

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WESTERN DIGITAL CORPORATION, WESTERN DIGITAL
TECHNOLOGIES, INC., AND SANDISK, LLC,
Petitioner,

v.

MARTIN KUSTER,
Patent Owner.

IPR2020-01391
Patent 8,693,206 B2

Before THOMAS L. GIANNETTI, DAVID C. McKONE, and
NABEEL U. KHAN, *Administrative Patent Judges*.

GIANNETTI, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining Some Challenged Claims Unpatentable

Denying Petitioner's Motion to Exclude

35 U.S.C. § 318(a), 37 C.F.R. § 42.64

I. INTRODUCTION

A. Background

Western Digital Corporation, Western Digital Technologies, Inc., and SanDisk, LLC (collectively, “Petitioner”) filed a Petition requesting *inter partes* review of claims 1–19 (the “challenged claims”) of U.S. Patent No. 8,693,206 B2 (Ex. 1001, the “’206 patent”). Paper 1 (“Pet.”). Patent Owner, Martin Kuster, filed a Preliminary Response. Paper 6. With our authorization, Petitioner filed a Reply (Paper 7) and Patent Owner filed a Sur-reply (Paper 8), addressing the issues of discretionary denial under 35 U.S.C. §§ 314(a) and 325(d).

Pursuant to 35 U.S.C. § 314, we instituted this *inter partes* review as to all of the claims challenged and all grounds raised in the Petition. Paper 10.

Following institution, Patent Owner filed a Response. Paper 15 (“PO Resp.”). Subsequently, Petitioner filed a Reply to Patent Owner’s Response (Paper 26, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 32, “PO Sur-reply”).

On November 17, 2021, we held a consolidated oral hearing with related case IPR2020-01410, also involving Petitioner and Patent Owner. *See infra*. A transcript of the hearing is included in the record. Paper 45 (“Hearing Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision, issued pursuant to 35 U.S.C. § 318(a). For the reasons we discuss below, we determine that Petitioner has proven by a preponderance of the evidence that claims 11, 12, and 14–19 of the ’206 patent are unpatentable.

B. Related Proceedings

The parties identify the following pending district court proceeding involving the '206 patent: *Kuster v. Western Digital Technologies, Inc.*, Case No. 6:20-cv-00563 ADA, filed June 24, 2020, currently pending in the U.S. District Court for the Western District of Texas, Waco Division (“the Texas litigation”). Pet. 2; Paper 4, 2. In addition, they inform us that the '206 patent was the subject of a civil action in *Kuster v. Western Digital Corporation*, Case No. 3:20-cv-01089, filed in the U.S. District Court for the Northern District of Texas, Dallas Division, which was dismissed by Patent Owner on June 24, 2020. *Id.*

In addition, Petitioner has filed a petition (IPR2020-01410) seeking *inter partes* review of U.S. Patent No. 8,705,243, the parent of the '206 patent. *Id.*

C. Real Parties-in-Interest

Petitioner identifies Western Digital Corporation, Western Digital Technologies, Inc., and SanDisk, LLC, as the real parties-in-interest. Pet. 2. Patent Owner identifies Martin Kuster, of Walchwil, Switzerland, as a real party-in-interest. Paper 4, 2. In addition, Patent Owner discloses that “Nivalion AG has a financial interest in the outcome of underlying district court litigation and is a real party-in-interest.” *Id.*

D. The '206 Patent

The '206 patent is titled “External Storage Device.” Ex. 1001, (54). The patent relates to mobile storage devices, specifically, Universal Serial Bus (“USB”) sticks that consist of a memory data storage device integrated with a USB interface. *Id.* at 1:18–24.

According to the patent, USB sticks are typically used for purposes similar to those for which floppy disks or CD-ROMs were previously used.

However, USB sticks are smaller, faster, have thousands of times more capacity, and are more durable and reliable. *Id.* at 1:26–28. In the case of USB sticks with chip on board (“COB”) flash memory, a USB controller and flash memory can be combined into one structure that is embedded into one side of a printed circuit board (“PCB”), with the USB connection located on an opposing surface. *Id.* at 1:28–33.

The patent states that in 2008, USB 3.0, a new standard, was announced. USB 3.0 includes a new “SuperSpeed” bus that provides a higher SuperSpeed data transfer mode. *Id.* at 1:45–47. The ’206 patent explains that in order to achieve increased throughput and provide backward compatibility with earlier USB versions, a USB 3.0 cable has a total of eight wires: two wires for power (+5 volts and ground), a twisted pair of wires for carrying non-SuperSpeed data, and two differential pairs for carrying SuperSpeed data. In contrast, a standard USB 2.0 cable has four wires: two wires for power (+5 volts and ground) and a twisted pair of wires for carrying data. Inclusion of the twisted pair in USB 3.0 devices allows backward compatibility with earlier USB versions (e.g., USB 2.0). *Id.* at 1:47–52.

The ’206 patent discloses that because the USB 2.0 COB stick configuration has a rectilinear design, with the components embedded on one side of the PCB and the USB 2.0 connections positioned flush with the opposing side of the PCB, the shape and configuration does not readily allow the addition of a USB 3.0 connection with additional wires to the existing USB 2.0 COB stick. The ’206 patent describes a design that incorporates USB 3.0 connections into existing USB 2.0 COB sticks so that the USB COB stick may connect to either version of the USB standard. *Id.* at 1:60–2:2.

Figure 35, which illustrates one embodiment of the '206 patent, follows:

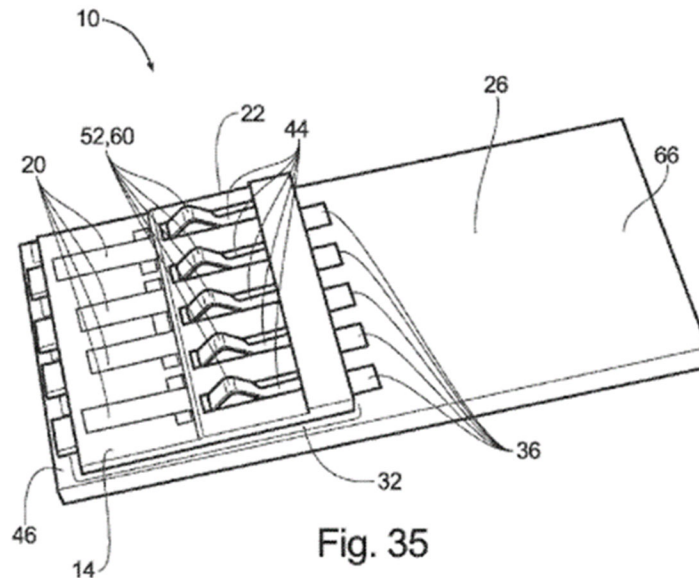


Figure 35 depicts external storage device 10 in which connector 14 comprises a combination of contact bar 22 and springs 52. Ex. 1001, 8:13–15. Connection fingers 20 may be mounted to or embedded within cover 32 of contact bar 22. *Id.* at 8:15–17. A plurality of resilient contact springs 52 may be mounted to contact bar 22 so that coupling projections 60 extend through apertures 44. *Id.* at 8:20–22. Connection pads 36 on springs 52 electrically couple the springs to substrate 12. *Id.* at 8:24–28.

Inserting connector 14 into a corresponding USB 3.0 connector causes contact springs 52 to apply force to the USB 3.0 connector and create an electrical coupling between coupling projections 60 and the USB 3.0 connector. *Id.* at 7:45–53. Contact springs 52 are retractable such that coupling projections 60 completely retract within an outer casing of device 10 when it is inserted into a USB 2.0 connector. *Id.* at 8:4–7.

E. Illustrative Claims

The '206 patent has 19 claims, all of which are challenged in the Petition. *See supra*. Of the challenged claims, claims 1, 10, and 11 are independent. Claim 1 is illustrative and recites¹:

[1a] An external storage device comprising:

[1b] a substrate that includes a connection surface and a component surface, the connection surface opposite the component surface;

[1c] at least one memory die stack mounted on one of the connection surface and the component surface of the substrate;

[1d] a controller configured to access the at least one memory die stack, the controller mounted on one of the connection surface and the component surface of the substrate;

[1e] a contact bar mounted on the connection surface of the substrate, the contact bar comprising a plurality of extensions, each of the plurality of extensions including a portion that is located at a first distance relative to the connection surface of the substrate;

[1f] a plurality of connection fingers embedded to be exposed upon the connection surface of the substrate at a second distance relative to the connection surface of the substrate, the second distance being less than the first distance; and

[1g] wherein a first interface comprises the plurality of connection fingers, and a second interface comprises the plurality of extensions of the contact bar.

Ex. 1001, 9:53–10:8. Independent claims 10 and 11 are similar in scope.

F. References and Other Evidence

The Petition relies on the following references:

1. U.S. Patent No. 8,480,435 (Ex. 1009, “Hsiao”)

¹ Reference letters in brackets mirror those provided by Petitioner. Pet. 36–45.

2. U.S. Patent No. 7,625,243 (Ex. 1010, “Chen”)
3. U.S. Patent No. 7,909,654 (Ex. 1011, “He”)
4. U.S. Patent Pub. No. 2009/0098773 (Ex. 1012, “Cheng”)
5. U.S. Patent Pub. No. 2008/0150111 (Ex. 1013, “Hiller”)
6. WIPO Pub. WO 2011/160321 (Ex. 1014, “Sun”)
7. U.S. Patent No. 7,563,140 (Ex. 1015, “Wan”)

Pet. 24–25. Petitioner also relies on the USB 2.0 Specification (Ex. 1007) and the USB 3.0 Specification (Ex. 1008). *Id.* at 24.

In addition, in support of its challenge to patentability, Petitioner submits the Declaration of R. Jacob Baker, Ph.D., P.E. (Ex. 1005, “Baker Decl.”). Patent Owner relies on the Declaration of Eric Welch (Ex. 2050, “Welch Decl.”). Patent Owner also submits two declarations of Mr. Kuster, the named inventor (Ex. 2035, “Kuster I Decl.”; Ex. 2052, Kuster II Decl.”). Both parties have submitted deposition transcripts for these declarants.²

G. Asserted Grounds of Unpatentability

Petitioner asserts the challenged claims are unpatentable on the following grounds.

Claims Challenged	Statutory Basis 35 U.S.C.³	Reference(s)
1–5, 8–11, 13–15, 18, 19	§ 103	He, Cheng
6, 7, 16, 17	§ 103	He, Cheng, Hiller
1–11, 13–19	§ 103	He, Sun
11, 12	§ 102	Hsiao

² Ex. 1033 (“Kuster Dep.”); Ex. 1037 (“Welch Dep.”); Ex. 2028 (“Baker Dep.”).

