

The opinion in support of the decision being entered today is *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JASON A. SHOLDER

Appeal 2007-3787
Reexamination 90/006,642¹
Patent 4,944,298
Technology Center 3700

Decided: September 27, 2007

Before RICHARD E. SCHAFER, JAMESON LEE, and SALLY C.
MEDLEY, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

1 DECISION ON APPEAL

2 A. Statement of the Case

3

4 This is a decision on appeal by an Applicant under 35 U.S.C. § 134(a) and
5 35 U.S.C. § 306 from a rejection of claims 6, 14, 17, 21/6, 22/6, 23/6, 24,
6 25, 26, 27/17, and 28/17 in Reexamination 90/006,642 of Patent 4,944,298.

7 We have jurisdiction under 35 U.S.C. § 6(b).²

¹ The patent under reexamination is based on Application 07/355,588, filed May 23, 1989. The real party in interest is Pacesetter, Inc.

	<u>Reference Relied on by the Examiner</u>	
1		
2	Nappholz	US 4,429,687 Feb. 7, 1984
3	Sholder	US 4,856,523 Aug. 15, 1989
4	Berkovits	US 4,932,406 Jun. 12, 1990
5	Neal E. Fearnot, "A Review of Pacemakers That Physiologically Increase	
6	Rate: The DDD and Rate-Responsive Pacemakers," Progress in	
7	Cardiovascular Diseases, Vol. XXIX, No. 2 145-164 (1986).	

8

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The Rejections on Appeal

10

11 The Examiner rejected claims 23 and 26 under 35 U.S.C. § 112, first
12 paragraph, as without written description in the specification.

13 The Examiner rejected claims 6, 14, and 17, under 35 U.S.C. § 103 as
14 unpatentable over Fearnot, and Berkovits or Sholder.

15 The Examiner rejected claims 6, 14, and 17 under 35 U.S.C. § 103 as
16 unpatentable over Fearnot.

17 The Examiner rejected claims 6, 14, 17, 21/6, 22/6, 23/6, 24-26,
18 27/17, and 28/17 under 35 U.S.C. § 103 as unpatentable over Nappholz, and
19 Berkovits or Sholder.

20 B. Issue

21 Has the Applicant shown error in the rejection of claims 6, 14, 17,
22 21/6, 22/6, 23/6, 24, 25, 26, 27/17, and 28/17?

23 C. Summary of the Decision

24 No error has been shown in the rejection of claims 6, 14, 17, 21/6,
25 22/6, 23/6, 24, 25, 26, 27/17, and 28/17.

² The "/" symbol designates the particular claim dependency in a multiple dependent claim.

1 D Findings of Fact (FF. ¶ No.)

2 1. With regard to the scope and content of the prior art and
3 differences between the claimed invention and the prior art, nothing appears
4 to be in dispute between the Applicant and the Examiner who differ merely
5 in the ultimate legal conclusion of obviousness to be drawn including
6 whether Berkovits qualifies as “teaching against” the claimed invention.

7 2. The level of ordinary skill in the art is reflected by the prior art
8 references applied by the Examiner.

9 3. In the underlying reexamination proceeding, the patentability of
10 claims 10, 13, 19, 20, 21/10, 22/10, 23/10, 27/19,20, and 28/19,20 has been
11 confirmed.

12 4. Claims 6, 14, and 17 are the only independent claims on appeal.

13 5 Independent claim 17 reads as follows:

14 17. A method of operating a dual chamber
15 programmable pacemaker, said pacemaker being capable of
16 operating in a variety of modes of operation and being initially
17 programmed to operate in an atrial rate based mode of
18 operation, said pacemaker comprising means for sensing
19 cardiac activity in the atrial and the ventricular chambers of a
20 heart, and means for selectively providing a stimulating pulse to
21 either chamber of the heart at prescribed times and under
22 prescribed conditions, the method comprising the steps of:

23
24 (a) sensing when the atrial rate exceeds a first rate
25 threshold;

