United States Court of Appeals for the Federal Circuit

04-1244
(Serial No. 08/395,638)

IN RE SETSUO FUJIMURA, MASATO SAGAWA,
YUTAKA MATSUURA, HITOSHI YAMAMOTO, and NORIO TOGAWA

DECIDED: March 31, 2005

Before BRYSON, GAJARSA, and PROST, Circuit Judges.

BRYSON, Circuit Judge.

Setsuo Fujimura, Masato Sagawa, Yukata Matsuura, Hitoshi Yamamoto, and Norio Togawa (collectively, the "appellants") seek review of a decision from the United States Patent and Trademark Office's Board of Patent Appeals and Interferences, Appeal No. 2003-2030. The Board upheld a patent examiner's rejection on the basis of obviousness-type double patenting. We affirm.

I

The appellants are the inventors on expired U.S. Patent No. 4,859,255 ("the '255 patent"). The patent disclosed and recited a sintered permanent magnet intended for incorporation into materials used for making industrial and domestic electrical appliances. The goal of the invention of the '255 patent was to reduce the cost of making permanent magnets by decreasing the amount of cobalt required in the

production process. The ’255 patent taught a method for achieving that goal by creating a chemical complex that includes iron and cobalt, in which a certain range of iron substitutes for a certain range of cobalt. That complex is created by a process that includes melting the constituent elements together and cooling the resulting product into a solid, grinding the solid into a powder, aligning the ground fragments, and then heating the powder so that the powder bonds together but does not melt. The last heating step is called “sintering.”

After obtaining the ’255 patent, the appellants filed the present application for a patent on a permanent magnet alloy, a precursor to the sintered permanent magnet. The examiner rejected claims 27-45 of the application on the basis of obviousness-type double patenting in view of claims 1-28 of the ’255 patent. The appellants amended the claims in an attempt to overcome the examiner’s rejections by adding the term “fully crystalline” to the preamble of the independent claims. The examiner maintained his rejection, however. The appellants appealed to the Board, but the Board affirmed the examiner’s rejection based on obviousness-type double patenting.

Claim 1 of the ’255 patent is representative of the issued claims cited by the examiner:

> 1. A magnetic anisotropic sintered permanent magnet of the (Fe,Co)BR system in which R represents the sum of R_1 and R_2 wherein:
>
> R_1 is at least one rare earth element selected from the group consisting of Dy, Tb, Gd and Ho, and
>
> at least 80 at % of R_2 consists of Nd and/or Pr, the balance being at least one other element selected from the group consisting of La, Ce and Y,
>
> said system consisting essentially of, by atomic percent, 0.2 to 5% of R_1, 12.5 to 20% of R, 5 to 11% of B, and at least 69% Fe in which Co is substituted for Fe in an amount greater than zero and not exceeding 25% of the system; and

said magnet having a tetragonal (Fe,Co)-B-R crystal structure phase of at least 50 vol % of the entire magnet, having a higher Curie temperature than a corresponding Fe-B-R base composition containing no Co, and having a maximum energy product of at least 25 MGOe and an intrinsic coercive force of at least 12 kOe.

Application claim 27 is representative of the two independent claims in the application. Following the amendment made after the examiner's initial rejection, it reads as follows:

27. A fully crystalline (Fe,Co)BR permanent magnet alloy in which R represents the sum of R_1 and R_2 wherein:

R_1 is at least one rare earth element selected from the group consisting of Dy, Tb and Ho, and

R_2 consists of Nd and/or Pr,

said alloy consisting essentially of, by atomic percent, 0.2 to 3% of R_1, 12.5 to 20% of R, 5 to 11% of B, and at least 69% Fe in which Co is substituted for Fe in an amount greater than zero and not exceeding 25% of the alloy; and

said alloy having a tetragonal (Fe,Co)-B-R crystal structure phase of at least 50 vol % of the entire magnet alloy, having a higher Curie temperature than a corresponding Fe-B-R base composition containing no Co.

