

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENNOX INDUSTRIES INC.,
Petitioner,

v.

ROSEN TECHNOLOGIES LLC,
Patent Owner.

IPR2023-00717
Patent 7,156,318 B1

Before JAMES P. CALVE, JEREMY M. PLENZLER, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Lennox Industries Inc. (“Lennox” or “Petitioner”) filed a petition (Paper 2, “Pet.”) to institute an *inter partes* review of claims, 1, 3–5, 7, 9, 11, and 14 (the “challenged claims”) of U.S. Patent 7,156,318 B1 (Ex. 1001, “the ’318 patent”). Rosen Technologies LLC (“Rosen” or “Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”). As authorized, Petitioner filed a Preliminary Reply (Paper 7, “Pet. Reply”). Pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review.

An *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we conclude that Petitioner has shown a reasonable likelihood it will prevail in establishing the unpatentability of at least one challenged claim, and we institute *inter partes* review.

A. REAL PARTIES IN INTEREST

Petitioner identifies itself, Lennox International Inc., Heatcraft Inc., Heatcraft Technologies Inc., and Lennox Procurement Company Inc. as the real parties in interest. Pet. 1. Patent Owner identifies itself as the real party in interest. Paper 3, 2.

B. RELATED MATTERS

The parties identify the following as related litigation: *Rosen Technologies LLC v. Lennox Industries Inc.*, Case No. 3:22-cv-00732 (N.D. Tex.) (“NDTX Litigation”); *Rosen Technologies LLC v. Resideo*

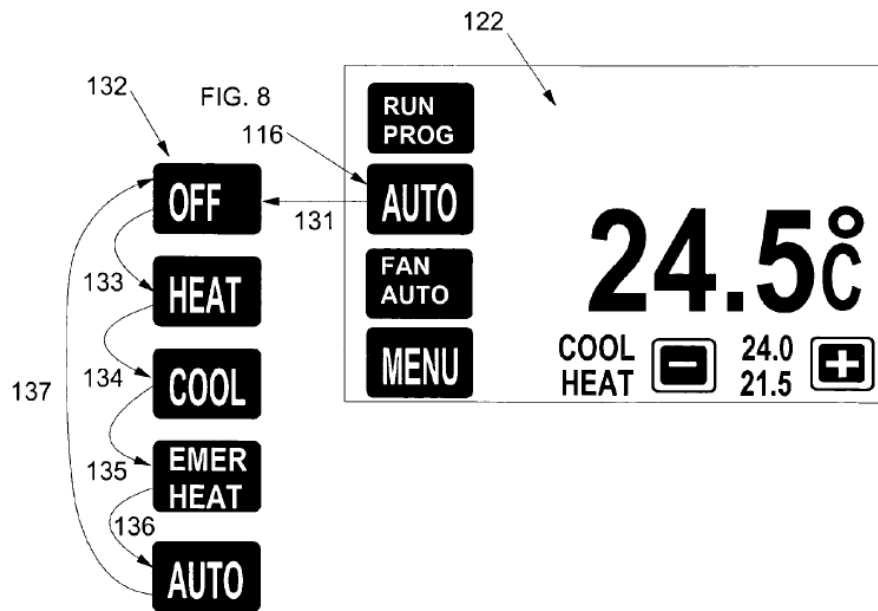
Technologies, Inc., Case No. 6:22-cv-00131 (W.D. Tex.); *Unified Patents, LLC v. Rosen Technologies LLC*, IPR2022-01402.¹ Pet. 1–2; Paper 3, 2.

C. THE '318 PATENT

The '318 patent is titled “Programmable Thermostat Incorporating a Liquid Crystal Display Selectively Presenting Adaptable System Menus Including Changeable Interactive Virtual Buttons.” Ex. 1001, code (54). It issued from an application filed Sept. 3, 2003. *Id.*, code (22).

The '318 patent relates to programmable thermostats using an interactive liquid crystal display (LCD) that selectively presents adaptable menus, including variable representations of virtual buttons. *Id.* at 1:25–31. According to the Specification, “an image representative of a first virtual button may be shown on the touch screen display with graphics (alphanumeric characters and/or icons) on or closely associated with the first virtual button.” *Id.* at 3:53–56. Figure 8 is reproduced below:

¹ Petitioner indicates it was not a party to either Case No. 6:22-cv-00131 or IPR2022-01402. Pet. 2.



Id., Fig. 8. Figure 8 depicts an exemplary interactive interface in which step 131 reflects a change to virtual button 116 in response to a user touch, such that the legend associated with virtual button 116 changes to produce one of the virtual buttons in column 132. *Id.* at 4:53–56, 8:21–50.

