UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT RASMUSSEN and JIANPING P. YANG

Appeal 2008-5804
Application 10/331,591
U.S. Patent Publication 2003/0129415
Technology Center 1700

Decided: October 16, 2008

Before: FRED E. McKELVEY, *Senior Administrative Patent Judge*, and RICHARD TORCZON and MICHAEL P. TIERNEY, *Administrative Patent Judges*.

McKELVEY, *Senior Administrative Patent Judge*.

DECISION ON APPEAL

A. Statement of the case

Micron Technology, Inc. ("**Micron**"), the real party in interest, seeks review under 35 U.S.C. § 134(a) of a final rejection of claims 38-47 as being unpatentable over the prior art.

We have jurisdiction under 35 U.S.C. § 6(b).

B. Findings of fact

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

References to the Micron specification are to U.S. Patent Publication 2003/0129415.

To the extent that a finding of fact is a conclusion of law, it may be treated as such.

Additional findings as necessary may appear in the Discussion portion of the opinion.

Some prosecution history

Micron states that it is not aware of any related appeals that might affect the outcome of this proceeding. Appeal Brief, page 2, Part II.

Nevertheless, two prior appeals to this Board have come to our attention.

The appeals took place in parent application 09/589,055, filed 7 June 2000.

The application on appeal is said to be a division of application 09/589,055.

1. Appeal 2004-1864

In Appeal 2004-1864, a panel of the Board (Judges Kimlin, Kratz and Jeffery Smith), by a vote of 2-1, reversed a rejection of claims as being unpatentable over Janning, U.S. Patent 5,982,082. *Ex parte Rasmussen*, Appeal 2004-1864 (Bd. Pat. App. & Int. Aug. 31, 2004).

Representative claim 16 reads:

> A phosphor particle bounded [sic] substrate formed by a method comprising:
>
> applying phosphor particles to the substrate;
>
> submerging the substrate [with the phosphor particles] into a binder solution; and
>
> removing the substrate from the binder solution at a predetermined rate.

Panel also remanded so that the examiner could consider whether rejections based on 35 U.S.C. § 102 or 35 U.S.C. § 103 over prior art might be appropriate.

On remand, the examiner entered new rejections based on the prior art.

2. Appeal 2006-0247

In Appeal 2006-0247, the same panel of the Board affirmed a rejection of the claims as being unpatentable over the prior art. *Ex parte Rasmussen*, Appeal 2006-0247 (Bd. Pat. App. & Int. Jun. 21, 2006).

Representative claim 16 had been amended by changing "submersing" to "immersing":

> A phosphor particle bounded [sic] substrate formed by a method comprising:
>
> applying phosphor particles to the substrate;
>
> immersing the substrate [with the phosphor particles] into a binder solution; and

removing the substrate from the binder solution at a predetermined rate.

Application on appeal

The application on appeal was filed on 30 December 2002 and was pending while both appeals were being considered.

The invention

The invention on appeal relates to a "system" for binding phosphor particles to a substrate in a flat panel display. Appeal Brief, page 3:2-3.

According to the specification, the "system" is illustrated in Fig. 2, which is reproduced below. Specification, ¶ 0015.

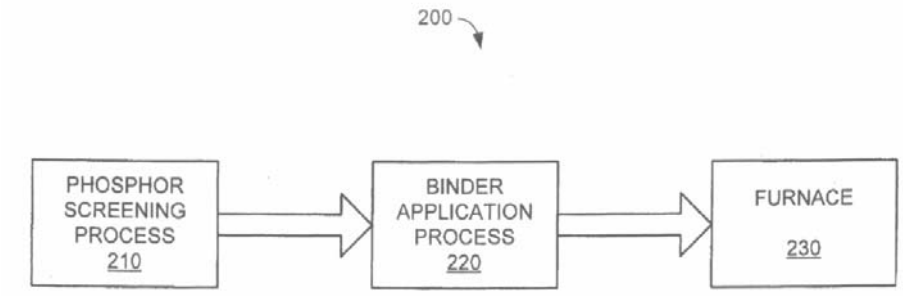

FIG. 2

Fig. 2 depicts schematically the Micron system

As will become apparent, the claims before us are not a model of clarity.

