

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS
AMERICA, INC., SAMSUNG RESEARCH AMERICA, INC.,
Petitioner,

v.

DYNAMICS INC.,
Patent Owner.

IPR2020-00499
Patent 8,827,153

Before TREVOR M. JEFFERSON, GEORGIANNA W. BRADEN, and
JON M. JURGOVAN, *Administrative Patent Judges*.

BRADEN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine Petitioner has not shown by a preponderance of the evidence that claims 1 and 5–8 of U.S. Patent No. 8,827,153 B2 are unpatentable.

I. INTRODUCTION AND BACKGROUND

A. Procedural History

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc. (collectively “Petitioner”) filed a Petition requesting an *inter partes* review of claims 1 and 5–8 of U.S. Patent No. 8, 827,153 B2 (Ex. 1001, “the ’153 patent”). Paper 1 (“Pet.”). Dynamics Inc. (“Patent Owner”) timely filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 48, “PO Resp.”), to which Petitioner filed a Reply (Paper 51, “Pet. Reply”). Patent Owner then filed a redacted Sur-Reply (Paper 53, “PO Sur-Reply”).

An oral argument was held on May 12, 2021. A transcript of the oral argument is included in the record. Paper 61 (“Tr.”).

B. Real Parties-in-Interest

Petitioner identifies itself (Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Research America, Inc.) as the real parties-in-interest pursuant to 37 C.F.R. § 42.8. Pet. 62. Patent Owner identifies only itself as the real party-in-interest pursuant to 37 C.F.R. § 42.8. Paper 6, 1. There is no dispute regarding the identification of the real parties-in-interest.

C. Related Matters

Petitioner informs us of one pending district court proceeding based on the '153 patent that involves Petitioner, *Dynamics Inc. v. Samsung Elecs. Co., Ltd. et al.*, Case No. 1:19-cv-6479 (S.D.N.Y.), filed July 12, 2019, which was stayed on September 4, 2019. Pet. 62. Petitioner also informs us of one proceeding pending before the International Trade Commission ("ITC"), *In re Certain Mobile Devices With Multifunction Emulators*, Inv. No. 337-TA-1170 (U.S.I.T.C.), filed July 12, 2019. *Id.* Petitioner further informs us of concurrently filed IPR petitions for three other patents asserted in the above-referenced District Court and ITC cases. *Id.*

Patent Owner informs us of the same pending proceedings listed above. Paper 6 (Patent Owner's Mandatory Notice), 2–3.

D. The '153 Patent

The '153 patent was filed on July 17, 2012, issued on September 9, 2014, and is titled "Systems and Methods for Waveform Generation for Dynamic Magnetic Stripe Communications Devices." Ex. 1001, codes (22), (45), (54).

1. Written Description

The '153 patent relates to "[d]ynamic magnetic stripe communications devices" capable of communicating with payment terminals for carrying out purchase transactions without having to be in physical contact with the payment terminals through the use of magnetic emulation, rather than using data found on the magnetic stripe of payment cards. Ex. 1001, Abstract. According to the '153 patent, a dynamic magnetic communication device

includes two main components: (a) a magnetic emulator; and (b) a waveform generator. *Id.* at claim 1.

The '153 patent discloses that a magnetic emulator is a device that emulates the magnetic stripe of a traditional payment card. Ex. 1001, 1:22–37. By “emulating” a magnetic stripe, the magnetic stripe emulator is capable of interfacing with a magnetic stripe reader of a payment terminal. *Id.* According to the '153 patent, the magnetic stripe emulator can be “an inductor (e.g., a coil)” that “[c]urrent may be provided through . . . to create an electromagnetic field operable to communicate with the read-head of a magnetic stripe reader.” *Id.*, 2:14–18.

The '153 patent describes one embodiment of a card with a magnetic stripe emulator, which is illustrated in Figure 1, reproduced below.

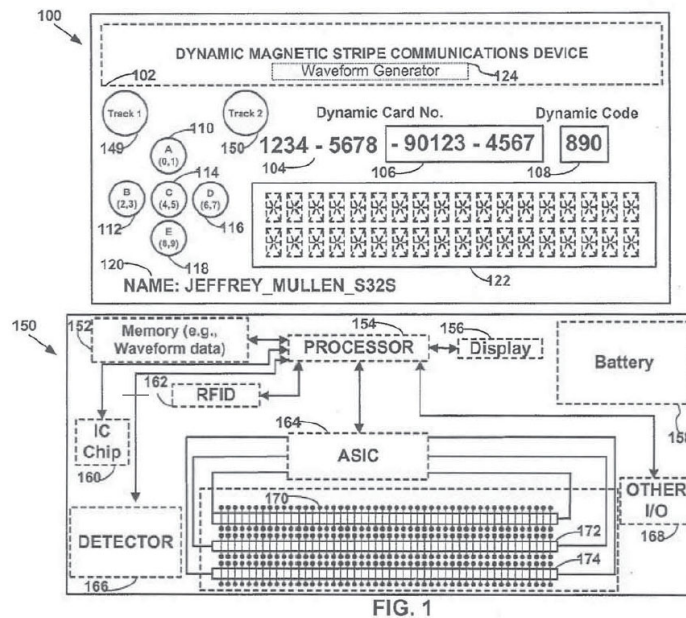


Figure 1 “is an illustration of a card constructed in accordance with the principles of the present invention.” Ex. 1001, 4:40–41. The '153 patent discloses that card 100 may include button 149. *Id.* at 5:46. According to the '153 patent, button 149 may be used to communicate a waveform via

waveform generator **124** through dynamic magnetic stripe communications device **102** indicative of a user's desire to communicate a single track of magnetic stripe information. Ex. 1001, 5:46–50.

The '153 patent describes another embodiment of a card with a magnetic stripe emulator, which is illustrated in Figure 2, reproduced below.

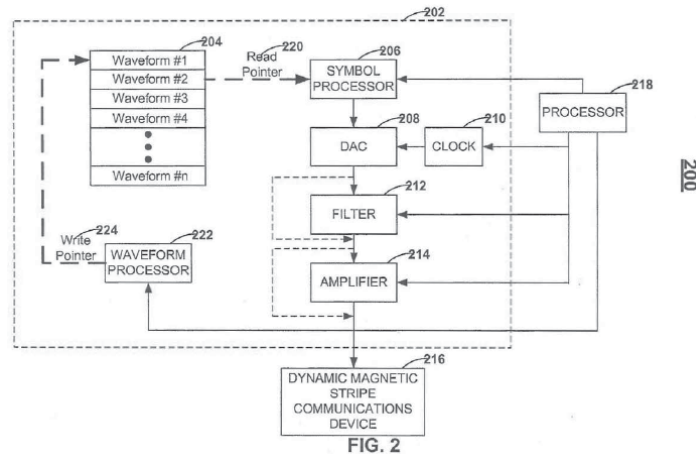


Figure. 2 is an illustration of a card, which may include component **202** (e.g., an ASIC, a mixed-signal FPGA, a data acquisition microcontroller or system on a chip), processor **218**, and dynamic magnetic stripe communications device **216**. *Id.* at 8:21–24. Component **202** may include, for example, memory **204**, symbol processor **206**, DAC **208**, clock generator **210**, filter **212**, amplifier **214**, and waveform processor **222**. *Id.* at 8:24–27.

The '153 patent further discloses that waveform generator **222** retrieves data from memory and allows the device to generate waveforms from the retrieved data to be communicated by the magnetic stripe emulator and received by a magnetic stripe reader. *Id.* at Abstract, 2:18–22. The '153 patent discloses that the format of that retrieved data is similar to the format of data that is stored in a traditional payment card (e.g., “at least one track of magnetic stripe data”). *Id.* at 2:18–22. The '153 patent explains that the

waveform generator “may fluctuate the amount of current travelling through the coil such that one or more tracks of magnetic stripe data encoded within the analog waveform may be communicated to a read-head of a magnetic stripe reader.” *Id.* The ’153 patent teaches that the analog waveform is generated from “a numeric (e.g., digital) representation of a waveform (e.g., an F2F encoded waveform) [that] may be stored within a memory of a card” (*id.* at 2:23–25), and then provided to the magnetic emulator, which outputs a magnetic field corresponding to the analog waveform (*id.* at 1:28–29, 2:14–18). According to the ’153 patent, the card may also have a digital to analog converter (or DAC) that converts the digital waveform from the memory into an analog waveform. *Id.* at 2:40–46. The ’153 patent teaches that the analog waveform is “amplified and filtered before being provided to a coil of a magnetic emulator,” which produces the magnetic field to be read by the magnetic card reader. *Id.* at 2:44–46; *see id.* at 1:28–29, 2:14–18.

The ’153 patent teaches that “[d]ifferent waveforms may be recalled from memory based upon a detected mode of operation by a processor of a card.” *Id.* at 3:27–28. In one example in the ’153 patent, “a processor of a card may detect a presence of a dual-head magnetic stripe reader and may further detect a direction that the card is being swiped through the dual-head magnetic stripe reader.” *Id.* at 3:29–32. According to the ’153 patent, “a processor or other device on the card may recall a waveform from a memory of the card that corresponds to a forward swipe direction and may communicate a forward-swipe waveform when a forward swipe direction is detected.” *Id.* at 3:32–36. Another example in the ’153 patent teaches that “a processor or other device on the card may recall a waveform from a memory of the card that corresponds to a reverse swipe direction and may

communicate a reverse-swipe waveform when a reverse swipe direction is detected.” *Id.* at 3:36–40. As per another example in the ’153 patent, “each digital waveform stored within a memory of a card may contain the same magnetic stripe information, but may exhibit different characteristics when communicated to a read-head of a magnetic stripe reader.” *Id.* at 3:41–45.

