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Paper 13
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ATLAS COPCO AIRPOWER N.V.,
Petitioner,

v.

KAESER KOMPRESSOREN AG,
Patent Owner.

Case IPR2014-00776
Patent 8,349,054 B2

Before ERICA A. FRANKLIN, CHRISTOPHER L. CRUMBLEY, and JO-ANNE M. KOKOSKI, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge.*

DECISION

Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Atlas Copco Airpower N.V. ("Petitioner") filed a Petition to institute an *inter partes* review of claims 1–20 of U.S. Patent No. 8,349,054 B2 (Ex. 1001, "the '054 patent"). Paper 1 ("Pet."). Kaeser Kompressoren SE ("Patent Owner") filed a Preliminary Response to the Petition. Paper 8 ("Prelim. Resp.").

We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon considering the Petition and Preliminary Response, we determine that Petitioner has not shown a reasonable likelihood that it would prevail in showing the unpatentability of any challenged claim. Accordingly, the Petition is *denied*.

A. Related Proceedings

Petitioner and Patent Owner indicate that there are no related matters that would affect, or be affected by, a decision in this proceeding. Pet. 1; Paper 5, 2.

B. The '054 Patent (Ex. 1001)

The '054 patent is directed to "an adsorption drying apparatus [and] an adsorption drying method . . . for drying compressed gases." Ex. 1001, 1:6–8. The apparatus comprises a rotatable, drum-like chamber having a plurality of parallel adsorption conduits, wherein the adsorption chamber can be moved through a drying sector, wherein compressed gas is dried, and a regeneration sector, in which adsorption material is regenerated. *Id*. at 1:31–36, 3:38–40. Disposed at a first end of the adsorption chamber is a first feeding line and a first discharging line, in which the first feeding line

"is configured such that the gas stream to be dried may be fed to the regeneration sector as a full flow." *Id*. at 3:29–30, 3:40–42. A second discharging line is in communication with a second feeding line "and thus forms a connecting line." *Id*. at 3:42–44. "A pressure increasing device is provided within the connecting line downstream of the condenser, so as to increase the pressure of the gas flowing from the second discharging line to the second feeding line." *Id*. at 3:44–48. The pressure-increasing device "prevents the formation of an undesired leakage stream in a simple manner." *Id*. at 4:30–32. The '054 patent states:

> In the proposed adsorption drying apparatus, the pressure increasing device generates a positive differential pressure between the drying and regeneration sectors in order to prevent air from passing from the regeneration sector into the drying sector. The purpose of the pressure-increasing device hence is to compensate for the pressure loss of the gas from the regeneration inlet chamber to the drying outlet chamber via the regeneration sector, the condenser, the drying sector as well as the corresponding connecting lines to the chamber and, in addition, to build up the positive differential pressure mentioned above.

Id. at 4:38–48. "The pressure-increasing device may be a mechanical compressor, [e.g.,] a compressor and/or a fan and/or a pump." *Id*. at 5:46–49.

C. Illustrative Claims

Independent claims 1 and 15 of the '054 patent are illustrative of the claims at issue:

> 1. An adsorption drying apparatus, particularly for drying a compressed gas, comprising
>
> an adsorption chamber (11) having a plurality of adsorption conduits (101) containing an adsorption material (123),

a first feeding line (106) and a first discharging line (109) disposed at a first end (111) of the adsorption chamber (11), and a second feeding line (108) and a second discharging line (107) disposed at a second end (112) of the adsorption chamber (11), wherein the adsorption chamber (11) is rotatable with respect to the feeding and discharging lines (106, 107, 108, 109),

the adsorption conduits being fluidically connectable in temporal alternation with the first feeding line (106) and the second discharging line (109)[1] or the first discharging line (107)[2] and the second feeding line (108), so that a drying sector (102) and a regeneration sector (103) are defined, wherein the gas is dried in the drying sector (102), and the adsorption material (123) is regenerated in the regeneration sector (103),

the first feeding line (106) being configured such that the gas to be dried is feedable to the regeneration sector (103) as a full flow,

the second discharging line (107) being in communication with the second feeding line (108) and thus forming a connecting line in which a condenser is provided,

a pressure increasing device (18) provided within the connecting line to increase pressure of the gas flowing from the second discharging line (107) to the second feeding line (108),

a cooling stream optionally branched off at the first (111) or second end (112) of the adsorption chamber (11), so as to cool the adsorption chamber (11) within a cooling sector (119), and

the regeneration sector (103) and the drying sector (102) being connected in cascade for a serial through-flow, such that a gas stream fed to the drying sector (102)

