

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOBILE TECH, INC.,
Petitioner,

v.

INVUE SECURITY PRODUCTS INC.,
Patent Owner.

IPR2018-01138
Patent 9,659,472 B2

Before JUSTIN T. ARBES, STACEY G. WHITE, and
DANIEL J. GALLIGAN, *Administrative Patent Judges*.

WHITE, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have authority to hear this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons discussed herein, we determine that Mobile Tech, Inc. (“Petitioner”) has shown, by a preponderance of the evidence, that claims 1–10 and 12–45 (“the challenged claims”) of U.S. Patent No. 9,659,472 B2 (Ex. 1001, “the ’472 patent”) are unpatentable.

A. Background

Petitioner requested *inter partes* review of the challenged claims. Paper 3 (“Petition”). InVue Security Products Inc. (“Patent Owner”) filed a Patent Owner Preliminary Response. Paper 9. Based on our review of these submissions, we instituted a trial on all of Petitioner’s challenges as described in the Petition. Paper 12 (“Dec. on Inst.”). Petitioner contends the challenged claims are unpatentable on the following grounds (Pet. 6):

Claims Challenged	35 U.S.C. §	References
1–10, 12–15, 17–32, 34–43, 45	103(a)	Rothbaum, ¹ Denison ²
16, 33, 44	103(a)	Rothbaum, Denison, Ott ³
1–10, 12–15, 17–32, 34–38, 41	103(a)	Rothbaum, Denison, Deguchi ⁴

¹ U.S. Patent 5,543,782, issued Aug. 6, 1996 (Ex. 1003, “Rothbaum”).

² U.S. Patent Pub. 2004/0201449 A1, pub. Oct. 14, 2004 (Ex. 1002, “Denison”).

³ U.S. Patent No. 6,380,855 B1, issued Apr. 30, 2002 (Ex. 1005, “Ott”).

⁴ U.S. Patent Pub. 2004/0003150 A1, pub. Jan. 1, 2004 (Ex. 1004, “Deguchi”).

Claims Challenged	35 U.S.C. §	References
16, 33	103(a)	Rothbaum, Denison, Deguchi, Ott

Patent Owner filed a Patent Owner Response (Paper 14, “PO Resp.”), Petitioner filed a Reply (Paper 17, “Reply”), and Patent Owner filed a Sur-Reply (Paper 19, “Sur-Reply”).

An oral hearing was held on August 29, 2019, and a transcript of the hearing is included in the record (Paper 24, “Tr.”). After the hearing, the parties met and conferred regarding the potential application of collateral estoppel to certain issues in this proceeding. The parties provided us with a list of their agreements and disagreements as to the application of collateral estoppel. Ex. 3001. We then authorized the parties to provide further briefing regarding the parties’ stated disagreements regarding the application of collateral estoppel to this proceeding. Paper 25. Petitioner filed a brief (Paper 26, “Pet. CE Br.”) and Patent Owner filed a responsive brief (Paper 27, “PO CE Br.”).

B. Related Proceedings

The parties indicate the ’472 patent is at issue in a series of lawsuits that have been consolidated and transferred to the United States District Court for the District of Oregon. Paper 11, 2–3; Paper 6, 1. Petitioner previously sought post-grant review of the ’472 patent (PGR2018-00004), but that petition was denied because the ’472 patent is not eligible for such review. *See* Pet. 3; PGR2018-00004, Paper 15. Petitioner has filed petitions for *inter partes* review involving the same parties and related patents, IPR2016-00892, IPR2016-00895, IPR2016-00896, IPR2016-00898,

IPR2016-00899, IPR2016-01241, IPR2016-01915, IPR2017-00344, IPR2017-00345, IPR2017-01900, IPR2017-01901, and IPR2018-00481. Paper 11, 3–4. Final written decisions have been issued in each of those *inter partes* review proceedings. To date, eight of those final written decisions have been affirmed by the Court of Appeals for the Federal Circuit. Ex. 1029. The parties also identify pending patent applications that may be affected by this proceeding. See Paper 11, 5; Paper 6, 1.

C. The '472 patent

The '472 patent describes security systems and methods involving a key programmed by a programming station with a security code. Ex. 1001, 1:30–36. This security system is illustrated in Figure 1, which is reproduced below.

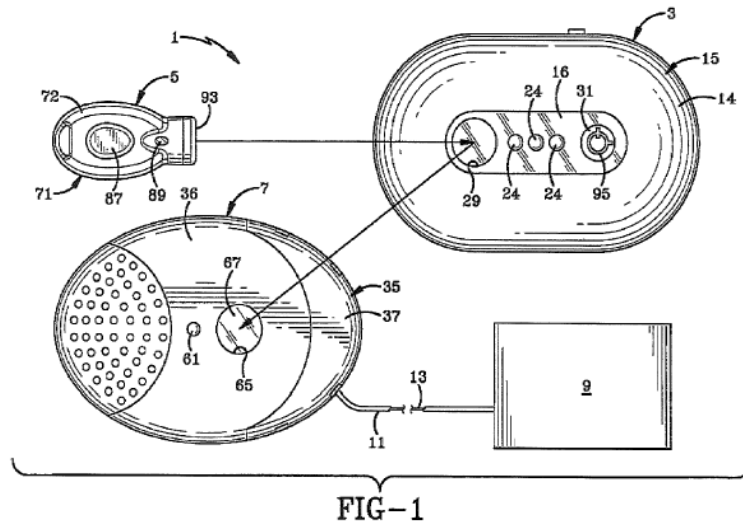


Figure 1 depicts the components of security system 1. *Id.* at 5:15–16. The primary components of security system 1 are programming station 3, programmable key 5, and alarm module 7. *Id.* at 6:18–21. Merchandise 9 is connected to alarm module 7 via cable 11 that preferably contains sense loop 13. *Id.* at 6:21–23. Programming station 3 “includes a housing 15 formed by an internal housing shell 16 preferably having at least a portion

thereof formed of an infrared clear plastic material to facilitate the transfer of infrared wireless communication waves.” *Id.* at 6:29–34.

In the disclosed method, programming station 3 is placed in an “on” position. *Id.* at 9:18–20. “Programmable key 5 is placed in key receiving port 29 and activation switch 85 is actuated . . . caus[ing] logic control circuit 18 of programming station 3 to randomly generate a unique security code (i.e. SDC)” *Id.* at 9:21–26. The SDC is transmitted via communication circuit 20 to programmable key 5, where it is stored in memory 81. *Id.* at 9:26–29. Once programmed with the SDC, programmable key 5 is taken to one or more alarm modules 7 (or other security devices) and inserted into key receiving port 65. *Id.* at 9:43–46. The key then programs the SDC into the memory of alarm module 7. *Id.* at 9:47–53.

D. Illustrative Claim

Petitioner challenges claims 1–10 and 12–45 of the ’472 patent, of which claims 1, 17, and 39 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below:

1. A method for protecting items of merchandise from theft, the method comprising:
providing a single security code with a programming station, the single security code usable in only a single retail store;
inserting an end of the programmable key within a port defined in a housing of the programming station;
storing the single security code at the programmable key; and
storing the single security code at a security device, the security device comprising an alarm and a memory for storing the single security code, the security device configured to be attached to an item of merchandise, the security device further configured to activate the alarm in response to the integrity of the security device being compromised,

controlling the security device if the single security code stored by the security device matches the single security code stored by the programmable key.

II. ANALYSIS OF ASSERTED GROUNDS

A. Level of Ordinary Skill in the Art

As part of our determination as to whether an invention would have been obvious, 35 U.S.C. § 103 requires us to ascertain the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere*, 383 U.S. 1, 17 (1966). The resolution of this question is important because it allows us to “maintain[] objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In addition, the level of ordinary skill in the art may be reflected by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovation Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Petitioner’s declarant, Thaine Allison III, testifies that a person of ordinary skill in the art

would have had a four year technical degree (*e.g.* B.S. engineering) with a minimum of three years of experience in using, provisioning, designing or creating, or supervising the design or creation, of such theft prevention devices, and other related security devices. Extended experience in the industry could substitute for a technical degree. A [person of ordinary skill in the art] would have known how to research the technical literature in fields relating to theft prevention, including in retail and other environments, as well as security in general. Also, a [person of ordinary skill in the art] may have worked as part of a multidisciplinary team and drawn upon not only his or her own skills, but also taken advantage of certain specialized skills of others in the team, *e.g.*, to solve a given problem. For example, designers, engineers (*e.g.*, mechanical or electrical), and computer scientists or other computer programmers may have been part of a team.

Ex. 1019 ¶ 20; *see* Pet. 14 (citing Ex. 1019 ¶¶ 18–21). Based on the evidence of record, including the testimony of Mr. Allison, the subject matter at issue, and the prior art of record, we adopt the level of ordinary skill in the art set forth in the Decision on Institution, which is that a person of ordinary skill in the art would have had a four-year technical degree or equivalent experience with a minimum of two years of professional technical experience in the field of theft prevention devices or related security devices. Dec. on Inst. 10; *see also* PO Resp. 17–18 (agreeing with statement of level of ordinary skill in the Decision on Institution). We apply this level of ordinary skill in the art in our analysis below.

B. Claim Construction

In an *inter partes* review, “[a] claim in an unexpired patent that will not expire before a final written decision is issued shall be given its broadest reasonable construction in light of the specification of the patent in which it

appears.” 37 C.F.R. § 42.100(b) (2017).⁵ In determining the broadest reasonable construction, we presume that claim terms carry their ordinary and customary meaning. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). This presumption may be rebutted when a patentee, acting as a lexicographer, sets forth an alternate definition of a term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner seeks construction of the phrases “single security code,” “usable in only a single retail store,” “unique to the single retail store and the programming station,” “a ‘housing’ with ‘a port,’” “logic control circuit,” and “‘invalidating’ the ‘key.’” Pet. 8–14. Patent Owner seeks construction of “single security code” and “invalidates the single security code,” and Patent Owner provides arguments responsive to Petitioner’s proposed construction of “usable in only a single retail store.” PO Resp. 12–17. Based on the issues before us, we discern a need to provide express construction for “single security code,” “unique to the single retail store and the programming station,” and “invalidating the single security code.” No other term requires express construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *see also Nidec Motor*

⁵ The Petition in this proceeding was filed on May 22, 2018, prior to the effective date of the rule change that replaces the broadest reasonable interpretation standard with the federal court claim interpretation standard. *See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340, 51,340 (Oct. 11, 2018) (“This rule is effective on November 13, 2018 and applies to all IPR, PGR and CBM petitions filed on or after the effective date.”).

