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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte HELMUT KOECK,
TOBIAS WERTH, FRANK HEINRICHS,
and UDO AUSSERLECHNER

_____

Appeal 2018-007109
Application 14/812,907
Technology Center 2800

_____

Before ADRIENE LEPIANE HANLON, N. WHITNEY WILSON, and JEFFREY R. SNAY, *Administrative Patent Judges*.

HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL

A. STATEMENT OF THE CASE

The Appellant[1] filed an appeal under 35 U.S.C. § 134(a) from an Examiner's decision finally rejecting claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Infineon Technologies AG. Appeal Brief dated January 22, 2018 ("App. Br."), at 2.

The claims on appeal are directed to a magnetic-field sensor. Claim 1, the sole independent claim on appeal, is reproduced below from the Claims Appendix to the Appeal Brief. The limitation at issue is italicized.

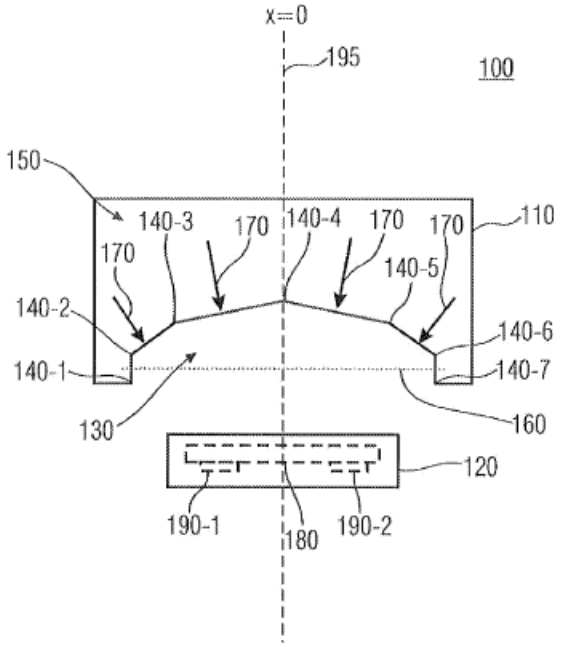
1. A magnetic-field sensor comprising:

a magnetic-field sensor arrangement; and

a back-bias magnet, wherein *a structure of the back-bias magnet comprises an inhomogeneous magnetization*.

App. Br. 19.

The Appellant's Figure 1a, reproduced below, illustrates a magnetic-field sensor according to the disclosed invention.



Appellant's Fig. 1a is a cross-sectional view of an embodiment of a magnetic-field sensor according to the Appellant's invention.

The Appellant discloses that magnetic-field sensor 100 comprises a magnetic body or back-bias magnet 110 and a magnetic-field sensor arrangement 120. Spec. ¶ 34. The Appellant discloses that the magnetic body or back-bias

magnet 110 has an inhomogeneous magnetization as indicated by arrows 170 in Figure 1a. Spec. ¶ 44. According to the Appellant, "a magnetization of a magnetic body is inhomogeneous when it is largely not homogeneous." Spec. ¶ 45. In other words, magnetic body 110 in Figure 1a is said to have

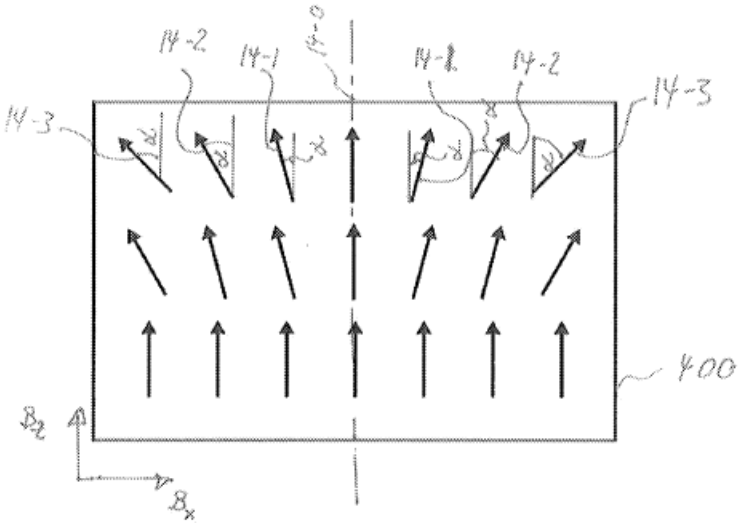
> an inhomogeneous magnetization, as is shown by the arrows 170, since its magnetization does not have a constant direction and/or a constant magnitude of the magnetization M, in the vectorial sense, across the entire magnetic body or across a substantial part of the entire magnetic body.[2] In the context of the present application, a substantial portion of the entire magnetic body 110, or of the magnetic body 110, is understood to mean a volume fraction of the magnetic body 110 which ranges from 50 % to 100 % . . . .

