

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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 SINNOSUKE SEKIYA, SETSUO YAMAMOTO, YUTAKA KOMA, MASASHI
AOKI and NAOHIRO MATSUYA

Appeal No. 2006-1870
Application No. 10/100,901
Technology Center 3700

ON BRIEF

Before OWENS, LEVY, and NAPPI, Administrative Patent Judges.
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-6 and 8-10. Claims 7 and 11-59 have been withdrawn from consideration as being drawn to non-elected species (brief, page 1).

We REVERSE; and enter a New Ground of Rejection under the provisions of 37 CFR § 41.50(b).

BACKGROUND

The appellants' invention relates to a polishing tool and method, and an apparatus for using the tool (specification, page 1).

Claim 1 is representative of the invention, and is reproduced as follows:

A polishing tool for polishing a back side of a semiconductor wafer to remove processing distortion caused by grinding of the back side, said tool comprising:

a support member; and

polishing means fixed to the support member, and wherein the polishing means is composed of felt having a density of 0.20 g/cm³ or more and a hardness of 30 or more, and abrasive grains dispersed in the felt.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Jefferies et al. (Jefferies)	5,369,916	Dec. 6, 1994
James et al. (James)	6,069,080	May 30, 2000

Claims 1-6, 8 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jefferies.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jefferies in view of James.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the answer (mailed February 9, 2005) for the examiner's complete reasoning in support of the rejections, and to the brief (filed May 23, 2005) and reply brief (filed May 23, 2005) for the appellants' arguments thereagainst.

Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered. See 37 CFR § 41.37(c)(1)(vii)(eff. Sept. 13, 2004).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejections advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

Upon consideration of the record before us, we make the determinations which follow. We begin with the rejection of claims 1-6, 8 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Jefferies. We note at the outset that appellants argue the claims as a group. Accordingly, we select claim 1 as representative of the group.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The examiner must articulate reasons for the examiner's decision. In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). In particular, the examiner must show that there is a teaching, motivation, or suggestion of a motivation to combine references relied on as evidence of obviousness. Id. at 1343. The examiner cannot simply reach conclusions based on the examiner's own understanding or experience - or on his or her assessment of what would be basic knowledge or common sense. Rather, the examiner must point to some concrete evidence in the record in support of these findings." In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Thus the examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the examiner's conclusion. However, a suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined

teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. In re Kahn, 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) citing In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313 (Fed. Cir. 2000). See also In re Thrift, 298 F. 3d 1357, 1363, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (answer, page 3) is that Jefferies fails to disclose the felt having a density of $.20\text{g/cm}^3$ or more and a hardness of 30 or more. The examiner asserts that the modification would have been obvious "**so as to provide a polished surface with less surface roughness and fewer scratches**, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re

Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).” Appellants' position (brief, page 4) is that Jefferies does not teach or suggest the claimed density or hardness, and that Jefferies does not teach or suggest abrasive grains in the felt.

It is asserted (id.) that Jefferies is non-analogous art, which is required for reliance on a reference in a rejection under 35 U.S.C. § 103(a). It is argued that Jefferies has no relation to polishing a semiconductor wafer because the reference is directed to polishing means for dental restorative material in a tooth. It is further argued that an artisan would recognize no similarities between the materials that are polished in Jefferies and in appellants' claimed apparatus. Appellants reason that because Jefferies is concerned with removing orthodontic resin cement, an artisan in the dental arts would dismiss semiconductor polishers as being too powerful, very likely dangerous and perhaps toxic in dental polishing applications (brief, page 5).

It is further asserted (brief, page 6) that “In this way, the preamble both states the purpose of Appellants' invention and limits the invention by requiring that it have operational structure capable of carrying out that purpose.” Moreover, appellants assert (id.) that the felt parameters of claim 1 are not a matter of parameter optimization. It is argued that the

hardness and density lower range limits are critical because density and hardness values below these limits make it difficult to effectively polish the semiconductor wafer. Appellants add that nothing in Jefferies would have suggested to an artisan in the semiconductor wafer polishing art that they should consider dental polishing teachings as applicable to their needs.

From our review of the entire record, we are in agreement with appellants, for the reasons which follow, that the teachings and suggestions of Jefferies would not have suggested the language of claim 1. As noted by appellants, Jefferies is directed to a polishing device for residual orthodontic adhesive removal for debonding orthodontic adhesive on a tooth and polishing residual orthodontic adhesive from a tooth (col. 3, lines 25-32). We find no teaching or suggestion in the reference, and no teaching or suggestion has been pointed to by the examiner, that would have taught or suggested using the dental polishing tool of Jefferies for polishing semiconductor wafers. The reference might have been sufficient if the reference met all of the limitations of the claim and were capable of polishing semiconductor wafers, and was used in a rejection under 35 U.S.C. § 102. However, to modify the reference to provide the claimed hardness or density, there would

have to be some reason or motivation or suggestion that would have led an artisan to make the proposed changes.

