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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHINSUKE IKAWA, AKIO TASAKA, YUUSUKE SHIONO,
SHINJI NAGAOKA, and DAISUKE TOYODA

Appeal 2020-001104
Application 15/522,894
Technology Center 3700

Before BIBHU R. MOHANTY, BRUCE T. WIEDER, and
AMEE A. SHAH, *Administrative Patent Judges*.

SHAH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), the Appellant¹ appeals from the Examiner's final decision to reject claims 1 and 2, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. The Appellant identifies the real party in interest as "DAIKIN INDUSTRIES, LTD." Appeal Br. 1.

CLAIMED SUBJECT MATTER

The Appellant’s “invention relates to an air conditioner using flammable refrigerant.” Spec. ¶ 1. Particularly, the invention relates to “[a]n air conditioner using flammable refrigerant, to which a refrigerant gas sensor is attached.” *Id.* ¶ 2.

Claim 1 is the only independent claim, is representative of the subject matter on appeal, and is reproduced below:

1. An air conditioner which includes an outdoor unit including a compressor and an indoor unit connected with the outdoor unit and uses flammable refrigerant, the air conditioner comprising:

a refrigerant gas sensor;

a first controller connected to the compressor and the refrigerant gas sensor; and

a second controller connected to the first controller and configured to perform an operation regarding driving of the air conditioner, wherein

the first controller is configured to:

stop the compressor when the refrigerant gas sensor detects refrigerant gas while the compressor is being driven; and

after the compressor is stopped when the refrigerant gas sensor detects the refrigerant gas, not start driving of the compressor until an abnormality cancellation operation is performed by the second controller indicating that the refrigerant gas sensor has been replaced.

Appeal Br. Claims App. 1.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Hessey	US 4,787,212	Nov. 29, 1988
Tachigori et al. ("Tachigori")	US 6,073,455	June 13, 2000
Barito	US 6,085,530	July 11, 2000

REJECTIONS

Claims 1 and 2 stand rejected under 35 U.S.C. § 112(a) as failing to comply with the written description requirement.

Claims 1 and 2 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tachigori, Barito, and Hessey.

OPINION

35 U.S.C. § 112(a)

The Examiner rejects claims 1 and 2 as failing to comply with the written description requirement of 35 U.S.C. § 112(a) because the Specification does not describe, in a way to reasonably convey to one of ordinary skill in the art at the time the application was filed, that the Appellant had possession of the claimed invention, i.e., that the Specification as filed had written description support for first and second controllers. Final Act. 3. The Examiner finds that even if the Specification discusses two controllers, it does not describe that the second controller performs the abnormality cancellation operation as claimed, but is merely used to perform the operation. *See id.*; Ans. 8. The Examiner further rejects claim 2 because "it does not appear that Applicant's originally filed disclosure provides support for the [limitation that the] first controller is

configured to control the notification unit to continue the notification until the abnormality cancellation operation is performed by the second controller.” Final Act. 4.

The Appellant contends that the Specification provides adequate description at paragraph 32 and Figure 7. *See* Appeal Br. 2–3; Reply Br. 1–2.

The Specification discusses controlling unit 51, which the Appellant equates to the first controller (Appeal Br. 2), that controls the fan, flap, and shutter, “determines whether refrigerant leakage occurs based on a result of detection of the refrigerant gas by the refrigerant gas sensor 9, stops the compressor 1 upon detection of the refrigerant leakage, and displays information indicating the occurrence of abnormality on the display 52” (Spec. ¶ 32). Paragraph 32 further discusses controller 53, which the Appellant equates to the second controller (Appeal Br. 2), and states “[b]y using the controller 53, for example, start or stop of the driving of the air conditioner and abnormality cancellation when the driving of the air conditioner is abnormally stopped due to refrigerant leakage are performed,” that “[t]he content of the operation is sent to the controlling unit 51,” and that “the abnormality cancellation by using the controller 53 is cancellation of abnormality,” that can be, for example, a special executable operation not usually performed, such as a long press of a button (*see also id.* ¶¶ 35, 36). “When the abnormality cancellation has been done by using the controller 53 (S4: YES), the information indicating that the compressor is stopped due to abnormality is no longer displayed on the display 52 (step S5).” *Id.* ¶ 36. Figure 7 depicts “a control block of the indoor unit” (*id.*

¶ 16) with a block for controller 53 connected only to a block for controlling unit 51 that is also connected to a block for display 52.