Corp. v. Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

1. “*Single Security Code*”

In the Decision on Institution, we interpreted “single security code” to mean “one security code, but the recited methods and system do not exclude programming stations that are capable of programming other codes into other keys.” Dec. on Inst. 7. This was consistent with Petitioner’s argument that the phrase is broad enough “to encompass a programming station that provides or is configured to provide one security code at a time.” Pet. 8. We also noted that “[i]n the final written decision in IPR2016-00895, we construed the term ‘single security code’ as recited in U.S. Pat. No. 9,135,800 B2 (‘the ’800 patent’) in the same manner.” Dec. on Inst. 7 n.5 (citing Paper 35, 10–13). Patent Owner made arguments regarding this term in its Patent Owner Response, but it “no longer contests [Petitioner’s] proposed construction of a programming station that provides or is configured to provide, one security code at a time for a single security code.” Tr. 23:12–14. We do not perceive any reason or evidence that compels any deviation from our preliminary interpretation in the Institution Decision, and we adopt the previous analysis for purposes of this Decision.

2. *Unique to the Single Retail Store and the Programming Station*

In the Decision on Institution, we interpreted “unique to the single retail store and the programming station” to encompass (but not be limited to) a randomly generated code. Dec. on Inst. 7. We do not perceive any reason or evidence that compels any deviation from the interpretation, and we adopt the previous analysis for purposes of this Decision.

3. *Invalidating the Single Security Code*

Claim 10 recites “invalidating the single security code.” Claims 26 and 37 recite substantially similar phrases. According to Petitioner, the ’472 patent describes two methods of invaliding a security code: (1) preventing the key from transmitting the code, and (2) erasing the code. Pet. 13–14. Thus, Petitioner asserts that this term is broad enough to encompass “erasing the security code.” *Id.*

Patent Owner asserts that “invalidating the security code means rendering the security code in the key incapable of controlling the security device.” PO Resp. 16. Patent Owner notes that this construction was adopted in IPR2016-01241 for a similar phrase. *Id.* (citing 1241 IPR⁶ Paper 7, 6–8 (PTAB Dec. 20, 2016)) (Decision on Institution) (construing “invalidates the security code in the key”). Additionally, we note that the same construction also was adopted in IPR2016-01915⁷ (1915 IPR Paper 7, 7–10 (construing “invalidating the security code stored in the key”)) and IPR2018-00481 for similar phrases (481 IPR Paper 29, 39 (construing “security code . . . is configured to be invalidated”)).

Based on the record before us, we discern no reason to depart from our previous analysis of the construction of similar phrases. We adopt the previous analysis from the 1241 IPR (1241 IPR Paper 7, 6–8), the 1915 IPR (1915 IPR Paper 7, 7–10), and the 481 IPR (481 IPR Paper 29, 39), and

⁶ Papers and exhibits from proceedings other than IPR2018-01138 will be indicated by a prefix indicating the proceeding. For example, papers from IPR2016-01241 will bear the prefix “1241 IPR.”

⁷ In the 1915 IPR and the 1241 IPR, we only construed that phrase at the institution phase. We did not institute review of the claims that included that term so there was no need for a final construction of the term in either IPR.

construe “invalidating the single security code,” as recited in claim 10 and similarly recited in claims 26 and 37, to mean “rendering the security code in the key incapable of controlling the security device.”

C. Collateral Estoppel

This case is the latest in a large family⁸ of related proceedings. As of this date, final written decisions have been issued in twelve related proceedings, and decisions in eight of those proceedings have been affirmed by the Federal Circuit. Ex. 1029. An appeal is pending in one case, one case was not appealed, and two cases were appealed but the appeal was later voluntarily dismissed by Patent Owner prior to a decision from the Federal Circuit. A chart of the prior decisions is below.

Case Number	Patent Number	Exhibit/Paper	Appeal Status⁹
IPR2016-00892	U.S. Pat. No. 8,884,762 B2 (“the ’762 patent”)	Final Written Decision Ex. 1021 (“the 892 Decision”)	Affirmed by Federal Circuit in 2018-1236, 2018-1238, 2018-1239, 2018-1304 (Rule 36)
IPR2016-00895 ¹⁰ IPR2016-00896	U.S. Pat. No. 9,135,800 B2 (“the ’800 patent”)	Final Written Decision Ex. 1022 (“the 895 Decision”)	Affirmed by Federal Circuit in 2018-1236, 2018-1238, 2018-1239, 2018-1304, 2018-1889, 2018-1898 (Rule 36)

⁸ The subject patents of these proceedings are all related. For example, the ’472 patent is a continuation of the ’452 patent and lists the ’110 patent, ’800 patent, ’247 patent, and ’762 patent as related patents. See Ex. 1001, 1:8–27.

⁹ Exhibit 1029 contains copies of the Rule 36 affirmances from the Federal Circuit for the following cases: IPR2016-00892, IPR2016-00895, IPR2016-00896, IPR2016-00898, IPR2016-00899, and IPR2016-01241.

¹⁰ Cases IPR2016-00895 and 896; IPR2016-00898 and 899; IPR2017-00344 and 345; and IPR2017-01900 and 1901 are listed in pairs because a single

Case Number	Patent Number	Exhibit/Paper	Appeal Status ⁹
IPR2016-00898 IPR2016-00899	U.S. Pat. No. 9,269,247 B2 (“the ‘247 patent”)	Final Written Decision Ex. 1020 (“the 898 Decision”)	Affirmed by Federal Circuit in 2018-1236, 2018-1238, 2018-1239, 2018-1304 (Rule 36)
IPR2016-01241	U.S. Pat. No. 7,737,846 B2 (“the ‘846 patent”)	Final Written Decision Ex. 1027 (“the 1241 Decision”)	Affirmed by Federal Circuit in 2018-1597 (Rule 36)
IPR2016-01915	U.S. Pat. No. 7,737,844 B2 (“the ‘844 patent”)	Final Written Decision Ex. 1025 (“the 1915 Decision”)	Not Appealed
IPR2017-00344 IPR2017-00345	U.S. Pat. No. 9,396,631 B2 (“the ‘631 patent”)	Final Written Decision Ex. 1026 (“the 344 Decision”)	Affirmed by Federal Circuit in 2018-2202 (Rule 36)
IPR2017-01900 IPR2017-01901	U.S. Pat. No. 9,478,110 B2 (“the ‘110 patent”)	Final Written Decision Ex. 1028 (“the 1900 Decision”)	Appeal voluntarily dismissed by Patent Owner
IPR2018-00481	U.S. Pat. No. 9,576,452 (“the ‘452 patent”)	Final Written Decision 481 IPR Paper 29 (“the 481 Decision”)	Notice of Appeal filed September 17, 2019

The parties assert that collateral estoppel applies to certain aspects of this proceeding based on prior proceedings. *See* Ex. 3001. Specifically, the parties listed the following areas of agreement as to the application of collateral estoppel:

final written decision was issued for each of those sets of cases. For ease of reference, unless otherwise indicated, we will refer to the lowest numbered case.

1. The parties agree that estoppel does not apply to claim 25.
2. The parties agree that [Patent Owner] is estopped from arguing against the combination of Rothbaum and Denison on independent claims 1, 17, and 39, except to the extent that the claims cover “the single security code usable in only a single retail store.”
3. The parties agree that estoppel applies to dependent claim 37 of the ’472 patent (pursuant to the Board’s FWD in IPR2018-481, and subject to [Patent Owner’s] appeal rights).
4. The parties agree that estoppel applies to dependent claim 36 of the ’472 patent (pursuant to the Board’s FWD in IPR2018-481, and subject to [Patent Owner’s] appeal rights).
5. The parties agree, should independent claims 1, 17, and 39 be found invalid, then estoppel applies to the port limitations recited in claims 14, 27, 29, 30, and 41 (pursuant to the Board’s FWD in IPR2018-481, and subject to [Patent Owner’s] appeal rights).
6. The parties agree that estoppel applies to the real party-in-interest issue.

Id. Collateral estoppel, also known as issue preclusion, precludes a party from relitigating an issue “when an issue of fact or law is actually litigated and determined by a valid and final judgment, and the determination is essential to the judgment, the determination is conclusive in a subsequent action between the parties, whether on the same or a different claim.”

Restatement (Second) of Judgments § 27 (1982). The Supreme Court has long recognized that “the determination of a question directly involved in one action is conclusive as to that question in a second suit.” The idea is straightforward: Once a court has decided an issue, it is “forever settled as between the parties,” thereby “protect[ing]” against “the expense and vexation attending multiple lawsuits, conserv[ing] judicial resources, and foster[ing] reliance on judicial action by minimizing the possibility of inconsistent verdicts.” In short, “a losing litigant deserves no rematch after a defeat fairly suffered.”

B & B Hardware, Inc. v. Hargis Indus., Inc., 135 S. Ct. 1293, 1302–03 (2015) (internal citations omitted). Collateral estoppel in *inter partes* reviews “is not limited ‘to patent claims that are identical. Rather, it is the identity of the *issues* that were litigated that determines whether collateral estoppel should apply.’” *Nestle USA, Inc. v. Steuben Foods, Inc.*, 884 F.3d 1350, 1352 (Fed. Cir. 2018) (quoting *Ohio Willow Wood Co. v. Alps S., LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2013)). The Federal Circuit has articulated the following test for determining the proper application of collateral estoppel:

- (1) a prior action presents [the] identical issue;
- (2) the prior action actually litigated and adjudged that issue;
- (3) the judgment in that prior action necessarily required determination of the identical issue; and
- (4) the prior action featured full representation of the estopped party.

VirnetX Inc. v. Apple, Inc., 909 F.3d 1375, 1377 (Fed. Cir. 2018) (quoting *Stephen Slesinger, Inc. v. Disney Enters., Inc.*, 702 F.3d 640, 644 (Fed. Cir. 2012)). It is with these principles in mind that we review the parties’ contentions as to the application of collateral estoppel to the issues in this case.

D. Real Party-In-Interest

The parties have agreed that “estoppel applies to the real party-in-interest issue.” Ex. 3001. We have addressed the propriety of Petitioner’s real party-in-interest (“RPI”) identifications in a number of previous proceedings, and we agree that collateral estoppel applies to this issue. A chart of the prior RPI decisions is below.

