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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BENITO VALENCIA AVILA and ALEC GINGGEN

Appeal 2011-009449
Application 12/731,341
Technology Center 1700

Before CHUNG K. PAK, MARK NAGUMO, and JAMES C. HOUSEL,
Administrative Patent Judges.

HOUSEL, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final decision rejecting claims 1-18. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We REVERSE, with a NEW GROUND OF REJECTION.¹

Appellants' invention relates to an electrical device of the type that requires heat sterilization, the device having a system circuit for selectively performing a particular function, a power supply for selectively providing electrical power to the circuit, a housing for containing the circuit and optionally the power supply that is hermetically sealed, and a thermal switch electrically connecting the power supply and circuit, wherein the switch is switchable between an open position disconnecting the circuit from the power supply when the temperature in the housing exceeds a predetermined switch-open temperature value and a closed position connecting the circuit to the power supply when the temperature in the housing cools below a switch-close temperature value. The operation of the thermal switch to an open position disconnecting the circuit from the power supply serves to protect the circuit from thermal damage during heat sterilization. Spec. 5:8-24; Br. 3-4.

Claim 1 is illustrative of the claimed subject matter on appeal:

1. An electrical device for performing a particular function, said device being of the type that requires sterilization using heat, said sterilization process reaching a sterilization temperature, said device comprising:

a system circuit for selectively performing said particular function;

¹ Our decision makes reference to Appellants' Brief (Br.) filed October 28, 2010, and the Examiner's Answer (Ans.) mailed February 17, 2011.

a power supply for selectively providing sufficient power to said system circuit to allow said system circuit to perform said particular function;

a housing for containing said system circuit, said housing being hermetically sealed; and

a thermal-switch electrically connected between said power supply and said system circuit, said thermal switch being switchable between an open position wherein said system circuit is electrically isolated from said power supply and receives no power therefrom and a closed position wherein said system circuit is electrically connected to said power supply and receives power therefrom, *said thermal switch switching from said closed position to said open position in response to the temperature within said housing rising to a predetermined switch-open temperature value, said thermal switch thereafter switching from said open position to said closed position in response to the temperature within said housing cooling to a switch-closed temperature value, said system circuit when said thermal-switch being in said open position being protected from thermal damage during sterilization.*

App. Br., Claims App'x.

The Examiner maintains, and the Appellants appeal, the rejections under 35 U.S.C. § 103(a) of claims 1, 4-7, 9-11 and 13-16 as unpatentable over Faries² in view of Bowen³, Liu⁴ and Goodwin⁵, claims 2, 3, 8 and 12 as unpatentable over Faries, Bowen, Liu and Goodwin further in view of Rocher⁶, and claims 17 and 18 as unpatentable over Faries, Bowen, Liu and

² US 2003/0231990 A1, published Dec. 18, 2003.

³ US 5,520,892, issued May 28, 1996.

⁴ US 4,901,060, issued Feb. 13, 1990.

⁵ US 6,072,680, issued June 6, 2000.

⁶ US 4,329,568, issued May 11, 1982.

Goodwin further in view of Cook⁷.

ISSUE

Appellants' arguments raise the following issue:

Has the Examiner applied improper hindsight in combining Faries with the Bowen, Liu and Goodwin references, in particular in modifying the Faries device to be subjected to steam sterilization as taught by Bowen, to include an excessive temperature warning circuit as taught by Liu, and to include a thermal switch to protect the device's electrical components from thermal damage as taught by Goodwin?

We answer this question in the affirmative and reverse the Examiner's decision rejecting claims 1-18. However, we find Appellants' admitted prior art, Figure 1 and Specification page 1, line 24 to page 3, line 18, remedies the deficiencies of Faries argued by Appellants. Therefore, this decision includes a new ground of rejection under 35 U.S.C. § 103(a) of claims 1-6 and 8-18 as being unpatentable over Appellants' admitted prior art in view of Goodwin.

