

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GURTEJ S. SANDHU
and SUJIT SARAN

Appeal No. 2000-1163
Application 08/649,262

ON BRIEF

Before PAK, WARREN and JEFFREY T. SMITH, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal and Opinion

We have carefully considered the record in this appeal under 35 U.S.C. § 134, including the opposing views of the examiner, in the answer, and appellants, in the brief, and based on our review, find that we cannot sustain the rejections of appealed claims 1, 3 through 13, 15, 17, 18, 28 through 32 and 34, under 35 U.S.C. § 102(b) as anticipated by Eichman et al. (Eichman); of appealed claims 1 through 29 and 31 through 34 under 35 U.S.C. § 102(b) as unpatentable over Eichman in view of Nagashima et al.; and of appealed claims 1 through 13, 15, 17, 18, 28 through 30, 32 and 34 as being unpatentable over Eichman in view of Ghanayem et al.^{1,2}

¹ These are all of the claims in the application. See the amendments of November 10, 1997 (Paper No. 9) and June 29, 1998 (Paper No. 12)

² Answer, pages 3-7.

We find that, when considered in light of the written description in the specification as interpreted by one of ordinary skill in this art, *see, e.g., In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000); *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989), the plain language of appealed independent claims 1, 12, 22 and 28 require that the claimed methods for treating a metal-based residue in a semiconductor processing chamber comprise at least, as seen from appealed claim 1, (1) introducing a *treatment gas* into the processing chamber *during a cleaning process*, (2) permitting the *treatment gas to interact with the metal-based residue to form a removable treatment product* that is substantially stable when exposed to air as compared with the metal-based residue, and (3) *opening the process chamber to remove the treatment product* (emphasis supplied). In appealed claim 22, the treatment gas is ammonia which forms an adduct salt with at least one chloride of titanium. In appealed claim 28, the treatment gas reduces the reactivity in air of the metal-based residue to produce a neutralized metal-based residue. In all claims, the process chamber is opened to remove the treatment product.

The dispositive issue in this appeal is whether one of ordinary skill in this art would have found in the prior art method as acknowledged at col. 1, line 46, to col. 2, line 25, of Eichman, these *same* three required method conditions of the appealed claims, for otherwise there is no factual foundation for the three grounds of rejection. It is well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom, *see generally, In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); presuming skill on the part of this person. *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).

We have carefully considered the prior art method as acknowledged in Eichman in light of the positions advanced by the examiner (answer, pages 3-4 and 7-9) and appellants (brief, pages 6-9). We must agree with appellants that the examiner has misinterpreted the prior art method as acknowledged in Eichman.

The cited passage reads in first pertinent part, “a portion of the *reactant gases* [TiCl₄ and NH₃] *combine to form adduct salts of the reactants*, such as white or yellow salts of TiCl₄.NH₃,

on reactor walls . . . [which] *cannot be removed with an NF₃ plasma* . . . [t]hus . . . [requiring] periodic opening of the reactor and the cleaning of the reactor walls with water” (col. 2, lines 1-9; emphasis supplied). This description is further confirmed at col. 2, lines 20-24.

The cited passage reads in second pertinent part, “[i]n the course of TiCl₄+ NH₃ processes, *substances such as TiN_xCl_y compounds form blue and dark purple-blue films* on certain internal reactor components . . . [which] are *removable with NF₃ plasma*. The NF₃ plasma cleaning . . . includes the formation of an NF₃ plasma, *with the reactor remaining sealed* . . . [and] dissolves the blue and dark blue deposits of TiN_xCl_y and the gold TiN” (col. 2, lines 10-19; emphasis supplied).

The only step in the prior art method as acknowledged by Eichman that involves *a treatment gas in a cleaning process* is the treatment with NF₃ plasma which dissolves the “deposits of TiN_xCl_y and the gold TiN,” with respect to which the reactor remains sealed. There is no disclosure in the acknowledged method that would have provided one of ordinary skill in this art with the teaching or inference that the reactor is subsequently opened to remove the treatment product, that is, the NF₃ plasma dissolved “blue and dark blue deposits of TiN_xCl_y and the gold TiN,” as the *only* reason given to open the reactor periodically is the cleaning thereof to remove the TiCl₄.NH₃ adduct formed from the reactant gases.

Thus, in the absence in the record of evidence that knowledge possessed by one of ordinary skill in this art would have recognized that the reactor would have been opened to remove the NF₃ plasma dissolved deposits of TiN_xCl_y and TiN, and thus would have been in possession of the claimed invention, there is no basis in fact to support a *prima facie* case of anticipation, *see generally, In re Graves*, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995), and cases cited therein (a reference anticipates the claimed method if the step that is not disclosed therein “is within the knowledge of the skilled artisan.”), or of obviousness. *See generally, B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) (“When obviousness is based on a particular prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. [Citation omitted.] This suggestion or motivation need not be expressly stated. [Citation omitted.]”).

The examiner's decision is reversed.

Reversed

CHUNG K. PAK
Administrative Patent Judge

CHARLES F. WARREN
Administrative Patent Judge

JEFFREY T. SMITH
Administrative Patent Judge

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