[1] Petitioner notes (Pet. 28), and we agree, this occurrence of "(109)" is a typographical error that should read "(107)."

[2] Petitioner notes (Pet. 28), and we agree, this occurrence of "(107)" is a typographical error that should read "(109)."

> essentially completely corresponds to a gas stream discharged from the regeneration sector (103), optionally including the a gas stream discharged from the cooling sector.

Ex. 1001, 13:48–14:21.

> 15. An adsorption drying method for drying a compressed gas, the method comprising the following steps a) to e):
>
> a) providing an adsorption chamber (11) having a plurality of adsorption conduits (101);
>
> b) conducting the gas to be dried in according to a full flow principle from a first end (111) of the adsorption chamber (11) to a second end (112) of the adsorption chamber (11) through a regeneration sector (103);
>
> c) increasing a pressure of the gas after conducting it through the regeneration sector;
>
> d) conducting the gas from the second end (112) to the first end (111) of the adsorption chamber (11) through a drying sector (102); and
>
> e) rotating the adsorption chamber (11).

Id. at 15:35–16:8.

D. The Prior Art

Petitioner relies on the following prior art:

Jonsson	US 3,855,719, issued Dec. 24, 1974	Ex. 1002
Vertriest	US 2003/0163929 A1, published Sept. 4, 2003	Ex. 1003
White	US 6,527,836 B1, issued Mar. 4, 2003	Ex. 1004
Dunne	US 2005/0150378 A1, published July 14, 2005	Ex. 1005

Petitioner also relies on the declaration of Dr. James A. Ritter (Ex. 1006).

E. The Asserted Grounds

Petitioner challenges claims 1–20 of the '054 patent on the following grounds:

Reference(s)	Basis	Claims
Jonsson	§ 102	1–4, 6, 15, and 17
Jonsson and Vertriest	§ 103(a)	5 and 14
Jonsson and White	§ 103(a)	1–4, 6, 12, 13, 19, and 20
Jonsson and Dunne	§ 103(a)	7, 16, and 18
Jonsson, White, and Dunne	§ 103(a)	8–11
Jonsson, White, and Vertriest	§ 103(a)	5 and 14

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, the Patent Trial and Appeal Board ("Board") interprets claim terms in an unexpired patent according to the "broadest reasonable construction in light of the specification of the patent" in which they appear. 37 C.F.R. § 42.100(b). Under that standard, and absent any special definitions, the Board gives claim terms their "ordinary and customary meaning," as would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc*., 504 F.3d 1249, 1257 (Fed. Cir. 2007) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc)). Any special definitions for claim terms must be set forth in the Specification with "reasonable clarity, deliberateness, and precision." *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner states that the Specification of the '054 patent "provides a number of express definitions for several claim terms." Pet. 4. Petitioner does not propose constructions for claim terms of the '054 patent that differ from these definitions. Rather, Petitioner provides a discussion of certain claim terms "to orient the Board and familiarize it with the nomenclature of the '054 patent." Pet. 6. Patent Owner does not propose constructions for any claim terms. We determine that in view of our analysis, further construction of these defined claim terms is not necessary.

B. Anticipation of Claims 1–4, 6, 15, and 17 by Jonsson (Ex. 1002)

Petitioner contends that Jonsson anticipates claims 1–4, 6, 15, and 17. Pet. 25.