ANALYSIS

During examination, the Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). On appeal, the initial burden is on Appellants to prove harmful error. *Shinseki v. Sanders*, 129 S.Ct. 1696, 1706 (2009) (citations omitted) ("Lower court cases make clear that courts have correlated review of ordinary administrative proceedings to appellate review

⁷ US 5,081,988, issued Jan. 21, 1992.

of civil cases in this respect. . . . [T]he party seeking reversal normally must explain why the erroneous ruling caused harm.”) *See also, Ex parte Frye*, No. 2009-006013, p. 9 (BPAI Feb. 26, 2010) (precedential) (“An appellant may attempt to overcome an examiner’s obviousness rejection on appeal to the Board by submitting arguments and/or evidence to show that the examiner made an error in either (1) an underlying finding of fact upon which the final conclusion of obviousness was based, or (2) the reasoning used to reach the legal conclusion of obviousness.”). For example, Appellants may attempt to prove the absence of articulated reasoning or rational underpinning. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) *quoted with approval in KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

The fact finder must be aware “of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR*, 550 U.S. at 421(citing *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966) (warning against a “temptation to read into the prior art the teachings of the invention in issue”)).

The Examiner finds Faries teaches an electrical device (cartridge 50) of the type that requires sterilization comprising a system circuit (microprocessor 46) for performing a function, a power supply (44), a housing (case of cartridge 50) for containing the system circuit, and a switch (fuse 48) connecting the circuit to the power supply and being switchable between closed and open positions. Ans. 4-5. The Examiner finds Bowen

discloses steam sterilization of medical items ensuring sterilization of both the inside and outside of each item. *Id.* at 5. The Examiner further finds that Liu discloses an electrical device that is used with a wide variety of items having a circuit with a temperature sensor such that when the temperature within the item is above a threshold, a warning device is activated. *Id.* at 6. While the Examiner acknowledges that none of Faries, Bowen and Liu disclose a thermal switch as claimed, the Examiner finds that Goodwin provides a resettable bi-metallic thermal switch for preventing continued operation of a device at excessive temperatures by disconnecting the device from a power supply when the housing rises to a switch-open temperature threshold and reconnecting the device to the power supply when the housing cools to a switch-closed temperature threshold. *Id.* at 7. As we understand the Examiner's rejection, the Examiner concludes it would have been obvious to one of ordinary skill in the art to subject Faries' device to steam sterilization to ensure that the device's inside and outside are both sterilized as taught by Bowen, to include a circuit for warning when the temperature of the device during such steam sterilization is excessive as taught by Liu, and to include in this circuit a thermal switch to disconnect the device from its power supply when the excess temperature is reached but reconnect upon cooling thereby protecting the device circuitry as taught by Goodwin. *Id.* at 5-7.

Appellants argue that one of ordinary skill in the art would not have found the Examiner's proposed combination of Faries, Bowen, Liu and Goodwin obvious without the benefit of Appellants' Specification. Br. 6. In particular, Appellants argue that such a combination requires the use of improper hindsight "gained by the Examiner only after reading the present

[S]pecification.” *Id.* Appellants contend that the purpose of Faries is to prevent reuse of sterilized product or use of a non-sterile disposable item. *Id.* As such, one would not look to subject Faries’ cartridge to steam sterilization while providing it with an excess temperature warning circuit and a thermal switch for protecting the device by disconnecting it from its power supply when an excess temperature is reached and reconnecting it when it cools down. *Id.* at 7. Appellants direct our attention to Faries’ discussion of the fuse 48 which provides an indication that the device has prior use and is non-sterile or has been sterilized. *Id.*

Appellants’ arguments are persuasive of reversible error. While the Examiner is correct that the cartridge 50, while shown to be a tubing cassette, may include circuitry (Faries ¶ [0013]), we find the only guidance for making the combination as the Examiner proposes is from Appellants’ Specification. As Appellants argue, the Faries device is designed to detect when a disposable medical item has prior use and is non-sterile or has been sterilized. Faries, ¶¶ [0011], [0022], [0061]. However, Faries does not provide a device for which damage to circuitry while connected to a power supply due to excessive heat is a problem in need of solution. Indeed, the Faries device is only connected to the power supply to determine its sterility status. The Examiner has not explained why one skilled in the art, considering the disposable medical item of Faries as a starting point, would be concerned with thermal damage to a circuit in the item while connected to a power supply. Thus, we find the Examiner has failed to articulate reasoning with some rational underpinning to support the conclusion of obviousness. Accordingly, we do not sustain the Section 103 rejection over Faries, Bowen, Liu and Goodwin.

