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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RALPH W. BOY, NEAL HAROLD, and JAY B. BIEDERMAN

Appeal 2017-011627
Application 14/254,894
Technology Center 2100

Before JOHN A. JEFFERY, BRUCE R. WINSOR, and JUSTIN BUSCH, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellants[1] appeal from the Examiner's decision to reject claims 21–24 and 26–40, which constitute all the claims pending in this application. Claims 1–20 and 25 were cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] Appellants identify the real party in interest as The Boeing Company. App. Br. 2. The Boeing Company is the Applicant for the instant patent application. *See* Bib. Data Sheet.

STATEMENT OF THE CASE

Appellants' invention analyzes an airframe's electrical loading. *See generally* Abstract; Spec. ¶ 4.

Claim 21, reproduced below, is illustrative:

> 21. An aircraft electrical load life-cycle management and analysis system comprising:
>
> a database module operable to store electrical system configuration data and electrical system requirements of an electrical system of an aircraft, wherein the electrical system configuration data comprises at least two of: electrical system organization data, electrical system hierarchy data, electrical system connection data, circuit data, and electrical system structure data;
>
> an electrical system analysis module operable to determine electrical system performance characteristics of the electrical system as a function of the electrical system configuration data, wherein the electrical system performance characteristics comprise at least one of: a load distribution analysis and a flight phase load analysis; and
>
> an electrical system configuration management module operable to:
>
> compare the electrical system performance characteristics to the electrical system requirements; and
>
> manage at least one change to the electrical system configuration data based on the comparison to enable optimal performance of the electrical system of the aircraft.

THE REJECTIONS

The Examiner rejected claims 21–24, 26–30, and 32–40 under 35 U.S.C. § 102(e) as being anticipated by Weale (US 2010/0231042 A1, published Sept. 16, 2010). Final Act. 4–16.[2,3]

The Examiner rejected claim 31 under 35 U.S.C. § 103(a) as being unpatentable over Weale and Brady, Jr. (US 2006/0174285 A1, published Aug. 3, 2006). Final Act. 16–17.

THE ANTICIPATION REJECTION

The Examiner finds that Weale discloses every recited element of independent claim 21 including, among other things, (1) determining electrical system performance characteristics that comprise at least one of a load distribution analysis and a flight phase load analysis, and (2) managing a change to electrical system configuration data based on a comparison between electrical system requirements and the electrical system performance characteristics to enable optimal performance of an aircraft's electrical system. Final Act. 6–7.

Appellants argue, among other things, that Weale does not compare electrical system performance characteristics to electrical system requirements, as claimed. App. Br. 7–8; Reply Br. 3–4. According to

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[2] Throughout this opinion, we refer to (1) the Final Rejection mailed Oct. 27, 2016 ("Final Act."); (2) the Appeal Brief filed Mar. 24, 2017 ("App. Br."); (3) the Examiner's Answer mailed July 27, 2017 ("Ans."); and (4) the Reply Brief filed Sept. 21, 2017 ("Reply Br.").

[3] In the header for this rejection, the Examiner refers to the rejection of claims "21–24, 26–30, 32–10" (Final Act. 4), but claims 21–24, 26–30, and 32–40 appear in the body of the rejection (*id.* at 4–16). We treat the Examiner's error as typographical or ministerial in nature.

Appellants, Weale does not mention a load distribution analysis or a flight phase load analysis. Reply Br. 3. Appellants add that Weale does not manage a change to electrical system configuration data based on the comparison to enable optimal performance of an aircraft's electrical system. App. Br. 8–9. According to Appellants, Weale's check logic only allows an instruction to be carried out if the instruction is valid and electrically safe. App. Br. 9; Reply Br. 5.

ISSUE

Under § 102, has the Examiner erred in rejecting claim 21 by finding that Weale (1) determines electrical system performance characteristics comprising at least one of a load distribution analysis and a flight phase load analysis, (2) compares the electrical system performance characteristics to electrical system requirements, and (3) manages at least one change to electrical system configuration data based on the comparison to enable optimal performance of an aircraft's electrical system?

