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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROGER CARLOS BECERRA, BRIAN LEE BEIFUS,
LUDOVIC ANDRE CHRETIEN, YAO DA,
and GLEN CHESTER YOUNG

Appeal 2019-003833
Application 14/335,335
Technology Center 2800

Before JAMES C. HOUSEL, MERRELL C. CASHION, JR., and
JANE E. INGLESE, *Administrative Patent Judges*.

CASHION, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 16–20, 22, and 25–29. 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 Regal Beloit America. Appeal Br. 1.

The invention relates generally to motor controllers and methods for adjusting an operation of a motor using a first activation signal that is a direct current signal and a second activation signal that is an alternating current signal, or vice versa. Spec. ¶¶ 1, 38. Claim 16 illustrates the subject matter on appeal and is reproduced below:

16. A motor controller coupled to a motor, said motor controller comprising a processor, a memory coupled to said processor, and a plurality of inputs coupled to said processor, said motor controller configured to:

receive, through at least one of said plurality of inputs, a first activation signal having a first type, wherein the first type is one of a direct current (DC) signal and an alternating current (AC) signal;

operate the motor in a first mode of operation in response to receiving the first activation signal;

receive, through at least one of said plurality of inputs, a second activation signal in combination with receiving the first activation signal, the second activation signal having a second type, wherein the second type is the other of the one of the DC signal and the AC signal associated with the first activation signal; and

in response to receiving both the first activation signal of the first type and the second activation signal of the second type, reconfigure said processor such that said motor controller selectively increases or decreases a value of a parameter associated with the first mode of operation.

Independent claim 25 relates generally to a method of adjusting a value of a parameter associated with operation of a motor using the controller of claim 16.

Appellant requests review of the Examiner's rejection of claims 16–20, 22, and 25–29 under 35 U.S.C. § 103 as unpatentable over Densmore (US 5,290,205, issued March 1, 1994) and Mingliang (Duan Mingliang, Meng Yanjing, Xu Deyu and Huang Jianbing, “Speed closed-loop control system based on general-purpose inverter,” ICEMS '2001. Proceedings of the Fifth International Conference on Electrical Machines and Systems (IEEE Cat. No.01EX501), Shenyang, China, 2001, pp. 564–566 vol.1, doi: 10.1109/ICEMS.2001.970738). Appeal Br. 3²; Final Act. 3.

OPINION

After review of the respective positions that Appellant presents in the Appeal and Reply Briefs and the Examiner presents in the Final Office Action and the Answer, we REVERSE the Examiner's prior art rejection of claims 16–20, 22, and 25–29 under 35 U.S.C. § 103 for the reasons Appellant presents. We add the following.

Independent claim 16³ recites a motor controller configured to receive a first activation signal having a first type, wherein the first type is one of a direct current (DC) signal and an alternating current (AC) signal and a second activation signal in combination with receiving the first activation signal, the second activation signal having a second type, wherein the second

² We refer to the Appeal Brief filed August 30, 2018 as “Appeal Brief” or “Appeal Br.” for the purposes of this opinion.

³ Both independent claims 16 and 25 recite the use of first and second activation signals to adjust a value of a parameter associated with operation of a motor. For the purposes of this opinion, we limit our discussion to independent claim 16 with the understanding that the discussion applies equally to the subject matter of claim 25.

type is the other of the one of the DC signal and the AC signal associated with the first activation signal.

We refer to the Examiner's Final Office Action for a complete statement of the rejection of claim 16. Final Act. 3–7.⁴

Briefly, the Examiner finds Densmore teaches a motor controller to control the speed of a motor by receiving first and second activation signals. Final Act. 3–4. The Examiner finds that Densmore's first activation signal is a square wave pulse signal and that the second activation signal is a direct current (DC) signal. Final Act. 3–4; Densmore Figure 7B, col. 7, ll. 47–62, col. 8, ll. 18–36. The Examiner reasons that Densmore's pulse signal is an alternating current (AC) signal because, under a broadest reasonable interpretation,

[a]ny pulsating signal is interpreted as the AC signal since the claim fails to define the AC signal. As a result, Examiner maintains the rejection (Fig. 7B clearly discloses 5V SPEED ENABLE is a pulsating AC signal which goes up and down with a certain magnitude. Also, it is well known that every periodic signal comprises of collections sine or cosine wave based on Fourier transform. In other words, SPEED ENABLE signal in Fig. 7B is the collection of different sine or cosine waves at different frequencies which are [AC] signal as well). Accordingly, Densmore clearly discloses receiving a first activation signal having a first type that is either a DC signal or an AC signal, and receiving a second activation signal having a second type that is the other of the one of the DC signal and the AC signal associated with the first activation signal as stated above in the rejection.

⁴ A discussion of Mingliang is unnecessary for disposition of this appeal. The Examiner relies on Mingliang to address inventive features not related to the use of the first and second activation signals. *See* Final Act. 5–7.

Final Act. 16–17; *see also* Ans. 3–8.

