

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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PHILIP MORRIS PRODUCTS, S.A.,  
Petitioner,

v.

RAI STRATEGIC HOLDINGS, INC.,  
Patent Owner.

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IPR2020-00920  
Patent 8,314,591 B2

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Before JO-ANNE M. KOKOSKI, ELIZABETH M. ROESEL, and  
MICHELLE N. ANKENBRAND, *Administrative Patent Judges*.

KOKOSKI, *Administrative Patent Judge*.

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

## I. INTRODUCTION

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6, and issue this Final Written Decision pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Philip Morris Products, S.A. (“Petitioner”) has shown by a preponderance of the evidence that claims 1–14 (“the challenged claims”) of U.S. Patent No. 8,314,591 B2 (“the ’591 patent,” Ex. 1001) are unpatentable.

### A. *Procedural Background*

Petitioner filed a Petition to institute an *inter partes* review of claims 1–14 of the ’591 patent. Paper 2 (“Pet.”). RAI Strategic Holdings, Inc. (“Patent Owner”) did not file a Preliminary Response. Pursuant to 35 U.S.C. § 314(a), we instituted a *inter partes* review of claims 1–14 on the grounds advanced in the Petition. Paper 6, 4–5, 13.

After institution of trial, Patent Owner filed a Patent Owner Response (“PO Resp.,” Paper 8), Petitioner filed a Reply (“Pet. Reply,” Paper 10), and Patent Owner filed a Sur-reply (“PO Sur-reply,” Paper 12). We held an oral hearing on August 18, 2021, and a transcript is included in the record. Paper 20.

### B. *Real Parties-in-Interest*

Petitioner identifies Philip Morris Products, S.A., Philip Morris International, Inc., Altria Client Services LLC, and Philip Morris USA as the real parties-in-interest. Pet. 4. Patent Owner identifies RAI Strategic Holding, Inc., R.J. Reynolds Vapor Company, RAI Innovations Company, and R.J. Reynolds Tobacco Company as the real parties-in-interest. Paper 5, 1.

*C. Related Matters*

Petitioner identifies as related matters several U.S. patent applications it asserts are related to the '591 patent. Pet. 5; *see also* Paper 9, 2 (Patent Owner stating that the '591 patent “is no longer involved in any litigation.”).

*D. The '591 Patent*

The '591 patent, titled “Charging Case for a Personal Vaporizing Inhaler,” relates to “an active case for an electronic flameless inhaler unit that may simulate a cigarette or deliver nicotine and other medications to the oral mucosa, pharyngeal mucosa, tracheal, and pulmonary membranes.” Ex. 1001, code (57), 1:25–28. The '591 patent explains that the “case comprises a cradle adapted to hold a personal vaporizing unit” and includes “a battery and at least two contacts.” *Id.* at 5:1–4. “The two contacts may form an electrical contact with the personal vaporizer unit when the personal vaporizer unit is in the cradle” and “may conduct charge from the battery to the personal vaporizer unit to charge the personal vaporizer unit.” *Id.* at 5:4–8. When docked in the case, the personal vaporizer unit emits a light that is visible from outside the case in order to provide a visual indication of the personal vaporizer unit’s charge state. *Id.* at 15:14–19.

The '591 patent further explains that “[t]he case may also download and store data retrieved from the personnel [*sic*] vaporizing unit . . . and store this data via the at least two contacts.” *Id.* at 5:8–11. “The case may send this data to a computer via wired or wireless links.” *Id.* at 5:11–12. The wireless interface can “comprise an infrared (IR) transmitter, a BLUETOOTH™ (i.e., 802.15 specified) interface, an 802.11 specified interface, and/or communicate with a cellular telephone network.” *Id.* at 15:1–4. The '591 patent states that the data from the personal vaporizer unit also can be associated with an identification number stored by the unit,

and the data “may be transmitted via the wireless interface in association with the identification number.” *Id.* at 15:4–9.

