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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* KARTHIKEYAN SELVARAJAN,  
PHILIP RODNEY KWOK, BARTON JOHN KENYON,  
BRUCE DAVID GREGORY, NICHOLAS JEROME REED,  
and CHRISTOPHER KINGSLEY BLUNSDEN<sup>1</sup>

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Appeal 2017–009841  
Application 14/470,492  
Technology Center 3700

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Before JENNIFER D. BAHR, JOHN C. KERINS, and JILL D. HILL,  
*Administrative Patent Judges.*

HILL, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner’s non-final decision rejecting claims 1, 2, 4, 8, 10–13, 16, 18, and 20.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

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<sup>1</sup> ResMed Limited (“Appellant”) is the applicant as provided in 37 C.F.R. § 1.46 and is identified as the real party in interest. Appeal Br. 3.

<sup>2</sup> Claims 3, 5–7, 14, 15, 17, and 19 stand objected to. Final Act. 8.

We AFFIRM-IN-PART, designating a portion of the affirmance a NEW GROUND of rejection.

## BACKGROUND

Sole independent claim 1, reproduced below, illustrates the claimed invention, with a disputed limitation italicized.

1. A CPAP system comprising:
  - a mask provided to a patient in use, the mask including a breathing chamber;
  - a flow generator in communication with the mask;
  - a positive pressure line to provide positive pressure air from the flow generator to the mask; and
  - a vacuum or return line provided to actively extract and/or remove gas exhausted by the patient,  
*wherein the vacuum or return line is configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient.*

## REJECTION

- I. Claims 1, 2, 8, 10–12, 18, and 20 stand rejected under 35 U.S.C. § 102(a) or (e) as anticipated by Wondka (US 2005/0066976 A1, published Mar. 31, 2005). Non-Final Act. 5.
- II. Claim 4 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wondka. Non-Final Act. 6.
- III. Claim 13 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wondka and Greenspan (US 4,929,149, issued May 29, 1990). Non-Final Act. 7.

IV. Claim 16 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wondka and Faithfull (US 6,041,777, issued Mar. 28, 2000). Non-Final Act. 7.

## ANALYSIS

### Rejection I – Claims 1, 2, 8, 10–12, 18, and 20

The Examiner finds that Wondka discloses a CPAP system including, *inter alia*, a flow generator (e.g., PGU 700) in communication with a mask, a positive pressure line 64 providing positive pressure from the flow generator 700 to the mask, and a vacuum/return line (*see* Wondka ¶ 155) actively extracting gas exhausted by the patient and directing exhausted gas to the flow generator “(Wondka discloses that the vacuum pressure source and the ventilation pressure source may be the same source, the ‘flow generator’ is interpreted to be a system including this source and associated tubing which includes the venturi, and therefore the vacuum gas is returned to [the flow generator]).” Non-Final Act. 5. The Examiner adds that Wondka’s vacuum line “provides vacuum assisted exhaust and therefore is not configured for recirculation (page 10, paragraphs 0154, 0155; page 12, paragraphs 0184, 0186).” *Id.*

### *Claims 1, 2, 8, 11, 18, and 20*

Appellant argues claims 1, 2, 8, 11, 18, and 20 as a group. We select independent claim 1 as representative. Claims 2, 8, 11, 18, and 20 stand or fall with claim 1.

Appellant argues that the Examiner erred in finding that Wondka discloses a vacuum/return line “configured and positioned to direct the gas

exhausted by the patient to the flow generator without recirculation to the patient” as recited in claim 1. Appeal Br. 6. According to Appellant, Wondka is silent regarding whether its vacuum line directs exhaust gas to its flow generator. *Id.* Instead, Appellant contends, Wondka discloses generating a vacuum by supplying positive pressure to a venturi having an undisclosed location. *Id.* (citing Wondka ¶ 186).