D. CHALLENGED CLAIMS

Challenged claim 1 is independent and is reproduced below:

1. A programmable thermostat system for controlling space conditioning equipment comprising:
 - A) at least one environmental condition sensor providing an electrical signal indicative of the ambient temperature of a conditioned space in which said environmental condition sensor is situated;
 - B) a transparent touch pad juxtaposed with a liquid crystal display to constitute a touch screen for interactive interface with a user;
 - C) a processor, said processor including:
 - 1) a central processing unit;
 - 2) a real time clock;

- 3) a memory coupled to said central processing unit for storing program and data information; and
- 4) an input/output unit coupled between said processor and said touch screen for carrying out information transfer therebetween, said input/output unit further including:
 - a) a sensor input coupled to each said environmental condition sensors for receiving said electrical signal therefrom; and
 - b) a control output coupled to the space conditioning equipment for issuing control signals thereto; and
- D) a control program stored in said memory for causing said central processing unit to communicate through said input/output unit to selectively:
 - 1) establish on said liquid crystal display:
 - a) a representation of a first virtual button at a first predetermined position on the liquid crystal display; and
 - b) a first legend indicative of a first control function of said thermostat, which first control function is for controlling a first space conditioning equipment component, which first control function is active when the first legend is viewable;
 - 2) read the position on the touch pad juxtaposed with said first predetermined position on said liquid crystal display to determine if the representation of said first virtual button has been touched;
 - 3) if the first virtual button has been touched:
 - a) determining that the thermostat has been directed to control a second space conditioning equipment component;
 - b) activating a second control function for controlling the second space conditioning equipment component; and

- c) displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second control function is for controlling the second space conditioning equipment component, which second control function is active when the second legend is viewable.

Id. at 13:5–58. Claims 3–5, 7, 9, 11, and 14 depend, directly or indirectly, from claim 1. *Id.* at 13:64–14:12, 14:15–18, 14:22–26, 14:29–33, 14:38–39.

E. PRIOR ART AND ASSERTED GROUNDS

Petitioner asserts the following grounds of unpatentability:

Challenged Claims	35 U.S.C. §	References/Basis
1, 3–5, 7, 9, 11, 14	103	Geiwitz, ² Rosen, ³ Bier ⁴
1, 3–5, 7, 9, 11, 14	103	Dushane, ⁵ Cardio Manual, ⁶ Bier

Pet. 6. Petitioner also relies on the Declaration of Dr. R. Jacob Baker.
Ex. 1002.

II. ANALYSIS

A. LEVEL OF SKILL IN THE ART

Petitioner argues that a person of ordinary skill in the art would have had a bachelor's degree in electrical engineering or 1–2 years of experience working with or designing processor-based systems with network

² WO 2003/040839 A1 (Ex. 1005).

³ US Pub. 2003/0142121 A1 (Ex. 1009).

⁴ Eric A. Bier, *EmbeddedButtons: Supporting Buttons in Documents*, 10 ACM TRANSACTIONS ON INFO. SYS. 381-407 (Oct. 1992) (Ex. 1010).

⁵ US 6,032,867 (Ex. 1004).

⁶ Cardio Manual, Domotique Secant Inc., 1995 (Ex. 1012).

connectivity, with relevant experience substituting for education and vice versa. Pet. 9. Patent Owner does not expressly dispute this definition, but offers that an ordinarily skilled artisan would have had a bachelor's degree in engineering, computer science, or comparable field, with at least 2 years experience in temperature controls, embedded control systems, electronic thermostats, or HVAC controls, or similarly relevant industry experience, with relevant experience substituting for education and vice versa. Prelim. Resp. 8. We perceive no significance to how any difference between the two definitions might affect our analysis. To the extent either party believes its proposed level of skill affects part of the unpatentability analysis, it should explain how during the instituted trial.

B. CLAIM CONSTRUCTION

Patent Owner contends that the claims are not invalid for indefiniteness and are not means-plus-function claims. Prelim. Resp. 8. The Petition applies Patent Owner's constructions offered in the district-court litigation. Pet. 10. Accordingly, we adopt Patent Owner's constructions for this decision. To the extent a party's implicit construction affects our analysis at this stage, we discuss such arguments in context below. To the extent either party believes a particular claim term's scope affects our unpatentability determination, during the trial, it should explain the correct construction and how that construction affects the analysis.