Claim 27 of the application and claim 1 of the '255 patent recite substances that share a number of compositional similarities. In both, the preamble recites that each is composed of iron (Fe), cobalt (Co), boron (B), and a combination of rare earth elements (R) selected from two groups (R_1 and R_2). In claim 1 of the '255 patent, R_1 includes four rare earth elements, while application claim 27 recites R_1 as covering three of those four rare earth elements. Likewise, in claim 1 of the '255 patent, R_2 contains at least 80% Nd and/or Pr, with the balance being selected from three other rare earth elements; application claim 27 limits R_2 to being 100% Nd and/or Pr.

Both claims also recite identical compositional ranges for iron and cobalt content ("at least 69% Fe in which Co is substituted for Fe in an amount greater than zero and not exceeding 25%"), boron content ("5 to 11% of B"), and overall rare earth element

content ("12.5 to 20% of R"). The only difference in range is with respect to the rare earth element R_1, whose upper limit is 3% in the application and 5% in the patent; however, the lower limit in both is 0.2%.

II

The appellants argue that the Board's opinion fails to provide an adequate basis for meaningful judicial review. See In re Hyatt, 211 F.3d 1367, 1371 (Fed. Cir. 2000) ("Board must explain the basis for its rulings sufficiently to enable meaningful review"). According to the appellants, the Board's opinion falls short in two respects. First, the Board failed to define the terms "fully crystalline," "alloy," "sinter," "permanent magnet," and "anisotropic." Second, the Board failed to explain how the subject matter of the application claims overlaps with the subject matter of the claims of the '255 patent.

The terms "alloy," "sinter," "permanent magnet," and "anisotropic" were never in dispute before the Board or the examiner. Therefore, the Board was not required to define those terms. See Gechter v. Davidson, 116 F.3d 1454, 1460 (Fed. Cir. 1997) ("Claim construction must [ ] be explicit, at least as to any construction disputed by parties . . . ."). As to the term "fully crystalline," the Board discussed that term at length in its opinion, and we are satisfied that the Board's discussion provides a sufficient basis for judicial review. In particular, the Board noted that the term "fully crystalline" is not defined in the specification, but that the common written description of the expired '255 patent and the application referred to the magnet of the invention as exhibiting "crystalline x-ray diffraction patterns that are sharply distinguished over those of the conventional amorphous strips or melt-quenched ribbons, and contain as the major phase a novel crystalline structure of the tetragonal system." Moreover, the Board

noted that the claims of both the ’255 patent and the application recite a chemical complex “having a tetragonal (Fe, Co)-B-R crystal structure phase of at least 50 vol %” of the entire complex. Based on the parallelism between the language of the claims and the fact that the ’255 patent and the application share a common written description, the Board concluded that “the crystalline structure of the alloy and the crystalline structure of the magnet have similar meanings” and that the term “fully crystalline” did not add anything new to the application claims that was not already found in the claims of the ’255 patent.

We also find that the Board’s opinion was adequate to permit meaningful judicial review of the Board’s overlap analysis. The Board explained that the substances claimed in the application and in the ’255 patent were similar with respect to both composition and structure. With respect to composition, the Board compared application claim 27 with patent claim 1 and agreed with the examiner that both claims “recite essentially the same alloy composition”; the only difference between the two was that the application claimed the alloy composition prior to sintering, while the ’255 patent claimed the magnet that was the result of sintering the alloy composition. Based on that analysis, the Board concluded that the examiner was correct in rejecting the alloy composition claim of the application on the ground that it was “obvious in view of the sintered permanent magnet of [the ’255 patent] . . . .” The Board’s reasoning is sufficiently clear to enable us to review that decision.

The appellants contend that the term “alloy” should be defined as “a substance composed of two or more metals or a metal and a nonmetal intimately united usually by being fused together and dissolved in each other when molten.” Under that definition,

however, both the substance recited in claim 1 of the expired ’255 patent and the substance recited in the application are alloys.