The ’153 patent also teaches that “[e]ach digital waveform stored within memory **204** may be indicative of the same, or different, magnetic stripe information.” *Id.* at 8:63–65, Fig. 2. In one example in the ’153 patent, “a first waveform stored within memory **204** may, for example, be representative of a first track of magnetic stripe information that may be communicated by dynamic magnetic stripe communications device **216**.” *Id.* at 8:65–9:1. According to the ’153 patent, “[d]igital waveforms stored within memory **204** may, for example, represent the same magnetic stripe information, but may exhibit different characteristics.” *Id.* at 9:25–27. As per another example in the ’153 patent, “a first waveform may define signal characteristics that are known to be optimal based upon a particular type of magnetic stripe reader that card **200** is being presented to.” *Id.* at 9:27–30. As per another example in the ’153 patent, “processor **218** may detect that card **200** is being presented to, for example, a dual-head magnetic stripe reader.” *Id.* at 9:36–38. In addition, “processor **218** may detect a swipe direction that card **200** is being swiped through the dual-head magnetic stripe reader.” *Id.* at 9:38–40. The ’153 patent teaches that “a waveform having symbols arranged in a forward direction may be retrieved by symbol processor **206**, converted to an analog waveform, and communicated by dynamic magnetic stripe communications device **216** in response to a forward direction swipe being detected by processor **218**.” *Id.* at 9:41–45. In

an alternate example in the '153 patent, “a waveform having symbols arranged in a reverse direction may be retrieved by symbol processor **206**, converted to an analog waveform, and communicated by dynamic magnetic stripe communications device **216** in response to a reverse-direction swipe being detected by processor **218**.” *Id.* at 9:46–51.

Another embodiment disclosed in the '153 patent indicates that a dynamic magnetic communication device may take the form of a mobile phone or personal computing device. *Id.* at 6:4–9, 14:20. The '153 patent also discloses that a dynamic magnetic communication device may store information such as a cardholder's name, username, card issue date, card expiration date, and a dynamic security code as well as graphical information such as logos and barcodes. *Id.* at 5:3–27.

2. *Illustrative Claim*

As noted above, Petitioner challenges claims 1, 5–8, with claim 1 being independent. Challenged independent claim 1 is illustrative of the challenged claims and is reproduced below:

1. A device comprising:

a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader; and

a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data,

wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data.

Ex. 1001, 15:14–23.

E. Evidence of Record and Asserted Challenges to Patentability

Petitioner asserts the following challenges to patentability (*see* Pet. 11, 5–8):

Reference(s)/Basis	35 U.S.C. § ¹	Challenged Claim(s)
Gutman ² , Shoemaker ³	§ 103(a)	1, 5–8
Lessin ⁴ , Shoemaker	§ 103(a)	1, 5–8

Petitioner submits the Declaration of Stephen G. Halliday, B.Sc.

(“Mr. Halliday”) in support of Petition for *Inter Partes* Review (Ex. 1002).

Patent Owner submits the Declaration of Ivan Zatkovich, M.S.

(“Mr. Zatkovich”) in support of Patent Owner’s Response (Ex. 2033). Both declarants were deposed. Ex. 1032 (Zatkovich Deposition); Ex. 2030, Ex. 2031 (Halliday Depositions). In addition, Patent Owner relies on a deposition of Stuart Lipoff, its expert witness from the ITC litigation.

Ex. 2034. The parties submitted numerous other documents into the record.

F. Relevant Legal Standards

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011) (“AIA”), included revisions to 35 U.S.C. §103 that became effective on March 16, 2013. Because the ’153 patent issued from an application filed before March 16, 2013, we apply the pre-AIA version of the statute.

² U.S. Patent No. 6,206,293, issued Mar. 27, 2001 (Ex. 1005, “Gutman”).

³ U.S. Patent No. 7,690,580, issued Apr. 6, 2010 (Ex. 1010, “Shoemaker”).

⁴ U.S. Patent No. 4,868,376, issued Sep. 19, 1989 (Ex. 1011, “Lessin”).

that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when present, objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). “[I]t is error to reach a conclusion of obviousness until all [the *Graham*] factors are considered.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc) (citations omitted). “This requirement is in recognition of the fact that each of the *Graham* factors helps inform the ultimate obviousness determination.” *Id.*

“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the U.S. Court of Appeals for the Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor,” *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) (en banc). The analysis below addresses all four *Graham* factors.

G. Burden of Proof

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *Magnum Oil Tools*, 829 F.3d at 1380.

Thus, to prevail in an *inter partes* review, Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. At this final stage, we determine whether a preponderance of the evidence of record shows that the challenged claims would have been obvious over the cited prior art. 35 U.S.C. § 316(e).

H. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining 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). 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). 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. *GPAC*, 57 F.3d at 1579. In a given case, one or more factors may predominate. *Id.* Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention 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 argues that a person having ordinary skill in the art at the time of the alleged invention “would have had at least a Bachelor’s degree in Electrical Engineering, or an equivalent technical degree or equivalent work experience, and knowledge regarding the use of magnetic fields to transmit or otherwise convey information.” Pet. 20 (citing Ex. 1002 ¶¶ 33–34).

Petitioner further argues that “[a]dditional education might supplement practice experience and vice-versa.” *Id.*

Patent Owner argues that a person having ordinary skill in the art at the time of the alleged invention would have had “the equivalent of an undergraduate degree in electrical engineering or computer science (or related field) and at least three years of work experience with point of sale systems and the use of magnetic fields to convey information.” PO Resp. 24. According to Patent Owner, “[a]dditional industry experience in the field

could substitute for the undergraduate degree, while additional education in the field could substitute for industry experience.” *Id.*

Based on our review of the ’153 patent, the types of problems and solutions described in the ’153 patent and cited prior art, and the testimony of both Mr. Halliday (*see* Ex. 1002 ¶¶ 33–34) and Mr. Zatkovich (*see* Ex. 2033 ¶ 17), for purposes of this Decision, we find that a person of ordinary skill in the art at the time of the claimed invention would have had at least a Bachelor’s degree in electrical engineering, or an equivalent technical degree and three years of experience working with magnetic fields to transmit or otherwise convey information, magnetic stripe cards and emulators, RFID systems, and cellular network communications. Although we find Patent Owner provides insufficient evidence explaining why a person of ordinary skill in the art would have also had experience specifically with point of sale systems and therefore do not include that additional requirement in our finding above, we note that our analysis would be the same under either party’s proposed level of skill in the art.

I. Claim Construction

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2019). Under that standard, claim terms are presumed to have their ordinary and customary meaning, as would have been understood by one of ordinary skill in the art, in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). To rebut this presumption by acting as a lexicographer, the patentee must give the term a particular meaning in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d

1475, 1480 (Fed. Cir. 1994). Limitations, however, are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). In addition, the Board may not “construe claims during [an *inter partes* review] so broadly that its constructions are *unreasonable* under general claim construction principles.” *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (overruled *on other grounds* by *Aqua Products*, 872 F.3d at 1290).

Petitioner states that it does not believe any terms need be construed to resolve the prior art issues presented in the Petition. Pet. 20. Petitioner notes there were claim construction issues in the ITC proceeding. *Id.* at 20–21 (citing Ex. 1016, 4–5). Petitioner further states the challenged claims are rendered obvious by the cited prior art references under either party’s proposed construction in the ITC proceeding. *Id.* at 21. Patent Owner does not indicate whether it believes any terms require construction to resolve any dispute it has with Petitioner’s position. PO Resp. 24–26. Nonetheless, Patent Owner presents the claims constructions proposed by the parties in the ITC and the constructions rendered by the ITC. *Id.* at 22–23 (citing Ex. 2012).

Because no express construction is needed to resolve any dispute in this proceeding, we do not construe any of the claim limitations. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1005, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

II. ANALYSIS

A. *Alleged Obviousness of Claims 1, 5–8 of the '153 Patent in View of Gutman and Shoemaker*

Petitioner contends claims 1, 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of Gutman and Shoemaker.

Pet. 12, 25–44. Patent Owner disputes Petitioner's contentions. PO Resp. 26–38. For reasons that follow, we determine Petitioner has not established by a preponderance of the evidence that the challenged claims would have been obvious under 35 U.S.C. § 103 in view of Gutman and Shoemaker.

1. *Overview of Gutman (Ex. 1005)*

Gutman is a U.S. Patent titled “Magnetically Communicative Card.” Ex. 1005, code (54). Gutman attempts to solve certain problems associated with conventional magnetic stripe⁵ cards (such as credit cards), including the wear and tear of the magnetic card stripe, their susceptibility to fraudulent copying, and their limited data storage capacity due to the dimensions of the card that are governed by the ANSI⁶ standards. *Id.* at 2:9–31. Rather than only turning to smart cards, which would render conventional magnetic card readers “obsolete” (*id.* at 2:49–53), Gutman teaches a card that can magnetically communicate data to conventional magnetic card readers without swiping to overcome the identified problems. *Id.* at Abstract, 17:3–4.