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29 amended 35 U.S.C. §§ 102 and 103. Because the application from which the ’206 patent issued was filed before March 16, 2013, the pre-AIA versions of 35 U.S.C. §§ 102 and 103 apply.

Claims Challenged	Statutory Basis 35 U.S.C. ³	Reference(s)
11, 12	§ 103	Hsiao
11, 12	§ 103	Hsiao, Sun
11, 12, 14, 15, 18	§ 103	Chen, Cheng
16, 17	§ 103	Chen, Cheng, Hiller
19	§ 103	Chen, Cheng, Wan

Pet. 4–5.

III. PRELIMINARY MATTERS

A. Level of Ordinary Skill

Petitioner describes the '206 patent as “directed to a simple mechanical modification of external storage device connectors.” Pet. 23. Petitioner provides the following description of the person of ordinary skill in the art: “[The person of ordinary skill] would have had (1) a Bachelor’s degree in EE, CompE, or ME, and (2) at least one year of experience with USB and other computer interface protocols.” *Id.* (citing Baker Decl. ¶¶ 43–48).

Patent Owner does not dispute Petitioner’s description of a person of ordinary skill in the art or provide its own description. However, Mr. Welch testifies that “a person of ordinary skill in the art would have had at least a bachelor’s degree (or equivalent), including coursework in electrical engineering, computer engineering, physics and/or related fields, and, in addition, two or more years’ work experience with USB product development involving, in particular USB-compliant connectors (plugs and receptacles).” Welch Decl. ¶ 16.

Petitioner’s proposed level of ordinary skill does not differ materially from that presented by Mr. Welch. Both require a bachelor’s degree in

many of the same fields and roughly one to two years of experience with USB protocols or USB product development. The arguments presented by Petitioner and Patent Owner do not indicate that the outcome of this case would change depending on the level of ordinary skill in the art. We, therefore, adopt Petitioner's description, which we determine to be consistent with the level of skill reflected in the asserted prior art references. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). We note, however, that we would reach the same conclusions under either proposed level of ordinary skill.

B. Claim Construction

For this *inter partes* review, the Board applies the same claim construction standard as that applied in federal courts. *See* 37 C.F.R. § 42.100(b) (2019). Under this standard, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citations omitted). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317 (citation omitted).

We only construe terms that are necessary to resolve disputed disputes. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 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.”).

Petitioner provides constructions for several claim terms: “mounted on”; “embedded to be exposed upon”; and “memory die stack.” Pet. 20–21. Petitioner also contends that “Patent Owner’s Litigation Complaint” shows Patent Owner’s constructions for the following terms: “portions,” “connection fingers,” “contact bar,” “contact bar cover,” and first and second distances. *Id.* at 22–23.

Petitioner’s proposed constructions are presented in the following table.

Claim Term	Claims	Petitioner’s Construction Contentions
“mounted on”	All challenged claims.	“securely attached, affixed or fastened to.” Pet. 20.
“embedded to be exposed upon”	1–10, 12, 13	“set firmly into a mass or material.” Pet. 21.
“memory die stack”	All challenged claims.	The “stack” may have only one memory die. Pet. 21.

Id. at 20–21.

Patent Owner responds to each of these proposed constructions. PO Resp. 27–33.

1. “*mounted on*”

This term is recited in several limitations of the independent claims, including claim 1. The dispute between the parties, however, centers only on how the term should be construed in claim limitations which recite “a contact bar mounted on the connection surface of the substrate” (e.g., Ex. 1001, 9:63–64), and only with respect to the grounds involving Chen. *See* PO Resp. 61–64. For the reasons stated below, we determine Petitioner

has not shown that Chen teaches other limitations of the independent claims, namely, “each of the plurality extensions including a portion that is located at a first distance relative to the connection surface of the substrate,” and ‘a plurality of connection fingers embedded to be exposed upon the connection surface of the substrate at a second distance relative to the connection surface of the substrate, the second distance being less than the first distance” (the “distance limitations”) of the independent claims. Ex. 1001, 9:65–10:5 (claim 1).⁴ *See infra*, Section IV.F. Thus, our analysis of Chen does not turn on whether it teaches “a contact bar mounted the connection surface of the substrate,” and for that reason the term does not require construction.

2. “*embedded to be exposed upon . . .*”

Petitioner argues that “embedded” has no special meaning in the art and should be afforded its ordinary dictionary definition of “set firmly into a mass or material.” Pet. 21. Patent Owner does not dispute Petitioner’s construction. PO Resp. 33 (citing Baker Decl. ¶ 106).

We adopt Petitioner’s construction, which we find is supported by the evidence of record. *See* Baker Decl. ¶¶ 106–107.

3. “*memory die stick*”

Petitioner argues that the “stack” may have only one memory die. Pet. 21 (citing Baker Decl. ¶ 108). Patent Owner “does not dispute Petitioner’s position.” PO Resp. 33.

Based on the evidence presented, we determine that this term does not require express construction to resolve the disputes before us.

⁴ Independent claims 10 and 11 recite the same or similar limitations. Ex. 1001, 10:50–57 (claim 10), 11:10–16 (claim 11).

4. Petitioner's Graphics from Patent Owner's Complaint (Exhibit 1016)

In addition to the above constructions, Petitioner provides a series of annotated graphics, excerpted from Patent Owner's complaint in the district court, that it contends "show Patent Owner's construction of 'portions,' 'connection fingers,' 'contact bar,' 'contact bar cover,' and first and second distances." Pet. 22–23 (citing Ex. 1016, 7, 14–15).

Patent Owner responds that "Petitioner does not dispute that Patent Owner's annotations [in the graphics] evidence the proper construction of the foregoing terms," and thus the Board should interpret the terms consistent with the "agreed upon annotations" in those photographs. PO Resp. 33.

We disagree with Patent Owner that including in the Petition excerpts and photographs from Patent Owner's complaint in the Texas litigation constitutes an "agreement" on claim construction. Petitioner presented these excerpts as showing Patent Owner's construction, not its own. Pet. 22. We, therefore, do not regard the annotations as representing a proposed express claim construction for these terms by either party.

To the extent we need to construe any other terms, we will do so in the context of the analysis of the prior art that follows.

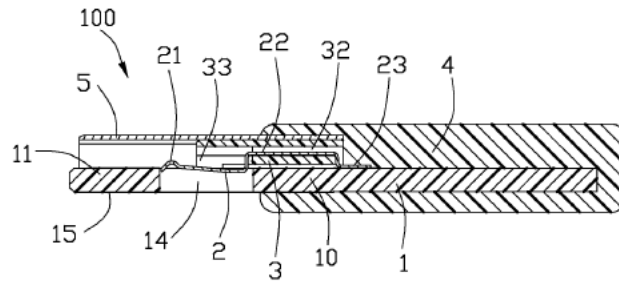
C. Description of Principal Prior Art References

Petitioner's challenges rely on He, Hsiao, and Chen as its principal references. *See supra*.

1. He (Ex. 1011)

He is a patent titled "Plug Connector Having An Improved Shell." Ex. 1011, (54). He discloses a USB plug connector compatible with USB 2.0 and 3.0 receptacles. *Id.* at 1:35–43, 3:9–12.

Figure 6 of He follows:



Pet. 28. Figure 6 of He shows a cross-sectional view of a USB plug connector. Ex. 1011, 1:66–67. The plug connector substrate (PCB 1) has base portion 10, tongue portion 11, and opposed upper and lower surfaces. *Id.* at 1:27–29; *see also id.* at 2:16–25. The PCB has contacting pads formed by “golden fingers” of PCB 1 that are adapted for the USB 2.0 protocol. *Id.* at 2:34–35, 3:9–10.

He’s plug connector also has resilient contacts 2, including “two pairs of differential contacts and a grounding contact” for the USB 3.0 interface. *Id.* at 3:7–12. Resilient contacts 2 have portions 21 that extend above the PCB surface, and are thus a greater height above the PCB’s surface than the golden fingers formed on the PCB surface. *Id.* at 2:48–55, Figs. 3, 6.

2. Hsiao (Ex. 1009)

Hsiao is a patent titled “USB Connector.” Ex. 1009, (54). Hsiao discloses COB flash memory devices having both USB 2.0 and 3.0 interfaces. Ex. 1009, 1:36–39, 6:51–55, 7:30–38.

Figure 9 of Hsiao is reproduced below:

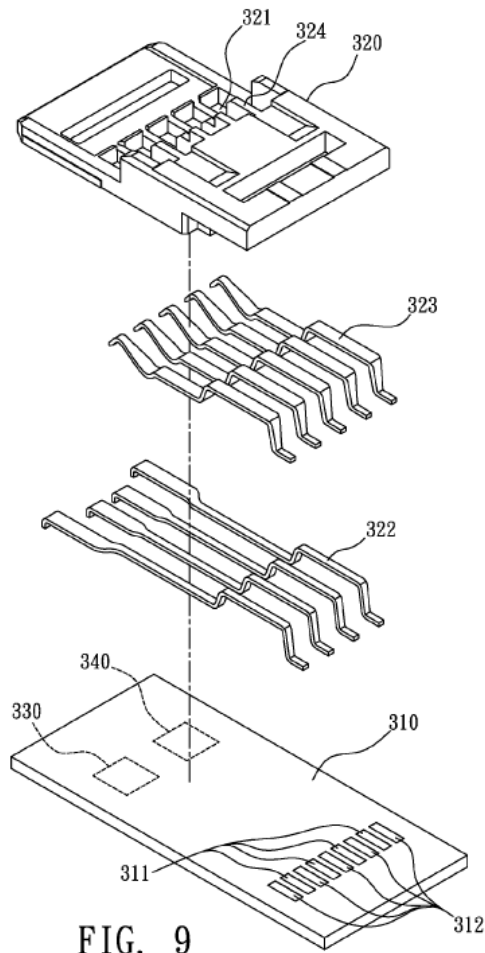


Figure 9 is an exploded view of a USB connector comprising substrate 310 and connector main body 320. Ex. 1009, 6:38–46. Substrate 310 includes a plurality of first contact pads 311 for transmitting USB 2.0 signals and second contact pads 312 for transmitting USB 3.0 signals. *Id.* at 6:47–51, 6:59–7:3. Main body 320 is made of insulating material and includes a plurality of opening slots 321 and slot columns 324 positioned between adjacent opening slots 321. *Id.* at 7:4–10.

