

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

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MING-DOU KER, HUN-HSIEN CHANG, and  
WEN-TAI WANG

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Appeal 2007-1095  
Application 09/944,171  
Technology Center 2800

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Decided: June 11, 2007

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Before JOSEPH L. DIXON, ALLEN R. MACDONALD, and  
JAY P. LUCAS, *Administrative Patent Judges*.

DIXON, 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 1-17.

We AFFIRM-IN-PART.

## BACKGROUND

Appellants' invention relates to ElectroStatic Discharge (ESD) protection circuit with very low input capacitance for high-frequency I/O ports. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. An electrostatic discharge (ESD) protection circuit with low input capacitance, suitable for an I/O pad, comprising a plurality of diodes, stacked and coupled between a first power line and the I/O pad, wherein during normal operation, the diodes are reverse-biased, and, when an ESD event occurs between a second power line and the I/O pad, the diodes are forward-biased to conduct ESD current.

## PRIOR ART

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

WATT	US 5,623,156	Apr. 22, 1997
JUN	US 6,406,948 B1	Jun. 18, 2002

## REJECTIONS

Claims 1, 13, 14, 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Jun.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jun.

Claims 5-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jun as applied to claim 1 above, and further in view of Watt.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the Appellants regarding the above-noted rejections, we make reference to the Examiner's Answer (mailed Mar. 22, 2006) for the reasoning in support of the rejections, and to Appellants' Brief (filed Jan. 4, 2006) and Reply Brief (filed Apr. 21, 2006) for the arguments thereagainst.

#### OPINION

In reaching our decision in this appeal, we have given careful consideration to Appellants' Specification and claims, to the applied prior art references, and to the respective positions articulated by Appellants and the Examiner. As a consequence of our review, we make the determinations that follow.

#### 35 U.S.C. § 102

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The inquiry as to whether a reference anticipates a claim must focus on what subject matter is encompassed by the claim and what subject matter is described by the reference. As set forth by the court in *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), it is only necessary for the claims to “read on”

something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or ‘fully met’ by it.” While all elements of the claimed invention must appear in a single reference, additional references may be used to interpret the anticipating reference and to shed light on its meaning, particularly to those skilled in the art at the relevant time. *See Studiengesellschaft Kohle v. Dart Indus., Inc.*, 726 F.2d 724, 726-727, 220 USPQ 841, 842-843 (Fed. Cir. 1984).

From our review of the Examiner’s rejection of independent claim 1, we find that the Examiner has at least established a requisite initial showing of anticipation of independent claim 1 and shown that Fig. 10 of Jun clearly teaches all of the limitations as recited in independent claim 1. Therefore, we look to Appellants’ arguments to show error in the Examiner’s showing.

Appellants state “Admittedly, Fig. 10 of the patent itself could be a basis for this rejection.” But Appellants contend that Fig. 10 contradicts the remaining parts of the patent specification (Br. 5). Appellants speculate that the symbols used in the figure have been used to indicate a large area of diodes instead of a stacked arrangement (Br. 5). Appellants then go through a lengthy analysis of the remainder of Jun patent and circuitry of Fig. 9. While the analysis appears to be accurate, it is with reference to a mere two dimensional slice of a larger three dimensional circuit which would be used to function as depicted in Fig. 10 (Br. 5-8). While we find Appellants’ analysis helpful, we cannot agree that Appellants’ speculation on the operation of the circuit in Fig. 9 is determinative that the clear and definitive teachings of Fig. 10 are in error. While we do find the text of Jun addressing the circuit of Fig. 10 to be very brief, the circuit on its face is clear and the brief description of the circuit does not identify any clear error in the circuit

diagram. Therefore, we cannot agree with Appellants that the Examiner has erred in rejecting independent claim 1, and we will sustain the rejection of independent claim 1.

With respect to dependent claim 13, Appellants contend that Jun does not teach the claimed “the diode includes a PN junction diode formed by a PN junction between a first source/drain and a substrate of a MOS.” The Examiner maintains that the Examiner has interpreted the claim broadly and that the PN junction and that the PN junction is in a location between the source/drain and the substrate. We agree with the Examiner that the PN junction is in the claimed location. Appellants may have intended that the PN junction is formed with those recited elements, but the language is broad enough to be reasonably interpreted as done by the Examiner. Therefore, Appellants' argument is not persuasive, and we will sustain the rejection of dependent claim 13 and dependent claims 12-17 included therewith by Appellants.

