

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NIRAJ KUMAR

Appeal No. 95-3265
Application 08/047,162¹

ON BRIEF

Before KRASS, JERRY SMITH and CARMICHAEL, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

¹Application for patent filed April 14, 1993. According to appellant, the application is a continuation of Application 07/431,924, filed November 6, 1989, now abandoned.

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This is a decision on appeal from the final rejection of claims 1 through 22, all of the claims pending in the application.

The invention pertains to techniques for combining one or more existing integrated circuits onto a single integrated circuit chip.

Representative independent claim 1 is reproduced as follows:

1. A method of combining polygon databases defining mask sets of at least first and second integrated circuit cells to produce a polygon database defining a mask set for a single integrated circuit that combines the functions of the first and second integrated circuit cells, wherein said databases define the respective first and second cells with at least one design rule specified differently, comprising the steps of:

editing the polygon databases for at least one of the first and second integrated circuit cells by making at least one global change to its polygon data in a manner to cause said at least one design rule to be specified the same in the databases of at said at least first and second cells, and

combining the polygon databases in a manner that the data of the first and second cells occupy non-overlapping first and second respective mask area regions of the combined integrated circuit mask set.

The examiner cites the following reference:

Morishita et al. (Morishita) 5,046,012 Sep. 3, 1991
(filed June 15, 1989)

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Claims 1 through 22 stand rejected under 35 U.S.C. 103 as unpatentable over Morishita.

Reference is made to the brief and answer for the respective positions of appellant and the examiner.

OPINION

We reverse.

The examiner has the initial burden of presenting a prima facie case of unpatentability. If the examiner does not present a prima facie case of unpatentability, then, without more, the applicant is entitled to grant of the patent. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. After evidence or argument is submitted by the applicant, patentability is determined on the totality of the record, by a preponderance of the evidence with due regard to the persuasiveness of the arguments. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The examiner's rejection relies on Morishita which the examiner states, at page 4 of the answer,

teaches as a background the well known art of combining mask set databases of different design rules to generate a new mask set database for a more complex IC

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with common design rules (col.1) in the context of hierarchical pattern processing and specifically teaches the concept of defining an area for limiting modification (resizing) of data to only those that falls [sic, fall] within the defined area (Fig. 8B).

The examiner then goes on to conclude that the claimed subject matter would have been obvious because it "is pure common sense" [answer, page 5] to limit mask areas of modification to one mask set when two mask sets of different design rules are put side by side, that labeling a defined area a "phantom mask" does not distinguish over the "background prior art or the concept illustrated in Morishita et al....and that using a global command in place of plural individual commands are [sic] merely software assisted convenience [sic, convenience]" [answer, page 5]. The examiner further states, at page 5 of the answer, that the use of known software tools "does not constitute an invention...when the method of making essentially the same changes for generating a new mask set are known."

Thus, the examiner has employed Morishita to illustrate some broad "concept" of what the examiner considers the instant claimed invention to be and buttresses this with unsupported allegations of what would be "pure common sense" and "known" to arrive, ostensibly, at the instant claimed subject matter.

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However, the examiner has not applied Morishita to the instant claim language in any meaningful way in order to clearly show exactly how one differs from the other so that the examiner can then clearly show how, and why, in spite of these differences, the instant claimed subject matter would have been obvious, within the meaning of 35 U.S.C. 103.

In fact, from our review of Morishita, it appears that the reference has very little relevance to the instant claimed subject matter. Other than a mention in column 1 of the reference of "modifying a design rule" [line 46] and "a merge process" [line 50] for eliminating overlap generated between patterns, Morishita appears to be directed to something very different from the instant claimed invention.

Morishita is interested in reducing processing time in pattern processing whereas the instant claimed subject matter is limiting the number of commands necessary to alter patterns of the mask layout database for an integrated circuit using different design rules. As appellant states, at page 15 of the brief,

[t]he specific design rules recited in the claims as being conformed are not even mentioned in the reference. Nor is the use of a phantom mask for this purpose.

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Further, as appellant points out, at page 16 of the brief, Morishita is deficient in at least three aspects which form part of each and every one of the twenty-two claims on appeal:

(1) the combining of two integrated circuit mask databases, (2) the method to combine two or more databases of circuits executed with different design rules, and (3) the use of a global or single set of commands in pattern generating software to make such changes to all the polygons necessary to effect a design rule change in that database.

In response to this argument, at page 6 of the answer, the examiner contends that Morishita clearly teaches combining mask set databases, identifying Figs. 1A, 1B and 2, along with column 1, and further contends that this is well known according to the background section of the instant specification. The examiner also contends that the steps are also described in "other cited references such as Pryor et al."

First, with regard to the reference to "other cited references," such references form no part of the rejection and may not be relied on by the examiner. See In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970). Next, we have reviewed the portions of Morishita referred to by the examiner and while it appears that Morishita discloses a merge process to eliminate overlap in a resizing process, it is unclear whether

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there is a combination of two integrated circuit mask databases, as claimed.

With regard to admissions in the specification background, the examiner has not specifically identified on what portion of the background he relies. However, even if we agree with the examiner that the general combination of two integrated circuit mask databases was known², and that even the combination of two integrated circuit mask databases of circuits executed with different design rules appears to have been known,³ there is clearly nothing in the specification background, in Morishita, or in appellant's declarations that would suggest that it was known to combine two or more databases of circuits executed with different design rules in the specific, simplified manner claimed. That is, we find no suggestion of using a global or single set of commands in pattern generating software to make

²This is a reasonable assumption in view of appellant's declaration filed May 25, 1994, wherein, at page 2 thereof, appellant/declarant states:

We had before combined two circuit cells from existing products of Zilog wherein the two circuits were designed using the same design rules.

³Page 3, lines 3-22, of the instant specification appears to suggest at least that such combinations, while not always easy, have been made.

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changes necessary to effect a design rule change in an integrated circuit mask database, as claimed. Nor do we find any suggestion of the use of a "phantom mask," as claimed, in Morishita.

We are not convinced by the examiner's reasoning that the existence of known software for making modifications to data representative of graphical elements easier would, itself, have provided sufficient motivation for applying such software in the manner claimed. We are also not convinced by the examiner's contention that the claimed global command is nothing more than a macro-command used for repeated plural uses of elementary commands which would have been obvious to implement as claimed.

Although the examiner has contended that much of the claimed subject matter is nothing more than "pure common sense" and what was known in the art, this has been challenged by appellant. For example, see pages 16-17 of the brief, wherein appellant states that the examiner "has not offered any evidence of prior art which teaches" the use of pattern generation software to effect global changes as claimed, making possible the production of a single integrated circuit chip product from data of two or more chips specified with different design rules, nor has any evidence been offered "which suggests such database

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editing in order to make the design rules of the combined database be the same, as recited in claims 1-9 and 14-22."

When the examiner is so challenged as to what was well known and "pure common sense," the examiner is put to his proofs to establish that which the examiner alleges to be well known by producing objective evidence to support the examiner's allegations. The examiner has failed in this burden in the instant case.

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The examiner's decision rejecting claims 1 through 22
under 35 U.S.C. 103 over Morishita is reversed.

REVERSED

ERROL A. KRASS)	
Administrative Patent Judge)	
)	
)	
JERRY SMITH)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
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JAMES T. CARMICHAEL)	
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