

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 CHRISTOPHER W. BURKHART
and LAWRENCE A. GOCHBERG

Appeal 2007-0494
Application 10/447,446
Technology Center 1700

Decided: March 28, 2007

Before BRADLEY R. GARRIS, CHARLES F. WARREN and
THOMAS A. WALTZ, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal the final rejection of claims 1-3, 9, and 12 under 35 U.S.C. § 134. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

INTRODUCTION

Appellants invented a vacuum valve assembly for use in devices for processing semiconductors (Specification 1). Appellants' vacuum valve assembly has a purge gas outlet that supplies a protective purge gas to a seal in the valve to protect the seal from the gases present in a semiconductor processing device (Specification 1, 3). The purge gas outlet may be formed in the valve seat (Figure 8) or the valve gate (Figure 1).

Claims 1-3, 9, and 12 are reproduced below:

1. A vacuum valve assembly for use in a vacuum processing chamber comprising:
 - a vacuum processing chamber vacuum valve;
 - a seat defining an opening in said vacuum valve, said seat having a sealing face adjacent said opening and normal to the direction of said opening;
 - a gate having a sealing face adapted to mate with the seat sealing face, said gate being movable toward and away from the seat sealing face to seal and open the vacuum valve opening;
 - a continuous elastomeric seal around the vacuum valve opening between the gate sealing face and the seat sealing face of sufficient size such that when the gate is positioned to seal the vacuum valve opening, there exists a gap between the gate sealing face and the seat sealing face;
 - a purge gas port system having an inlet for a purge gas, inner and outer walls outward of the vacuum valve opening forming an essentially continuous outlet extending around the outside of the vacuum valve opening and adjacent the elastomeric seal and gap, and a manifold system connecting the inlet and the outlet, such that when the gate is positioned to seal the vacuum valve opening and a purge gas is introduced through the inlet, the manifold distributes the gas to the outlet which evenly distributes the gas to

the vicinity of the continuous elastomeric seal around the vacuum valve opening in the gap between the gate sealing face and the seat sealing face.

2. The vacuum valve of claim 1 wherein the purge gas port system is disposed in the seat.
3. The vacuum valve of claim 1 wherein the purge gas port system is disposed in the gate.
9. A vacuum processing chamber comprising:
 - a vacuum processing chamber having a vacuum valve;
 - a seat defining an opening in said vacuum valve, said seat having a sealing face adjacent said opening and normal to the direction of said opening;
 - a gate having a sealing face adapted to mate with the seat sealing face, said gate being movable toward and away from the seat sealing face to seal and open the vacuum valve opening, said gate including a continuous elastomeric seal on the gate sealing face around the vacuum valve opening of sufficient size such that when the gate is positioned to seal the vacuum valve opening, there exists a gap between the gate sealing face and the seat sealing face;
 - a purge gas port system in the gate having an inlet for a purge gas, the gate having inner and outer walls outward of the vacuum valve opening forming an essentially continuous outlet in the gate sealing face extending around the outside of the vacuum valve opening and within and adjacent the elastomeric seal, and a manifold system connecting the inlet and the outlet, such that when the gate is positioned to seal the vacuum valve opening and a purge gas is introduced through the inlet, the manifold distributes the gas to the outlet which evenly distributes the gas to the vicinity of the continuous elastomeric seal around the vacuum valve opening in the gap between the gate sealing face and the seat sealing face.

12. A vacuum processing chamber comprising:
- a vacuum processing chamber having a vacuum valve;
 - a seat defining an opening in said vacuum valve, said seat having a sealing face adjacent said opening and normal to the direction of said opening;
 - a gate having a sealing face adapted to mate with the seat sealing face, said gate being movable toward and away from the seat sealing face to seal and open the vacuum valve opening, said gate including a continuous elastomeric seal on the gate sealing face around the vacuum valve opening of sufficient size such that when the gate is positioned to seal the vacuum valve opening, there exists a gap between the gate sealing face and the seat sealing face;
 - a purge gas port system in the seat having an inlet for a purge gas, the seat having inner and outer walls outward of the vacuum valve opening forming an essentially continuous outlet in the seat sealing face extending around the outside of the vacuum valve opening and within and adjacent the elastomeric seal, and a manifold system connecting the inlet and the outlet, such that when the gate is positioned to seal the vacuum valve opening and a purge gas is introduced through the inlet, the manifold distributes the gas to the outlet which evenly distributes the gas to the vicinity of the continuous elastomeric seal around the vacuum valve opening in the gap between the gate sealing face and the seat sealing face.

The Examiner relies on the following prior art references as evidence of unpatentability:

Senba (as translated) ¹	JP 6-185672	July 8, 1994
Horie (as translated) ¹	JP 11-195649	July 21, 1999

¹ Disposition of this appeal is based on the “Machine Assisted Translation” of Senba and Horie provided by the Examiner to the Board and Appellants.