Appellant argues that the term AC signal is a term of art that is well known. According to Appellant, an AC signal is a

signal [that] continually reverses direction, or polarity, and alternates between being output from a positive and a negative terminal of a power supply. On a voltage versus time graph [], this continual reversing of direction is shown by the voltage signal crossing the time axis. The signal increases from 0V in the positive direction, reaches a peak voltage, and then decreases back towards 0V. When the signal crosses the 0V line and increases in the negative direction, it has changed polarity. This continual change in direction or polarity is a fundamental element of the definition of an AC signal, as known in the art.

Appeal Br. 5. Appellant further argues that Densmore’s pulse signal is “a DC voltage signal because it alternates between values of 0V and 5V, and is always in the positive direction, never crossing the time axis to change directions or polarities.” *Id.* at 5–6.

We agree with Appellant that there is reversible error in the Examiner’s determination of obviousness. “[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1256 (Fed. Cir. 2007) (quoting *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000)). *See also In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (explaining that the scope of the claims in patent applications is not determined solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (“[T]he

specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” (citation omitted)). In general,

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 [Appellant’s] [S]pecification.

In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

Thus, the terms in the appealed claims must be given their broadest reasonable interpretation including the ordinary meaning unless another meaning is intended by Appellant as established in the written description of their Specification. *See, e.g., In re Zletz*, 893 F.2d 319, 321–22 (Fed. Cir. 1989).

When the Specification does not contain an express definition, a reasonable, supported interpretation of the appealed claims that differs from that urged by applicants can be used to determine the patentability of the claims. *Morris*, 127 F.3d at 1055–56 (“Absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the PTO’s definition unreasonable when the PTO can point to other sources that support its interpretation.”). Indeed, “[i]t is the applicants’ burden to precisely define the invention, not the PTO’s. *See* 35 U.S.C. § 112 ¶ 2 [statute omitted].” *Morris*, 127 F.3d at 1055–56.

Here, we agree with Appellant that the Examiner’s interpretation that any pulsating signal, such as Densmore’s pulse signal, can be construed as

an AC signal is unreasonable. As Appellant argues, the term AC signal is a term of art. In fact, Appellant’s description of an AC signal comports with established definitions for this term. *See* Electronics Club - AC, DC and Electrical Signals (<https://electronicsclub.info/acdc.htm> (last accessed June 16, 2020)); *see also* Encyclopaedia Britannica (<https://www.britannica.com/science/alternating-current> (last accessed June 16, 2020)). Thus, the Examiner’s response that no special definition of “the AC signal” is disclosed in the Specification does not refute adequately Appellant’s argument that AC signal is a term of art or address Appellant’s request for a construction of the term “AC signal” that does not conflict with what is well-known and well-understood by a person of ordinary skill in the art. Ans. 4; Reply Br. 1. While the Examiner may point to a definition from other sources that supports a proposed alternate interpretation of a term, the Examiner, in this case, fails identify a source for the proposed alternate definition that any pulse signal, such as Densmore’s pulse signal, can be construed as an AC signal. *See Morris*, 127 F.3d at 1055–56.

The Examiner’s reasoning that it is well known that every periodic signal comprises collections of sine or cosine waves based on a Fourier transform also lacks persuasive merit. Final Act. 16–17. Claim 16, directed to a motor controller, is an apparatus claim *configured to* receive an AC signal. Even if a pulse signal is produced from an AC signal, once it becomes a pulse signal, this pulse signal is no longer an AC signal as understood by one of ordinary skill in the art.

Although it is well established that claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function, *see, e.g., In re Schreiber*, 128 F.3d 1473, 1477–78 (Fed. Cir. 1997),

in order to satisfy the functional limitations in an apparatus claim, however, the prior art apparatus must be capable of performing the claimed function. *Id.* at 1478. As such, to be capable of performing the functional limitations in claim 16, the control unit must possess the necessary structure, hardware or software, for example, the programming, to function as claimed. The Examiner does not find that Densmore's motor controller is programmed or otherwise structured to function as claimed. That is, the Examiner does not find that Densmore's motor controller is capable of receiving an AC signal, as understood by one of ordinary skill in the art.

While it is possible to install software and/or hardware that would allow Densmore's control unit to perform the functions of the control unit as required in claim 16, the "configured to" language requires that the prior art structure be capable of performing the function without further programming. *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011) (discussing *Microprocessor Enhancement Corp. v. Texas Instruments, Inc.*, 520 F.3d 1367 (Fed. Cir. 2008)). When the functional language is associated with programming or some other structure required to perform the function, that programming or structure must be present in order to meet the claim limitation. *Id.* The Examiner's attempt to interpret Densmore's pulse signal as an AC signal is insufficient to establish that Densmore's motor controller is capable of receiving an AC signal because, as Appellant argues, a pulse signal is not an AC signal.

Accordingly, we REVERSE the Examiner's prior art rejections of claims 16–20, 22, and 25–29 under 35 U.S.C. § 103 for the reasons the Appellant presents and we give above.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
16–20, 22, 25–29	103	Densmore, Mingliang		16–20, 22, 25–29

REVERSED