26
27 (b) providing a stimulating pulse to a selected chamber of
28 the heart at a maximum upper rate in the event the atrial rate
29 sensed in step (a) exceeds said first rate threshold;

30

1 (c) monitoring the atrial rate above said first rate
2 threshold up to a second rate threshold; and
3

4 (d) automatically switching the mode of operation of said
5 pacemaker from said atrial rate based mode of operation to a
6 selected alternate mode of operation in the event the atrial rate
7 exceeds said second rate threshold;
8

9 the method further comprising the steps of:
10

11 (e) controlling the rate at which stimulating pulses are
12 provided by said pacemaker during said alternate mode of
13 operation in accordance with a rate signal provided by a
14 physiological sensor coupled to said pacemaker.
15

16 E. Principles of Law

17 Obviousness is a legal determination made on the basis of underlying
18 factual inquiries including (1) the scope and content of the prior art; (2) the
19 differences between the claimed invention and the prior art; (3) the level of
20 ordinary skill in the art; and (4) any objective evidence of unobviousness,
21 *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

22 One with ordinary skill in the art is presumed to have skills apart from what
23 the prior art references explicitly say. *See In re Sovish*, 769 F.2d 738, 743,
24 226 USPQ 771, 774 (Fed. Cir. 1985). A person of ordinary skill in the art is
25 also a person of ordinary creativity, not an automaton. *KSR International*
26 *Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

27 In *KSR International Co.*, 127 S. Ct. at 1742, 82 USPQ2d at 1397,
28 with regard to motivation to combine teachings, the Supreme Court stated:
29 “Rigid preventive rules that deny factfinders recourse to common sense,
30 however, are neither necessary under our case law nor consistent with it.”

1 Motivation to combine teachings need not be expressly stated in any
2 prior art reference. *In re Kahn*, 441 F.3d 977, 989, 78 USPQ2d 1329, 1338.
3 (Fed. Cir. 2006). There need only be an articulated reasoning with rational
4 underpinnings to support a motivation to combine teachings. *In re Kahn*,
5 441 F.3d at 988, 78 USPQ2d at 1336.

6 A combination of familiar elements according to known methods is
7 likely to be obvious when it does no more than yield predictable results.
8 *KSR*, 127 S. Ct. at 1739, 82 USPQ2d at 1395. If a technique has been used
9 to improve one device, and a person of ordinary skill in the art would
10 recognize that it would improve similar devices in the same way, using the
11 technique is obvious unless its actual application is beyond his or her skill.
12 *KSR International Co.*, 127 S. Ct. at 1740, 82 USPQ2d at 1396.

13 To satisfy the written description requirement under 35 U.S.C. § 112,
14 first paragraph, the specification must convey with reasonable clarity to
15 those skilled in the art that as of the filing date of the application the inventor
16 was in possession of the claimed invention. *Vas-Cath Inc. v. Mahurkar*, 935
17 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed.Cir. 1991).

18 F. Analysis

19 In this case, as in any appeal from an Examiner's rejection, the
20 patentee must demonstrate error in the rejections on appeal.

21 The Written Description Rejection

22 The Applicant has not shown error in this rejection because the
23 Applicant has not addressed the totality of the Examiner's rationale
24 underlying the rejection.

1 The claim feature at issue in this rejection concerns the phrase
2 “comprises hardware, software and/or firmware” in each of claims 23 and
3 26. There is no dispute between the Examiner and the Applicant that this
4 claim language is broad and covers the case of hardware alone, software
5 alone, firmware alone, a combination of any two of the group, or all three
6 hardware, software, or firmware. That follows from the ordinary meaning of
7 the connector term “and/or.”

8 It is because the coverage is too broad that the Examiner rejected
9 claims 23 and 26 for lack of written description in the specification.
10 According to the Examiner, the specification does not reveal an appreciation
11 for a scope of invention having the same breadth as that claimed. The
12 specification does not convey that the Applicant possessed an invention
13 having the same scope as that claimed.