⁵ Certain references use the term “stripe,” while other references use “strip.” We consider these terms interchangeable.

⁶ American National Standards Institute (“ANSI”) is a private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States.

An embodiment of Gutman is shown in Figure 2, reproduced below:

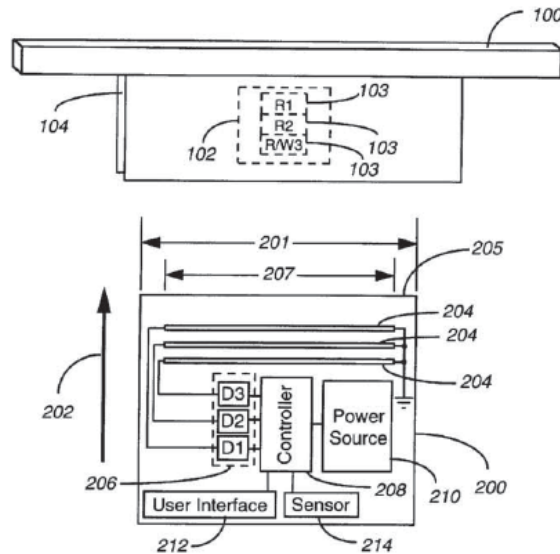


FIG. 2

Figure 2, above, is a diagrammatic representation of a conventional magnetic stripe card reader and an electrical block diagram of a magnetically communicative card having three conductors. *Id.* at 3:1–4. In Figure 2, magnetically communicative card **200** is inserted in slotted portion **104** of magnetic card reader **100**. *Id.* at 3:46–48. When this happens, conductor **204** corresponds to magnetic reading bead **103** of magnetic reading mechanism **102** of magnetic card reader **100**. *Id.* at 3:53–56. Conductor **204** is electrically coupled to at least one driver circuit **206** for driving electrical signals through conductor **204**. *Id.* at 3:57–58. Controller **208** is coupled to driver circuit **206** for controlling the operation of driver circuit **206**. *Id.* at 3:59–61. Controller **208**, when coupling the data signal to the driver circuit **206**, causes driver circuit **206** to electrically drive conductor **204** in accordance with the data signal. *Id.* at 3:62–65. The electrically driven conductor **204** emits an alternating polarity magnetic field about conductor **204**. *Id.* at 3:66–67. The alternating polarity of the magnetic field

about conductor **204** comprises magnetic flux transitions. *Id.* at 4:1–3. These magnetic flux transitions can be picked up by magnetic reading bead **103** and detected by magnetic card reader **100** to indicate bits of information corresponding to the data signal provided by controller **208**. *Id.* at 4:3–7.

One embodiment of conductor **204** on magnetically communicative card **200** is shown in Figure 3, reproduced below.

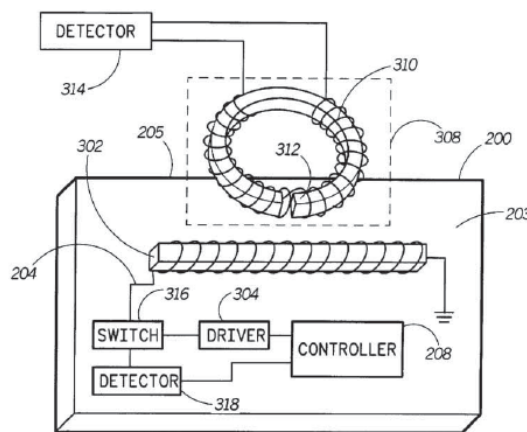


FIG. 3

Figure 3, above, is a simplified diagrammatic representation of a magnetic reading head in proximity to a magnetically communicative card having one conductor. Ex. 1005, 3:5–8. In Figure 3, card **200** is shown in close proximity to magnetic reading bead **308**. *Id.* at 5:43–44. As shown in Figure 3, above, conductor **204** is wound about a ferrite core **302** in the approximate shape of a coil. *Id.* at 7:15–16. Gutman discloses that controller **208** is coupled to switch circuit **316** for selectively coupling conductor **204** to either driver circuit **304** or detector circuit **318**. *Id.* at 5:45–48. Driver circuit **304** causes a current in conductor **204**, with changes in such current producing a magnetic field in the vicinity of the conductor. *Id.* at 5:48–50. Detector circuit **318** responds to current in conductor **204**, the current

changing as a result of the conductor intercepting a changing magnetic field.
Id. at 5:51–53.

2. Overview of Shoemaker (Ex. 1010)

Shoemaker is a U.S. Patent titled “Transaction Cards Having Dynamically Reconfigurable Data Interface and Methods for Using Same.” Ex. 1010, code (54). Shoemaker discloses a device that can store multiple tracks of the same or different data to address the problems associated with conventional magnetic stripe cards, such as susceptibility to fraud and damage. *Id.* at 1:63–2:67, 5:45–49, 6:49–60, 8:42–51. Specifically, Shoemaker discloses an “[a]ctive credit card 102 [with] a logic circuit **106**, representing the electronic circuitry (such as ASIC logic, processor, clock, volatile and/or nonvolatile memory, etc.) employed to generate data for programming the data pattern that appears on dynamically reconfigurable data interface 104.” *Id.* at 5:57–62.

One embodiment of Shoemaker’s active card 102 is shown in Figure 1A, reproduced below.

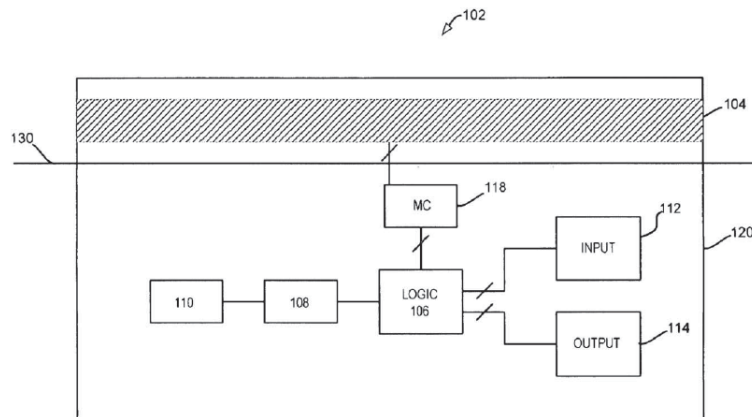


Fig. 1A

Figure 1A, above, is a diagram of an active credit card having a dynamically reconfigurable data interface attached to or formed on card base **120**, where

the interface is compatible with existing magnetic stripe card processing infrastructure. Ex. 1010, 3:41–43, 4:57–59, 5:45–48. Active card **102** also includes a logic circuit **106**, representing the electronic circuitry used to generate data for programming the data pattern that appears on dynamically reconfigurable data interface **104**. *Id.* at 5:56–5:62. The data pattern is “provided to a reconfiguration controller, such as a magnetizing controller **118**, which generates the appropriate electrical signals to configure data interface **104** such that the data that appears on dynamically reconfigurable data interface **104** can be read by an existing magnetic stripe card reader.” *Id.* at 6:4–9. The active card also includes “a magnetizing controller” and “a logic circuit” and “[t]o accomplish a transaction, logic circuit [] provides data to magnetizing controller [] to enable magnetizing controller to dynamically reconfigure data interface [], thereby transmitting a data pattern to a magnetic stripe card reader.” *Id.* at 6:26–30.

Shoemaker further discloses that its card can encode the same track data (such as in a forward or reverse manner) depending on the swipe direction. *Id.* at 14:65–15:6 (“For example, if a card reader expects a left-to-right swiping direction to decode the pattern a-b-c, the swiping of the inventive card in the right-to-left direction would trigger the swipe detector on the left side of the card, thereby causing the magnetizing order to provide the data pattern in the c-b-a order on the dynamically reconfigurable data interface. In this manner, the reader will be able to decode the correct pattern a-b-c even when the card is swiped in the right-to-left direction.”).

3. *Analysis of Gutman and Shoemaker as Applied to Challenged Independent Claim 1*

a. *Preamble*

Claim 1 recites “[a] device comprising.” Ex. 1001, 15:14.

Petitioner contends that “Gutman discloses a device that communicates with a magnetic card reader.” Pet. 25 (citing Ex. 1005, Figs. 2–3 (showing card 200), 7:48–8:18 (describing card 400 in Figure 4), 11:31–12:16 (describing card 500 in Figure 5)). To support its contention, Petitioner relies on Gutman’s description of “card 200 with at least one conductor 204 that emits an alternating polarity magnetic field (i.e., magnetic flux transitions) about the conductor 204 such that the card can communicate with a magnetic reading head 103 of a magnetic card reader 100.” *Id.* (citing Ex. 1005, 3:62–4:1).

Patent Owner does not dispute Petitioner’s contentions. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

“Whether to treat a preamble term as a claim limitation is determined on the facts of each case in light of the claim as a whole and the invention described in the patent.” *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (internal quotation marks and citation omitted).

Regardless of whether the preamble is limiting, based on the entirety of the trial record, we find Petitioner has shown that Gutman discloses a “device.”

- b. a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader*

Claim 1 recites “a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader.” Ex. 1001, 15:15–17.

