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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

Ex parte WILLIAM THIE, JOHN M. BOYD,
FRITZ C. REDEKER, YEZDI DORI, JOHN PARKS, TIRUCHIRAPALLI ARUNAGIRI, ALEKSANDER OWCZARAZ, TODD BALISKY, CLINT THOMAS, and JACOB WYLIE

Appeal 2011-013651
Application 11/735,987
Technology Center 1700

Before TERRY J. OWENS, BEVERLY A. FRANKLIN, and MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 1-14. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We REVERSE.

Appellants' invention is directed to an electroless plating apparatus (Spec. para. [0006]).

Claim 1 is illustrative:

1. A semiconductor wafer electroless plating apparatus, comprising:

a platen having a top surface defined to support a wafer, the platen including an outer surface extending downward from a periphery of the top surface to a lower surface of the platen, wherein the platen is configured to be raised and lowered;

a fluid bowl having an inner volume defined by an interior surface, the fluid bowl configured to receive the platen and wafer to be supported thereon within the inner volume;

a seal disposed around the interior surface of the fluid bowl so as to form a liquid tight barrier when the platen is lowered to engage the seal between the interior surface of the fluid bowl and the outer surface of the platen; and

a number of fluid dispense nozzles positioned above the seal and below the top surface of the platen when the platen is lowered to engage the seal, wherein the number of fluid dispense nozzles are defined to dispense electroplating solution within a space between the interior surface of the fluid bowl and the outer surface of the platen when the platen is lowered to engage the seal, wherein the space between the interior surface of the fluid bowl and the outer surface of the platen and above the seal is open to a volume overlying the platen, and wherein the number of fluid dispense nozzles are positioned to dispense the electroplating solution at a number of respective locations about a periphery of the fluid bowl above the seal.

Appellants appeal the following rejections:

1. Claims 1, 2, 3, 4, 6, 8, 9, 10, 11, 12, and 13 are rejected under 35 U.S.C. § 103(a), as being unpatentable over Nobuo (JP 2001-192845 A published July 17, 2001) in view of Ivanov (US 2005/0181135 A1, published August 18, 2005).
2. Claim 5 is rejected under 35 U.S.C. § 103(a), as being unpatentable over Nabuo in view of Ivanov and Cheung (US 6,258,223 B1, patented July 10, 2001).
3. Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nabuo in view of Ivanov and Franz (US 3,931,790 patented, January 13, 1976).

4. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nabuo in view of Ivanov and Lubomirsky (US 2005/0160990 A1, published July 28, 2005).

ISSUE

Did the Examiner reversibly err in finding that Nabuo teaches "the space between the interior surface of the fluid bowl and the outer surface of the platen and above the seal is open to a volume overlying the platen" as recited in claim 1 or "the liquid retaining volume is open to a volume overlying the platen when the platen is fully lowered to engage the seal" as recited in claim 8? We decide this issue in the affirmative.

FINDINGS OF FACT AND ANALYSES

Appellants argue Nobuo fails to teach or suggest that the when the platen is lowered to engage the seal, the space between the interior surface of the fluid bowl and the outer surface of the platen and above the seal is open to a volume overlying the platen (App. Br. 8). Appellants contend that Nobuo discloses in paragraph [0036] that seal rings 7c and 7d prevent plating solution from contacting the rear of the wafer thus preventing the formation of the claimed space open to a volume overlying the platen (App. Br. 9).

The Examiner finds that the "outer surface of the platen" has been interpreted as the top surface of the platen that is configured to hold the wafer, and not necessarily the bottom part of the platen (Ans. 10). Based upon this claim interpretation, the Examiner finds that the "space" between the outer surface of the platen and the fluid bowl is taught by Nobuo. *Id*.

We agree with Appellants that the disputed features are not taught by Nobuo. The Examiner's claim interpretation is not supported by the plain language of the claim. As argued by Appellants, the claim recites that the platen has a top surface and an "outer surface extending downward from the periphery of the top surface to a lower surface of the platen" (claim 1) or "an outer surface extending downward from the upper surface" (claim 8). Thus, the Examiner's finding that "outer surface" may include the top surface is unreasonable and contrary to the plain language of the claims. Rather, the claims require that the outer surface of the platen be the portion of the platen extending downward from the top surface; the underside of the platen. Accordingly, the claims require that the space that is open to a volume overlying the platen is formed between a portion of the outer surface of the backside of the platen and the fluid bowl. *See*, Appellants' Figure 6D, nozzle 1001, seal 909, plating solution 1003, platen 209, wafer 207, fluid bowl 211.

In light of this proper claim construction, Nobuo's disclosure that the backside of the platen and wafer are sealed by seal rings 7c and 7d to prevent plating fluid from entering the backside means that there no space that is open to a volume overlying the platen that is formed between an outer surface of the platen and the fluid bowl. The seal rings 7c and 7d prevent such a space from being formed.

Moreover, we agree with Appellants that combining Ivanov's nozzle structure with Nobuo's structure such that the nozzle is positioned below the top surface of the platen and defined to dispense electroplating solution within a space formed between the interior surface of the fluid bowl and the outer surface of the platen would have rendered Nobuo unsatisfactory for its

intended purpose (App. Br. 9). As noted above, Nobuo positions seal rings 7c and 7d to prevent plating solution from entering that space (Nobuo para. [0036]). Accordingly, placing Ivanov's nozzle within the space formed by seal rings 7c and 7d would have frustrated Nobuo's purpose for having the seal rings: to prevent plating solution from entering that area. *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984). Accordingly, we further find that there is no reason for combining Ivanov's nozzles with Nobuo's apparatus at the location required by the claims.

On this record, we reverse all of the Examiner's § 103 rejections.

DECISION

The Examiner's decision is reversed.

ORDER

REVERSED

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