Case Number(s)	RPI Decision	Final Written Decision	Appeal Status
IPR2016-01915	Ex. 1023 (Decision on Motion to Terminate)	Ex. 1025 (“the 1915 Decision”)	Not Appealed
IPR2017-00344 IPR2017-00345	Ex. 1023 (Decision on Motion to Terminate)	Ex. 1026 (“the 344 Decision”)	Affirmed
IPR2017-01900 IPR2017-01901	Ex. 1028 (Final Written Decision), 6–21	Ex. 1028 (“the 1900 Decision”)	Appeal Dismissed
IPR2018-00481	Final Written Decision 481 IPR Paper 29, 11–17	Final Written Decision 481 IPR Paper 29	Appeal pending

The cases that have dealt with the RPI issue either stand unappealed, affirmed by the Federal Circuit, or are still pending appeal. The Federal Circuit has found collateral estoppel to be proper in the context of both affirmed and non-appealed cases. *See, e.g., XY, LLC v. Trans Ova Genetics*, 890 F.3d 1282, 1294 (Fed. Cir. 2018) (applying estoppel based on affirmed decision); *Power Integrations, Inc. v. Semiconductor Components Indus., LLC*, 926 F.3d 1306, 1311 (Fed. Cir. 2019) (applying estoppel based on a non-appealed decision).

Here, the same RPI issue was raised in the prior decisions, the RPI issue was actually litigated by the parties (replete with discovery and dispositive motions on this issue), and our determination that the RPI identification was proper was essential to the prior decisions (especially because Patent Owner has sought to have the proceedings terminated due to an allegedly improper identification of RPIs). As such, we agree with the

parties' assertion that collateral estoppel applies to the RPI issue in this case, and we conclude that no exception to collateral estoppel applies.

Thus, we determine that collateral estoppel prevents the relitigation of the RPI issue in this proceeding. Accordingly, for the reasons given in the 1900 IPR Decision and in the Order on Patent Owner's Motion to Terminate from IPR2017-00344, we determine that Petitioner identified all RPIs in this proceeding, as required by 35 U.S.C. § 312(a)(2).

E. Asserted Obviousness over Rothbaum and Denison

Petitioner contends that claims 1–10, 12–15, 17–32, 34–43, and 45 would have been obvious over Rothbaum and Denison. Pet. 14–58. Petitioner explains how Rothbaum and Denison allegedly teach the claimed subject matter and relies upon the testimony of Mr. Allison to support its positions. *Id.* The parties agree that many of the issues implicated by Petitioner's assertions regarding the obviousness of these claims over Rothbaum and Denison are barred from further litigation due to collateral estoppel. Ex. 3001. There are also several issues upon which collateral estoppel is disputed. *Id.*; PO Resp. 57; Reply 1–2, 6–7, 9–10, 14–16; PO CE Br.; Pet. CE Br. We will address the application of collateral estoppel and analyze any remaining issues of patentability.

1. Overview of Rothbaum

Rothbaum is directed to an electronic security system for monitoring merchandise that provides for the sounding of an alarm based on an indication from a sensor. Ex. 1003, code (57). The system is intended to be used for theft prevention in retail stores, hotels, and other businesses. *Id.* at 1:6–9. Figure 1 of Rothbaum is reproduced below.

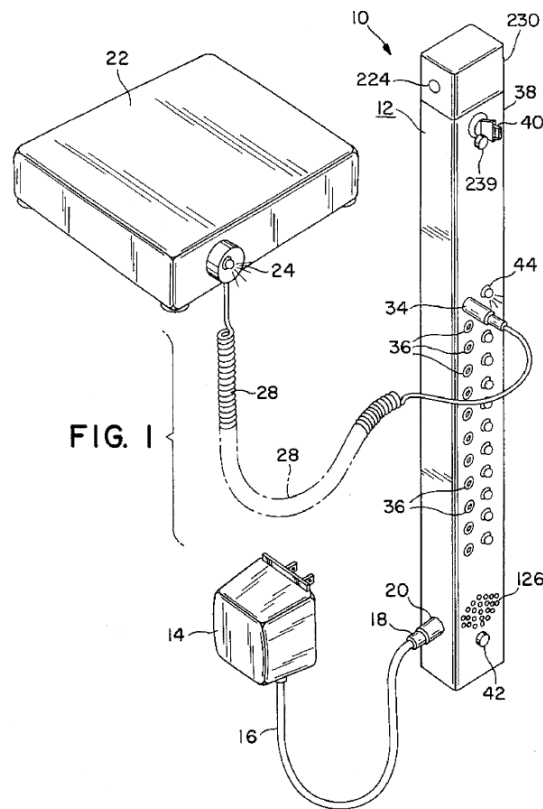


Figure 1 depicts a perspective view of Rothbaum's security system. *Id.* at 4:22–23. Specifically, it depicts “a twelve jack security system 10 . . . which can protect twelve items of merchandise.” *Id.* at 5:10–11. Article 22 is the merchandise being protected by security system 10. *Id.* at 5:5–9, 5:49–50. Sensor 24 is attached to article 22. *Id.* at 5:54–56, 5:62–64. Item cord 28 connects sensor 24 to the alarm circuitry located in housing 12. *Id.* at 5:16–17, 6:1–2. An alarm will sound and an LED will light when an alarm condition occurs. *Id.* at 3:43–47; *see id.* at 12:10–18 (describing the activation of an alarm if someone tampers with the security device). “[O]nce a breach of security condition is detected, the alarm horn 126 will sound [u]ntil key switch 38 is turned from the ON position to the SET position.” *Id.* at 8:23–25.

2. Overview of Denison

Denison is directed to vending machines that are equipped with electronic locks. Ex. 1002 ¶ 2. Denison describes vending machines as automated means for selling products. *Id.* ¶ 3. Access to the contents of the vending machine is controlled by an electronic lock and key. *Id.* ¶ 7. In order to unlock the electronic lock, there must be a match between codes stored in the electronic key and electronic lock. *Id.* ¶ 42.

Figure 17 of Denison is reproduced below.

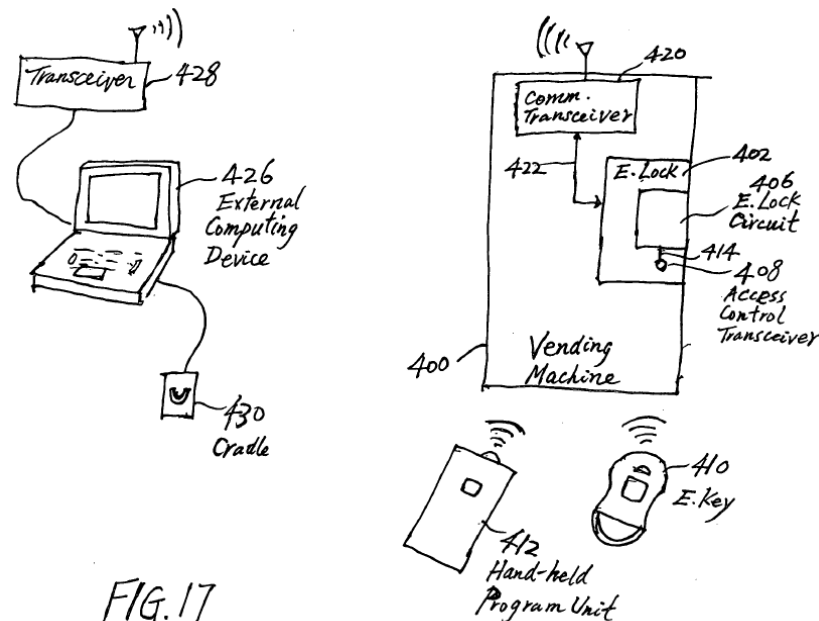


Figure 17 depicts “a system in which one or more programming schemes may be implemented for field-programming the electronic lock 402 of the vending machine 400 without having to open the vending machine to access a program switch.” *Id.* ¶ 77. The vending machine may be opened using electronic key 410, which may be programmed by external computing device 426. *Id.* ¶ 85. External computing device 426 has a memory that includes an “access code or codes for electronic locks on vending machines, and access control parameters for the electronic locks.” *Id.* ¶ 79. Database

436 may be resident on external computing device 426. *Id.* “[D]atabase 436 may alternatively or additionally contain programs for computing new access codes and generating control parameters for electronic locks and keys.” *Id.* In addition, “external computing device 426 may . . . have programs that implement[] mathematical algorithms for computing the access codes and control parameters. Such calculations may generate the access codes randomly or based on a function that includes the time as a variable.” *Id.* ¶ 84.

In addition, Denison’s keys may be limited to operating during certain hours. *Id.* ¶¶ 41, 60. Figure 9 of Denison is reproduced below.

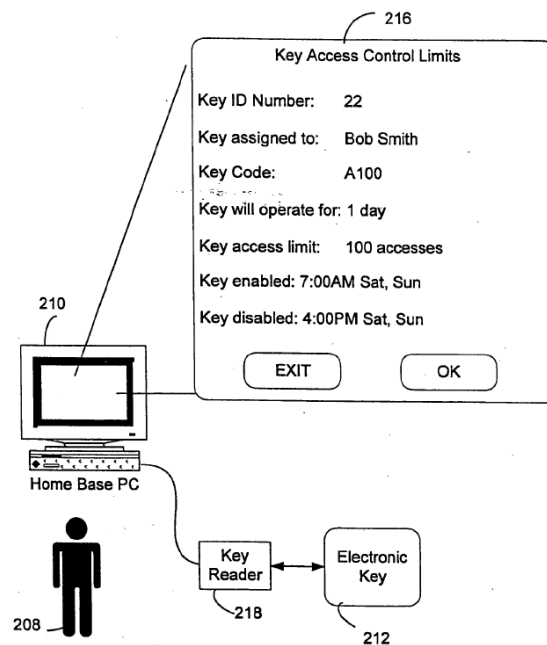


FIG. 9

Figure 9 depicts a computer for programming operation limits into an electronic key. *Id.* ¶ 23. Operation limits may be customized for each key in the system. *Id.* ¶ 61. These limits could be used to render a key inactive outside of specified work hours. *Id.* A supervisor programs these limits on a personal computer (PC), and the limits are then transferred to the key. *Id.*

3. Estoppel Based on Rothbaum and Denison

Petitioner asserts that claims 1–10, 12–15, 17–32, 34–43, and 45 would have been obvious over Rothbaum and Denison. Pet. 14–58. As indicated in the chart below, we have found approximately 200 claims from related patents to be obvious over Rothbaum and Denison.