Petitioner contends that Gutman discloses this limitation because it uses conductor 204, which emits magnetic flux transitions representing tracks of magnetic stripe data that can be read by magnetic card reader 100. Pet. 26–27 (citing Ex. 1005, 3:56–4:7, 4:31–35). Petitioner argues that “[b]ecause conductor 204 emulates a track of magnetic stripe data, no ‘swiping’ movement is necessary.” *Id.* (citing Ex. 1005, 17:3–4). That is, according to Petitioner, “data can be magnetically communicated from the card to the magnetic stripe reader independent of the swiping movements associated with conventional magnetic stripe cards.” *Id.* (citing Ex. 1005, 17:10–13). Petitioner further argues that “Figure 3 of Gutman shows that the conductor 204 of the same card 200 can be in the form of a coil.” *Id.* at 28 (citing Ex. 1005, Fig. 3, 7:15–16 (“In the preferred embodiment, the conductor 204 is wound about a ferrite core 302 in the approximate shape of a coil.”); Ex. 1001, 2:14–16 (describing that the claimed magnetic stripe emulator can be a coil), 7:36–43 (explaining that the coil can be wound about either a magnetic or non-magnetic material)). Therefore, Petitioner concludes “Gutman discloses that its conductor 204 is a magnetic stripe emulator” and is “operable to communicate a ‘data signal,’ which is encoded with three tracks of magnetic stripe data.” Pet. 28–29 (citing Ex. 1002 ¶ 77).

Patent Owner does not dispute Petitioner's contentions. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the entire trial record before us, we find Petitioner has shown that Gutman's conductor 204 is a magnetic stripe emulator as recited by the challenged claims.

c. a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data

Claim 1 recites "a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data." Ex. 1001, 15:18–20.

Petitioner contends that Gutman discloses this limitation because it uses driver circuit 206, which is coupled to controller 208. Pet. 31–32 (citing Ex. 1002 ¶ 81; Ex. 1005, 3:59–61). According to Petitioner, "driver circuit 206 is 'for driving electrical signals through the conductor 204' based on the data signal from controller 208." *Id.* at 32 (citing Ex. 1005, 3:56–59). Petitioner argues that Gutman's "data signal" discloses the claimed "at least one track of magnetic stripe data." *Id.* (citing Ex. 1005, 4:14–21; Ex. 1002 ¶ 82). Petitioner further argues that although Gutman's waveform generator generates a digital waveform, it was well known to a person of ordinary skill in the art that the waveform generator could drive conductor 204 using either an analog or digital waveform. Pet. 33 (citing Ex. 1002 ¶ 83).

Patent Owner does not dispute Petitioner's contentions. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the entire trial record before us, we find Petitioner has shown that Gutman’s drive circuit 206 and controller 208 are a waveform generator as recited by the challenged claims. Additionally, we credit the testimony of Mr. Halliday that a person of skill in the art at the time of the ’153 patent “would have known that digital to analog conversion could be accomplished through the addition of a single, well-known circuit—the digital to analog converter.” See Ex. 1002 ¶¶ 83–84.

d. wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data

Claim 1 recites “wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data.” Ex. 1001, 15:21–23.

Petitioner contends that Gutman alone, or in view of Shoemaker, discloses this limitation because Gutman discloses that its card can be swiped like a conventional magnetic stripe card. Pet. 34 (citing Ex. 1005, 16:64–17:3). Petitioner notes that “[c]onventional magnetic stripe cards can be swiped in both directions while conveying the same magnetic stripe data.” Pet. 34 (citing Ex. 1002 ¶ 86). Petitioner acknowledges that “Gutman does not expressly state that its card can be swiped in both directions to complete a transaction,” but argues “only two possibilities exist—either Gutman’s card works in one swipe direction or both swipe directions.” *Id.* at 34–35. According to Petitioner, one of ordinary skill in the art “would have understood that because Gutman can be swiped to emulate a conventional magnetic stripe card, it can be swiped in both directions.” *Id.* at 35. Petitioner argues that one of skill in the art “would therefore have understood that Gutman teaches that its card can retrieve at least two representations

(representations for forward and reverse swipe directions) of the same magnetic stripe data.” *Id.*

Petitioner relies on the testimony of Mr. Halliday to support its position. Pet. 34–35. Mr. Halliday testifies that “[c]onventional magnetic stripe cards can be swiped in both directions while conveying the same magnetic stripe data” and although “Gutman does not expressly state that its card can be swiped in both directions to complete a transaction,” “only two possible options exist—either Gutman’s card works in (1) one swipe direction or (2) both swipe directions.” Ex. 1002 ¶ 86. According to Mr. Halliday, “a person of skill in the art at the time of the ’153 patent would have understood that because Gutman can be swiped to emulate a conventional magnetic stripe card, it can be swiped in both directions.” *Id.* Thus, Petitioner concludes that “a person of skill in the art at the time of the ’153 patent would therefore have understood that Gutman teaches that its card can retrieve at least two representations (representations for forward and reverse swipe directions) of the same magnetic stripe data.” Pet. 35 (citing Ex. 1002 ¶ 86).

Petitioner further contends that “to the extent that Patent Owner argues that Gutman only discloses swiping in one direction” then a person of skill in the art “would have been motivated to modify Gutman’s card in view of Shoemaker[’s] teachings regarding this limitation . . . to enable it to work in both swipe directions because it would have made the card more functional and more commercially convenient.” Pet. 35 (citing Ex. 1002 ¶ 87). According to Petitioner, Shoemaker discloses a reconfigurable card that communicates the same data in a forward or reverse orientation. *Id.* (citing Ex. 1010, 14:54–15:6). Petitioner argues that Shoemaker’s card can encode

track data depending on the direction the card is swiped “so that the data stream is always provided in the expected order irrespective of the swipe direction.” *Id.* (citing Ex. 1010, 14:56–65).

Patent Owner contends Gutman and Shoemaker fail, both alone and in combination, to teach or suggest this limitation of claim 1. PO Resp. 26. Patent Owner argues that “Gutman communicates data completely independently of swipe direction.” PO Resp. 27 (citing Ex. 2033 ¶ 66). According to Patent Owner, “Gutman explains that the card does not have to be swiped through a card reader in order to successfully communicate with the card reader.” *Id.* (citing Ex. 2033 ¶ 67; Ex. 1005, 16:60–63). Rather, Patent Owner argues that “Gutman specifically *promotes* simply inserting the card into a card reader *rather than* swiping the device.” PO Resp. 27 (citing Ex. 2033 ¶¶ 46, 68; Ex. 1005, 16:60–63). Patent Owner further argues that “swiping the device is *entirely irrelevant* to the function of Gutman’s card.” *Id.* (citing Ex. 2033 ¶¶ 46, 68; Ex. 1005, 17:4–13). Contrary to Petitioner’s assertions that Gutman stores two representations (for forward and reverse swipe directions), Patent Owner asserts that “regardless of whether Gutman’s card is swiped at all, it will still communicate the same data upon inserting the card into a magnetic stripe card reader” because each “track of data is uniquely built each and every time it is sent out.” *Id.* at 28 (citing Ex. 2033 ¶¶ 46, 68). Patent Owner concludes that “[t]he simple fact that [Gutman] builds each and every track it sends out makes clear that [Gutman] does not retrieve an entire track from memory at any time.” *Id.* (citing Ex. 2031, 312:10–20).

Patent Owner addresses the two devices disclosed in Gutman: (1) a magnetically communicative card that can mimic a magnet stripe card; and

(2) an electronic wallet (“eWallet”) that stores data for multiple cards and receives user input to select which card to use for a specific transaction. *Id.* at 28–29 (Ex. 1005, Abstract, 7:48–11:30). According to Patent Owner, neither device meets the claim limitations because “selecting a card from a plurality of cards is not the same as selecting a digital representation from of plurality of digital representations of at least one track of magnetic stripe data.” *Id.* at 30. Additionally, Patent Owner argues that the controller on Gutman’s device “prepares data on the fly, based on the user’s card selection.” *Id.* at 29 (citing Ex. 1005, 14:19–24). Patent Owner explains that “Gutman[’s] card can then selectively communicate the data that was prepared on the fly to ‘magnetic card reader 100 to affect a transaction with a particular Service provider that was selected by the user.’” *Id.* (citing Ex. 1005, 15:3–5). Patent Owner concludes that nothing in Gutman suggests retrieving from memory a digital representation from a plurality of digital representations of at least one track of magnetic stripe data.

Patent Owner further contends that Gutman in view of Shoemaker still does not disclose the recited limitation because Shoemaker only describes an “active credit card provid[ing] active anti-fraud protection by dynamically modifying the data pattern provided to merchants.” PO Resp. 30 (citing Ex. 1010, 5:28–30). Patent Owner argues that Shoemaker teaches that data pattern associated with swipe direction is dynamically generated “on the fly” and is not stored and retrieved. *Id.* at 31–32 (citing Ex. 1010, 3:19–22). Furthermore, according to Patent Owner, “Shoemaker does not teach that tracks with the same account number and different profiles are simply a different representation of the same track.” *Id.* at 32. To the contrary, Patent Owner argues “Shoemaker teaches that each account/profile combination is

different to simplify the accounting process for card issuers.” *Id.* Thus, Patent Owner concludes “Shoemaker teaches away from storing track data asserting that this approach is inherently insecure ‘because the magnetic code pattern, being a fixed pattern that is designed to be reused from transaction to transaction, can be easily stored and then cloned.’” *Id.* at 32 (citing Ex. 1010, 2:45–8).