A plurality of first terminals 322 are installed below slot columns 324 and coupled to first contact pads 311. *Id.* at 7:10–15. A plurality of second

terminals 323 are installed in opening slots 321 and coupled to second contact pads 312. *Id.* at 7:18–22.

Figure 10 of Hsiao follows:

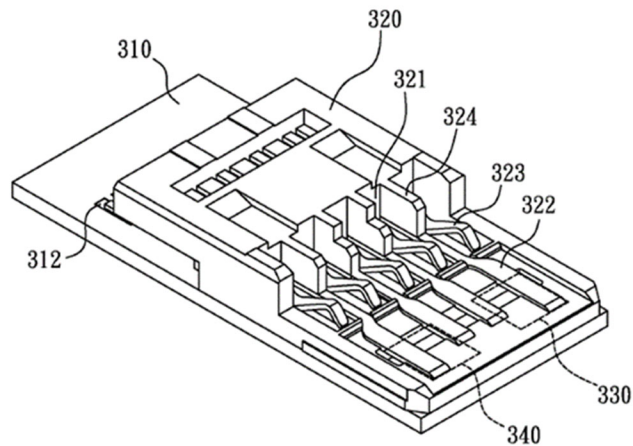


FIG. 10

Figure 10 of Hsiao is a schematic view of an assembled USB connector. Ex. 1009, 3:4–6. First terminals 322 and second terminals 323 are staggered and “integrally formed” with connector main body 320, which is disposed on substrate 310. *Id.* at 7:39–43.

USB controller 330 and flash memory 340 are installed on substrate 310 through the means of a COB package, which Hsiao states “is a conventional art.” *Id.* at 7:34–36. Hsiao states that the disclosed USB connector “has a smaller volume and lower production cost compared to conventional USB connectors.” *Id.* at 7:52–54.

3. *Chen (Exhibit 1010)*

Chen is a patent titled “Extension to Version 2.0 Universal Serial Bus Connector with Improved Contact Arrangement.” Ex. 1010, (54). Chen discloses a connector plug with conductive contacts adapted for “USB 2.0 protocol” and “non-USB 2.0 protocol.” Ex. 1010, (57).

Figures 2 and 3 of Chen (annotated by Petitioner) follow:

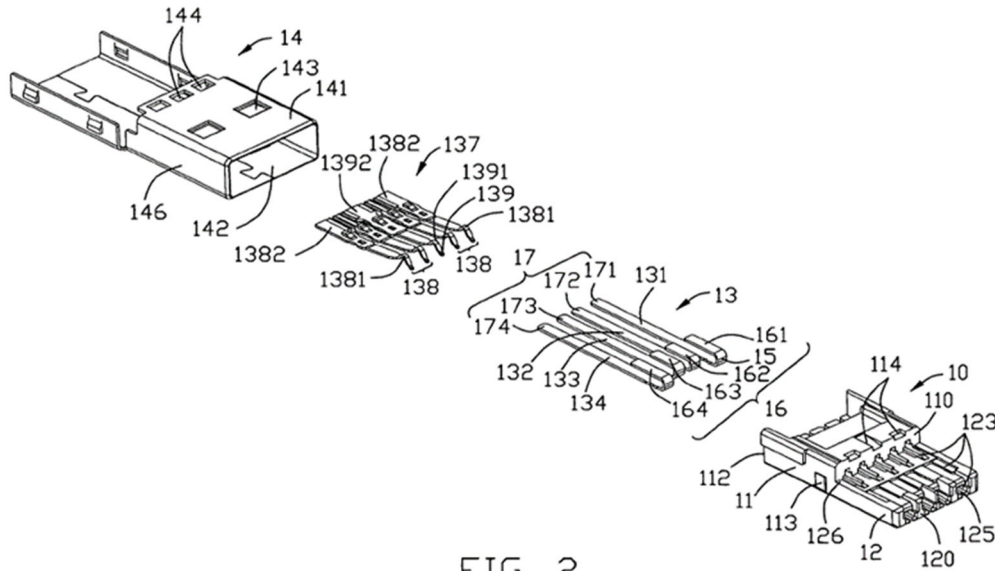


FIG. 2

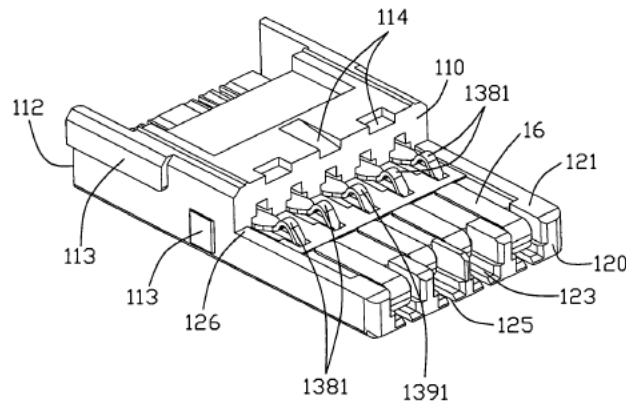


FIG. 3

Figures 2 and 3 are, respectively, an exploded perspective view and a perspective view of a USB plug with the metal shell removed. Ex. 1010, 4:43–48. The plug has a two-tier contact arrangement installed in insulative housing 10. *Id.* at 5:47–54, Fig. 2.

Plug contacts 13 include four “plug conductive” contacts 131–134 and a plurality of additional plug contacts 137 located behind the conductive

contacts. *Id.* at 6:31–34, 6:46–49. Housing 10 includes passageways 123 for receiving the contacts. *Id.* at 6:28–41.

Contacts 131–134 carry USB 2.0 signals. *Id.* at 7:59–64. Each comprises a plug contact portion 16 that is flat and nonelastic. *Id.* at 6:50–53, 6:57–58. When contacts 131–134 are inserted into corresponding passageways 123, flat, non-elastic contact portion 16 is substantially coplanar with the supporting surface 121. *Id.* at 6:58–62, Figs. 3–4.

Plug contacts 137 include two pairs of differential plug contacts 138 for transferring/receiving high-speed signals and grounding plug contact 139. *Id.* at 7:15–19, Fig. 2. These contacts each have an elastic contact portion designated 1381 and 1391, respectively. *Id.* at 7:21–30. “[E]ach contact portion 1381, 1391 is cantileveredly received in the passageways 123 and protruding upwardly beyond the supporting surface 121 so that the contact portion 1381, 1391 is elastic and deformable when engaging with corresponding contacts of the extension to USB receptacle 200.” *Id.* at 7:43–48, Figs. 2–3.

Housing 10 has base and tongue portions 11, 12 that are “integrally . . . molded” as one piece. *Id.* at 5:49–52, 6:12–14. The plug tongue portion 12 has substantially the same dimensions as a standard USB 2.0 plug, and plug contacts 137 each have portions 1381 or 1391 that are a greater height above the substrate surface than the fingers. *Id.* at 7:55–57, Fig. 4.

Chen discloses an embodiment in which “the extension to USB is a memory device,” that includes a PCB with a memory unit. *Id.* at 11:43–12:22. The USB plug has the configuration described above, and is physically and electrically connected to the PCB. *Id.*; *see also id.*, claim 3.

D. Whether Hsiao and He are Prior Art to the '206 Patent

1. Background

Patent Owner contends that Hsiao and He are not prior art to the '206 patent. PO Resp. 13–19, 33–40. Patent Owner argues that Mr. Kuster, the named inventor of the '206 patent, conceived of and reduced to practice claims 11 and 12 (the only claims challenged based on Hsiao) of his invention by September 7, 2010, over two months before the November 23, 2010, filing date of Hsiao. *Id.* at 13, 34. Patent Owner further contends that by May 2010 (prior to He's June 2, 2010 filing date), Mr. Kuster had reduced to practice an embodiment of the claims challenged on the basis of He, i.e., claims 1–11 and 13–19. *Id.* at 34.

Patent Owner argues Mr. Kuster first conceived a new configuration for a “USB 3 Stick” on April 15, 2009, when he sketched it in his design notebook. *Id.* at 35 (citing Kuster I Decl. ¶¶ 12, 18–19). Patent Owner asserts that Mr. Kuster developed several configurations of his USB devices between February and May of 2010. *Id.* at 36 (citing Kuster I Decl. ¶¶ 25–31).

Patent Owner alleges that Mr. Kuster built a working prototype of one of his designs in April or May of 2010. *Id.* at 37–38. Patent Owner alleges that Mr. Kuster's May 2010 prototype “had “connection fingers embedded to be exposed on the surface of the substrate, and a contact bar comprising a plurality of extensions mounted on the connection surface,” and was an embodiment of the independent claims of the '206 patent. *Id.* at 39 (citing Welch Decl. ¶ 33).

Patent Owner asserts Mr. Kuster also built an earlier prototype of another of his designs, and that he knows “for a fact” that he completed this prototype before September 7, 2010, because he knows he completed a

working prototype before he began working on further incorporating an eSATA [External Serial Advanced Technology Attachment] interface into a USB 3.0 flash drive. *Id.* at 38 (citing Kuster I Decl. ¶¶ 22, 32). Patent Owner alleges that Mr. Kuster knows he had prepared “stable working prototypes” before September 24, 2010, when he met with Victorinox⁵ to discuss go-to-market timelines. *Id.* at 39 (citing Kuster I Decl. ¶ 33).

Patent Owner argues that the September 7, 2010 prototype (referred to as the “screwed prototype” because it was built using screws) “included a contact bar comprising both connection fingers (the USB 2.0 contacts) and extensions (the additional USB 3.0 contacts), with the connection fingers embedded to be exposed on the surface of the contact bar,” and was an embodiment of at least claims 11 and 12 of the ’206 patent.⁶ *Id.* (citing Kuster I Decl. ¶¶ 23–24; Welch Decl. ¶¶ 32–35).

Patent Owner asserts that on October 21, 2010, Mr. Kuster met with attorneys at Kilpatrick Townsend to disclose his invention and discuss filing patent applications. *Id.* at 18 (citing Kuster I Decl. ¶¶ 34–35; Exs. 2044, 2045). Patent Owner contends Mr. Kuster subsequently engaged the firm, and patent applications were filed on January 31, 2011. *Id.* at 18–19 (citing Kuster I Decl. ¶ 36; Exs. 1002, 2040).

Petitioner disputes that Mr. Kuster conceived of and reduced to practice his invention prior to the filing date of Hsiao or He, primarily arguing that Mr. Kuster’s assertions about the dates of conception and

⁵ Victorinox is a company known for its iconic Swiss Army knives. PO Resp. 15 (citing Ex. 2035 ¶¶ 11–13). Mr. Kuster’s firm was working with Victorinox to supply USB 2 memory sticks. Kuster Dep. 15:15–16:6.

