

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS PETER BRODY

Appeal 2008-4025
Application 10/900,501
Technology Center 1700

Decided: October 28, 2008

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
ROMULO H. DELMENDO, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from a final rejection of claims 1 and 3-20 (Appeal Brief filed on September 13, 2007, hereinafter “Br.”; Final Office Action mailed on February 28, 2007). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellant's invention relates to a shadow mask, in particular to a two-layer shadow mask for forming electronic elements on a substrate (Specification, hereinafter "Spec.," ¶0002).

Claim 1 on appeal reads as follows:

1. A shadow mask comprising:

a first layer (110) having first aperture (114) therethrough; and

a second layer (112) having second aperture (122) therethrough, the first and second layers joined together with the first aperture (114) and the second aperture (122) offset to define a third aperture (130) through the first and second layers (110 and 112), wherein when viewed in a direction normal to the first and second layers (110 and 112), the third aperture (130) is smaller than the first aperture (114) and the third aperture (130) is smaller than the second aperture (122).

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Kaplan	3,794,873	Feb. 26, 1974
Simpson	5,730,887	Mar. 24, 1998

The Examiner rejected the claims as follows: claims 1, 3-12, and 15-20 under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Kaplan and Simpson (Examiner's Answer mailed October 31, 2007, hereinafter "Ans.," 3-10).¹

Specifically, the Examiner found that Kaplan describes a two-layered shadow mask as here claimed except that it does not disclose "offsetting the first and second apertures such that the resulting aperture is smaller than both apertures" (Ans. 3). To account for this difference, the Examiner relied

¹ The Examiner indicated that the rejection of claims 13 and 14 has been withdrawn (Ans. 2).

on the teachings of Simpson (*id.*). In particular, the Examiner found that Simpson teaches an offset aperture configuration to increase the resolution of the shadow mask (*id.*). On the basis of these findings, the Examiner concluded that “[i]t would have been obvious...to a person having ordinary skill in the art to offset the apertures in the process taught by Kaplan” such that “enhanced resolution is realized” (*id.*).

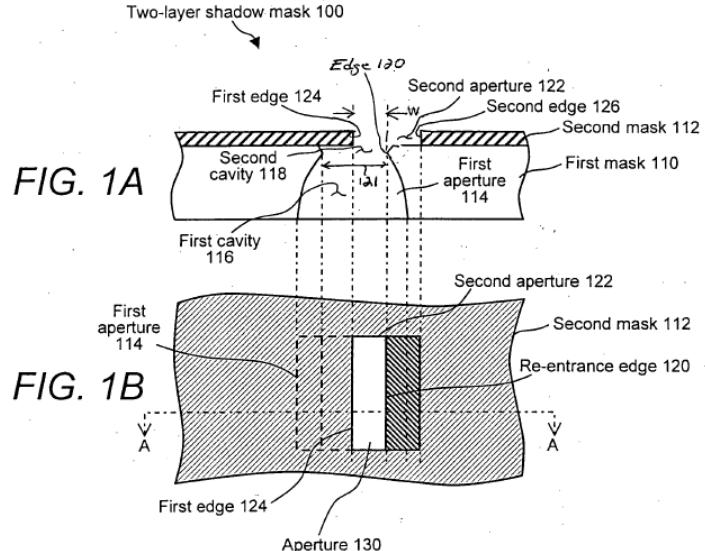
Appellant, on the other hand, contends that the teachings of Kaplan conflict with those of Simpson and that “[t]he conflicting teachings of two prior art references cannot reasonably be viewed as suggesting their combination” (Br. 7-8). According to Appellant, Kaplan and Simpson “take completely different approaches to producing a shadow mask having improved resolution” by teaching shadow masks that “are interchangeable” (Br. 8). Appellant therefore believes that “there is no benefit to be gained and, hence, there is no motivation to combine their respective teachings in the manner suggested by the Examiner” (*id.*).