1. Jonsson

Jonsson discloses a regenerative drier device and a method for using the device to treat hot, compressed gas. Ex. 1002, 5:41–42, 6:27–28. The regenerative drier comprises a rotor rotatably mounted in a housing having an inlet and an outlet; means in said housing dividing the space occupied by said rotor into a regenerating zone and a drying zone; a condenser in said housing; means for conveying substantially all the hot gas from a compressor successively from said inlet through rotor channels in said regenerating zone, said condenser, and rotor channels in said drying zone to said outlet; means defining a cooling zone at one end of said rotor between said regenerating and drying zones; ejector means connecting said cooling zone to said conveying means, whereby the flow of hot gas in said conveying means draws gas from said cooling zone to lower the pressure therein to a value less than in the other two zones; and means connecting said cooling zone to the edges of said regenerating zone to collect any hot

gases escaping therefrom. *Id*. at 5:41–6:57. Jonsson states:

> During the passage of the compressed air through the drier there will naturally occur pressure losses and therefore the pressure becomes lower in the drying zone than in the regenerating zone. Leakage of the moist compressed air from the regenerating zone into the drying zone is prevented by the fact that the drying zone is surrounded on both sides of the rotor 12 by the grooves arranged in the closures. These grooves communicate with the cooling zone in which the lowest pressure exists and the leakage is sucked out by the ejector 78 and returns to the main flow of compressed air in front of the condenser 14.

Id. at 4:18–29.

Jonsson discloses an embodiment wherein "the under-pressure of the cooling sector is not produced by an ejector but by a blower 86 the suction side of which communicates with the pipe 76 coming from the cooling zone 56 and the pressure side of which ends in the pipe 64." *Id*. at 4:63–5:1. In this embodiment, "[t]he blower 86 produces the intended under-pressure in the cooling zone." *Id*. at 5:1–2.

2. Analysis

a. Independent claim 1

Petitioner contends that Jonsson discloses every element of independent claim 1. Pet. 25. In particular, Petitioner asserts that "Figure 2 of *Jonsson* discloses a pressure-increasing device in the form of a blower 86 positioned 'within the connecting line', *i.e.*, within the 'line' formed … by the communication of gas between the second discharging line 107 and the second feeding line 108." *Id*. at 30. Petitioner asserts that Jonsson discloses that one side of the blower 86 is integrated into pipe 64, i.e., the second discharging line. *Id*. Thus, according to Petitioner, the blower is "within the connecting line" because the blower "is part of the connecting line between

second discharging line of the regeneration sector and the second feeding line of the drying sector." *Id*. (citing Ex. 1006 ¶ 59). Further, according to Petitioner, "[t]he blower 86 is positioned such that it increases the pressure of the gas in the 'connecting line' as it leaves the regeneration sector through the pipe 64 and travels to the drying sector." *Id*.

Patent Owner asserts that "neither the spatial arrangement nor the technical effect of the blower 86 is recited correctly in the Petition." Prelim. Resp. 14–15. According to Patent Owner, for Jonsson's blower to be within the connecting line described by Petitioner, "both the suction side and the pressure side of the blower 86 would have to be in communication with upstream and downstream portions, respectively, of the line between pipe 64 and arrow 74." *Id*. at 15. Patent Owner asserts that, although the pressure side of the blower ends in the pipe 64, Jonsson discloses that the suction side of the blower "communicates with the pipe 76 coming from the cooling zone 56." *Id*. (citing Ex. 1002, 4:63–5:2). Thus, according to Patent Owner, "the suction side and the pressure side of the blower 86 each communicate with two separate and different gas flows or lines." *Id*. at 16.

We agree with Patent Owner. The suction side of the blower is in communication with the cooling sector, which is not part of the connecting line. Consequently, based on the information presented, we agree with Patent Owner's assertion that that the blower is not provided "within the connecting line," as required by claim 1.