*E. Illustrative Claims*

Petitioner challenges claims 1–14 of the ’591 patent. Claim 4, which depends from claim 3, which in turn depends from claim 1, is illustrative of the claimed subject matter. Claims 1, 3, and 4 are reproduced below:

1. A case, comprising:

a first cradle adapted to hold a personal vaporizing unit, said personal vaporizing unit having dimensions approximating a smoking article;

a battery;

a first contact and a second contact, said first contact and said second contact forming an electrical contact with said personal vaporizing unit when said personal vaporizing unit is held by said first cradle, said first contact and said second contact conducting charge from said battery to said personal vaporizing unit to charge said personal vaporizing unit.

Ex. 1001, 17:14–25.

3. The case of claim 1, further comprising:

a connector to interface to a computer, the case transferring data from said personal vaporizing unit to said computer via said connector.

*Id.* at 17:29–32.

4. The case of claim 3, wherein said connector also conducts charge to recharge said battery.

*Id.* at 18:1–2.

*F. Prior Art and Asserted Grounds*

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1, 3, 4, 6, 7	102(b)	Wang <sup>1</sup>
2–5	103(a)	Wang, Voges <sup>2</sup>
8–14	103(a)	Wang, Voges, Nielsen <sup>3</sup>
1–4	102(b)	Voges
1–6, 8–14	103(a)	Voges, Nielsen
7	103(a)	Voges, Nielsen, Counts <sup>4</sup>

Pet. 6–7. Petitioner relies on the Declaration of Samir Nayfeh, Ph.D. (“Nayfeh Declaration,” Ex. 1003) and the Supplemental Declaration of Dr. Nayfeh (“Supplemental Nayfeh Declaration,” Ex. 1046).

## II. ANALYSIS

### A. Legal Standards

Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner, except in limited circumstances not present here. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail in this proceeding, Petitioner must support its challenge by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). Although the elements must be arranged or combined the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not

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<sup>1</sup> International Patent Pub. No. WO 2008/139411 A2, published Nov. 20, 2008 (Ex. 1005).

<sup>2</sup> U.S. Patent No. 6,637,430 B1, issued Oct. 28, 2003 (Ex. 1006).

<sup>3</sup> U.S. Patent App. Pub. No. 2009/0283103 A1, published Nov. 19, 2009 (Ex. 1007).

<sup>4</sup> U.S. Patent No. 5,144,962, issued Sept. 8, 1992 (Ex. 1008).

required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2019) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)).

A claim is unpatentable for obviousness 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, objective indicia of nonobviousness, i.e., secondary considerations.<sup>5</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The obviousness inquiry further requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion as to obviousness”)).

*B. Level of Ordinary Skill in the Art*

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) education level of workers active in the field.” *Envtl. Designs, Ltd. v.*

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<sup>5</sup> Patent Owner did not introduce any evidence of objective indicia of nonobviousness in this proceeding.

*Union Oil Co.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, “[t]hese factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art.” *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). In determining the level of ordinary skill, we may also look to the prior art, which may reflect an appropriate skill level. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Additionally, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR*, 550 U.S. at 421.

Petitioner contends that a person having ordinary skill in the art (“POSA”) “would have had a Bachelor’s degree in mechanical engineering, electrical engineering, or a related field, and three to four years of experience,” or a Master’s degree in the same fields with “one to two years of experience.” Pet. 9. Petitioner also contends that “[s]uch a POSA would have been familiar with charging devices used in commercial electronics and/or the components and underlying technology used therein.” *Id.* Patent Owner does not dispute Petitioner’s contentions. PO Resp. 8 (stating that, “[f]or the purposes of this IPR,” Patent Owner does not dispute Petitioner’s proposed definition of a POSA). Accordingly, we adopt Petitioner’s assessment of the level of ordinary skill in the art, which is undisputed on this record and consistent with the level of ordinary skill in the art at the time of the invention as reflected in the prior art in this proceeding.

### C. Claim Construction

We apply the claim construction standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R.