The Examiner responds that Wondka discloses its vacuum exhaust being “created by a separate vacuum line with a distal end . . . at or near the patient interface (nasal mask or nasal interface tubes) and a *proximal end connected to a vacuum generating source.*” Ans. 2 (citing Wondka ¶ 186). The Examiner points out that Wondka’s exhalation exhaust flapper valve 740 is located within the flow generator (PGU 700), indicating that Wondka’s exhaust is directed to its flow generator. *Id.* at 2, 3 (citing Wondka Figs. 30 and 31, ¶ 198); *see* Wondka ¶ 191. According to the Examiner, exhalation gas reaching the exhalation exhaust flapper valve 740 has necessarily been directed to the flow generator 700. *Id.*

Appellant replies that the origin of Wondka’s flow “is not determinative of where the flow is ultimately directed.” Reply Br. 1–2. According to Appellant, generation of flow by Wondka’s vacuum generating source “has no bearing on whether the vacuum or return line is configured and positioned to direct the gas exhausted by the patient to the flow generator.” *Id.* at 2. Appellant provides an explanation of the functioning of a venturi, and why such functioning makes apparent that “the location of the pressure source used to drive the venturi (i.e., provide the motive fluid flow) is not relevant to the location of the venturi” or the direction of the exhaust flow. *Id.*

The Examiner has the better position. Wondka’s CPAP system includes a flow generator embodied in its PGU 700 shown in Figures 30 and 31. *See* Wondka ¶¶ 187–191. Wondka’s PGU 700 supplies positive pressure to a patient via, for example, a nasal prong interface 22 at an end 36 of ventilation gas supply hose 64/702. *Id.* at ¶¶ 81–82. Wondka’s flow generator 700 is thus in communication with its nasal prongs 22 (or, alternatively, a mask 500 interface shown in Figure 5). *See id.* at ¶¶ 81, 82, 145, 191. Wondka also discloses a vacuum/return line. *See* Wondka ¶ 155 (“a separate vacuum line can be applied to . . . the mask shell, thus applying vacuum to that volume when the mask is worn so as to assist in exhalation exhausting”).

Claim 1 recites the vacuum line being “configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient.” Appeal Br. 11 (Claims App.). Here, because Wondka discloses a separate vacuum line connected to assist in exhalation exhaust, as well as an exhalation exhaust flapper valve 740 housed with its flow generator, it was reasonable for the Examiner to find that a skilled artisan would envisage Wondka’s separate vacuum line extending back to the flapper valve, such that Wondka’s separate vacuum line is “configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient.” *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (“a reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.”) (alteration in original) (quoting *In re Petering*, 301 F.2d 676,

681 (CCPA 1962)). Appellant has not proven that the claim limitations requiring the vacuum line to be configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient patentably distinguish the claimed structure from Wondka’s structure.

Regarding the Examiner’s construction of “flow generator” as including the pressure source and the associated tubing with a venturi (Non-Final Act. 5), Appellant contends that the construction is unreasonable because “claim 1 recites a positive pressure line and a vacuum or return line as elements separate from the flow generator,” such that “[i]nterpreting the ‘associated tubing including the venturi’ as part of the flow generator is both inconsistent with the claims and the [S]pecification.” Appeal Br. 7.

Because we determine above that a skilled artisan would envisage Wondka’s separate vacuum line extending back to the flapper valve, such that Wondka’s separate vacuum line is “configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient,” the flow generator needn’t include the tubing associated with the venturi for gas exhausted by the patient to be directed to the flow generator to meet the “configured to” limitation of claim 1. This argument is therefore not persuasive of error.

Regarding the location of Wondka’s exhaust flapper valve 740, Appellant replies that “Wondka does not disclose any [locational] relationship between the exhalation exhaust flapper valve 740 and the venturi.” Reply Br. 3. According to Appellant, Wondka’s only disclosure relating to the function of the flapper valve 740 is that PGU 700 “may also include an exhalation valve (for example a directional flapper valve) that

leaks to atmosphere during exhalation but which is sealed to atmosphere during inspiration.” *Id.* (citing Wondka ¶ 196). Appellant further proposes that “Wondka discloses the flapper valve and venturi as being different exhaust systems” in stating that “*five different types of exhaust systems are disclosed; (1) angulated fenestrations axially angulated in the direction of exhaled flow, (2) an exhaust intake scoop, (3) a directional flapper valve, (4) a directional sleeve valve, and (5) a vacuum assisted exhaust port.*” *Id.* (citing Wondka ¶ 184 (emphasis added)). Because Wondka’s flapper and venturi are disclosed as being alternatives, Appellant argues, “there is no reason why one of ordinary skill would equate the location of the flapper valve 740 with the location of the venturi.” *Id.*

Although this may be true, the argument is not persuasive because, as explained above, a skilled artisan would envisage Wondka’s separate vacuum line extending back to its flapper valve 740, located at the flow generator 700, such that Wondka’s separate vacuum line is “configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient.” Ans. 2. If exhaust were not directed back to the flow generator 700, it would have no use for an exhaust flapper valve 740.