Patent Owner supports its position with citations to Shoemaker’s prosecution history in which Shoemaker argues that its features and limitation were not anticipated by prior art references because “each of the first data pattern and the second data pattern changes responsive to the swipe direction” and “[prior art reference] Brown does not teach that data patterns change responsive to a swipe direction.” PO Resp. 30 (citing Ex. 2021, 146–47). Patent Owner argues that Shoemaker differentiated itself from prior art by generating forward and reverse track data on the fly, as opposed to storing the track data in both a forward digital representation and a reverse digital representation, for security reasons. *Id.*

Patent Owner’s position regarding the “dynamic” modification of Shoemaker’s card is supported by Petitioner’s own citation to Shoemaker’s disclosure that “its card can encode track data depending on the direction the card is swiped ‘so that the data stream is always provided in the expected order irrespective of the swipe direction.’” Pet. 35 (citing Ex. 1010, 14:56–65). We do not agree with Patent Owner, however, that Shoemaker necessarily teaches away from the use of stored track data. *See* PO Resp. 30–32. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path

that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Yet, the “mere disclosure of alternative designs does not teach away.” *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes. *In re Gurley*, 27 F.3d at 553; *see also Baxter Int’l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328 (Fed. Cir. 1998) (finding no teaching away where nothing in the prior art device suggested that the claimed invention was unlikely to work). Nothing in Shoemaker indicates that storing the track data in both a forward digital representation and a reverse digital representation is unlikely to work. Rather, Shoemaker indicates a preference for using a dynamic modification of the data pattern to increase security. Nonetheless, based on the entirety of the trial record, we agree with Patent Owner’s assessment that the teachings of Gutman in view of Shoemaker do not render the challenged claims obvious.

We find the Petition bases its challenge on an analysis of Gutman’s magnetically communicative card (Pet. 34–35), which can be swiped like a conventional magnetic stripe card (*see* Ex. 1005, 16:64–17:3) while conductor 204 of Gutman’s card 200 emits magnetic flux transitions that can be read by magnetic card reader 100 (*see id.* at 3:56–4:7, 4:31–35). Although Petitioner concedes “Gutman is silent as to whether it emulates data encoded for both the forward and reverse swipe directions” (Pet. Reply 4 (citing Pet. 34–35; Ex. 1002 ¶ 86)), Petitioner argues a person of ordinary skill in art would have been motivated to modify Gutman’s card to work in both swipe directions (Pet. 35 (citing Ex. 1002 ¶ 87)). Petitioner specifically argues Gutman must be modified with Shoemaker’s teachings “to make a more functional card that could emulate data in both the forward and reverse order

to minimize the risk of point of sale terminals reading errors.” Pet. Reply 4 (citing Ex. 2031, 359:11–19 (testifying that if the reader/terminal receives data in the wrong order that “may cause a problem for the terminal, yes”); Ex. 1032, 107:13–108:3). Petitioner admits, however, that Gutman does not recognize the problem of presenting a track in a swipe-appropriate manner in order to be compatible with most card readers. Tr. 10:8–11:6.

Petitioner relies on testimony from Mr. Halliday to support its contentions. Mr. Halliday testifies it would have been obvious for Gutman’s card 200 to swipe in the forward or reverse direction and that a person of ordinary skill in the art at the time of the ’153 patent would have stored at least three tracks of data. *See* Ex. 1002 ¶¶ 78, 86. Mr. Halliday then cites to claim 3 of Gutman, which recites that Gutman’s card “include[s] more than one conductor and . . . each conductor mimics a read/write track of a conventional magnetic stripe card.” *See* Ex. 1002 ¶ 78 (alternation in original) (citing Ex. 1005, claim 3). But as discussed previously, Gutman does not disclose storing track data for two directions. *See* Pet. 34–35; Pet. Reply 4; *see also* Tr. 34:19–25 (“Judge Jurgovan: And that is to ask, does either Gutman or Shoemaker teach storing tracks in the forward and reverse direction for one track? Mr. Marina: No. So Shoemaker teaches on the fly forward or reverse based on swipe direction. Gutman teaches storing one direction. It certainly doesn’t say two directions, right?”). And neither Petitioner nor Mr. Halliday provide sufficient persuasive evidence that the citations to conductors on Gutman’s card represent multiple representations of the same exact track of data.

Petitioner’s argument that a person of ordinary skill in the art swiping a card would have recognized that “only two possibilities exist: either [the

card] can emulate track data for one or both swipe directions” is similarly unpersuasive (*see* Pet. Reply 4 (citing Pet. 34–35; Ex. 1002 ¶ 86); *see* Tr. 9:9–15), because Gutman and Shoemaker both disclose other options for providing device data to a card reader without storing tracks of data. Specifically, Gutman teaches communicating data to a card reader by emitting electromagnetic fields without swiping a device to communicate with a card reader (*see* Ex. 1005, 16:29–56, 16:60–63, 17:4–10), while Shoemaker uses a sensor to determine the directionality of swiping motion to then build each individual track dynamically at the time of transmission (*see* Ex. 1010, 12:28–43). Neither of these disclosures by Gutman or Shoemaker correspond to the limitation recited in claim 1 (i.e., neither reference teaches the recited limitation). Therefore, Petitioner’s conclusion that there are only two possibilities for emulating data is unsupported by the evidence.

4. Rationale to Combine Gutman with Shoemaker

Petitioner contends a person of ordinary skill in the art would have had many motivations to use the teachings of Shoemaker to modify Gutman “to improve the compatibility of Gutman’s card with the then-existing magnetic stripe card infrastructure by, for example, allowing it to emulate multiple representations of the same data traditionally found on a conventional magnetic stripe card.” Pet. 22–23 (citing Ex. 1002 ¶ 72). Petitioner argues Gutman sought to provide a magnetically communicative card that mimicked multiple conventional magnetic stripe cards (such as credit cards) and Shoemaker provides further solutions to increase the Gutman card’s functionality. *Id.* at 23–24 (citing Ex. 1005, 3:46–4:7, 2:61–63; Ex. 1002 ¶ 73). According to Petitioner, Shoemaker can accomplish this because it “provides a card that can emulate multiple representations of the same data

found on conventional magnetic stripe cards.” Pet. 24 (citing Ex. 1010, 14:54–15:6).

Petitioner also contends that a person of ordinary skill in the art would have “known that multiple profiles and bi-directional swiping were implementation details explained in Shoemaker and would have been motivated to use Shoemaker’s teachings to improve the functionality of Gutman’s card and make it more commercially convenient for card users.” *Id.* (citing Ex. 1002 ¶ 74). Furthermore, according to Petitioner, “because these changes would have been routine implementation details, a [person of ordinary skill in the art] would have had more than a reasonable expectation of success in implementing them.” *Id.* at 25 (citing Ex. 1002 ¶ 74).

Patent Owner contends a person of ordinary skill in the art at the time of the invention would not have been motivated to use the teachings of Shoemaker to modify Gutman’s device, because “pre-stor[ing]” the “Shoemaker profile data on the Gutman device . . . would lead to the potential for fraud.” PO Resp. 33. Patent Owner argues it would not have been obvious to modify Gutman with Shoemaker to include forward and reverse digital representations, and then further modify Gutman to require Gutman’s card to store both of those digital representations in memory. *Id.* (citing Ex. 2033 ¶ 69). According to Patent Owner, “Petitioner provides no legitimate basis that a [person of ordinary skill in the art] would have decided that despite Gutman’s ability to communicate data to a magnetic stripe card reader immediately upon coming into contact with the card reader, it should defeat its own purpose and become dependent on a swipe direction.” PO Resp. 33–34 (citing Ex. 2033 ¶ 69). In fact, Patent Owner proffers that “since Gutman’s goal was to phase-out swiping entirely in order to minimize

wear and tear, a [person of ordinary skill in the art] would have been dissuaded from making Gutman dependent on swipe direction, or any manner of swiping at all, as doing so would have defeated the purpose of Gutman's card, which was to be capable of interacting with a card reader without being swiped." *Id.* at 34 (citing Ex. 2033 ¶ 69).

Patent Owner asserts that Petitioner ignores the majority of Gutman's teachings and relies on the single fact that Gutman's device can be swiped to support its argument that a person of ordinary skill in the art "would have modified Gutman's entire architecture to accommodate this possibility." PO Sur-Reply 3–4 (citing Pet. Reply at 3). Patent Owner notes that the mere possibility of a reference being modified to include a feature does not render that feature obvious. *Id.* at 4.

We agree with Patent Owner that Petitioner fails to offer sufficient explanation as to why a person of ordinary skill in the art would have combined the teachings of Gutman and Shoemaker. Petitioner appears to argue that a person of ordinary skill in art would have had sufficient reason to "cure" the problems associated with pre-storing magnetic stripe information in Gutman by using teachings described by Shoemaker to address a known problem in the art (i.e., the need for multi-direction swipe capability to ensure compatibility with card readers). *See* Tr. 10:11–13. Yet, Petitioner fails to identify why someone reading Shoemaker would chose to apply its teachings to Gutman in order to solve a problem already addressed in Shoemaker itself. *See id.* at 12:20–15:14.

