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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TODD R. DEMONTE, SEAN M. EBERT, and
MICHAEL J. STEFFES

Appeal 2019-002126
Application 14/276,372
Technology Center 3600

Before MICHAEL L. HOELTER, WILLIAM A. CAPP, and
JILL D. HILL, *Administrative Patent Judges*.

HOELTER, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–17. Appeal Br. 1, 4. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as “THERMA-STOR LLC.” Appeal Br. 2.

CLAIMED SUBJECT MATTER

The disclosed subject matter “relates generally to pest control and more particularly to a hydronic heating system and method for killing bed bugs in an affected area.” Spec. 1:10–11. Method claims 1 and 7 are independent. Claim 1 is illustrative of the claims on appeal and is reproduced below.

1. A method for heating an affected area, comprising:
 - heating a water-glycol fluid mixture to a temperature greater than 170 degrees Fahrenheit using a burner positioned outside of an affected area;
 - receiving the heated water-glycol fluid mixture as a single supply fluid stream inside the affected area;
 - splitting the single supply fluid stream into a plurality of supply fluid streams inside the affected area, wherein the plurality of supply fluid streams comprises:
 - a first stream that is dedicated to supply fluid to a first heat exchanger unit; and
 - a second stream that is dedicated to supply fluid to a second heat exchanger unit;
 - receiving the first supply fluid stream at the first heat exchanger unit;
 - emitting heated air from the first heat exchanger unit by transferring heat from the water-glycol fluid mixture to ambient air within the affected area;
 - bypassing receiving the fluid at the first heat exchanger unit when ambient air surrounding that heat exchanger unit is greater than an upper limit;
 - circulating the heated air to inhibit stratification of the heated air;
 - receiving the second supply fluid stream at the second heat exchanger unit;
 - emitting heated air from the second heat exchanger unit by transferring heat from the water-glycol fluid mixture to ambient air within the affected area;
 - receiving the water-glycol fluid mixture as a plurality of return fluid streams from the first and second heat exchanger units; and

merging the plurality of return fluid streams into a single return fluid stream inside the affected area;

wherein a temperature difference between the fluid received by a second heat exchanger unit and the ambient air surrounding that heat exchanger unit results in that ambient air being raised to a target temperature greater than 122 degrees Fahrenheit.

EVIDENCE

Barnd	US 3,515,345	June 2, 1970
Vitale	US 4,126,268	Nov. 21, 1978
Ford	US 6,270,721 B1	Aug. 7, 2001
Hedman	US 2008/0014111 A1	Jan. 17, 2008
Dancey	US 7,401,742 B2	July 22, 2008

REJECTIONS

Claims 1–5 and 7–14 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Barnd and Dancey.

Claims 1–5 and 7–15 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Hedman, Barnd, and Dancey.

In an alternate interpretation, claim 4 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Hedman, Barnd, Dancey, and Vitale.

Claim 6 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Hedman, Barnd, Dancey, and Ford.

In an alternate interpretation, claim 13 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Hedman, Barnd, and Vitale.

Claims 16 and 17 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Hedman, Barnd, and Ford.