Appellant further argues that Wondka is silent about recirculation to the patient, such that any finding regarding whether Wondka recirculates (or does not recirculate) is speculative. Appeal Br. 7. Regarding the Examiner’s contention that Wondka’s disclosure of “the need to remove CO<sub>2</sub> rich gas” teaches exhaled gas being exhausted instead of recirculated, Appellant argues that the Examiner is relying on inherency without providing evidence or explanation establishing that the feature at issue is

necessarily present. *Id.* Appellant further argues that “inherency-based reasoning is not well founded because both recirculation and exhausting of air could occur,” with recirculated air being filtered as is known in the art. *Id.* Appellant asserts that an anticipation rejection requires that all features be disclosed “‘arranged as in the claim’ and silence does not meet this evidentiary standard.” *Id.*

The Examiner responds that the anticipatory findings set forth regarding Wondka do not rely on inherency, and that “[t]aking the disclosure of Wondka in its entirety, it is clear that no recirculation of the exhaled gas is present.” Ans. 4–5 (citing Wondka ¶¶ 184, 186, 191). The Examiner emphasizes that

Wondka discloses explicitly that exhausted gas is expelled from vent ports that are specifically designed to direct exhausted gas away from the patient . . . , the gas is additionally removed from the patient through “vacuum assisted exhaust systems” . . . and exhausted through the exhalation exhaust flapper valve 740 through a separate vacuum line.

*Id.* at 5. Further, according to the Examiner, “recirculation requires significant additional features,” and “the fact that Wondka fails to describe recirculation or any of these features means that no [structure exists] for recirculation of the exhaled gas to the patient and therefore, the device is not” disclosed to include recirculation. *Id.* at 4–6.

Here, because Wondka discloses a separate vacuum line connected to assist in exhalation exhaust, as well as an exhalation exhaust flapper valve 740 housed with its flow generator, it was reasonable for the Examiner to find that a skilled artisan would envisage Wondka’s separate vacuum line extending back to the flapper valve, such that Wondka’s separate vacuum

line is “configured and positioned to direct the gas exhausted by the patient to the flow generator without recirculation to the patient.”

*Claim 10*

Claim 10 depends from claim 1, and recites the flow generator including a blower and a vacuum pump.

Appellant argues that the Examiner erred in finding that Wondka’s flow generator includes a blower and a vacuum pump, because a venturi is not a pump. Appeal Br. 8. According to Appellant, their Specification “discloses, and thus distinguishes between, using a venturi to generate a vacuum and using a pump to generate a vacuum.” *Id.* (citing Spec. ¶¶ 95 (describing a vacuum pump 48 shown in Figure 6) and 98 (describing a positive pressure line bypass 72 including a venturi 74 in Figure 8, which promotes passage along vacuum line 16)); Reply Br. 5.

The Examiner responds that Wondka discloses its venturi pressure source creating a vacuum and therefore acting as a vacuum pump. Ans. 6 (citing Wondka ¶¶ 186, 191). The Examiner further responds that Appellant’s Specification fails to provide any special definitions for the terms “vacuum pump” and “venturi,” and that Wondka’s venturi system serves as the vacuum generating source, and therefore, constitutes a vacuum pump. *Id.* at 6–7.

We are not persuaded by Appellant’s argument, because it fails to explain how their Specification’s separate mention of vacuum pump 48 and venturi 74 establishes that a venturi is not a pump. In addition, Appellant has not proffered a definition of a “vacuum pump” that excludes a venturi as a source of vacuum pressure.

*Claim 12*

Claim 12 depends from claim 10, and recites the vacuum pump being integral with the blower.

Appellant argues that, even if Wondka’s venturi is considered a vacuum pump, Wondka is silent about the location of its venturi, and therefore does not disclose its venturi being integral with its blower. Appeal Br. 8–9. According to Appellant, “the location or origin of the pressure source for a venturi . . . has no bearing on the location of the venturi. Similarly, the location or origin of the pressure source has no bearing on whether a venturi is or is not integral with” the pressure source. Reply Br. 5.