Spec. ¶ 45.

The Appellant discloses that "the presence of an *inhomogeneous magnetic field* on the outside and/or inside of a magnet need *not* be an indication that the *magnetization, too, is inhomogeneous*." Spec. ¶ 46 (emphasis added); *see also* App. Br. 8 (stating that "[i]t is well known in the art that a *uniformly magnetized* object can produce an inhomogeneous magnetic field by virtue of its geometry alone" (emphasis added)).

The Appellant's Figure 14a, reproduced below, illustrates another inhomogeneous magnet according to the disclosed invention.

[2] A homogeneous magnetization, on the other hand, is said to mean, in the context of the Appellant's invention, "a magnetization which is constant and unidirectional with regard to its direction and intensity." Spec. ¶ 45.



Appellant's Figure 14a is a cross-sectional view of an additional inhomogeneous magnet according to the Appellant's invention.

The Appellant discloses that "[a] person of ordinary skill will appreciate that it is feasible to produce a bulk magnet comprising an inhomogeneous magnetization as illustrated in Fig. 14A using a mold process." Spec ¶ 146.

> According to a first variant of such molding process, . . . the molding tool may be configured to generate a spatially varying magnetic flux density inside the tool while magnetizable molding material is injected into and/or melted inside the molding tool. The spatially varying magnetic flux density inside the molding tool will project onto the magnetizable molding material and shall persist once the molding process is completed yielding the bulk magnet 400 with inhomogeneous magnetization as a unitary member.

Spec. ¶ 146.

In an alternative molding process, the molding tool may be filled with a standard magnetizable or magnetic molding material. Spec. ¶ 147. "Once the magnetizable molding material is hardened, an inhomogeneous external magnetic field may be applied to the hardened molding material in the shape of the inhomogeneous magnet to be produced." Spec. ¶ 147.

The claims on appeal stand rejected as follows:

(1) claim 1 provisionally on the ground of nonstatutory double patenting as unpatentable over claims 1 and 12 of Application 14/812,869;[3]

(2) claims 1, 2, 4, 5, 7, 8, 10–15, and 17–19 under 35 U.S.C. § 102(b) as anticipated by Butzmann;[4,5]

(3) claim 6 under 35 U.S.C. § 103(a) as unpatentable over Butzmann;

(4) claims 3 and 9 under 35 U.S.C. § 103(a) as unpatentable over Butzmann in view of Hoag;[6]

(5) claim 16 under 35 U.S.C. § 103(a) as unpatentable over Butzmann in view of Bloodworth et al.;[7] and

(6) claim 20 under 35 U.S.C. § 103(a) as unpatentable over Butzmann in view of Gonsalves et al.[8]

B. DISCUSSION

1. Rejection (1)

The Examiner concludes that claims 1 and 12 of Application 14/812,869 recite a sensor comprising a magnetic-field sensor arrangement and a back-bias magnet arrangement corresponding to claim 1 of the instant Application. Final Act. 4.[9]

[3] Application 14/812,869 is now US Patent 10,338,159, issued July 2, 2019.
[4] US 2005/0007102 A1, published January 13, 2005 ("Butzmann").
[5] The rejection of claims 1, 2, 4, 5, 7, 8, 10–15, and 17–19 under 35 U.S.C. § 103(a) as unpatentable over Butzmann was withdrawn in the Examiner's Answer. Examiner's Answer dated May 2, 2018 ("Ans."), at 2.
[6] US 4,849,666, issued July 18, 1989 ("Hoag").
[7] US 4,339,715, issued July 13, 1982 ("Bloodworth").
[8] US 5,021,736, issued June 4, 1991 ("Gonsalves").
[9] Final Office Action dated July 7, 2017.

