

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JUN-MO YANG, and
WON-HO YUN

Appeal No. 1997-0523
Application 08/082,576

ON BRIEF

Before HAIRSTON, HECKER and LALL, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection¹ of claims 1 to 14, all the pending claims in the application.

¹ An amendment after the final rejection was filed as paper no. 7 and was entered into the record, see the second advisory action, paper no. 10. As a result, the rejection under 35 U.S.C. § 112, second paragraph was dropped, leaving only the rejection under 35 U.S.C. § 103 as outstanding.

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The disclosed invention pertains to mixed green-emitting phosphors, cathode-ray tubes which include such mixed green-emitting phosphors and a method of forming such mixed green-emitting phosphors. The mixed green-emitting phosphors of the invention provide excellent luminance saturation characteristics and deterioration characteristics under high current density conditions. The mixed green phosphors of the present invention contain three or four phosphors. To achieve the desirable properties of the invention, various phosphors are mixed in the concentrations specified on pages 2 and 3 of the specification and in the claims. The invention is further illustrated by the following claim.

1. A mixed green-emitting phosphor comprising $Y_3(Al, Ga)_5O_{12}:Tb$, $LaOCl:Tb$, $Y_2SiO_5:Tb$ and $Zn_2SiO_4:Mn$ phosphors in the following concentrations by weight:

- 20 to 60% of $Y_3(Al, Ga)_5O_{12}:Tb$,
- no more than 30% of $LaOCl:Tb$,
- no more than 50% of $Y_2SiO_5:Tb$, and
- no more than 20% of $Zn_2SiO_4:Mn$.

The references relied on by the Examiner are:

Yang et al. (Yang)	5,196,763	Mar. 23, 1993
	(filing date, May 10, 1991)	

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Sugawara
(Japanese Patent)

57-90851

Jun. 5, 1982

Claims 1 to 14 stand rejected under 35 U.S.C. § 103 over Yang and Sugawara.

Reference is made to Appellants' briefs² and the Examiner's answer for their respective positions.

OPINION

We have considered the record before us, and we will reverse the rejection of claims 1 to 14.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (CCPA 1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art

² A reply brief was filed as paper no. 17 and was entered into the record without any response from the Examiner [paper no. 18].

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references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital. Systems, Inc. v. Montefiore Hospital., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Furthermore, the Federal Circuit states that "[the] mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification."

In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-

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84 n.14 (Fed. Cir. 1992), citing In re Gordon, 773 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para-Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), citing W. L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1551, 1553, 220 USPQ 303, 311, 312-13 (Fed. Cir. 1983).

Analysis

At the outset we point out that we consider the rejection of claims along the subgroups in which Appellants argue them in the body of the brief. We apply the above precedents to our analysis.

Claims 1 to 8

After considering the rejection of these claims [answer, pages 4 to 7] and Appellants' arguments [brief, pages 8 to 16 and reply brief, pages 1 to 6], we are of the view that the Examiner is using Appellants' invention as a road map to take bits and pieces of the two references, Yang and Sugawara, to

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come up with the specific mixtures of various phosphors claimed in these claims. The Examiner attempts to make a case for combining the teachings of Yang and Sugawara in his response to the Appellants' arguments [answer, pages 8 to 10]. For example, the Examiner relies on Table 1 of Yang for the teaching of removing LaOCl:Tb from the mixture composition of Yang itself because Table 1 shows LaOCl:Tb having poor characteristics of color tone and temperature. We are not convinced that Yang so teaches, especially when Yang states that "30 to 50 weight percent of LaOCl:Tb" is optimal [id., col. 4]. Furthermore, Yang does not show any sample among the mixtures formed by Yang in Table 2 to be without LaOCl:Tb.

Regarding the addition of $Y_2SiO_5:Tb$ to the composition of Yang to achieve the claimed composition, the Examiner asserts

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that the "motivation to combine the teachings of Yang and Sugawara comes from the negative teachings of Yang about the compounds used in that invention, plus the positive teachings of Sugawara about the use of the compound $Y_2SiO_5:Tb$ in phosphors which have application in the field of high current density beam cathode ray tubes" [answer, page 9]. We disagree. There is no bridge to combine Yang and Sugawara. Neither reference discloses the replacement, or addition, of a component in the disclosed mixtures from one reference to the other. The Examiner is indulging in speculation in first adding $Y_2SiO_5:Tb$ from Sugawara to the mixtures disclosed by Yang, and furthermore in adjusting the weight percent of each component to achieve the claimed mixture compositions. Therefore, we do not sustain the obviousness rejection of claims 1 to 8 over Yang and Sugawara.

Claims 9 to 14

These claims depend on the independent claims (1, 3, and 5 to 8) discussed above. Therefore, for the same rationale as above, these claims define over the combination of Yang and Sugawara. In addition, we address the assertion by the

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Examiner

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that "Yang teaches away from the use of InBO₃:Tb in Table 2 (sic, 1) by showing that it has poor after glow (decay) and brightness saturation characteristics, thus making the omission of InBO₃:Tb from the phosphor mixture altogether as claimed by Appellant (sic) in claims 9-14 obvious . . ." [answer, page 7]. We agree with Appellants that the Examiner's above assertion is mistaken in view of the fact that "Examples 7 to 15 (of yang) include InBO₃:Tb" [brief, page 17]. Therefore, we do not sustain the obviousness rejection of claims 9 to 14 over Yang and Sugawara.

In conclusion, we reverse the obviousness rejection of claims 1 to 14 over Yang and Sugawara.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	
STUART N. HECKER)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES

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PARSHOTAM S. LALL)
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