We are not persuaded by Appellant’s argument. The term “integral” has consistently been construed to cover more than a unitary or one-piece construction. *See In re Morris*, 127 F.3d 1048, 1055–56 (Fed. Cir. 1997) (citing *Advanced Cardiovascular Sys. v. Scimed Life Sys.*, 887 F.2d 1070, 1074 (Fed. Cir. 1989) (nothing of record limited “integral” to mean “of one-piece” construction), *In re Kohno*, 391 F.2d 959 (CCPA 1968), *In re Dike*, 394 F.2d 584 (CCPA 1968), *In re Larson*, 340 F.2d 965 (CCPA 1965)). Appellant’s Specification provides no definition for this the term “integral”<sup>3</sup> limiting its definition to a one-piece construction, we are not persuaded by their argument.

Because the thrust of the rejection of claim 12 is changed by our analysis above, we designate our affirmance of claim 12 a NEW GROUND of rejection pursuant to 37 C.F.R. § 41.50(b).

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<sup>3</sup> Indeed, the term “integral” is not used to describe the arrangement of Appellant’s pump and blower in their written description.

Rejection II – Claim 4

Appellant makes no argument that claim 4 would be patentable over Wondka if claim 1 is anticipated by Wondka. We sustain the Rejection II for the reason set forth above regarding claim 1.

Rejection III – Claim 13

Claim 13 depends from claim 12 and recites the integral vacuum pump and blower including a motor with “first and second shaft ends and respective supply and vacuum impellers provided thereto.” In rejecting claim 13 as unpatentable over Wondka and Greenspan, the Examiner concludes that it would have been obvious to construct Wondka’s air blower “so that the motor includes a shaft having a supply impeller and a vacuum impeller as taught by Greenspan to simplify the operation of the device by providing a single motor capable of providing an increased vacuum pressure as well as the supply pressure.” Non-Final Act. 7. The Examiner provides no citation to support the proffered “simplification” reasoning.

Appellant argues that the Examiner’s proffered reasoning lacks a rational basis, because adding a second impeller to Wondka would not simplify operation because replacing its venturi “with a moving part (or adding a moving part) would complicate operation instead of simplifying operation,” and “by providing both pressure and vacuum, [Greenspan’s pump] would likely lose the advantages of reduced vibration and net axial thrust . . . because different flow rates and/or pressures are likely to be generated in the impellers if the impellers no longer share common inlet and outlet conditions.” Appeal Br. 9 (citing Greenspan 5:18–28).

The Examiner responds that Wondka’s pressure generator “may be a conventional blower fan, or can be a number of other known pressure generating devices including an impeller pump, or an array of small pumps, such that “Wondka already contemplates adding additional pump elements and doing [so] has benefits such as creating greater flow output in a smaller overall size and providing more control over the flow characteristics of the pump.” Ans. 7 (citing Wondka ¶ 193). The Examiner reasons that, because Wondka’s pressure sources could be embodied in multiple pumps, “Greenspan’s disclosure of a single motor providing inflow and outflow pressure would not be any more complicated than the systems contemplated by Wondka.” *Id.* at 8.

Appellant replies that the Examiner’s obviousness rejection “relied upon the change to Wondka being ‘simplification,’” and the Examiner’s “conclusory statement that the modification ‘would not be any more complicated’” does not support the Examiner’s proffered “simplification” rationale. Reply Br. 5.

We agree with Appellant. The Examiner initially provides no basis to support the “simplification” (Non-Final Act. 7) and, when challenged by Appellant, contends that the proposed modification of Wondka “would not be any more complicated” (Reply Br. 5). We discern no rational basis for the Examiner’s reasoning. For this reason, we do not sustain Rejection III.

#### Rejection IV – Claim 16

Appellant makes no argument that claim 16 would be patentable over Wondka if claim 1 is anticipated by Wondka. We sustain the Rejection IV for the reason set forth above regarding claim 1.

## DECISION

We AFFIRM the rejection of claims 1, 2, 8, 10–12, 18, and 20 as anticipated by Wondka, designating the affirmance of claim 12 a NEW GROUND of rejection.

We AFFIRM the rejection of claim 4 as unpatentable over Wondka.

We REVERSE the rejection of claim 13 as unpatentable over Wondka and Greenspan.

We AFFIRM the rejection of claim 16 as unpatentable over Wondka and Faithfull.

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

## FINALITY OF DECISION

This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b). 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 Appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new grounds 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. . . .

AFFIRMED-IN-PART; 37 C.F.R. § 41.50(b)