14 Specifically, the Examiner explained (Answer 3:18 to 4:2):

15 Amended claims 23 and 26 contain the limitation of
16 “hardware, software, and/or firmware” for the means for
17 providing or means for triggering. The phrase could mean it
18 comprises software by itself, firmware by itself, or a
19 combination of hardware, software, and firmware. These
20 combinations were not originally disclosed since the original
21 specification in column 11, lines 57-59 state that the “control
22 system 26 of FIG. 2 may be realized using dedicated hardware
23 circuits, or by using a combination of hardware and software
24 (or firmware) circuits”.

25
26 Thus, the Examiner clearly expressed that the original disclosure does
27 not support the case of (1) software alone, (2) firmware alone, or (3) all three
28 hardware, software, or firmware, all of which are within the scope of the
29 Applicant’s amended claims. Of these three items raised by the Examiner,

1 the Applicant through the appeal brief addressed only the third item
2 pertaining to a combination of all three hardware, software, and firmware.

3 Even assuming that the Applicant's argument pertaining to the third
4 item has merit, no error has been shown in the rejection because written
5 description for the first and second items have not been addressed.

6 In any event, we reject the Applicant's argument directed to the third
7 item. It is based on an assertion of interchangeability between software and
8 firmware and also misdirected to determining whether the inventors intended
9 to exclude the combination of hardware, software, and firmware.

10 Interchangeability between software and firmware does not lead to a
11 combination of all three hardware, software, and firmware. Also, the
12 pertinent question is whether the specification conveys to one with ordinary
13 skill that the inventors actually contemplated the arrangement at issue, not
14 whether there is no evidence that the inventors intended to exclude it. The
15 Applicant has not pointed to any description in the specification which
16 translates to a combination of all three hardware, software, and firmware.

17 The Obviousness Rejections

18 Regarding the rejection for obviousness, the Applicant does not
19 separately argue the patentability of any dependent claim apart from the
20 merits of independent claims 6, 14, and 17.

21 Not much is in dispute between the Examiner and the Applicant with
22 regard to the scope and content of the prior art, the differences between the
23 claimed invention and the prior art, and the level of ordinary skill in the art.
24 The issue in this case centers about adequate motivation to combine

1 teachings from separate references, or the lack thereof, from the perspective
2 of one with ordinary skill.

3 The following paragraph from the Applicant's brief provides a
4 summary of the key features of the claimed invention (Br. 10:18-24):

5 Thus, each of the claims on appeal includes a limitation
6 relating to the use of a physiological sensor to control the
7 pacing rate during the alternate mode of operation of the
8 pacemaker. Additionally, each of the claims on appeal involves
9 two thresholds used in atrial based pacing, wherein (1) a
10 chamber is paced at a maximum upper rate in the event that the
11 atrial rate sensed exceeds the first threshold (or maximum
12 tracking rate, in claim 6), and wherein (2) a mode switching to
13 an alternate mode occurs if the atrial rate sensed exceeds the
14 second threshold.

15
16 With regard to independent claims 6, 14, and 17, the Examiner
17 determined and the Applicant does not dispute that each of Fearnot
18 and Nappholz discloses all of the claimed features except use of a
19 physiological sensor to control or modify the pacing function during
20 the switched mode of operation initiated when the sensed atrial rate
21 exceeds a second threshold. The alleged error in the rejection based
22 on Fearnot is the Examiner's statement (Final Office Action 3:19-24):

23 It would have been obvious to one having ordinary skill in the
24 art at the time the invention was made to modify the mode
25 switching pacer as taught by Fearnot, with a physiological
26 sensor modifying the pacing during the mode switched pacing
27 since it was known in the art that mode switching pacers use a
28 physiological sensor to modify the pacing during the mode
29 switched pacing to provide effective stimulation of the patient
30 to match the patients['] physiological need."
31

1 The Examiner relied on Berkovits or Sholder to support the finding
2 that it was known to use a physiological sensor to modify pacing during a
3 switched mode operation to provide effective stimulation of the patient to
4 match the patient's physiological need.