The Appellant does not direct us to any error in the Examiner's conclusion. Rather, the Appellant "requests that the double patenting rejection be held in abeyance until all other claim rejections have been withdrawn." App. Br. 17.

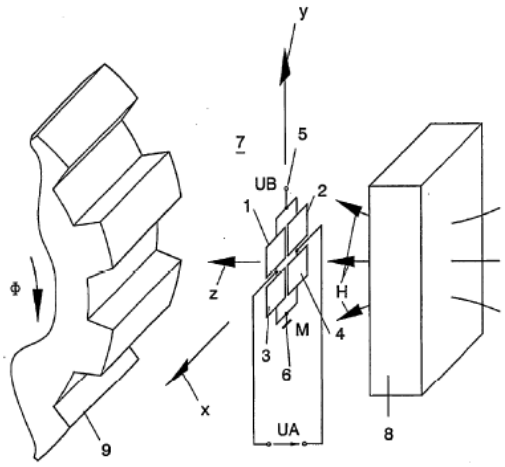
Application 14/812,869 matured into US Patent 10,338,159 on July 2, 2019. Therefore, the *provisional* nonstatutory double patenting rejection of claim 1 is now moot. Nonetheless, the Examiner may consider whether an obviousness-type double patenting rejection is proper based on the claims of US Patent 10,338,159.

2. Rejection (2)

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

The Examiner finds Butzmann discloses a magnetic-field sensor comprising a magnetic-field sensor arrangement and back-bias magnet 8. Final Act. 5–6. The Examiner finds the structure of magnet 8 comprises an inhomogeneous magnetization as recited in claim 1 because the magnet produces an inhomogeneous magnetic field. Final Act. 6 (citing Butzmann ¶ 16); Butzmann ¶ 16 (disclosing that "[t]he invention is based on the recognition that a rectangular permanent magnet used as a working magnet produces an inhomogeneous magnetic field"). Alternatively, the Examiner finds "it is implicit that magnet 8 has a structure comprising an inhomogeneous magnetization." Final Act. 6 (citing Butzmann ¶ 16).

Butzmann Figure 1, reproduced below, shows magnet 8 in the disclosed magnetic-field sensor.



Butzmann's Figure 1 shows an example of an arrangement for measuring the rotational speed of a rotating motion sensor element.

The Appellant argues that Butzmann Figure 1 "do[es] not show what is going on inside the magnet. This is particularly clear in Figure 1 . . . , where the H-arrows start to the right of magnet 8, are not visible within magnet 8, and then extend to the left of magnet 8." App. Br. 6 (emphasis omitted). The Appellant also argues that the written disclosure of Butzmann "does not address the magnetization of the structure of magnet 8 at all." App. Br. 7; *id*. (arguing that the word "magnetization" only appears once in Butzmann's Specification at paragraph 25).

As for inherency, the Appellant argues that "the Examiner has not provided the legally required basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic (a structure comprising an inhomogeneous magnetization) necessarily flows from the teachings of the applied prior art." App. Br. 7 (emphasis omitted).

The Appellant's arguments are persuasive of reversible error. The Examiner bears the initial burden of presenting a prima facie case of unpatentability. *In re*

Oetiker, 977 F.2d 1443, 1445 (Fed. Cir. 1992). In this case, the Examiner does not direct us to any disclosure in Butzmann expressly disclosing that the structure of magnet 8 comprises an inhomogeneous magnetization. *See* Reply Br. 2 (contending that "the Examiner does not dispute that Butzmann does not explicitly disclose a structure of the back-bias magnet comprising an inhomogeneous magnetization" (emphasis omitted)).[10]