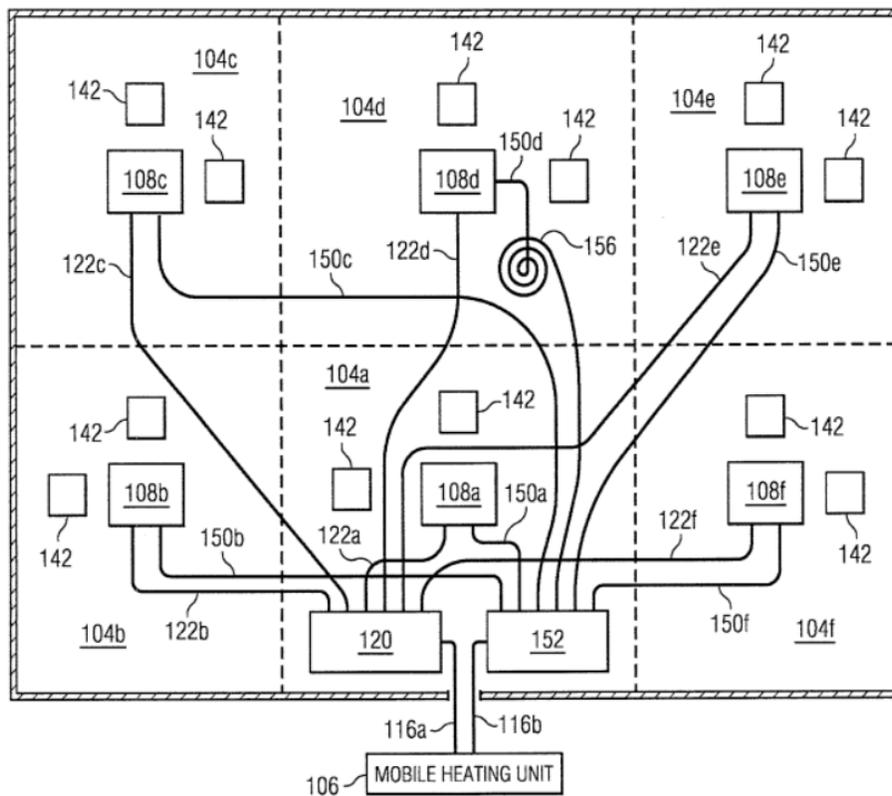
ANALYSIS

The rejection of claims 1–5 and 7–14 as unpatentable over Barnd and Dancey

Appellant argues claims 1–5 and 7–14 together. *See* Appeal Br. 16–21. We select claim 1 for review, with the remaining claims (i.e., claims 2–5 and 7–14) standing or falling with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Claim 1 recites first and second streams “dedicated” to first and second heat exchanger units. The Examiner relies on Barnd for such teachings. *See* Non-Final Act. 3, 5. Appellant does not dispute the Examiner’s reliance on Dancey for other limitations. *See* Appeal Br. 16–21.

To better appreciate the following analysis, we replicate Figure 1 of Appellant’s Specification below:



“FIGURE 1 illustrates an example hydronic system for pest control, according to certain embodiments of the present disclosure.” Spec. 4:5–6.

This figure illustrates multiple heat exchangers (108) in multiple regions (104), each heat exchanger having a supply (122) and return (150) line.

For comparison, we also replicate Figure 1 of Barnd below:

