEFFREY T. SMITH, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 2 through 7, 9 through 13, 15, 17 through 22 and claim 25, which are all the claims pending in this application.[1] Claims 1, 8, 14, 16, and 23 have

[1] An amendment subsequent to the Final Rejection received October 11, 1995, inserted new claim 25. See the Advisory Action mailed October 25, 1995.

been canceled. Claims 24, 26 and 27 have been allowed.

THE INVENTION

The invention is directed to a photographic element having a layer comprising a 1-aryl-4-aryloxy-2-pyrazolino-5-one magenta dye forming coupler. A separate compound is present which contains a sulfide, sulfoxide, or sulfone moiety. Other features of the claimed subject matter are set forth in the illustrative claim appended to this decision.

THE CLAIM

Claim 2 is illustrative of appellants' invention and a copy of the claim is appended to this decision.

THE REFERENCES OF RECORD

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

Lestina	3,519,429	Jul. 07, 1970
Fuseya et al. (Fuseya)	4,246,333	Jan. 20, 1981
Lok et al. (Lok)	4,451,557	May 29, 1984
Ogawa et al. (Ogawa)	4,511,649	Apr. 16, 1985
Okamura et al. (Okamura)	4,708,927	Nov. 24, 1987
Rody et al. (Rody)	4,933,271	Jun. 12, 1990
Ichijima et al. (Ichijima)	4,985,336	Jan. 15, 1991
Rody et al. (Rody)	5,006,665	Apr. 09, 1991
Negoro et al. (Nogoro)	5,360,711	Nov. 01, 1994
Kaneko (J63/220142)[2] (published Japanese Kokai Patent Application)	JP 63-220,142	Sep. 13, 1988

[2]We rely on the attached PTO translation.

Yoshimoto (J61/250641)[3] JP 61-250,641 Nov. 07, 1986
(published Japanese Kokai Patent Application)

THE REJECTIONS

Claims 2 through 7, 9 through 13, 15 and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ichijima in view of Rody '271, Rody '665, Negoro or J63/220142.

Claims 2, 4 through 7, 9 through 12, and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ichijima in view of Lok or Fuseya.

Claims 2 through 7, 9 through 12, and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ichijima in view of Okamura or J61/250641.

Claims 2 through 7, 11 through 13, 15 and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lestina in view of Rody '271, Rody '665, Negoro or J63/220142.

Claims 2, 4 through 7, 11, 12, 17 through 22 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lestina in view of Lok or Fuseya.

Claims 2 through 7, 11, 12, 17 through 22 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lestina in view of Okamura or

[3]We rely on the attached PTO translation.

J61/250641.

Claims 2 through 7, 11 through 13, 15 and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Rody '271, Rody '665, Negoro or J63/220142.

Claims 2, 4 through 7, 11, 12, and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Lok or Fuseya.

Claims 2 through 7, 11, 12, and 17 through 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Okamura or J61/250641.

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner, and agree with the examiner, substantially for the reasons set forth in the Answer, that the rejections of claims 2 through 7, 9 through 13, 15, 17 through 22 and 25 are well founded. Accordingly, we affirm each of the rejections and add the following for emphasis.

As an initial matter, the appellants have stated that claims 2, 3, 6, 9 through 13, 15, 17, and 18 are grouped together for patentability. Claims 4, 5, 19 through 22 and 25 should be considered separately. See Brief, page 4. Accordingly, we select claim 2, an independent claim, as representative of appellants' claims 2, 3, 6, 9 through 13, 15, 17 and 18 that are grouped together and grant separate consideration to claims 4, 5, 7, 19 through 22 and 25, the balance of the claims. See 37 C.F.R. § 1.192 (c)(7)(1995).

The Rejections under 35 U.S.C. § 103(a)

Each of the primary references, which we have identified as Ichijima, Lestina, and

Ogawa, are directed to photographic materials comprising magenta dye forming couplers

of the claimed subject matter. Furthermore, each of Ichijima, Lestina, and Ogawa disclose the addition of compounds for preventing fog, and/or stabilizing photographic performance.

Specifically, Ichijima discloses a silver halide photographic light sensitive material containing a red silver halide emulsion layer among other color emulsion layers. Among the couplers disclosed by Ichijima, numbers (56) to (60), (64), and (65) fall within the magenta couplers of the claimed subject matter. Furthermore, 5-pyrazolone magenta couplers are generally disclosed at column 75, lines 31 to 41. We find that the photographic emulsions can contain various additional compounds for the purpose of preventing fog or stabilizing photographic performances. See column 78, lines 30-34.