⁶ We assume the reference to “the ’243 patent” was meant to be a reference to the ’206 patent. *See* PO Resp. 39.

reduction to practice are uncorroborated and unsupported by any independent evidence. Pet. Reply 4–5.

2. Applicable Legal Standard

Patent Owner bears the burden to establish the facts necessary to overcome Hsiao’s and He’s filing dates. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375–76 (Fed. Cir. 2016) (“[I]n the context of establishing conception and reduction to practice for the purposes of establishing a priority date, the burden of production can shift from the patent challenger to the patentee . . . because . . . a patentee bears the burden of establishing that its claimed invention is entitled to an earlier priority date than an asserted prior art reference.”) (internal citations and quotation marks omitted).

Proof of conception must be by “corroborating evidence which shows that the inventor disclosed to others his ‘completed thought expressed in such clear terms as to enable those skilled in the art’ to make the invention.” *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985) (citing *Field v. Knowles*, 183 F.2d 593, 601 (CCPA 1950)); see also *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996) (corroboration requirement “arose out of a concern that inventors testifying in patent infringement cases would be tempted to remember facts favorable to their case by the lure of protecting their patent or defeating another’s patent”).

Similarly, an inventor’s testimony alone is insufficient to establish an earlier reduction to practice. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1169–71 (Fed. Cir. 2006). Instead, a party seeking to prove an actual reduction to practice must proffer evidence corroborating that testimony. *Id.* at 1170.

The sufficiency of corroboration is determined according to a “rule of reason.” *Price v. Symsek*, 988 F.2d 1187, 1195 (Fed. Cir. 1993). This,

however, does not dispense with the requirement that some independent evidence provide corroboration. *Coleman*, 754 F.2d at 360. The requirement of “independent” corroboration requires evidence other than the inventor’s testimony. *In re NTP, Inc.*, 654 F.3d 1279, 1291–92 (Fed. Cir. 2011).

3. Discussion

We find that Patent Owner has not met its burden of establishing that Mr. Kuster conceived and reduced to practice his invention prior to the filing dates of Hsiao or He. By itself, Mr. Kuster’s testimony is insufficient to establish that he reduced his invention to practice prior to the November 23, 2010, filing date of Hsiao or the June 2, 2010, filing date of He.

“Throughout the history of the determination of patent rights, oral testimony by an alleged inventor asserting priority over a patentee’s rights is regarded with skepticism, and as a result, such inventor testimony must be supported by some type of corroborating evidence.” *Woodland Tr. v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1371 (Fed. Cir. 1998) (quoting *Price*, 988 F.2d at 1194). Patent Owner has failed to provide sufficient independent evidence corroborating Mr. Kuster’s testimony.

The corroborating evidence Patent Owner relies on falls in five broad categories. PO Sur-reply 14–15.

a. “Contemporaneous” Notebooks (Exs 2036–2038; Exs. 1034–1036)

These notebooks, allegedly prepared by Mr. Kuster, are not signed or witnessed by another person. Patent Owner argues that under the rule of reason, these notebooks corroborate Mr. Kuster’s testimony. PO Sur-reply 20.

Patent Owner relies on *Fleming v. Escort Inc.*, 774 F.3d 1371 (Fed. Cir. 2014), arguing that corroboration has been found on “far less evidence

than present in the record here.” PO Sur-reply 15. We find *Fleming* to be inapposite. In *Fleming* the Federal Circuit found an accused infringer’s defense of prior invention to be “sufficiently corroborated by documentary evidence.” *Fleming*, 774 F.3d at 1377. This evidence included data from experiments, notes and correspondence, and “[m]ost tellingly” a letter from the Vice President of Cincinnati Microwave, a company that the purported prior inventor was working for, showing interest in the inventor’s idea in patenting the concept. *Id.* Unlike here, in *Fleming* there was evidence, independent of the alleged prior inventor, that corroborated the testimony concerning the prior invention. Here, however, Patent Owner presents no evidence of corroboration that is independent of Mr. Kuster himself. Unwitnessed inventor notebooks, by themselves, are not sufficient to corroborate inventor testimony regarding dates of conception and reduction to practice. *Apator Miitors ApS v. Kamstrup A/S*, 887 F.3d 1293, 1297 (Fed. Cir. 2018).

b. The “Actual Prototypes” Allegedly Made by Mr. Kuster

Mr. Kuster says he has in his possession the September 7, 2010, prototype, photographs of which are in the record. Kuster I Decl. ¶ 21; Ex. 2039. Patent Owner contends that “Kuster’s reduction to practice of the embodiment of claims 11 and 12 is evidenced by his actual prototype, which Petitioner inspected and does not dispute.” PO Sur-reply 23 (citing Ex. 2039). Patent Owner contends this prototype “match[es]” Mr. Kuster’s notebook records. PO Sur-reply 14; Hearing Tr. 54:1–2. But the prototype is not dated and does not provide any support to Mr. Kuster’s testimony that it was built by September 7, 2010. *See* Kuster I Decl. ¶ 22.

The only evidence presented by Patent Owner pertaining to the September 7, 2010 date by which a working prototype may have been

created is Mr. Kuster's testimony that "I know that I completed this working prototype before I began work on an alternative design in which I further incorporated an eSATA interface into the design." *Id.* ¶ 22.

Patent Owner contends that "Kuster also built a prototype of the invention of claims 1–11 and 13–19 before June 2010, which Petitioner inspected and does not dispute practiced those challenged claims." PO Sur-reply 25. This prototype also is not dated. *See* Pet. Reply 8–9.

Mr. Kuster also testifies that on September 24, 2010, he met with Victorinox to prepare go-to-market timelines for his USB 3.0 flash drive. *Id.* ¶ 33. Mr. Kuster testifies that it was his practice to prepare stable working prototypes before such meetings, and that therefore he had prepared such a stable working prototype on or before September 24, 2010. *Id.* There is no evidence of that meeting other than Mr. Kuster's testimony.

Nothing else, not even the notebooks, directly connects Patent Owner's assertions regarding reduction to practice of working prototypes prior to the September 7, 2010, or September 24, 2010, dates.⁷

c. Provisional Application Filings (Exs. 1002, 1003)

Patent Owner contends that notebook pages filed with the provisional applications prove "the notebooks are genuine, contemporaneous records—not an after-the-fact fabrication." PO Sur-reply 15. As discussed *supra*, the notebook pages were not signed and witnessed. The best argument that can be made is that they were in existence as of the filing of provisional applications in 2011, which was after Mr. Kuster's alleged September 7, 2010, invention date, but not early enough to antedate Hsiao or He.

⁷ We note that Mr. Kuster testified that he removed some pages from the notebooks. Kuster Dep. 38:7–42:6. He was unable to explain why he removed several of those pages. *Id.* at 40:3–6, 40:20–25, 41:16–42:6.

d. “Photographs of subsequent commercial embodiments of Kuster’s slim USB 3.0 invention and its introduction at CES in Las Vegas” (Exs. 2041–2043)

These will be discussed further in connection with Patent Owner’s assertion of objective indicia of non-obviousness. *See infra*, Section IV.C. Suffice it to say, for now, that Patent Owner does not provide sufficient evidence that these products embody Mr. Kuster’s invention as claimed.

e. Testimony from Eric Welch

Patent Owner contends Mr. Welch “confirmed that [Mr. Kuster’s testimony] credibly evidences a prior reduction to practice of the claimed invention.” PO Sur-reply 15 (citing Welch Decl. ¶¶ 70–73). Mr. Welch testified that the “primary evidence” for his testimony was Mr. Kuster’s declaration. Welch Dep. 35:9–15. We do not find Mr. Welch’s testimony helpful as corroboration. It is not based on personal knowledge, nor is it independent of Mr. Kuster.

4. Conclusion

We are not persuaded that Patent Owner has proven that Mr. Kuster’s alleged invention was reduced to practice prior to the filing dates of Hsiao or He.

IV. ANALYSIS OF THE CHALLENGED CLAIMS

A. Anticipation and Obviousness

The Federal Circuit addressed the legal standard for anticipation in *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331 (Fed. Cir. 2016):

Under 35 U.S.C. § 102(b), a prior art reference will anticipate if it “disclose[s] each and every element of the claimed invention . . . arranged or combined in the same way as in the claim.”

815 F.3d at 1341 (citation omitted). The Federal Circuit went on to explain:

However, a reference can anticipate a claim even if it “d[oes] not expressly spell out” all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.

Id. (quoting *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015)).

A claim is unpatentable as obvious under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such 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) where in evidence, so-called “secondary considerations,” including commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Patent Owner’s arguments for the existence of such secondary considerations is discussed *infra*, in Section IV.C.

B. Motivation to Combine the References

Patent Owner challenges the sufficiency of Petitioner’s showing of a motivation to combine the references. *See, e.g.*, PO Resp. 42–48, 67–73. According to Patent Owner, “each and every one of Petitioner’s alleged motivations to combine is based solely on a conclusory, hindsight-guided statement that the combination would have provided certain improvements.” *Id.* at 42. Petitioner responds that “Dr. Baker’s explanations of [a person of

ordinary skill's] motivations to combine are centered on known design needs, market demands and the prior art, not hindsight as Kuster contends.” Pet. Reply 13.

As explained by Petitioner, Patent Owner's alleged invention is largely a product of the existing USB 2.0 and USB 3.0 standards. Pet. 1–2. As Petitioner's expert, Dr. Baker, explains, the USB 3.0 standard requires backward compatibility with USB 2.0 devices as a “key” design area. Baker Decl. ¶ 63. The USB 3.0 specification thus requires the standard USB 3.0-compliant plug to fit both USB 2.0 and USB 3.0 receptacles. *Id.* ¶ 64. This, in turn, dictates the arrangement of the contacts and the physical dimensions of the plugs. *Id.* ¶¶ 65–68. As Petitioner argues persuasively: “The '206's alleged ‘innovation,’ involves nothing more than providing the two tiers of connector contacts required by the USB 3.0 standard, and arranging them exactly as taught by the standard and a host of other prior art references.” Pet. 1. Petitioner explains further: “The '206 does not teach anything new about the device's dimensions, electronics, or manufacturing. . . . This is underscored by He, Chen and Hsiao prior art references disclosing USB drives having connectors identical to those claimed in the '206, in addition to the other references cited herein.” *Id.* at 1–2 (citations omitted).

