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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DONALD E. DONNELLY and THOMAS J. FREDRICKS

Appeal 2010-005923
Application 11/480,154
Technology Center 3700

Before KEN B. BARRETT, GAY ANN SPAHN, and
CHARLES N. GREENHUT, *Administrative Patent Judges*.

SPAHN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Donald E. Donnelly and Thomas J. Fredricks (Appellants) seek our review under 35 U.S.C. § 134 of the Examiner's rejection of claims 2 and 4-13. Appellants cancelled claims 1, 3, and 14-20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The Claimed Subject Matter

The claimed subject matter relates to a system for communicating an abnormal condition of a fuel fired water heating appliance to an occupant of a space. Spec. 1, para. [0005]. Claim 2 (the sole independent claim), reproduced below, is representative of the subject matter on appeal.

2. A system for monitoring the operation of a fuel fired water heater, comprising:

a fuel fired water heater having a burner, a gas valve, a high temperature condition sensing means for switching at a preset temperature that is disposed adjacent the burner, and at least one other sensor disposed on the water heater that is configured to sense the presence of a harmful level of carbon monoxide and also configured to sense the concentration level of flammable vapors;

a water heater controller mounted on the water heater for controlling the operation of the fuel fired water heater, the controller being capable of monitoring the high temperature sensing means and the at least one other sensor to detect an abnormal condition, and being capable of responding to an abnormal condition by wirelessly transmitting a signal including a message indicating the presence of an abnormal condition, wherein the water heater controller responds to the abnormal condition by commencing successive wireless transmissions of a signal including a message indicating the presence of an abnormal condition; and

a thermostat having a display device that is disposed at a location remote from the fuel-fired water heater, the thermostat being capable of receiving the wirelessly transmitted message and responsively displaying a text message on the thermostat's display device of the abnormal condition for the fuel fired water heater.

The Rejections

The following Examiner's rejections, under 35 U.S.C. § 103(a), are before us for review:

I. claims 2, 4-10, and 13 as unpatentable over Brandt (US RE37,745 E, reissued Jun. 18, 2002), Winick (US 2005/0270151 A1, published Dec. 8, 2005), and Ando (US 7,163, 609 B2, issued Jan. 16, 2007); and

II. claims 11 and 12 as unpatentable over Brandt, Winick, Ando, and Greene (US 6,377,925 B1, issued Apr. 23, 2002).

OPINION

Rejection I – Obviousness based on Brandt, Winick, and Ando

Appellants argue claims 2, 4-10, and 13 as a group and we select independent claim 2 as the representative claim. *See* App. Br. 7-13¹; *see also* 37 C.F.R. § 41.37(c)(1)(vii) (2011). Claims 4-10 and 13 fall with claim 2.

First, Appellants contend that although Ando discloses “a flammable gas sensor capable of measuring carbon monoxide or hydrocarbon” (Ando, col. 1, ll. 15-16), Ando is measuring by-products of combustion, as opposed to flammable vapors not yet combusted which one of ordinary skill in the art

¹ Appellants' 14-page Appeal Brief, excluding appendices, does not include page numbers thereon; however, page 1 begins with the caption “**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE,**” and pages 2-14 are consecutive therefrom.

would understand claim 2's language to be reciting in light of Appellants' Specification. App. Br. 8; Reply Br. 2² (citing Ando, col. 1, l. 31).

Appellants' Specification discloses that the at least one other sensor 128 may be "a carbon monoxide sensor capable of sensing the concentration of carbon monoxide gas" (Spec. 4, para. [0014]), "a Metal Oxide Semiconductor (MOS) sensor, which has low electrical conductivity in clean air, but increases when exposed to carbon monoxide presence (Spec. 4-5, para. [0015]), and "an electrochemical sensor that is further capable of detecting the presence of a flammable vapor" (Spec. 5, para [0016]). The Specification then indicates that "the at least one other sensor 128 may comprise two or more of the above sensors for detecting the presence of one or more gasses within or around the appliance." Therefore, the Examiner's finding that Brandt discloses at least one other sensor 40 disposed on the water heater configured to sense the presence of a harmful level of carbon monoxide or CO, and also a sensor 30 configured to sense the concentration level of flammable vapors (Ans. 3 (citing Brandt, col. 5, ll. 10-13, 53-56, and Fig. 1)) appears to satisfy the claim limitation of "at least one other sensor disposed on the water heater that is configured to sense the presence of a harmful level of carbon monoxide and also configured to sense the concentration level of flammable vapors" (App. Br., Clms. App'x.).