Lestina discloses silver halide emulsions comprising magenta forming couplers containing 5-pyrazolone coupler moieties. See column 1, lines 13-36 and column 2, lines 44-47. Pyrazolone couplers are disclosed at column 3, line 37 through column 6, line 7. We find that the coupler of Example 17 falls within the scope of the claimed subject matter. We further find that the couplers may be used in combination with stabilizing agents. See column 6, lines 9-13.

Ogawa discloses photographic couplers. See column 1, lines 6-9. We find that the couplers include magenta color image forming couplers including those of the 5-oxo-2-pyrazoline type. See column 4, lines 58-60 and column 5, lines 27-32 (VII). The

couplers of Examples (12), (13) and (15) fall within the scope of the claimed subject matter. See columns 15-16. Ogawa discloses that "[f]or the purposes of preventing fog or stabilizing the photographic properties during preparation, storage, and/or photographic
processing of the photographic light-sensitive material, a variety of compounds can be incorporated into photographic emulsions." See column 24, lines 62-66.

However, each of the references to Ichijima, Lestina, and Ogawa lack a compound within the scope of formula (VI), (VII), or (VIII) of the claimed subject matter directed to sulfides, sulfoxides, or sulfones respectively.

The examiner appropriately relies upon references to Rody '271, Rody '665, Negoro, J63/220142, Lok, Fuseya, Okamura, or J61/250641 for their disclosure of a stabilizing compound within the scope of the claimed subject matter. Moreover, many of the secondary references disclose magenta layers comprising pyrazolone couplers in combination with a stabilizer.

Specifically, Rody '271 discloses tetrahydrothiopyran compounds effective as stabilizers for dyes and dye couplers in photographic layers, each of the tetrahydrothiopyran compounds having the requisite sulfide, sulfoxy, or sulfone moieties required by the claimed subject matter. See Abstract and column 2, lines 6-18. Rody '271 discloses that magenta dyes and couplers in and of themselves are not sufficiently

fast to light and there is thermal instability in magenta couplers when stored in the dark. See column 1, lines 56-58. We find that the magenta layers to which the stabilizers of Rody '271 are added contain pyrazolone couplers. See column 20, lines 62 to column 21, line 65. Moreover, we find that the pyrazoline group disclosed by Rody '271 includes pyrazolone compounds that fall within the scope of the claimed subject matter such that when R_{16} is aryl, Q' is a group bonded to the pyrazole ring via O, and R_{17} is alkyl, pyrazolone compounds are present which are within the scope of the claimed subject matter. Id.

Rody '665 similarly discloses tetrahydrothiopyran compounds having the requisite sulfide, sulfoxy, or sulfone moieties required by the claimed subject matter. See Abstract and column 1, lines 5-40. These compounds function as stabilizers for color photography recording materials. See column 1, lines 6-7, column 11, lines 62-66 and column 12, lines 15-17. The proportion of stabilizer added is disclosed at column 12, lines 30-34. We find that the addition of the aforesaid stabilizers to magenta couplers is disclosed at

column 16, line 62, to column 18, line 48. The magenta couplers disclosed include 1-aryl-5-pyrazolones. See column 16, lines 62-63. For the same reasons discussed supra, with respect to Rody '271, the magenta couplers disclosed includes pyrazolone couplers within the scope of the couplers of the claimed subject matter. Id.

Negoro discloses color photographic material having a layer with the requisite sulfide, sulfoxy, or sulfone moieties required by the claimed subject matter. See Abstract and column 2, line 21 to column 3, line 16. We find that compounds comprising the requisite sulfide, sulfoxy, or sulfone moieties, provide a dye image having greatly improved fastness to light and do not suffer from a change in color balance by the fading of the three colors of yellow, magenta and cyan. See column 1, line 64 to column 2, line 6. Negoro, in reference to other patent publications that, "can be preferably applied," to his invention equates antifading agent with image stabilizers. See column 40, lines 34-36 and the Table bridging columns 41 and 42. Accordingly, we conclude that the compounds

disclosed by Negoro function as stabilizers as required by each of the primary references. Furthermore, the magenta couplers include 5-pyrazolones. See column 30, lines 46-51. The proportions of compounds (I), (II), and (III), sulfides, sulfoxys, and sulfones utilized is disclosed at column 35, lines 57-63 and overlap those of the claimed subject matter. See claims 21 to 22.