Further, we agree with Patent Owner, *see* Prelim. Resp. 17, that Jonsson does not disclose that the blower increases the pressure of the gas flowing from the second discharging line 107, i.e., the regeneration outlet, to the second feeding line 108, i.e., the drying inlet. Jonsson discloses that "the

pressure of the gas is higher in the regenerating zone than in the drying zone as a consequence of inevitable flowing losses in the apparatus, an overflow of moist gas into the drying zone might take place and such an overflow may risk the intended drying effect." Ex. 1002, 1:28–32. Jonsson explains that its invention addresses this leakage by returning the leakage air to the warm, moist gas flow before it reaches the drying zone, or it is drained to a third zone located between the regenerating and the drying zones to be sucked back to the main flow together with cooling gas passing through this third zone. *Id*. at 1:33–41, 4:18–21. Thus, leakage of the moist compressed air from the regenerating zone into the drying zone is prevented. In other words, contrary to Petitioner's assertion, *see* Pet. 12, Jonsson does not disclose addressing leakage by using its blower to increase pressure of the gas flowing from the second discharging line to the second feeding line.

Consequently, based on the information presented, Petitioner has not established sufficiently that Jonsson discloses every limitation of independent claim 1. Therefore, on this record, we determine Petitioner has not set forth a reasonable likelihood that it would prevail in showing that independent claim 1, or its dependent claims 2–4 and 6, are anticipated by Jonsson.

b. Independent claim 15

The method of independent claim 15 does not recite a pressure-increasing device, but does require the step of "increasing a pressure of the gas after conducting it through the regeneration sector." Petitioner asserts that "*Jonsson* discloses placing a blower 86 in such a way as to increase the pressure of the gas after it has traveled through the regeneration sector." Pet. 37. According to Petitioner, because the blower is positioned downstream of

the regeneration zone, "gas leaving the blower 86 must be doing so at some degree of increased pressure because *Jonsson* refers to the output side of the blower as the 'pressure side.'" *Id*. Petitioner asserts that "it is beyond dispute that gas put into a blower . . . will exit the blower at a higher pressure than the pressure at which it entered." *Id*. (citing Ex. 1006 ¶ 80).

Claim 15 recites, in part, "b) conducting the gas to be dried in according to a full flow principle from a first end (111) of the adsorption chamber (11) to a second end (112) of the adsorption chamber (11) through a regeneration sector (103); c) increasing a pressure of gas after conducting it through the regeneration sector." Ex. 1001, 15:39–16:4. In other words, the claim requires increasing a pressure of the full flow of gas to be dried after conducting it through the regeneration sector. As discussed regarding claim 1, Jonsson discloses that the suction side of the blower 86 is in communication with the cooling zone, not the regeneration sector. Ex. 1002, 4:66–68. Thus, in Jonsson, only a portion of the gas, i.e., the gas that leaks from the regenerating zone into the cooling zone, travels through the blower 86. Consequently, even if the passage of gas through blower 86 increases the pressure of that gas, Petitioner has not shown that the full flow of gas was subjected to that passage.

Accordingly, based on the information presented, Petitioner has not established sufficiently that Jonsson discloses every limitation of independent claim 15. Therefore, on this record we determine Petitioner has not set forth a reasonable likelihood that it would prevail in showing that independent claim 15, or its dependent claim 17, are anticipated by Jonsson.

C. Obviousness of Claims 5 and 14 over Jonsson (Ex. 1002) and Vertriest (Ex. 1003)

Petitioner contends that claims 5 and 14 are rendered obvious by the combination of Jonsson and Vertriest. Pet. 44–45. Claims 5 and 14 depend from claim 1. Petitioner asserts that "*Jonsson* discloses all the elements of claim 1," and relies on Vertriest only as disclosing an additional limitation of claims 5 and 14, i.e., "using the onboard condenser of the input compressor as the condenser required by claim 1 . . . such that the 'compressor condenser forms at least in part the condenser provided in the connecting line.'" Pet. 44 (citations omitted). Petitioner does not rely on Vertriest to cure the deficiencies of Jonsson discussed above with respect to the limitations of claim 1.

As set forth above, Petitioner has not established that Jonsson discloses all of the limitations of claim 1. Accordingly, we determine that the record before us does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 5 and 14, which depend from claim 1, would have been obvious over the combination of Jonsson and Vertriest under § 103(a).

