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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* JOHN THOMAS GUNN and RICHARD LOUIS KOUZEL

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Appeal 2019-004549  
Application 14/860,037  
Technology Center 3700

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Before MICHAEL J. FITZPATRICK, WILLIAM A. CAPP, and  
PAUL J. KORNICZKY, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* KORNICZKY.

Opinion Dissenting filed by *Administrative Patent Judge* FITZPATRICK.  
KORNICZKY, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE<sup>1</sup>

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>2</sup> appeals from the Examiner's decision to reject claims 1–5, 14, 15, and 19–29. Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

## CLAIMED SUBJECT MATTER

The claims are directed to a condensate vaporization system. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An air compressor system comprising:

a compressor having an intake end and a discharge end, the compressor operable to draw in atmospheric air at the intake end and to discharge a flow of compressed air from the discharge end, the flow of compressed air including an effluent defined by at least entrained water in a liquid state;

a temperature sensor configured to detect a temperature of the compressed air discharged by the compressor;

a separator operable to remove effluent from the flow of compressed air to form a dry compressed air, the separator discharging a flow of dry compressed air and a flow of effluent; and

an electric heater configured to receive the flow of effluent from the separator and vaporize the effluent, wherein in response to at least a detected change in the temperature of the compressed air by the temperature sensor, operation of the electric heater is adjusted to vaporize the effluent.

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<sup>1</sup> In this Decision, we refer to (1) the Examiner's Final Office Action dated May 16, 2018 ("Final Act.") and Answer dated March 22, 2019 ("Ans."), and (2) Appellant's Appeal Brief dated December 13, 2018 ("Appeal Br.") and Reply dated May 22, 2019 ("Reply Br.").

<sup>2</sup> We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Clark Equipment Company. Appeal Br. 2.

## REJECTION

Claims 1–5, 14, 15, and 19–29 stand rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre–AIA), first paragraph, as failing to comply with the written description requirement. Final Act. 3.

Appellant seeks our review of this rejection.

## OPINION

### *Claims 1–5, 14, 15, and 19–29 as Lacking Written Description*

Appellant argues claims 1–5, 23, and 25 as a group. Appeal Br. 12. We select independent claim 1 as the representative claim, and claims 2–5, 23, and 25 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner determines that claims 1–5, 14, 15, and 19–29 fail to comply with the written description requirement, and contain subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention. Final Act. 3–8; Ans. 3–11.

### Claim 1

Claim 1 recites, in part, “wherein in response to at least a detected change in the temperature of the compressed air by the temperature sensor, operation of the electric heater is adjusted to vaporize the effluent.” The Examiner finds that this limitation is not supported by the originally filed disclosure in a manner that would reasonably convey that the inventor had possession of the instant invention. Final Act. 3–4. According to the Examiner, “the disclosure does not adequately set forth sufficient structure, material, algorithm(s), formulas or mathematical relationships for

performing the recited adjustment operations.” *Id.* The Examiner explains that there “is functional discussion of using the controller for controlling electricity to the electric heater,” but “there is no corresponding description of how the functions are derived or determined to make such an adjustment.” *Id.* (emphasis omitted). Similarly, the Examiner explains that paragraph 18 of the Specification, discloses “a ‘predictive algorithm’ to ‘ready’ (e.g., preheat or otherwise adjust the temperature and/or energy flow in anticipation of a change in conditions) the electric heater 38 and prepare the electric heater 38 to vaporize effluent,” but “there are no details for the algorithm or how it uses temperature data to adjust the electric heater.” *Id.* (emphasis omitted).

Appellant argues that the Examiner’s rejection is erroneous because paragraphs 18, 24, and 25 of the Specification demonstrate possession by describing the claim terms “wherein in response to at least a detected change in the temperature of the compressed air by the temperature sensor, operation of the electric heater is adjusted to vaporize the effluent” recited in claim 1. Appeal Br. 10. According to Appellant, the Specification describes

(1) “a compressor temperature sensor 58 that detects the temperature of the compressed air exiting the compressor 14” (Spec. ¶ 18),

(2) the “detected temperature of the compressed air is sent to the controller 50, and in response the controller 50 determines and controls the amount of electricity that is provided to the electric heater 38 to ensure that the condensed effluent within the electric heater 38 is fully vaporized” (*id.* ¶ 25), and

(3) “based on the detected temperature by the compressor temperature sensor 58, the controller 50 can preheat or otherwise adjust the temperature

and/or energy flow to the electric heater 38 in anticipation of a change in conditions, preparing the electric heater 38 to fully vaporize the condensed effluent for a given demand” (*id.* ¶ 25). Appeal Br. 10.

Paragraph 25 of the Specification states, in part,

based on the signals from the sensors 58, 62, 66, 68, the controller 50 may utilize a predictive algorithm to “ready” (e.g., preheat or otherwise adjust the temperature and/or energy flow in anticipation of a change in conditions) the electric heater 38 and prepare the electric heater 38 to fully vaporize the condensed effluent for a given demand (i.e., kilowatt input or heat load).