In order to understand the "system" claims before us, we believe it is necessary to understand the process for using the system.

The process for using the system is illustrated in Fig. 3, which is reproduced below. Specification, ¶ 0016.

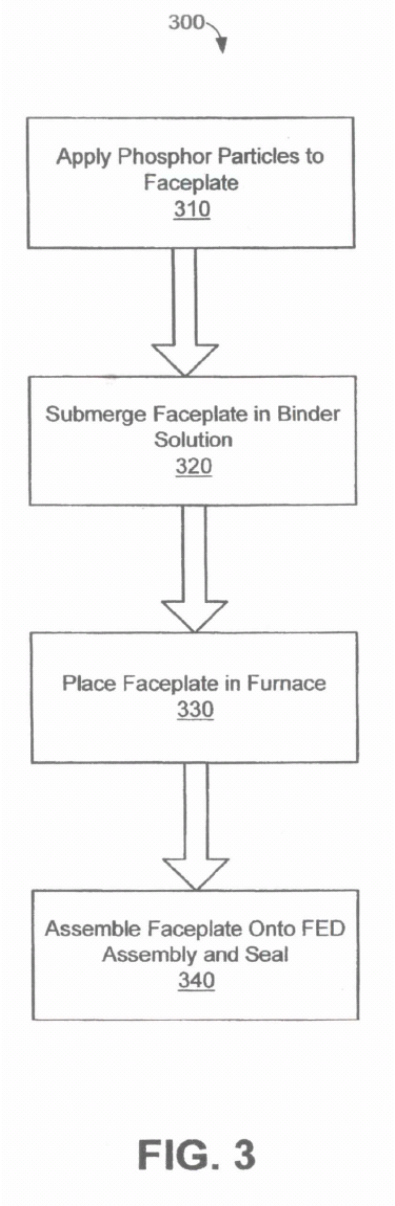

FIG. 3

Fig. 3 depicts schematically the steps of the Micron process

To understand Fig. 3, it is necessary to have an appreciation of the apparatus shown in Fig. 1.

Fig. 1, reproduced below, shows an apparatus in which at least the first step of Micron's process is performed.

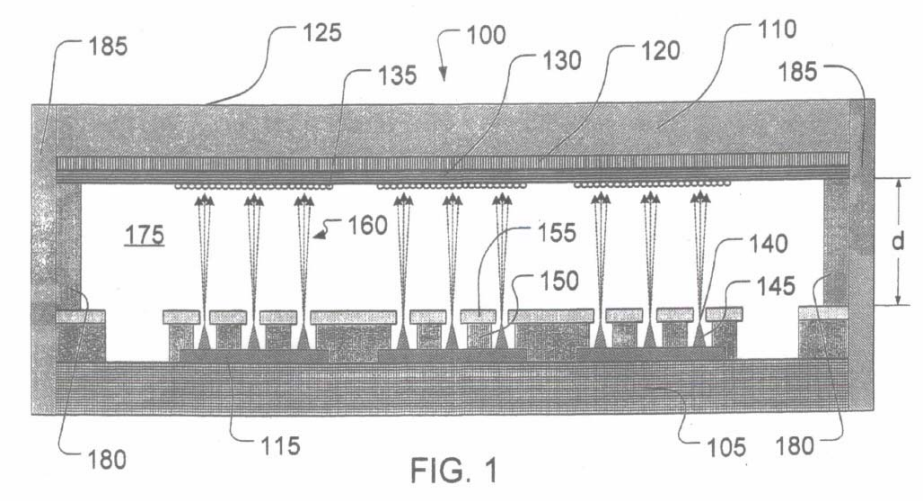

FIG. 1

Fig. 1 shows a "first bath" used in Micron's system

According to the specification (¶ 0032 through ¶ 0034), Fig. 3 shows:

