

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESMED LIMITED, RESMED INC., and RESMED CORP.,
Petitioners,

v.

FISHER & PAYKEL HEALTHCARE LIMITED,
Patent Owner.

Case IPR2016-01717
Patent 8,550,072 B2

Before HYUN J. JUNG, CARL M. DEFRANCO, and
MICHAEL L. WOODS, *Administrative Patent Judges*.

DEFRANCO, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Fisher & Paykel Healthcare Limited (“FPH”) is the owner of U.S. Patent No. 8,550,072 B2 (Ex. 1002, “the ’072 patent”). ResMed Limited, ResMed Inc., and ResMed Corp. (collectively “ResMed”) filed a Petition (Paper 4, “Pet.”) requesting *inter partes* review of claims 6, 7, and 11–13 of the ’072 patent. FPH, in turn, filed a Preliminary Response (Paper 10, “Prelim. Resp.”), along with a statutory disclaimer of claim 6 under 35 U.S.C. § 253(a).

We instituted *inter partes* review of challenged claims 7 and 11–13 (Paper 11, “Inst. Dec.”). After institution, FPH filed a Patent Owner Response (Paper 14, “PO Resp.”), and ResMed followed with a Reply (Paper 17, “Pet. Reply”). We conducted an oral hearing with the parties on December 6, 2017, a transcript of which is in the record. Paper 27 (“Tr.”).

We have jurisdiction over these proceedings under 35 U.S.C. § 6. After considering the evidence and arguments of the parties, we determine that ResMed has proven by a preponderance of the evidence that claims 7, 12, and 13 of the ’072 patent are unpatentable, but has failed to prove that claim 11 is unpatentable. See 35 U.S.C. § 316(e). We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a).

II. BACKGROUND

A. *Related Matters*

The ’072 patent is currently the subject of an infringement action, *Fisher & Paykel Healthcare Ltd. v. ResMed Corp.*, No. 3:16-cv-02068 (S.D. Cal.), currently stayed pending resolution of this and several related *inter partes* review (“IPR”) proceedings. Pet. 2–3; Ex. 3001, 7. One of the related proceedings, IPR2016-01716, involves our review of the same ’072

patent and two of the same claims at issue here (claims 7 and 11), only on different grounds. The other related proceedings involve U.S. Patent No. 6,398,197 B1 (IPR2016-01719), U.S. Patent No. 7,111,624 (IPR2016-01725, 01727), and U.S. Patent No. 8,091,547 (IPR2016-01729, 01730, 01731).

B. The '072 Patent

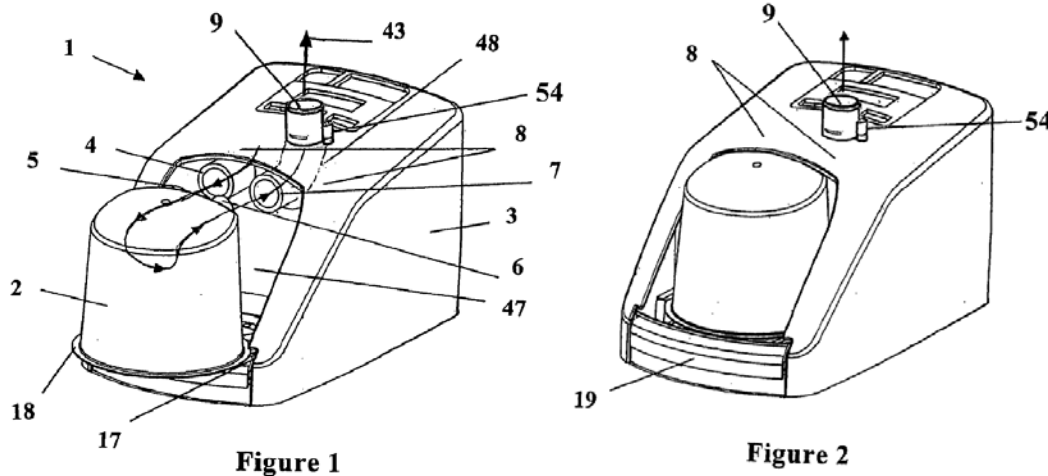
The '072 patent is titled “Apparatus for Delivering Humidified Gases” and “relates to a humidifier arrangement for use in standalone humidifiers used for example in providing respiratory assistance to patients receiving mechanical ventilation or respiratory support.” Ex. 1002, (54), 1:18–23. The '072 patent describes a “preferred embodiment” of the respiratory or ventilator machine as comprising a “CPAP machine and corresponding water chamber.” *Id.* at 4:21–22. The '072 patent acknowledges that:

Humidification systems are known which include a heater base and a disposable humidifier [water] chamber which is fitted onto the heater base and within which a supply of water can be heated by the heater base. . . . Where the humidifier base is adapted for use with slide-on humidifier chambers, and *the connection of the chamber to the machine is accomplished with a single sliding movement, the inlet air port is provided horizontally through the side of the chamber.* Air enters the humidifier chamber through the inlet air port and the humidified air leaves the humidifier chamber into a breathing conduit through an exit port in the top of the humidifier chamber.

Id. at 1:26–45 (emphasis added).

Admitting that humidifier chambers which connect to CPAP machines in a “single sliding movement” are known in the art, the '072 patent explains that a “disadvantage” of these known chambers “is the need to disconnect the patient breathing conduit from the top of the humidifying chamber in a

separate operation before removal of the chamber for the purpose of refilling.” *Id.* at 1:46–49. According to the ’072 patent, this disadvantage is overcome by having “the breathing conduit connection 9 being located on the body of the CPAP machine and not connected to the top of the water chamber directly.” *Id.* at 5:11–18. Figures 1 and 2 of the ’072 patent, reproduced below, illustrate the manner in which water chamber 2 can be slid in and out of CPAP machine 1 without the need to interact with the breathing conduit (not shown) attached to patient outlet 9. *Id.* at 3:40–45, 4:30–32.



C. The Challenged Claims

As mentioned above, FPH has disclaimed claim 6, which leaves only claims 7 and 11–13 for review. Claims 7, 11, and 12, each of which depends directly from base claim 6, recite:

7. An apparatus for use in humidified gases delivery treatment as claimed in claim 6 wherein said apparatus includes *a chamber heater and said single motion also urges a base of said chamber in contact with said heater.*

11. An apparatus for use in humidified gases delivery treatment as claimed in claim 6, wherein said *patient outlet includes a connector for receiving a breathing hose and at least*

one auxiliary electrical connection plug or socket or pneumatic connection plug or port, for a simultaneous connection when connecting a breathing circuit having complementary electrical or pneumatic connectors.

12. An apparatus for use in humidified gases delivery treatment as claimed in claim 6, wherein said gases return and said patient outlet *are separable* from said apparatus.

Ex. 1002, 11:8–11, 12:13–21 (emphasis added). Claim 13 depends from claim 12 and adds that the separable gases return and patient outlet is an “elbow tube.” *Id.* at 12:22–29.