5 In light of the rejection of claims 6, 14, and 17 based on Fearnot and
6 either Berkovits or Sholder, the rejection of the same claims nominally
7 based on Fearnot alone while relying on Berkovits or Sholder as evidence of
8 what one with ordinary skill would have known is unnecessary and not
9 helpful. In this circumstance, we decline to reach the rejection of claims 6,
10 14, and 17 over Fearnot alone.

11 With regard to the rejections based on (1) Fearnot, and either
12 Berkovits or Sholder, and (2) Nappholz, and either Berkovits or Sholder, the
13 alleged error is the Examiner's statement:

14 It would have been obvious to one having ordinary skill in the
15 art at the time the invention was made to modify the mode
16 switched pacer as taught by [**Fearnot** (Final Office Action 4: 8-
17 14) or **Nappholz** (Final Office Action 10: 12-17)], with a
18 physiological sensor modifying the pacing during the mode
19 switched pacing as taught by Berkovits (or Sholder), since such
20 a modification would provide a mode switching pacer using a
21 physiological sensor to modify the pacing during the mode
22 switched pacing to provide effective stimulation of the patient
23 to match the patients physiological need.

24
25 The Applicant does not dispute that Berkovits and Sholder each
26 disclose using a physiological sensor to provide control to the pulse provided
27 by the pacemaker in a switched mode of operation after an atrial rate has
28 been detected as exceeding a threshold, to better match a patient's
29 physiological need. The Applicant argues, instead, that the teaching from

1 Berkovits or Sholder is at most only in a general sense and does not provide
2 motivation to use a physiological sensor to control pacing in the switched
3 mode in a multi-threshold pacemaker that switches modes at rates above a
4 second threshold instead of a first threshold.

5 The argument is misplaced. The Applicant appears to regard the test
6 for obviousness as requiring a specific disclosure in the prior art expressly
7 providing for every twist and turn in the claims. But that is not the law.
8 Motivation to combine teachings need not be expressly stated in any prior
9 art reference. *In re Kahn*, 441 F.3d at 989, 78 USPQ2d at 1338. There need
10 only be an articulated reasoning with rational underpinnings to support a
11 motivation to combine teachings. *In re Kahn*, 441 F.3d at 988, 78 USPQ2d
12 at 1336. The logic, common sense, and ordinary creativity of one with
13 ordinary skill cannot be ignored. The person of ordinary skill should be able
14 to apply a general teaching in a straight forward manner to specific
15 circumstances.

16 In *KSR International Co.*, 127 S. Ct. at 1742, 82 USPQ2d at 1397,
17 with regard to motivation to combine teachings, the Supreme Court stated:
18 “Rigid preventive rules that deny factfinders recourse to common sense,
19 however, are neither necessary under our case law nor consistent with it.”
20 One with ordinary skill in the art is presumed to have skills apart from what
21 the prior art references explicitly say. *See In re Sovish*, 769 F.2d at 743, 226
22 USPQ at 774. A person of ordinary skill in the art is also a person of
23 ordinary creativity, not an automaton. *KSR International Co.*, 127 S.Ct. at
24 1742, 82 USPQ2d at 1397. Applying a general teaching disclosed in
25 connection with a particular circumstance to other circumstances to reap the

1 same rewards is typically not outside of the scope of ordinary skill. To say
2 otherwise is tantamount to ruling as a matter of law that a person of ordinary
3 skill is incapable of applying a general teaching to any particular situation.

4 Berkovits and Sholder each disclose the general teaching of using a
5 physiological sensor to control pacing in a pacemaker in a switched mode of
6 operation initiated after the atrial rate has been detected as exceeding a
7 threshold. One with ordinary skill in the art would take that general teaching
8 and apply it in any circumstance that involves a pacemaker operating in a
9 switched mode initiated after the atrial rate has been detected as exceeding a
10 threshold and expect to obtain benefits. The fact that Berkovits and
11 Sholder's pacemaker uses only a single threshold as the trigger to change to
12 a switched mode of operation does not mean the general teaching of using a
13 physiological sensor to control pacing during the switched mode has benefits
14 only if the switched mode is triggered on a first threshold and not a second.
15 The Applicant has not presented persuasive evidence why one with ordinary
16 skill in the art would perceive the general teaching as being limited to only a
17 particular circumstance, one involving the exceeding of a single threshold to
18 initiate the switched mode of operation in a pacemaker, not two thresholds.