C. OBVIOUSNESS OVER GEIWITZ, ROSEN, AND BIER

Geiwitz discloses a "programmable and expandable building automation and control system" including a "touchscreen user interface." Ex. 1005, code (57). Geiwitz claims the benefit of and incorporates by

reference a provisional application, which discloses additional details of the system. *Id.* at 1:8–10; Ex. 1007.

Rosen discloses a “programmable thermostat system employing a touch screen unit for intuitive interactive interface with a user.” Ex. 1009, code (54). The touch screen is composed of “a transparent touch pad juxtaposed over a liquid crystal display.” *Id.* ¶ 7.

Bier discloses software routines for “integration of buttons into document media, including text and graphics.” Ex. 1010, 3. Bier discloses “multistate buttons” that change state and update appearance to display the new state. *Id.* at 8.

Petitioner relies on Geiwitz for all limitations, additionally offering alternative contentions that rely further on Rosen or Bier. Pet. 23–49. Regarding Rosen, Petitioner submits that it discloses the claimed touch pad, other hardware components, and user interface.⁷ *Id.* at 19–20, 27, 29, 30, 32, 35–36, 39–40, 47. Petitioner asserts that using Rosen’s touch pad and other hardware components would have been a simple substitution of known elements to achieve predictable results. *Id.* at 19. Petitioner asserts also that using Rosen’s touch-pad interface would have simplified “the user programming experience” as disclosed by Rosen. *Id.* at 19–20 (citing Ex. 1009 ¶ 37).

⁷ We question whether Rosen is available prior art under pre-AIA § 102(a). *See In re Katz*, 687 F.2d 450, 454 (CCPA 1982) (“[O]ne’s own work is not prior art under § 102(a) even though it has been disclosed to the public in a manner or form which otherwise would fall under § 102(a).”). That said, because Petitioner relies on Rosen in the alternative to Geiwitz, this ground presents a challenge that does not depend on whether Rosen is available prior art.

Regarding Bier, Petitioner asserts that it discloses “having a legend directly on a virtual button” and teaches “using ‘multistate buttons,’ which include a legend that changes state when the button is pressed and causes the system to change state.” Pet. 45 (citing Ex. 1010, 3, 9; Ex. 1002 ¶ 205). In Petitioner’s view, using Bier’s legend positioning in place of Geiwitz’s legend positioning would have been a simple substitution of known elements to achieve predictable results. *Id.* at 20–21. At this stage, we do not construe the claim as requiring a legend directly on a virtual button, so we need not address Petitioner’s alternative contention based on Bier.

1. *Applicable Priority Dates*

Petitioner asserts Geiwitz is entitled to the benefit of the October 22, 2001, filing date of its provisional application, US 60/339,511 (Ex. 1007).⁸ Pet. 15. To rely on Geiwitz’s provisional-application date, Petitioner must show that the provisional supports at least one of Geiwitz’s claims. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379–81 (Fed. Cir. 2015). Petitioner provides a chart indicating where Geiwitz’s provisional application supports Geiwitz’s claim 1. Pet. 16. Patent Owner does not contest whether the ’511 application supports at least one of Geiwitz’s claims in its Preliminary Response. At this stage of the proceeding, we conclude that Petitioner has adequately shown that Geiwitz is entitled to an effective date as of its provisional application.

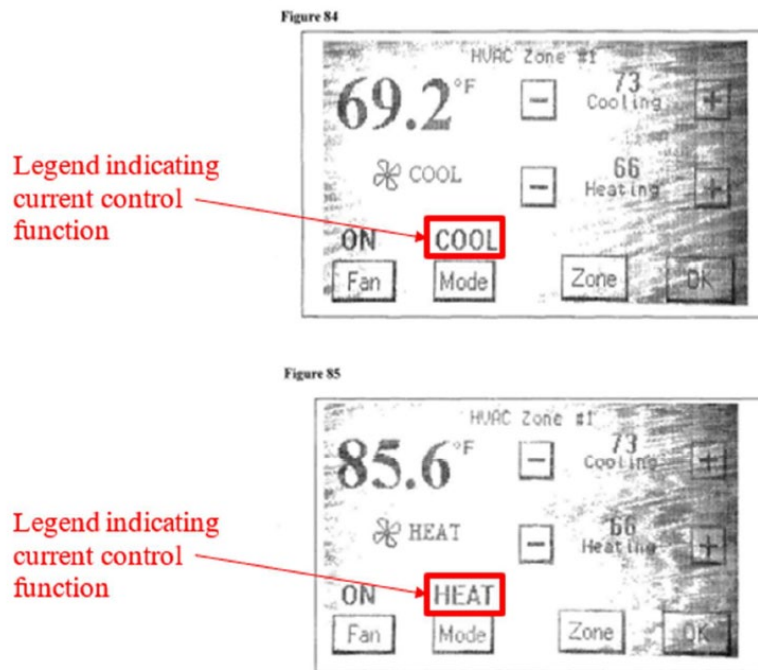
⁸ Patent Owner refers to Geiwitz’s provisional application as the ’511 application. Prelim. Resp. 17.