Case Number	Patent	Exhibit/Paper	Claims obvious over Rothbaum and Denison
IPR2016-00892	'762 patent	Ex. 1021, 18–50	1, 5–20, 22–25, 27
IPR2016-00895	'800 patent	Ex. 1022, 23–61	1, 3–22, 24–30, 32–49
IPR2016-00898	'247 patent	Ex. 1020, 22–59	1, 3–37
IPR2016-01241	'846 patent	Ex. 1027, 22–31	9
IPR2017-00344	'631 patent	Ex. 1026, 13–53	1–5, 8–27, 29
IPR2017-01900	'110 patent	Ex. 1028, 45–69	1–17, 19–36
IPR2018-00481	'452 patent	481 IPR Paper 29	1–35 ¹¹

Patent Owner withdrew its appeal of the 1900 IPR and the appeal for the 481 IPR is still pending, but the Federal Circuit has affirmed our final written decisions in all of the other cases listed above. *See* Ex. 1029.

A final judgment of unpatentability of a patent claim from the Board precludes the patent owner from arguing for the patentability of those claims. *XY, LLC*, 890 F.3d at 1294; *see MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1376 (Fed. Cir. 2018). It has long been understood that a party may be bound not simply by the ultimate conclusion (e.g., unpatentability of a claim), but by any subsidiary factual determinations that

¹¹ Our determinations as to claims 1–7, 9–18, and 23–35 of the '452 patent were based in part on the application of collateral estoppel to those claims in regards to Petitioner's allegations of unpatentability over Rothbaum and Denison.

were actually litigated and essential to the judgment. Restatement (Second) of Judgments § 27, cmt. j (stating that the issue must have been “actually recognized by the parties as important and by the trier as necessary to the first judgment”); see *MaxLinear*, 880 F.3d at 1377 (noting “that the collateral-estoppel effect of an administrative decision of unpatentability generally requires the invalidation of related claims that present identical issues of patentability”). Key factors in determining if “issues” are identical under collateral estoppel is whether “there [is] a substantial overlap between the evidence or argument to be advanced in the second proceeding and that advanced in the first” and whether the “new evidence or argument involve[s] application of the same rule of law as that involved in the prior proceeding.” Restatement (Second) of Judgments § 27, cmt. c. Below we examine the parties’ assertions regarding the application of collateral estoppel to claims alleged to be unpatentable over Rothbaum and Denison.

4. Independent claims 1, 17, and 39

The parties agree that “[Patent Owner] is estopped from arguing against the combination of Rothbaum and Denison on independent claims 1, 17, and 39, except to the extent that the claims cover ‘the single security code usable in only a single retail store.’” Ex. 3001. Claims 1, 17, and 39 are the only independent claims of the ’472 patent. Petitioner asserts that “Claim 17 is the same as Claim 1, except in system form.” Pet. 30. We agree with Petitioner that claim 17 is substantially similar to claim 1, and claim 39 is also substantially similar¹² to claim 1 with minor differences that

¹² Claim 39 differs in that it recites a plurality of programmable keys and security devices that are usable in only the single retail store. In prior cases, we have found that the combination of Rothbaum and Denison teaches a

we find to not impact the collateral estoppel analysis. *See id.* at 30–31. Thus, we will focus our discussion on claim 17, but our findings and analysis also apply to claims 1 and 39.

We begin with a comparison between claim 17 of the '472 patent and claim 1 of the '762 patent. Claim 1 of the '762 patent was held to be unpatentable over Rothbaum and Denison in the 892 IPR, and that decision was affirmed by the Federal Circuit. *See* Ex. 1021, 18–40. It is readily apparent from a side-by-side comparison of claim 17 of the '472 patent and claim 1 of the '762 patent that there is substantial identity between the claims (emphases added).

Claim 17 of the '472 patent	Claim 1 of the '762 patent (found unpatentable in the 892 IPR Decision (affirmed))
17. A programmable security system for protecting items of merchandise from theft, the programmable security system comprising: a programming station configured to provide <i>a single security code that is usable in only a single retail store</i> , wherein the programming station comprises a housing having a port defined therein;	1. A programmable security system for protecting items of merchandise from theft, the programmable security system comprising: a programming station configured to generate a security code and having a memory for storing the security code;

plurality of keys and security devices. *See, e.g.,* Ex. 1022, 43–44 (discussing the limitations of claim 35 of the '800 patent regarding a plurality of security devices and programmable keys).

Claim 17 of the '472 patent	Claim 1 of the '762 patent (found unpatentable in the 892 IPR Decision (affirmed))
a programmable key comprising a memory configured to store the single security code, wherein an end of the programmable key is configured to be inserted within the port for programming the security code in the memory of the programmable key; and a security device comprising an alarm and a memory for storing the single security code, the security device configured to be attached to an item of merchandise, the security device further configured to activate the alarm in response to the integrity of the security device being compromised, wherein the programmable key is configured to control the security device if the single security code stored in the memory of the security device matches the single security code stored by the programmable key.	a programmable key configured to communicate with the programming station to receive the security code and to store the security code in a memory; and a security device comprising an alarm and a memory for storing the security code, the security device configured to be attached to an item of merchandise, the security device further comprising a switch configured to be actuated for activating the alarm in response to the integrity of the security device being compromised, wherein the programmable key is configured to communicate with the security device to arm or disarm the security device upon a matching of the security code stored in the memory of the security device with the security code stored in the memory of the programmable key.

These claims are both directed to a “programmable security system for protecting items of merchandise from theft.” Both systems are composed of a programming station, a programmable key, and a security device, and both claims recite that the key is used to operate the system in

the event that the codes stored in the key and the security device match. Claim 17 of the '472 patent differs from claim 1 of the '762 patent in that it recites a housing¹³ for the programming station, a key configured to be inserted into a port, and “a single security code that is usable in only a single retail store.” The remainder of the claim elements are substantially identical. Thus, the vast majority of the factual findings necessary to support a conclusion of obviousness as to claim 17 of the instant patent over Rothbaum and Denison have already been made as part of our analysis of claim 1 of the '762 patent in the 892 IPR.

The parties agree that whether the cited references teach “a single security code that is usable in only a single retail store”¹⁴ is not the subject of collateral estoppel. *See* Ex. 3001; Tr. 14:3–8. A review of the record of the related cases reveals that we have made findings on related claim terms (e.g., “single security code is unique to a particular [retail establishment/store]” as recited in the claims of the '800 patent, Ex. 1022, 57–58), but those determinations could be argued to address issues of patentability that are not identical to those of claims 1, 17, and 39. *See* Tr. 19:16–23:9. Thus, we decline to apply collateral estoppel to bar Patent Owner from making patentability arguments regarding the limitation “a

¹³ Patent Owner makes no arguments as to the application of collateral estoppel to these claims based on the recitation of the housing and the port. We note, however, that we previously found similar limitations to be taught by the combination of Rothbaum and Denison. Ex. 1028, 62–64 (discussion of claims 16 and 17 of the '110 patent); *see also* Ex. 1022, 48–50 (claim 15 of the '800 patent).

¹⁴ Substantially identical language is found in claims 1 and 39 that each recites “the single security code usable in only a single retail store.”

single security code that is usable in only a single retail store.” As such, we will address the merits of the parties’ arguments and evidence as to the disputed elements of the claims.

As to the requirement that the single security code be “usable in only a single retail store,” Petitioner contends that “Denison’s ‘electronic key’ includes the same safeguards as the key in the ’472 Patent, which has programming that is only valid for a certain period of time to ensure the ‘key will only be used by authorized persons and only in the retail store having the programming station and unique SDC for the alarm modules or other security devices in that store.’” Pet. 18 (citing Ex. 1002 ¶¶ 79, 80, 60; Ex. 1001, 2:56–64; Ex. 1019 ¶¶ 110–12). Mr. Allison supports Petitioner’s contentions by testifying that a person of ordinary skill in the art would have found it desirable to use the safeguards of Denison to ensure that the code was usable in only a single retail store. Ex. 1019 ¶ 113. According to Mr. Allison, a person of ordinary skill “would have recognized that to ensure the integrity of the security system, each store should have its own security system not operable with other stores. Operating in this manner would prevent, keys from one store (operated by unauthorized individuals or rogue employees) from being used in a different store.” *Id.*

Patent Owner contends that Denison does not support Petitioner’s argument because it “does not describe using its access code to limit operation at a retail location, nor is there any reason to do so.” PO Resp. 37. According to Patent Owner,

Denison instead expressly notes that “there may be many vending machines that have ‘learned’ the same key code” (Ex. 1002 ¶ 59). Thus, to prevent a key from unlocking all vending machines in Denison, the key is provided a list of “lock ID codes

192” to inform the key as to “which vending machines [the] key is allowed to access” (*id.*).

Id. at 38. Petitioner responds by arguing that Patent Owner is not addressing the combination proposed in the Petition, which is “modifying Rothbaum’s system (used in a retail store) to have an electronic-key system instead of a mechanical-key system. It isn’t a vending machine.” Reply 4. Thus, Petitioner’s argument focuses on incorporating the teachings regarding Denison’s key into the retail security system of Rothbaum. Therefore, Patent Owner’s arguments that are directed to the features of Denison’s vending machines are not responsive to the proposed combination because the vending machine is not part of the proposed modified system. Mr. Allison’s testimony supports Petitioner by explaining that

a [person of ordinary skill in the art] would have found it obvious that a retail store employing the modified Rothbaum system would not share or use the system (or individual parts of the system, for example, the programming station / “external computing device,” the electronic keys, and the security device / “strip or housing 12”) with another retail store because doing so would compromise the integrity of the security system.

Ex. 1019 ¶ 116. We credit Mr. Allison’s testimony and find that one of ordinary skill in the art would have found it obvious to improve security by using Denison’s operation limits to limit the use of the security code to a single store because such a limit would reduce the possibility that unauthorized individuals would gain access to the code by, for example, obtaining a key from one store and using it in another store. *See* Ex. 1019 ¶¶ 113, 116.

We determine that the findings made in our analysis of claim 1 of the ’762 patent along with our findings regarding the “usable in only a single retail store” limitation also support a finding of unpatentability of claim 17

of the '472 patent. We are careful to view the claim as a whole and not just its constituent parts. We determine that the findings noted above as to prior related cases along with the findings we make in this Decision as to the disputed limitation are sufficient to establish the unpatentability of claim 17 as a whole. The prior findings were essential to determining the patentability of the prior challenged claims and the parties had a full and fair opportunity to litigate those claims. Therefore, we determine that Petitioner has shown by a preponderance of the evidence that claim 17 of the '472 patent would have been obvious over Rothbaum and Denison. As noted above, our analysis equally applies to claims 1 and 39 of the '472 patent. Therefore, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 17, and 39 are unpatentable.