ANALYSIS

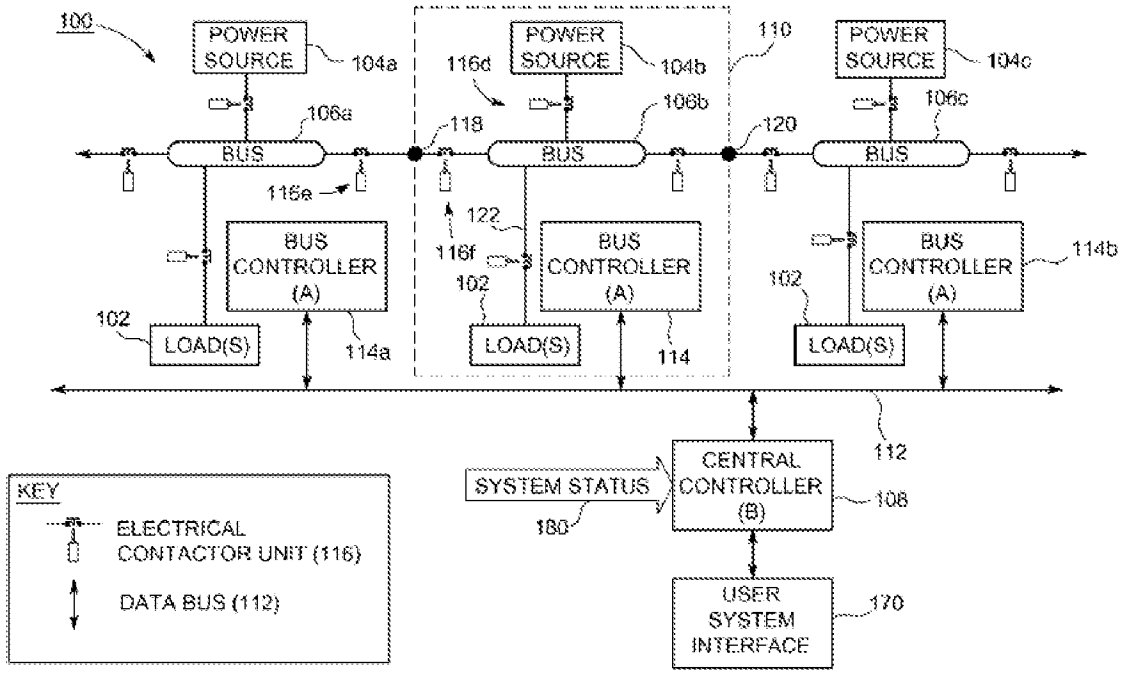
We begin by construing recited terms of the disputed limitation of claim 21 which include "electrical performance characteristics," "load distribution analysis," "flight phase load analysis," "electrical system requirements," and "electrical system configuration data." The Specification does not define these recited terms, unlike other terms whose concrete

definitions leave no doubt as to their meaning. *See, e.g.,* Spec. ¶ 123 (defining, among other terms, "connected" and "coupled").

The Specification does disclose the term "electrical system configuration data *may* comprise, *for example but without limitation*, part location data, electrical system organization data, electrical system hierarchy data, ..." *Id.* ¶ 61 (emphasis added). The term "electrical system requirements *may* comprise authoritative requirements, such as but without limitation, minimum rated electrical capacities, maximum load levels, *and the like*." *Id.* ¶ 67 (emphasis added). The term "electrical system performance characteristic *may* comprise, *for example but without limitation*, electrical system management data that *may* comprise, among other types of management information, a load on an AC bus, a load distribution analysis, ..." *Id.* ¶ 70 (emphasis added). Our emphases underscore that the descriptions of the recited terms are replete with exemplary and non-limiting language. *See, e.g., id.* ¶¶ 45, 47–53, 57, 61–72, 74–97. Nevertheless, the Specification informs our understanding of the recited terms.

Given these exemplary and non-limiting descriptions, we see no error in the Examiner's reliance on Weale's instructions from a central controller on what configuration a bus controller should adopt for disclosing the recited terms "load distribution analysis" and "flight phase load analysis." Final Act. 6–7 (citing Weale ¶¶ 32–33); Ans. 3–4 (additionally citing Weale ¶ 34).[4] Weale's Figure 1 is illustrative and reproduced below:

[4] Although the Examiner's Answer (consisting of six pages) is not paginated (unlike the Final Action), we nonetheless cite specific pages of the Answer in the order that they appear in the record.



Weale's Figure 1 shows a power supply system 100.

Weale's power supply system 100 distributes power to one or more loads 102 in an aircraft. Weale, Abstract; ¶ 21. According to Weale, the continuous operation of the loads 102 may be critical to the aircraft's safety. *Id.* ¶ 6. As illustrated in Weale's Figure 1, Weale's central controller 108 is coupled to a bus module 110 comprising a power source 104, a bus controller 114, a load 102, and contactor units 116. *Id.* ¶ 22. Weale's central controller 108 provides the bus module 110's bus controller 114 the desired normal and fault condition configurations. *Id.* ¶ 32. An example of the central controller 108's provided configurations instructs the bus controller 114 to re-power a bus section 106b by opening a contactor 116d and closing contactors 116e, 116f if a power source 104b fails. *Id.* ¶ 33. Re-powering the bus section 106b ensures the bus module 110's load 102 is continuously operating. Thus, by ensuring the continuous operation of the

bus module 110's load 102 that is based on analyzing the power supply system 100's components, the central controller 108's provided configuration is a "load distribution analysis." The central controller 108's provided configurations also instruct the bus controller 114 to connect to the bus section 106b when the aircraft is in the air, and otherwise wait when the aircraft is on the ground. *Id.* ¶ 43. Thus, by ensuring the continuous operation of the bus module 110's load 102 based on analyzing the aircraft's flight phase, the central controller 108's provided configuration is a "flight phase load analysis."