> a process **300** for binding phosphor particles **135** [Fig. 1] to the faceplate **110** [Fig. 1] in accordance with one embodiment of the present invention is provided. The process **300** commences at block **310**, where the phosphor particles **135** are applied to the faceplate **110** in a phosphor screening process **210** [Fig. 2] by electrophoresis, as previously discussed. It will be appreciated, however, that alternative methods known to those of ordinary skill in the art may be used in lieu of the electrophoresis process.
>
> At block **320**, the faceplate **110** is dipped vertically into a binder solution …. According to one embodiment, the faceplate **110** is removed from the binder solution at a slow-

> controlled rate, which is at a rate of approximately one inch per minute. At this slow-controlled rate, the binder solution provides a uniform distribution over the faceplate **110**, thus improving the adherence of the phosphor particles **135** to each other as well as to the faceplate **110**. As previously indicated, the rate at which the faceplate **110** is extracted from the binder solution may vary depending on the concentration of the solution, for example.
>
> Subsequent to removing the faceplate **110** from the binder solution at block **320**, the faceplate is placed in the furnace **230** to set the binder material and the phosphor particles **135** to the faceplate **110** at block **330**, which in one embodiment is approximately 400 ºC–700 ºC.

Claims on appeal

Claims 38-47 are on appeal.

Claim 38, which we reproduce from the claim appendix of the Appeal Brief, reads [matter in brackets, drawing numbers and references to the specification added]:

> A system [Fig. 2] for binding phosphor particles **135** to a substrate **110** in a flat panel display, comprising:
>
> [1] a first bath **210** containing a non-aqueous solution with phosphor particles dispensed therein, the first bath for receiving the substrate **110** to be immersed in the non-aqueous solution to deposit the phosphor particles **135** thereon [**¶ 0020, last sentence**];

[2] a power supply [**not shown**] coupled to the substrate **110** when the substrate is immersed in the non-aqueous solution and to a counter electrode [**not shown**];

[3] a binder solution for binding the deposited phosphor particles;

[4] a second bath **220** containing the binder solution, the second bath enabling submersion of the substrate into the binder solution; and

[5] a furnace **230** for heating the substrate.

Claims 39-47 depend directly or indirectly from claim 38.

Observations about claim 38

What becomes apparent from reading claim 38 is that it is an aggregation of elements. The relationship of one element to another is not set out in the claim—at least not explicitly:

First, while a first bath is required, nothing in the claim requires that a substrate be immersed in the bath. All that is required is that the first bath be *capable* of "receiving" a substrate.

Second, the power supply is required when a substrate is immersed in the first bath. Since there is no requirement that the substrate be immersed in the first bath, it is not clear whether a power supply is only an optional element of the system.

Third, the second bath contains a binder solution, but does not require that the substrate (presumably with a substrate with phosphor attached) be submersed into the binder solution. All that the claim says is that the second bath be such that a substrate can be submerged

therein. Nor does the claim state the relationship in the "system" of the first and second baths.

Fourth, the claim requires a furnace for heating the substrate, but does not require that the substrate first be immersed in the first bath or be submerged in the second bath prior to heating.

Examiner's rejections

The examiner rejected all the claims over the prior art. Examiner's Answer, pages 4-7.

Prior art

The prior art relied upon by the examiner (in patent number order) is:

(1) Gupton, U.S. Patent 3,681,822.

(2) Speigel, U.S. Patent 3,822,454.

(3) Rasmussen '773, U.S. Patent 5,762,773

(4) Rasmussen '686, U.S. Patent 6,004,686.

(5) Xia, U.S. Patent 6,504,291 B1

Gupton, Speigel and Rasmussen '773 are prior art under 35 U.S.C. § 102(b).

Xia is prior art under 35 U.S.C. § 102(e). Micron has made no attempt to antedate Xia and therefore in this appeal Xia is prior art.