5. Claims 14, 27, 29, 30, 36, 37, and 41

The parties agree that, if we find the independent claims to be unpatentable, then claims 14, 27, 29, 30, 36, 37, and 41 would all be unpatentable on the basis of collateral estoppel. Ex. 3001. We have reviewed these claims, and we agree with the parties that collateral estoppel applies to the additional limitations recited in each of these claims.

For example, claim 14 depends from claim 1 and further recites “inserting the end of the programmable key within a port defined in a housing of the security device.” Claim 27 of the '452 patent recites, in relevant part, “inserting the end of the programmable key within the port of the security device.” In the 481 IPR, we found that collateral estoppel applied to claim 27 and, based on that determination, Petitioner had established by a preponderance of the evidence that claim 27 would have been obvious over Rothbaum and Denison. 481 IPR Paper 29, 25–29.

There, we specifically discussed collateral estoppel as applied to the claim limitation “inserting the end of the programmable key within the port of the security device” and analyzed the basis for applying collateral estoppel to that limitation. *Id.* The same analysis applies here.

Thus, we determine that Patent Owner had a full and fair opportunity to litigate the limitations of claims 14, 27, 29, 30, 36, 37, and 41 of the ’472 patent in light of the teachings of Rothbaum and Denison. As such, we find that collateral estoppel applies to the additional limitations recited in claims 14, 27, 29, 30, 36, 37, and 41 of the ’472 patent. Therefore, we determine, on the basis of collateral estoppel and our determination as to the independent claims from which these claims depend, that Petitioner has demonstrated by a preponderance of the evidence that claims 14, 27, 29, 30, 36, 37, and 41 are unpatentable.

6. *Claims 6, 34, 35, 40, and 45*

Claim 6 of the ’472 patent depends indirectly from claim 1. Claim 6 further recites “arming the security device with the programmable key using the single security code.” Petitioner asserts that Patent Owner is collaterally estopped from asserting that claim 6 would have been patentable over Rothbaum and Denison. Pet. CE Br. 2–3, 9–10. Petitioner directs us to claim 35¹⁵ of the ’247 patent, which recites “arming the security device upon a matching of the security code generated by the programming station with the security code stored by the security device.” *Id.* at 3; see Ex. 1020, 58–59 (finding claim 35 of the ’247 patent unpatentable over Rothbaum and

¹⁵ Petitioner also cites claim 36 of the ’247 patent and claim 29 of the ’452 patent, which are substantially similar to claim 35 but differ in that they recite disarming the security device rather than arming. Pet. CE Br. 2.

Denison). Patent Owner contends collateral estoppel should not be applied here because none of the previously addressed claims relied upon by Petitioner “includes arming the security device with the programmable key using the single security code.” PO CE Br. 5–6; *see also* Sur-Reply 12 (asserting that collateral estoppel does not apply because claim 6 requires a key to arm the security device).

The issue here is whether the question of patentability is materially altered by the difference in claim language. Courts have noted that “[t]he realities of patent practice suggest that, merely because the invention, the patentee’s contribution to the art, is presented in varying language or varying combinations of elements does not necessarily mean that the issues bearing on nonobviousness of that concept or contribution vary from one claim to the next.” *Ohio Willow Wood Co. v. ALPS S., LLC*, No. 2:04-CV-1223, 2012 WL 2196083, at *8 (S.D. Ohio June 15, 2012) (citation omitted), *aff’d*, 735 F.3d 1333 (Fed. Cir. 2013). Thus, when presented with differing claim language the proper

inquiry should be whether the nonlitigated claims present new issues as to the art pertinent to the nonlitigated claims; as to the scope and content of that art; as to the differences between the prior art and the nonlitigated claims; and as to the level of ordinary skill in that art. If none of these inquiries raises any new triable issues, then the obviousness determination in the prior proceeding should be equally applicable to the nonlitigated claims.

Id. at *9 (quoting *Westwood Chem., Inc. v. United States*, 525 F.2d 1367, 1375 (Ct. Cl. 1975)).

Claim 35 of the ’247 patent depends from claims 31. Claim 31 of the ’247 patent recites, in relevant part, “providing the security code to a programmable key” and “arming or disarming the security device upon a

matching of the security code generated by the programming station with the security code stored by the security device.” Claim 35 further recites that the “arming or disarming” limitation comprises “arming the security device upon a matching of the security code generated by the programming station with the security code stored by the security device.”

In making our patentability determinations as to the ’247 patent, we “analyzed Petitioner’s contentions and cited evidence, including the supporting testimony of Mr. Allison, and agree[d] with and adopt[ed] Petitioner’s analysis regarding [claim 35].” Ex. 1020, 57. Thus, we adopted Petitioner’s contention that “Rothbaum discloses a security system that is armed via a key.” See 899 IPR Paper 4, 53 (citing Ex. 1003, 6:15–22). Petitioner argued that “a [person of ordinary skill in the art] would have been motivated to incorporate into the modified Rothbaum system the use of a key to both arm and disarm in light of Rothbaum’s teachings to use a key for both arming and disarming.” *Id.* Finally, Petitioner asserted that

in the modified Rothbaum system described [in the Petition], the Rothbaum security device would be armed based upon a matching of security codes (“access codes” which are part of the “key codes”) in the security device and programmable key (“electronic key”). As described with the “providing” limitation of Claims 25 and 31, the “access code” is generated by the programming station (“external computing device”) and provided to the programmable key (“electronic key”).

Id. at 55–56. Therefore, our findings for claim 35 of the ’247 patent (which were adopted from Petitioner’s analysis) are that the cited art teaches arming a security device with a key that stores a security code that matches the code stored in the security device.

In addition, we note that we have construed the phrase “single security code” in reference to related patents. See, e.g., Ex. 1022, 10–13 (895 IPR).

That construction was the same as the one we adopted here for the '472 patent. In both cases, we determined that “‘single security code’ [w]as one security code, but the recited system does not exclude programming stations that are capable of programming other codes into other keys.” *See id.* at 13. In the 895 IPR, we found that one of ordinary skill in the art would have found it obvious to generate a “single security code,” and we noted a user that desired to have a single key to unlock and lock all merchandise would have been motivated to only generate one code. *Id.* at 41.

In light of these findings from the 898 and 895 IPRs, we find that our patentability analyses from the prior cases fully support a finding that it would have been obvious to arm the security device with the programmable key using the single security code. Claim 6, thus, does not present an entirely new limitation, but rather we are presented with a claim where we previously determined that each element of the claim was found in the cited art as part of our analysis of related claims in prior cases. Collateral estoppel applies to subsidiary findings, and the subsidiary findings necessary to determine that claims 1 of the '800 patent and 35 of the '247 patent would have been obvious over Rothbaum and Denison are the same as the subsidiary findings necessary here in order to establish that claim 6 would have been obvious over Rothbaum and Denison. *See* Restatement (Second) of Judgments § 27, cmt. j; *MaxLinear*, 880 F.3d at 1377. We determine that Patent Owner had a full and fair opportunity to litigate the subject matter of claim 6 of the '472 patent. We are careful to view the claim as a whole and not just its constituent parts. Our analysis of the entire claim does not lead us to find the need for any additional findings in order to support a finding of unpatentability of claim 6. As such, we find that collateral estoppel applies

to the additional limitations recited in claim 6 of the '472 patent. Therefore, we determine, on the basis of collateral estoppel and our determination as to independent claim 1, that Petitioner has demonstrated by a preponderance of the evidence that claim 6 is unpatentable.

Similarly, claim 34 depends from claim 17 and further recites “wherein the programmable key is configured to control the security device using only the single security code.” Claim 45 depends from claim 39 and differs from claim 34 because it recites “the plurality of programmable keys” that control “each of a plurality of security devices.” Petitioner asserts that these claims are unpatentable over Rothbaum and Denison. Pet. 36–37. Petitioner also asserts that collateral estoppel applies to these claims and relies on the same claim discussed above in regards to claim 6. Pet. CE Br. 2–3. Patent Owner argues that collateral estoppel should not apply because controlling the security device is materially different from the arming and disarming described in the prior claims. PO CE Br. 8–9.

Claims 34 and 45 are broader than claim 6 because “control[ling] the security device” is a broader term than either arming or disarming the security device. *See* Ex. 1001, 13:65–14:9 (discussing ways the security code could be used to control the security device including “arming the security device”). Thus, the previous findings made in the context of claim 36 of the '247 patent also support a finding of unpatentability of claims because the “controlling” limitations would encompass the arming and disarming that we found to be taught by the art. As such, we agree with Petitioner and determine that collateral estoppel also applies to claims 34 and 45 of the '472 patent.

Finally, claim 35 depends from claim 17 and recites, “wherein the programmable key is configured to arm the security device using the single security code, and wherein the programmable key is further configured to disarm the security device using the single security code.” Claim 40 depends from claim 39 and is substantially similar to claim 35 except that it recites a programmable key that arms and disarms “each of the plurality of security devices.” Here again, Patent Owner directs us to differences in language that it urges to be material such that collateral estoppel should not apply. PO CE Br. 9–10. The differences, however, are minor and not significant enough to implicate any issues of patentability that have not already been decided. For example, claim 35 of the ’247 patent arms or disarms the security device *upon a matching of the security code generated by the programming station with the security code stored by the security device*. Claim 35 of the ’472 patent is broader in that it does not require a matching, but rather it recites the key “using” the security code to arm or disarm the security device without requiring a matching security code in order to use the key. We determine that “using” is broad enough to encompass the scenario in which the security device is armed or disarmed upon a matching of the security codes. See Ex. 1001, 13:65–14:9. Thus, we agree with Petitioner and determine that collateral estoppel also applies to claims 35 and 40 of the ’472 patent.

Therefore, for the foregoing reasons we determine that the findings made in our analysis of claims 35 and 36 of the ’247 patent (Ex. 1020, 57–59) and claim 29 of the ’452 patent (481 Decision 36–37) fully support a finding of unpatentability of claims 34, 35, 40, and 45 of the ’472 patent. We are careful to view each claim as a whole and not just their constituent

parts. We determine that the findings noted above as to prior related cases are sufficient to establish the unpatentability of claims 34, 35, 40, and 45 as a whole. The prior findings were essential to determining the patentability of those previously adjudicated claims, and the parties had a full and fair opportunity to litigate those claims. As such, we find that collateral estoppel applies to the additional limitations recited in claims 34, 35, 40, and 45 of the '472 patent. Therefore, we determine, on the basis of collateral estoppel and our determination as to the independent claims from which these claims depend, that Petitioner has shown by a preponderance of the evidence that claims 34, 35, 40, and 45 of the '472 patent would have been obvious over Rothbaum and Denison.