J63/220142 is directed to a method for improving color photographic images. See page 7. This object is achieved by the addition of sulfur containing compounds utilized in conjunction with photographic material and processing. Id. We find that sulfoxy and sulfone containing compounds are disclosed which are within the scope of

the claimed subject matter. See page 7. The compounds are described as improving the stability of organic coloring materials against light. See page 6. They are added to photographic image forming dyes and couplers including magenta couplers. See page 13. The magenta couplers include 5-pyrazolone compounds. See page 14, 16 and 17. The sulfur containing stabilizers designated as A-1 to A-29, page 10-11 are added to magenta dye layers and are further described as antifading agents. See pages 29-31 and 35.

Lok discloses a color photographic element having a magenta dye forming coupler comprising a latent image stabilizer compound of the invention. See column 7, lines 52-65. The compounds disclosed include heterocyclic organic compounds having sulfur as one of the hetero atoms and accordingly fall within the scope of the claimed subject matter wherein, "R_8 and R_9 may together form a ring including the sulfur atom." See Abstract, and column 2, line 36-68. The sulfur containing compounds are exemplified by Compounds B and C and K and L. See column 4, lines 17-33 and column 5, lines 25-39.

Fuseya discloses a development inhibitor precursor containing the requisite sulfide group. See Abstract, column 1, lines 61-62, and column 2, lines 17-60, column 3, line 4 to column 4, line 15. The compounds are present in photographic elements. See column 2, lines 64-68 and column 6, lines 40-53. Fuseya further discloses that the

compounds have very low degradation effect to dye images. See column 5, lines 3-7. Moreover, the compounds when incorporated into photosensitive materials do not injure the photographic properties, do not reduce the photosensitivity of the materials and inhibit fog formation. See column 5, lines 31-53. Accordingly, we conclude that these compounds are stabilizers

According to the examiner, Okamura similarly discloses a development inhibitor precursor compounds containing a sulfide group and a sulfone group within the scope of the claimed subject matter. See structural formula (I) column, 2, lines 5-10. Significantly, the appellants have not challenged the examiner's finding. The inhibitor compounds are present in photographic elements. See column 1, line 52 to column 2, line 15. The compound may be added to any photographic layer. See column 3, lines 11-15. The amount of the compound added is disclosed at column 3, lines 29-31. Okamura discloses that the compounds of the invention are stable while being maintained in a light sensitive material and give little or not deterioration in photographic properties. Moreover, the compounds can inhibit fog. See column 9, lines 9-32. Accordingly, we conclude that these compounds are likewise stabilizers.

J61/250641 discloses sulfide compounds which are effective magenta coupler pigment image stabilizers for photographic material. See page 30. The magenta couplers include compounds having pyrazolone moieties and specifically includes those of Lestina.

See pages 3 and 16. The sulfur compounds further act as antifading agents. See page 5. The compounds disclosed are designated as Formulas (I) and (II) and have sulfide groups present therein. See pages 5 and 6. Accordingly, we conclude that these compounds function as photographic element stabilizers.

Based upon the above analyses, we conclude that it would have been obvious to the person having ordinary skill in the art to have added the respective sulfide, sulfoxy or sulfone stabilizers disclosed by Rody '271, Rody '665, Negoro, J63/220142, Lok, Fuseya, Okamura, or J61/250641 to a magenta layer containing pyrazolone couplers of the claimed subject matter in view of the teachings of the primary references that suggest the addition of stabilizers, in conjunction with the teachings of the secondary references which further disclose the benefits obtained from the addition of stabilizers. Based upon

the above findings of fact and analysis, we conclude that the combination of the references of record is sufficient to establish a **prima** facie case of obviousness.

As a rebuttal to the prima facie case of obviousness, appellants assert that, "[n]arrower ranges are patentable with a showing of unexpected results." See Brief, page 6. It is argued that the comparative data presented in Tables 1 through 4 of the specification and a Declaration by Merkel under 37 CFR § 1.132 which unexpectedly demonstrate an increase in the stability, overcomes the prima facie case of obviousness. See Brief, pages 5 and 14. Having reviewed the data present, we conclude that the showing in Tables 1 to 4 and the Merkel Declaration is not commensurate in scope with the degree of protection sought by the claimed subject matter. See In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983); In re Tiffin, 448 F.2d 791, 792, 171 USPQ 294, 294 (CCPA 1971). It is well settled that "[o]bjective evidence of nonobviousness must be commensurate in scope with the claims.") (quoting In re Lindner, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); In re Dill, 604 F.2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979) ("The evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which it pertains").

