

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RODERICK CRAIG MOSELY,
HONG ZHANG,
FUSEN CHEN,
and PALO ALTO

Appeal No. 2003-0548
Application No. 09/370,599

ON BRIEF

Before GARRIS, PAK and KRATZ, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's refusal to allow claims 14-20, 29, 31-35, 38-53, 60-66 and 69-75, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to an apparatus for processing a semiconductor substrate. An understanding of the invention can be derived from a reading of exemplary claims 14 and 40, which are reproduced below.

14. An apparatus for providing improved processing of a semiconductor substrate, comprising:

a) a load lock chamber, at least one means for chemical vapor deposition (CVD), and at least one means for physical vapor deposition (PVD); and

b) an intermediate substrate transport region comprising a first substrate transport chamber and a second substrate transport chamber, wherein one or more of the at least one means for CVD and one or more of the at least one means for PVD are disposed on the second transport chamber.

40. An apparatus for providing improved processing of a semiconductor substrate, comprising:

a) a load lock chamber,

b) an intermediate substrate transport region connected to the load lock chamber, the intermediate substrate transport region comprising a first substrate transport chamber and a second substrate transport chamber, wherein the second substrate transport chamber has a lower vacuum than the first substrate transport chamber;

c) one or more processing chambers, wherein at least one of the one or more processing chambers is a chemical vapor deposition (CVD) processing chamber disposed on the second substrate transport chamber, and

d) one or more vacuum pumps communicating with the intermediate substrate transport region and each of the one or more processing chambers.

transport chambers wherein both at least one CVD¹ processing chamber and at least one PVD² processing chamber (or at least one means for CVD and at least one means for PVD) are disposed on the second transport chamber. The substrate that is processed may be a semiconductor wafer.

According to the examiner, Sato discloses multi-chamber wafer processing equipment that essentially corresponds to the structure required by appellants' first claim grouping but for disposition of the PVD and CVD means (chamber).³ See page 3 of the answer wherein the examiner refers to the figure 7 embodiment of Sato and a portion of the text of Sato.

The examiner (answer, page 3) takes the position that "[i]t would have been obvious to couple a PVD chamber and a CVD chamber to the same transfer chamber (129) of **Sato** because such an arrangement would be a mere rearrangement of the conventional processing chambers so as to produce the desired sequence of

¹ chemical vapor deposition

² physical vapor deposition

³ Both appellants and the examiner have represented that a CVD chamber or CVD means as claimed is a distinct structure from a PVD chamber or PVD means as claimed as evident by the arguments brought before us in appeal. We decide this appeal based on that undisputed and seemingly agreed upon understanding of the claimed subject matter on this record.

processing." The examiner makes the further point that there is "[n]othing in **Sato's** disclosure to indicate that PVD and CVD chambers must be separately connected to different transfer chambers." See page 5 of the answer.

On this record, we side with appellants. In particular, we note that the examiner has not pointed to any particularized suggestion in the teachings of the sole applied reference that would have led one of ordinary skill in the art to make the proposed equipment modification for any purpose other than "mere rearrangement."

Absent further evidence or particularized factual findings by the examiner, it is our view that the motivation for the examiner's stated rejection appears to come solely from appellants' specification and drawings. Certainly, the examiner has not convincingly established how the applied reference would have led a skilled artisan to the herein claimed apparatus. Thus, the record indicates that the examiner used impermissible hindsight when rejecting the claims. See W.L. Gore & Associates v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984); In re Rothermel, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960). Accordingly, on this record, we will not sustain the examiner's rejection of

claims 14-20, 29, 31-35, 38, 39, 42-53, 60-66 and 69-75 for the reasons set forth above and as developed in appellants' briefs.