D. The Instituted Grounds

We instituted *inter partes* review of claims 7 and 11–13 on the following grounds:

(1) claim 7 as obvious over the combination of HC200 Manual¹ and Kenyon²;

(2) claim 11 as obvious over the combination of the HC200 Manual, Kenyon, and Bahr³; and

(3) claims 12 and 13 as obvious over the combination of HC200 Manual, Kenyon, and Wickham,⁴ and, alternatively, as obvious over just Kenyon and Wickham.

Inst. Dec. 4–5, 15. In further support of these grounds, ResMed proffers a first and second declaration from Alexander Virr, an expert witness retained for purposes of this review. *See* Exs. 1012, 1038.

¹ Fisher & Paykel Healthcare, *HC200 Series Nasal CPAP Blower & Heated Humidifier User’s Manual*, Part No. 185041244 (May 1998 Rev. A) (Ex. 1017, “HC200 Manual”); *see also* Ex. 1002, 1:27–45, Exs. 1023–1026 (evidencing HC200 Manual is prior art).

² PCT WO 98/57691, pub. Dec. 23, 1998 (Ex. 1010, “Kenyon”).

³ US Patent Pub. No. US 2001/0017134 A1, pub. Aug. 30, 2001 (Ex. 1011, “Bahr”).

⁴ U.S. Patent No. 6,302,105 B1, iss. Oct. 16, 2001 (Ex. 1029, “Wickham”).

III. ANALYSIS

A. *Claim Construction*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). A presumption exists that a claim term should be construed in light of its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). Under the broadest reasonable construction standard, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

In the preliminary proceeding, neither ResMed nor FPH proposed a term in need of construction, and we noted that no particular term required an express construction for purposes of institution. Inst. Dec. 5. In its Patent Owner Response, FPH now argues that certain limitations require our construction, namely, the claim 7 limitation reciting “said single motion also urges a base of said chamber in contact with said heater” (PO Resp. 21–27), and the claim 11 limitation reciting “auxiliary electrical connection plug or socket” (*id.* at 27–31). ResMed disputes FPH’s proposed constructions. Pet. Reply 1–13.

For purposes of this decision, we need only provide an express construction of the claim 7 limitation “urges . . . in contact with.” FPH argues that this limitation requires that the single motion “press” the

chamber base against the chamber heater. PO Resp. 21. In other words, according to FPH, the term “‘urges’ requires more than simply maneuvering two components to touch each other.” *Id.* at 23. In support, FPH cites to the specification of the ’072 patent, the declaration testimony of its expert, Dr. Hartmut Schneider, and the prosecution history of a related patent. *See id.* at 22–24 (citing Ex. 1002, 8:10–13, Figs. 1, 2; Ex. 2004 ¶ 56); *id.* at 26 (citing Ex. 2008, 43).

ResMed, on the other hand, contends that FPH’s proposed construction of the term “urges” is contrary to the broadest reasonable interpretation. Pet. Reply 2. ResMed argues that “pressing is not required by the claims and is never even mentioned in the specification.” *Id.* (citing Ex. 1038 ¶ 7). ResMed submits a definition of “urge” as “to force or impel in an indicated direction or into motion or greater speed.” Ex. 1031, 4.

We begin our analysis with the specification of the ’072 patent. In support of its construction that “urges” means “presses,” FPH relies on the following passage from the specification: “It is envisaged that other configurations of the present invention are possible where the slide-on direction employed to fit the water chamber is not horizontal but at an angle from the horizontal or vertical.” PO Resp. 22 (citing Ex. 1002, 8:10–13). With respect to that passage, FPH submits the declaration testimony of Dr. Schneider, who testifies, “[b]y orienting the slide-on direction at an offset from the horizontal and the chamber heater, the motion used to connect the water chamber to the housing would also *urge or press* the base of the water chamber against the chamber heater.” Ex. 2004 ¶ 56 (emphasis added).

We disagree that the specification’s description of an angled slide-on direction for the water chamber requires that it “press” against the chamber

heater. Rather, we understand the particular passage cited by FPH as referring simply to “other configurations of the present invention” where the slide-on direction for the water chamber may be angled, as opposed to the horizontal slide-on direction required by slot 17 in the preferred embodiment. *Compare* Ex. 1002, 8:10–63, *with id.* at 4:36–46. Nowhere does this passage suggest that an angled motion somehow applies an additional bias or other pressing force to the water chamber. As such, we do not find that the specification of the ’072 patent supports a definition of “urges” that differs from its plain and ordinary meaning, which *Merriam-Webster’s Dictionary* defines as “to force or impel in an indicated direction or into motion.” Ex. 1031, 4.

FPH also relies on the specification’s use of the term “urges” in describing the operation of a latch for retaining the water chamber within the CPAP housing. PO Resp. 17–19 (citing Ex. 1002, Figs. 1, 2, 4:36–60). We disagree with FPH’s attempt to characterize a latch on the edge of the housing as somehow pressing the water chamber against the heater. Rather, the cited description simply reads: “The front face of the latch is shaped such that during the single slide-on motion employed to fit the water chamber to the CPAP machine *the flange 18 urges the securing latch 19* into the release position and allows the water chamber to be properly fitted.” Ex. 1002, 4:49–54 (emphasis added). That passage makes clear that the flange *on the water chamber* is what does the urging, and that the latch itself simply moves up or down without pressing against anything. Indeed, the specification states expressly that “[o]nce the water chamber is properly seated on the heater base . . . the flange 18 and base of the chamber will no longer be in contact with the securing latch.” Ex. 1002, 4:54–60. In other

words, that the latch does not contact the base of the seated water chamber means that it also does not press against the chamber. Thus, we do not find that the specification's description of latch 19 sheds any light on the meaning of "urges" in the context of claim 7.

FPH also asserts that claim 6 of a related patent (the '547 patent mentioned above) is further evidence that the "meaning of 'urges' . . . require[s] more than simply bringing the chamber base into contact with the heater." PO Resp. 20 (citing Ex. 2007). In particular, FPH relies on the following amendment of claim 6 during prosecution of the '547 patent: "wherein said single motion ~~urging~~ disposes said heat conductive base adjacent ~~and in contact with~~ a heater of said humidified gases delivery apparatus." *Id.* at 21 (citing Ex. 2008, 43). We do not find this claim amendment, which simply replaces "urging . . . and in contact with" with "disposes," as supporting FPH's argument that the claims require a "pressing" force. Even if the amendment evidences FPH's intention that "urging . . . adjacent and in contact" and "disposes . . . adjacent" have "different meanings" (*id.* at 21–22), we discern that the only difference is that "disposes . . . adjacent" does not require contact, whereas "urging . . . adjacent and in contact with" does. The simple addition of "contact," however, does not somehow equate to a pressing force.

Based on our review of the intrinsic record, we agree with ResMed that pressing the chamber base against the chamber heater is neither mentioned in the specification nor otherwise supported by the claim language. We do not credit the contrary testimony of FPH's expert, Dr. Schneider, as the intrinsic record is clear and unambiguous that the ordinary and customary meaning of "urges" in the context of claim 7 requires simply

a single motion that moves the chamber base into contact with the chamber heater. We do not agree with FPH's proposed construction that the single motion also "*press the base of the water chamber against the chamber heater.*" PO Resp. 22 (emphasis added).