We find that the two additional Section 103 rejections rely on this same proposed combination, adding the Rocher and Cook patents, respectively, for features recited in dependent claims. As the Examiner is not relying on either of these additional references to remedy the deficiencies of the Faries-Bowen-Liu-Goodwin combination, we likewise do not sustain these rejections for the reasons given by Appellants.

Nonetheless, we find Appellants disclose that features of the claims for which the Examiner relied on Faries were known in the prior art. We note that Appellants disclose that “[e]xcess thermal energy (i.e. heat) is *generally considered* undesirable and harmful to electronic circuits.” Spec. 1, ll. 24-25 (emphasis added). Appellants further disclose that it was known that “electronic components that are operating under power are substantially more sensitive to thermal damage than the same components isolated from a power source.” *Id.* at 2, ll. 6-8. Appellants admit that “[i]t is common to design thermal management structures and systems into a circuit to help prevent thermal-related failure of the operating components.” *Id.*, ll. 9-10. Finally, Appellants further disclose that certain biologically implanted devices including infusion pumps and pace-makers include delicate electronic components and a battery power supply, both of which are hermetically sealed within a housing. *Id.* at 3, ll. 1-15; Fig. 1. We find these disclosures to be Appellants’ admitted prior art (hereinafter ‘AAPA’).

What is missing from the AAPA is Appellants’ solution to this known problem of thermal damage of electronic components when connected to a power supply. However, as the Examiner finds, Goodwin teaches a thermal switch for the purpose of solving this known problem. Ans. 7. Indeed, Goodwin teaches the use of a deformable bimetallic thermal switch 102 for

disconnecting an electrical circuit from its power supply due to excessive temperature. Goodwin, col. 1, ll. 17-19. Goodwin also teaches that the electrical system and power supply may be located in the same facility or separate from each other, but the thermal switch must be located with the device or system to be protected. *Id.*, ll. 30-34. The switch is switchable between an open position in response to the temperature within the housing rising to a predetermined switch-open temperature thereby electrically isolating the electrical device from its power supply and a closed position in response to the temperature within said housing cooling to a switch-closed temperature value thereby electrically reconnecting said power supply. *Id.* at col. 4, ll. 23-29 and 49-56. Further, the thermal switch and associated control circuit includes a resettable fuse device that may be a positive temperature coefficient resistor. *Id.*, Abstract.

Given the AAPA disclosure that the problem of thermal damage to electrical devices connected to power supplies was known, and that known medical electrical devices including implantable infusion pumps and pacemakers hermetically sealed with their batteries in a housing required sterilization, one form of which was heat (steam) sterilization, it would have been obvious to one of ordinary skill in the art to have utilized a bimetallic thermal switch as taught by Goodwin to solve this problem, i.e. by disconnecting the thermally sensitive powered circuits from the power supply to reduce the hazard of thermal damage. *See KSR*, 550 U.S. at 420 (“One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.”). Accordingly, claims 1-6 and 8-18 are rejected under 35 U.S.C. § 103(a) as

unpatentable over AAPA in view of Goodwin as set forth above. In this regard, we note that claim 7 which requires that the thermal switch is positioned outside the housing would not have been obvious over AAPA in view of Goodwin since Goodwin teaches away from doing so. Goodwin specifically requires that the thermal switch must be located with the electrical device within the facility or housing.

CONCLUSION

The decision of the Examiner rejecting claims 1-18 on appeal is reversed. However, claims 1-6 and 8-18 are rejected under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Goodwin. We designate this as a new ground of rejection. 37 C.F.R. § 41.50(b).

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 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 Appellants, 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. . . .

REVERSED

NEW GROUND OF REJECTION

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