Discussing the question of non-obviousness of claimed subject matter involving a combination of known elements to meet “design incentives,” the Supreme Court, in *KSR*, expressed skepticism:

When a work is available in one field of endeavor, *design incentives and other market forces* can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability.

KSR, 550 U.S. at 417 (emphasis added). Furthermore, in the context of combining references, *KSR* explains that merely filling a “design need” is not likely to result in a patentable invention:

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR, 550 U.S. at 421 (emphasis added).

In determining whether Petitioner has presented an adequate motivation to combine references, we consider also the fact that “this invention falls into a very predictable field. In the predictable arts, a trial record may more readily show a motivation to combine known elements to yield a predictable result, thus rendering a claimed invention obvious.”

Rothman v. Target Corp., 556 F.3d 1310, 1319 (Fed. Cir. 2009). For the foregoing reasons, we do not agree with Patent Owner’s blanket assertion that “each and every one of Petitioner’s alleged motivations to combine is based solely on a conclusory, hindsight-guided statement that the combination would have provided certain improvements.” PO Resp. 42.

We further address the parties’ arguments on motivation to combine specific references, as necessary, *infra*.

C. Objective Indicia of Non-Obviousness

Patent Owner contends that “compelling objective evidence independently confirms the patentability of the Challenged claims.” PO Resp. 73–81. Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective

evidence of non-obviousness. *Graham*, 383 U.S. at 17. However, for us to give substantial weight to objective indicia of obviousness or non-obviousness, a proponent must first establish a nexus between the evidence and the merits of the claimed invention. *ClassCo, Inc., v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). “[T]here is no nexus unless the evidence presented is ‘reasonably commensurate with the scope of the claims.’” *Id.* (quoting *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)).

A patentee is entitled to a presumption of nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)).

Even without the presumption, Patent Owner “is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Fox Factory*, 944 F.3d at 1373–74 (quoting *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)). Also, the nexus must be “to some aspect of the claim not already in the prior art.” *In re Kao*, 639 F.3d 1057, 1069 (Fed. Cir. 2011) (emphasis added).

Patent Owner makes three main arguments in support of its assertion that there is “compelling objective evidence” of patentability. We discuss these in turn.

1. “Other companies patented numerous ways of implementing USB 3.0 flash drives without teaching Mr. Kuster’s inventive design.”

Patent Owner contends that “[a]fter the USB 3.0 specification was released, there was an intense need for solutions for implementing the new contact arrangement called for by the standard, and efforts to provide such solutions.” PO Resp. 75. After presenting several alternative approaches to this alleged problem, Patent Owner continues, “[w]ere Mr. Kuster’s solution obvious, . . . one would have expected that others would have identified and published it during this period of intense development. None did.” *Id.* at 77.

Petitioner responds that Patent Owner’s argument “relies primarily on attorney argument, not evidence.” Pet. Reply 26. We agree. Patent Owner does not back up its argument with testimony or other credible evidence. To demonstrate long-felt need, a patentee must point to an “articulated identified problem and evidence of efforts to solve that problem” which were, before the invention, unsuccessful. *Tex. Instruments v. Int’l Trade Comm’n*, 988 F.2d 1165, 1178 (Fed. Cir. 1993). All Patent Owner proves, if anything, is that after the USB 3.0 specification issued, a number of companies rushed in to provide contacts that met the new standard. Patent Owner does not demonstrate that they failed where Mr. Kuster succeeded. In fact, there is no evidence that Mr. Kuster ever commercialized his invention.⁸

⁸ Victorinox never paid for the work Mr. Kuster did on the USB 3.0 memory device, and to Mr. Kuster’s knowledge, never marketed the product. Kuster Dep. 22:21–24:13.

Patent Owner contends “Mr. Kuster’s invention filled the existing need for a durable yet slim USB flash drive compatible with USB 3.0 that was easy to manufacture.” PO Resp. 77. But instead of presenting independent evidence of failure of the others to solve known technical or manufacturing problems, Patent Owner relies on generalized statements concerning the need for USB 3.0 connectors and solutions by others that Patent Owner contends have not been successful. PO Resp. 74–77.

We are not persuaded by Patent Owner’s argument that Mr. Kuster’s alleged invention filled a long-felt need where others failed.

2. *“Mr. Kuster’s invention subsequently was widely adopted and commercially successful”*

Patent Owner’s second argument is that Mr. Kuster’s invention was “widely adopted” by other companies, whose products are commercially successful. PO Resp. 77–80. Patent Owner argues that Mr. Kuster’s invention was introduced to the public in January 2012, at a trade show, and that after it was introduced, the industry “widely adopted” Mr. Kuster’s design. *Id.* at 78–79.

Patent Owner provides a photo of the Victorinox booth from the show, and contends that “Victorinox received significant attention and praise for its new products, and was a finalist for the Best of CES award.” *Id.* at 78. However, there is no evidence that the award resulted from Mr. Kuster’s invention, as Patent Owner’s argument suggests.

Patent Owner argues that Petitioner has itself adopted Mr. Kuster’s design, and that other companies such as Kingston, Samsung, Corsair, EMTEC, Verbatim, Monster Digital, and Patriot Memory have as well. PO Resp. 79. For support, Patent Owner provides claim charts submitted in the parallel litigation and also provides photographs of the flash drives of the

aforementioned companies. *Id.* at 79–80 (citing Ex. 1016, 2–8; Ex. 2048, 3, 6, 9, 12, 15, 18, 21).

In addition, Patent Owner provides a market study which it argues demonstrates that “market adoption of ‘Chip on Board (CoB) USB 3.0 Flash Drives’ already exceeded that of conventional USB 3.0 flash drives in 2015” and that “[s]ales of over 33 million units were expected in 2020 versus 10 million units for conventional devices.” *Id.* at 25–26 (citing Ex. 2046, 58). Patent Owner relies also on Petitioner’s “remarkable” commercial success. *Id.* at 26.

Petitioner responds that Kuster provides no evidence of nexus between the novel features of the challenged claims and the identified devices. Pet. Reply. 29. We agree that Patent Owner provides insubstantial evidence of a nexus between the claimed invention and the allegedly commercially successful products identified by Patent Owner. There is no persuasive evidence that the products from companies such as Kingston, Samsung, and others appearing in the photographs embody the claimed features and are coextensive with them.

As for Petitioner’s products, Patent Owner provides claim charts from the Texas litigation which, it argues, show that Petitioner has adopted Mr. Kuster’s patented invention. PO Resp. 76 (citing Ex. 1016). Patent Owner, has not, however, provided any evidence that a district court has found Petitioner’s products to infringe the ’206 patent, nor does Petitioner concede infringement. *See* Hearing Tr. 81:20–82:5. That is true also for the other products cited by Patent Owner as using Mr. Kuster’s alleged invention. *Id.* at 82:5–12.

Patent Owner’s claim chart, by itself, is insufficient proof that these products embody the ’206 patent’s claims and are coextensive with them.

Patent Owner's allegations invite an infringement trial, which is beyond the scope of an *inter partes* review. Moreover, simply establishing that a product infringes a patent is not enough to show a nexus. *See Fox Factory*, 944 F.3d at 1377 (holding that a prima facie case of nexus cannot be made by simply showing that "the patent claims broadly cover the product that is the subject of the evidence of secondary considerations").

Furthermore, Patent Owner has not presented sufficient evidence that the alleged commercial success of the identified products is due to the claimed elements, either individually or as a whole, and therefore has not established the required nexus for this additional reason. The portions of the market research study relied on by Patent Owner show sales of COB USB devices exceeding those of conventional USB devices (e.g. Ex. 2046, 58), but Patent Owner presents no evidence on how COB USB devices in general relate to the claimed elements, and whether it is those claimed elements that have helped drive sales.

Petitioner responds to these arguments by pointing out that COB USB devices were not invented by Patent Owner and were well known in the industry prior to the '206 patent. Pet. Reply 30 (citing Baker Decl. ¶ 73; Ex. 1017, ¶ 9). According to Petitioner, the market study shows that "any commercial success of USB 3.0 COB flash drive was largely due to COB manufacturing technology, a prior art manufacturing process that Kuster did not invent and the '206 does not claim." *Id.* at 29 (citing Baker Decl. ¶ 72; Ex. 2046, 36). We find that for the reasons given, Patent Owner's market study data related to COB USB device sales and its other arguments do not provide persuasive evidence that the alleged commercial success of the identified products is due to novel features claimed by the '206 patent. We find that Patent Owner's commercial success argument is unavailing.

3. “*By contrast, the asserted prior art was not a commercial success.*”

Patent Owner argues that “Petitioner has not identified any commercial success of Hsiao, Chen, or any of the other secondary references cited against Mr. Kuster’s claims.” PO Resp. 80. Patent Owner contrasts this with “the now-ubiquitous use of Mr. Kuster’s invention in USB 3.0 COB flash drives.” *Id.* at 81.

Patent Owner does not provide any authority for imposing a burden on Petitioner to show commercial success for Hsiao or Chen. Nor is there any persuasive evidence to support Patent Owner’s argument that the connectors described in Hsiao, Chen, and other patents are not commercially successful. Patent Owner’s reliance on Dr. Baker’s deposition testimony is misplaced. *Id.* His lack of knowledge of the commercial status of Hsiao and Chen does not prove that they were not commercially successful, only that he was unable to answer the question from memory. Baker Dep. 122:8–12.

4. *Conclusion on Objective Evidence*

In summary, for the reasons given, and based on the evidence and arguments presented, when weighed in context of the other *Graham* factors Patent Owner’s evidence of objective indicia of nonobviousness does not persuasively support Patent Owner’s position on the issues of obviousness raised in the Petition and discussed in our analysis *infra*.