Appellant argues that paragraph 24 discloses that “the controller 50 controls the amount of electricity provided to the electric heater 38 by the power source,” and the “compressor temperature sensor 58 detects the temperature . . . and sends . . . temperature measurements to the controller 50.” Appeal Br. 8. Referring to paragraph 25, Appellant argues that “[e]xamples of ‘ready’ the electric heater 38, . . . include preheating the electric heater 38, adjusting the temperature of the electric heater 38 in anticipation of a change in conditions, and/or adjusting the energy flow to the electric heater 38 in anticipation of a change in conditions.” *Id.* at 9–10. Appellant states that the “change in conditions are based on the signal from the compressor temperature sensor 58,” and these “steps are taken to prepare the electric heater 38 to fully vaporize the condensed effluent for a given demand” and “operation of the electric heater 38 is adjusted to vaporize the effluent in response to at least a detected change in the temperature of the compressed air by the temperature sensor.” *Id.* at 10.

Appellant also argues that “rather than reviewing the claims and the entire specification to understand how Appellant provides support for the

various features of the claimed invention as required by the M.P.E.P., the [Examiner] is improperly fixating on four words of the specification” — “utilize a predictive algorithm” recited in paragraphs 18 and 25 of the Specification. Appeal Br. 10 (citing MPEP § 2163(II)(A)(2)). According to Appellant, the Examiner “bases the written description rejection on these four words in the specification to assert that ‘there are no details for the algorithm or how it uses temperature data to adjust the electric heater,’” that “there is no description how any data from such functions are stored or transformed into values used to perform the control of the amount of electricity to the electric heater,” and that “there is no corresponding description of how the functions are derived or determined to make such an adjustment.” *Id.* (citing Final Act. 3–4).

In response to the Examiner’s findings, Appellant argues that

the written description discloses a compressor temperature sensor 58 that directly measures the temperature of the compressed air exiting the compressor 14. *See* Paragraphs [0018], [0024]; FIG. 1. The compressor temperature sensor 58 generates a temperature signal indicative of the measured temperature of the compressed air and transmits the temperature signal to the controller 50. *See id.* In anticipation of a change in conditions as detected by at least the compressor temperature sensor 58, the controller 50 can adjust the temperature of the electric heater 38 to vaporize effluent and/or adjust the energy flow of the electric heater 38 to vaporize effluent. *See* Paragraphs [0018], [0025]; FIGS. 1–2.

Appeal Br. 11.

Appellant’s arguments are not persuasive. A specification must “contain a written description of the invention.” 35 U.S.C. § 112 ¶ 1 (2006). The test for the sufficiency of the written description “is whether the

disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 682 (Fed. Cir. 2015). “The written description requirement is not met if the specification merely describes a ‘desired result.’” *Id.* Thus, claims may lack written description when the claims define the invention in functional language specifying a desired result but the specification does not sufficiently describe how the function is performed or the result is achieved.

Here, claim 1 recites “wherein in response to at least a detected change in the temperature of the compressed air by the temperature sensor, operation of the electric heater is adjusted to vaporize the effluent.” We understand that this limitation is primarily directed to a control for operation and adjustment of an electric heater for vaporizing condensed effluent from compressed air discharged by a compressor. According to the Specification, the various operational parameters of electric heater 38 are controlled by controller 50, which is preferably a microprocessor-based controller, which electrically couples to electric heater 38. Spec. ¶ 17. We understand that controller 50 generate outputs, i.e., temperature, pressure, ambient air humidity, as data inputs to provide electricity to the heater. Appellant, however, does not identify where Specification disclose the hardware circuits, programmed logic, or algorithm steps necessary to transform the inputs into the controlled outputs for the electric heater, let alone providing controlled operation and adjustment of the heater to vaporize effluent as recited in claim 1. Similarly, Appellant does not identify where the Specification discloses a description of any material structure, examples, formulas or mathematical relationships for performing the claimed function,

i.e., operation and adjustment of the electric heater to vaporize effluent based upon temperature data or any other input parameters. Furthermore, Appellant does not identify where the Specification identifies a description of how any data from such functions are stored or transformed into output values used to control any amount of electricity to the electric heater.

