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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RICHARD P.M. HOUBEN, BERTHOLD STEGEMANN,
and RICHARD CORNELUSSEN

Appeal 2011-011812
Application 11/742,011
Technology Center 3700

Before DONALD E. ADAMS, ERIC GRIMES, and
JEFFREY N. FREDMAN, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* ADAMS.

Opinion Concurring filed by *Administrative Patent Judge* GRIMES.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 21-26 (App. Br. 2; and Ans. 2). We have jurisdiction under 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

The claims are directed to a method of cardiac stimulation. Claim 21 is representative and is reproduced in the Claims Appendix of Appellants' Brief.

Claims 21-26 stand rejected under the written description provision of 35 U.S.C. § 112, first paragraph.

Claims 21-26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Deno.¹

The written description rejection is affirmed. A new ground of rejection under 35 U.S.C. § 112, second paragraph is entered into the record. The obviousness rejection is vacated.

Written Description:

ISSUE

Does the preponderance of evidence on this record support Examiner's conclusion that Appellants' Specification fails to provide written descriptive support for the claimed invention?

FACTUAL FINDINGS (FF)

FF 1. Appellants define the term AVI as the "atrial-ventricular interval" (Spec. at ¶ [37]).

FF 2. The term intrinsic A-V *conduction* interval does not appear in Appellants' Specification.

FF 3. Appellants disclose that "extra systolic conduction time [ES CT] ... corresponds to the time for an extra systolic depolarization ... to be conducted to the ventricles" (*id.* at ¶ [40]).

FF 4. Appellants disclose that ES CT "may ... be estimated as a function of the primary conduction time for a primary atrial event ... to be intrinsically conducted to the ventricles" (*id.* at ¶ [40]).

¹ Deno et al., US 2004/0049235 A1, published March 11, 2004.

FF 5. Appellants disclose that a “desired ventricular coupling interval [VCI] ... corresponds to the optimal interval of time between the ventricular pacing pulse ... and the intrinsically conducted extra systole ... for achieving a desired PESP [(post-extra systolic potentiation)] effect” (*id.* at ¶ [39]).

FF 6. Appellants disclose that “the ESI [(extra systolic interval)] may be set to provide a *desired extra systolic coupling interval* in both the atrium and in the ventricles. In this case, the AVI is ... the sum of the ESI ... and a measured or estimated extra systolic conduction time less the *desired ventricular coupling interval*” (*id.* at ¶ [50] (emphasis added)).

ANALYSIS

As Appellants recognize, Examiner finds that Appellants’ Specification fails to provide written descriptive support for:

- A. “measuring an intrinsic A-V conduction interval between a *delivered atrial stimulation pulse* and a resultant following ventricular depolarization”;
- B. “determining a *desired extra-systolic [sic] coupling interval* between ventricular depolarizations and desired following ventricular extra[-]systolic depolarizations”; and
- C. “subsequently *delivering atrial pacing pulses* following given ventricular depolarizations at intervals following the given ventricular depolarizations *equal to the desired extra-systolic [sic] coupling interval minus the measured A-V conduction interval.*”

(Reply Br. 2 (emphasis added); *see generally* Ans. 3-4 and 5-6; *Cf.* Claim 21.)

A. *Intrinsic A-V conduction interval*:

Appellants contend that “ES CT ... is not the ‘AVI’ as used in the [S]pecification” (App. Br. 7; *see generally* FF 1). Instead, Appellants contend that the term *intrinsic A-V conduction interval*, as recited in claim 21, is an *ES CT* (Reply Br. 3; *Cf.* FF 4-5). The term *intrinsic A-V conduction interval*, however, does not appear in Appellants’ Specification (FF 2).

Appellants contend that “the *intrinsic A-V conduction interval* [as set forth in Appellants’ claim 21] ... is not the AVI” (App. Br. 7; *Cf.* Claim 21 (“measured *A-V conduction interval*”); *id.* at 6 (“The claims don’t include the term ‘AVI’”). Appellants also contend that “the term ‘AVI’ doesn’t refer to a measured *intrinsic A-V interval*” (i.e. a measured *intrinsic AVI*) (*id.* at 7).

Nevertheless, Appellants contend “that the ESS is delivered at ‘a desired extra systolic interval’ minus a measured AV interval” (i.e. a measured *AVI*) (App. Br. 5; *Cf.* Appellants’ claim 21 (“delivering atrial pacing pulses ... equal to the desired extra-systolic [sic] coupling interval minus the measured *A-V conduction interval*”); Reply Br. 2 (“The claim in fact refers to ... measuring an ‘*intrinsic A-V conduction interval*’, not an ‘AV interval’” (emphasis added))).

From the foregoing, it appears that Appellants suffer the same “basic problem” they attribute to Examiner, specifically the use of “the term ‘AVI’ ... to interpret the language ‘measuring an *intrinsic A-V conduction interval*’” (App. Br. 6 (emphasis added)).

