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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RYAN HARDESTY, DAN KARCH, DAVID KING,
and AARON SMITH

Appeal 2018-005424
Application 14/163,793
Technology Center 3700

Before JOHN C. KERINS, WILLIAM A. CAPP, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

CAPP, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ seeks our review under 35 U.S.C. § 134(a) of the final rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

THE INVENTION

Appellant’s invention relates to hot water heaters. Spec. ¶ 2. Claim 1, reproduced below, is illustrative of the subject matter on appeal.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Weil-McLain as the applicant and The Marley-Wylain Company as the real party in interest. Appeal Br. 4.

1. A hot water heater appliance, comprising:
 - a boiler;
 - a companion water heater having a hot water storage tank;and
 - a controller configured to control the water heater appliance in response to a sensed temperature at an upper portion of the hot water storage tank and a sensed temperature at a lower portion of the hot water storage tank, wherein the controller is configured to control the boiler to provide a boiler water to the hot water storage tank at a temperature above a predetermined temperature in response to both of the sensed temperature at an upper portion of the hot water storage tank and the sensed temperature at a lower portion of the hot water storage tank being below the predetermined temperature and the controller is configured to control the boiler to provide the boiler water to the hot water storage tank at a temperature at the predetermined temperature in response to the sensed temperature at an upper portion of the hot water storage tank being above the predetermined temperature and the sensed temperature at the lower portion of the hot water storage tank being below the predetermined temperature.

THE REJECTIONS

The Examiner relies upon the following as evidence in support of the rejections:

NAME	REFERENCE	DATE
Toni	US 3,461,854	Aug 19, 1969
Olney	US 3530,837	Sept. 29, 1970
Nusbaumer	US 4,768,678	Sept. 6, 1988
Jackson	US 5,442,157	Aug. 15, 1995
Patterson	US 2004/0069768 A1	Apr. 15, 2004
Bradenbaugh	US 7,346,274 B2	Mar. 18, 2008
Leeland	US 2010/0116224 A1	May 13, 2010
Roetker	US 2011/0123179 A1	May 26, 2011

The following rejections are before us for review:

1. Claims 1 and 19 are rejected under 35 U.S.C. § 103 as being unpatentable over Toni and Leeland.
2. Claims 2, 3, and 20 are rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Leeland, and Patterson.
3. Claims 4–6 are rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Leeland, Patterson, and Olney.
4. Claim 7 is rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Leeland, Patterson, and Nusbaumer.
5. Claim 8 is rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Leeland, and Bradenbaugh.
6. Claims 9 and 15–17 are rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Olney, and Leeland.
7. Claims 10 and 14 are rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Olney, and Bradenbaugh.
8. Claims 11 and 12 are rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Olney, and Patterson.
9. Claim 13 is rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Olney, Leeland, and Roetker.
10. Claim 18 is rejected under 35 U.S.C. § 103 as being unpatentable over Toni, Olney, Leeland, and Jackson.

OPINION

*Unpatentability of Claims 1 and 19
over Toni and Leeland*

Claim 1

The Examiner finds that Toni discloses the invention substantially as claimed except for configuring the controller to provide boiler water to the hot water storage tank at a temperature above a predetermined temperature in response to the sensed temperature at both upper and lower portions of the hot water storage tank, for which the Examiner relies on Leeland. Final Act. 3–4. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Toni with the teachings of Leeland to achieve the claimed invention. *Id.* at 4. According to the Examiner, a person of ordinary skill in the art would have done this to rapidly increase the heat of the stored water. *Id.*

Appellant argues that the Examiner’s proposed combination improperly changes the principle of operation of the Toni reference. Appeal Br. 13–14. Appellant argues that Toni is directed to increasing the volume of supplied hot water in response to an increased demand from a thermostat. *Id.* According to Appellant, such entails a different “principle of operation” than demanding and supplying hot water at a higher temperature in response to an increased demand from a thermostat. *Id.* (“There is no teaching or suggestion in Toni that super-hot water is wanted or desired”).