The claimed subject matter is directed to the addition of sulfides (VI), sulfoxides (VII), or sulfones (VIII). Each group of compounds is broadly recited and reads on

aliphatic, aromatic and sulfur containing heterocyclic compounds. Conservatively, formulas

(VI), (VII), or (VIII) read on thousands of compounds which fall within the scope of each formula. In comparison, Tables 1, 3 and 4 are devoid of any examples directed to a species of sulfide. Only Table 2 contains a single species of sulfide designated as S_2. See specification, page 14. This compound di–lauryl sulfide, is utilized once, in Table 2. Similarly, Table 1, 2 and 4 are devoid of any examples directed to a sulfone compound. Only Table 3 is directed to a single species of sulfone designated as S_9, bis-4,4'-dimethyl phenyl sulfone. See specification, page 15. This compound is only utilized once in Table 4 and then in conjunction with a second solvent, B_2, oleyl alcohol. Accordingly, it cannot be determined whether the unexpected results obtained by appellants are a result of the specific sulfide and sulfone compound utilized by the appellants or could be expected for each compound within the generic formulas directed to sulfides and sulfones as a whole.

In addition, claim 2, directed to a photographic element comprising a magenta coupler and a sulfide, a sulfoxide or a sulfone compound, is devoid of any proportions for either the coupler or the sulfur compound. Furthermore, we find that the specification discloses only two ratios of coupler to solvent. As stated in the specification, "aqueous dispersions were prepared by adding an oil phase containing 1.0

g of coupler, 1.0 gram of either B1, or S1."[4] See specification, page 29. A single additional ratio is disclosed in Table III wherein a single coupler identified as A1 is mixed in a 1:1 ratio with one solvent or a mixture of two solvents each being present in an amount of one half of the total solvent present in the mixture. Accordingly, at most we have a single coupler mixed in a ratio of 1:0.5 to 1.0. In accord with our findings above, it cannot be determined whether the unexpected results obtained by appellants are a result of the specific ratios of sulfide, sulfoxide and sulfone compounds utilized by the appellants or would be expected regardless of the ratios of any coupler to any sulfide, sulfoxide, or sulfone compound within the scope of the claimed subject matter.

As to claims 21 and 22 directed to specific weight ratios of the coupler to sulfide, sulfoxide or sulfone, the sole ratio directed to a sulfone is 1:0.5, the sole ratio directed to a sulfide is 1:1, and the only ratios directed to a sulfoxide is 1:0.5 and 1 to 1. Claim 21 requires that, "the weight ratio of coupler Ia or Ib to the sulfide, sulfoxide or sulfone is from 1:0.5 to 1:5." Since the data shows only one value for two of the species and only a second value with respect to the third species, the evidence presented is not commensurate in scope with the claimed subject matter. Further, the same analysis applies to claims 22. A showing with respect to only one or two specific ratios is insufficient to meet the scope of the claimed subject matter. As above, it cannot be

[4]B1 is tritolyl phosphate. See specification, page 29.

determined whether the unexpected results obtained by appellants are a result of the specific ratios of sulfide, sulfoxide, and sulfone compounds utilized by the appellants or would be expected regardless of the ratios of any coupler to any sulfide, sulfoxide, or sulfone compound within the scope of the claimed subject matter.

With respect to the balance of the claims separately argued, we adopt the position of the examiner as set forth on pages 26 and 27 of the Answer.

We further note that the Merkel Declaration contains a statement that Merkel, "did not expect that the conjoint use of sulfide, sulfoxide or sulfone compounds of the invention with the aryloxypyrazolone couplers of the invention would improve the keeping of the couplers." See declaration, page 2. The issue before us however, is directed to the scope of the showing as opposed to the specific unexpected results shown in Tables 1 to 4 and the statement in the declaration cited above. Accordingly, we do not find the declaration to be persuasive of patentability or entitled to more than limited weight.

