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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/114,822	04/26/2005	Bernard F. Duesel JR.	31628/40377	9891

4743 7590 02/01/2013

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EXAMINER	
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ART UNIT	PAPER NUMBER
3743	

NOTIFICATION DATE	DELIVERY MODE
02/01/2013	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BERNARD F. DUESEL, JR., DAVID L. FENTON, and MICHAEL J. RUTSCH

Appeal 2010-005686
Application 11/114,822
Technology Center 3700

Before PHILLIP J. KAUFFMAN, EDWARD A. BROWN, and CHARLES N. GREENHUT, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 3-47, and 49-67. App. Br. 4. Claims 2 and 48 have been canceled. *Id.* We have jurisdiction over this appeal under 35 U.S.C. § 6(b). We reverse.

THE CLAIMED SUBJECT MATTER

Claims 1, 18, and 46 are the independent claims on appeal. Claim 1, reproduced below, is illustrative of the appealed subject matter:

> 1. A waste heat recovery system for use with an exhaust stack of a combustion process that employs landfill gas as fuel, comprising:
>
> a gas transfer pipe fluidly connected to the exhaust stack;
>
> a bustle connected to the gas transfer pipe and to the exhaust stack, the bustle diverting a portion of exhaust gas from the exhaust stack to the gas transfer pipe in substantially equal amounts about a circumference of the exhaust stack;
>
> a heat exchange unit coupled to the gas transfer pipe;
>
> an induction fan operatively connected to the gas transfer pipe to create a draft in the gas transfer pipe to aid in the transfer of the portion of exhaust gas from the exhaust stack to the heat exchange unit; and
>
> a secondary exhaust fluidly connected to the heat exchange unit for venting the transferred portion of the exhaust gas.

THE REJECTIONS

Appellants seek review of the following rejections:

1. Claims 1, 3-9, and 11-17 are rejected under 35 U.S.C. § 103(a) as unpatentable over McCracken (US 4,036,576; iss. Jul. 19, 1977) and Douglass (US 4,771,708; iss. Sep. 20, 1988). Ans. 3-5.

2. Claim 10 is rejected under 35 U.S.C. § 103(a) as unpatentable over McCracken, Douglass, and Johnson (US 4,708,636; iss. Nov. 24, 1987). Ans. 5.

3. Claims 18-47, and 49-67 are rejected under 35 U.S.C. § 103(a) as unpatentable over McCracken, Douglass, Cummings (US 6,345,495 B1; iss. Feb. 12, 2002), and Henkelmann (US 5,643,544; iss. Jul. 1, 1997). Ans. 6-9.

ANALYSIS

Rejection of claims 1, 3-9, and 11-17 – McCracken and Douglass

The Examiner found that McCracken discloses a waste heat recovery system for use with an exhaust stack of a combustion process, comprising each of the features recited in claim 1 except for the bustle. Ans. 3-4. The Examiner found that Douglass discloses using a bustle (plenum 28) on a stack 12 to draw heated gas from the exhaust to provide heat recovery, and teaches "the bustle 'diverting... substantially equal amounts about the circumference of the exhaust stack' *as shown by the arrows depicting the gas flow and the equally spaced distribution of the outlet ports 27 as at least shown in figure 2*." Ans. 4 (emphasis added). The Examiner concluded that it would have been obvious to one of ordinary skill in the art to incorporate Douglass' bustle into the McCracken system to provide a viable alternative to produce the desired results. Ans. 5.

Appellants contend that Douglass fails to disclose or suggest a bustle that diverts exhaust gas "in substantially equal amounts about a circumference of the exhaust stack," as recited in claim 1. App. Br. 12. Figure 2 of Douglas shows a cylindrical stack 12, and a plenum 28 surrounding the stack 12 and connected to a conduit 29. *See also* Douglass, col. 2, ll. 21-25, col. 3, ll. 5-8. Douglas states:

> To prevent the sparks and cinders from being carried into the atmosphere from the stack, a series of parallel elongated ports **27** are angularly spaced about the upper portion of stack **12** and are inclined at an angle to the longitudinal axis of the stack **12** such that each port **27** extends beneath an adjacent port in the wall of stack **12**. *The ports **27** are inclined counter to the spiral flow of gases within the stack **12** such that sparks and cinders **[28]** carried thereby are urged outwardly through the ports by centrifugal force and the flow of gases into a plenum **28** which surrounds the upper portion of the stack **12***.

See Douglass, col. 2, l. 61 – col. 3, l. 4 (emphasis added). Figure 2 of Douglass also shows multiple arrows, including, for each respective port 27, an arrow that appears to be entering, and another arrow that appears to have passed through, that port 27. Appellants contend that there is no support for the Examiner's finding that these arrows in Douglass indicate the *amount* of gas flow within the stack 12 or plenum 28. App. Br. 13. We agree.