§ 42.100(b) (2019). Under *Phillips*, the “words of a claim ‘are generally given their ordinary and customary meaning,’” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13. “[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Tecs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

On the full record now before us, we determine it is not necessary to construe any claim term expressly to resolve the parties’ dispute. *Nidec Motor*, 868 F.3d at 1017; *see also* Pet. 10 (Petitioner stating that “[n]o claims require a specific construction.”); PO Resp. 8 (Patent Owner stating that it “does not believe that any terms in the claims of the ’591 patent require explicit construction.”).

#### *D. Anticipation by Wang*

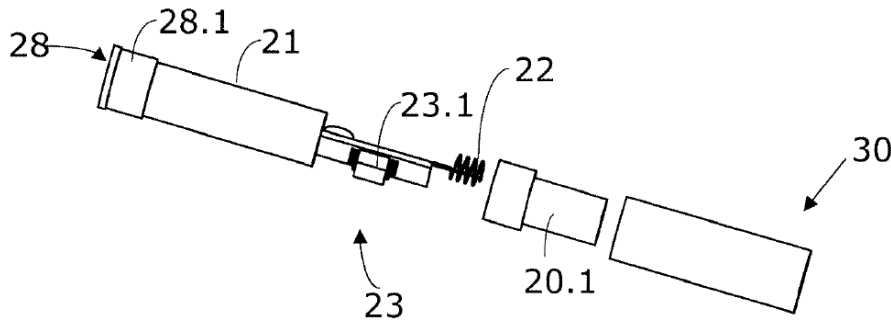
Petitioner contends that claims 1, 3, 4, 6, and 7 of the ’591 patent are anticipated by Wang. Pet. 18–25.

##### *1. Overview of Wang*

Wang “relates to an alternative smoking device, to be used to reduce the negative effects of classic smoking” and its “related auxiliary devices.” Ex. 1005 ¶¶ 2, 7. In particular, Wang describes “charging means” to be used with the smoking device that “also acts as a storage device for the smoking device.” *Id.* ¶ 49.



Figure 1C of Wang is reproduced below.



**Fig. 1C**

Figure 1C is a perspective view of one embodiment of the smoking device described in Wang, with part of the housing removed to show several internal parts of the smoking device. Ex. 1005 ¶ 11. Smoking device 10 includes first housing part 20.1, main part 30, accumulator 21, heating device 22, charging interface 28, and control electronics 23. *Id.* ¶ 18. Wang explains that accumulator 21 can be a lightweight, high capacity rechargeable battery that releases enough energy to power control electronics 23 and heating device 22. *Id.* ¶ 19. Wang teaches that charging interface 28 further comprises first contact 28.1 and second contact 28.2 (not pictured), which are provided to charge accumulator 21 using Wang's charging means. *Id.* ¶ 32. Wang also teaches that "interface 28 is a standardized interface connectable to a standard charging device 40, such as the charger of a mobile phone or a mini USB port for example." *Id.*

Wang's Figure 2 is reproduced below.

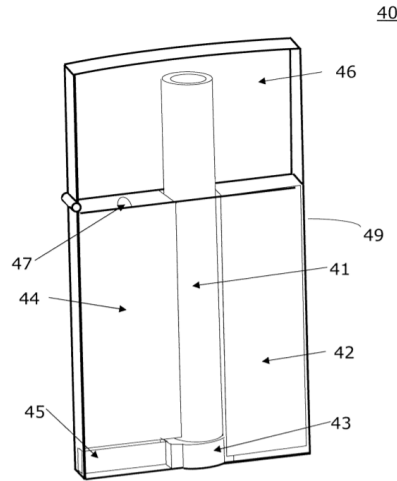


Figure 2 is a “see-through perspective view of the charging means” described by Wang. Ex. 1005 ¶ 11. Figure 2 depicts charging means 40 having housing 49, which also acts as a storage device for smoking device 10. *Id.* ¶ 49. Charging means 40 includes bay 41 for receiving at least a part of smoking device 10, with accumulator 42 and charger contacts 43 arranged in or at bay 41 in order to establish electrical contacts between accumulator 42 and the corresponding contacts of charging interface 28 of smoking device 10. *Id.* ¶ 50. Accumulator 42 stores electrical energy sufficient to charge accumulator 21 in smoking device 10 several times while smoking device 10 is in bay 41. *Id.* ¶ 52.