2. *Geiwitz's Disclosures*

Petitioner provides contentions asserting how Geiwitz and its provisional application disclose the elements of claims 1, 3–5, 7, 9, 11, and 14. Pet. 23–57. At this stage, Patent Owner disputes only certain aspects of those contentions.

Patent Owner contends that the Geiwitz provisional application “does not disclose a non-static virtual button . . . changed by touch and in consequence second control function is active when the second legend is viewable,” as claimed in 1(D)(3). Prelim. Resp. 17. Although the claim language does not recite a “non-static” button, Patent Owner appears to focus on the claimed “legend.”

Petitioner asserts that Geiwitz teaches a “Mode” icon on its touchscreen, with a legend such as “COOL” (indicating a cooling mode of operation) that changes when the Mode icon is pressed to cycle through operational modes (cool, heat, and auto). Pet. 41–44. Petitioner provides an annotated version of the ’511 application’s Figures 84 and 85, reproduced below:



Pet. 43 (Ex. 1007, Figs. 84–85). Figure 84 depicts Geiwitz’s primary navigation screen including a “Mode” button with the text “COOL” directly above the button. Petitioner’s annotations designate the “COOL” text as “Legend indicating current control function.” Figure 85 depicts Geiwitz’s primary navigation screen including a “Mode” button with the text “HEAT” directly above the button. Petitioner’s annotations designate the “HEAT” text as “Legend indicating current control function.” *Id.*

Patent Owner asserts that “[t]he text that changes above the static ‘Mode’ button does not disclose or render obvious the first legend indicative of a first control function” because such a legend must be the “contents of a non-static virtual button which are intuitive to a user.” Prelim. Resp. 17. We do not, however, construe “legend” to require that the legend appear on a button (i.e., the “content” of a button); instead, the claims encompass a legend that is “closely associated with” a button as described in the Specification. Ex. 1001, 3:53–56 (“[A]n image representative of a first

virtual button may be shown on the touch screen display with graphics (alphanumeric characters and/or icons) on or closely associated with the first virtual button.”). By using a disjunctive, “or,” the Specification establishes that a legend need not be located on the button to which the legend corresponds.⁹ Geiwitz’s disclosures appear to satisfy the claim language because the asserted legend is indicative of a first control function of the thermostat. Additionally, Patent Owner has not provided any evidence that the “virtual button” in claim 1 excludes any static virtual buttons.

Patent Owner argues that “what’s taught in the ’511 Application has significant disadvantages compared to the invention of the ’318 Patent, Claim 1,” as the text displayed above the button “in the ’511 Application requires additional real estate on the touchscreen display, wherein space is at a premium on the dot matrix LCD display.” Prelim. Resp. 18. However, Patent Owner has not, at this stage, established that the alleged disadvantage takes Geiwitz’s button and legend outside of the challenged claims.

3. *Motivation to Combine*

Patent Owner argues also that there is no motivation to make the proposed combinations with Rosen or Bier “because none of the references pertain[s] in any way to maximize efficiency by using non-static virtual buttons which can change legends to a second control function when touched by the user.” Prelim. Resp. 19. To the extent that argument would limit the claims to a legend placed within a virtual button, we have

⁹ Although the Specification’s quoted portion does not expressly refer to a “legend,” it clearly addresses graphics associated with a button to indicate “current operating state” and therefore describes what is claimed as a legend. Ex. 1001, 3:53–4:2.

addressed it above. Further, as noted above, Petitioner asserts that Geiwitz alone discloses all limitations of the challenged claims, and relies on Rosen and Bier only in the alternative. *See* Pet. 23–57. Thus, even accepting Patent Owner’s arguments regarding Rosen or Bier would not undermine Petitioner’s challenge.

Patent Owner continues that Bier lacks express disclosures relating to nonstatic buttons indicating control functions. *Id.* In Patent Owner’s view, that means skilled artisans would not have been motivated to use Bier’s teachings with Geiwitz or Rosen in a thermostat screen. *Id.* We determine, however, that Petitioner’s stated reason for using Bier’s legend location is persuasive at this stage.