B. Obviousness of Claim 7 Over the HC200 Manual and Kenyon

ResMed submits that claim 7 is unpatentable as obvious over the HC200 Manual and Kenyon. Pet. 33. Claim 7 depends from claim 6. As such, we focus initially on the limitations of base claim 6, although it has been disclaimed. Inst. Dec. 3 (citing Ex. 2002).

1. Uncontested Teachings of HC200 Manual and Kenyon

To begin, base claim 6 requires two fluid connections between the claimed "blower for generating a supply of pressurized gases" and the claimed "water chamber"—a *first fluid connection* being "a pressurized gases outlet . . . adapted to make separable fluid connection with an inlet of a water chamber," and a *second fluid connection* being "a humidified gases return, adapted to make separable fluid connection with an outlet [of] said chamber." Ex. 1002, 10:58–64.

ResMed submits that the HC200 Manual discloses "nearly all of the features recited in claims 6–7, except for the [blower] housing having a humidified gases return and a patient outlet." Pet. 37. In other words, the features missing from the HC200 Manual include: (1) the claimed "gases return" connection in which the "outlet" on the water chamber connects with the "gases return" on the blower; and (2) the claimed "patient outlet" being on the blower housing rather than the water chamber. Aside from those two features, we find that the HC200 Manual discloses all the other features of base claim 6.

In particular, we find that the HC200 Manual discloses the features of base claim 6 reciting:

“[a]n apparatus for use in humidified gases delivery treatment comprising . . .” (Ex. 1017, 6 (“The Fisher & Paykel HC200 Series is an integrated Continuous Positive Airway Pressure generator and Heated Humidifier designed for the treatment of Obstructive Sleep Apnea in adult patients”));

“a blower for generating a supply of pressurized gases” (*id.* at 1 (“Nasal CPAP Blower & Heated Humidifier”));

“a water chamber” having “a base” (*id.* at 7 (depicting “Humidification Chamber” with “Chamber Base”));

“a pressurized gases outlet . . . adapted to make a separable fluid connection with an inlet of a water chamber in order to provide gases flow to said chamber” (*id.* at 7 (depicting “Blower Outlet” on the blower housing and “Inlet Port” on “Humidification Chamber”), 8 (instructing “Fill the clean Humidification Chamber . . . to the Maximum Water Level with distilled cold water” and “slide the Humidification Chamber onto the Heater Plate, ensuring that the Inlet Port on the Chamber fits securely over the Blower Outlet”));

“a chamber heater” (*id.* at 7 (depicting “Heater Plate”), 8 (“slide the Humidification Chamber onto the Heater Plate”)); and

“a patient outlet . . . adapted to make fluid connection with a breathing conduit for delivery of humidified gasses to a patient.” (*id.* at 7 (depicting “Outlet Port,” “Connector,” and “Tube”), 8 (“Attach . . . the Patient Tube to the Outlet Port of the Humidification Chamber”)).

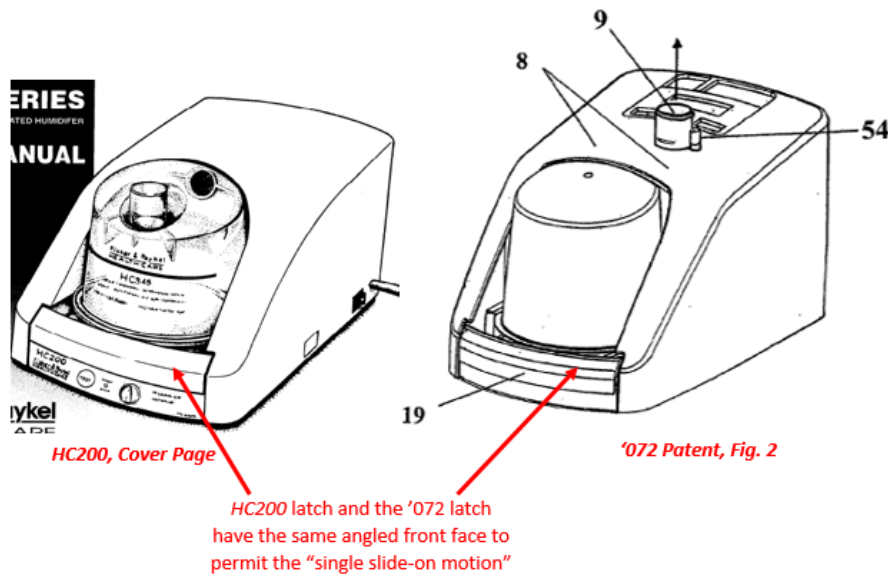
See also Pet. 34–37, 46–51 (citing Ex. 1012 ¶¶ 73–75).

We also find that the HC200 Manual discloses the claim 7 feature of *“a base of said [water] chamber in contact with said heater.”* Ex. 1017, 1 (depicting “Heated Humidifier” within “CPAP Blower”), 7 (showing “humidification chamber” with “chamber base” for sitting atop “heater

plate”). FPH does not dispute the HC200 Manual’s disclosure of the above features of claims 6 and 7. *See* PO Resp. 15–16 (conceding features to which the “HC200 Manual is directed”).

Likewise, FPH does not dispute that the HC200 Manual discloses the feature of claim 6 reciting “a single motion” for the first fluid connection, i.e., the “gases outlet” connection in which the “gases outlet” on the blower connects to an “inlet” on the water chamber. *See* PO Resp. 33–44 (disputing only that *Kenyon* fails to disclose the claimed “single motion” connection). FPH cannot reasonably do so because the HC200 Manual explicitly instructs the user to “[p]ress down the spring loaded Chamber Guard *to slide the Humidification Chamber onto the Heater Plate*, ensuring that the Inlet Port on the Chamber fits securely over the Blower Outlet.” Ex. 1017, 8 (emphasis added). Nor can FPH dispute that the HC200 Manual’s “slide” instruction amounts to a “single motion” connection, given the ’072 patent’s express admission that “slide-on humidifier chambers” were already known in the art, in particular, ones where “the inlet air port is provided horizontally through the side of the chamber” so that “the connection of the chamber to the [CPAP] machine is accomplished with a *single sliding movement*.” Ex. 1002, 1:35–41 (emphasis added). Thus, we find that the HC200 Manual discloses a “single motion” connection for at least the “gases outlet” connection, which is the first fluid connection recited in claim 6.

Annotated figures from the HC200 Manual and the ’072 patent, reproduced below, illustrate the *same* single slide-on motion in which a latch on the blower housing is depressed and the water chamber is slid into the blower housing in order to connect an inlet on the water chamber with a corresponding gases outlet on the blower housing.