The examiner is correct that discovering an optimum value of a result dependent variable involves only routine skill in the art (answer, page 4). However, because the claimed hardness and density are for polishing semiconductors, we find no reason why an artisan would have modified a dental polishing tool to include the claimed hardness and density parameters necessary for polishing semiconductor wafers. Unless there were some showing in the dental or similar art that these hardness and density parameters would have been useful in a dental polishing tool, we find that the only reason to modify Jefferies comes from appellants disclosure in a hindsight reconstruction of appellants' invention. "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para- Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (citing W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1551, 1553, 220 USPQ 303, 311, 312-13 (Fed. Cir. 1983)). "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." In re

Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991)).

Here, the examiner's broad, conclusory opinion of obviousness does not meet the requirement for actual evidence. Because Jefferies does not address polishing of semiconductors or similar devices, we are not persuaded that teachings from the applied prior art would have suggested the claimed limitations.

From all of the above, we hold that the examiner has failed to establish a prima facie case of obviousness of claim 1. Accordingly, we cannot sustain the rejection of claim 1 or claims 2-6 and 8-10, which depend therefrom.

We turn next to the rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Jefferies in view of James. We cannot sustain the rejection because even though James is directed to an apparatus for polishing a semiconductor, we find, for the reasons, supra, no teaching or suggestion that would have led an artisan to modify the dental polisher of Jefferies.

Under our authority provided in 37 CFR § 41.50(b) we enter a New Ground of Rejection of claims 1 and 9 under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative under 35 U.S.C. § 103(a) as being obvious over James. James is directed

to a method of chemical-mechanical polishing of substrates useful in the manufacture of semiconductor devices, memory disks or the like (col. 2, lines 62-65). It is disclosed that the device is used to polish the surface of a semiconductor device or integrated circuit (col. 4, lines 15-21). From the disclosure of using the device to polish a semiconductor device or integrated circuit, we find that the polishing device of James will inherently be capable of polishing the back of a semiconductor wafer to remove processing distortion caused by grinding the back side of the wafer. In addition, James discloses that the polishing tool includes a support member (col. 13, lines 1-5 where it is recited that "[t]he pad layer (pad matrix containing particles) can be partially or wholly solidified upon a belt, a sheet, a web, a coating roll (such as a rotogravure roll, a sleeve mounted roll) or a die. The substrate can be composed of metal (e.g., nickel), metal alloys, ceramic or plastic."

James additionally discloses a support by reciting (col. 20, lines 25-27) that "the polishing pad comprises both a rigid supporting layer and a flexible supporting layer." From this disclosure and the disclosure that figure 1 that polishing pad 6 comprising backing or support layer 8 having a front surface 9, with abrasive coating 10 bonded to the front surface 9 of backing

8 (col. 18, line 64 through col. 19, line 1), we find that the polishing means is fixed to the support member.

It is further disclosed that the polishing means is composed of felt (col. 11, lines 7-10) where it is recited that "[i]n one embodiment of the present invention, the polishing layer matrix (prior to solidification) with particle clusters dispersed therein is coagulated or otherwise coated and solidified upon a substrate, such as a felt or polymer film." We additionally note the disclosure (col. 20, lines 19 and 20) that the abrasive pad comprises a support layer in addition to the polishing layer.

James additionally discloses that the polishing means has a density of $.20\text{g/cm}^3$ (col. 3, line 37) where it is disclosed that the polishing layer has a matrix material which has a density of $.20\text{g/cm}^3$ or more. As $.5\text{g/cm}^3$ is within the range of $.2\text{g/cm}^3$ or greater, this limitation is met by James. Furthermore, James discloses that the polishing means has a hardness of 30 or more (col. 3, line 44) where it is disclosed that the hardness of the polishing layer matrix material is in the range of 25-80 Shore D.

As 30 falls within the range of 25-80, this limitation is met by James. We additionally find that James discloses abrasive grains in the felt. It is disclosed (col. 3, lines 9 and 28-30) that the polishing layer contains particles and that at least a

portion of the particles are released from the abrasive pad during polishing. It is further disclosed (col. 13, lines 44 and 45) that as the pad releases particles, the pad wears away.

With regard to claim 9, James discloses that the particles of the polishing layer includes alumina, silica, etc. or a combination thereof. It is additionally disclosed (col. 5, lines 32-38) that the abrasive may be alumina or silica, etc.

From all of the above, we find that James anticipates at least claims 1 and 9. In the alternative, assuming, arguendo, that the polishing apparatus of James would not inherently be used to polish the back side of a semiconductor wafer, we find from the disclosure of James of polishing semiconductors or integrated circuits, that an artisan would have been motivated by James' disclosure to use the polishing apparatus of James for polishing the back side of semiconductor wafers.

OBSERVATIONS AND REMARKS

Because we are primarily a board of review, we have only applied the James reference to claims 1 and 9. We leave it to the examiner to determine whether James should be applied to any or all of the remaining claims on appeal.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-6 and 8-10 under 35 U.S.C. § 103 is reversed. In addition, we enter a New Ground of Rejection of claims 1 and 9 under 35 U.S.C. § 102(b) as being anticipated by James, or in the alternative under 35 U.S.C. § 103(a) as being unpatentable over James, under the provisions of 37 CFR § 41.50(b).

This decision contains a New Ground of Rejection pursuant to 37 CFR § 41.50(b) (effective September 13, 2004). 37 CFR § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 CFR § 41.50(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

REVERSED; 37 CFR 41.50(b)

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Administrative Patent Judge)	
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