The Examiner does find that the structure of Butzmann's magnet inherently comprises an inhomogeneous magnetization based on its shape. *See* Ans. 4 (finding that Butzmann's magnet, like the Appellant's magnet 400 illustrated in Figure 14a, has a rectangular structure and is a unitary member); Ans. 9 (finding that "any magnet having a rectangular shape corresponds to a structure comprising an inhomogeneous magnetization"). However, we concur with the Appellant that the Examiner's findings are not sufficient to support a finding of inherency. *See Hansgirg v. Kemmer*, 102 F.2d 212, 214 (CCPA 1939) ("Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient."). More specifically, we find that a preponderance of the evidence of record does not establish that the structure of Butzmann's unitary, rectangular magnet which has an inhomogeneous magnetic field *necessarily* comprises an inhomogeneous magnetization as recited in claim 1. *See* Spec. ¶ 46 (disclosing that "the presence of an inhomogeneous magnetic field on the outside and/or inside of a magnet need not be an indication that the magnetization, too, is inhomogeneous"); *see also* App. Br. 8–9 (relying on a Wikipedia article to show a magnet having a uniform magnetization and an inhomogeneous magnetic field).

[10] Reply Brief dated June 29, 2018.

We recognize that both the Appellant and Butzmann disclose rectangular magnets. *See* Appellant Fig. 14a; Butzmann Fig. 1. The evidence of record, however, establishes that shape is not the sole factor affecting a magnet's magnetization. Rather, the Appellant discloses that the method of making a magnet, for example, also affects its magnetization. *See* Spec. ¶¶ 146, 147. The Examiner appears to recognize as much but does not consider that additional factor in attempting to show inherency because it is not recited in the claims. *See* Ans. 5 (concluding that "claim 1 does not recite any particular design, arrangement or shape of the structure, a composition of the structure or a manufacturing process of the structure leading to an inhomogeneous magnetization").

The Examiner's interpretation of claim 1 is erroneous. The Appellant discloses that the structure of a magnet comprising an inhomogeneous magnetization as recited in claim 1 "does not have a constant direction and/or a constant magnitude of the magnetization M, in the vectorial sense, across the entire magnetic body or across a substantial part of the entire magnetic body." Spec. ¶ 45. The Examiner does not show that the magnetization of Butzmann's magnet 8 is "inhomogeneous" as that term is used in paragraph 45 of the Appellant's Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997) ("the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification"). Therefore, in order to overcome the anticipation rejection on appeal, the Appellant, on this record, is not required to further limit the claimed invention to a particular method of making the magnet, the material(s) used to make the magnet, and/or a particular magnet shape. *See Ethicon Endo-*

Surgery, Inc. v. U.S. Surgical Corp., 93 F.3d 1572, 1582 n.7 (Fed. Cir. 1996), citing *In re Vickers*, 141 F.2d 522, 525 (CCPA 1944) ("an applicant . . . is generally allowed claims, when the art permits, which cover more than the specific embodiment shown" (emphasis omitted)).

For the reasons set forth above, the anticipation rejection of claims 1, 2, 4, 5, 7, 8, 10–15, and 17–19 is not sustained.

The Examiner does not rely on Butzmann, Hoag, Bloodworth, and/or Gonsalves in the obviousness rejections on appeal to cure the deficiencies in Butzmann identified above in the anticipation rejection. Therefore, the obviousness rejections of claims 3, 6, 9, 16, and 20 also are not sustained.

C. CONCLUSION

The Examiner's decision is reversed.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4, 5, 7, 8, 10–15, 17–19	102(b)	Butzmann		1, 2, 4, 5, 7, 8, 10–15, 17–19
6	103(a)	Butzmann		6
3, 9	103(a)	Butzmann, Hoag		3, 9
16	103(a)	Butzmann, Bloodworth		16
20	103(a)	Butzmann, Gonsalves		20
Overall Outcome[11]				**1–20**

[11] Claim 1 was also provisionally rejected on the ground of nonstatutory double patenting as unpatentable over claims 1 and 2 of Application 14/812,869. For the reasons discussed above, that rejection is now moot.

REVERSED