As for ResMed's combination of the HC200 Manual with Kenyon, FPH does not dispute that, like the HC200 Manual, Kenyon teaches a CPAP apparatus for delivery of respiratory gases. PO Resp. 10 (citing Ex. 1010, 3:4–7). In that regard, FPH submits annotated Figure 1, reproduced below, to illustrate the teachings of Kenyon.

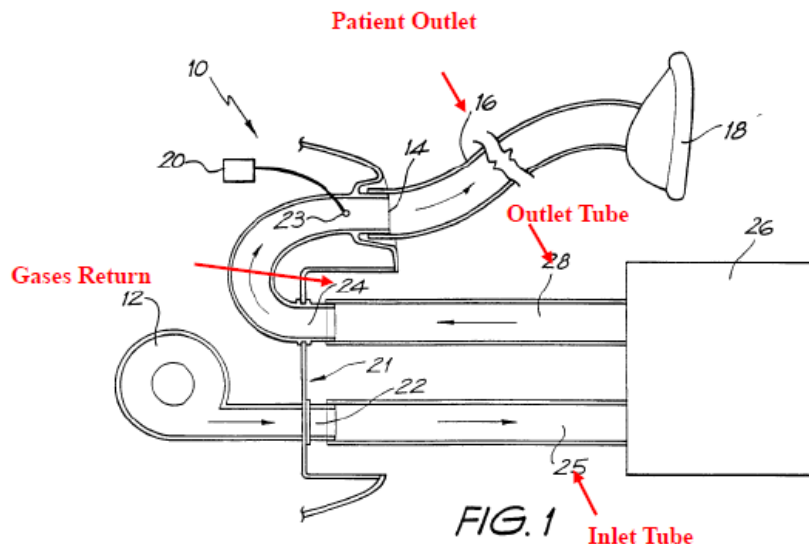


Figure 1 above shows the features of claim 6 that include a blower for generating supply gases (12), separable gases outlet and gases return connections (22, 24) for fluid connection with a water chamber (26) having

inlet and outlet connections (25, 28) that correspond to the outlet and return connections (22, 24) on the blower. FPH does not dispute that Kenyon teaches those features, nor does FPH dispute that Kenyon teaches a patient outlet (14) for connecting with a breathing conduit (16). *Id.* at 10–11 (citing Ex. 1010, 6:13–26).

Significantly, FPH does not dispute that Kenyon also teaches, as shown in Figure 1 above, a gases flow path (24) that follows a *return path* back through blower housing (10) before exiting patient outlet (14), whereas the HC200 Manual teaches a gases flow path that follows a *direct path* from the water chamber to the patient outlet. Instead, FPH simply disputes whether the inlet and outlet connections (25, 28) on Kenyon’s water chamber are “rigid” enough to be connected to the blower with “a single motion,” as required by claim 6. *Id.* at 11.

2. Reason to Combine

ResMed contends that a skilled artisan would have been led to modify the HC200 Manual’s CPAP device to move the patient outlet tube from the humidifier chamber to the CPAP housing, as taught by Kenyon, “so that the humidifier chamber could slide in and out of the housing without requiring the patient to disconnect the outlet tube and mask every time he needed to fill or clean the humidifier.” Pet. 39 (citing Ex. 1012 ¶¶ 91–101). As support, ResMed begins by pointing to several prior art devices for the “well-known solution” of “mov[ing] the patient gases outlet from the humidifier water chamber to the housing.” *Id.* at 42–44 (citing Ex. 1008, 1–2; Ex. 1010, 2:18–21; Ex. 1028, 4:34–36, 7:5–38, Figs 4a–4b). ResMed, thus, contends that a skilled artisan “would have been prompted to modify the HC200 device based on the solution taught by *Kenyon* (and several other

references) to move the patient gases outlet from the humidifier chamber to the housing,” so as to “allow the patient to remove the water chamber without having to disconnect their breathing tube and respiratory mask.” *Id.* at 44 (citing Ex. 1012 ¶ 99). The proposed modification, according to ResMed, “would improve the usability of the CPAP device” for patients and “lead to greater rates of compliance with their prescribed CPAP therapy.” *Id.* at 44–45 (citing Ex. 1012 ¶ 100).

The full record supports that moving a patient gases outlet for a CPAP device from the humidifier chamber to the CPAP housing was a “well-known solution” to improving a patient’s “usability” of a CPAP device, as evidenced by Kenyon and confirmed by ResMed’s expert, Mr. Virr. Ex. 1012 ¶¶ 97–100 (discussing Exs. 1008, 1010, 1028). Specifically, we find persuasive and credible Mr. Virr’s testimony that modifying the HC200 Manual’s humidifier chamber in view of Kenyon’s solution would allow the patient to avoid the “inconvenience associated with removing their [breathing] hoses for daily filling and cleaning of the humidifier [chamber].” *Id.* ¶ 100. As such, we determine that a skilled artisan would have had a reason to modify the HC200’s CPAP device in a manner that incorporates Kenyon’s solution. We also credit Mr. Virr’s testimony that repositioning the patient outlet from the HC200’s chamber to the CPAP housing and rerouting the humidified gases return through the CPAP housing would simply be a matter of “using known techniques to improve similar devices.” *Id.* ¶ 101. Thus, we determine that a skilled artisan would have had a reasonable expectation of success in combining the teachings of the HC200 Manual and Kenyon.

FPH does not dispute ResMed's reason for combining the HC200 Manual and Kenyon. *See* PO Resp. 33–44, 58–61; *see also id.* at 47, 63 (arguing insufficient reason to combine only with respect to Wickham and Bahr). Although in the preliminary proceeding FPH argued that ResMed failed to demonstrate a sufficient reason to combine the HC200 Manual and Kenyon (Prelim. Resp. 30–39), FPH no longer maintains that argument. As such, it is waived. *See* Paper 12, 3 (emphasizing “*The patent owner is cautioned that any arguments for patentability not raised and fully briefed in the response will be deemed waived.*”). Instead, FPH focuses our attention on the “single motion” limitations in claims 6 and 7 and argues that Kenyon fails to teach them.

3. *The “Single Motion” Limitations of Claims 6 and 7*

FPH argues, *first*, that Kenyon fails to teach that its two fluid connections are “made by a *single motion*,” as required by base claim 6, and, *second*, that, even if modified to include Kenyon's two fluid connections, the modified HC200/Kenyon device would not involve “a single motion [that] *urges* a base of said chamber *in contact with* said heater,” as required by claim 7. PO Resp. 33–44, 58–61 (emphasis added). We disagree.

a. *“single motion”*

Claim 6 requires that “both said separable connections are made by a single motion.” Elaborating further, the '072 patent explains that “complete connection or disconnection of the water chamber from the CPAP system can be achieved with a single slide-on or slide-off motion. This feature makes removal of the water chamber for refilling considerably simpler.” Ex. 1002, 5:15–22; *see also id.* at 6:29–31 (similarly describing “a single slide-on/off motion”). In other words, as claimed, the single motion entails

sliding the “inlet” and “outlet” on the water chamber to connect with corresponding “gases outlet” and “gases return” connections on the blower housing. ResMed argues that this feature is taught by the combination of the HC200 Manual and Kenyon. Pet. 37–39 (citing Ex. 1017, 1, 7, 8; Ex. 1012 ¶¶ 58–62).