As noted above, the Board also sufficiently determined that the alloy claimed in the application and the magnet claimed in the ’255 patent have the same crystalline structure. The Board relied on a comparison of the claim language in the ’255 patent and the application, both of which recite the structure of the permanent magnet alloy as “having tetragonal (Fe,Co)-B-R crystal structure phase.” The Board also looked to the language of the written description of the application, providing that both the magnet and the alloy exhibit certain “crystalline x-ray diffraction patterns” and “contain as the major phase a novel crystalline structure of the tetragonal system.” Based on its analysis of the written description and the claims, the Board properly concluded that the inclusion of the term “fully crystalline” in claim 27 of the application did not add any structural limitations to the permanent magnet disclosed in the written description.

Finally, the appellants object to the Board’s statement that “when overlapping of subject matter occurs between two sets of claims, even though the claims are not identical, the claims are not patentably distinct from each other.” The appellants appear to argue that given the Board’s statement, the Board improperly determined that substantial overlap alone was sufficient to find double patenting. That is not what the Board did, however. Instead, the Board found that, in light of the overlap between the patented claims and the claims of the application, the examiner was correct to find that a person of ordinary skill in the art would find that the claims in the application were obvious. We find no fault with the Board’s analysis in that regard.

III

The appellants next contend that there are two distinctions between the claims at issue in the application and the ’255 patent, and that those distinctions are sufficient to overcome an obviousness-type double patenting rejection. First, the appellants contend that the magnet claimed in the application requires an alloy and a fully crystalline structure, while the patented magnet does not. As we have noted already, however, the Board held that the use of the terms “alloy” and “fully crystalline” do not add to or subtract from the composition or structural limitations already recited in the patented claims. That determination was supported by substantial evidence in view of the claim language in the ’255 patent and the application, as well as the language of the common written description.

Second, the appellants assert that the substances claimed in the application and in the ’255 patent are distinguishable because the magnet of the ’255 patent is sintered, while the alloy of the application is not. The examiner found that the alloy “is obvious in view of the sintered permanent magnet claimed in ’255 which is made of the instantly claimed alloy.” The examiner explained that both claim 1 of the ’255 patent and claim 27 of the application “recite essentially the same alloy composition,” and that the sintering step recited in the ’255 patent merely meant that the alloy recited in the two claims was “in different forms,” not that the composition was different. The Board explicitly agreed with that analysis.

The appellants argue that the examiner and the Board erred because materials other than the “permanent magnet alloys” claimed in application claim 27 could be used to make the magnet claimed in the ’255 patent. The appellants’ argument misses the

point, however. It does not matter that there may be some other precursor that could produce the sintered permanent magnet. What matters is whether the precursor permanent magnet alloy would be obvious to a person of skill in the art having knowledge, based on claim 1 of the '255 patent, of all the components of the precursor alloy. The only significant difference between claim 1 of the '255 patent and claim 27 of the application is that the former recites a sintered form of the latter. The appellants do not suggest that sintering alters the composition of the alloy. Accordingly, the examiner sensibly concluded that a person of ordinary skill in the art, having possession of a sintered magnet with particular components could infer the unsintered form of the same composition, which is the composition claimed in application claim 27. We therefore hold that the Board's decision upholding the examiner's rejection in that regard was supported by substantial evidence.

IV

Finally, the appellants argue that the Board improperly used the specification of the '255 patent as prior art. In particular, they contend that the Board used the '255 patent specification to support its statement that "[t]he instantly claimed alloy is useful only for the patented magnet of Fujimura in view of the fact that the material composition is indistinguishable as discussed." In fact, the Board did not use the '255 specification as prior art. Rather, the Board used the specification to help define the meaning of the claims, and based on its construction of the claims the Board concluded that a person of ordinary skill in the art would have found the application claims obvious in light of the claims in the '255 patent. That was the proper methodology to use in an obviousness-type double patenting inquiry. Accordingly, we reject the appellants'

argument that the Board improperly upheld the rejection of the application claims by using the written description of the ’255 patent as prior art.

Reduced to its essentials, this is a case in which the patentees have attempted to extend the period of patent protection for their invention by claiming a composition that is a direct precursor of the product for which their patent protection has expired. In that setting, the examiner and the Board properly found that the appellants’ new claims are obvious in light of the expired ones, and we therefore affirm.