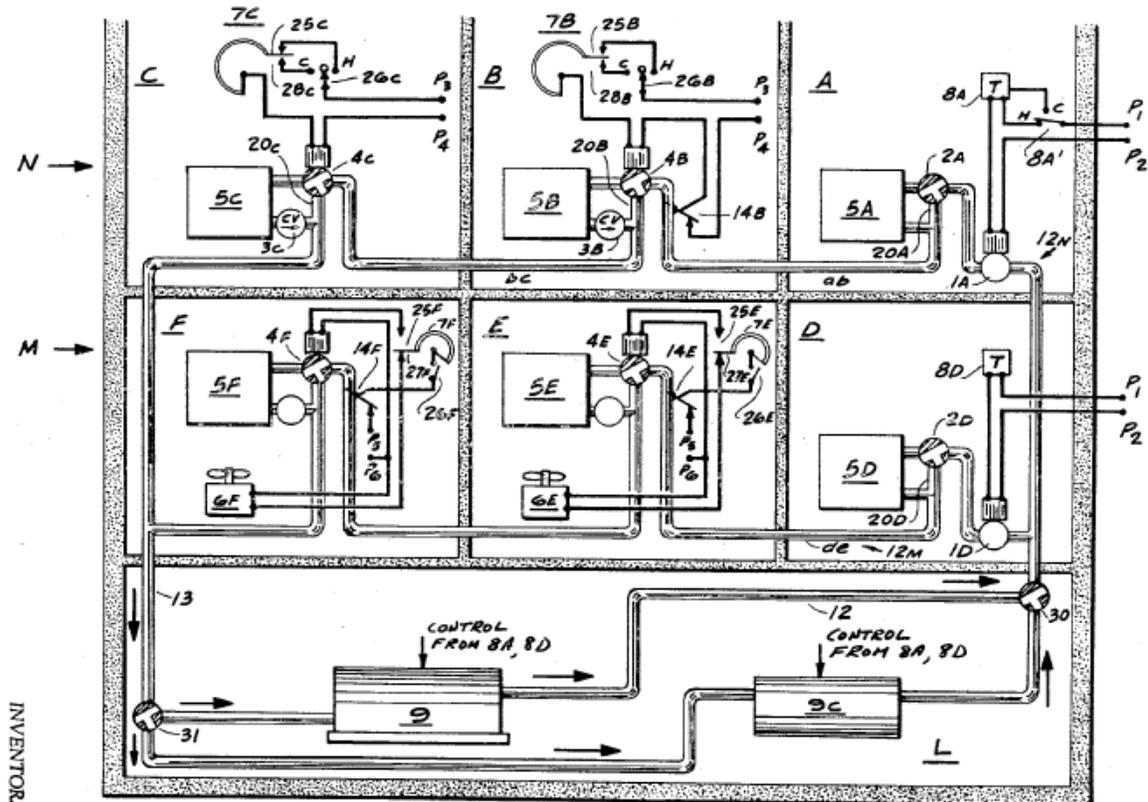


FIG-1

Figure 1 of Barnd “is a diagrammatic and schematic view of an exemplary temperature-control arrangement.” Barnd 2:11–12. This Figure illustrates multiple heat exchangers (5) in multiple zones (A–F), each heat exchanger having an associated bypass valve (2, 4) in its supply line.

Barnd teaches, “[z]ones A and D comprise master control zones while B, C, E and F comprise by-pass control zones.” Barnd 2:24–26. Barnd further teaches that, although master/by-pass zones A–F “are illustrated, it is to be understood that in practice either one such combination or three or more may be utilized *with a number of by-pass zones selected as required.*” Barnd 2:26–31 (emphasis added). See also Ans. 15.

Based on such disclosures, the Examiner states, “Barnd teaches that each of the exemplary affected areas A-F is depicted as a possible combination of heating components. The affected areas can comprise [any] combination of these components, chosen to fit the user’s desired configuration.” Non-Final Act. 5 (*referencing* Barnd 2:20–38); *see also* Ans. 15. Should Appellant disagree, the Examiner alternately contends, “it would have been obvious . . . to group[] the components as desired in order to fine-tune or customize operation of the system, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.” Non-Final Act. 5.

Appellant is silent as to the ability to rearrange or group as desired and addresses, instead, Barnd’s ability to by-pass the heat exchangers. *See* Appeal Br. 17, 18; Reply Br. 2–3. Appellant states that this by-pass feature “requires that the fluid flows from one heat exchanger unit to the next heat exchanger unit in a serial connection.” Appeal Br. 17; *see also* Reply Br. 2. As a consequence, Appellant contends, “[t]he fluid flow between serially connected heat exchanger units in *Barnd* teaches away from the ‘dedicated’ fluid streams recited in Claims 1 and 7 (and illustrated above in [Appellant’s] Figure 1).” Appeal Br. 18; *see also* Reply Br. 3.

Appellant’s contentions are not persuasive. First, as indicated above, Barnd differentiates between master zones (A, D) and by-pass zones (B, C, E, F) and clearly acknowledges that different combinations of the two are possible (“with a number of by-pass zones selected as required”). Appellant does not address the situation where no by-pass zones are selected, in which case only the heat exchangers in master zones A, D would be supplied via their respective supply lines 12N and 12M. *See also* Ans. 15 (“the same system architecture could be used with one heat exchanger on each line”).

Second, Appellant’s contention that Barnd’s by-passing feature “requires that the fluid flows from one heat exchanger unit to the next heat exchanger unit in a serial connection” (Appeal Br. 17) is not persuasive. This is because Appellant does not explain how a by-pass requires serial flow rather than simply being an ability to isolate a particular heat exchanger (such as for repair/replacement purposes). *See* Barnd 3:2–4 (“The outlet side of **5B** may include a check valve **3B** to prevent heat exchange during the by-pass mode.”); *see also* Ans. 16.

Third, Appellant’s contention that Barnd’s by-passing feature “teaches away” from the claimed “dedicated” limitation is not persuasive. Appeal Br. 18. This is because, as our reviewing court has instructed us, “[t]he prior art’s mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed.” *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). To be clear, Appellant does not indicate where Barnd criticizes, discredits, or otherwise discourages supplying a heat exchanger with a line “dedicated” to that effect. We have also been instructed that

a prior art reference may anticipate or render obvious an apparatus claim—depending on the claim language—if the reference discloses an apparatus that is reasonably capable of operating so as to meet the claim limitations, even if it does not meet the claim limitations in all modes of operation.

ParkerVision, Inc. v. Qualcomm Inc., 903 F.3d 1354, 1361 (Fed Cir. 2018).

