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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/537,622	09/30/2006	Michael A. Carcasi	CT-028	1725

37694 7590 02/27/2013
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EXAMINER
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ART UNIT	PAPER NUMBER
1711	

NOTIFICATION DATE	DELIVERY MODE
02/27/2013	ELECTRONIC

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BEFORE THE PATENT TRIAL
AND APPEAL BOARD

Ex parte MICHAEL A. CARCASI

Appeal 2011-013719
Application 11/537,622
Technology Center 1700

Before CHARLES F. WARREN, HUBERT C. LORIN, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 the final rejection of claims 15-24. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We REVERSE.

Appellant's invention is directed to a method and apparatus for processing a fiber web by spreading a size mixture, a coating or a processing mixture on a board web (Spec. 1:3-6).

Claim 18 is illustrative:

18. A thermal processing apparatus for heating a layer on a substrate in a bath of a heated liquid in a system, the thermal processing apparatus comprising:

a vessel adapted to be partially filled by the bath of the heated liquid; and

a substrate support in said vessel, said substrate support configured to move relative to said vessel for transporting the substrate between a first position in which the substrate contacts the heated liquid in the bath and a second position in which the substrate has a non-contacting relationship with the heated liquid in the bath, and said substrate support configured to rotate relative to said vessel when said substrate support is in said second position for removing residual liquid from said substrate,

wherein a backside of the substrate contacts the heated liquid in the bath and the layer on the substrate does not contact the liquid when the substrate is in the first position.

Appellant appeals the following rejections:

1. Claims 15, 16, 18, and 19 are rejected under 35 U.S.C. § 103(a), as being unpatentable over Montierth (US 2004/0154641 A1, published August 12, 2004) in view of Wang (US 7,141,274 B2 patented November 28, 2006).
2. Claims 20 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Montierth in view of Wang and Ogasawara (US 6,637,445 B2 patented October 25, 2003).
3. Claims 17, 22, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Montierth in view of Wang, and Bleck (US 2005/0230260 A1 published October 20, 2005).
4. Claim 24 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Montierth in view of Wang, Bleck, and Ogasawara.

ISSUE

Did the Examiner reversibly err in determining that the structure of Montierth's device as modified by Wang's chuck mechanism would have

been capable of positioning the substrate such that the "a backside of the substrate contacts the heated liquid in the bath and the layer on the substrate does not contact the liquid when the substrate is in the first position" as recited in independent claims 15, 18, and 22? We decide this issue in the affirmative.

FINDINGS OF FACT AND ANALYSES

Appellant argues that Wang's substrate holder (i.e., chuck mechanism) is not capable of positioning the substrate such that the backside is within the heated liquid and the layer on the substrate is not within the heated liquid (App. Br. 8, 10). Appellant contends that one of ordinary skill would not have modified Wang's substrate holder to position the substrate as claimed absent hindsight. (App. Br. 8, 11).

The Examiner finds that Montierth discloses that a substrate holder 104 that allows transport of wafers into and out of the vessel and can further includes a rotating mechanism (Ans. 3-4). The Examiner finds that Montierth does not disclose much information about raising the holder above the solution (Ans. 4). Wang possesses the chuck structure that is both rotatable and can be raised above the heating solution (Ans. 4). The Examiner finds that Wang is capable of operating in the same manner as the instant application, such that the backside of the substrate on the lower rung is submerged while the topside is not. *Id.* The Examiner explains that extent the substrate is submerged is not an issue of structure, but of functional use (Ans. 7). Based on this finding, the Examiner finds the lower rung of Wang's substrate support could be lowered such that the bottom surface is submerged while the upper surface is not. *Id.*

We begin our analysis be construing the claim phrase "wherein a backside of the substrate *contacts* the heated liquid in the bath and the layer on the substrate does not contact the liquid when the substrate is in the first position" (emphasis added). Appellant's Figure 7A embodiment shows in phantom, and paragraph [0069] of the Specification describes, that the backside of the wafer directly contacts the heating liquid. Accordingly, we construe "contacts" in the phrase to mean that the heating fluid directly touches the backside of the substrate.

In light of this proper claim construction, the preponderance of the evidence favors Appellant's argument of nonobviousness. The Examiner has not explained how Wang's structure is identical to the claimed structure such that Wang's chuck is capable of providing direct contact between the heating liquid and the backside of the substrate. To the contrary, Wang teaches that the backside of the wafer is sealed to prevent contact of the backside and peripheral portions of the wafer with the plating solution (Wang, col. 8, ll. 1-6, 37-41). Wang discloses that pressurized inert gas is injected into space R formed between substrate presser 54 and substrate holding portion 40 (Wang, col. 7, ll. 62-67; col. 8, ll. 1-6). Wang discloses that seal ring 56 and seal members 58a and 58b provide a sealed region on the backside of the wafer (i.e., substrate) (Wang, col. 8, ll. 33-41). Indeed, even Wang's claim 1 that the Examiner relies on to teach the chuck mechanism, recites that the substrate holding portion includes a substrate stage and substrate presser that "hold the substrate with its back surface sealed."

Based on Wang's disclosure that the substrate support is structured to form a sealed area on the backside of the wafer, we fail to see how Wang's

structure is capable of providing direct contact between the heating liquid and the backside of the wafer as found by the Examiner. The Examiner's explanation that Wang's chuck could be positioned such that bottom surface is submerged but the upper surface is not fails to address the sealed area of Wang's substrate support that seals the backside from the plating solution (i.e., heating liquid).

As the Examiner has not established that the prior art structure is capable of performing the recited positioning of the substrate, we find that the Examiner has not established a prima facie case of obviousness. The rejection of independent claim 22 further includes Bleck, but the Examiner does not rely on Bleck for any teachings regarding a substrate support structure that permits contact of the backside of the substrate and the heating liquid. On this record, we reverse the Examiner's § 103 rejections of all the claims.

DECISION

The Examiner's decision is reversed.

ORDER

REVERSED

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