In response, the Examiner explains that Toni and Leeland teach two alternative, but well known, techniques for responding to a demand for hot water. Ans. 14. According to the Examiner, Toni responds to the increased demand by supplying a higher volume of water at a targeted temperature, whereas Leeland supplies an overall lower volume of water, but at a higher

temperature. *Id.* To illustrate the point, the Examiner describes a common, everyday example familiar to even lay persons, namely, different ways to mix hot and cold water to fill a bathtub with water. *Id.*

Toni is directed to a water heating system. Toni, col. 1, ll. 11–12. Toni discloses a series of water heaters that are connected to a water storage tank. *Id.* col. 1, ll. 32–35. Toni’s system contains two closed flow systems, each of which is capable of supplying hot water to the storage tank by means of heaters and pumps. *Id.* col. 1, ll. 53–63. Toni’s system features two thermostats within the storage tank; each thermostat at a different vertical level and each thermostat connected to the heater and pump of one of the closed flow systems. *Id.* col. 1, ll. 58–62.

When the temperature indicated by a thermostat falls below a set-point, one or more heaters supply heated water to the tank via the pumps. *Id.* col. 1, l. 48 – col. 2, l. 26. Toni is responsive to differing demands for hot water. *Id.* When small volumes of heated water are drawn from the storage tank, such heated water is replaced with cold water that is supplied to the bottom of the tank. *Id.* When the resulting influx of cold water causes the water temperature to fall below the lower thermostat set-point, a single heater and pump is activated to raise the temperature in the tank to the set-point. In contrast, when large volumes of water are drawn from the storage tank, both the upper and lower thermostats cause Toni’s system to activate multiple heaters and pumps to supply a larger volume of heated water to the storage tank. *Id.*

Leeland is directed to a water heater that features a temporary increase in hot water capacity by heating water to a higher “boost” temperature or, in

other words, by temporarily increasing the water temperature in the tank. Leeland, Abstract; ¶ 6.

The principle of operation of Toni is to supply heated water to a storage tank in response to thermostatic control. The Examiner uses Leeland to adjust the temperature of the heated water that is supplied to the tank. Toni's principle of operation of supplying heated water to a tank in response to thermostatic control is maintained by the Examiner's proposed combination. Thus, we find Appellant's principle of operation argument unpersuasive.

Appellant argues that Toni teaches away from the proposed combination and that the Examiner is guilty of impermissible hindsight in modifying Toni by the teachings of Leeland. Appeal Br. 14. Neither argument is persuasive. A reference does not teach away if it merely expresses a general preference for an alternative invention but does not "criticize, discredit, or otherwise discourage" investigation into the invention claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Appellant does not direct us to any language in Toni that criticizes, discredits, or otherwise discourages investigation into adjusting the temperature of water supplied to a water heater tank. Moreover, Appellant's hindsight argument is unpersuasive because the Examiner provides a sufficient, non-hindsight reason to combine the prior art references. *In re Cree, Inc.*, 818 F.3d 694, 702 n.3 (Fed. Cir. 2016). Here, the Examiner's stated reason, namely, to rapidly increase the water temperature in the tank, is sufficient to support the rejection. Final Act. 4.

Next, Appellant argues that Leeland is "incompatible" with the invention of claim 1. Appeal Br. 15. Appellant argues that Leeland is

directed to a gas fired water heater that supplies heat that is “much hotter” than the set point of the water heater. *Id.* Appellant argues that Leeland cannot supply heat to the water at the bottom of the tank without raising the temperature at the top of the tank above the set point. *Id.*

In response, the Examiner notes that there is a lack of evidence to support Appellant’s argument and, in any event, the argument is irrelevant given the context of the claim language. Ans. 14.

Having reviewed and considered the Toni and Leeland references and the Examiner’s proposed modification of Toni by the teachings of Leeland, we do not agree with Appellant’s position that Leeland is “incompatible” with Toni. We agree with the Examiner that Appellant’s argument that heating the bottom of the tank will raise the water temperature at the top of the tank above the set point lacks evidentiary support and thus constitutes unsubstantiated attorney argument. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (explaining that attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value).

Furthermore, Appellant’s argument is seen as an argument for the bodily incorporation of Leeland’s gas fired heater into Toni’s system. However, “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). The obviousness inquiry does not ask “whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole.” *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc). “It is well-established that a

determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements.” *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). Leeland is relied on as teaching the principle that water heater temperature can be temporarily increased by employing a “boost” feature. We agree with the Examiner that such teaching could have been successfully applied to Toni and that the improved rate of temperature increase noted by the Examiner provides an adequate motivation to do so.