7. Claims 10 and 26

Petitioner alleges that claims 10 and 26 are unpatentable over Rothbaum and Denison. Pet. 40–42. Claim 10 depends from claim 1 and recites, in relevant part, “invalidating the single security code in the programmable key after a period of time to prevent subsequent controlling of the security device by the programmable key unless the single security code is refreshed in the programmable key within the period of time.” Claim 26 depends from claim 17 and recites, in relevant part, “wherein the programmable key comprises an internal timer which automatically invalidates the single security code in the key after a period of time.”

According to Petitioner, collateral estoppel applies to claims 10 and 26 in light of our determination regarding claim 22 of the '452 patent. Pet. CE Br. 4. Claim 22 of the '452 patent recites, in relevant part, “the security code stored by the programmable key is configured to be invalidated when the security code stored by the programmable key does not match the

security code stored by the security device.” Patent Owner points out that claim 22 of the ’452 patent does not contain a limitation regarding invalidation after a period of time and thus, the claims are not identical. PO CE Br. 6–7. Petitioner asserts that invalidation based on the passage of time would have been obvious based on the asserted art. Pet. CE Br. 10. We agree with Patent Owner. In order for collateral estoppel to be appropriate, there has to be an identity of issues presented. *Nestle USA, Inc.*, 884 F.3d at 1352. Here, identity is lacking because we made no findings as to invalidation based on the passage of time. Thus, we determine that collateral estoppel is inapplicable to claims 10 and 26, and we will analyze the claims and asserted ground on their merits.

Petitioner’s contentions regarding claim 26 may be summarized as follows: According to Petitioner, Denison teaches “setting ‘operation limits’ to disable (inactivate) the key after a ‘period of time’ (*e.g.*, ‘number of days’).” Pet. 40 (citing Ex. 1002 ¶ 60); *see* Ex. 1002 ¶ 60 (“[O]peration limits include, for example, time of data, date, number of days, number of accesses, number of accesses per day, etc.”). Denison also has “‘a real-time clock integrated circuit (IC) 94’ (timer) used for this purpose.” Pet. 40 (quoting Ex. 1002 ¶ 41). According to Petitioner, Denison discloses two ways that a key becomes inactivated. *Id.* In one method, the key transmits a code recorded for “audit” purposes, but the security device is not unlocked. *Id.* (citing Ex. 1002 ¶¶ 63, 68). Mr. Allison supports Petitioner’s contention through his testimony that one of ordinary skill in the art “would have understood and found obvious that this . . . method could be accomplished through the use of a flag sent to the vending machine, indicating whether the operation limits have been exceeded,” and another way “would be to erase

or set to null the key code on the key once the operation limits are exceeded. That way, the key would be unable to unlock any vending machine, since there would be no matching of codes.” Ex. 1019 ¶¶ 158–159. Mr. Allison testifies that there are only a “limited number of methods of preventing a key with the correct code from controlling a security device.” *Id.* ¶ 160.

As to claim 10, Petitioner also relies on the above described disclosures of Denison to teach the recited invalidation of the single security code after a period of time. Pet. 40. In addition, with respect to the additional limitations of claim 10 directed to preventing the key from controlling the security device unless the code is refreshed within the period of time, Petitioner cites Denison’s disclosure of setting “operation limits” based on “work schedule[s].” *Id.* at 41; *see also* Ex. 1002 ¶ 61 (“The limits for each key may be customized depending on, for instance, the work schedule or habits of the employee to whom the key is given.”). Mr. Allison opines that it would have been obvious to reprogram the key with new “operation limits” in light of changes to a work schedule. Ex. 1019 ¶¶ 162–163. Thus, Petitioner argues that the system would be prevented from inactivating the code within the original time frame set in the “operation limits” because new “operation limits” had been programmed in the key prior to expiration of the original time limit. Pet. 41. Mr. Allison states that “[a person of ordinary skill in the art] would have found this obvious as otherwise it would be necessary to repeatedly provide employees new keys and dispose of the old ones, which is expensive and irrational given that electronic devices can be easily and commonly are reprogrammed.” *Id.* ¶ 163.

Patent Owner responds by arguing that these claims “do not merely require that the key no longer functions, but they require that the security code itself be ‘invalidated.’” PO Resp. 53. “[Petitioner] does not and cannot contend that Denison discloses or teaches any action on or towards its security code.” *Id.* According to Patent Owner, Denison inactivates the key and not the code. *Id.* Patent Owner further argues that “Mr. Allison repeatedly states that in his view that Denison’s ‘operation limits’ can be ‘set for the electronic key such that *the key becomes disabled (inactivated)*.’” *Id.* (quoting Ex. 1019 ¶ 156). Patent Owner contends that Mr. Allison’s testimony is based on impermissible hindsight and is not supported by the record. *Id.* at 54. According to Patent Owner, Mr. Allison’s conclusory statements are not supported by the cited art or evidence. *Id.* We do not agree.

As noted above, we interpret “invalidating the single security code” to mean that the security code is rendered incapable of controlling the security device. *See supra* Section II.B.3. We find credible Mr. Allison’s testimony that Denison teaches a key transmitting an access code that is recorded for audit purposes, but is unable to unlock the security device. Ex. 1019 ¶¶ 157–159 (citing Ex. 1002 ¶¶ 63, 68). Thus, the code in that circumstance is one that is incapable of controlling the security device. We also are persuaded by Mr. Allison’s testimony that one of ordinary skill in the art would have inactivated the code in the key because that procedure is one of the finite number of methods for invalidating the key and thus, it would have been obvious for one of ordinary skill in the art to try that method. *See* Ex. 1019 ¶ 160. As described in Denison, “if the key is disallowed for access because an operation limit . . . is reached,” the unlocking procedure is

terminated and a record is made of the improper key code and timestamp. Ex. 1002 ¶ 63. In addition, “[t]he limits for each key may be customized depending on, for instance, the work schedule or habits of the employee to whom the key is given.” *Id.* ¶ 61. Thus, the key will be inactivated based on the operation limits unless the key’s operation limits are customized prior to the expiration of the limits originally programmed into the key. We credit Mr. Allison’s testimony that one of ordinary skill in the art would have performed such reprogramming based on work schedules in order to avoid the waste and inefficiency. See Ex. 1019 ¶ 163.

As such, we are persuaded by Petitioner’s contentions and cited evidence, including the supporting testimony of Mr. Allison, and we agree with and adopt Petitioner’s analysis regarding dependent claims 10 and 26. Therefore, we determine that Petitioner has established by a preponderance of the evidence the unpatentability of claims 10 and 26.

8. Claim 15

Petitioner alleges that claim 15 is unpatentable over Rothbaum and Denison. Pet. 51–52. According to Petitioner, collateral estoppel applies to claim 15 in light of our determinations regarding claim 25 of the ’247 patent from the 898 IPR (Ex. 1020, 45–46). Pet. CE Br. 5. The relevant text of claim 15 of the ’472 patent and claim 25 of the ’247 patent is reproduced below (emphases added).

Claim 15 of the ’472 patent	Claim 25 of the ’247 patent (found unpatentable in the 898 Decision (affirmed))
wherein the storing the single security code at the programmable key comprises storing the single security code at each of a plurality	providing the unique security code to each of a plurality of programmable keys, each of the plurality of programmable keys having a memory

Claim 15 of the '472 patent	Claim 25 of the '247 patent (found unpatentable in the 898 Decision (affirmed))
of programmable keys <i>usable in only the single retail store</i> , and wherein the storing the single security code at the security device comprises storing the single security code at each of a plurality of security devices <i>usable in only the single retail store</i> .	and the unique security code stored in its memory; storing the unique security code at a plurality of security devices each configured to be attached to an item of merchandise, each of the plurality of security devices having a memory and the unique security code stored in its memory

As is shown above, claims 15 of the '472 patent and 25 of the '247 patent both address the storage of the security code in a plurality of programmable keys and a plurality of security devices. Thus, the vast majority of factual findings necessary to support a conclusion of obviousness as to claim 15 of the '472 patent over Rothbaum and Denison have already been made as part of our analysis of claim 25 of the '247 patent.

The claims differ in that claim 15 requires the key's security code to be a "single security code" and claim 25 of the '247 patent requires the key's security code to be a "unique security code," and claim 15 additionally requires the programmable key and security device to be "usable in only the single retail store." The parties do not argue that the "single security code" versus "unique security code" language is a difference that would impact the collateral estoppel analysis. Regardless, as we have noted above, we previously have found that the "single security code" would have been obvious over Rothbaum and Denison. *See, e.g., Ex. 1022, 41 (895 IPR).*

Both parties discuss the limitation “usable in only the single retail store.” Petitioner asserts that this term is found in claim 39 of the ’472 patent, so if we find claim 39 to be unpatentable, then claim 15 must be unpatentable as well. Pet. CE Br. 9. That, however, is not the correct analysis. In order to determine if collateral estoppel is applicable we must ascertain whether this identical issue has been the subject of a previous patentability decision. As noted above in our discussion as to the independent claims, we determined that the identical issues had not previously been decided. *See supra* § II.E.4. We, however, analyzed this limitation and found that Petitioner has established that it would have been obvious over the cited art. *Id.*

For the same reason discussed above, in regards to independent claims 1, 17, and 39, we find that the disputed “usable in only the single retail store” limitation would have been obvious based on the combination of Rothbaum and Denison. We determine that the findings made in our analysis of claim 25 of the ’247 patent along with our findings above regarding the “usable in only a single retail store” limitation also support a finding of unpatentability of claim 15 of the ’472 patent. We are careful to view the claim as a whole and not just its constituent parts. We determine that the findings noted above as to the prior related case along with the findings we make in this Decision as to the disputed limitation are sufficient to establish the unpatentability of claim 15 as a whole. The prior findings were essential to determining the patentability of claim 25 of the ’247 patent and the parties had a full and fair opportunity to litigate that claim. Therefore, we determine that Petitioner has shown by a preponderance of the

evidence that claim 15 of the '472 patent would have been obvious over Rothbaum and Denison.