D. *Challenges Based on He*

1. *He and Cheng*

Petitioner contends that claims 1–5, 8–11, 13–15, 18, and 19 would have been obvious in light of He and Cheng. Pet. 36–59.

a. Claim 1

Petitioner presents evidence that each element of claim 1 is disclosed in He and Cheng. Pet. 36–45. For example, Petitioner shows that the preamble of claim 1 (element 1a)⁹ is met by He’s “USB flash disk.” *Id.* at 36. The substrate (element 1b) is met by He’s PCB 1. *Id.* at 38. The “memory die stack” (element 1c) is disclosed by He’s USB “flash disk”: “[T]he very definition of a USB flash disk is that it includes flash memory.” *Id.* at 39 (emphasis omitted). For the controller (element 1d), Petitioner asserts a person of ordinary skill “would have known that this controller is necessarily present in a USB flash disk.” *Id.* In any event, “Cheng discloses that ‘conventional flash drives have controllers that are disposed on a printed circuit board.’” *Id.* at 40 (internal quotation marks and alterations omitted) (citing Ex. 1012 ¶ 4). As Petitioner explains, “[i]t would have been obvious to [a person of ordinary skill] to mount a controller on He’s PCB as is ‘conventional’ in USB flash drives. [A person of ordinary skill] would have been motivated to do so to provide a USB standard compatible interface between the USB bus and the flash memory.” *Id.* at 40 (citing Baker Decl. ¶¶ 166–167)

Petitioner demonstrates that the claimed contact bar (element 1e) is shown in annotated Figure 3 of He, reproduced *supra*, and is comprised of insulator 3 and resilient contacts 2. Pet. 40–42. The plurality of connection fingers (element 1f) is met by contacting pads 13 in He. *Id.* at 44 (citing Ex. 1011, 2:34–35). The “wherein” clause, reciting two interfaces (element

⁹ Because Petitioner has demonstrated that the preamble limitations of the challenged claims are met by the cited prior art, we do not express a view on whether this or any other preamble is limiting.

1g), is met by the USB 2.0 interface (contacting pads 13) and the USB 3.0 interface (contacting pads 13 and resilient contacts 2) in He. *Id.* at 44–45.

Patent Owner responds to Petitioner’s element-by-element analysis of this claim, focusing on the recitation in claims 1–10 (as well as claim 13) of “a plurality of connection fingers embedded to be exposed upon the connection surface of the substrate.” PO Resp. 41–42. Patent Owner contends that He’s metal contacting pads 13 do not meet this limitation because “He’s ‘metal contacting pads 13’ are not embedded, or ‘set firmly within,’ the connection surface of He’s PCB.” *Id.* at 41 (citing Welch Decl. ¶ 66). Patent Owner continues: “Contacting pads on a PCB, such as He’s contacting pads 13, are formed either by a subtractive process or an additive process.” *Id.* (citing Welch Decl. ¶ 67). Patent Owner contends that in the subtractive process the copper foil covering the PCB would be etched away, leaving the conductors. In the additive process, the conductors are formed by adding copper to a bare substrate. *Id.* Patent Owner concludes that “in neither case is a contacting pad embedded, or set firmly within, the connection surface of a PCB.” *Id.*

Petitioner responds to these arguments in its Reply. Pet. Reply 15–16. Petitioner asserts that “Kuster argues He’s ‘golden fingers’ are not ‘embedded’ because they are not ‘set firmly within’ the PCB, but Kuster agreed ‘embedded’ means ‘set firmly into a mass or material.’” *Id.* at 15. Petitioner also points to an amendment during prosecution in which the requirement for connection fingers “mounted on or embedded within” the substrate was amended to recite the external storage device having connection fingers “embedded to be exposed upon” the substrate surface. *Id.* at 16.

We are more persuaded by Patent Owner’s evidence that He’s contact pads, identified by Petitioner as the claimed “connection fingers,” are not “embedded to be exposed upon the connection surface of the substrate,” as the claims require. The construction of “embedded” agreed to by the parties requires that the contacts be “set firmly into a mass or material.” *See supra*. We find that He’s contacts are on the surface of the substrate, and thus are not “into” the substrate. Moreover, the references that Petitioner relies on in combination with He do not disclose this limitation of the claims that is missing from He. Petitioner relies on Cheng for its disclosure of a controller on the printed circuit board. Pet. 39–40. Petitioner relies on Hiller for its teaching of “stacking” memory dies. *Id.* at 60–61. Petitioner relies on Sun’s disclosure of flash drives that are USB 2.0 and USB 3.0 compatible, that have at least one memory die stack, and a controller configured to access that memory. *Id.* at 62.

In sum, we find that Petitioner fails to demonstrate by a preponderance of the evidence that He teaches the claimed connection fingers, and therefore the challenge to claim 1 based on He and Cheng fails.

b. Claims 10 and 11

Petitioner’s analysis of these independent claims follows its analysis of claim 1, *supra*. Pet. 50–55. Claim 10 recites the limitation; “a plurality of connection fingers embedded to be exposed upon the connection surface of the substrate.” Therefore, for the reasons given for claim 1, *supra*, we find that Petitioner fails to demonstrate by a preponderance of the evidence that He teaches the claimed connection fingers, and therefore the challenge to claim 10 based on He and Cheng fails.

Claim 11 does not recite the “connection fingers embedded” limitation missing from He. Patent Owner does not separately address this

challenge to claim 11 based on He and Cheng. Instead, Patent Owner contends a person of ordinary skill would not have been motivated to combine Cheng's controller with He. PO Resp. 42. In addition to its generalized arguments directed to this issue, discussed *supra*, Patent Owner contends "Petitioner's combination further fails because it would not have been possible to include Cheng's controller in He." *Id.* at 43.

We do not agree with this argument. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)). Moreover, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton," so the fact that it would take some creativity to carry out the combination does not defeat a finding of obviousness. *KSR*, 550 U.S. at 421; *see also ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1219 (Fed. Cir. 2016) ("The rationale of *KSR* does not support [the] theory that a person of ordinary skill can only perform combinations of a puzzle element A with a perfectly fitting puzzle element B.").

We find there is support for making this combination of He and Cheng in the testimony of Dr. Baker that addition of a controller is "conventional" in USB flash drives. Baker Decl. ¶ 167. We find that for the reasons given by Dr. Baker, a person of ordinary skill would have added a controller to He. We determine that the combination of He and Cheng teaches each limitation of claim 11. We address Patent Owner's argument

that there are objective indicia of obviousness, *infra*. We conclude that Petitioner has demonstrated that claim 11 would have been obvious over He and Cheng.

c. Claims 2–5, 8, 9, 13–15, 18, and 19

Claims 2–5, 8, and 9 depend from claim 1 and therefore include the “connection fingers embedded” limitation missing from He. Likewise, dependent claim 13 recites the “connection fingers embedded” limitation. For the reasons given for claim 1, therefore, we find that Petitioner fails to demonstrate by a preponderance of the evidence that He teaches the claimed connection fingers, and the challenge to claims 2–5, 8, 9, and 13 based on He and Cheng fails.

Claims 14, 15, 18, and 19 depend from claim 11. Petitioner provides evidence demonstrating that these claims are disclosed by He and Cheng. Pet. 55. Similar to claim 11, Patent Owner does not separately address this challenge to claims 14, 15, 18, and 19 based on He and Cheng. Instead, Patent Owner contends a person of ordinary skill would not have been motivated to combine Cheng’s controller with He. *Id.* at 43. As discussed *supra* in connection with claim 11, we find a person of ordinary skill would have been motivated to make that combination. We find that He and Cheng, in combination, teach the limitations of these claims for the reasons given by Petitioner.

We address Patent Owner’s argument that there are objective indicia of obviousness, *supra*. We conclude that for the reasons given, Petitioner has demonstrated that claims 14, 15, 18, and 19 would have been obvious over He and Cheng.

2. *He, Cheng, and Hiller*

Petitioner contends that dependent claims 6, 7, 16, and 17 would have been obvious in light of He, Cheng, and Hiller. Pet. 59. Petitioner provides an analysis of these claims that relies, in part, on its analysis of the claims from which they depend. *Id.* at 59–61.

Claims 6 and 7 depend from claim 1, and therefore include the “connection fingers embedded” limitation missing from He. Petitioner relies on Hiller for its teaching of “stacking” memory dies. *Id.* at 60–61. Therefore, for the reasons given for claim 1, *supra*, we find that Petitioner fails to demonstrate by a preponderance of the evidence that He teaches the claimed connection fingers, and the challenge to claims 6 and 7 based on He, Cheng, and Hiller fails.

Patent Owner does not separately address the challenge to claims 16 and 17, which depend from claim 11, based on He, Cheng, and Hiller. Instead, Patent Owner contends a person of ordinary skill would not have been motivated to combine Hiller’s teaching of “stacking” memory dies with He and Cheng. PO Resp. 45. Patent Owner asserts “there would have been no reason for a [person of ordinary skill] to combine He and Cheng still further with Hiller, because Hiller nowhere indicates that its memory-related teachings may be incorporated into a USB flash drive.” *Id.*

We find there is support for making this combination of Hiller’s memory die stacking and He in the testimony of Dr. Baker: “It would have been obvious to [person of ordinary skill] to utilize this conventional approach to memory die stacking in He’s device, and [a person of ordinary skill] would have been motivated to do so because using stacks having multiple dies allows for a memory device with greater storage capacity contained in a smaller space.” Baker Decl. ¶ 213. We find for these reasons

a person of ordinary skill would have been motivated to make that combination.

We determine for the reasons given by Petitioner that the combination of He, Cheng, and Hiller teaches each limitation of claims 16 and 17. We address Patent Owner's argument that there are objective indicia of obviousness, *supra*. We conclude that Petitioner has demonstrated that claims 16 and 17 would have been obvious over He, Cheng, and Hiller.

3. *He and Sun*

Petitioner contends that claims 1–11 and 13–19 would have been obvious in light of He and Sun. Pet. 61. Petitioner provides an element-by-element analysis of these claims in light of He and Sun. *Id.* at 61–69.

Claims 2–9 depend from claim 1 and therefore include the “connection fingers embedded” limitation missing from He. Claims 10 and 13 also include this limitation. Petitioner relies on He for this limitation. Pet. 61; Pet. Reply 15–16. Petitioner relies on Sun's disclosure for another limitation: flash drives that are USB 2.0 and USB 3.0 compatible, that have at least one memory die stack, and a controller configured to access that memory. Pet. 62. We determine that for the reasons given above for claim 1, Petitioner has not demonstrated these claims would have been obvious over He and Sun. As stated, we are not persuaded by Petitioner's evidence that He discloses the “connection fingers embedded” limitation. *See supra*, Section IV.D.1.a.

Claims 11 and 14–19 do not contain the “connection fingers embedded” limitation. Patent Owner does not separately address this challenge to claims 11 and 14–19 based on He and Sun. Patent Owner contends (without citing specifics) that a person of ordinary skill would not have been motivated to combine He and Sun: “Each and every one of

Petitioner's alleged motivations to combine is based solely on a conclusory, hindsight-guided statement that the combination would have provided certain improvements." PO Resp. 46. Patent Owner also asserts this challenge "fails on the merits." *Id.* at 47.

Because we determine that claims 11 and 14–19 are not patentable on other grounds, we do not address this additional challenge based on He and Sun.

