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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHAO-YUAN SU and CHUNG-YI LIN

Appeal 2010-004973
Application 11/324,967
Technology Center 2800

Before MARC S. HOFF, ELENI MANTIS MERCADER,
and ANDREW CALDWELL, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of claims 1-23. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

THE INVENTION

Appellants' claimed invention is directed to a semiconductor chip (20) having corner regions (22) and a center region (i.e., center octagon region). The corners regions (22) constitute an exclusion zone. Analog circuits are excluded from the exclusion zone. *See* Fig. 4; ¶¶ [0025], [0028], [0030].

Independent claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A semiconductor chip comprising:
corner regions and a center region;

an exclusion zone comprising the corner regions of the semiconductor chip, wherein the corner regions have a diagonal length of greater than about one percent of a diagonal length of the semiconductor chip, wherein analog circuits are excluded out of the exclusion zone; and

wherein the semiconductor chip is formed using 90nm technology or below.

REFERENCES and REJECTION

1. The Examiner rejected claims 21-23 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.
2. The Examiner rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,939,736 B2 to Grabham in view of U.S. Patent No. 5,751,065 to Chittipeddi.

3. The Examiner rejected claims 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Grabham in view of U.S. Patent Publication No. 2001/0008296 A1 to Gelsomini.

ISSUES

The issues are whether the Examiner erred in finding that:

1. Claims 21-23 fail to comply with the written description requirement; and
2. Grabham teaches the limitation of “an exclusion zone . . . wherein analog circuits are excluded out of the exclusion zone” as recited in claim 1, and similarly recited in claims 6 and 13.

PRINCIPLE OF LAW

If a skilled artisan would have understood the inventor to be in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate description requirement is met. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991); *Martin v. Johnson*, 454 F.2d 746, 751 (CCPA 1972) (stating “the description need not be in *ipsis verbis* [i.e., “in the same words”] to be sufficient”). *See also* MPEP § 2163.

ANALYSIS

1. *Do claims 21-23 fail to comply with the written description requirement?*

The Examiner asserts that there is no support in the Specification and drawings for including a digital circuit in the exclusion zone as recited in

claim 21 (Ans. 3). Appellants assert that their own Specification (¶¶ [0026], [0030]) does provide such support (App. Br. 12).

Appellants cite in particular paragraph [0030] which recites: “In the preferred embodiment, stress-sensitive circuits are substantially excluded out of exclusion zones, which have high stresses, and fabricated in remaining regions on the same chip. *Non-stress-sensitive circuits, on the other hand, can be fabricated in both stress-sensitive zones and non-stress-sensitive zones*” (emphasis added).

Furthermore, Appellants cite paragraph [0026]: “circuits to be fabricated on a chip are first analyzed and grouped as stress-sensitive circuits and non-stress-sensitive circuits. . . . Typically, analog circuits are more sensitive to stresses, and are more likely to be stress-sensitive circuits” (App. Br. 12).

Thus, based on the fair reading of paragraphs [0026] and [0030], we agree with Appellants that one skilled in the art would reasonably infer that digital circuits are non-stress-sensitive and can be fabricated in the exclusion zone.

The Examiner seems to require an explicit description in the Specification rather than a reasonable inference to satisfy the written description requirement (Ans. 8-9). We note that if a skilled artisan would have understood the inventor to be in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate description requirement is met. *See Vas-Cath*, 935 F.2d at 1563. The description need not be in *ipsis verbis* to be sufficient. *See Martin*, 454 F.2d at 751. *See also* MPEP § 2163.

The Examiner further asserts that there is no support in the Specification or drawings for not adding MOS devices in the exclusion zone (Ans. 3).

Appellants argue that paragraph [0028] provides such support by reciting: “[i]n the preferred embodiment, analog circuits with channel lengths *less than about ten times the minimum channel length of a MOS device are grouped as stress-sensitive circuits*” (App. Br. 12 (emphasis added)). Appellants explain, and we agree, that the paragraph teaches that analog circuits with channel lengths greater than about ten times the minimum channel length of the MOS device can be grouped into non-stress-sensitive circuits and formed in the exclusion zone (App. Br. 12-13). Again, we note that the description need not be in *ipsis verbis* to be sufficient. *Id.*

Accordingly, we reverse the Examiner’s rejection of claims 21-23 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

2. *Are claims 1-20 under 35 U.S.C. § 103(a) unpatentable over Grabham in view of Chittipeddi?*

Appellants argue that Grabham does not teach “an exclusion zone comprising the corner regions of the semiconductor chip . . . wherein analog circuits are excluded out of the exclusion zone,” as required by claim 1 (App. Br. 8).

Appellants explain that Grabham only teaches centralizing input stages ABBA of operational amplifier 200 near the common centroid C of die 300 (Fig. 3; App. Br. 7-8). Figure 3 of Grabham shows that output stages O of operational amplifier 200 include analog devices (i.e., output drivers containing bipolar transistors) (App. Br. 8). However, nothing in

Grabham teaches that the output stages O should be laid out outside exclusion zones (App. Br. 8). On the contrary, Grabham explicitly teaches forming the output stages O in outer region 312 (col. 3, ll. 64-65) which includes the edges and corner regions (App. Br. 8).

We agree with Appellants that nothing in Grabham precludes analog circuits from being included in the exclusion zone of the corner regions. We note that the Examiner's response that it is so well known that analog circuits must be treated differently than digital circuits, due to their sensitivity to parametric shifts induced by stress near the edges and corners due to wire bonding and dicing operations, is inappropriate. As Appellants pointed out by citing MPEP § 2144.03(A), "[i]t is never appropriate to rely solely on 'common knowledge' in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based." *See* MPEP § 2144.03(A).

The Examiner's assertion that "there is a lack of patent literature on this point given that this concept is so well known and has been practiced for decades so that it is an inherent concept in the design art" (Ans. 7) is without merit. The Examiner has not factually supported this assertion in any way, for example with Expert Affidavits for consideration.

We further agree with Appellants contention that Chittipeddi teaches away from the disputed limitation (App. Br. 9-10) because Chittipeddi teaches forming input and output buffers in the exclusion regions (col. 1, ll. 52-56).

Accordingly, we reverse the Examiner's rejection of claim 1 and for the same reasons the rejections of claims 2-5. We also reverse the Examiner's rejections of claims 6-20 which recite similar limitations.

3. Are claims 21-23 unpatentable under 35 U.S.C. § 103(a) over Grabham in view of Gelsomini?

For the same reasons as we stated above, we reverse the Examiner's rejections of claims 21-23 because the additional reference of Gelsomini does not cure the above cited deficiencies.

CONCLUSIONS

The Examiner erred in finding that:

1. Claims 21-23 fail to comply with the written description requirement; and
2. Grabham teaches the limitation of "an exclusion zone . . . wherein analog circuits are excluded out of the exclusion zone" as recited in claim 1, and similarly recited in claims 6 and 13.

DECISION

The Examiner's decision rejecting claims 21-23 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement is reversed. The Examiner's decision rejecting claims 1-23 under 35 U.S.C. § 103(a) is reversed.

REVERSED

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