

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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 SHINN-CHIH WANG, CHIEN-HUNG SHEN, and MING-HSIU HSIEH

Appeal No. 2005-2150
Application No. 10/407,084

ON BRIEF

Before RUGGIERO, BLANKENSHIP, and SAADAT, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-20, which are all the claims in the application.

We affirm.

BACKGROUND

The invention relates to efficient fabrication of a microelectronic product within multiple microelectronic product fabrication facilities. Representative claim 1 is reproduced below.

1. A method for fabricating a microelectronic product comprising:
 - providing a plurality of microelectronic fabrication facilities comprising a plurality of tools employed for fabricating a single microelectronic product, the plurality of tools being divided into a series of comparable tool groups;
 - determining for the plurality of tools a corresponding plurality of tool utilization factors when fabricating the single microelectronic product within the plurality of microelectronic fabrication facilities;
 - comparing a plurality of tool utilization factors for a specific comparable tool group to define an optimized tool utilization factor for the specific comparable tool group; and
 - developing and implementing revised operating procedures for the plurality of tools within the specific comparable tool group such that each tool within the specific comparable tool group operates at a tool utilization factor which approximates the optimized tool utilization factor for the specific comparable tool group.

The examiner relies on the following references:

Burdick et al. (Burdick)	5,889,674	Mar. 30, 1999
Kraft	5,528,510	Jun. 18, 1996
Nakamura et al. (Nakamura)	US 6,198,981 B1	Mar. 6, 2001
Martin	US 6,259,959 B1	Jul. 10, 2001

Michael Quirk et al. (Quirk), Semiconductor Manufacturing Technology, Instructor's Manual, Prentice Hall College Div., ISBN 0130815209, pp. 1-68 (Dec. 2000).

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Claims 1-20 stand rejected under 35 U.S.C. § 103. Claims 1, 3, 8, 10, 14, and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Martin and Burdick. To this basic combination, the examiner adds: Kenny with respect to claims 2, 9, and 15; Quirk with respect to claims 5, 6, 11, 12, 18, and 19; Nakamura with respect to claims 4 and 17; and Kraft with respect to claims 7, 13, and 20.

We refer to the Final Rejection (mailed May 10, 2004) and the Examiner's Answer (mailed Dec. 27, 2004) for a statement of the examiner's position and to the Brief (filed Oct. 8, 2004) for appellants' position with respect to the claims which stand rejected.

OPINION

We find that appellants in the Brief submit arguments commensurate with instant claim 1 and provide separate arguments for the subject matter of dependent claim 7. Accordingly, we select those claims as representative of the claims on appeal. See 37 CFR § 41.37(c)(1)(vii) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)) ("A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.").

The examiner finds (Answer at 3-6) that Martin teaches all of the requirements of instant claim 1 except for a "plurality" of fabrication facilities. In the examiner's opinion, Martin and Burdick considered together would have suggested modifying the Martin

system for use with a plurality of facilities, rather than use in a single facility. In particular, Burdick teaches in column 1 that the manufacture of semiconductor devices requires a number of discrete process steps that are sufficiently different from one another, and specialized, that the processes may be performed in different facilities in remote regions of the globe. Burdick provides an example of labor-intensive steps that may be performed, preferably, in a region having cheaper labor rates.

Appellants seem to argue that the rejection is unfounded because Martin contains no indication that Martin contemplated more than a single microelectronic fabrication facility. (Brief at 7-8.) We do not find the position to be persuasive, as it is not responsive to the rejection that has been applied. Nonobviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. In re Merck & Co., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986) (citing In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)).

Appellants also seem to allege or suggest that Martin's processes are not amenable to being performed in separate facilities. However, Martin discloses discrete work centers that comprise the manufacturing line (e.g., Figs. 2A and 2C). We do not find any reason in the reference why the teachings of Burdick could not apply to Martin's system. More important, appellants do not point out any teachings in Martin that might support the assertion.

Instant claim 7 further limits the subject matter of claim 1 in the requirement that the tool utilization factor is provided in wafers per hour. Appellants submit that Martin is directed to utilization of “X-factor” (i.e., normalized cycle time) rather than “throughput” (i.e., wafers per hour). Appellants allege that Martin’s principle of operation would change if combined with the teachings of Kraft and that Martin “teaches away” from the instant invention. Appellants recognize that Martin acknowledges that X-factor and throughput are related measurements, but submit that Martin clearly favors X-factor as a more sensitive measure of manufacturing facility productivity. (Brief at 13-14.)

“A reference may be said to teach away when a person of ordinary skill, upon [examining] the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” Para-Ordnance Mfg. v. SGS Importers Int’l, 73 F.3d 1085, 1090, 37 USPQ2d 1237, 1241 (Fed. Cir. 1995) (quoting In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994)). Martin does not warn the artisan against using throughput as an indicator of productivity. The reference, in fact, teaches that throughput and the X-factor are fundamentally related (e.g., col. 2, ll. 42-51).

Martin does teach that the X-factor is a more sensitive indicator of capacity problems than throughput, in general. However, the reference provides examples in which the throughput constraint is “not necessarily” the performance constraint for the line (e.g., col. 5, ll. 25-35), which demonstrates that in some scenarios throughput may be the better indicator.

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All of the disclosures in a reference must be evaluated for what they fairly teach one of ordinary skill in the art. In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966). In a § 103 inquiry “the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.” Merck & Co. v. Biocraft Labs., Inc., 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir. 1989) (quoting In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976)). We are not persuaded that the references as applied by the examiner cannot properly be combined to show prima facie obviousness of the subject matter as a whole of instant claim 7.

We have considered all of appellants' arguments in the Brief but are not persuaded of error in the § 103 rejection of claims 1 through 20. The doctrine of waiver applies to any arguments not in the Brief that appellants could have presented. See 37 CFR § 41.37(c)(1)(vii) (Sept. 13, 2004) (“Any arguments or authorities not included in the brief or a reply brief filed pursuant to § 41.41 will be refused consideration by the Board, unless good cause is shown.”).

CONCLUSION

The rejection of claims 1-20 under 35 U.S.C. § 103 is affirmed.

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

AFFIRMED

JOSEPH F. RUGGIERO)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
HOWARD B. BLANKENSHIP)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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MAHSHID D. SAADAT)	
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