

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC,
Petitioner,

v.

ROSEN TECHNOLOGIES LLC,
Patent Owner.

IPR2022-01402
Patent 7,156,318 B1

Before JEREMY M. PLENZLER, ERIC C. JESCHKE, and
JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Unified Patents LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 3, 4, 14, and 16–20 (“the challenged claims”) of U.S. Patent No. 7,156,318 B1 (Ex. 1001, “the ’318 patent”). Rosen Technologies LLC (“Patent Owner”) filed a Preliminary Response. Paper 6. As authorized, Petitioner filed a Preliminary Reply (Paper 7 (confidential); Paper 8 (redacted)). We instituted review. Paper 10 (“Institution Decision”). Patent Owner filed a Response (Paper 12, “PO Resp.”) and Petitioner filed a Reply (Paper 15, “Pet. Reply”). Patent Owner did not file a Sur-Reply. We held an oral hearing on January 18, 2024, in which only Petitioner participated. Paper 20.

For the reasons set forth below, we conclude that Petitioner has proven that the challenged claims are unpatentable.

A. REAL PARTIES IN INTEREST

Petitioner identifies itself as the real party in interest. Pet. 83–84. Patent Owner also identifies itself as the real party in interest. Paper 4, 1 (Patent Owner’s Mandatory Notices).

B. RELATED MATTERS

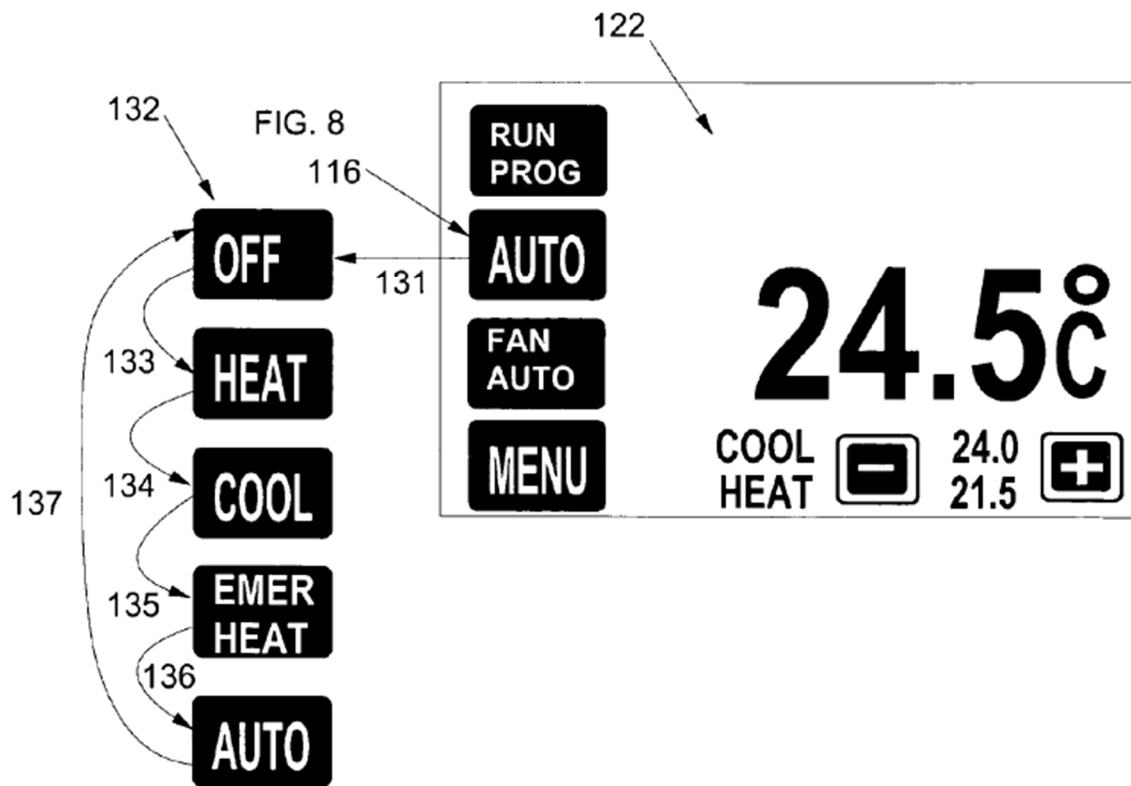
The parties identify the following related litigation: *Rosen Technologies LLC v. Ademco, Inc.*, Case No. 6:22-cv-00131 (W.D. Tex.)¹; *Rosen Technologies LLC v. Lennox International Inc.*, Case No. 3:22-cv-00732 (N.D. Tex.). Paper 4, 1; *see* Pet. 84.