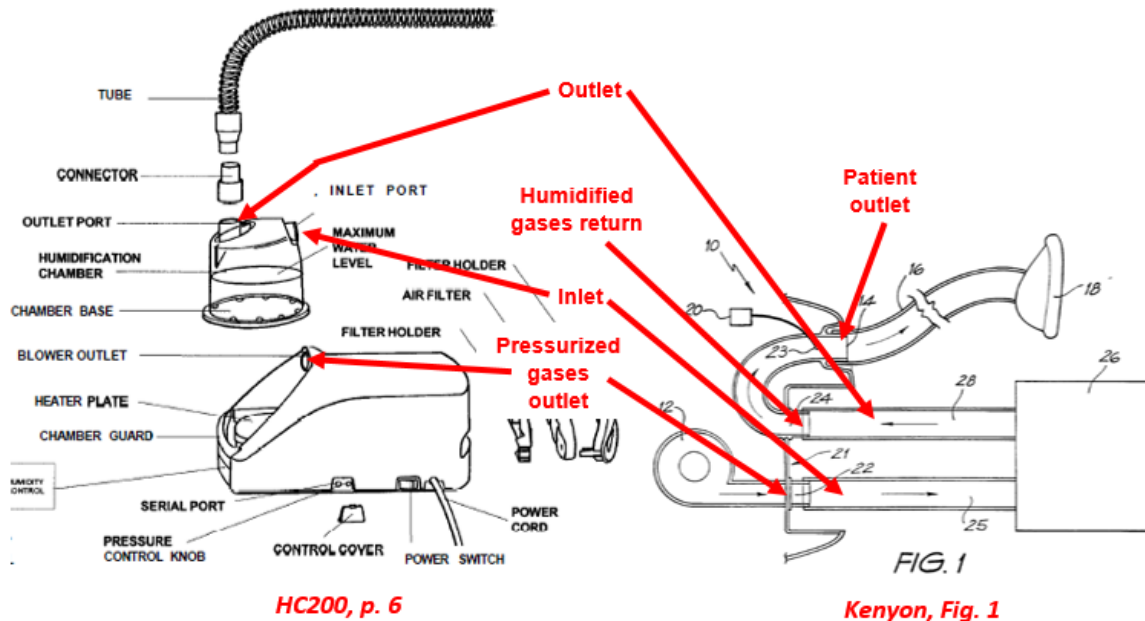
At the outset, and as discussed above, we note that FPH does not dispute the HC200 Manual’s disclosure of at least a “gases outlet” connection, i.e., the first fluid connection, being “made by a single motion,” as required by base claim 6. See PO Resp. 33–44 (disputing only that *Kenyon* fails to disclose the claimed “single motion” connection); see also Ex. 1017, 8 (instructing users “to slide the Humidification Chamber onto the Heater Plate, ensuring that the Inlet Port on the Chamber fits securely over the Blower Outlet.”). The central issue, then, is whether the combination of the HC200 Manual and *Kenyon* teaches a “gases return” connection being “made by a single motion” and whether it also teaches an associated “patient outlet” on the blower housing in communication with the gases return connection.

According to ResMed, *Kenyon* teaches the “known” concept of positioning the patient outlet *on the blower housing* of a CPAP device and directing the supply path of the humidified gases through a return conduit in the housing, rather than directly to the patient from the water chamber. Pet. 37–38. Indeed, *Kenyon* states explicitly that the “main advantage” of positioning the patient outlet on the blower housing, rather than the humidifier, i.e., water chamber, is that “the apparatus can be *quickly and easily converted* between including, or not including, a humidifier [chamber] in the gas supply path,” an option that is not possible if the supply path

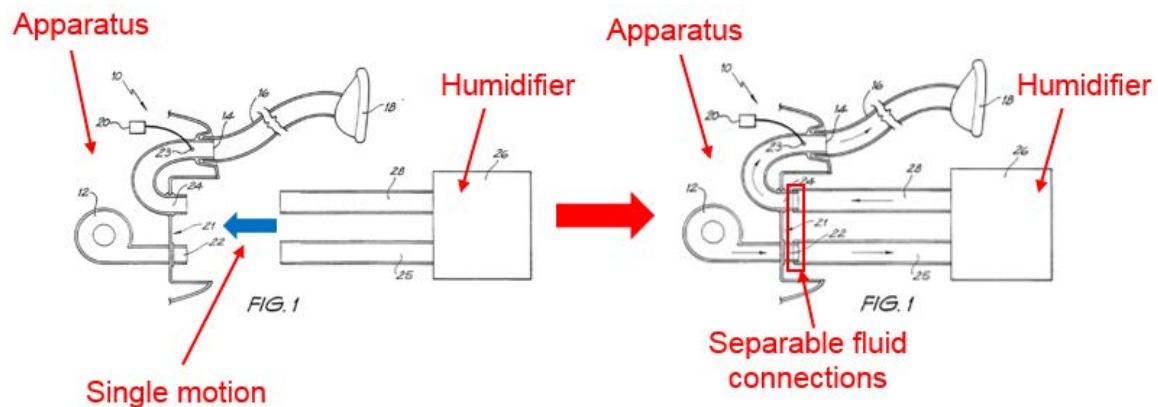
terminates on the humidifier chamber. *See* Ex. 1010, 6:30–34, Fig. 1 (emphasis added); *see also id.* at 4:18–20 (essentially same).

We find that, like the HC200 Manual, Kenyon discloses a CPAP device with a first fluid connection, i.e., a gases outlet connection, between a blower housing and an associated water chamber, namely, pressurized gas outlet 22 on blower housing 10, 12 connecting with inlet 25 of water chamber 26. Ex. 1010, 3:4–7, 6:13–26, Fig. 1. Although the claimed “gases return” connection is missing from the HC200 Manual, we find that Kenyon teaches providing a second fluid connection between a water chamber and a blower housing for a CPAP device, namely, outlet 28 on water chamber 26 connects with humidified gases return 24 on blower housing 10. *Id.*; *see also* Pet. 16–25 (mapping claim 6 to Kenyon), 48 (same), Ex. 1012 ¶¶ 62–64 (same). We also find that Kenyon teaches positioning a patient outlet for a breathing conduit on a blower housing in communication with a gases return connection from the water chamber, namely, patient outlet 14 on housing 10 connecting with gases return 24. *Id.*

ResMed submits annotated figures from the HC200 Manual and Kenyon, reproduced below, to show corresponding features between the two CPAP devices, as well as the additional teachings of Kenyon—positioning patient outlet 14 on blower housing 10 instead of water chamber 26 and providing gases return 24 for connecting with outlet 28 on the water chamber with the patient outlet.



In addition, we find that a skilled artisan would have viewed Kenyon as teaching the attachment of both the first and second fluid connections in a single motion, as required by claim 6. More specifically, as illustrated below in annotated Figure 1 of Kenyon, gas outlet 22 and gas return 24 on Kenyon's blower housing 10 are arranged to correspond to inlet 25 and outlet 28 on Kenyon's water chamber 26.