Petitioner must articulate a *reason why* a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. 2016); *Metalcraft of Mayville, Inc. v. The Toro*

Company, 848 F.3d 1358, 1366 (Fed. Cir. 2017) (“[I]t is insufficient to simply conclude the [prior art] combination would have been obvious without identifying any reason why a person of skill in the art would have made the combination.”); *see Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention”). Petitioner proffers arguments that a person of ordinary skill in the art could have combined the teachings of Gutman and Shoemaker, but fails to explain sufficiently *why* they would have chosen the specific features relied upon by Petitioner to read on the claim. *See also Forest Labs., LLC v. Sigmapharm Labs., LLC*, 918 F.3d 928, 934 (Fed. Cir. 2019) (“An invention is not obvious simply because all of the claimed limitations were known in the prior art at the time of the invention. Instead, we ask whether there is a reason, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the references, and that would also suggest a reasonable likelihood of success.”) (citation omitted)). Rather, it appears that Petitioner selects disparate parts of the prior art to combine in order to meet the claim limitation. We understand that a person of ordinary skill is a person of ordinary creativity, not an automaton, but “[w]ithout any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that *KSR* warns against.” *Metalcraft*, 848 F.3d at 1367 (“[T]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation,’ we also recognize that we cannot allow hindsight bias to be

the thread that stitches together prior art patches into something that is the claimed invention.” (quoting *KSR*, 550 U.S. at 420–21)).

Conclusory statements alone, even those provided by a declarant, are inadequate to demonstrate a rationale for why a person of ordinary skill in the art would have combined the teachings from prior art references. *NuVasive*, 842 F.3d at 1383. Instead, Petitioner’s arguments must be supported by a “reasoned explanation.” *Id.* (citing *In re Lee*, 277 F.3d 1338, 1342, 1345 (Fed. Cir. 2002)). For example, Petitioner states that a person of ordinary skill in the art would have been motivated to use Shoemaker’s teachings to improve the functionality of Gutman’s card and make it more commercially convenient for card users.” Pet. 24–25 (citing Ex. 1002 ¶ 74). But neither the Petition nor its declarant, explain why altering either Gutman or Shoemaker would improve the functionality over what is expressly disclosed in each reference. Nor does the Petitioner or the declarant explain with how the combination of teachings would be more commercially convenient for card users over what is disclosed originally in each reference. Petitioner further contends that “because these changes would have been routine implementation details, a [person of ordinary skill in the art] would have had more than a reasonable expectation of success in implementing them.” Pet. 25 (citing Ex. 1002 ¶ 74).

Accordingly, based on the entirety of the trial record, we find Petitioner presents insufficient persuasive evidence to demonstrate by a preponderance of the evidence that a person of ordinary skill in the art would have had reason to combine the teachings of Gutman with those of Shoemaker as articulated by Petitioner to render claims 1, 5–8 obvious under 35 U.S.C. § 103.

5. *Summary Regarding Claim 1*

Based on an analysis of the entire record before us, we find Petitioner has not demonstrated by preponderance of the evidence that Gutman's card 200 alone or in combination with applicable teachings from Shoemaker would have been "operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data," to satisfy the challenged claim limitation. Accordingly, Petitioner has failed to show that challenged independent claim 1 would have been obvious under 35 U.S.C. § 103 in view of Gutman and Shoemaker.

6. *Analysis of Gutman and Shoemaker as Applied to Challenged Dependent Claims 5–8*

Petitioner contends dependent claims 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as being obvious in view of Gutman and Shoemaker and provides specific arguments for each challenged claim. Pet. 12, 37–44 (citing Ex. 1005, 1:21–26, 3:1–4, 4:66–5:2, 5:2–11, 6:50–61, 8:4–18, 10:27–34, 13:64–14:35, Fig. 2; Ex. 1010, 6:49–53, 9:44–64, 9:64–67, Fig. 1B; Ex. 1002 ¶¶ 89–98). Patent Owner does not address specifically the limitations of these challenged dependent claims, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. PO Resp. 37–38; *see Dynamic Drinkware*, 800 F.3d at 1378.

We have reviewed the entirety of Petitioner's arguments and supporting evidence regarding the challenged dependent claims. For the same reasons discussed with regards to independent claim 1, we find Petitioner fails to demonstrate by a preponderance of the evidence that dependent claims 5–8 would have been obvious in view of the combined teachings of Gutman and Shoemaker under 35 U.S.C. § 103.

7. Objective Indicia of Nonobviousness

Patent Owner further asserts that the nonobviousness of the claims is supported by objective indicia of nonobviousness including commercial success, long-felt need, failure of others, and industry praise of the patented invention, teaching away by others, and copying. PO Resp. 47–51 (citing Exs. 2013–2020). Petitioner disagrees. Pet. 58–59. We need not reach a conclusion on Patent Owner’s evidence regarding nonobviousness of the claims as, regardless of the strength of that evidence, we have found already that Petitioner has failed to meet its burden to demonstrate that the claims would have been obvious.

B. Alleged Obviousness of Claims 1, 5–8 of the ’153 Patent in View of Lessin and Shoemaker

Petitioner contends claims 1 and 5–8 of the ’153 patent are unpatentable under 35 U.S.C. § 103 as obvious in view of Lessin alone or in combination with the teachings of Shoemaker. Pet. 12, 44–54.

Patent Owner disputes Petitioner’s contentions. PO Resp. 38–51. For reasons that follow, we determine Petitioner has failed to demonstrate by a preponderance of the evidence that the challenged claims would have been obvious under 35 U.S.C. § 103 in view of Lessin and Shoemaker.

1. Overview of Shoemaker (Ex. 1010)

See supra, Section II.A.2.

2. Overview of Lessin (Ex. 1011)

Lessin is a U.S. Patent titled “Intelligent Portable Interactive Personal Data System,” and issued on September 19, 1989. Ex. 1011, codes (45), (54). Lessin is directed to an “intelligent transaction card” that addresses many of the known problems associated with “smart cards” in the late 1980’s. *Id.* at 1:6–2:10. Lessin discloses that smart cards are

“microprocessor based transaction cards” that can store more data than conventional magnetic stripe cards while also providing ways to change the data stored. *Id.* at 1:25–40. But as Lessin notes, smart cards at the time still had shortfalls; for instance, they were “limited in that they [were] constructed to perform a predetermined function” and some “prohibit[ed] any modification of the card once the card [was] fully assembled.” *Id.* at 1:42–46. To address these problems, Lessin describes a reprogrammable intelligent card that can communicate with a magnetic card reader by magnetic emulation. *Id.* at 1:61–66, 19:35–47. One embodiment of Lessin’s intelligent card is reproduced below.

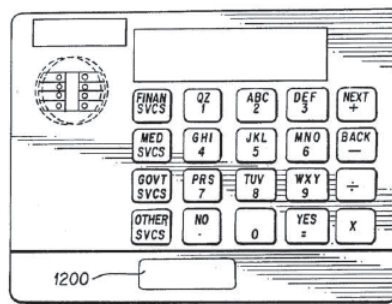


FIG. 22A

Figure 22A, above, is an illustration of a reprogrammable intelligent card with a magnetic card interface in the card. *Id.* at 2:64–66. Lessin discloses “magnetic head 1200 [also referred to as transducer 1200] embedded in the card [] can receive and transmit magnetically encoded information.” *Id.* at 19:45–47.

In another embodiment of Lessin, magnetic head 1200 “is positioned within the card . . . such that [it] can be aligned with the head in a card reading device such as a point of sale (POS) terminal 1210” (*id.* at 19:48–51), as shown in Figure 22B, reproduced below.

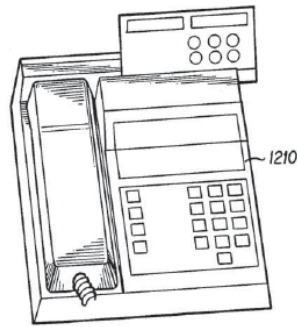


FIG. 22B

Figure 22B, above, is an illustration of a reprogrammable intelligent card with a magnetic card interface in the card where the intelligent transaction card is aligned with magnetic head 1200 in the reading device/point of sale (POS) terminal 1210. *Id.* at 2:64–66.

In another embodiment of Lessin, the generation of a magnetic field pattern is disclosed using the circuitry shown in Figure 23, reproduced below.