To the extent that claim 2 may be reciting a single sensor that is capable of sensing both carbon monoxide and flammable vapors, the Examiner finds that Ando discloses a single sensor which is capable of

² Appellants' 7-page Reply Brief does not include page numbers thereon; however, page 1 begins with the caption "**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE,**" and pages 2-7 are consecutive therefrom.

sensing both carbon monoxide and flammable vapors. In response to Appellants' contention that Ando senses only combusted flammable vapors, the Examiner notes that claim 2 does "not recite that the flammable vapors are vapors produced before combustion." The Examiner also notes that "Ando's sensor is also capable of measuring air/fuel ratio and the fuel is expected to be a non-combusted vapor (column 1[,] line 13)," and thus, "[i]n both [Appellants'] and Ando's inventions[,] flammable vapors are likely to include vapors produced before and vapors produced after combustion." As the Examiner's rejection appears to be combining Brandt's two sensors 30, 40 into a single sensor that can perform both functions as taught by Ando for the purpose of reducing costs, we agree with the Examiner that it would have been obvious to one of ordinary skill in the art to do so.

Second, Appellants contend that

Brandt does not teach or suggest a controller configured to respond to an abnormal condition by wirelessly transmitting a signal including a message indicating the presence of an abnormal condition, wherein the water heater controller responds to the abnormal condition by commencing successive wireless transmissions of a signal including a message indicating the presence of an abnormal condition.

App. Br. 9. The Examiner finds that Brandt is "capable of responding to an abnormal condition by transmitting a signal (through electric wires) including a message indicating the presence of an abnormal condition" since Brandt's water heater controller 10 "monitors a number of operational conditions that impact safety," and "[u]pon issuance of a signal that any of these conditions are outside [of] operating parameters or are failing to function, . . . emit[s] an audio and/or visual alarm which details the type of

malfunction that has occurred.” Ans. 4 (citing Brandt, col. 3, l. 64 through col. 4, l. 3). The Examiner also finds that Winick discloses a control system including a controller 12, a transceiver 30 capable of wireless transmission to remote receivers, and a thermostat 14 capable of receiving wirelessly transmitted messages and displaying messages. Ans. 5 (citing Winick p. 7, paras. [0058]-[0061]). Thus, Appellants’ contention attacking Brandt individually is not persuasive as the Examiner is relying upon a combination of Brandt and Winick to disclose the subject matter of the second and third paragraphs of the body of claim 2. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (One cannot show nonobviousness by attacking references individually where the rejections are based on a combination of references). To the extent that Appellants are contending that Brandt’s audio and/or visual alarm does not constitute a signal including a message, we are not persuaded because Brandt’s “[c]ontrol panel **20** contains an auditory alarm **22**, a visual display **24** which functions as a visual alarm and displays the temperature of the water and the set temperature.” Thus, Brandt’s capability of displaying a message is indisputable regardless of what the content of the message is that Brandt actually displays.

Third, Appellants also contend that in view of Winick’s teachings, a person of ordinary skill in the art would merely have used Winick’s carbon monoxide sensor in rooms within a home, rather than disposed on a water heater and “would not have considered modifying *Winick* to include a carbon monoxide and flammable vapor sensor on a water heater, and a controller configured to wirelessly transmit a signal including a message of an abnormal condition and a thermostat that displays a text message of the

condition.” App. Br. 9-10. We are not persuaded by Appellants’ contention as Brandt teaches a carbon monoxide sensor disposed on the water heater and the Examiner is not modifying Brandt to move the sensor from its location on the water heater. Nor is the Examiner modifying Winick as suggested by Appellants. Rather, the Examiner is modifying Brandt by Winick’s teachings merely to include a thermostat capable of receiving wireless signals and to make Brandt’s controller be capable of sending signals including messages wirelessly to the thermostat.