D. Obviousness of Claims 1–4, 6, 12, 13, 19, and 20 over Jonsson (Ex. 1002) and White (Ex. 1004)

Petitioner contends that claims 1–4, 6, 12, 13, 19, and 20 are rendered obvious by the combination of Jonsson and White. Pet. 46–47.

1. White

White discloses "[a] rotating drum adsorber process and system includ[ing] a rotating drum of adsorbent medium in a shell including partitions that define an adsorption sector, a regeneration sector[,] and a

cooling sector." Ex. 1004, Abstract. In a preferred embodiment, a portion of moist gas feed stream 30 is directed through compressor after-cooler 34 into adsorption (drying) sector 38, while another portion of moist feed inlet stream 30 is diverted as regeneration stream 44 through regeneration sector 40. *Id*. at 26:41–50. Upon exiting regeneration sector 40, regeneration exhaust stream 46 is cooled, and condensed water is separated and collected. *Id*. at 26:55–58. Regeneration exhaust stream 44 is then combined with moist gas feed inlet stream 30 and directed to adsorption sector 38. *Id*. at 26:58–61. To ensure that any leakage will pass only in the direction from adsorption sector 38 into regeneration sector 40, to avoid contamination of the adsorption sector, the regeneration sector is kept at a lower pressure than the adsorption sector. *Id*. at 26:61–66. A device, such as blower 48, is used to increase the pressure of lower pressure cooled regeneration exhaust stream 46 before combining it with higher pressure moist gas feed inlet stream 30. *Id*. at 26:66–27:6.

White Figure 1 is reproduced below:

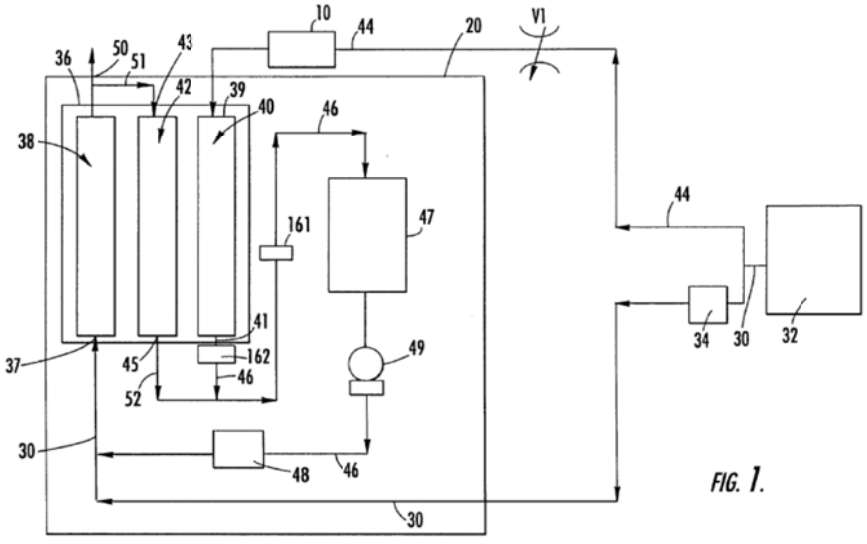

FIG. 1.

Figure 1 is a schematic diagram showing a flow according to the

preferred embodiment of the rotating drum adsorber process and system. *Id*. at 24:13–18.

2. Analysis

a. Claims 1–4 and 6

Petitioner asserts that, in the event that the Board disagrees that Jonsson discloses a pressure-increasing device located within the connecting line, White "discloses the claimed pressure-increasing device in the form of a blower 48 that is undeniably located 'within the connecting line' between the exit of the regeneration sector 40 and the entrance to the drying sector 38." Pet. 46 (citing Ex. 1004, Fig.1, element 48). Petitioner asserts that although White uses "a blower in a part of the line that does not handle the full flow of the incoming compressed gas, . . . *Jonsson* teaches that using a blower in a full flow environment is possible." *Id*. (citing Ex. 1006 ¶ 86). According to Petitioner, positioning a blower within the connecting line, in a full flow device, amounts to a simple arrangement of old elements with each performing the same function it had been known to perform, yielding no more than one would expect from such an arrangement. *Id*. at 47 (citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