While Rasmussen '686 is prior art under 35 U.S.C. § 102(e), it is also prior art under 35 U.S.C. § 102(a). Micron's earliest possible effective filing date is 7 June 2000, the filing date of Micron's parent application. The application on appeal names Rasmussen and Yang as inventors. Rasmussen '686, which names Rasmussen and Cathey as inventors, issued on 21 December 1999. Since Rasmussen '686 was issued *before* 7 June 2000, it is

prior art under 35 U.S.C. § 102(a). This discussion of the prior art status of Rasmussen '686 is in response to Micron's argument concerning the "non-prior art" status of Rasmussen '773. Appeal Brief, page 9. Given that Rasmussen '773 was issued on 9 June 1998, which is more than one year prior to 7 June 2000, and is therefore prior art under 35 U.S.C. § 102(b), it appears Micron may have intended to call into question the prior art status of Rasmussen '686. Assuming, as Micron asserts in its Appeal Brief (page 9) that Rasmussen '686 invention and the invention involved in the appeal have always been owned by Micron, § 103(c)(1) does not preclude use of § 102(a) art against Micron. Micron has made no attempt to antedate Rasmussen '686. Accordingly, in this appeal, Rasmussen '686 is prior art. To complete the discussion, we note that in Appeal 2004-1865, the panel pointed out that a Janning patent relied upon by the examiner was prior art under 35 U.S.C. § 102(a), as well as § 102(e). *Ex parte Rasmussen*, Appeal 2004-1864, slip op. at 2 n.1.

What will become apparent upon a consideration of the five prior art references cited by the examiner is that every element in the claimed "system" is known and is being "used" by Micron for its intended purpose to achieve a predictable result. Micron does not rely on any evidence of unexpected results.

[1] The first bath

The prior art of record reveals that "baths" into which are immersed substrates for the purpose of placing phosphors thereon are known—one might say notoriously old.

A review of Fig. 3 of Speigel, reproduced below confirms that the baths are known.

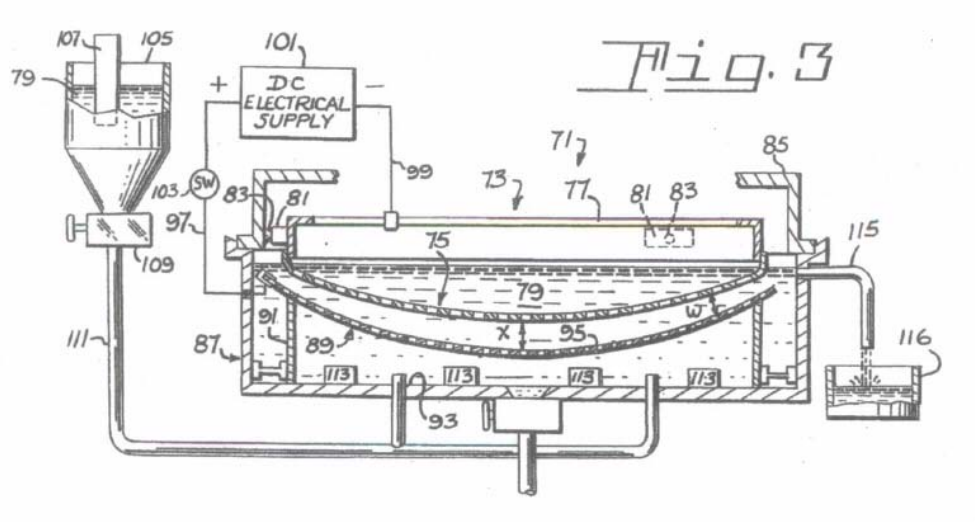

Fig. 3 shows a bath for depositing phosphors on a substrate

Substrate **75** is immersed in coating suspension **79** in which phosphors are electrophoretically coated on the substrate. Col 7:6-50.

Another example of a "first bath" is shown in Fig. 3 of Rasmussen '773, reproduced below.