¹ Petitioner identifies the defendant in this litigation as Resideo Technologies, Inc. Pet. 84.

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:



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, 4, and 14 depend, directly or indirectly, from claim 1. *Id.* at 13:64–14:8, 14:38–39. Claim 16 is independent and recites limitations similar to claim 1’s. *Id.* at 14:42–15:30. Claims 17 and 18 depend from claim 16. *Id.* at 15:31–36. Claim 19 is independent and recites limitations similar to claim 16’s. *Id.* at 15:37–16:42. Claim 20 depends from claim 19. *Id.* at 16:43–44.

E. PRIOR ART AND ASSERTED GROUNDS

Petitioner asserts the following grounds of unpatentability:

Claims Challenged	35 U.S.C. § ²	References/Basis
1, 3, 4, 14, 16–20	103	Geiwitz ³

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the ’318 patent issued was filed before this date, the pre-AIA version of § 103 applies.

³ WO 2003/040839 A1 (Ex. 1004).

Claims Challenged	35 U.S.C. § ²	References/Basis
19, 20	103	Geiwitz, Cardio Manual ⁴

Pet. 1. Petitioner also relies on the Declaration of Mr. Rafael Betancourt. Ex. 1003.

II. ANALYSIS

A. LEVEL OF SKILL IN THE ART

Petitioner asserts skilled artisans “would have had at least a Bachelor’s degree in Electrical Engineering or a similar degree and at least two years of professional experience,” and would have been “familiar with the circuitry and operation of programmable, touchscreen thermostats having liquid crystal displays.” Pet. 7 (citing Ex. 1003 ¶ 48). Patent Owner does not dispute that definition, and offers that skilled artisans “would have had a bachelor’s degree in electrical engineering or a related field, and at least two years of experience in working with HVAC systems or thermostat systems.” PO Resp. 13–14. We perceive no distinction between how the two definitions might affect our analysis and the parties do not identify any. We adopt Petitioner’s definition, as it is supported by expert testimony.

B. CLAIM CONSTRUCTION

The Petition asserts no claim terms require express construction. Pet. 6. Patent Owner asserts that a “legend” means “content displayed on a

⁴ Cardio Manual, Domotique Secant Inc., 1995 (Ex. 1007, 12–66) (Cardio Manual appears as part of a statutory disclaimer for U.S. Patent No. 6,824,069, identified to the Office during prosecution of the ’318 patent).

virtual button.” PO Resp. 9.⁵ Petitioner responds that a legend need not be “on” a virtual button and instead may be either “on or closely associated” with a virtual button. Pet. Reply 2–9. We agree with Petitioner.

First, the claim language requires that the control program establish on the liquid crystal display both “a representation of a first virtual button” and “a first legend indicative of a first control function of said thermostat.” Ex. 1001, 13:28–39 (claim 1), 15:1–9 (claim 16), 16:18–26 (claim 19). The claims do not require that the legend is located on the button. Nor do they impose any other specific relationship between the legend and button. Thus, the claim language does not support the construction Patent Owner seeks.

According to Patent Owner, the Specification demonstrates that a legend must appear on the button itself. PO Resp. 9–13. In particular, Figures 8, 12, and 13 all show virtual buttons with legends that appear on an associated button graphic. Ex. 1001, Figs. 8, 12, 13; *accord id.* at 7:50–54 (“Pictorial 113 displays the word “AUTO” on virtual button 116 . . .”). But those examples are an insufficient basis on which to limit the nonrestrictive claim language. *See Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1306–07 (Fed. Cir. 2003) (stating that “the mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration”).

As noted in the Institution Decision, the Summary of the Invention states that “an image representative of a first virtual button may be shown on

⁵ Although Patent Owner seeks construction of “a first legend indicative of a first control function,” its proposed construction only addresses “legend,” while maintaining the other claim language. PO Resp. 8–13. We address “legend” in the context of the other claim language and therefore need not address the full phrase.

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. By using a disjunctive, “or,” the Specification establishes that the legend (e.g., alphanumeric characters) need not be located *on* the button to which it corresponds. The summary expressly describes that a legend may instead be “closely associated with” the button to which it corresponds.