19 As the Examiner correctly determined (Answer 16:21 to 17:13):

20 It does not matter if there were one, two, or more atrial
21 thresholds described in Berkovits or Sholder since the sensor is
22 used to indicate the metabolic/physiological need of the patient
23 when ventricular pacing is provided in the alternate pacing
24 mode and not in the atrial triggered modes where the atrial
25 thresholds are used. . . . Neither Sholder [nor] Berkovits
26 specifically state that the sensor should not be used with
27 multiple thresholds or that the sensor should only be used with
28 a single threshold. (Emphasis in original.)

1
2 We reject the Applicant’s assertion that Berkovits teaches against
3 implementing multiple thresholds for initiating a switched mode of
4 operations in the sense of precluding use of any teaching therein in
5 combination with a system based on having multiple thresholds. We
6 recognize that Berkovits in column 6, lines 28-45, does indicate that the
7 Wenckebach response, which according to the Applicant is based on an
8 implementation of multiple atrial thresholds, can contribute to undesirable
9 “endless loop tachycardias” and “is not the optimum upper rate behavior.”
10 But characterizing an implementation as not being the “optimum” is far from
11 expressing that it is inoperative or entirely without benefit. A less preferred
12 scheme is not without utility. Few devices and schemes are without
13 drawbacks or any room for improvement. The Applicant’s approach would
14 render teachings from a prior art reference inapplicable whenever it does not
15 present a perfect solution without any known disadvantage. We are not
16 aware of any authority to that effect and the Applicant has cited none.

17 The Applicant further argues that combining the multiple thresholds
18 feature of Fearnot or Nappholz with the physiological sensor feature of
19 Berkovits or Sholder is unnecessary because “a central problem addressed
20 by the multi-threshold approach of Nappholz et al./Fearnot et al.” was
21 independently addressed in Berkovits/Sholder et al. “by the incorporation of
22 a physiological sensor *without the need to add a second rate threshold.*”
23 (Br. 15:17-21)(Emphasis in original). The argument is misplaced. The
24 Applicant has overlooked that the advantage achieved by using a
25 physiological sensor, as relied on by the Examiner, i.e., to provide effective
26 stimulation of the patient to match the patient’s physiological need during

1 switched mode, is apparently absent in both Fearnot and Nappholz.
2 Combining teachings from Fearnot and either Berkovits or Sholder is not
3 without purpose or unnecessary. Neither is combining teachings from
4 Nappholz and either Berkovits or Sholder.

5 G. Conclusion

6 The rejection of claims 23 and 26 under 35 U.S.C. § 112, first
7 paragraph, as without written description in the specification is **affirmed**.

8 The rejection of claims 6, 14, and 17 under 35 U.S.C. § 103 as
9 unpatentable over Fearnot is **dismissed**.

10 The rejection of claims 6, 14, and 17 under 35 U.S.C. § 103 as
11 unpatentable over Fearnot and either Berkovits or Sholder is **affirmed**.

12 The rejection of claims 6, 14, 17, 21/6, 22/6, 23/6, 24-26, 27/17, and
13 28/17 over Nappholz and either Berkovits or Sholder is **affirmed**.

14 No time period for taking any subsequent action in connection with
15 this appeal may be extended under 37 C.F.R. § 1.136(a) (1)(iv)(2005).

AFFIRMED

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Appeal 2007-3787
Reexamination 90/006,642
Patent 4,944,298

By First Class Mail:

Jonathan T. Losk
Pacesetter, Inc.
15900 Valley View Court
Sylmar, California 91392-9221