ISSUE

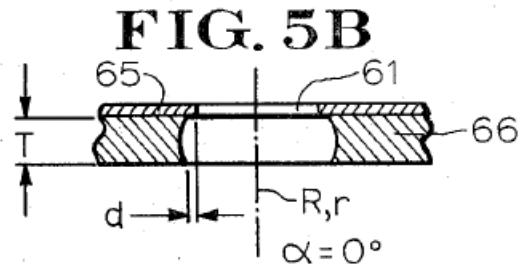
Has Appellant demonstrated error in the Examiner’s determination that a person having ordinary skill in the art would have been led to combine the teachings of Kaplan and Simpson to arrive at Appellant’s claimed shadow mask having two layers with offset apertures?

FINDINGS OF FACT

1. Appellant’s Figures 1A and 1B are reproduced below:



2. Appellant's Figures 1A and 1B are said to depict a cross-sectional view and a top view, respectively, of a two-layer shadow mask 100 in accordance with the invention (Spec. 5, ¶0033).
3. Kaplan discloses a shadow mask for a color television picture tube (col. 1, ll. 13-18).
4. Kaplan describes an interchangeable shadow mask having a thin aperture-defining layer of a first material and a thick supporting layer of a second material, wherein holes in the supporting layer are graded to progressively undercut, i.e., be larger than, corresponding apertures in the aperture-defining layer as a function of distance from the center of the mask (col. 3, ll. 58-67).
5. Kaplan's Figure 5B is reproduced below:



6. Kaplan's Figure 5B is said to depict an idealized representation of a mask and selected apertures therein showing the relationship of under-cutting and distance from the mask center, wherein aperture 61 is in the geometric center of the mask, 65 is the aperture-defining layer, 66 is the supporting or base layer, and d is the amount of undercut represented by the difference in radius between the aperture and the corresponding hole in supporting layer 66, R is a path perpendicular to the mask, and r is the actual path of the electron beam, and α is the beam deflection angle (col. 4, ll. 39-41; col. 7, l. 56 to col. 8, l. 16).
7. Simpson describes an enhanced resolution shadow mask for a display apparatus comprising a color cathode-ray tube with a deflection yoke (col. 1, ll. 7-11).
8. Simpson teaches (col. 2, ll. 21-33):

The shadow mask comprises a metal sheet having a central portion and an exterior portion with a plurality of apertures therethrough. . . . The display apparatus is improved prior devices [sic] in that the apertures in the exterior portion of the mask, on the screen-facing side thereof, *have openings that are elongated in the direction of the incident electron beams and offset relative to the corresponding openings on the electron gun-facing side of the mask.* [Emphasis added.]

9. Simpson's Figure 6 is reproduced below:

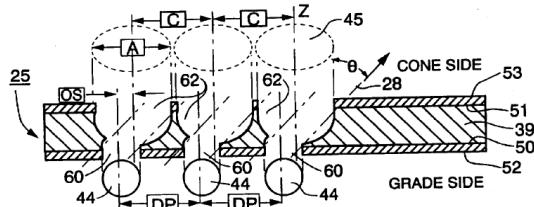


Fig. 6

10. Simpson's Figure 6 is said to depict a cross-sectional view of a portion of the mask along the diagonal, showing a preferred etch pattern, wherein a metal sheet 39 has two oppositely disposed major surfaces 50 and 51, respectively, and is coated on both major surfaces with photoresist layers 52 and 53, and 60 and 62 define openings (col. 5, l. 54 to col. 6, l. 65).

PRINCIPLES OF LAW

On appeal to this Board, Appellant must show that the Examiner erred in finally rejecting the claims. *Cf. In re Kahn*, 441 F.3d 977, 985-986 (Fed. Cir. 2006) (“On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.”)(quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)); *see also* 37 C.F.R. § 41.37(c)(1)(vii).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1734 (2007).