We find that a skilled artisan would have viewed Kenyon's arrangement of the first and second fluid connections as permitting the water chamber to be fluidly connected to the blower housing in a single motion, especially when combined with the HC200 Manual's teaching of connecting

its gas outlet on the blower housing with the inlet on the water chamber in a single motion, *the combination of which FPH does not dispute*. In that regard, we find persuasive the testimony of ResMed’s expert, Mr. Virr, that “the design of Kenyon’s apparatus 10 allows for the humidifier 26 to be connected to the apparatus in a single motion” because “connection inlets and outlet[s] (22, 24, 25, 28) are sized, shaped, and arranged to ensure correct installation of the humidifier.” Ex. 1012 ¶ 66. Moreover, the HC200 Manual’s *undisputed* teaching that the first fluid connection between the water chamber to the blower housing is made in a single motion, when combined with Kenyon’s teaching of parallel fluid connections that can be “quickly and easily converted” to include or not include the water chamber (Ex. 1010, 4:32–34), persuades us that a skilled artisan would have been led to ensure that *both* of the fluid connections between the modified HC200 Manual/Kenyon’s water chamber and lower housing are connected in a “single motion,” as required by claim 6.

FPH responds that Kenyon does not teach making fluid connections in “a single motion” because Kenyon’s fluid connections between the blower housing and water chamber are “flexible.” PO Resp. 33–42. According to FPH, “nothing in Kenyon” suggests that inlet and outlet connections between Kenyon’s water chamber and blower housing are “rigid” such that the water chamber “connects to the CPAP device in a single motion.” *Id.* at 34–35. We disagree for two reasons.

First, FPH’s argument focuses solely on Kenyon alone, while ignoring the *combined* teachings of the HC200 Manual and Kenyon in which it is undisputed that the HC200 Manual already teaches connecting the water chamber to the blower housing in a single motion. *See id.* at 34–44. A

skilled artisan would have recognized that, when combined with the single motion of the HC200 Manual's "gases outlet" connection, Kenyon's gases return connection likewise would have taken advantage of the same single motion connection already disclosed in the HC200 Manual. *See* Ex. 1012 ¶¶ 74–75.

Second, FPH's argument that Kenyon's fluid connections are "flexible" ignores critical aspects of Kenyon's disclosure. PO Resp. 34. In particular, Kenyon teaches an elbow-shaped tube for "selective connection" to the gases outlet and gases return connections on the blower housing of the CPAP device when the water chamber is not needed. *See* Ex. 1010, Abstract, 6:27–38. The elbow-shaped tube, Kenyon states, is made of "ABS plastic." *Id.* at 7:30–35 ("the duct member 30 is comprised of two ABS plastic 90° tubes 77"). Kenyon provides the elbow-shaped plastic tube so that the gases return flow path to the patient outlet can be "quickly and easily converted" to include or not include the water chamber. Ex. 1010, 4:32–34.

Given Kenyon's teaching of making a gases flow path that bypasses the water chamber of a rigid plastic material for selective and easy connection to a patient outlet, we find that a skilled artisan would have understood that Kenyon's alternative gases flow path through the water chamber, i.e., inlet connection 25 and outlet connection 28, likewise would be made of a rigid plastic material to facilitate an easy and quick "single motion" connection with corresponding connections on the blower housing, as required by claim 6. Ex. 1038 ¶ 23. We also note that, although Kenyon discloses a breathing conduit made of "flexible" tubing (ex. 1010, 4:15–17), nowhere does it use that description in the context of either the water

chamber's connection with the blower housing or the elbow-shaped bypass connection. Neither FPH nor its expert addresses these points directly, instead speculating about the length of the inlet/outlet connections shown on Kenyon's water chamber and looking to references that say nothing about what Kenyon teaches. *See, e.g.*, Ex. 2004 ¶¶ 110, 111, 114–116. Thus, we do not find persuasive FPH's argument that the combination of the HC200 Manual and Kenyon simply teaches "flexible" connections between the water chamber and blower housing, when the record evidence indicates the contrary, as shown by the combined teachings of the HC200 Manual and Kenyon.

In sum, a preponderance of the evidence persuades us that a skilled artisan would have known to modify the HC200 Manual's CPAP apparatus to move the patient outlet from the water chamber to the blower housing and, as a result, incorporate a second fluid connection in the housing to accommodate a gases return from the water chamber, as taught by Kenyon. As discussed above, FPH does not dispute that ResMed demonstrates a reason to combine the teachings of the HC200 Manual and Kenyon. Thus, we determine that the combination of the HC200 Manual and Kenyon teaches a CPAP apparatus that incorporates all of the features of base claim 6, including gases outlet and return connections "made by a single motion," and that a skilled artisan would have had a reason to combine those teachings in a manner that resulted in the claimed invention.

b. "single motion also urges . . . in contact with"

Claim 7, which depends from claim 6, requires "*a chamber heater*" for the CPAP apparatus and that "*said single motion also urges a base of said chamber in contact with said heater.*" ResMed relies on the HC200

Manual for teaching this limitation. Pet. 34–37, 49–50. As discussed above, it is undisputed that the HC200 Manual discloses a “heater plate” for the water chamber, and that a “base” of the water chamber is in contact with the heater plate. Ex. 1017, 1 (depicting “Heated Humidifier” within “CPAP Blower”), 7 (showing “Humidification Chamber” with “Chamber Base” adapted to sit atop “Heater Plate”). The HC200 Manual instructs users to “slide the Humidification Chamber onto the Heater Plate, ensuring that the Inlet Port on the Chamber fits securely over the Blower Outlet.” Ex. 1017, 8. We find that a skilled artisan would understand that explicit instruction as teaching a “single motion” that “urges” the base of the water chamber in contact with the heater plate, as required by claim 7. Ex. 1012 ¶¶ 73, 75 (citing Ex. 1017, 8).

FPH responds that, even if the “sliding” instruction in the HC200 Manual amounts to the claimed “single motion,” the instruction “says nothing about the chamber base being *pressed* against the heater.” PO Resp. 60. That argument, however, is premised on FPH’s overly narrow construction of the “urges . . . in contact with” limitation in claim 7. According to FPH, that limitation “requires that the claimed single motion moves the chamber base in a direction so as to *press the chamber base against the heater.*” *Id.* at 58.

As discussed above, we construe claim 7 as requiring a single motion that moves the chamber base in a direction so as to be in contact with the chamber heater. *See supra* section III.A.1. We reject FPH’s construction that “urges . . . in contact” also requires “press[ing] the chamber base against the heater.” *Id.* Based on our interpretation of the limitation “urges . . . in contact with,” we find that the HC200 Manual satisfies this limitation by

instructing users to “slide” the water chamber “onto” the heater plate so as to fit within the blower housing. Ex. 1017, 8.