Schneider
Gochberg

US 6,056,267
US 6,602,346

May 2, 2000
Aug. 5, 2003

The rejections as presented by the Examiner are as follows:

1. Claims 1-3, 9, and 12 are rejected “under the judicially created doctrine of double patenting over claims 1-8 of U. S. Patent No. 6602346 [to Gochberg] since the claims, if allowed, would improperly extend the “right to exclude” already granted in the patent.”
2. Claims 1 and 2 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Horie.
3. Claims 1-3, 9, and 12 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Senba.
4. Claims 1, 2, and 12 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Schneider.

Appellants separately argue claims 1, 2, 3, 9, and 12. Accordingly, we address Appellants’ arguments regarding those claims in our opinion below.

OPINION

35 U.S.C. § 102(b) REJECTION OVER SENBA

The Examiner rejected claims 1-3, 9, and 12 under § 102(b) over Senba. The Examiner found that Senba discloses Appellants’ claimed invention, including “a purge gas port system in the gate (10a or 11) [Senba’s Figure 5 embodiment] or in the seat having an inlet (10) [and] an outlet (10) [Senba’s Figure 3 embodiment]” (Answer 5).

Appellants’ only argued distinction is that Senba fails to disclose ““inner and outer walls outward of the vacuum valve opening’ which form

the ‘essentially continuous [purge gas] outlet extending around the outside of the vacuum valve opening’” as required by Appellants’ independent claims 1, 9, and 12, and dependent claims 2 and 3 by virtue of their dependency on claim 1. Specifically, Appellants contend that what appear to be two gas openings 10 in Senba’s Figure 3 embodiment (i.e., the purge gas outlet in the seat embodiment) or four gas openings 10 in Senba’s Figure 5 embodiment (i.e., purge gas outlet in the gate embodiment) are discrete openings and thus cannot be said to be an “essentially continuous outlet” formed by “inner and outer walls” (Br. 9-11).

We agree with the Examiner’s ultimate finding that claims 1-3, 9, and 12 are anticipated by Senba.

As noted above, Appellants’ only argued distinction is that, unlike Senba’s purge gas outlet, their purge gas outlet formed by “inner and outer walls” is “essentially continuous” and “extending around the outside of the vacuum valve opening” (Br. 9-11). To assess whether Senba discloses the argued feature, we must first construe Appellants’ claim terms “essentially continuous,” “extending around” and “inner and outer walls.”

In their Specification, Appellants describe how the purge gas outlet 48 is made with regard to the Figure 1 embodiment (i.e., the purge gas outlet in the gate embodiment). Appellants describe that an opening 45 is formed in the gate and gate insert 50 is inserted therein to form a gap or slit between the gate 40 (i.e., outer wall) and gate insert 50 (i.e., inner wall) which forms the purge gas outlet 48 (Specification 8). Appellants also disclose that the gap 48 may be “a slit . . . [or] a series of holes or slots” (Specification 8). From these disclosures, we construe “inner and outer walls” to mean two walls that border a gap, slit, hole, or slot that is the purge gas outlet.

Regarding the “essentially continuous” claim language, Appellants also disclose that the gap 48 may be “a slit . . . [or] a series of holes or slots” (Specification 8) and the “opening may be essentially continuous and interrupted to a small degree without effecting [*sic*, affecting] the essentially continuous flow around the seat opening” (Specification 10). From these disclosures, we construe “essentially continuous” to include a series of discrete holes or slots as long as the essentially continuous flow around the seat opening is not affected.

Regarding the “extending around” claim language, Appellants disclose that the purge gas outlet 48 “extends around the entirety of the seat opening 32” (Specification 8) and “the use of continuous outlets *around* the seating opening . . . permits more efficient use of the purge gas” (emphasis added) (Specification 10). Moreover, Appellants argue in their Brief that “extending around” means “. . . outside the vacuum valve opening . . .” (Br. 7). Based upon these disclosures, we construe “extending around” to mean the purge gas outlet(s) is/are placed along the perimeter of but outside of the valve opening.

Based on our construction of the above claim language, we find that Senba satisfies Appellants’ only argued distinction. Specifically, regarding Appellants’ Figure 1 embodiment having the gas purge port system in the gate, Senba shows at least four gas ports 10 (i.e., “essentially continuous”) that are placed along but outside the perimeter of the opening 2 (i.e., valve opening) (i.e., “extending around”) (Senba, Figure 5). Moreover, Senba discloses that the gas ports 10 are formed between an inner wall (i.e., the portion of the valve plate 6 covering opening 2) and outer wall (i.e., the

portion of valve plate 6 retaining sealing members 8). Hence, the features of claims 3 and 9 are disclosed by Senba.