We agree with the Appellant (*see* Reply Br. 2) that the Specification sufficiently describes support for the two controllers as recited in claim 1 – controlling unit 51 and controller 53 – with controlling unit 51 configured to stop the compressor and not start driving of the compressor until controller 53 sends an indication to controlling unit upon abnormality cancellation, i.e., controller 53 indicating the sensor has been replaced. We also find that the Specification’s description of controlling unit 51 stopping the display of the notification of abnormality after receiving the indication of abnormality cancellation provides sufficient support for claim 2’s limitation of “the first controller is configured to control the notification unit to continue the notification until the abnormality cancellation operation is performed by the second controller.” Appeal Br. Claims App. 1.

Thus, based on the record before us, we do not sustain the written description rejections of claims 1 and 2.

35 U.S.C. § 103

The Appellant argues claims 1 and 2 as a group. *See* Appeal Br. 3, 5. We select claim 1 as representative of the group with claim 2 standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Appellant contends that the Examiner’s rejection of claim 1 is in error because the prior art does not teach the first controller being configured to, after stopping the compressor when the sensor detects gas, “not start driving of the compressor until an abnormality cancellation operation is performed by using the second controller indicating that the refrigerant gas sensor has been replaced.” Appeal Br. 4. Specifically, the Appellant

contends that “nowhere in Hessey is there any disclosure or suggestion of a first controller configured to not re-start driving of the compressor until an abnormality cancellation operation is performed by a second controller indicating that the refrigerant gas sensor has been replaced.” *Id.* The Appellant argues “Hessey only discloses a single controller which is reset by operation of a switch, not an operation performed by a second controller as claimed.” *Id.* The Appellant argues that Hessey’s thermostat does not correspond to the claimed first controller and that Hessey’s switch resetting the alleged second controller is not an action from the thermostat/first controller. *Id.* at 5.

The Appellant’s arguments are not persuasive of Examiner error because they are arguments against Hessey individually and do not take into account the teachings of Tachigori and Barito. The test for obviousness is not what any one reference would have suggested, but rather what the combined teachings of the references would have suggested to those of ordinary skill in the art. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981). “[O]ne cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.” *Id.*

The Examiner relies on the combination of Tachigori, Barito, and Hessey for teaching the limitation recited in claim 1 that “the first controller is configured to: . . . after the compressor is stopped when the refrigerant gas sensor detects the refrigerant gas, not start driving of the compressor until an abnormality cancellation operation is performed by the second controller indicating that the refrigerant gas sensor has been replaced.” *See* Final Act. 5–7. Specifically, the Examiner finds Tachigori teaches a first controller configured to stop the compressor when the sensor detects a leak,

and acknowledges that Tachigori does not explicitly teach the limitation of not starting the compressor until an abnormality cancellation is performed by a second controller indicating the sensor has been replaced. *Id.* at 5. The Examiner relies on Barito to teach an air conditioning unit with a sensor that stops the compressor when an indication of a gas leak is detected, and “after the compressor is stopped when the refrigerant gas sensor detects the refrigerant gas, not start driving of the compressor until an abnormality cancellation operation is performed indicating that the refrigerant gas sensor has been replaced.” *Id.* Specifically, the Examiner cites to Barito at column 2, lines 21–31 for teaching “the control will not allow the compressor to be restarted until a service call is performed, which, since the leak sensor is a fusible element, requires replacement of the sensor.” *Id.*