We disagree with Petitioner. As discussed with respect to the anticipation ground, Jonsson includes a blower that does not handle the full flow of incoming compressed gas. Rather, the blower in Jonsson handles the leakage gas. *See, e.g.*, Ex. 1002, 4:24–29. Further, White uses a blower to increase the pressure of lower pressure cooled regeneration exhaust stream 46 before combining it with higher pressure moist gas feed inlet stream 30. Ex. 1004, 26:66–27:6. In other words, White uses a blower to

facilitate a step unique to its partial flow system, i.e., combining the gas stream diverted to pass through the regeneration sector with the gas stream that did not pass through the regeneration sector, before the combined stream reaches the adsorption (drying) sector. Therefore, Petitioner has not established that it would have been obvious to modify Jonsson to include a blower within the connecting line, as Jonsson's system did not include the step of combining the two partial flows disclosed in White. *See KSR*, 550 U.S at 418 (Obviousness must be supported by some articulated reasoning with some underpinning.).

Accordingly, we determine that Petitioner has not established a reasonable likelihood of prevailing on its assertion that claims 1–4 and 6 would have been obvious over the combination of Jonsson and White under § 103(a).

b. Claims 12, 13, 19, and 20

Claims 12 and 13 depend from independent claim 1, and claims 19 and 20 depend from independent claim 15. Petitioner asserts that White discloses an additional limitation of claims 12 and 13, i.e., a controller for controlling the speed of the pressure device, as well as an additional limitation of claims 19 and 20, i.e., the manner of starting the step of rotating the adsorption chamber. Pet. 47. For these dependent claims, Petitioner does not rely on White to cure deficiencies of Jonsson with respect to the limitations of independent claims 1 and 15.

As set forth above, Petitioner has not established that Jonsson discloses all of the limitations of claims 1 and 15. Accordingly, we determine that the record before us does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 12 and 13, which

depend from claim 1, and claims 19 and 20, which depend from claim 15, would have been obvious over the combination of Jonsson and White under § 103(a).

E. Obviousness of Claims 7, 16, and 18 over Jonsson (Ex. 1002) and Dunne (Ex. 1005)

Petitioner contends that claims 7, 16, and 18 are rendered obvious by the combination of Jonsson and Dunne. Pet. 49–51.

1. Dunne

Dunne discloses a gas purification method and apparatus to remove impurities from a gas feed stream after compression of the gas feed stream. Ex. 1005 ¶ 1. "[A] heated compressed gas is sent through a regeneration sector of a rotary adsorber to remove impurities from the regeneration sector . . . [and] to produce a stream of compressed gas containing these impurities." *Id*. at ¶ 9. The contaminated stream of compressed gas is cooled in a condenser, where a portion of contaminants is condensed from the stream and is removed. *Id*. The resulting cooled stream of compressed gas is passed to an adsorption sector of the rotary adsorber, "wherein a further quantity of contaminants is removed from the compressed gas to produce a purified compressed gas product." *Id*.

2. Analysis

a. Claim 7

Claim 7 depends from independent claim 1 and further recites "wherein the pressure-increasing device (18) is a radial compressor having a ring diffuser (121)." Ex. 1001, 14:57–58. Petitioner asserts that a person of ordinary skill in the art at the time the invention was made who read Dunne's teaching that "the stream going to the adsorption zone needs to be

compressed prior to contacting the adsorbent wheel," Pet. 49 (citing Ex. 1005 ¶ 26), "would have envisaged the entire range of pressure device types, small as it was (and is), as being viable options, including fans, blowers, and compressors," *id.* (citing Ex. 1006 ¶ 97). According to Petitioner, "a radial compressor would have been equally present among the array of available pressure device choices inspired by the above-quoted passage from *Dunne*." *Id.* at 50. Petitioner also asserts that Dunne "discloses that the compressor may be placed anywhere along the connecting line," such that a person of ordinary skill in the art would have understood that a radial compressor "might be positioned at the end of the connecting line such that the pressure side is in direct communication with the intake to the drying sector." *Id*.