Regarding Appellants' Figure 8 embodiment having the gas purge port system in the seat, Senba discloses at least two gas ports 10 (i.e., "essentially continuous") that are placed along but outside the perimeter of the opening 2 (i.e., valve opening) (i.e., "extending around") (Senba, Figure 3). Moreover, Senba discloses that the gas ports 10 are formed between an inner wall (i.e., the portion of the valve seat 7 forming opening 2) and outer wall (i.e., the portion of valve seat 7 engaging with sealing members 8). Hence, the features of claims 2 and 12 are disclosed by Senba.

Appellants' claim 1 is does not specify whether the gas purge port system is placed in the gate or seat; it is generic regarding the purge gas port system placement. Because it is generic regarding the gas purge port system placement, either Senba's Figure 5 or Figure 3 embodiment would satisfy Appellants' claim 1.

From the foregoing, Senba anticipates Appellants' claims 1-3, 9, and 12. Accordingly, we affirm the Examiner's § 102(b) rejection of claims 1-3, 9, and 12 over Senba.

35 U.S.C. § 102(b) REJECTION OVER HORIE

The Examiner rejected claims 1 and 2 under § 102(b) over Horie. The Examiner stated that Horie discloses ". . . a purge gas port system having an inlet (Fig. 3-50(a)) [,] an outlet (Fig. 3-29) [and] a manifold to distribute the inert gas at the seal and the gap" (Answer 4).

Appellants argue that "Horie does not show a purge gas outlet extending around, i.e., outside, the vacuum valve opening and adjacent the

elastomeric seal and gap between the gate sealing face and the seat sealing face” (Br. 7).

The Examiner responds that “when . . . [Horie’s] gate valve 64 [i.e., valve element] is closed on the O-ring seal 62 [i.e., valve sheet] it leaves a continuous gap around the seal where the seal contacts the purge gas before the purge gas exits 29” (Answer 5-6).

We cannot sustain the Examiner’s § 102(b) rejection over Horie.

Horie discloses that valve element 64 is spaced from valve sheet 62 and purge gas is supplied through valve opening (i.e., the hole formed in valve sheet 62) via valve 48a to clean valve element 64 and valve sheet 62 (Horie, ¶¶ [0022] and [0023], Figure 2). Hence, it is Horie’s valve opening that conveys the purge gas, not an “outlet extending around the outside of the vacuum valve opening.” From such disclosure, Horie does not disclose “an essentially continuous outlet extending around the outside of the vacuum valve opening” as recited in claim 1.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros.v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Accordingly, we cannot sustain the Examiner’s § 102(b) rejection of claims 1 and 2.

35 U.S.C. § 102(b) REJECTION OVER SCHNEIDER

The Examiner rejected claims 1-2 and 12 under § 102(b) over Schneider. The Examiner stated that Schneider disclosed among other claim features, “a purge gas port system in the seat having an inlet and outlet (Fig. 2-39 and Fig. 11b-218)” (Answer 5).

Appellants argue that Schneider fails to disclose a purge gas outlet having “inner and outer walls outward of the vacuum valve opening which form the essentially continuous purge gas outlet extending around the outside of the vacuum valve opening, as recited in [A]ppellants’ claim 1” (Br. 11-12).

The Examiner has neither responded to Appellants’ argument nor has the Examiner indicated in his rejection where “an essentially continuous purge gas outlet” is disclosed in Schneider. The Examiner initially bears the burden of establishing a prima facie case. *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1028 (Fed. Cir. 1997). The Examiner has not met this burden with regard to the Schneider rejection.

Accordingly we reverse the § 102(b) rejection of claims 1-2 and 12 over Schneider.

DOUBLE PATENTING REJECTION OVER GOCHBERG

Appellants do not contest the Examiner’s double patenting rejection of claims 1-3, 9, and 12 over Gochberg (Br. 5). Rather, Appellants indicate that a terminal disclaimer will be submitted at the time the claims are indicated allowable (Br. 5). Accordingly, we summarily sustain the Examiner’s double patenting rejection of claims 1-3, 9, and 12 over Gochberg.

DECISION

The Examiner’s rejection of claims 1-3, 9, and 12 under § 102(b) over Senba is AFFIRMED.

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The Examiner's rejection of claims 1 and 2 under § 102(b) over Horie is REVERSED.

The Examiner's rejection of claims 1, 2, and 12 under § 102(b) over Schneider is REVERSED.

The Examiner's rejection of claims 1-3, 9, and 12 under "the judicially created doctrine of double patenting over claims 1-8 of U. S. Patent No. 6602346 [to Gochberg]" 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)(2006).

AFFIRMED

clj

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