Acknowledging that Tachogori’s system as modified by Barito does not teach “a second controller connected to the first controller and configured to perform an operation regarding driving of the air conditioner, and regarding the abnormality cancellation operation is performed by the second controller,” the Examiner relies on Hessey to cure this deficiency. *Id.* at 6. In particular, the Examiner finds that Hessey teaches a first controller, i.e., thermostat 25, that turns the compressor on and off, that is connected to a second controller, i.e., electrical control circuit 30, and “that performs an operation regarding driving of the air conditioner.” Ans. 10 (citing Hessey, col. 2, ll. 47–58, col. 4, ll. 54–59, Fig. 1). The Examiner further finds that Hessey’s “controller #30 does not send current to thermostat #25 to allow reactivation of the compressor of the air conditioning system until the switch on controller #30 is rearmed.” *Id.* The Examiner makes clear that thermostat 25 is not relied on to teach the

Appellant's claimed first controller or to reset Hessey's control circuit 30. *Id.* "Instead, Hessey is relied upon for the teaching of not restarting a compressor until an abnormality cancellation operation is performed by (or by using) a second controller (control circuit #30)." *Id.*

Tachigori discloses that when the air conditioner is normally operating, if a sensor "detects the leakage of refrigerant from abnormal variation in component or pressure of the refrigerant (step 1), an abnormal state is indicated in step 2. Then, in step 3, the appliances are controlled. One example of the control of the appliances is to stop the compressor." Tachigori, col. 7, ll. 36–43. Barito discloses a sealed compressor used in refrigerant compressor applications comprising a sensor of a heat fuse element that melts to indicate that the refrigerant has leaked, resulting in a signal being sent to a control that "is preferably operable such that the compressor cannot be restarted until a service call is made to the compressor." Barito, col. 2, ll. 17–29. Thus, we find supported the Examiner's findings that the combination of Tachigori and Barito teaches a first controller configured to stop the compressor when a refrigerant gas leak is detected and after, not start driving the compressor until the abnormality cancellation operation indicates the sensor is replaced.

Hessey discloses an air conditioner comprising, in relevant part, thermostat 25 and an electric control circuit 30

including a normally closed or armed circuitry for maintaining flow of current to thermostat 25 for continued operation of the air conditioner; a normally open or alarm circuitry for inactivating the normally closed circuitry for automatically shutting of the air conditioner upon an undesirable presence of water other than in drain pan 15; and a bypass or override

circuitry for overriding the alarm circuitry for again effecting operation of the air conditioner in an emergency.

Hessey, col. 2, ll. 24–25, 48–58. Control circuit 30 comprises, in relevant part, an override switch 120 and excitable coil 235. *See id.* at col. 3, ll. 7–29. Hessey further discloses that to reset control circuit 30 after the alarm has gone off, the operator sets a switch to an override/reset position and back to an on position. *Id.* at col. 4, ll. 54–57. This interrupts relay coil 235 and rearms control circuit 30, thus allowing for the current flow to continue to the thermostat. *Id.* at col. 4, ll. 57–59; *see also id.* at col. 3, l. 53–col. 4, l. 6 (discussing how an armed relay coil prevents current flow to the thermostat for restarting the air conditioner). Thus, we find supported the Examiner’s findings that Hessey teaches a second controller connected to a first controller, the second controller configured to perform an operation regarding driving of the air conditioner and sending an indication to a first controller upon abnormality cancellation.

The Appellant does not contest the Examiner’s findings regarding Tachigori and Barito. Other than the arguments regarding Hessey individually, the Appellant has not provided adequate reasoning or argument why the combination of Tachigori, Barito, and Hessey does not teach the first controller being configured to, “after the compressor is stopped when the refrigerant gas sensor detects the refrigerant gas, not start driving of the compressor until an abnormality cancellation operation is performed by the second controller indicating that the refrigerant gas sensor has been replaced,” as recited in claim 1.

Thus, based on the record before us, we sustain the obviousness rejection of claim 1, and thus also of claim 2, over Tachigori, Barito, and Hessey.

CONCLUSION

The Examiner's decision to reject claims 1 and 2 is sustained.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2	112(a)	Written description		1, 2
1, 2	103	Tachigori, Barito, Hessey	1, 2	
Overall Outcome			1, 2	

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