Accordingly, we find that the combination of the HC200 Manual and Kenyon teaches all the limitations of claim 7, which include those of base claim 6, and that a skilled artisan would have combined the HC200 Manual and Kenyon in a manner resulting in the claimed invention. As such, ResMed has proven by a preponderance of the evidence that claim 7 is unpatentable over the HC200 Manual and Kenyon.

C. *Obviousness of Claim 11 Over the HC200 Manual, Kenyon, and Bahr*

ResMed submits that claim 11 is unpatentable as obvious over the HC200 Manual, Kenyon, and Bahr. Pet. 51–58. Claim 11, which depends from base claim 6, recites:

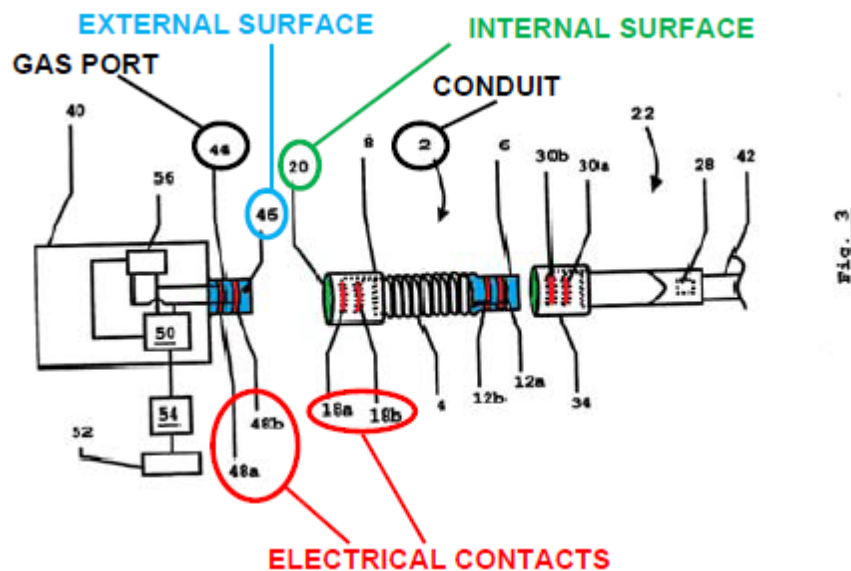
said patient outlet includes a connector for receiving a breathing hose and at least one auxiliary electrical connection plug or socket or pneumatic connection plug or port, for simultaneous connection when connecting a breathing circuit having complementary electrical or pneumatic connectors

Ex. 1002, 12:12–18.

In challenging claim 11, ResMed begins with the CPAP apparatus taught by the HC200 Manual as modified by Kenyon to have a patient outlet on the blower housing for connecting with a breathing hose. Pet. 52 (citing Ex. 1012 ¶¶ 62–67, 73–75). ResMed acknowledges that the modified HC200 Manual/Kenyon CPAP apparatus is missing the claim 6 limitation that the patient outlet have “at least one auxiliary electrical connection plug or socket or pneumatic connection plug or port, for simultaneous connection when connecting a breathing circuit having complementary electrical or pneumatic connectors,” as required by claim 11. *Id.* For that limitation,

ResMed relies on Bahr's teaching of a breathing conduit adapted for simultaneous fluid and electrical connection with a fluid transfer device, such as "a liquid or gas ventilator or, a gas respirator." *Id.* at 53–58 (citing Ex. 1011 ¶¶ 4, 21, 22; Ex. 1012 ¶¶ 58–60, 103–104).

At the outset, we note that FPH does not dispute that Bahr teaches a breathing conduit capable of establishing "simultaneous" gas and electrical connections with a respirator or ventilator device. See PO Resp. 19, 27–31, 61–63 (disputing only Bahr's disclosure of "auxiliary electrical connection plug or socket"). Annotated Figure 3, reproduced below, illustrates how Bahr's breathing conduit 2 achieves both a gas and an electrical connection with fluid transfer device 40. *Id.* at 19 (describing Bahr's features).



Annotated Figure 3 above shows "gas port 44" with "external mating surface 46" for connecting with "internal mating surface 20" of "female interface 8." Ex. 1011 ¶¶ 19, 21, 22. ResMed relies on Bahr's disclosure of: (1) "gas port 44" for satisfying the claimed "patient outlet," (2) "external mating surface 46" for satisfying the claimed "connector for receiving a breathing hose," and (3) "electrical contacts 48a, 48b" on gas port 44 for

satisfying the claimed “auxiliary electrical connection plug or socket.” Pet. 52–55; *see also id.* at 57–58 (mapping claim 11 to Bahr). ResMed further explains that a skilled artisan “would have understood that the electrical contacts 48a-b and 18a-b to be a ‘plug or socket,’ as required by claim 11.” Pet. Reply 16 (citing Ex. 1028 ¶ 18). Bahr describes electrical contacts 48a-b as being on “external mating surface 46” and electrical contacts 18a-b as being on “internal mating surface 20 of the female interface 8.” Ex. 1011 ¶¶ 19, 22. As for the undisputed “simultaneous” connection, Bahr teaches that interface 46 is “adapted for mating with a complementary interface [8] to simultaneously provide an electrical connection to the first terminals as well as a fluid coupling to the hollow body.” *Id.* ¶ 9.

ResMed reasons that it would have been obvious for a skilled artisan to implement Bahr’s patient outlet and breathing conduit on the modified HC200/Kenyon CPAP apparatus “in order to minimize the work required for a patient to connect a breathing hose, and any electrical components of the hose, to a CPAP machine.” Pet. 55 (citing Ex. 1012 ¶¶ 103–104). In support, ResMed points to Bahr’s express objective of overcoming problems in prior ventilator and respirator devices where multiple fluid and electrical transmission lines “produce additional installation work for the user, more difficult transportation of the patient, and an increased risk of accidental user or patient interaction with the lines which might cause involuntary disconnection of the external elements or a potential health hazard.” *Id.* at 55–56 (citing Ex. 1011 ¶ 6). ResMed contends that a skilled artisan would have been motivated to combine the HC200 Manual, Kenyon, and Bahr to simplify the manner in which those fluid and electrical connections are made, for example,

rather than needing to establish a fluid connection between *Kenyon*'s patient hose 16 and patient outlet 14 separately from an electrical connection for a heater wire in the hose, the teachings of *Bahr*'s system would allow the patient to establish both the fluid connection and the electrical connection simultaneously.

Id. at 56 (citing Ex. 1012 ¶¶ 103–104).

In response, FPH argues that a skilled artisan would not have combined *Bahr* with either the HC200 Manual or *Kenyon* because doing so would have added to the “cost and complexity” of the apparatus. PO Resp. 66–67. We agree. First, we note that ResMed does not cite to any portion of the HC200 Manual or *Kenyon* for teaching either “any electrical components of the hose” or “an electrical connection for a heater wire in the hose.” *See* Pet. 16–25 (asserted teachings of *Kenyon*), 34–37 (asserted teachings of the HC200 Manual). ResMed also fails to explain how, in combination, the HC200 Manual and *Kenyon* results in “any electrical components of the hose” or “a heater wire in the hose” so that an electrical connection would even be needed in the modified apparatus. *See* Pet. 52–53, 55–56. Even if one of the asserted references could be said to teach an electrical component or heater wire in the hose, upon weighing the declaration testimony of FPH's expert, Dr. Schneider (Ex. 2004 ¶¶ 104–105) and that of ResMed's expert, Mr. Virr (Ex. 1038 ¶ 21), we are not persuaded that a skilled artisan would have added such an electrical component or heater wire to the hose of the HC200 Manual as modified by *Kenyon* and *Bahr*.