Charging means 40 also includes electronic circuit 44 to control the charging of smoking device 10. *Id.* ¶ 54. Electronic circuit 44 “may also be capable of keeping a record and generally usage data related to the smoking device.” *Id.* ¶ 55. In order to do so, charging means 40 further includes interface 45, such as a USB interface, for providing a contact between electronic circuit 44 and an external computing device. *Id.* Wang teaches that interface 45 can also enable charging of accumulator 42 by connecting

interface 45 to an external computing device and transferring electrical energy from it, “or by connecting an AC or DC charger having a corresponding interface.” *Id.* ¶ 56.

2. *Claims 1, 6, and 7*

Petitioner asserts that Wang discloses all elements of independent claim 1, and claims 6 and 7 that directly depend therefrom. Pet. 18–22, 24–25. Patent Owner does not address whether or not Wang discloses the limitations of claim 1, 6, and 7. *See* PO Resp. 1 (“In order to streamline these proceedings, [Patent Owner] focuses its Patent Owner Response on claims 4, 5, and 8–14.”). We are persuaded by Petitioner’s arguments and evidence for claims 1, 6, and 7, as summarized below.

Petitioner asserts that Wang discloses “a first cradle adapted to hold a personal vaporizing unit, said personal vaporizing unit having dimensions approximating a smoking article” because Wang’s personal vaporizer unit (smoking device 10) “provide[s] an alternative means for smoking, which significantly reduces the negative side effects of smoking” and also “provide[s] the consumer a very similar experience to smoking a regular cigarette.” *Id.* at 19–20 (citing Ex. 1005 ¶¶ 6, 7, 46–47). Petitioner further asserts that Wang describes charging means 40 as giving “the consumer a similar experience to having a pack of regular cigarettes at his disposal.” *Id.* at 20 (quoting Ex. 1005 ¶ 52). Petitioner also asserts that bay 41 in Wang’s charging means 40 is designed to accommodate at least one end of a smoking device, and therefore is the claimed “first cradle.” *Id.* at 20 (citing Ex. 1005 ¶ 51). Petitioner asserts that Wang’s “high capacity accumulator 42,” which is preferably “a 7.4 V, 400mAh battery,” is the claimed “battery.” *Id.* at 21 (citing Ex. 1005 ¶ 52).

With respect to the final limitation of claim 1, which requires “a first contact and a second contact,” Petitioner asserts that “Wang charges the battery of its smoking article (its personal vaporizing unit) via ‘charger contacts 43’ (first and second contacts), which establish electrical contact with the smoking article when it is properly inserted in a bay (cradle).” Pet. 21–22 (citing Ex. 1005 ¶¶ 50, 52).

Claim 6 depends from claim 1 and further requires “a second cradle.” Ex. 1001, 18:8. Petitioner contends that Wang teaches a case with two sets of bays (“cradles”). Pet. 24–25 (citing Ex. 1005 ¶ 59, Fig. 3B, claims 20–22; Ex. 1003 ¶¶ 92–94).

Claim 7 also depends from claim 1, and further requires “a charge controller to control charge conducted from said battery to said personal vaporizing unit.” Ex. 1001, 18:9–11. Petitioner contends that Wang discloses the claimed controller because electronic circuit 44 of charging means 40 has the main role to control charging smoking device 10 so that charging means 40 can provide at least minimum power to keep smoking device 10 functional over an extended period of time. Pet. 25 (citing Ex. 1005 ¶¶ 54–55, claims 14–18; Ex. 1003 ¶¶ 95–97).

Based on Petitioner’s arguments and unrebutted evidence regarding claims 1, 6, and 7, we determine that Petitioner has established, by a preponderance of the evidence, that Wang anticipates claims 1, 6, and 7 of the ’591 patent. Pet. 18–22, 24–25; Ex. 1003 ¶¶ 71–82, 92–97.