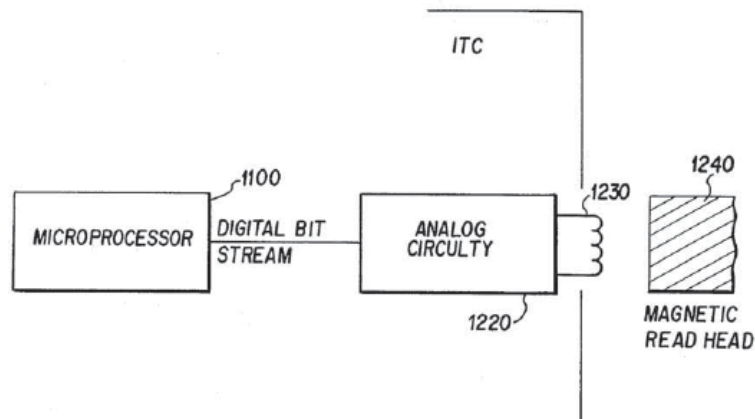


FIG. 23

Figure 23, above, illustrates the configuration of an intelligent transaction card to a terminal interface. *Id.* at 2:67–68. Lessin discloses that “[s]ignals representing the data to be communicated are output serially, emulating the data encoded on a magnetic strip.” *Id.* at 19:52–54. According to Lessin, “[t]he circuitry acts to simulate a magnetic field pattern that would exist on the magnetic strip of a credit card.” *Id.* at 19:54–56. Lessin discloses that

“the data is output serially bit by bit from microprocessor 1100 to analog circuitry 1220 which drives an inductor 1230 that generates a magnetic field pattern which can be read and interpreted by a conventional magnetic read head 1240 in card reading device 1210.” *Id.* at 19:56–61. Lessin describes that the analog circuitry is “[p]referably a simple digital-to-analog converter.” *Id.* at 19:62–63.

3. *Analysis of Lessin and Shoemaker as Applied to Challenged Independent Claim 1*

a. *Preamble*

Claim 1 recites “[a] device comprising.” Ex. 1001, 15:14.

Petitioner contends that Lessin discloses a device because Lessin discloses an intelligent card that can communicate with a magnetic card reader. Pet. 47 (citing Ex. 1011, 1:6–9, Figs. 22A, 22B). Patent Owner does not dispute Petitioner’s contentions. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. Based on the entire record, regardless of whether the preamble is limiting, we find Petitioner has shown that Lessin discloses a “device.”

b. *a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader*

Claim 1 recites “a magnetic stripe emulator operable to communicate an analog waveform encoded with at least one track of magnetic stripe data to a magnetic stripe reader.” Ex. 1001, 15:15–17.

Petitioner contends that Lessin discloses this limitation because it uses magnetic head 1200, which “can receive and transmit magnetically encoded information.” Pet. 49 (citing Ex. 1011, 19:45–47). Petitioner argues that

magnetic head 1200 outputs a signal, which emulates the magnetically encoded information on a magnetic strip, that can be read by a magnetic read head on point of sale terminal (or card reading device) 1210. *Id.* (citing Ex. 1011, 19:43–54).

Petitioner relies on the testimony of Mr. Halliday to support its position. Mr. Halliday testifies that “Lessin discloses that its magnetic head 1200 is operable to communicate an analog waveform encoded with magnetic stripe data to a magnetic stripe reader.” Ex. 1002 ¶ 104. Mr. Halliday further testifies that “the circuitry of magnetic head 1200 includes a microprocessor 1100, which outputs the magnetic stripe data to analog circuitry 1220 which drives an inductor 1230 that generates a magnetic field pattern which can be read and interpreted by a conventional magnetic read head 1240 in card reading device 1210.” Ex. 1002 ¶ 104 (citing Ex. 1011, 19:54–61, Fig. 23). Petitioner then argues that analog circuitry 1220 is “[p]referably a simple digital-to-analog converter [DAC].” Pet. 50 (citing Ex. 1011, 19:62–63). According to Petitioner, “[t]he DAC converts digital inputs from the microprocessor into analog waveforms in which ‘magnetic fields can be generated in the inductor [1230] of opposite polarity’ such that the ‘fields can then be read by a magnetic stripe card reader.’” *Id.* (citing Ex. 1001, 19:61–20:17). Thus, Petitioner concludes that regardless of if or how the term “at least one track of magnetic stripe data” is construed, Lessin would disclose the recited claim limitation. Pet. 50–51.

Patent Owner does not dispute Petitioner’s contentions. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the entirety of the record, we find Petitioner has shown that Lessin's magnetic head 1200 is a magnetic stripe emulator as recited by challenged claim 1.

c. a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data

Claim 1 recites "a waveform generator operable to generate said analog waveform from a digital representation of said at least one track of magnetic stripe data." Ex. 1001, 15:18–20.

Petitioner contends that Lessin discloses this limitation because it uses analog circuitry 1220, which generates an analog waveform from a digital representation of magnetic stripe data received from microprocessor 1100. Pet. 51–52 (citing Ex. 1011, Fig. 23; Ex. 1002 ¶ 106). According to Petitioner, "Lessin's card stores information that mimics data on the magnetic stripe of a credit card (i.e., the tracks of the magnetic stripe data)" and "Lessin demonstrates that the tracks of magnetic stripe data of the intelligent card are provided to the analog circuitry 1220" as digital representations under either party's proposed construction of "digital representation of said at least one track of magnetic stripe data." Pet. 52–53 (citing Ex. 1011, 19:52–56, 19:62–20:17, Fig. 23; Ex. 1002 ¶ 106).

Petitioner relies on the testimony of Mr. Halliday to support its position. Mr. Halliday testifies that a person of ordinary skill in the art "would have understood that data provided as 1's and 0's are 'digital information'" under Patent Owner's proposed construction. Ex. 1002 ¶ 106. Mr. Halliday further testifies that a person of ordinary skill in the art "would have understood that 1's and 0's output serially from the microprocessor 1100 are represented graphically as a square wave, which is a 'digital

waveform’ under Petitioner’s proposed construction.” *Id.* (citing Ex. 1011, 19:56–58 (“the data is output serially bit by bit from microprocessor 1100 to the analog circuitry 1220”)).

Patent Owner does not dispute Petitioner’s contentions. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Based on the entire trial record, we find Petitioner has shown that the serial outputs from Lessin’s microprocessor 1100 are represented graphically as a square wave, which is a “digital waveform” as recited by challenged claim 1. Additionally, we credit the testimony of Mr. Halliday that a person of skill in the art at the time of the ’153 patent “would have known that digital to analog conversion could be accomplished through the addition of a single, well-known circuit—the digital to analog converter.” *See* Ex. 1002 ¶¶ 83–84, 107.

d. wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data

Claim 1 recites “wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data.” Ex. 1001, 15:21–23.

Petitioner contends that Lessin in view of Shoemaker discloses this limitation. Pet. 54. Petitioner specifically contends the evidence shows that, in addition to the business/personal profiles embodiment, Shoemaker discloses that its card can emulate the same track data (in forward or reverse manner) depending on swipe direction. Pet. Reply 13, n. 5 (citing Dec. 25–26; Ex. 1010, 14:58–15:6; Pet. 46). Petitioner argues that it would have been obvious to a person of skill in the art at the time of the ’153 patent to

combine Shoemaker and Lessin to improve the functionality in Lessin's intelligent card by allowing it to emulate multiple representations of the same data traditionally found on a conventional magnetic stripe card. Pet. 54. (citing Ex. 1002 ¶ 108).

Patent Owner contends Lessin fails to teach or suggest this limitation of claim 1. PO Resp. 40–41. According to Patent Owner, “Lessin can be used to process card transaction in conjunction with a terminal devices [sic] (e.g., POS or ATM) and can operate independently, meaning it can process card transaction without the need of a terminal device such as an ATM or point of sale (POS) terminal.” PO Resp. 41 (citing Ex. 1011, 12:3–4, 21:15–19). Patent Owner argues that Lessin merely discloses that information stored in ITC can be communicated to a terminal, but it does not teach, suggest, or motivate a person of ordinary skill in the art to create a device capable of retrieving from plurality of digital representations of track data. *Id.* Patent Owner argues that Lessin fails to disclose a plurality of digital representations as well as failing to disclose more than one of these representations residing in memory at the same time. *Id.* Therefore, Patent Owner concludes “Lessin [alone] does not disclose or make obvious retrieving a digital representation from a plurality of digital representations in memory of said at least one track of magnetic stripe data.” *Id.* at 41.

Patent Owner further contends that Lessin in view of Shoemaker still does not disclose the recited limitation because Shoemaker “teaches that a card may be swiped in a forward or reverse direction, but specifically teaches that those directions are not stored in memory.” PO Resp. 41–42 (citing Ex. 2033 ¶ 81). According to Patent Owner, “Shoemaker states that it would be beneficial to not store any tracks in memory at all.” *Id.* at 42. Thus,

Patent Owner argues “rather than retrieve a track of magnetic stripe data from memory, Shoemaker teaches ***not storing any tracks of magnetic stripe data at all.***” *Id.* Patent Owner further argues that “[f]orward/reverse tracks are generated *ad hoc*, and business profiles, rather than being actual tracks of data, are merely separate and distinct data sets that are compiled into a single track at the start of a purchase transaction.” *Id.* Patent Owner contends “Shoemaker utilizes these discrete portions (reference numerals 202, 204, 206, 302, 304, 306, 504, and 502) in order to provide ‘dynamically reconfigurable’ information, such that Shoemaker can store multiple payment accounts, tokenization features, etc. that are compiled into a track ‘on the fly’ when a transaction begins.” PO Resp. 43 (citing Ex. 1010, 7:6–20, Figs 2, 3; Ex. 2031, 323:12–324:16). Patent Owner indicates that “Shoemaker includes these discrete portions as a result of the mechanism by which Shoemaker stores data. Rather than store any tracks in memory, Shoemaker stores various, discrete sets of data that it then compiles into a track as part of its ‘on the fly’ track building process.” *Id.* (citing Ex. 2033 ¶ 83; *see* Ex. 1010, 8:11–24).