The Examiner did not identify any explicit disclosure in Douglass that mentions the arrows shown in Figure 2, much less that indicates the arrows represent an amount of the gas flow through the ports 27 into the plenum 28. Appellants contend that Douglass uses the arrows in Figure 2 to indicate a direction of circulation of gas within stack 12. App. Br. 13. We agree with

Appellants that the directions of the arrows shown in Figure 2 are consistent with Douglass' description regarding the flow of sparks and cinders through the ports 27 noted *supra*. *See* Douglass, col. 2, l. 68 – col. 3, l. 4; *see also* App. Br. 13. The Examiner found that it is inherent that the sparks and cinders shown in Figure 2 "must be carried by the exhaust flow to travel in the prescribed manner." Ans. 10. We agree with Appellants, however, that this finding does not refute their contention that the arrows in Figure 2 "merely indicate the direction of gas (and cinder) flow, not the amounts of gas flow." Reply Br. 4.

Appellants also contend that Douglass fails to inherently disclose or suggest a bustle that diverts exhaust gas "in substantially equal amounts about a circumference of an exhaust stack." App. Br. 14. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *See In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (internal citation and quotations omitted). Here, the Examiner has provided no evidence to support the finding that Douglass' plenum would *necessarily* "divert[] a portion of exhaust gas from the exhaust stack to the gas transfer pipe in substantially equal amounts about a circumference of the exhaust stack," as recited in claim 1. As such, the Examiner did not establish inherency of the claimed limitation.

Appellants also contend that the Declaration of Craig Clerkin Under 37 C.F.R. § 1.132 ("Declaration") provides sufficient evidence to rebut any prima facie showing of obviousness. App. Br. 16. Appellants contend that the Declaration establishes that Douglass' plenum 28 is not capable of "'diverting a portion of exhaust gas from the exhaust stack in substantially

equal amounts about a circumference of the exhaust stack.'" App. Br. 16 (citing Decl., para. 7). Paragraph 7 of the Declaration states (emphasis added):

> [T]he bustle disclosed by Douglass will not admit gas from the exhaust stack in substantially equal amounts about the circumference of the exhaust stack. Rather, the bustle disclosed by Douglass will have *a significant disparity in flow rates* through the slots 27 closest to the suction source as compared to flow rates through the slots 27 farthest from the suction source.

In response, the Examiner stated:

> While it is agreed that there would be a pressure differential as stated in the Affidavit, it is not agreed that this would result in a flow that is not "substantially" equal about the circumference. The Affidavit states that there would be "significant disparity" in the flow rates, but fails to substantiate it with concrete evidence, such as test results. As regards the arrows, it is again purported that the arrows appear, and would appear to one having ordinary skill in the art, as being "substantially" equal all around.

Ans. 11.

The Examiner has not provided any evidence to support the position that the visual appearance of the arrows in Figure 2 of Douglass corresponds to the amount of gas flow diverted through the respective ports 27, much less that the arrows indicate that exhaust gas is diverted "in substantially equal amounts about a circumference of the exhaust stack [12]." Nor has the Examiner provided any basis that one of ordinary skill in the art would understand that the arrows have this particular meaning. The Examiner appears to have given little weight to Mr. Clerkin's statement that Douglass'

bustle will have a significant disparity in flow rates through the slots 27 at different locations about the circumference of the bustle, without providing any contrary evidence. In addition, the Examiner appears to have given little weight to Mr. Clerkin's statement that one of ordinary skill in the art would interpret the arrows in Figure 2 of Douglass as only indicating a general flow direction through the slots 27. *See* Decl., para. 8. The Board "has broad discretion as to the weight to give declarations offered in the course of prosecution." *In re Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004). As such, we determine that the Examiner provided no proper basis for not giving appropriate weight to Mr. Clerkin's statements in the Declaration regarding gas flow rates through the Douglass ports 27.

In view of the record before us, we do not sustain the rejection of claim 1, and claims 3-9, and 11-17, which depend therefrom.

Rejection of claim 10 - McCracken, Douglass, and Johnson

Claim 10 depends from claim 1. The Examiner relied on Johnson for teaching the use of a flow sensor on a stack and damper. Ans. 5. The Examiner's application of Johnson does not cure the deficiencies of the Examiner's reliance on McCracken and Douglass in regard to the rejection of claim 1, as discussed *supra*. We do not sustain the rejection of claim 10.

Rejection of claims 18-47, and 49-67 - McCracken, Douglass, Cummings, and Henkelmann

Claim 18 is directed to a method of conserving energy and recites that "the bustle diverting the exhaust gas in substantially equal amounts about a circumference of the exhaust stack." Claim 46 is directed to a waste heat recovery system and recites the similar limitation, "the bustle diverting a

portion of exhaust gas from the exhaust stack into the exhaust gas transfer pipe in substantially equal amounts about a circumference of the exhaust stack." The Examiner's rejection of claims 18 and 46 relies on the same unsubstantiated findings regarding Douglass discussed *supra* with respect to the rejection of claim 1. Ans. 6-7. As such, we do not sustain the rejection of claim 18, and its dependent claims 19-45, and claim 46, and its dependent claims 47 and 49-67.

DECISION

The Examiner's decision rejecting claims 1, 3-47, and 49-67 is reversed.

REVERSED

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