Contrary to Appellant's reference to paragraphs 18, 24, and 25 of the Specification, the Specification does not explain how Appellant intends to achieve the claimed function to satisfy the written description requirement. *Vasudevan*, 782 F.3d at 683 (“The more telling question is whether the specification shows possession by the inventor of how [the claimed function] is achieved.”). Although the control that operates on input parameter data (temperature, pressure, ambient air humidity, and the like) to generate controlled outputs (electricity) to the heater, Appellant does not identify where the Specification discloses algorithmic steps which set forth how these input parameters are transformed into the controlled outputs, or a description of how the functions are derived or determined in order to operate and adjust the electric heater. Despite Appellant's reference to paragraphs 18 and 24 of the Specification, the Specification does not disclose any logic details, algorithm steps, thresholds, standards, mathematical relationships or any other guidance that would convey to one of ordinary skill in the art how the inventor solved the problem of adjusting the heater to vaporize effluent based upon temperature, or any other input parameter. The Specification does not explain how the temperature levels of the compressed air discharge correlate with or determine an amount of heat energy required to vaporize condensed liquid in the effluent downstream of the separation tank. Appellant does not provide evidence that controlled

adjustment of the heater to vaporize effluent is well known to those skilled in the art or that one of ordinary skill would reasonably know how the inventor solved the problem of how to provide controlled adjustment of the heater to vaporize condensed effluent. It is simply unclear how the disputed function recited in claim 1 is performed because the disclosure lacks adequate written description support.

For the reasons above, the rejection of claim 1 is sustained. Claims 2–5 and 23, and 25 fall with claim 1.

Claims 14, 19, 20, 22, 24, 26–29

Appellant's arguments regarding the rejection of claims 14, 19, 20, 22, 24, and 26–29 are the same as those discussed above in connection with claim 1. Appeal Br. 12–23. For the reasons above, Appellant's arguments are not persuasive, and the rejection of claims 14, 19, 20, 22, 24, and 26–29 are sustained.

CONCLUSION

The Examiner's decision to reject claims 1–5, 14, 15, and 19–29 is AFFIRMED.

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-5, 14, 15, 19-29	112 ¶ 1	Written Description	1-5, 14, 15, 19-29	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JOHN THOMAS GUNN and RICHARD LOUIS KOUZEL

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Appeal 2019-004549  
Application 14/860,037  
Technology Center 3700

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Before MICHAEL J. FITZPATRICK, WILLIAM A. CAPP, and  
PAUL J. KORNICZKY, *Administrative Patent Judges*.

FITZPATRICK, *Administrative Patent Judge*, dissenting.

I dissent from the majority's decision to affirm the Examiner's written description rejection.

The Examiner found, with respect to claim 1, that "the limitation 'wherein in response to at least a detected change in the temperature of the compressed air by the temperature sensor, operation of the electric heater is adjusted to vaporize the effluent' is not supported by the originally filed disclosure in a manner that would reasonably convey that the inventor had possession of the instant invention." Final Act. 3. More specifically, the Examiner found as follows:

The disclosure does not adequately set forth sufficient structure, material, algorithm(s), formulas or mathematical relationships for performing the recited adjustment operations.

There is functional discussion of using the controller for controlling electricity to the electric heater. However, there is no corresponding description of how the functions are derived or determined to make such an adjustment. In Applicant's specification para. 0018, "a 'predictive algorithm' to 'ready' (e.g., preheat or otherwise adjust the temperature and/or energy flow in anticipation of a change in conditions) the electric heater 38 and prepare the electric heater 38 to vaporize effluent" is discussed but there are no details for the algorithm or how it uses temperature data to adjust the electric heater. Furthermore, as far as can be determined, there is no description of how any data from such functions are stored or transformed into values used to perform the control of the amount of electricity to the electric heater.

*Id.* at 3–4; *see also* Ans. 4 (explaining that, even though this is a written description rejection, as opposed to an enablement rejection, Appellant's "claims define the invention in functional language specifying a desired result but the specification does not sufficiently describe how the function is performed or the result is achieved") (citing MPEP § 2161.01(I)).

In claim 1, the desired result/function performed is that "operation of the electric heater is adjusted to vaporize the effluent." Appeal Br. 25 (claim 1). This desired result/function must occur, per claim 1, "in response to at least a detected change in the temperature of the compressed air by the temperature sensor." *Id.* This strikes me as a straightforward cause and effect relationship, the implementation of which would be well within the level of skill of a person of ordinary skill in the art. Thus, I find adequate written description support in, for example, the following disclosure:

The controller 50 receives the compressor temperature measurements, the compressor pressure measurements, the ambient air temperature measurements, the ambient air relative humidity measurements, and the heater temperature measurements. Based on one or more of these measurements,

the controller 50 determines and controls the amount of electricity that is provided to the electric heater 38 to ensure that the condensed effluent within the electric heater 38 is fully vaporized.

Spec. ¶25.

In the next sentence, the Specification does refer to a “predictive algorithm,” but I understand such algorithm to be for a different function, namely, to “*preheat or otherwise adjust the temperature and/or energy flow in anticipation of a change in conditions.*” Spec. ¶25 (emphasis added). As Appellant points out, claim 1 “does not recite any ‘predictive algorithm.’” Appeal Br. 11. Nor does claim 1 recite the function that the Specification ties to the “predictive algorithm.” Accordingly, in my view, a description of the “predictive algorithm” is not necessary to support claim 1.

I would reverse the Examiner’s written description rejection.