9. Claim 25

Petitioner alleges that claim 25 would have been obvious over the teachings of Rothbaum and Denison. Pet. 54–55. Claim 25 depends from claim 17 and further recites “wherein the programming station cannot generate more than one single security code to be used by the programmable key and the security device at one time.” The parties agree that collateral estoppel does not apply to claim 25. Ex. 3001. We agree with the parties because our review of the records of the related cases does not show that we have addressed the identical patentability issues that must be determined here. Petitioner relies on the testimony of Mr. Allison to show what one of ordinary skill in the art would have understood in light of the cited art. Pet. 54. He opined

that a [person of ordinary skill in the art] would have understood that under certain circumstances, it would be beneficial to provide a programming station (“external computing device” in Denison) that is able to generate one and only one security code (“access code” in Denison) throughout its lifetime. A [person of ordinary skill in the art] thus would have been motivated to and would have found it obvious to modify the modified Rothbaum system in this manner.

By allowing the software on the “external computing device” to generate a code only once, that would prevent codes within a store from changing, which a [person of ordinary skill in the art] would have understood would be beneficial to many store owners and managers. That way, keys and security devices could be programmed one time, and it would never be necessary to reprogram an entire store. It would not be possible for a store to become mixed with multiple codes, which often results in an entire storing needing to be reprogrammed. This is beneficial because reprogramming an entire store is very time consuming

and thus costly for a store, particularly for large stores with large inventory.

If the “external computing device” (i.e., programming station) is only capable of generating one code, it would be unable to “generate more than one single security code to be used by the programmable key and the security device at one time,” as set forth in Claim 25.

Ex. 1019 ¶ 181 p. 96.

Patent Owner contends that Mr. Allison’s testimony is insufficient. PO Resp. 32. First, Patent Owner contends that Mr. Allison ignores the express language of the claims by discussing the benefits of generating a single security code for the lifetime of the programming station. *Id.* According to Patent Owner, there is no discussion as to why Mr. Allison focuses on the lifetime of the programming station when the claim recites that the single security code is “used by the programmable key and the security device at one time.” *Id.* Patent Owner asserts that this ignores the ’472 patent’s teaching of the use of a MAGIC KEY to replace the single security code. *Id.* at 33. Petitioner responds by arguing that “a programming station capable of generating only one code throughout its lifetime (and no more) axiomatically is unable to ‘generate more than one single security code to be used by the programmable key and security device at one time.’” Reply 11; *see also* Tr. 15:11–16:2 (asserting that claim 25 is not limited to a system that generates only one key in its lifetime but that such a system is within the scope of claim 25).

Second, Patent Owner argues that Mr. Allison’s testimony is unsupported in that it does not reference Denison or any other patent or printed publication to support his opinions. PO Resp. 34; *see also* Tr. 30:24–32:9 (arguing that Petitioner provides no support for its expert’s

testimony that one of ordinary skill in the art would have been motivated to avoid the expense of reprogramming locks). Petitioner responds by pointing out that Mr. Allison's testimony is un rebutted and by stating that Federal Circuit precedent only requires Petitioner to provide a reason for the modification and that such reasoning is not limited to printed publications. Reply 12.

Third, Patent Owner contends that Mr. Allison's testimony conflicts with Denison's teachings, which describe an external computing device that generates multiple codes for multiple locations. PO Resp. 35; *see also* Tr. 28:22–30:23 (arguing that Denison “teaches strongly the advantages to multiple codes used in multiple locations”). Here, Petitioner asserts that Patent Owner once again misapprehends the proposed combination. Reply 12. Petitioner is relying on Rothbaum as modified by Denison. Pet. 14–34, 54–55. Denison is relied upon as to its disclosure of an electronic key, and the teaching of the key is used to modify Rothbaum's system by replacing the mechanical key with an electronic key. *Id.* Thus, Petitioner asserts that any contrary disclosures in Denison related to the vending machine are not part of its contentions because there is no vending machine in the proposed modified system. Reply 12.

We have analyzed Petitioner's contentions and the testimony of Mr. Allison, and we agree with and adopt Petitioner's analysis regarding dependent claim 25. Patent Owner's discussion of being able to reset the code with a master key or MAGIC KEY is not persuasive because that is not recited in claim 25. Claim 21 depends from claim 17 (which is claim 25's base claim as well). Claim 21 recites “wherein the programming station is configured to provide a new single security code.” Thus, we find that claim

17 is broad enough to encompass both programming stations that are and are not capable of providing a new single security code. As such, claim 25 also would not be limited to programming stations that are capable of generating a new single security code. Therefore, we are not persuaded by Patent Owner's argument that the programming station must be able to provide a new single security code.

Next, we have reviewed Mr. Allison's testimony and find it credible. He opines as to the specific teachings of Rothbaum and Denison as well as the knowledge of one of ordinary skill in the art and the motivations of that person. He provides reasoning to support his statements, and we find his reasoning credible. "A claimed invention may be obvious even when the prior art does not teach each claim limitation, so long as the record contains some reason why one of skill in the art would modify the prior art to obtain the claimed invention." *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017); *accord* Reply 12 (citing *Nike*). Thus, Mr. Allison's testimony may be sufficient if it provides sound reasoning that meets the requirements laid out by precedent including *Graham v. John Deere Co.*, 383 U.S. 1 (1966) and *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). Here, Mr. Allison has proposed a specific modification ("provide a programming station . . . that is able to generate one and only one security code . . . throughout its lifetime") and supported that proposal by explaining the benefits (saving time and money) that would motivate one of ordinary skill in the art to implement this modification. See Ex. 1019 ¶ 181 p. 96. Petitioner and Mr. Allison are not advocating for an interpretation of claim 25 that is limited to a system that can generate only

one code in its lifetime, but rather they are asserting that this system would fall within the scope of claim 25. *See* Tr. 15:11–16:2. We are persuaded by Mr. Allison’s testimony. Mr. Allison lays out a rational basis for the proposed modification and supports that rationale with a rational underpinning. We are persuaded that his testimony sufficiently supports Petitioner’s argument for a simplified system that would meet the limitations of claim 25. His testimony is unrebutted, and we credit it as useful evidence in determining the patentability of claim 25.

Therefore, we determine that Petitioner has established by a preponderance of the evidence the unpatentability of claim 25 over the teachings of Rothbaum and Denison.

10. Claims 2–5, 7–9, 12, 13, 18–24, 28, 31, 32, 38, 42, and 43

Petitioner further contends that dependent claims 2–5, 7–9, 12, 13, 18–24, 28, 31, 32, 38, 42, and 43 would have been obvious over Rothbaum and Denison. Pet. 34–58. Petitioner asserts that collateral estoppel applies to all of these claims. Ex. 3001; Pet. CE Br. 2–9. Patent Owner disagrees and argues that each of these claims “include[s] additional significant recitations that are not substantially identical to those of the prior claims cited by [Petitioner],” but does not explain why in any detail in its responsive brief. PO CE Br. 3–4.

We have reviewed Petitioner’s assertions and we agree that collateral estoppel is applicable to these claims. For example, claim 2 of the ’472 patent depends from claim 1, and further recites “wherein the providing comprises generating the single security code with the programming station.” Petitioner alleges that our findings as to claim 39 of the ’800 patent support the application of collateral estoppel to claim 2 of the ’472 patent.

Pet. CE Br. 2. Claim 39 of the '800 patent recites, in relevant part, “generating a single security code in a programming station.” See Ex. 1022, 40. There, Petitioner argued that Denison teaches an external computing device that generates key codes. *Id.* at 27. We expressly agreed with Petitioner’s contentions regarding the generation of a single security code, and our findings were necessary to our determination of unpatentability of claim 39 of the '800 patent. *Id.* at 41, 47. We determine that the findings noted above as to prior related cases in conjunction with our findings made as to independent claim 1 from which claim 2 depends are sufficient to establish the unpatentability of claim 2 as a whole. Therefore, we determine, on the basis of collateral estoppel and our determination as to independent claim 1, that Petitioner has shown by a preponderance of the evidence that claim 2 of the '472 patent would have been obvious over Rothbaum and Denison.

Similarly, we have reviewed Petitioner’s assertions as to claims 3–5, 7–9, 12, 13, 18–24, 28, 31, 32, 38, 42, and 43, and we agree that collateral estoppel applies to the additional limitations recited in those claims as well. Therefore, we determine, on the basis of collateral estoppel and our determination as to the independent claims from which these claims depend, that Petitioner has shown by a preponderance of the evidence that claims 3–5, 7–9, 12, 13, 18–24, 28, 31, 32, 38, 42, and 43 of the '472 patent would have been obvious over Rothbaum and Denison.

11. Conclusion

Thus, for all of the foregoing reasons, we determine that Petitioner has established by a preponderance of the evidence that claims 1–10, 12–15, 17–32, 34–43, and 45 are unpatentable over Rothbaum and Denison.

F. Asserted Obviousness Based on Rothbaum, Denison, and Ott

Petitioner asserts that dependent claims 16, 33, and 44 would have been obvious over the combination of Rothbaum, Denison, and Ott.

Pet. 58–60. Petitioner explains how the cited prior art references teach the claimed subject matter and relies upon the testimony of Mr. Allison to support its positions. *Id.* Petitioner also asserts that collateral estoppel applies to each of these claims. Ex. 3001.

As indicated in the chart below, we have found 10 claims from related patents to be obvious over Rothbaum, Denison, and Ott.

Case Number	Patent	Exhibit	Claims obvious over Rothbaum, Denison, and Ott
IPR2016-00892	'762 patent	Ex. 1021, 50–56	2–4, 21, 26
IPR2016-00895	'800 patent	Ex. 1022, 61–66	2, 23
IPR2016-00898	'247 patent	Ex. 1020, 59–61	2
IPR2017-00344	'631 patent	Ex. 1026, 53–60	6, 7

The Federal Circuit has affirmed our final written decisions in all of the cases listed above. *See* Ex. 1029.

1. Overview of Ott

Ott “relates to an apparatus for safeguarding a merchandise item against theft, having a safeguarding part for fixing to the merchandise item and having a connecting cord for connecting the safeguarding part to an object which is not at risk of theft.” Ex. 1005, 1:5–9. Figure 9 of Ott is reproduced below.