E. Challenges Based on Hsiao

1. Hsiao Anticipation

Petitioner first contends that claims 11 and 12 are anticipated by Hsiao. Pet. 69–79. Petitioner asserts that each element of claim 11 is disclosed in Hsiao. *Id.* at 69–76. For example, Petitioner shows that the preamble (element 11a) is met by Hsiao's disclosure of a USB COB flash memory device. *Id.* at 69 (citing Ex. 1009, 7:30–36). The substrate element (element 11b) is met by COB substrate 310. *Id.* at 70 (citing Ex. 1009, 6:51–55). The memory die stack (element 11c) is met by Hsiao's disclosure of a flash memory. *Id.* at 71. As Petitioner explains, a person of ordinary skill "would have known that flash memory 340 necessarily has at least one memory die." *Id.* (citing Baker Decl. ¶¶ 234–235).

Petitioner identifies the claimed controller (element 11d) with Hsiao's USB controller 330. *Id.* at 72. For the claimed contact bar (element 11e), Petitioner identifies Hsiao's connector main body 320 with second terminals 323 installed. *Id.* (citing Ex. 1009, 7:39–42). *See also* annotated Figure 10 of Hsiao, at Pet. 74. For the "plurality of connection fingers" (element 11f), Petitioner relies on terminals 322 in Hsiao, which are "electrically coupled" with substrate 310 by welding one end of terminals 322 to contact pads 311. *Id.* at 74 (citing Ex. 1009, 7:19–47).

Finally, to meet the “wherein” clause (element 11g), Petitioner identifies the four first terminals 322 of the USB connector in Hsiao as the USB 2.0 connector and the five second terminals 323 of Hsiao as the USB 3.0 connector. Pet 74–75 (citing Baker Decl. ¶ 247).

Claim 12 depends from claim 11, and further specifies that “the contact bar comprises a cover and wherein the plurality of connection fingers are embedded to be exposed upon the cover of the contact bar.” Ex. 1001, 11:20–23. Petitioner contends that Hsiao discloses this element: “Hsiao’s contact bar cover is connector main body 320 and ‘connection fingers’ (terminals 322) ‘are embedded to be exposed upon’ the contact bar cover.” Pet. 76 (citing Ex. 1009, Figs. 9–10 (annotated)).

2. Hsiao Obviousness

Alternatively, Petitioner contends claims 11 and 12 would have been obvious over Hsiao. Pet. 79–80. Petitioner contends: “It would have been obvious to [a person of ordinary skill] that the entire ‘forwardly extended’ contact portion of terminals 322 could be embedded in the front portion of connector main body 320.” *Id.* at 79. Petitioner further contends there would have been a motivation to do this, with a reasonable expectation of success. *Id.* at 79–80.

Patent Owner challenges this as a “both entirely conclusory and driven solely by hindsight, and should be rejected accordingly.” PO Resp. 56. Patent Owner also argues that “Hsiao already provides other structures to hold the connection fingers in place,” namely, plural slot columns 324. *Id.* (emphasis omitted).

3. Hsiao and Sun

Petitioner’s obviousness challenge to claims 11 and 12 based on Hsiao and Sun is presented as an alternative: “To the extent the Board determines

that Hsiao does not expressly disclose that Hsiao's 'controller' is 'configured to access memory,' Sun discloses this limitation." Pet. 80. Petitioner contends that would have been obvious to configure Hsiao's USB controller 330 to access Hsiao's flash memory 340 "in order to effect data transfer to and from memory in compliance with the USB specifications as taught by Sun." *Id.* at 81 (citing Baker Decl. ¶¶ 255–257).

4. Patent Owner's Response

Patent Owner responds to these grounds based on Hsiao collectively. PO Resp. 48–61. Patent Owner contends claims 11 and 12 are patentable over the three grounds based on Hsiao alone, and Hsiao in combination with Sun. *Id.* at 48. Patent Owner makes three main arguments. First, Patent Owner asserts that Hsiao is not prior art to the '206 patent. *Id.* We disagree, for the reasons stated in Section III.D *supra*. Next, Patent Owner asserts that Hsiao does not teach or suggest the limitation "the plurality of connection fingers are embedded to be exposed upon the cover of the contact bar" of claim 12. *Id.* This argument will be discussed *infra*. Finally, Patent Owner contends a person of ordinary skill "would not have been motivated to combine the teachings of Hsiao with the teachings of Sun to arrive at the claimed invention." *Id.*

5. Unpatentability of Claims 11 and 12 over Hsiao

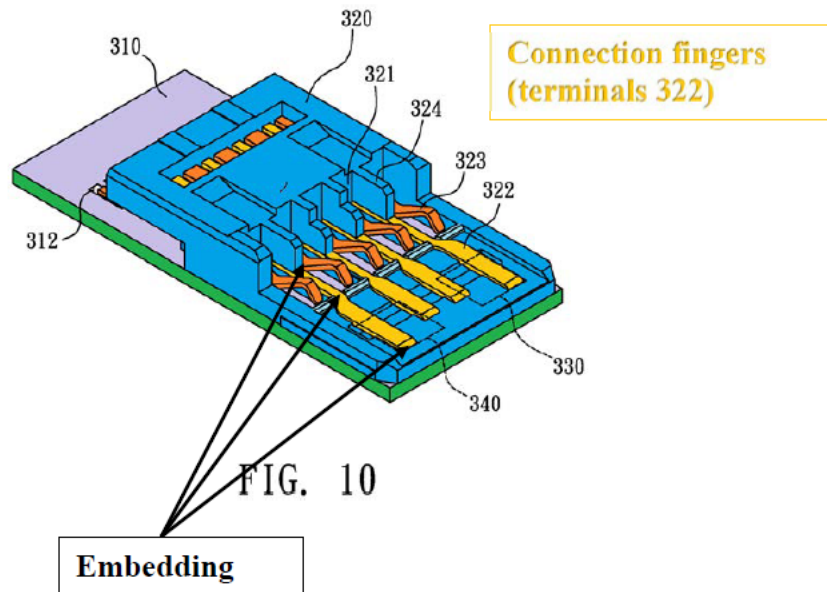
Patent Owner argues that "[e]ven assuming Hsiao were prior art (which it is not), Hsiao does not teach 'a plurality of connection fingers embedded to be exposed upon the cover of the contact bar,'" as required by claim 12 of the '206 Patent." PO Resp. 48. We disagree.

Patent Owner disputes Petitioner's identification of Hsiao's terminals 322 as the "connection fingers" in Hsiao. *Id.* at 49–53. Referring to Figure 10 of Hsiao, Patent Owner contends that "the portion of Hsiao's first

terminals 322 that are installed below Hsiao's slot columns 324 are not the 'connection fingers.'" *Id.* at 49. Instead, the "connection fingers" are "four contacts that are exposed to make a connection with the receptacle, as shown in the USB 3.0 standard." *Id.* Patent Owner relies also on the testimony of Dr. Baker. According to Patent Owner, "Petitioner's own expert Dr. Baker correctly annotated Figures 9 and 10 of Hsiao to indicate that the wide, frontward portions of Hsiao's first terminals 322—the connections that are 'exposed' to make contact with the receptacle—are the 'connection fingers.'" *Id.* at 51 (citing Ex. 2026). Patent Owner contends that these connection fingers, properly identified, are not "embedded"; instead, "the connection fingers overlay the top of the connection bar." *Id.* at 53.

We are persuaded that even under Patent Owner's identification of the "connection fingers" in Hsiao, Petitioner meets its burden of proving claim 12 unpatentable over Hsiao. Petitioner replies that Hsiao describes terminals 322 as "integrally formed" with the connector main body, which Petitioner identifies as the claimed contact bar cover. Ex. 1009, 7:39–42. Moreover, Petitioner's expert, Dr. Baker, describes how the forwardly extended portion of terminals 322 are embedded in the cover. Baker Decl. ¶¶ 251–252. As Dr. Baker testifies: "[A person of ordinary skill] would have understood that the 'forwardly extended' contact portion of terminals 322 would necessarily be embedded in the front section of connector main body 320 to facilitate proper mating with and ensure compatibility with the USB 2.0 standard receptacle into which this connector is inserted." *Id.* ¶ 253. He explains further that "the front portion of the terminals 322 (which bend downward) would be fixed, as shown, to secure the contacts and prevent them from

bending upward or moving laterally.” *Id.* He provides the following annotated Figure 10 of Hsiao, illustrating his testimony:



Baker Decl. ¶ 253. Annotated Figure 10 of Hsiao shows connection fingers (terminals 322 in yellow) embedded in connector main body 320 (in blue). At his deposition, Dr. Baker confirmed his testimony that terminals 322 are embedded. Baker Dep. 95:12–96:17.¹⁰ We credit this testimony by Dr. Baker as supported by Hsiao’s disclosure.

Patent Owner does not effectively rebut this evidence; instead, Patent Owner repeats its argument that “Hsiao teaches connection fingers that overlay the surface of a connector body.” PO Sur-reply 12. For the reasons given by Dr. Baker, we do not agree with this argument. We find that Petitioner has demonstrated by a preponderance of the evidence that Hsiao teaches the “embedded connection fingers” limitation of claim 11. Other

¹⁰ Citations to exhibits use the page numbers assigned by the parties, not the original page numbers.

than the “embedded connection fingers” limitation in claim 11, Patent Owner does not dispute Petitioner’s evidence that the other limitations of claims 11 and 12 are disclosed by Hsiao. We find Petitioner’s evidence persuasive that the other limitations of claims 11 and 12 are disclosed by Hsiao. We therefore find that for the reasons given by Petitioner and summarized above, Hsiao anticipates claims 11 and 12 of the ’206 patent. Accordingly, we do not address Petitioner’s alternative obviousness challenges based on Hsiao and Hsiao in combination with Sun.

F. Challenges Based on Chen

1. Chen and Cheng

Petitioner contends that claims 11, 12, 14, 15, and 18 would have been obvious in light of Chen and Cheng. Pet. 81. Petitioner contends that each element of these claims is met by Chen and Cheng. *Id.* at 81–94.

a. Claim 11

Petitioner asserts that the preamble (element 11a) is met by Chen’s memory device 300. Pet. 81–82. Petitioner shows that the substrate (element 11b) is met by the PCB in Chen, which has two opposite surfaces. *Id.* at 82. Petitioner further explains that in Chen, “the ‘tail portions’ of the connector plug contacts 33 are ‘physically and electrically connected to the printed circuit board.’” *Id.* at 82–83 (citing Ex. 1010, 11:55–58).