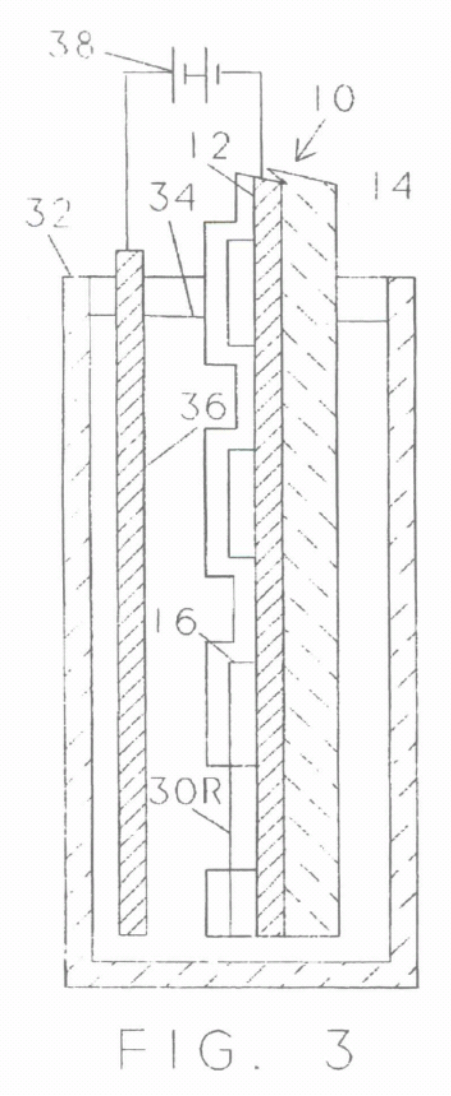

FIG. 3

Fig. 3 depicts an apparatus for placing phosphor on a substrate

Rasmussen '773 Fig. 3 shows a "first bath" in which phosphor **30R** is deposited on a faceplate **10** while the faceplate is immersed in a bath having an appropriate electrolyte **34**. Col. 3:6-14.

Rasmussen '686 reveals to one skilled in the art that the solution used to apply phosphor to a substrate is preferably a non-aqueous liquid. Col. 5:12-13.

[2] The power supply

A power supply coupled to the substrate and a counter electrode is a conventional combination of elements used in a process for depositing phosphor on a substrate. *See* (1) Speigel, Fig. 3, element **101**, and the elements to which it is coupled, and col. 8:7, (2) Rasmussen '773, Fig. 3, element **38**, and the elements to which it is coupled, and col. 3:13, and (3) Rasmussen '686, col. 6:9-19.

[3] The binder solution

The use of a binder solution to firmly attach a phosphor to a substrate is known. *See* (1) Rasmussen '773, col. 4:25-32, (2) Speigel, col. 8:52-55, and (3) Rasmussen '686, col. 5:21-32.

[4] The second bath

The prior art reveals that the binder solution can be applied in a separate step after the phosphor is deposited on the substrate. *See* (1) Rasmussen '686, col. 5:27 and (2) Speigel, col. 8:52-55 ("[a]fter the electrophoretic deposition of the … [phosphor], a second coating **61** of a binder material is next applied … by diping or immersing only the domed … portion 23 … into a vat … containing the second coating binder material.").

[5] Heating

A heating step is conventional step in this art. To perform the step, a heater is necessary. *See* (1) Rasmussen '686, col. 5:47-51 and (2) Rasmussen '773, col. 4:33-42.

Xia

As Micron acknowledges (Appeal Brief, page 9), Xia reveals that the use of indium nitrate (claim 40 on appeal) and cerium nitrate (claim 41 on appeal) as electrolytes is well known in the art. Col. 6:31-37.

Gupton

As Micron acknowledges (Appeal Brief, pages 9-10), Gupton reveals that the use of thorium nitrate (claim 42 on appeal) as an electrolyte is well known in the art. Col. 4:16.