35 U.S.C. § 103

At the outset, we note that to reach a proper conclusion under § 103, the Examiner, as finder of fact, must step backward in time and into the mind of a person of ordinary skill in the art at a time when the invention was unknown, and just before it was made. In light of all the evidence, we review the specific factual determinations of the Examiner to ascertain whether the Examiner has convincingly established that the claimed invention as a whole would have been obvious at the time of the invention to a person of ordinary skill in the art. When claim elements are found in more than one prior art reference, the fact finder must determine “whether a person of ordinary skill in the art, possessed with the understandings and

knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1337 (Fed. Cir. 2006). With respect to the role of the Examiner as finder of fact, the Court of Appeals for the Federal Circuit has stated: “the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The Court of Appeals for the Federal Circuit has also noted: “[w]hat the prior art teaches, whether it teaches away from the claimed invention, and whether it motivates a combination of teachings from different references are questions of fact.” *In re Fulton*, 391 F.3d 1195, 1199-1200, 73 USPQ2d 1141, 1144 (Fed. Cir. 2004) (internal citations omitted). 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 must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). Furthermore, “‘there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness’ . . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d at 988 (Fed. Cir. 2006)).

Further, as pointed out by our reviewing court, we must first determine the scope of the claim. “[T]he name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Therefore, we look to the limitations as recited and disputed in dependent claim 2. Claim 2 recites “each diode is a PN junction diode formed by placing a doped area of a first conductivity type in a first well of a second conductivity type, a deep well of the first conductivity type formed under the first well to isolate the first well from a substrate of the second conductivity type.”

With respect to dependent claim 2, the Examiner maintains that Jun teaches the use of a well within a well (Answer 13) and that it would have been obvious to one skilled in the art at the time of the invention. While we agree with the Examiner that Jun suggests a well within a well, the Examiner has not provided a convincing line of reasoning why it would have been obvious to one skilled in the art at the time of the invention to have used the specific combination of four wells as recited in dependent claim 2. Therefore, we do not find that the Examiner has established the requisite initial showing required under 35 U.S.C. § 103(a). Therefore, we cannot sustain the rejection of dependent claim 2 and claim 3-4 that depend therefrom.

With respect to dependent claim 5, Appellants argue that the clamp circuits of Watt are not between the two power lines (Br. 9). The Examiner maintains that the clamp circuit does extend between two power lines (Answer 13-14). We agree with both the Examiner and with Appellants, but it is the language of dependent claim 5 which controls. Here, the Examiner has relied upon a general teaching of clamp circuits between two power lines

which we find to teach and fairly suggest the invention as claimed. We note that the language of dependent claim 5 does not specifically refer back to “said first power line” and “said second power line” as recited in independent claim 1. Rather, dependent claim 5 again introduces “a first power line” and “a second power line.” While Appellants may have intended the specific reference to the previously recited power lines, we cannot import this limitation into the express language of the claim. Therefore, we cannot find that the Examiner erred, and we will sustain the rejection of dependent claim 5 and claims 6-12 grouped therewith by Appellants (Br. 9).

With respect to dependent claim 12, Appellants indicate that the Examiner has not indicated why it would have been obvious to one skilled in the art at the time of the invention to connect the gate in the claimed manner (Br. 9). The Examiner further details the reason in the responsive arguments at page 14 of the Answer and Appellants have not provided further argument/comment. Therefore, we accept the Examiner further discussion and sustain the rejection of dependent claim 12.

We note that Appellants seem to argue dependent claim 15 at page 9 of the Brief, but claim 15 is not included in the heading for the section and had further been grouped with claims 13-17. Therefore, we have already addressed this claim above.

## CONCLUSION

To summarize, we have sustained the rejection of claims 1, 13, 14, 16, and 17 under 35 U.S.C. § 102; we have reversed the rejection of claims 2-4 under 35 U.S.C. § 103(a); and we have sustained the rejection of claims 5-12 and 15 under 35 U.S.C. § 103(a).

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

Appeal 2007-1095  
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AFFIRMED-IN-PART

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