Patent Owner supports its position with citations to Shoemaker’s prosecution history in which Shoemaker argues that its features and limitation were not anticipated by prior art references because “each of the first data pattern and the second data pattern changes responsive to the swipe direction” and “[prior art reference] Brown does not teach that data patterns change responsive to a swipe direction.” PO Resp. 44 (citing Ex. 2021, 146–147). Patent Owner argues that Shoemaker differentiated itself from prior art by generating forward and reverse track data on the fly, as opposed to storing the track data in both a forward digital representation and a reverse

digital representation, for security reasons. *Id.* Patent Owner then argues that Shoemaker teaches away from the challenged limitation because Shoemaker teaches that “the active credit card provides active anti-fraud protection by dynamically modifying the data [pattern] provided to [m]erchants.” *Id.* (citing Ex. 1010, 5:28–30).

Patent Owner’s position regarding the “dynamic” modification of Shoemaker’s card is supported by Petitioner’s own citation to Shoemaker’s disclosure that “its card can encode track data depending on the direction the card is swiped ‘so that the data stream is always provided in the expected order irrespective of the swipe direction.’” *See* Pet. 35 (citing Ex. 1010, 14:56–65). We do not agree with Patent Owner, however, that Shoemaker necessarily teaches away from the use of stored track data. *See* PO Resp. 44. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d at 553. Yet, the “mere disclosure of alternative designs does not teach away.” *In re Fulton*, 391 F.3d at 1201. Just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes. *In re Gurley*, 27 F.3d at 553; *see also Baxter Int’l*, 149 F.3d at 1328 (finding no teaching away where nothing in the prior art device suggested that the claimed invention was unlikely to work). Nothing in Shoemaker indicates that storing the track data in both a forward digital representation and a reverse digital representation is unlikely to work. Rather, Shoemaker merely indicates a preference for using a dynamic modification of the data pattern to increase security.

Based on the entire trial record, however, we agree with Patent Owner's assessment that the combined teachings of Lessin and Shoemaker would have failed to render claim 1 obvious. Despite Petitioner's citations to the personal and business profiles in Shoemaker and its argument that Shoemaker discloses a card emulating the same track data regardless of directionality, we find the record does not support Petitioner's contention. We find insufficient persuasive evidence to indicate that the personal and business profiles in Shoemaker are the same track of magnetic strip data. Rather, we find that Shoemaker's business profiles are not complete tracks of data, but are separate and distinct data sets that are compiled into a single track at the start of a purchase transaction. *See* Ex. 1010, 7:6–20, Figs 2, 3. As Shoemaker discloses discrete magnetic stripe portions (reference numerals 202, 204, 206, 302, 304, 306, 504, and 502) “represent dynamically reconfigurable data bearing portions” that “manifest different values (e.g., vary from transaction to transaction) during field usage.” *See id.* Petitioner fails to explain persuasively how the cited profiles read on the challenged claim limitation because Shoemaker discloses that when its card determines swipe direction it then represents or encodes “the data on the dynamically reconfigurable data interface so that the data stream is always provided in the experienced order irrespective of the swipe direction.” *See* Ex. 1010, 14:54–65.

4. Rationale to Combine Lessin with Shoemaker

Petitioner contends a person of ordinary skill in the art would have had many motivations to use the teachings of Shoemaker to modify Lessin “to improve the functionality in Lessin's intelligent card by, for example, allowing it to emulate multiple representations of the same data traditionally

found on a conventional magnetic stripe card.” Pet. 44 (citing Ex. 1002 ¶¶ 99–101). Petitioner argues “Lessin explicitly recognizes that a motivation existed in the late 1980s to provide ‘smart cards’ with more functionality than conventional magnetic stripe cards.” *Id.* at 44–45 (citing Ex. 1011, 1:25–30, 19:43–47, Fig. 22A). According to Petitioner, Shoemaker can accomplish this because it “provides a card that can emulate multiple representations of the same data found on conventional magnetic stripe cards.” *Id.* at 46 (citing Ex. 1010, 14:54–15:6).

Petitioner further argues that a person of ordinary skill in the art would have “known that the[re] are implementation details [regarding emulating multiple representations of the same data found on a conventional magnetic strip card] explained in Shoemaker and would have been motivated to use Shoemaker’s teachings to improve the functionality of Lessin’s card and make it more commercially convenient for card users—a motivation explicitly recognized by Lessin. Pet. 46 (citing Ex. 1011, 1:54–59 (“Finally, [prior art] cards were not designed to be ‘user friendly.’”); Ex. 1002 ¶ 101). Furthermore, according to Petitioner, “because these changes would have been routine implementation details, a [person of ordinary skill in the art] would have had more than a reasonable expectation of success in implementing them.” *Id.* at 25 (citing Ex. 1002 ¶ 74).

Patent Owner contends a person of ordinary skill in the art at the time of the invention would not have combined the teachings of Shoemaker and Lessin. PO Resp. 38–40. Patent Owner argues that Lessin’s expressly stated motivation is to provide a user interface and operating system by which Lessin aids a user in operating its Intelligent Transaction (“IT”) Card, thus, Lessin teaches what it considers to be a relatively novel interface in order to

make the IT Card more “user friendly,” rather than magnetic emulation devices known in the art. *Id.* at 38 (citing Ex. 203 ¶ 77; Ex. 1011, 1:54–59). According to Patent Owner, it would not have been readily apparent to a person of ordinary skill in the art why Shoemaker’s forward and reverse functionality would need to be implemented into the emulator of Lessin, a reference which is almost entirely devoted to providing an improved user interface. *Id.* at 39 (citing Ex. 2033 ¶ 77).

We have considered carefully all arguments and supporting evidence regarding the rationale for combining the teachings of Lessin with Shoemaker. Although we are not persuaded that Shoemaker necessarily provides implementation detail regarding emulating multiple representations of the same data found on a conventional magnetic strip card, we find Petitioner provides an adequate reason that a person of skill in the art would have combined the teachings from the cited prior art. A motivation to combine may be found “explicitly or implicitly in market forces; design incentives; the ‘interrelated teachings of multiple patents’; ‘any need or problem known in the field of endeavor at the time of invention and addressed by the patent’; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (quoting *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013)).

Based on the record before us, Petitioner appears to bring in Shoemaker to provide a more explicit teaching regarding multiple representations of the same data on an individual card. *See* Ex. 1002 ¶ 73. Given Lessin’s express teaching regarding an intelligent transaction card with an operating system and memory on which to store Shoemaker’s stripe data,

we agree with Petitioner that a person of ordinary skill would have been motivated to turn to Shoemaker's teachings for use with Lessin's card.

5. Summary Regarding Claim 1

Based on the foregoing, we determine Petitioner has not shown by a preponderance of the evidence that the teachings of Lessin and Shoemaker would have rendered obvious the challenged claim limitation, "wherein said device is operable to retrieve said digital representation from a plurality of digital representations of said at least one track of magnetic stripe data" *See* Ex. 1001, 15:21–23. Accordingly, we conclude Petitioner fails to demonstrate by a preponderance of the evidence that challenged independent claim 1 would have been obvious under 35 U.S.C. § 103 in view of the teachings of Lessin and Shoemaker.

6. Analysis of Lessin and Shoemaker as Applied to Challenged Dependent Claims 5–8

Petitioner contends dependent claims 5–8 of the '153 patent are unpatentable under 35 U.S.C. § 103 as being obvious in view of Lessin and Shoemaker and provides specific arguments for each challenged claim. Pet. 12, 54–68. Patent Owner does not address specifically the limitations of these challenged dependent claims, but nonetheless the burden remains on Petitioner to demonstrate unpatentability. PO Resp. 46–47; *see Dynamic Drinkware*, 800 F.3d at 1378.

After a thorough analysis of the entire trial record, we determine Petitioner fails to demonstrate by a preponderance of the evidence that dependent claims 5–8 would have been obvious in view of the combined teachings of Lessin and Shoemaker under 35 U.S.C. § 103 for the same reasons provided for independent claim 1.

7. Objective Indicia of Nonobviousness

Patent Owner asserts the same evidence regarding nonobviousness of the claims, including commercial success, long-felt need, failure of others, and industry praise of the patented invention, teaching away by others, and copying. PO Resp. 47–52 (citing Exs. 2013–2020). Petitioner disagrees. Pet. 58–59. We need not reach a conclusion regarding Patent Owner’s evidence regarding nonobviousness of the claims as we have found already that, regardless of the strength of that evidence, Petitioner has failed to meet its burden to demonstrate that the challenged claims would have been obvious.

III. CONCLUSION

Based on the full trial record before us, we determine Petitioner has failed to show by a preponderance of the evidence that claims 1 and 5–8 of the ’153 patent would have been obvious over (1) Gutman in combination with Shoemaker, or (2) Lessin in combination with Shoemaker.

In summary:

Claims	35 U.S.C. §	References/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 5–8	103	Gutman, Shoemaker		1, 5–8
1, 5–8	103	Lessin, Shoemaker		1, 5–8
Overall Outcome				1, 5–8

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has not shown by a preponderance of the evidence that claims 1 and 5–8 of the '153 patent are unpatentable; and

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

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Patent 8,827,153

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