Patent Owner contends that the passage addresses only an “image,” not a “legend.” PO Resp. 8–9. We agree with Petitioner, however, that the “image” in the summary’s passage refers to an image representative of the button, which is separate from “graphics (alphanumeric characters and/or icons)” that are displayed “with” the image. *See* Pet. Reply 8–9. Thus, the relevant question about the summary’s passage is whether “graphics” corresponds to the claimed “legend.” The specification as a whole shows that a legend refers to graphics (characters or icons) displayed with a virtual button. *E.g.*, Ex. 1001, 8:22–26 (indicating that Figure 8 illustrates “a change of the legend associated with virtual button 116”), 9:29–30 (referring to “legends which may appear with virtual button 116”), 10:37–42 (indicating that Figure 12 illustrates a change in the “legend appearing at button 154”), 10:48–58 (same, as to button 158), 11:8–11 (indicating Figure 13 illustrates changes to button 172’s “numerical legend”). Each time the specification refers to a legend, it does so in connection with alphanumeric characters displayed with the button. Thus, we read the summary’s description of “graphics” as referring to a legend, notwithstanding that it does not expressly do so.

With that understanding, the specification directly contradicts Patent Owner’s proposed construction, by disclosing that a legend displayed with a

button's image may be either on or closely associated with the button. Accordingly, we decline to adopt Patent Owner's asserted construction. The specification's description somewhat narrows the claim language, discussed above, which does not restrict the legend's position. Thus, we construe a "legend" as content displayed on or closely associated with a virtual button.

No other aspect of the challenged claims requires construction. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms that . . . are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

C. OBVIOUSNESS OVER GEIWITZ

Geiwitz discloses a "programmable and expandable building automation and control system" including a "touchscreen user interface." Ex. 1004, 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. 1005.

1. Applicable priority date

Petitioner asserts Geiwitz is entitled to the benefit of the October 22, 2001, filing date of its provision application (US 60/339,511 (Ex. 1005)). Pet. 14. 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. 14–15.

Patent Owner does not contest Petitioner’s showing, and has therefore forfeited that argument. *See In re NuVasive, Inc.*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016). We determine that Petitioner has made an adequate showing. Geiwitz’s Provisional describes its system components, including a “System Back Plane” including a “Platform,” which is depicted in Figure 383. Ex. 1005, 7 (“**Platform** (figure 383)”), 945 (Fig. 383). The Platform includes “Processor module header ports,” which are depicted in Figures 426–431. *Id.* at 7 (“Processor module header ports (figure 426 – 431)”). The system components further include “System Expansion Modules,” which include a “Processor Module,” depicted in Figures 450–455. *Id.* at 9 (“Processor Module (figure 450 – 455)”). The Provisional describes that the Processor Module plugs into the platform and provides “processing power.” *Id.* at 170. The Provisional’s Figure 383, depicting the “Platform,” indicates a section labeled “SMART CARD.” *Id.* at 945 (Fig. 383). Figure 428, depicting part of the Processor module header ports, is labeled “Smart Card Connector.” *Id.* at 1001 (Fig. 428). And Figure 450, depicting the “Processor Module,” shows a circuit board labeled “Smart Systems Technologies.” *Id.* at 1031 (Fig. 450). In sum, those disclosures in Geiwitz’s Provisional support a claim to a smart card comprising a programmable microprocessor.

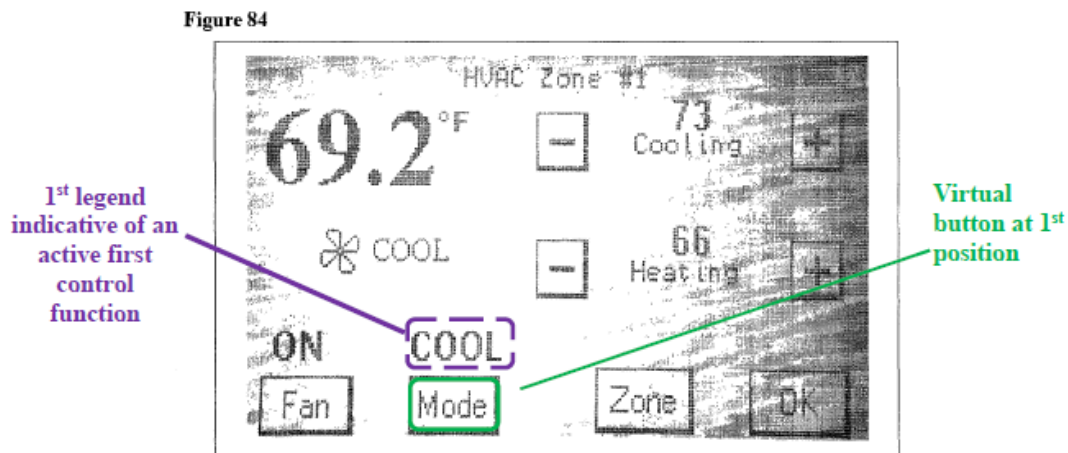
Thus, Geiwitz is entitled to an effective date as of its Provisional application.