One further issue is worthy of consideration. Although the examiner has stated that the, "magnitude of improvement of the properties of raw stock keeping in Appellants' comparative data of the specification are unexpected," Answer, page 23, the improvement in stability of the layer in our view is not entirely unexpected. Each of the secondary references, in their own right, teaches that the addition of sulfur compounds, whether sulfide, sulfoxy or sulfone moieties, improve the stability of photographic elements including magenta layers comprising pyrazolone couplers. In our view, it would be expected, based on the numerous teachings of record present, that the addition of the sulfur containing stabilizer not only improve the stability of pyrazolone couplers disclosed

in the secondary references, but also improve the stability of the pyrazolone couplers of the claimed subject matter. Accordingly, we are not entirely convinced that the showing presented in Tables 1 to 4 is directed to an improvement in properties which are unusual or unexpected.

Based upon the above reasons and those set forth in the Answer, we have determined that the examiner has established a **prima facie** case of obviousness. Upon reconsideration of all the evidence and argument submitted by appellants, we have determined from the totality of the record that the preponderance of the evidence weighs in favor of obviousness within the meaning of 35 U.S.C. § 103. See **In re Oetiker**, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

DECISION

The rejection of claims 2 through 7, 9 through 13, 15 and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Ichijima in view of Rody '271, Rody '665, Negoro or J63/220142 is affirmed.

The rejection of claims 2, 4 through 7, 9 through 12, and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Ichijima in view of Lok or Fuseya is affirmed.

The rejection of claims 2 through 7, 9 through 12, and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Ichijima in view of Okamura or J61/250641

is affirmed.

The rejection of claims 2 through 7, 11 through 13, 15 and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Lestina in view of Rody '271, Rody '665, Negoro or J63/220142 is affirmed.

The rejection of claims 2, 4 through 7, 11, 12, 17 through 22 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Lestina in view of Lok or Fuseya is affirmed.

The rejection of claims 2 through 7, 11, 12, 17 through 22 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Lestina in view of Okamura or J61/250641 is affirmed.

The rejection of claims 2 through 7, 11 through 13, 15 and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Rody '271, Rody '665, Negoro or J63/220142 is affirmed.

The rejection of claims 2, 4 through 7, 11, 12, and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Lok or Fuseya is affirmed.

The rejection of claims 2 through 7, 11, 12, and 17 through 22 under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Okamura or J61/250641 is affirmed.

The decision of the examiner is affirmed.

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

AFFIRMED

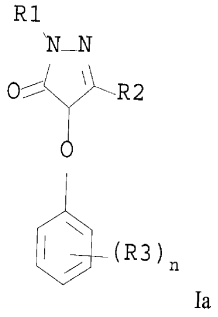
BRADLEY R. GARRIS Administrative Patent Judge	)	
PAUL LIEBERMAN Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFERY T. SMITH Administrative Patent Judge	)	

pl/vsh

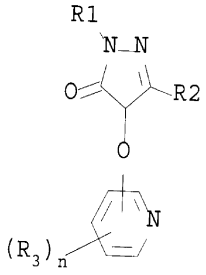
JOSHUA G. LEVITT
EASTMAN KODAK COMPANY
PATENT LEGAL STAFF
ROCHESTER, NY 14650-2201

APPENDIX A
Claim 2

2. A photographic element having a layer comprising a silver halide emulsion, a 1-aryl-4-aryloxy-2-pyrazolin-5-one magenta dye forming coupler, and a separate sulfide, sulfoxide or sulfone compound, wherein the magenta dye forming coupler has structure Ia or Ib, and the sulfide, sulfoxide or sulfone compounds have structures VI, VII and VIII, respectively:



Ia



Ib

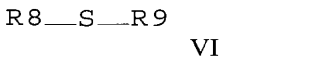
wherein:

R1 is an aryl group;

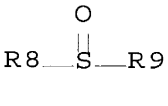
R2 is an alkyl group, an acylamino group, an anilino group, a carbamoyl group or an alkoxy group;

R3 is a substituent; and

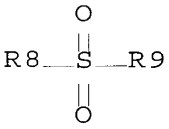
n is an integer from 0 to 4;



VI



VII



VIII

wherein:

R8 and R9 are independently an alkyl group; an alkylene group; an alkenyl group; or a substituted or unsubstituted aryl wherein the substituents are selected from an alkyl, alkoxy, aryloxy, alkoxycarbonyl, aryloxycarbonyl, acyloxy, carbonamido, carbamoyl, sulfonamido, or sulfamoyl group, or halogen atoms; or R8 and R9 may together form a ring including the sulfur atom; the total number of carbon atoms in R8 and R9 together being at least 12.