KSR reaffirms the analytical framework set out in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), which states that an objective obviousness analysis includes: (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; and (3) resolving the level of ordinary skill in the pertinent art. *KSR*, 127 S. Ct. at 1734. Secondary considerations such as commercial success, long felt but unsolved needs, or failure of others ““might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.”” *Id.* (*quoting Graham*, 383 U.S. at 17-18).

KSR disapproved a rigid approach to obviousness (*i.e.*, an analysis *limited to* lack of teaching, suggestion, or motivation). *KSR*, 127 S. Ct. at 1741 (“The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”). *See also DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006) (“Our suggestion test is in actuality quite flexible and not only permits, but *requires*, consideration of common knowledge and common sense”); *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1291 (Fed. Cir. 2006)(“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires an actual teaching to combine...”).

KSR instructs “that when a patent claims a structure already known in the prior art that is altered by mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 127 S. Ct. at 1740.

Anticipation is the epitome or ultimate of obviousness. *In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991).

ANALYSIS

Appellant has argued claims 4, 9, and 17 under a separate heading relative to claims 1, 8, 15, and 20. Nevertheless, the arguments for both groups of claims are, in substance, the same. Accordingly, we select claim 1 as representative of all the rejected claims (claims 1, 3-12, and 15-20) and confine our discussion to this selected claim. *See* 37 C.F.R. § 41.37(c)(1)(vii).

We see no merit in Appellant's position that because Kaplan and Simpson "take completely different approaches to producing a shadow mask having improved resolution," a person having ordinary skill in the art would not have combined them (Br. 8). As acknowledged by Appellant, "Kaplan. . . disclose[s] a first layer and a second layer having a first aperture and a second aperture, respectively, aligned with each other, with the boundary or periphery of one aperture. . . completely received within the boundary or periphery of a corresponding aperture. . ." (Br. 6; Facts 4-6). But Simpson, like Kaplan, teaches shadow masks for a color cathode ray tube apparatus (Facts 3 and 7). While Simpson's shadow mask is not identical to that shown in Kaplan, Appellant has not pointed to persuasive evidence demonstrating why a person having ordinary skill in the art would have expected that Simpson's advantage of using offset apertures would be inapplicable in Kaplan (Facts 8-10). Contrary to Appellant's belief (Br. 7), Simpson, like Kaplan, teaches a shadow mask formed by creating apertures or openings in more than one layer (Facts 9-10). Thus, Appellant has failed

to show error in the Examiner’s conclusion that a person having ordinary skill in the art would have found it obvious to modify Kaplan’s apertures to be offset as shown in Simpson in order to enhance resolution, thus arriving at Appellant’s claimed shadow mask.

Appellant argues that “in the absence of some benefit to be gained by combining their respective teachings, there can be no apparent reason to combine the teachings” of Kaplan and Simpson (Br. 9). This argument ignores Supreme Court precedents, including *KSR*. *KSR* does not say that references cannot be combined unless the prior art themselves disclose a “benefit” for combining them. Indeed, such a rigid approach has been rejected. *KSR*, 127 S. Ct. at 1741; *DyStar*, 464 F.3d at 1367; *Alza*, 464 F.3d at 1291. Instead, *KSR* instructs “that when a patent claims a structure already known in the prior art that is altered by mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 127 S. Ct. at 1740.

Appellant’s arguments fail for an additional reason. Appellant has not shown how the subject matter of appealed claim 1 even differs in any respect to the structure described in Simpson (Facts 9-10). *In re Baxter Travenol*, 952 F.2d at 391.

For these reasons, we uphold the Examiner’s rejection of claims 1, 3-12, and 15-20.

CONCLUSION

On this record, we determine that Appellant has failed to demonstrate any error in the Examiner’s determination that the subject matter of the

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appealed claims would have been obvious over the applied prior art references.

DECISION

The Examiner's decision to reject appealed claims 1, 3-12, and 15-20 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)(1)(iv).

AFFIRMED

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