2. Geiwitz's disclosures

Petitioner provides contentions asserting how Geiwitz and its Provisional application disclose the elements of claims 1, 3, 4, 14, and 16–20.⁶ Pet. 17–76. Patent Owner disputes only one aspect of those contentions.

Patent Owner contends that Geiwitz does not disclose the claimed “legend” under Patent Owner’s proposed construction for that term. PO Resp. 17. Patent Owner presents no argument against Geiwitz’s disclosures under Petitioner’s construction for “legend.” *See id.* at 16–21.

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. 51–55. Petitioner provides an annotated version of Geiwitz Provisional’s Figure 84, reproduced below:



Pet. 54 (quoting Ex. 1005, Fig. 84). Figure 84 depicts Geiwitz’s primary navigation screen including a “Mode” button with the text “COOL” directly

⁶ Because Geiwitz expressly incorporated by reference its entire provisional application (Ex. 1004, 1:8–10), the provisional’s disclosures are part of “Geiwitz” as asserted by Petitioner.

above the button. Petitioner’s annotations designate the “Mode” button as a “Virtual button at 1st position” and the “COOL” text as the “1st legend indicative of an active first control function.” *Id.*

As discussed above, we do not construe “legend” to require the legend appear on a button; instead, the claims encompass a legend that is “closely associated with” a button, as described in the specification. *See supra* at 7–10, § II.B. Geiwitz’s disclosures satisfy the claim language as construed, because the asserted legend is indicative of a first control function of the thermostat and appears closely associated with the Mode button.

Patent Owner does not otherwise contest Petitioner’s contentions for claim 1. We have reviewed Petitioner’s contentions and conclude they demonstrate the subject matter of claim 1 is obvious over Geiwitz. In that conclusion, we adopt Petitioner’s reasoning as our own. Pet. 13–60. Patent Owner raises the same argument for claims 3, 16, and 19 (PO Resp. 19–21), and we reach the same conclusion as to those claims for the same reasons discussed for claim 1. *See* Pet. 61–62, 66–76.

For the dependent claims, Patent Owner relies on its asserted deficiencies regarding Petitioner’s showing discussed above. PO Resp. 21. As discussed, we do not agree with those asserted deficiencies. We have reviewed Petitioner’s contentions and conclude they demonstrate the subject matter of claims 3, 4, 14, 17, 18, and 20 would have been obvious. In that conclusion, we adopt Petitioner’s reasoning as our own. Pet. 61–66, 71, 76.

D. OBVIOUSNESS OVER GEIWITZ AND CARDIO MANUAL

Claim 19 recites limitations similar to claim 16’s, but requires, “if the first virtual button has been touched a predetermined number of times,” displaying “a second legend indicative of” “a second control function which

prevents controlling any space conditioning equipment components.”⁷
Ex. 1001, 16:31–42. Petitioner asserts that Cardio Manual “teaches adding a ‘none’ mode of operation to the other modes taught by Geiwitz.” Pet. 80 (citing Ex. 1007, 55). Petitioner asserts further that skilled artisans had reason to add Cardio Manual’s “none” mode because it would have improved Geiwitz by adding the extra control of a “none” mode and for the “obvious benefit of preventing the thermostat from calling for heating or cooling when none is desired.” Pet. 73–74 (regarding general motivation to add a “none” mode), 80–82 (regarding Cardio Manual’s “none” mode). Petitioner asserts that Geiwitz teaches cycling modes as the Mode icon is pressed, such that the mode of operation depends on how many times the icon is pressed (i.e., a “predetermined number of times”). Pet. 81–82.