Fourth, and specifically addressing the claim term “dedicated,” the Examiner provides multiple dictionary definitions of this term.² Ans. 15. After assessing these definitions, the Examiner concludes “[a]ll this is to say that even if a supply line services multiple heat exchangers [e.g., Barnd], it is still assigned/allocated/designed/devoted to each heat exchanger.” Ans. 15. On this point, Appellant selects a particular definition to employ in refuting the Examiner’s findings (i.e., “exclusively allocated to”). *See* Appeal Br. 19; Reply Br. 3. However, guidance has been provided that “[a]bsent an express definition in their specification, the fact that [Appellant] can point to definitions or usages that conform to their interpretation does not make the PTO’s definition unreasonable when the PTO can point to other sources that support its interpretation.” *In re Morris*, 127 F.3d 1048, 1056 (Fed. Cir. 1997). Here, the Examiner provided five exemplary dictionary definitions, of which Appellant could rely on only one for any sensible rebuttal. Further, in Barnd, there is only one supply and return line to/from each heat exchanger. In summation, and lacking any express definition of “dedicated” in Appellant’s Specification, Appellant is not persuasive that the Examiner’s interpretation of “dedicated” is incorrect, inaccurate, or otherwise inconsistent with Appellant’s Specification.

Additionally, Appellant’s arguments above are not persuasive of Examiner error because there is no indication in claim 1 that the recited first and second streams are to be “dedicated” (i.e., exclusively) to, respectively, a single heat exchanger and no more. To be clear, the limitation in question recites, “a [first/second] stream that is dedicated to supply fluid to a

² We agree with the Examiner that “the word ‘dedicated’ never appears in appellant’s disclosure” (Ans. 15) and as such, there is no definition or usage therein that Appellant can rely upon.

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[first/second] heat exchanger unit.” We do not read this limitation as precluding any supply to additional heat exchangers; only that the first and second streams supply fluid to, respectively, first and second heat exchangers. This is because Appellant employs the transitional term “comprising,” which is open-ended. *See Georgia-Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d 1322, 1327 (Fed. Cir. 1999) (Noting that Appellants’ preamble employs the transitional term “comprising” which is “inclusive or open-ended and does not exclude additional, unrecited elements or method steps”). Our reviewing court further instructs us that we cannot read unclaimed features from Appellant’s Specification into the claims or limit the claims to a particular embodiment if the claim language is broader. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993); *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). For these additional reasons, we are not persuaded the Examiner’s rejection is in error.

Appellant further alleges, “the proposed reliance on *Barnd* is also improper because it changes the principle of operation of *Barnd*” thereby rendering *Barnd* “unsatisfactory for its intended purpose.” Appeal Br. 19; *see also* Reply Br. 5–6. This is because “the serial flow of fluid from one heat exchanger unit to the next is a critical and fundamental objective of *Barnd*.” Appeal Br. 20. However, this contention is not persuasive because *Barnd* provides for the by-passing of heat exchangers in a flow stream. *See supra*. Hence, the assertion that the flow of fluid to consecutive heat exchangers is “a critical and fundamental objective of *Barnd*” (Appeal Br. 20) is not persuasive since heat exchangers may be by-passed in *Barnd*. Furthermore, *Barnd* provides for the normal operation of those heat exchangers that have not been by-passed, and hence, Appellant is not persuasive that such by-passing “changes the principle of operation of

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Barnd,” or otherwise renders *Barnd* “unsatisfactory for its intended purpose.” Appeal Br. 19; *see also* Ans. 17–19.

Accordingly, and based on the record presented, we are not persuaded of Examiner error. We sustain the Examiner’s rejection of claims 1–5 and 7–14 as unpatentable over *Barnd* and *Dancey*.

*The rejection of claims 1–5 and 7–15
as unpatentable over Hedman, Barnd, and Dancey*

Appellant argues claims 1–5 and 7–15 together. *See* Appeal Br. 21–24. We select claim 1 for review, with claims 2–5 and 7–15 standing or falling with claim 1.

Here, the Examiner primarily relies on *Hedman* for many of the teachings of claim 1, but relies on *Barnd* for disclosing the bypassing of first and second streams (among other limitations). *See* Non-Final Act. 12–15; Ans. 16. The Examiner’s reason for the combination is “in order to make the system more efficient.” Non-Final Act. 15. Appellant contends, “this efficiency rationale is undermined by the fact that the efficiencies sought by *Barnd* in conjunction with the ‘bypassing’ feature would be lost in the *Hedman-Barnd* combination.” Appeal Br. 21; *see also* Reply Br. 5, 6.