Rebuttal evidence

Micron does not rely on any rebuttal evidence.

C. Discussion

Examiner's prior art rejections

The examiner has rejected claims (1) under 35 U.S.C. § 102 over Rasmussen '686 and Rasmussen '773 and (2) under 35 U.S.C. § 103 over various combinations Rasmussen '773 and Speigel, Xia and Gupton.

1. Anticipation over Rasmussen '686

Since we agree with the examiner that the claimed subject matter would have been obvious over the prior art, we do not reach the anticipation rejection based on Rasmussen '686.

2. Anticipation over Rasmussen '773

Since we agree with the examiner that the claimed subject matter would have been obvious over the prior art, we do not reach the anticipation rejection based on Rasmussen '773.

3. Obviousness over the prior art

The examiner rejected the claims under 35 U.S.C. § 103 as being unpatentable over Rasmussen '773 and Speigel (claims 38-39 and 43-47), Xia (claims 40-41) and Gupton (claim 42).

a. Scope of claim 38

A threshold problem in addressing obviousness in this appeal is: What is the scope of claim 38?

As noted earlier, claim 38 is an aggregation of various elements and the claim fails to state the relationship of the elements.

The general rule is that a claim undergoing prosecution is given its broadest reasonable construction consistent with the specification. *In re Prater*, 56 CCPA 1381, 1395-96, 415 F.2d 1393, 1404-05 (CCPA 1969). What becomes clear is that *if* (1) the elements recited in claim 38 are used in the method described in Fig. 3 and (2) that method using those elements would have been obvious, *then* the "system" of claim 38 would likewise have been obvious. It is on that basis that we have approached the obviousness issue before us.

b. The merits

The elements recited in the "system" of claim 38 are known. Each element is being used for its known and intended purpose. In using a combination of those elements for their known and intended purpose, Micron has achieved nothing more than a predictable result. It follows in this case that the subject matter of the claims on appeal would have been obvious within the meaning of § 103. *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1739 (2007); *Anderson's-Black Rock, Inc. v. Pavement*

Salvage Co., 396 U.S. 57, 59-60 (1969); *Reckendorfer v. Faber*, 2 Otto (92 U.S.) 347, 356 (1875) (involving a pencil with a erase on the non-writing end where the erase cannot be used at the same time the writing end is used).

Micron has presented essentially one merits argument to counter the examiner's rejection under 35 U.S.C. § 103. Micron says Rasmussen '773 does not describe the "second" bath. Appeal Brief, page 9. Micron does not deny that coating the binder in a second step is known. *See, e.g.*, Rasmussen '686, col. 5:27. Micron concedes, as it must, that "Speigel describes the use of a bath to deposit a binder solution." Appeal Brief, page 9. Missing from Micron's argument is any explanation why use of the Speigel bath would not have been considered by one skilled in the art as being an "other suitable method" described in Rasmussen '773. Use of the Speigel bath as an "other suitable method" would have been well within the ordinary skill of the art. After all, one skilled in the art would simply have been using a known Speigel method in the manner suggested by Rasmussen '773. It follows that Micron has failed to show that the examiner erred in rejecting claims 38-39 and 43-47 under 35 U.S.C. § 103 over the prior art.

With respect to claims 40-42, Micron admits that the prior art shows the claimed electrolytes and makes no additional arguments concerning the separate patentability of those claims over the prior art. In this appeal, claims 40-42 fall with claim 38. 37 C.F.R. § 41.37(c)(1)(vii).

We have considered Micron’s remaining arguments and find none that warrant reversal of the examiner’s § 103 rejection. *Cf. Hartman v. Nicholson*, 483 F.3d 1311, 1315 (Fed. Cir. 2007).

D. Decision

Upon consideration of the appeal, and for the reasons given herein, it is

ORDERED that the decision of the examiner rejecting claims 38-47 under 35 U.S.C. § 103 over the prior art is *affirmed*.

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2008).

AFFIRMED

ack

cc:

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