B. Desired extra-systolic coupling interval:

Appellants' Specification discloses that the "ESI may be set to provide a *desired extra systolic coupling interval* in both the atrium and in the ventricles. In this case, the AVI is ... the sum of the ESI ... and a measured or estimated extra systolic conduction time [(ES CT)] less the *desired ventricular coupling interval*" (FF 6).

Appellants contend that "[t]he desired extra[-]systolic *coupling interval* is *ES CT*" (Reply Br. 6 (emphasis added)). In addition, Appellants contend that claim 21 requires "that the ESS is delivered at 'a desired extra systolic interval' minus a measured AV interval" (App. Br. 5; Cf. Appellants' Claim 21 ("delivering atrial pacing pulses ... equal to the desired extra-stystolic [sic] *coupling interval* minus the measured A-V *conduction interval*) (emphasis added)). Therefore, Appellants appear to equate the term extra-systolic interval and extra-systolic *coupling interval*. In this regard, Appellants also contend that "desired extra[-]systolic interval [or extra-systolic *coupling interval*] is referred to as (*VCI*)" (App. Br. 6 (emphasis added); *see generally* FF 5). Appellants direct attention to "paragraphs 37-45" and "Figure 4" of their Specification to support the foregoing contentions (App. Br. 6; Reply Br. 6). Notwithstanding Appellants' contention to the contrary, we find no disclosure in Appellants' Specification that defines the term extra-systolic *coupling interval* as ES CT or VCI.

The only portion of Appellants' Specification that discusses an *extra-systolic coupling interval* discloses that "the ESI may be set to provide a *desired extra systolic coupling interval* in both the atrium and in the ventricles. In this case, the AVI is ... the sum of the ESI ...and a measured

or estimated extra systolic conduction time [(*ES CT*)] *less* the *desired ventricular coupling interval* [*VCI*]" (FF 6)). Notwithstanding Appellants' contentions to the contrary, Appellants' Specification, at best, discloses that the extra-systolic coupling interval is involved in a relationship that includes *ES CT* minus *VCI* (FF 6; *Cf.* Reply Br. 5 ("there is no possible dispute that 'VCI' is a ... 'desired extra-systolic *coupling* interval' as required by the claims")) (emphasis added)).

C. Delivery of atrial pacing pulses:

Appellants' claim 21 requires the delivery of atrial pacing pulses equal to the desired extra-systolic coupling interval minus the measured A-V conduction interval. As discussed above, Appellants contend that (1) an intrinsic A-V conduction interval is an *ES CT* and (2) a desired extra-systolic coupling interval is an *ES CT*. Therefore, based on Appellants' contentions, the last clause of Appellants' claim 21 would read – delivery of atrial pacing pulses equal to the *ES CT* minus the measured *ES CT*. This is, however, different from Appellants' contention that "[t]he claims require that the ESS is delivered at 'a desired extra systolic interval' minus a measured AV interval" (i.e. atrial-ventricular interval or AVI) (App. Br. 5; *Cf. id.* at 7 ("Paragraph 42 [of Appellants' Specification] describes measurement of the intrinsic A-V conduction interval, which is not the AVI"))).

Summary:

For the reasons set forth above, we are not persuaded by Appellants' contentions regarding the meaning of the terms set forth in Appellants' claim

21. Therefore, we agree with Examiner's finding that Appellants' Specification fails to provide written descriptive support for claim 21.

CONCLUSION OF LAW

The preponderance of evidence on this record supports Examiner's finding that Appellants' Specification fails to provide written descriptive support for the claimed invention. The rejection of claim 21 under the written description provision of 35 U.S.C. § 112, first paragraph is affirmed. Claims 22-26 are not separately argued and fall with claim 21.

Indefiniteness:

Claims 21-26 are rejected as indefinite under 35 U.S.C. § 112, second paragraph. Claim 21 requires, *inter alia*, that atrial pacing pulses are delivered following given ventricular depolarizations at intervals following the given ventricular depolarizations *equal to the desired extra-systolic coupling interval minus the measured A-V conduction interval* (see Claim 21). "The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification." *Miles Laboratories, Inc. v. Shandon, Inc.*, 997 F.2d 870, 875 (Fed. Cir. 1993). As discussed above, when read in light of Appellants' Specification, the terms "A-V conduction interval" and "desired extra-stystolic [sic] coupling interval" are ambiguous. Accordingly, claim 21 is not susceptible to a meaningful review on this record. Claims 22-26 depend directly or indirectly from claim 21 and therefore suffer the same deficiency.

Obviousness:

As discussed above, Appellants' Specification fails to provide written descriptive support for Appellants' claimed invention. In this regard, we recognize that "Examiner had to decipher the claimed language to read it in light of one of ordinary skill in the art" (Ans. 6). Analyzing claims based on "speculation as to meaning of the terms employed and assumptions as to the scope of such claims" is legal error. *In re Steele*, 305 F.2d 859, 862 (CCPA 1962). Accordingly, we vacate the obviousness rejection of record.

