

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LARS W. LIEBMANN

Appeal No. 1998-0723
Application 08/570,851

ON BRIEF

Before THOMAS, JERRY SMITH, and BARRY, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-8, which constitute all the claims in the application.

The disclosed invention pertains to a computer implemented method of design verification for asymmetric phase shift mask layouts. The invention is used to efficiently indicate to a designer whether a basic phase shifted mask design is met throughout the entire chip design.

Representative claim 1 is reproduced as follows:

1. A computer implemented method of design verification for asymmetric phase shift mask layouts comprising the steps of:

isolating "critical" features in a design based on criteria that were applied in an original design routine;

expanding the designed phase regions by the width of the largest "critical" features to give shapes A;

locating all overlaps of the expanded phase regions to identify shapes B;

isolating any defective "critical" features by first subtracting the overlap region shapes B from the expanded phase region shapes A to produce phase regions shapes C, and then subtracting the remaining phase regions shapes C from the isolated "critical" features, leaving only "critical" features that were either covered by the overlap of two phase regions or were not covered by a phase region at all; and

presenting to a designer design conflicts characterized as "critical" features that either have a phase region on both sides or have no adjacent phase region at all.

The examiner relies on the following references:

Appeal No. 1998-0723
Application 08/570,851

Liebmann et al. (Liebmann)	5,537,648	July 16, 1996 (filed Aug. 15, 1994)
Spence	5,573,890	Nov. 12, 1996 (filed July 18, 1994)

Claims 1-8 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers Liebmann in view of Spence.

Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

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

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary

Appeal No. 1998-0723
Application 08/570,851

skill in the art the invention as set forth in claims 1-8.
Accordingly, we reverse.

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), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion, or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories,

Appeal No. 1998-0723
Application 08/570,851

Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985),
cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). 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). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered [see 37 CFR § 1.192(a)].

We first consider the rejection with respect to independent claims 1 and 5. Liebmann is cited as a teaching

Appeal No. 1998-0723
Application 08/570,851

of using a computer aided design (CAD) system for generating phase shifted mask designs for very large scale integrated (VLSI) chips. Spence is cited for teaching the use of a design checker to determine design conflicts of critical features of the circuit design. The examiner states that the design checker is the "key of the invention." The examiner concludes that "it would have been obvious . . . to recognize that, the design conflicts are characterized as those critical features that either have a phase region (180 degrees phase) on both sides or have no adjacent phase region at all"

[Answer, pages 5-6].

Appellant argues that even though Liebmann and Spence teach the requirement to verify that every critical dimension feature has a 180 degree phase shift on one side and not on the other, neither reference teaches how to achieve this verification. More particularly, appellant argues that the specific steps for performing design checking in claims 1 and 5 are not taught or suggested by the broad design checker of Spence or recognition of the problem in Liebmann [Brief, pages 9-14].

Appeal No. 1998-0723
Application 08/570,851

We agree with the position argued by appellant. The rejection never addresses the specific limitations recited in claims 1 and 5. The rejection simply concludes that the invention must be obvious because it achieves the same result as the generic design checker of Spence. The claimed invention, however, is directed to specific steps which must be performed by the design checker to achieve the desired result. The examiner's position is tantamount to asserting that no design checkers can be patentable if they merely achieve the known result desired for any design checker. The claimed invention is directed to the details of the manner of performing the design check, and these specific details have not been addressed by the examiner nor are they suggested by the broad recognition of the problem in Liebmann and Spence.

Since the rejection fails to address the specific limitations of independent claims 1 and 5, the examiner has failed to establish a prima facie case of obviousness. Therefore, we do not sustain the examiner's rejection of claims 1 and 5 or of claims 2-4 and 6-8 which depend

Appeal No. 1998-0723
Application 08/570,851

therefrom. Thus, the decision of the examiner rejecting
claims 1-8 is reversed.

REVERSED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	
)	BOARD OF PATENT
JERRY SMITH)	
Administrative Patent Judge)	APPEALS AND
)	
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Appeal No. 1998-0723
Application 08/570,851