Appellants' contention that, because Weale does not mention electrical system performance characteristics, "load analysis," load distribution analysis, and flight phase load analysis, Weale does not disclose the disputed limitation is unavailing. App. Br. 8; Reply Br. 3. It is well settled that to anticipate, "the reference need not satisfy an *ipsissimis verbis* test." *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)). Therefore, the Examiner's findings in this regard have a rational basis that have not been persuasively rebutted.

Nor do see error in the Examiner's finding that the central controller 108's provided configurations of Weale are compared to "electrical system requirements," as recited in claim 21. Final Act. 7 (citing Weale ¶ 34); Ans. 3–4. Weale's bus controller 114 includes check logic to confirm whether the central controller 108's provided configurations are valid and electrically safe for execution. Weale ¶ 34. Thus, the Examiner's finding that the central controller 108's provided configurations are compared to a bus controller 114's check logic is reasonable, and Appellants' arguments to the contrary (App. Br. 7–8; Reply Br. 3–4) are unpersuasive.

Nor do we see error in the Examiner's finding that Weale discloses managing a change to electrical system configuration data based on the comparison "*to* enable optimal performance of the electrical system of the aircraft," as recited in claim 21. Final Act. 7 (citing Weale ¶ 34); Ans. 4–5 (additionally citing Weale ¶¶ 3, 33). We emphasize "to" here, for this term merely indicates an intended use of the change to electrical system configuration data. As such, the recited intended use limits the electrical system configuration data's changes to those that are *capable* of enabling optimal performance of an aircraft's electrical system. Thus, so long as Weale's power supply system 100 is capable of performing this intended function, namely enabling optimal performance of an aircraft's electrical system, Weale's power supply system 100 fully meets this limitation.

Weale's bus controller 114 adopts and executes the central controller 108's provided configurations if the check logic confirms the instructions are valid and electrically safe. Weale ¶ 34. Otherwise, Weale's bus controller 114 initiates fallback configurations using an original unmodified configuration. *Id.* For example, Weale's check logic may identify that the central controller 108's provided configurations result in a bus failure. *Id.* Under this scenario, Weale's check logic allows the power supply system 100's loads to remain powered in the aircraft's electrical system. This functionality, then, enables optimal performance of the aircraft's electrical system at least with respect to powering loads under fault conditions.

In addition, Weale's loads include "utility/essential loads (e.g., . . . full function flight management . . .), and emergency/critical loads (e.g., . . . loads needed to fly to a nearest airport and land." *Id.* ¶ 25. Thus, at least under this scenario, Weale's power supply system 100 is capable of

preventing a bus failure that would result in a load that is needed to fly to an airport and land to continue to remain powered. Because Appellants have not shown that Weale's power supply system 100 is *not capable* of enabling optimal performance of an aircraft's electrical system under this example scenario disclosed by Weale, we see no error in the Examiner's reliance on Weale to disclose this limitation.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 21, and claims 22–24, 26–30, and 32–40 not argued separately with particularity.

THE OBVIOUSNESS REJECTION

We also sustain the Examiner's obviousness rejection of claim 31 under 35 U.S.C. § 103(a). Final Act. 16–17. Because this rejection is not argued separately with particularity, we are not persuaded of error in this rejection for the reasons previously discussed.

CONCLUSION

The Examiner did not err in rejecting claims 21–24, 26–30, and 32–40 under § 102(e); and claim 31 under § 103(a).

DECISION[5]

The Examiner's decision in rejecting claims 21–24 and 26–40 is affirmed.

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. § 41.50(f).

AFFIRMED

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[5] In the event of further prosecution, the Examiner may wish to consider whether claims 21–24 and 26–40 are directed to ineligible subject matter under 35 U.S.C. § 101. In particular, the Examiner may wish to consider whether the claims meet the Supreme Court's two-step test as articulated in *Alice Corp. Pty. Ltd. v. CLS Bank International*, 134 S. Ct. 2347 (2014). Subsequently, the Federal Circuit in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016) held that merely collecting and analyzing information is within the realm of abstract ideas. *See id.* at 1353–54. We note that, e.g., independent claim 21 similarly recites collecting and analyzing information.

Although the Board is authorized to reject claims under 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See* MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 1213.02 (9th ed. Rev. 08.2017, Jan. 2018).