FPH notes that “*Bahr* describes a detector attached to the electrical contacts to detect whether a sensor is connected.” PO Resp. 66–67 (citing Ex. 2004 ¶ 104). More specifically, *Bahr* teaches the electrical connections

for “sensor 28, such as a solid state pressure transducer or a flow meter” (Ex. 1011 ¶ 20) “to provide a visible indication on a display 54 of monitored properties of the gas” (*id.* ¶ 24), or “detector 56 . . . in order to detect whether a sensor is connected” (*id.* ¶ 25). Unlike Bahr, however, neither the HC200 Manual nor Kenyon discloses a sensor in the breathing hose for monitoring properties of the gas. As such, we are not persuaded that a skilled artisan would have further modified the HC200/Kenyon apparatus to include Bahr’s electrical connections, as ResMed proposes, when doing so would needlessly add cost and complexity to the modified apparatus. As such, ResMed’s reason to combine has insufficient rational underpinnings. Thus, ResMed fails to demonstrate by preponderant evidence that claim 11 is unpatentable over the HC200 Manual, Kenyon, and Bahr.

D. Obviousness of Claims 12 and 13 Over the HC200 Manual, Kenyon, and Wickham

ResMed argues that claims 12 and 13 are unpatentable as obvious over the combination of the HC200 Manual, Kenyon, and Wickham. Pet. 58–61. Claims 12 and 13 recite that the “gases return” and “patient outlet” of base claim 6 are “separable” from the CPAP apparatus (claim 12) and comprise an “elbow tube” (claim 13). The limitations of base claim 6, from which claims 12 and 13 depend, are taught by the combination of HC200 Manual and Kenyon as discussed above. *See supra* section III.B. ResMed relies on Wickham for teaching the “separable” and “elbow tube” limitations of claims 12 and 13. Pet. 58–61; *see also id.* at 26–33 (same).

Wickham discloses a “CPAP” apparatus equipped with “‘gas flow path’ components” that can be “*removed*, cleaned, sterilized or disinfected and then reinstalled.” Ex. 1029, 1:5–10, 3:1–9, 4:22—33, Figs. 1, 2

(emphasis added). The “gas flow path” components are incorporated within a “removable sub-housing” and include a “gas inlet” and “gas outlet.” *Id.* at 3:55–61, 4:22–52. ResMed reasons that a skilled artisan would have recognized that the HC200 Manual’s CPAP apparatus, as modified to include Kenyon’s gas flow path, could be further modified to make those components removable, as taught by Wickham. Pet. 59–60; Pet. Reply 18–19. A skilled artisan would have been led to do so, ResMed contends, “in order to improve the ability to clean, sterilize, and disinfect fluid flow paths within a CPAP device.” Pet. 28–29 (citing Ex. 1012 ¶¶ 85–89); *see also id.* at 58–61 (same), Pet. Reply 18–19 (citing Ex. 1038 ¶¶ 29–31). We find ResMed’s reasoning persuasive.

FPH responds that combining Wickham with the HC200 Manual and Kenyon does not teach the limitations of claims 12 and 13 because Wickham only “teaches the need to remove the *entirety* of the gas flow path” and “does not teach or suggest the benefit of making just a *portion* of the flow path between the humidifier and the patient outlet removable for cleaning.” PO Resp. 48 (emphases added). FPH relies on essentially these same arguments to dispute ResMed’s reason to combine Wickham with the HC200 Manual and Kenyon. *Id.* at 47–52. We do not find FPH’s arguments persuasive.

FPH ignores Wickham’s overall objective of removing “components” of the gas flow path adjacent the patient outlet “to clean/sterilize without the time consuming dismantling of and removal of *all* the ‘gas flow path’ components.” Ex. 1029, 1:37–46 (emphasis added). Wickham explains that sterilizing only those components adjacent the patient outlet is critical because, in a CPAP machine, “there can be a significant reverse flow during

heavy expiration and/or coughing and biological material exhaled by a patient can be deposited in the gas supply apparatus.” *Id.* at 1:28–35. The various components “inside, and constituting part of, the gas flow path,” Wickham states, “include the gas inlet, inlet filter, impeller, outlet muffler and gas outlet.” *Id.* at 1:38–41. Those passages, taken together, suggest that the listed components, “whether in whole or in part,” can be removed, depending on their potential for contamination. Ex. 1038 ¶ 28. As such, we do not see sufficient merit in FPH’s focus on the actual number of components within Wickham’s “removable sub-housing,” when the critical teaching of Wickham as a whole pertains to removability of any “components” in need of cleaning and sterilizing, be it one or more.

We are also not persuaded by FPH’s argument that the CPAP apparatus, as disclosed in the HC200 Manual and modified by Kenyon and Wickham, does not teach a removable “elbow tube,” as required by claim 13. *See* PO Resp. 52. FPH ignores that Kenyon teaches expressly an elbow-shaped gas flow path adjacent the patient outlet (Ex. 1010, Figs. 1, 7), and when combined with Wickham’s teaching of a gas flow path that “can easily be removed” (Ex. 1029, 4:22–33), a skilled artisan would have understood that combining those teachings would result in a removable, elbow-shaped flow path for the modified HC200 Manual CPAP apparatus, thereby satisfying claim 13. Ex. 1012 ¶¶ 67, 90; Ex 1038 ¶ 31. Accordingly, we determine that a preponderance of the evidence shows that claims 12 and 13 are unpatentable as obvious over the combined teachings of the HC200 Manual, Kenyon, and Wickham.

E. ResMed's Alternative Ground of Obviousness for Claims 12 and 13

In light of our determination that ResMed has shown by preponderant evidence that claims 12 and 13 are unpatentable as obvious over the HC200 Manual, Kenyon, and Wickham, we need not reach ResMed's alternative ground that merely relies on Kenyon and Wickham. *See* Pet. 26–33.

IV. CONCLUSION

After considering the totality of the evidence and the respective arguments of the parties, we determine that ResMed has shown by a preponderance of the evidence that claim 7 is unpatentable as obvious over the HC200 Manual and Kenyon, and that claims 12 and 13 are unpatentable as obvious over the HC200 Manual, Kenyon, and Wickham. However, ResMed has *not* demonstrated by a preponderance of the evidence that claim 11 is unpatentable over the HC200 Manual, Kenyon, and Bahr.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 7, 12, and 13 of the '072 patent are held unpatentable on grounds of obviousness under 35 U.S.C. § 103; and

FURTHER ORDERED that, because this is a Final Written Decision, any party to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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