Even if it was possible that a person of ordinary skill in the art at the time of the invention could have substituted a radial compressor for Jonsson's blower, what is missing from the Petition is an identification of some reason to modify the location and function of Jonsson's blower so as to yield the claimed invention, wherein a pressure-increasing device is provided within the connecting line to increase pressure of the gas flowing from the second discharging line to the second feeding line. *See* Prelim. Resp. 35–40.

Accordingly, we determine that Petitioner has not established a reasonable likelihood of prevailing on its assertion that claim 7 would have been obvious over the combination of Jonsson and Dunne under § 103(a).

b. Claims 16 and 18

Claims 16 and 18 depend from independent claim 15. Petitioner relies on Dunne to address additional limitations of these dependent claims. However, Petitioner has not established, nor do we find, that Dunne cures

the deficiencies of Jonsson with respect to the limitations of claim 15, as discussed in the anticipation ground.

Thus, for the same reasons discussed regarding the anticipation ground for independent claim 15, we determine Petitioner has not made a sufficient showing, on the current record, that the combination of Jonsson and Dunne teaches or suggests the invention of claims 16 and 18, which depend from claim 15. Accordingly, we determine that Petitioner has not established a reasonable likelihood of prevailing on its assertion that dependent claims 16 and 18 would have been obvious over the combination of Jonsson and Dunne under § 103(a).

F. Obviousness of Claims 8–11 over Jonsson (Ex. 1002), White (Ex. 1004), and Dunne (Ex. 1005)

Claims 8–11 depend from independent claim 1. Petitioner contends that claims 8–11 are rendered obvious by the combination of Jonsson, White and Dunne. Pet. 52–53. Petitioner relies on the same rationale for combining Jonsson with White and Dunne as discussed regarding the obviousness grounds involving the combination of Jonsson and White and the combination of Jonsson and Dunne previously discussed. *Id*.

For the same reasons discussed regarding each of the grounds combining Jonsson with White and Jonsson with Dunne, we determine Petitioner has not made a sufficient showing, on the current record, that the combination of Jonsson, White, and Dunne teaches or suggests the invention of claims 8–11, which depend from claim 1. Accordingly, we determine that Petitioner has not established a reasonable likelihood of prevailing on its assertion that dependent claims 8–11 would have been obvious over the combination of Jonsson, White, and Dunne under § 103(a).

G. Obviousness of Claims 5 and 14 over Jonsson (Ex. 1002), White (Ex. 1004), and Vertriest (Ex. 1003)

Claims 5 and 14 depend from independent claim 1. Petitioner contends that claims 5 and 14 are rendered obvious by the combination of Jonsson, White, and Vertriest. Pet. 53–54. Petitioner relies on White as disclosing a pressure increasing device provided within the connecting line, as required by independent claim 1. *Id*. at 53. Petitioner relies on Vertriest as disclosing the use of the input compressor's onboard condenser, as set forth in further limitations of claims 5 and 14. *Id*. According to Petitioner, the rationale for combining Jonsson with White and Vertriest is the same as discussed previously regarding the combination of Jonsson and White and the combination of Jonsson and Vertriest. *Id*.

For the same reasons discussed regarding each of the grounds combining Jonsson with White and Jonsson with Vertriest, we determine Petitioner has not made a sufficient showing, on the current record, that the combination teaches or suggests the inventions of claims 5 and 14, which depend from claim 1. Accordingly, we determine that Petitioner has not established a reasonable likelihood of prevailing on its assertion that dependent claims 5 and 14 would have been obvious over the combination of Jonsson, White, and Vertriest under § 103(a).

III. CONCLUSION

We conclude Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that any claim of the '054 patent is unpatentable based upon any of the asserted grounds.

ORDER

In consideration of the foregoing, it is hereby ordered that the Petition is *denied*.

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