TIME PERIOD FOR RESPONSE

Regarding the affirmed rejection(s), 37 C.F.R. § 41.52(a)(1) provides "Appellant may file a single request for rehearing within two months from the date of the original decision of the Board."

In addition to affirming the Examiner's rejection(s) of one or more claims, this decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellant, **WITHIN TWO MONTHS FROM THE DATE OF THE DECISION**, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner....

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(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same record....

Should the Appellant elect to prosecute further before the Examiner pursuant to 37 C.F.R. § 41.50(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the Examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the Appellant elects prosecution before the Examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Patent Trial and Appeal Board for final action on the affirmed rejection, including any timely request for rehearing thereof.

AFFIRMED; 37 C.F.R. § 41.50(b)

cdc

GRIMES, *Administrative Patent Judge*, concurring.

I agree that the claims on appeal lack adequate written description in the Specification, and that they are indefinite. I write separately only to point out that the claimed method is not described in the Specification even if the claim terms are interpreted as Appellants assert they should be.

The last step of claim 21 requires “delivering atrial pacing pulses following given ventricular depolarizations at intervals following the given ventricular depolarizations equal to the desired extra-stystolic [sic] coupling interval minus the measured A-V conduction interval” (App. Br. 11 (Claims Appendix)).

Appellants argue that the “desired extra-stystolic [sic] coupling interval” recited in claim 21 is referred to in the Specification as the “ventricular coupling interval” or VCI (Reply Br. 4: “With regard to ‘VCI’, . . . [t]he question is whether [it] is a ‘desired extra-systolic coupling interval’ as required by the claims, and clearly it is.”).

Appellants argue that the “measured A-V conduction interval” is referred to in the Specification as the “extra-systolic conduction time” or ES CT (Reply Br. 2-3: “The claim in fact refers to [] measuring an ‘intrinsic A-V conduction interval’ . . . This is step 505, illustrated in Figure 7 as ‘DETERMINE ES CT.’”).

Thus, if the claim language is interpreted as desired by Appellants, the last step of claim 21 requires “delivering atrial pacing pulses following given ventricular depolarizations at intervals following the given ventricular depolarizations equal to the [VCI] minus the [ES CT].” Appellants point to the Specification’s Figure 4 and ¶ 37 as describing this step (Reply Br. 6), but those disclosures show delivery of “ESS 122” at a time interval

following an “atrial event 120,” rather than a ventricular depolarization as recited in claim 21 (*see* Spec. 11, ¶ 37).

Figure 5 and ¶ 42 of the Specification describe delivery of a pulse after a “ventricular event 150” (Spec. 13, ¶ 42). The Specification states that “[s]ensing of the primary ventricular event 150 initiates an ESI 144 set equal to the desired ventricular coupling interval 148 less the extra systolic conduction time 154” (*id.*). In this embodiment, therefore, the extra systolic interval (ESI; Spec. 1, ¶ 3) is a time period equal to the VCI minus the ES CT. However, the Specification also states that “[u]pon expiration of the ESI 144, *a supraventricular ESS pulse 142 is delivered*” (*id.* at ¶ 42, emphasis added), while the claims require delivering “atrial pacing pulses” (claim 21).

Appellants argue that “[a]s discussed throughout the application, such an [] atrial ESS pulse is simply an atrial pacing pulse, generated by the atrial output circuit 214” (Reply Br. 3). Appellants, however, point to no specific passage in the Specification that equates a supraventricular ESS pulse with an atrial pacing pulse.

The Specification defines “supraventricular” to mean “any location in the atria or anywhere along the myocardial conduction system above and including the bundle of His” (Spec. 3, ¶ 16). Thus, a “supraventricular” pulse is not necessarily an atrial pulse at all. The Specification makes clear that an ESS pulse need not be delivered to an atrium. *See id.* at 10, ¶ 35 (“The ESS pulse 106 may be delivered in an atrial chamber or to the His bundle, for example.”).

In addition, the Specification distinguishes between an “atrial pacing pulse” and an “ESS pulse”: “An ESI 104 is initiated in response to a

primary atrial event 102. The primary atrial event 102 may be an atrial pacing pulse or a sensed P-wave. Upon termination of the ESI, an ESS pulse 106 is delivered.” (*Id.*) *See also id.* at 13, ¶ 42: “A primary atrial event 140 is either sensed or paced [i.e., a pacing pulse] and is followed by an intrinsically conducted primary ventricular event 150. . . . Upon expiration of the ESI 144, a supraventricular ESS pulse 142 is delivered.”

Because Appellants have not pointed to a persuasive basis for equating the “atrial pacing pulses” recited in the claims with the “supraventricular ESS pulse” described in the Specification, in my view the claims lack adequate written description even if they are interpreted to mean what Appellants assert they mean.