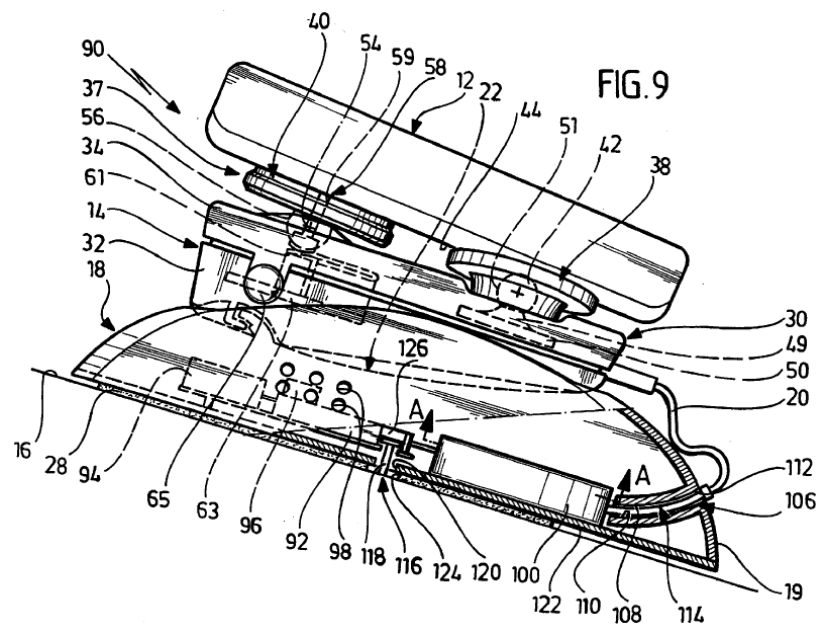


Figure 9 of Ott depicts apparatus 90 having holding part 18 affixed to an object such as lid 16 of a display case and having safeguarding part 14, which can be attached to item of merchandise 12. *Id.* at 7:26–40, 11:43–12:2. Holding part 18 also has sensor element 116. *Id.* at 11:43–57. Ott also discloses switching plunger 118, which actuates microswitch 126 to turn on the alarm when holding part 18 is removed from lid 16. *Id.* at 11:45–12:2.

2. Claim 16

Claim 16 depends from claim 1 and further recites “mounting the security device to a support surface with a fastener or an adhesive.” Petitioner asserts that our findings in regards to several previously adjudicated claims, including claims 2–4 of the ’762 patent, support the assertion of collateral estoppel as to claim 16. Pet. CE Br. 5–6. Claims 2–4 of the ’762 patent are reproduced below.

2. The programmable security system of claim 1, wherein the security device further comprises a fastener.

3. The programmable security system of claim 2, wherein the fastener comprises an adhesive.

4. The programmable security system of claim 3, wherein the adhesive is configured to secure the security device to a support.

Id. Claim 16 of the '472 patent and claims 2–4 of the '762 patent recite a security device, which is mounted/secured to a support with a fastener or an adhesive. The findings we made in regards to the previously adjudicated claims of the '762 patent fully support the unpatentability of claim 16 of the '472 patent. *See* Ex. 1021, 52–54. We are careful to view the claim as a whole and not just its constituent parts. We determine that the findings noted above as to prior related cases are sufficient to establish the unpatentability of claim 16 as a whole. The prior findings were essential to determining the patentability of those previously adjudicated claims and the parties had a full and fair opportunity to litigate those claims. As such, we find that collateral estoppel applies to the additional limitations recited in claim 16 of the '472 patent. Therefore, we determine, on the basis of collateral estoppel and our determination as to independent claim 1, that Petitioner has shown by a preponderance of the evidence that claim 16 of the '472 patent would have been obvious over Rothbaum, Denison, and Ott.

3. Claims 33 and 44

Claim 33 depends from claim 17 and further recites “wherein the security device is configured to be mounted to a support surface with a fastener or an adhesive, and wherein the security device comprises a plunger switch configured to engage the support surface.” Similarly, claim 44 depends from claim 39 and further recites “wherein each of the plurality of security devices is configured to be mounted to a support surface with a

fastener or an adhesive, and wherein each of the plurality of security devices comprises a plunger switch configured to engage the support surface.”

Petitioner asserts that our findings in regards to claims 21–23 of the ’800 patent and claims 2–4 and 23 of the ’762 patent support the application of collateral estoppel to claims 33 and 44 of the ’472 patent. Pet. CE Br. 6 (citing Ex. 1022, 47, 63–65; Ex. 1021, 54). The relevant claim language is reproduced below.

Claim 33 of the ’472 patent	Claims 21–23 of the ’800 patent (found unpatentable in the 895 Decision (affirmed))	Claims 2–4 and 23 of the ’762 patent (found unpatentable in the 892 Decision (affirmed))
33. The programmable security system of claim 17, wherein the security device is configured to be mounted to a support surface with a fastener or an adhesive, and wherein the security device comprises a plunger switch configured to engage the support surface.	21. The programmable security system of claim 1, wherein the security device further comprises a switch configured to be actuated for activating the alarm in response to the integrity of the security device being compromised. 22. The programmable security system of claim 21, wherein the security device comprises a housing containing the switch. 23. The programmable security system of claim 22, wherein the switch comprises a plunger switch.	2. The programmable security system of claim 1, wherein the security device further comprises a fastener. 3. The programmable security system of claim 2, wherein the fastener comprises an adhesive. 4. The programmable security system of claim 3, wherein the adhesive is configured to secure the security device to a support. 23. The programmable security system of claim 1, further comprising a plurality of security devices.

Claim 33 of the '472 patent and claims 2–4 of the '762 patent all are directed to a security system with a security device that is mounted to a support with a fastener or an adhesive. Claim 33 of the '472 patent and claims 21 and 22 of the '800 patent all are directed to a security system with a security device that comprises a plunger switch. Claim 44 has all of the elements of claim 33, but it does so in the context of a system with a plurality of security devices. That additional limitation is seen in the context of claim 23 of the '762 patent. Patent Owner argues, however, that none of the cited claims from the related cases recite a security device with a plunger switch configured to engage a support surface. PO CE Br. 8. Patent Owner argues that the respective recitations of the cited '762 patent claims and '800 patent claims cannot be combined to support a finding of estoppel with respect to claims 33 and 44. *Id.* We disagree.

When analyzing Petitioner's contentions as to claim 4 of the '762 patent, we found that "a person of ordinary skill in the art would have had reason, and would have been motivated, to use an adhesive to mount Rothbaum's strip 12 to a supporting structure." Ex. 1021, 53 (citing IPR 892 Ex. 1015 ¶¶ 196–198). Further, in our discussion of claim 23 of the '800 patent, we credited the following contentions from Petitioner:

a [person of ordinary skill in the art] would have been motivated to include the "switching plunger" (*i.e.*, "plunger switch") of Ott within and on the bottom of Rothbaum's "housing." See Ex. 1006 at 11:45–12:2. Then, the alarm in the "security system" of Rothbaum would also activate if someone removes the housing from its support. This especially would have been obvious given that Rothbaum discloses that its "housing" has anti-tamper capability, including a "tamper switch" to set off the alarm if the

“battery compartment” is removed. *See* Ex. 1005 at 12:10–18;
see also Ex. 1015 ¶¶ 193–94.

Ex. 1022, 64. Thus, as to the ’800 patent, Petitioner specifically argued and we agreed that one of ordinary skill in the art would have modified the Rothbaum system to include a plunger switch “within and on the bottom of” the housing, and Petitioner asserted that this would be beneficial in the circumstance in which “someone removes the housing from its support.” *Id.* This is complemented by our finding in the 892 IPR that one of ordinary skill in art would have been motivated to modify Rothbaum by attaching it to a support. Thus, our previous findings show that the recited “security device compris[ing] a plunger switch configured to engage the support surface” would have been obvious over the cited art.

The differences between claims 33 and 44 and the previously adjudicated claims raise no new triable issues. *See Ohio Willow Wood Co.*, 2012 WL 2196083, at *8. The findings we made in regards to the previously adjudicated claims of the ’762 and ’800 patents fully support the unpatentability of claims 33 and 44 of the ’472 patent. *See* Ex. 1021, 50–56; Ex. 1022, 61–66. We are careful to view each of the claims as a whole and not just their constituent parts. We determine that the findings noted above as to prior related cases are sufficient to establish the unpatentability of claims 33 and 44 as a whole. The prior findings were essential to determining the patentability of those previously adjudicated claims and the parties had a full and fair opportunity to litigate those claims. As such, we find that collateral estoppel applies to the additional limitations recited in claims 33 and 44 of the ’472 patent. Therefore, we determine, on the basis of collateral estoppel and our determination as to the independent claims from which these claims depend, that Petitioner has shown by a

preponderance of the evidence that claims 33 and 44 of the '472 patent would have been obvious over Rothbaum, Denison, and Ott.

G. Asserted Obviousness Grounds Based on Deguchi

Petitioner contends that claims 1–10, 12–15, 17–32, 34–38, and 41 would have been obvious over Rothbaum, Denison, and Deguchi. Pet. 60–63. Petitioner asserts that dependent claims 16 and 33 would have been obvious over the combination of Rothbaum, Denison, Deguchi, and Ott. Pet. 63–64. In light of our determination that claims 1–10, 12–38, and 41 are unpatentable over Rothbaum and Denison or Rothbaum, Denison, and Ott, we decline to address the unpatentability of claims 1–10, 12–38, and 41 over the grounds including Deguchi.

III.CONCLUSION

Based on the information presented and the record developed during trial, we conclude that Petitioner has shown by a preponderance of the evidence that (1) claims 1–10, 12–15, 17–32, 34–43, and 45 are unpatentable under 35 U.S.C. § 103(a) as having been obvious over Rothbaum and Denison; and (2) claims 16, 33, and 44 are unpatentable under 35 U.S.C. § 103(a) as having been obvious over Rothbaum, Denison, and Ott. In light of our other determinations of unpatentability, we decline to address whether claims 1–10, 12–15, 17–32, 34–38, and 41 are unpatentable as obvious over Rothbaum, Denison, and Deguchi; or whether claims 16 and 33 are unpatentable as obvious over Rothbaum, Denison, Ott, and Deguchi.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1–10 and 12–45 of the '472 patent have been shown to be 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.

In Summary:

Claims	35 U.S.C. §	References	Claims Shown Unpatentable	Claims Not Shown Unpatentable	Claims Not Reached
1–10, 12–15, 17–32, 34–43, 45	103(a)	Rothbaum, Denison	1–10, 12–15, 17–32, 34–43, 45		
16, 33, 44	103(a)	Rothbaum, Denison, Ott	16, 33, 44		
1–10, 12–15, 17–32, 34–38, 41	103(a)	Rothbaum, Denison, Deguchi			1–10, 12–15, 17–32, 34–38, 41
16, 33	103(a)	Rothbaum, Denison, Deguchi, and Ott			16, 33

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