Our disposition of the examiner's § 103 rejection as applied to claims 40 and 41 is another matter. At the outset, we note that appellants have not identified claims 40 and 41 as being separately argued member claims of appellants' second claim grouping. Consequently, we select claim 40 as the representative claim for purposes of deciding this appeal as to the rejection of these claims. See 37 CFR § 1.192(c)(7) (2000). See In re McDaniel, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) ("if the brief fails to meet either requirement [of the rule], the Board is free to select a single claim from each group of claims subject to a common ground of rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim"). Thus, we appropriately confine our discussion to claim 40.

Here, the examiner (answer, pages 3, 4 and 6) has determined that the structure called for by representative claim 40 does not patentably distinguish over the apparatus taught by Sato.

Appellants urge that Sato does not teach that the substrate transport chamber holding the CVD chamber of Sato possesses a

lower vacuum⁴ than the other substrate transport chamber. However, the examiner has essentially made the reasonable factual determination that the transport chamber (123, figure 7) of Sato, on which a CVD chamber (126) is disposed, constitutes a structure that is capable of maintaining a lower relative vacuum than the other transport chamber (129).

We agree. Also, appellants seemingly acknowledge their agreement with that finding of the examiner. In this regard, appellants state "Sato et al. disclose a CVD chamber disposed on a first wafer transport chamber, where the first transport chamber has a lower vacuum than the second wafer transport chamber, which includes a PVD processing chamber." See page 3

⁴ A lower vacuum would normally be understood to correspond to a higher pressure and a higher vacuum would correspond with a lower pressure. Prior to final disposition of this application, the examiner should determine whether or not appellants refer to decreasing pressure in their original specification in a manner that is inconsistent with the relative vacuums set forth in claim 40. See, e.g., page 6, lines 11-14 of the specification. If so, the examiner and appellants should take appropriate steps to purge the application of such inconsistencies and address any possible new matter that may have crept into the amended claims. The examiner should also make sure that appellants' drawing figures are in compliance with 37 CFR § 1.83 (a).

of the reply brief and column 3, lines 12-19 and the sentence bridging columns 7 and 8 of Sato.⁵

Appellants' argument with the examiner's obviousness determination focuses on appellants' denotation of the transport chamber (123, figure 7) of Sato as corresponding to appellants' first transport chamber whereas the examiner refers to that transport chamber (123, figure 7) of Sato as corresponding to appellants' second transport chamber. See the sentence bridging pages 3 and 4 of the answer. We agree with the examiner's assessment in that the designation of a particular transport chamber as a "first" or "second" transport chamber in representative claim 40 does not, by itself, require that those particular transport chambers be arranged in any particular connecting sequence with the other structural elements recited in representative claim 40. In other words, the mere characterization of a claimed apparatus element by a particular

⁵ Moreover, appellants have not established on this record that a functional limitation such as the relative degree of vacuum maintained in a particular chamber constitutes a structural distinguishing limitation for the claimed apparatus. See In re Yanush, 477 F.2d 958, 959, 177 USPQ 705, 706 (CCPA 1973); In re Finsterwalder, 436 F.2d 1028, 1032, 168 USPQ 530, 534 (CCPA 1971); In re Casey, 370 F.2d 576, 580, 152 USPQ 235, 238 (CCPA 1967); and In re Lundberg, 244 F.2d 543, 546-47, 113 USPQ 530, 533 (CCPA 1957).

assigned name does not define a structural distinction over the applied prior art wherein a corresponding structure is simply denoted by a different name.

Consequently, we agree with the examiner that a prima facie case of obviousness of the structure of representative claim 40 has been established. We note that no convincing argument or evidence has been furnished by appellants establishing a patentable distinction between appellants' structure, as defined in representative claim 40 and that of the applied prior art. Consequently on this record, we shall affirm the examiner's § 103 rejection of claims 40 and 41.

CONCLUSION

The decision of the examiner to reject claims 40 and 41 under 35 U.S.C. § 103 as being unpatentable over Sato is affirmed. The decision of the examiner to reject claims 14-20, 29, 31-35, 38, 39, 42-53, 60-66 and 69-75 under 35 U.S.C. § 103 as being unpatentable over Sato is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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