Patent Owner asserts that Cardio Manual’s four disclosed modes of operation—“none, heating only, cooling only and automatic” (Ex. 1007, 55)—“are not akin to” claim 19’s requirements. PO Resp. 22. First, Patent Owner argues that Cardio Manual does not disclose that its virtual button has been “touched a predetermined number of times.” *Id.* Petitioner, however, relies on Geiwitz for that aspect of the claim language. Pet. 81–82 (“Geiwitz already taught determining a selected mode of operation depending on the number of times that the Mode icon (first virtual button) has been pressed.” (citing Ex. 1004, 24:11–13)); *accord id.* at 68 (“Geiwitz monitored the presses of its MODE icon (a virtual button) to determine whether the number of presses indicated that the user had selected the AUTO mode” (citing Ex. 1004, 25:4–13; Ex. 1005, 56 (Fig. 80), 58;

⁷ Claim 19 further requires, *inter alia*, activating the second control function. Ex. 1001, 16:36–38.

Ex. 1003 ¶ 223)). We agree with Petitioner that Geiwitz discloses taking an action depending on the number of times its Mode button is pressed.

Patent Owner contends also that the asserted combination does not display “a second legend indicative of the second control function of preventing controlling of any space conditioning equipment components.” PO Resp. 22. In Patent Owner’s view, the claim language requires a legend “displaying ‘Off,’ or some other legend showing the prevention of controlling the thermostat.” *Id.* We note that the claim language recites activating a control function that prevents controlling the equipment and displaying a legend indicative of that control function. Cardio Manual discloses a “none” mode of operation (Ex. 1007, 55) and we agree with Petitioner that skilled artisans would recognize “none” as “a conventional mode in which the thermostat would not call for heating or cooling.” Pet. 80; Ex. 1003 ¶ 248. Further, we agree that skilled artisans implementing Cardio Manual’s “none” mode would include in Geiwitz’s thermostat a suitable legend indicating the “none” mode—for example “NONE” or “OFF”. Pet. 80–82; Ex. 1003 ¶¶ 248–251. Including such a legend would have been obvious so that a user would not “be left guessing as to what mode of operation was selected and active.” Pet. 82 (quoting Ex. 1003 ¶ 251).

Patent Owner does not otherwise contest Petitioner’s contentions for obviousness of claim 19 over Geiwitz and Cardio Manual. We have reviewed Petitioner’s contentions and conclude they demonstrate the subject matter of claim 19 is unpatentable over Geiwitz and the Cardio Manual. In that conclusion, we adopt Petitioner’s reasoning as our own. Pet. 76–82. Patent Owner also does not contest Petitioner’s contentions for claim 20,

which recites the same additional limitation as claim 14.⁸ We have reviewed Petitioner’s contentions and conclude they demonstrate the subject matter of claim 20 would have been obvious. In that conclusion, we adopt Petitioner’s reasoning as our own. Pet. 65–66.

III. CONCLUSION⁹

For the reasons discussed above, we conclude Petitioner has proven the challenged claims are unpatentable. Our conclusion is based on the full record. In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 3, 4, 14, 16–20	103	Geiwitz	1, 3, 4, 14, 16– 20	
19, 20	103	Geiwitz, Cardio Manual	19, 20	
Overall Outcome			1, 3, 4, 14, 16– 20	

⁸ Although Petitioner refers to its contentions for claim 3, that reference is a clear typographical error and we instead rely on Petitioner’s contentions for claim 14, which parallels claim 20. *See* Pet. 82, 65–66; Ex. 1001, 14:38–39, 16:43–44.

⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

IV. ORDER

Accordingly, it is

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1, 3, 4, 14, and 16–20 of the '318 patent are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2022-01402
Patent 7,156,318 B1

PETITIONER:

John M. Baird
Patrick McPherson
Nicole Candelori
DUANE MORRIS LLP
jmbaird@duanemorris.com
pdmcperson@duanemorris.com
ncandelori@duanemorris.com

Roshan Mansinghani
Timothy Murphy
UNIFIED PATENTS, LLC
roshan@unifiedpatents.com
tj@unifiedpatents.com

PATENT OWNER:

Hao Ni
Neal Massand
NI, WANG & MASSAND, PLLC
hni@nilawfirm.com
nmassand@nilawfirm.com