Petitioner identifies Chen’s memory device 300 as the “memory die stack” of element 11c. *Id.* at 83. Petitioner asserts a person of ordinary skill “would have known that this ‘memory unit’ necessarily includes at least one memory die.” *Id.* (citing Baker Decl. ¶¶ 265–266).

For the controller (element 11d), Petitioner asserts a person of ordinary skill “would have known that memory device 300 has a controller that accesses memory.” *Id.* at 84 (citing Baker Decl. ¶¶ 267–269). In

addition, Cheng discloses a controller, and “[i]t would have been obvious to [a person of ordinary skill] to include a controller in Chen’s memory device 300 mounted on the PCB as Cheng teaches.” *Id.* at 85 (citing Baker Decl. ¶¶ 270–271).

Petitioner identifies the contact bar (element 11e) by referring to Figures 2 and 3 of Chen, reproduced *supra*. Pet. 86–87; Baker Decl. ¶ 274. The contact bar in Chen is housing 10, which includes “a plurality of portions that are electrically coupled with the substrate,” with additional contacts 137 installed in passageways 123. *Id.* at 87 (citing Baker Decl. ¶ 275).

For the “plurality of connection fingers” (element 11f), Petitioner identifies contacts 131–134 in Chen. *Id.* at 89. Finally, for the “wherein clause” (element 11g), Petitioner identifies contacts 131–134 in Chen as the first (USB) interface and contact bar “portions” 1381/1391 as the second (non-USB) interface. *Id.* at 90 (citing Baker Decl. ¶¶ 285–287).

Patent Owner contends that these claims are patentable over Chen and Cheng for several reasons. PO Resp. 61. Patent Owner contends that “[r]ather than mounting a contact bar on a substrate, Chen teaches the old-fashioned, conventional approach of simply attaching a USB plug laterally to the side of a circuit board. This is not the claimed invention.” *Id.* at 63. Further, Patent Owner claims that the Chen-based grounds fail because “none of the grounds teaches the recited ‘distance’ terms in the claims.” *Id.* at 64. Patent Owner explains further, “[t]he ‘distance’ terms must be relative to the connection surface of the substrate, but the ‘heights’ to which Petitioner points are not relative to the substrate.” *Id.* at 64–65.

Patent Owner illustrates this point with the following figure from the Petition:

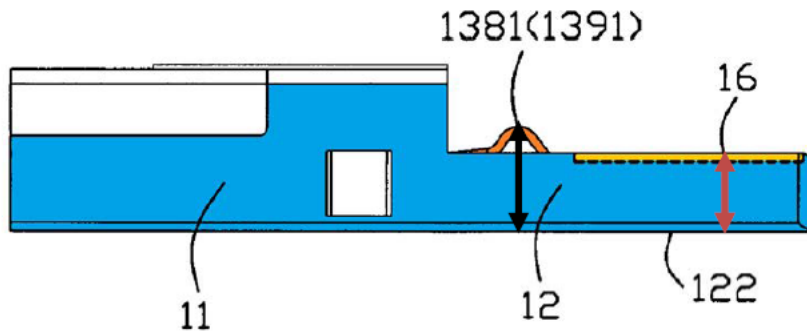


FIG. 4

Pet. 90. This annotation by Petitioner of Figure 4 from Chen allegedly shows the claimed first distance (black arrow) and second distance (red arrow), where plug contact portion 16 is “substantially coplanar” with the supporting surface and contact bar portions 1381 (1391) “protrud[e] upwardly” beyond supporting surface 121. *Id.* at 89 (alteration in original). Petitioner contends that due to this configuration, “the second distance is necessarily less than the first distance.” *Id.* Patent Owner responds that element 122 of Chen is not a substrate: “Element 122 is the ‘bottom surface’ of ‘plug tongue portion 12.’” PO Resp. 65. Patent Owner explains, “[t]his is because Chen’s ‘tongue portion’ is part of the USB plug and is not a contact bar that is mounted on a substrate.” *Id.* (citation omitted).

We agree that Petitioner has not demonstrated that Chen discloses the “distance limitations.” The two heights identified by Petitioner are relative to bottom surface 122 of plug tongue portion 12, not to the PCB. *See* Ex. 1010, 6:14–16. The PCB in Chen’s memory device is rearward from these components, not directly below. By identifying the height of the spring and connection fingers relative to the bottom surface of the plug tongue portion, Petitioner has not identified distances relative to the connection surface of the claimed substrate. PO Resp. 65. Petitioner does

not address directly the distance limitations in its Reply. Pet. Reply 24–26. Petitioner instead repeats its argument that “[t]he contact bar is mounted on a planar substrate surface; the ‘portions’ are necessarily higher above the substrate than the ‘connection fingers.’” *Id.* at 24. For the reasons given, we do not find this argument persuasive.

We therefore determine that for the reasons given, Petitioner fails to demonstrate that claim 11 would have been obvious over Chen and Cheng.¹¹

b. Claims 12, 14, 15, and 18

These claims all depend from claim 11 and therefore include the distance limitations. Therefore, for the reasons given for claim 11, we determine that Petitioner fails to demonstrate that claims 12, 14, 15, and 18 would have been obvious over Chen and Cheng.

2. Chen, Cheng, and Hiller

Petitioner contends that dependent claims 16 and 17 would have been obvious in light of Chen, Cheng, and Hiller. Pet. 94. These claims depend from claim 15, which in turn depends from claim 11. Therefore, they include the distance limitations. As discussed, Petitioner relies on Chen for those limitations. Therefore, for the reasons given for claim 11, we determine that Petitioner fails to demonstrate that claims 16 and 17 would have been obvious over Chen, Cheng, and Hiller.

3. Chen, Cheng, and Wan

Petitioner contends that claim 19 would have been obvious in light of Chen, Cheng, and Wan. Pet. 96. Claim 19 depends from claim 11. Therefore, Claim 19 includes the distance limitations. As discussed, Petitioner relies on Chen for those limitations. Therefore, for the reasons

¹¹ Petitioner relies on Cheng for its teaching of a controller. Pet. 85.

given for claim 11, we determine that Petitioner fails to demonstrate that claim 19 would have been obvious over Chen, Cheng, and Wan.

V. MOTION TO EXCLUDE

Petitioner moves to exclude Exhibit 2044 and paragraphs 32–35 and 70–73 of Exhibit 2050. Papers 37, 44. Patent Owner opposes. Paper 38.

Exhibit 2044 is a declaration from Mr. Frederick L. Whitmer, one of Patent Owner’s counsel. Paper 37, 2. Mr. Whitmer’s testimony is directed to Kilpatrick Townsend time records of a meeting with Mr. Kuster relied on by Patent Owner in support of its argument that Mr. Kuster conceived and reduced to practice his alleged invention before the effective date of Hsiao and He. *See, e.g.*, PO Resp. 18. Petitioner contends Mr. Whitmer lacks personal knowledge and the records are hearsay insofar as they are offered to show what was discussed at the meeting. Paper 37, 2–3.

Exhibit 2050 is a declaration from Patent Owner’s expert, Mr. Eric Welch. The paragraphs that Petitioner seeks to exclude also relate to the alleged conception and reduction to practice by Mr. Kuster, and express Mr. Welch’s opinion on the evidence presented on that issue, specifically Mr. Kuster’s declaration testimony, and whether He and Hsiao qualify as prior art. Petitioner contends these paragraphs “consist of conclusory testimony that simply parrots Mr. Kuster’s uncorroborated testimony concerning his alleged conception and reduction to practice of claimed inventions” and should be excluded. Paper 37, 3.

As we explain in Section III.D, *supra*, in our analysis of whether Hsiao and He are prior art to the ’206 patent, we have considered Mr. Whitmer’s declaration and the cited testimony from Mr. Welch, but still determine that Hsiao and He are prior art to the ’206 patent—a conclusion not adverse to Petitioner. We therefore deny Petitioner’s motion as moot.

VI. CONCLUSION

For the foregoing reasons, we determine Petitioner has shown by a preponderance of the evidence that claims 11, 14, 15, 18, and 19 of the '206 patent would have been obvious over He and Cheng; claims 16 and 17 would have been obvious over He, Cheng, and Hiller; and claims 11 and 12 are anticipated by Hsiao.

We determine Petitioner has not shown by a preponderance of the evidence that claims 1–5, 8–10, and 13 would have been obvious over He and Cheng; claims 6 and 7 would have been obvious over He, Cheng, and Hiller; claims 1–10 and 13 would have been obvious over He and Sun; claims 11, 12, 14, 15, and 18 would have been obvious over Chen and Cheng; claims 16 and 17 would have been obvious over Chen, Cheng, and Hiller; or claim 19 would have been obvious over Chen, Cheng, and Wan.

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–5, 8–11, 13–15, 18, 19	103	He, Cheng	11, 14, 15, 18, 19	1–5, 8–10, 13
6, 7, 16, 17	103	He, Cheng, Hiller	16, 17	6, 7
1–11, 13–19	103 ¹²	He, Sun		1–10, 13
11, 12	102	Hsiao	11, 12	
11, 12	103 ¹³	Hsiao		
11, 12	103 ¹⁴	Hsiao, Sun		

¹² Because we determine that claims 11 and 14–19 are not patentable on other grounds, we do not address this challenge to those claims based on He and Sun.

^{13, 14} Because we determine that Hsiao anticipates claims 11 and 12, we do not address Petitioner's alternative obviousness challenges over Hsiao and Hsiao and Sun.

11, 12, 14, 15, 18	103	Chen, Cheng		11, 12, 14, 15, 18
16, 17	103	Chen, Cheng, Hiller		16, 17
19	103	Chen, Cheng, Wan		19
Overall Outcome			11, 12, 14–19	1–10, 13

VII. ORDER

In view of the foregoing, it is:

ORDERED claims 11, 12, and 14–19 of the '206 patent are unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude is denied; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.¹⁵

¹⁵ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. §§ 42.8(a)(3), (b)(2).

IPR2020-01391
Patent 8,693,206 B2

For PETITIONER:

Erica Wilson
Eric Walters
WALTERS WILSON LLP
ericawilson@walterswilson.com
eric@walterswilson.com

For PATENT OWNER:

David Reed
John Alemanni
Frederick Whitmer
Andrew Saul
Russell Korn
KILPATRICK TOWNSEND & STOCKTON LLP
rkorn@kilpatricktownsend.com
asaul@kilpatricktownsend.com
fwhitmer@kilpatricktownsend.com
dreed@kilpatricktownsend.com
jalemanni@kilpatricktown.com