

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL L. BOROSON,
LEE W. TUTT, and
MYRON W. CULVER

Appeal 2006-2611
Application 10/356,118
Technology Center 1700

Decided: August 31, 2006

Before KIMLIN, PAK, and TIMM, *Administrative Patent Judges*.
KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 2-5 and 37. Claims 33-36 have been withdrawn from consideration. Claim 37 is illustrative:

37. A method of forming an organic light-emitting device having colored pixels that produce different colored light comprising:

- a) forming one or more common emissive layer(s) over two or more different colored pixels;
- b) forming a color filter array or color change module array to receive light from the common emissive layer(s);
- c) forming at least one organic layer in relationship to the common emissive layer(s) by selectively transferring organic material from at least one donor element to one or more different colored pixels; and
- d) selecting the thickness of the organic layer(s) formed in Step c) for one or more different colored pixels so that light produced by the common emissive layer(s) is tuned for different colors of the color filter array or the color change module array.

The Examiner relies upon the following references as evidence of obviousness:

Wolk	US 6,114,088	Sep. 5, 2000
Miyashita	US 2001/0001050 A1	May 10, 2001
Yoneda	US 6,580,214 B2	June 17, 2003

Appealed claims 2-4, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyashita in view of Wolk. Claims 2, 4, 5, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoneda in view of Wolk.

Appellants have not set forth separate arguments for claims 2, 3, and 5. Accordingly, claims 2, 3, and 5 stand or fall together with claim 37.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we agree with the Examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejections for essentially those reasons expressed in the Answer.

We consider first the Examiner's rejection of claims 2-4, and 37 over Miyashita in view of Wolk. As explained by the Examiner, Miyashita, like Appellants, discloses a method of forming an organic light-emitting device having colored pixels that produce different colored light comprising emissive layers, and organic layers in relationship to the emissive layers. Although Mitashita expressly discloses that blue luminescent layer (108) covers two or more different colored pixels (106, 107), a central argument of Appellants is that "layer 108 in Mitashita emits light only over the blue colored pixels" (page 10 of principal Brief, second paragraph). Appellants explain that "[i]n the areas where red and green light are emitted, layer 108 *does not emit light*, but acts instead as an electron transport layer" (*id.*). Therefore, Appellants conclude that blue luminescent layer 108 of Miyashita does not qualify as the claimed "common emissive layer" over different colored pixels.

We are not persuaded by Appellants' argument. While Appellants contend that it was known in the art that various parameters can be controlled "so that a layer containing a luminescent material at its position between an anode and cathode does *not* emit light when the anode and cathode are activated" (page 2 of Reply Brief, second paragraph), Appellants

have not pointed to any particular disclosure in Miyashita that blue luminescent layer 108, which has the same composition throughout, is subjected to different control parameters that prevents it from being emissive over anodes 101 and 102. Appellants have not factually supported the assertion that the uniform, luminescent layer 108 of Miyashita, which is interposed between the same cathode and anode, somehow is emissive over anode 103 but is not emissive over anodes 101 and 102. In addition, claim 37 does not define the term "emissive" in such a way that distinguishes it over the emissions emitting from luminescent layer 108 over anodes 101 and 102. Like Appellants, Miyashita employs layers 106 and 107 to generate green and red light, and also expressly teach that the thicknesses of the luminescent layers can be controlled to effect color balance and brightness (page 3, para. 0051). Also, while Appellants emphasize the reference disclosure that "the blue luminescent layer 108 can be formed of an electron injection and transfer material" (page 3, para. 0055), it logically follows that the reference teaches that luminescent layer 108 need not be formed of an electron injection and transfer material.

We note that Appellants do not contest the Examiner's reliance on Wolk for establishing the obviousness of applying the red and green emissive layers of Miyashita by a donor element.

We also agree with the Examiner that the broadly claimed "forming a color filter array or color change module array" is met by the structure of Miyashita as a whole.

We now turn to the Section 103 rejection over Yoneda in view of Wolk. Yoneda, like Appellants, discloses a method of forming an organic light-emitting device by forming a common luminescent emissive layer 14

over two or more different colored pixels and forming at least one organic layer 15 in relationship to the common emissive layer. The sole argument advanced by Appellants with respect to this rejection is that Yoneda fails to teach "selecting the thickness of an organic layer for one or more different colored pixels so that light produced by the common emissive layer(s) is tuned for different colors of the color filter array or the color change module array" (sentence bridging pages 15-16 of principal Brief). However, we agree with the Examiner that it would have been obvious to one of ordinary skill in the art that the thickness of organic layers 15 must be selected so as not to interfere with the tuning of the different colors of the color filter array. Manifestly, one of ordinary skill in the art would not choose a thickness for organic layers 15 that militates against the color tuning of the device. In any event, as noted above, Miyashita clearly establishes that it was known in the art to adjust the thicknesses of the layers to affect the proper color balance and brightness.

As for the separately argued claim 4 recitation that "the common emissive layer has an emission spectrum in the blue region of the visible spectrum," we agree with the Examiner that the white emission of Yoneda necessarily comprises blue light. Moreover, as properly noted by the Examiner, Yoneda explicitly teaches that "a blue luminous material, for example, is used as the material for the luminous layer 14" (col. 5, ll. 15-16).

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results.

Appeal 2006-2611
Application 10/356,118

In conclusion, based on the foregoing, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(iv)(effective Sept. 13, 2004).

AFFIRMED

cam

Thomas H. Close
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201