In view of the foregoing discussion, we determine the Examiner’s findings of fact are supported by a preponderance of the evidence and that the Examiner’s legal conclusion of unpatentability is well-founded. We sustain the Examiner’s unpatentability rejection of claim 1.

Claim 19

Claim 19 is an independent claim that, apart from being a method claim, is substantially similar in scope to claim 1. Claims App.

Appellant’s traverse of the rejection is similar to the arguments raised with respect to claim 1. Appeal Br. 20–23. This time, however, Appellant accuses the Examiner of “dismantling” Toni’s feature of using multiple heaters and pumps to supply differing volumes of water at a constant temperature in favor of supply a constant rate of water inflow, but at differing temperatures. *Id.* at 21.

In response, the Examiner considers Appellant’s arguments to be essentially a recapitulation of the same arguments that were advanced against the rejection of claim 1, a point with which we are inclined to agree. Rudimentary principles of physics related to thermodynamics and heat convection inform the skilled practitioner that the temperature of a body of

water (such as in a storage tank) can be raised by adding a relatively larger volume of heated water at a relatively lower temperature or by adding a relatively lower volume of heated water at a relatively higher temperature. Toni and Leeland provide all of the teaching that a person of ordinary skill in the art would need to implement these principles in a practical application.

We sustain the Examiner's unpatentability rejection of claim 19.

*Unpatentability of Claims 9 and 15–17
over Toni, Olney, and Leeland.*

Claim 9

Claim 9 is an independent claim. Claims App. Claim 9 differs from claims 1 and 19 in that it is directed to a “companion” water heater that features a heat exchange coil disposed in the hot water storage tank. *Id.* The Examiner relies on Olney as teaching such a heat exchange coil. Final Act. 9–10. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time of the invention to achieve the claimed invention by modifying Toni and Leeland with the teachings of Olney. *Id.* at 10. According to the Examiner, a person of ordinary skill in the art would have done this to heat fluid for a hydronic heating system. *Id.*

In traversing the rejection, Appellants relies on arguments that we previously considered and found unpersuasive with respect to claims 1 and 19 and find equally unpersuasive here. Appeal Br. 16–20. Appellant further argues that Olney fails to cure the deficiencies of Toni and Leeland. *Id.* at 19–20.

Olney discloses a water heating system. Olney, col. 2, ll. 15–25. Olney’s system features heat exchange coil 12 through which heated fluid is

circulated by via conduits 14, 15, and pump 17. *Id.* The Examiner's findings of fact with regard to Olney are supported by the record before us.

Having previously determined that the combination of Toni and Leeland is not deficient with respect to Appellant's arguments advanced against claims 1 and 19, we are not persuaded of Examiner error and, therefore, sustain the rejection of claim 9.

Claims 15–17

These claims depend, directly or indirectly, from claim 9 and are not separately argued. We sustain the Examiner's rejection of claims 15–17. *See* 37 C.F.R. § 41.37(c)(1)(iv) (failure to separately argue claims constitutes a waiver of arguments for separate patentability).

*Unpatentability of Claims 2–8, 10–14, 18, and 20
over Combinations Based on Toni*

These claims depend, directly or indirectly, from one of independent claims 1, 9, or 19. Claims App. They are rejected over Toni in combination with various other references and not separately argued apart from arguments that we have previously considered and found unpersuasive in connection with the rejections of claims 1, 9, or 19. Final Act. 5–14.

We sustain the Examiner's rejection of claims 2–8, 10–14, 18, and 20. *See* 37 C.F.R. § 41.37(c)(1)(iv).

CONCLUSION

In summary:

Claims Rejected	§	References	Aff'd	Rev'd
1, 19	103	Toni, Leeland	1, 19	
2, 3, 20	103	Toni, Leeland, Patterson	2, 3, 20	
4-6	103	Toni, Leeland, Patterson, Olney	4-6	
7	103	Toni, Leeland, Patterson, Nusbaumer	7	
8	103	Toni, Leeland, Patterson, Bradenbaugh	8	
9, 15-17	103	Toni, Olney, Leeland	9, 15-17	
10, 14	103	Toni, Olney, Bradenbaugh	10, 14	
11, 12	103	Toni, Olney, Patterson	11, 12	
13	103	Toni, Olney, Leeland, Roetker	13	
18	103	Toni, Olney, Leeland, Jackson	18	
Overall Outcome			1-20	

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

AFFIRMED