Petitioner asserts that locating the legend according to Bier’s teachings is a simple substitution for locating the legend according to Geiwitz’s teachings. *Id.* at 20–21. Accepting Patent Owner’s assertion that Bier does not disclose thermostat buttons does not undermine Bier’s disclosure of legend location. Further, we agree with Petitioner that skilled artisans had reason to use Bier’s legend-location teaching “to conserve space on Geiwitz’s touchscreen.” Pet. 21–22 (citing Ex. 1002 ¶¶ 125–127). *See DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006) (“[A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the ‘improvement’ is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient.”). We conclude that, at this stage, Petitioner has provided adequate reasoning to combine Geiwitz with Bier.

4. *Summary*

Patent Owner does not otherwise contest Petitioner's contentions for claim 1. We have reviewed Petitioner's contentions (Pet. 19–49) and conclude they demonstrate Petitioner is reasonably likely to prevail with respect to obviousness over Geiwitz, and, in the alternative, over Geiwitz and Bier.

For the dependent claims, Patent Owner relies on its asserted deficiencies regarding Petitioner's showing discussed above. Prelim. Resp. 19. As discussed, we do not agree with those asserted deficiencies. We have reviewed Petitioner's contentions (Pet. 49–57) and determine they are sufficient for institution.

D. OBVIOUSNESS OVER DUSHANE, CARDIO MANUAL, AND BIER

Petitioner provides contentions asserting how Dushane in view of Cardio Manual and Bier disclose the elements of claims 1, 3–5, 7, 9, 11, and 14. Pet. 57–94. At this stage, Patent Owner disputes only certain aspects of those contentions.

Patent Owner argues that Dushane, Cardio Manual, and Bier do not teach element D(1) of claim 1. Prelim. Response 21. Patent Owner asserts that Dushane discloses only a physical button, and Cardio Manual does not disclose “a legend” or “content” on the button. *Id.* We note that Patent Owner states in its Preliminary Response, “while Bier does [disclose] virtual buttons that can be used with touchscreens, it does[n't] disclose the consequence or result of pressing button being that a second control function is active when the second legend is viewable.” Prelim. Resp. 21 (internal citations omitted).

Petitioner’s showing is adequate. As discussed above, nothing in the claim language requires that the “virtual buttons” be “non-static,” or that the “legend” appear on the button. *See supra* at 11 (§ II.C.2). Moreover, Petitioner does not rely on Bier as disclosing a button indicating control functions, but as disclosing a legend located on a virtual button. Pet. 81–82 (relying on Bier in the same way as for the ground based on Geiwitz, Rosen, and Bier), 87 (same).

Additionally, Patent Owner argues that there is no motivation to combine Dushane with Cardio Manual and Bier since none of the references pertain to maximizing efficiency through nonstatic virtual buttons that change legends to a second control function when touched. Prelim. Resp. 22. That argument ignores how Petitioner relies on each asserted reference. Petitioner has provided adequate reasoning for the motivation to use Cardio Manual’s elements both as simple substitutions for Dushane’s (Pet. 57) and also because doing so would improve Dushane’s user interface by conserving space and making it more user friendly (*id.* at 57–61).

Patent Owner does not otherwise contest Petitioner’s contentions for obviousness of claim 1 over Dushane, Cardio Manual, and Bier. We have reviewed the contentions (Pet. 57–87) and conclude they demonstrate Petitioner is reasonably likely to prevail with respect to obviousness of claim 1 over Dushane, Cardio Manual, and Bier.

For the dependent claims, Patent Owner relies on its asserted deficiencies regarding Petitioner’s showing discussed above. Prelim. Resp. 22. As discussed, we do not agree with those asserted deficiencies. We have reviewed Petitioner’s contentions (Pet. 87–94) and determine they are sufficient for institution.

III. CONCLUSION

For the reasons discussed above, we conclude Petitioner has shown a reasonable likelihood of prevailing with respect to at least one claim. We have evaluated all of the parties' submissions and determine that the record supports institution.¹⁰

Our determination at this stage of the proceeding is based on the evidentiary record currently before us. This decision to institute trial is not a final decision as to patentability of any claim for which *inter partes* review has been instituted. Our final decision will be based on the full record developed during trial.

¹⁰ Because Patent Owner has withdrawn its arguments concerning discretionary denial under 35 U.S.C. § 314(a) (*see* Ex. 3001), the issue is moot and we need not address it.

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of claims 1, 3–5, 7, 9, 11, and 14 of the '318 Patent is instituted on the grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this decision.

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