We disagree with Appellant’s assertion. *Hedman* clearly discloses the placement of multiple heat exchangers on a conduit stream. *See Hedman* ¶ 84; *see also* Non-Final Act. 13. The Examiner acknowledges, however, that “*Hedman* does not teach that the system bypasses” the heat exchangers, and hence relies on *Barnd* for such teaching. Non-Final Act. 14. Appellant is not persuasive that providing for the by-pass of heat exchangers (such as when their heat exchange is not required) fails to “make the system more efficient” as expressed by the Examiner. Non-Final Act. 15.

Appellant further disputes the Examiner's reliance on Hedman for the "dedicated" limitation. Appeal Br. 21 (the Examiner "alleges that *Hedman* teaches that 'each exchanger comprises a 'dedicated' fluid stream'"). The Examiner redundantly relies on both Hedman and Barnd for this "dedicated" limitation and, as indicated above, provides a reason for their combination. *See* Non-Final Act. 13–15. Thus, regardless of whether or not this limitation is also taught in Hedman, Appellant does not explain how this limitation fails to be disclosed in Barnd. *See supra*. Consequently, based on our analysis above, we are not persuaded the Examiner erred on this point.

Appellant also repeats the assertion "that the 'bypassing' feature of *Barnd* requires the fluid to flow from one heat exchanger unit to the next in a serial connection." Appeal Br. 22. Another repeated contention is the Examiner's interpretation of the claim term "dedicated." *See* Appeal Br. 22. Neither of these contentions are persuasive for the reasons previously stated.

Appellant further contends that in an earlier office action, the Examiner relied on an "inherency" argument regarding certain teachings in Hedman. *See* Appeal Br. 23. Now, however, the Examiner "removed the word 'inherent' from its rejection." Appeal Br. 23. Nevertheless, Appellant still contends, "the current FOA is still relying on an 'inherency' argument without explicitly using the word 'inherent' in the rejection so that it can avoid the procedural burden of establishing 'inherency.'" Appeal Br. 23. This matter focuses on whether Hedman teaches the limitation of "splitting the single supply fluid stream into a plurality of supply fluid streams." *See* Appeal Br. 23. Appellant contends that it is possible that "*Hedman* operates *not* by receiving a 'single supply fluid stream' and then 'splitting' it at all," but instead via some other arrangement. Appeal Br. 24. Appellant states, "*Hedman* is simply silent on this point." Appeal Br. 24.

We need not delve into this matter (despite what Paragraph 84 of Hedman would convey to one skilled in the art) because, as above, the Examiner redundantly relied on Barnd for such “splitting” and provided a reason for their combination. *See* Non-Final Act. 14, 15. Appellant does not argue that the recited “splitting” fails to be clearly illustrated in Figure 1 of Barnd, and particularly the separation of main header 12 into “parallel branch pipe systems **12M** and **12N**.” Barnd 2:42–43.

Accordingly, and based on the record presented, we are not persuaded the Examiner erred in rejecting claims 1–5 and 7–15 as unpatentable over Hedman, Barnd, and Dancey.

The rejection of (a) claim 4 as unpatentable over Hedman, Barnd, Dancey, and Vitale; (b) claim 6 as unpatentable over Hedman, Barnd, Dancey, and Ford; (c) claim 13 as unpatentable over Hedman, Barnd, and Vitale; and (d) claims 16 and 17 as unpatentable over Hedman, Barnd, and Ford.

Appellant presents no argument contesting the Examiner’s rejection of these claims in view of these references. *See* Appeal Br. *generally*. Accordingly, we summarily sustain the Examiner’s rejection of these claims.

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
1–5 and 7–14	35 U.S.C. § 103(a) over Barnd and Dancey	1–5 and 7–14	
1–5 and 7–15	35 U.S.C. § 103(a) over Hedman, Barnd, and Dancey	1–5 and 7–15	
4	35 U.S.C. § 103(a) over Hedman,	4	

Claims Rejected	Basis	Affirmed	Reversed
	Barnd, Dancey, and Vitale		
6	35 U.S.C. § 103(a) over Hedman, Barnd, Dancey, and Ford	6	
13	35 U.S.C. § 103(a) over Hedman, Barnd, and Vitale	13	
16 and 17	35 U.S.C. § 103(a) over Hedman, Barnd, and Ford	16 and 17	
Overall Outcome		1-17	

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

AFFIRMED