Fourth, Appellants contend that Brandt’s disclosure of triggering an auditory alarm 22 does not teach or suggest a controller configured to respond to an abnormal condition by commencing successive wireless transmissions of a signal including a message indicating the presence of an abnormal condition, nor does Brandt teach a thermostat receiving the wirelessly transmitted message and responsively displaying a text message on the thermostat’s display device of the abnormal condition. App. Br. 10. The Examiner responds, and we agree, that the combination of Brandt and Winick teach the disputed claim limitation. Ans. 11. More particularly, Brandt teaches “[t]he transmission is successive since both temperature and concentrations would be transferred for both audio and visual display,” and Winick teaches wireless technology for transmitting information between the controller, the sensors, and a thermostat display, wherein the thermostat is capable of receiving the wirelessly transmitted message from the controller and displaying a text message on the thermostat’s display device. *Id.*

Fifth, Appellants contend that one of ordinary skill in the art would use Winick’s teachings to position a wireless carbon monoxide sensor in a

room of a home, and there is no apparent reason why it would have been obvious to one of ordinary skill in the art to modify the teaching of Winick to arrive at the subject matter of claim 2. App. Br. 11. As explained *supra*, Brandt teaches the sensors being disposed on the water heater. The Examiner's proposed modification of Brandt is not relocating the sensors so that they are no longer located on the water heater by the teachings of Winick, nor is the Examiner modifying Winick.

Sixth, Appellants contend that the combination of Brandt and Winick would only have resulted in the predictable outcome of Brandt's water heater shutting off when Winick's wireless carbon monoxide room sensor detected carbon monoxide, but would not have arrived at the subject matter of claim 2. App. Br. 12. We are not persuaded by this contention as it is mere speculation on Appellants' part. The Examiner relied on Winick's teachings of wireless technology to modify Brandt's wired controller and Brandt already discloses issuing a signal about conditions outside of the normal operating parameters. Brandt, col. 3, l. 64 to col. 4, l. 3. Therefore, we see no reason, and Appellants have not explained, why it would only have been obvious to one of ordinary skill in the art to use Winick's teaching to turn off Brandt's water heat, rather than to wirelessly transmit a signal including a message about an abnormal condition.

Finally, Appellants contend that there is no articulated reason why a person of ordinary skill in the art would have modified the teachings of Brandt, Winick, and Ando in a manner that would have resulted in the subject matter of claim 2, because the Examiner has not pointed to any disclosure in the cited references of the claimed features, but rather has relied upon impermissible hindsight using Appellants' disclosure as a road

map. App. Br. 12-13. We are not persuaded by Appellants' contention. First, we note that the teachings of Winick and Ando have not been modified; rather, the Examiner only proposes to modify the control system of Brandt by the teachings of Winick and Ando. Second, the Examiner has pointed to disclosure in all of the Brandt, Winick, and Ando references, the combination of which addresses all of the claimed features. Most importantly, the Examiner, with the proposed modification of Brandt's control system for a water heater, articulates a reason with a rational underpinning, namely, in order to reduce costs and provide a water heater control that can function remotely from the water heater, as to why a person of ordinary skill in the art would have modified Brandt in view of the teachings of Winick and Ando. Ans. 4-5 and 12-14. Thus, we are not persuaded that the Examiner has relied upon impermissible hindsight.

Accordingly, we sustain the Examiner's rejection of independent claim 2, and claims 4-10 and 13 falling therewith, under 35 U.S.C. § 103(a) as unpatentable over Brandt, Winick, and Ando.

Rejection II – Obviousness based on Brandt, Winick, Ando, and Greene

Appellants argue that Greene does not cure the deficiency of the combination of Brandt, Winick, and Ando to teach or suggest the subject matter of independent claim 2. App. Br. 13-14; Reply Br. 6. As we found no deficiency with respect to the combination of Brandt, Winick, and Ando for the reasons discussed *supra*, we sustain the Examiner's rejection of claims 11 and 12 under 35 U.S.C. § 103(a) as unpatentable over Brandt, Winick, Ando, and Greene.

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DECISION

We affirm the Examiner's decision to reject claims 2 and 4-13.

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

AFFIRMED

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