### *3. Claims 3 and 4*

Claim 3 depends from claim 1, and further recites “a connector to interface to a computer, the case transferring data from said personal vaporizing unit to said computer via said connector.” Ex. 1001, 17:29–32.

Claim 4 depends from claim 3, and further recites “said connector also conducts charge to recharge said battery.” *Id.* at 18:1–2.

Petitioner asserts that Wang discloses all elements of claims 3 and 4. Pet. 23–24. Patent Owner disputes Petitioner’s contention as to claim 4. PO Resp. 20–24. For the reasons discussed below, we are persuaded by Petitioner’s arguments and evidence.

With respect to claim 3, Petitioner contends that Wang discloses “a connector interface to a computer” because it “includes ‘interface 45’ between the charger and an external computing device,” and “[i]nterface 45 is preferably a standard interface, such as a USB interface, which has the added advantage that it can be used for recharging the charger.” Pet. 23 (citing Ex. 1005 ¶¶ 55–57, claims 14–18; Ex. 1003 ¶¶ 83–88). Petitioner contends that Wang discloses “transferring data from said personal vaporizing device unit to said computer via said connector” because “Wang teaches the transfer of ‘general[] usage data related to smoking device 10’ to the external computer via interface 45.” *Id.* (citing Ex. 1003 ¶¶ 83–88; Ex. 1005 ¶ 55). According to Petitioner, a POSA “would have understood that Wang obtains this usage data from the smoking device, *e.g.*, over ‘interface 28,’ which may be a mini-USB or cellphone connection for charging *and* data transfer.” *Id.* (citing Ex. 1005 ¶ 32; Ex. 1003 ¶¶ 83–88).

With respect to claim 4, Petitioner contends that Wang discloses “said connector also conducts charge to recharge said battery” because Wang “explains that its charging means can be recharged ‘by connecting the interface 45 to a computing device and transferring electrical energy from it.’” Pet. 24 (citing Ex. 1005 ¶ 56, claims 14–18). Petitioner contends that it was well known that USB interfaces, such as that Wang uses for interface

45, conduct charge and transfer data. *Id.* (citing Ex. 1005 ¶ 55; Ex. 1003 ¶¶ 89–91).

Patent Owner responds that Wang does not describe a case that is configured for transferring data from a personal vaporizing unit to a computer via a connector as required by claim 4, which includes the limitations of claim 3 from which it depends. PO Resp. 20–21. Patent Owner argues that “Wang never describes that its case (charging means 40) is capable of transferring data from Wang’s personal vaporizing unit (smoking device 10) to a computer via interface 45.” *Id.* at 22. Patent Owner acknowledges Wang’s disclosure that charging means 40 may be capable of keeping a record of the number of charges and general usage data, but argues that “the data being stored, and potentially transferred to a computer via interface 45 is data from charging means 40—*i.e.*, Wang’s case—not from Wang’s smoking article.” *Id.* (citing Ex. 1005 ¶ 55).

Patent Owner further argues that Petitioner does not point to any disclosure that Wang’s smoking article 10 transfers usage data at all. PO Resp. 22 (citing Pet. 23; Ex. 1003 ¶¶ 83–88). Patent Owner argues that Wang “never describes or suggests that interface 28 in smoking article 10 is for data transfer,” and only describes interface 28 as a charging interface that, in alternative embodiments, “could be a standardized interface connectable to a mobile phone charger or mini-USB port.” *Id.* (citing Ex. 1005 ¶ 32) According to Patent Owner, “[n]othing in Wang suggests to a POSA that Wang’s charging means 40 obtains data *from* smoking article 10 via charging interface 28.” *Id.* at 23.

We agree with Petitioner that Wang teaches “a connector to interface to a computer, the case transferring data from said personal vaporizing unit to said computer via said connector” as claims 3 and 4 require. Pet. 23–24;

Pet. Reply 1–5; Ex. 1003 ¶¶ 83–90; Ex. 1046 ¶¶ 7–14. In particular, Wang teaches that electronic circuit 44 in charging means 40 can both control the charging of smoking device 10 and keep a record of the number of charges and general usage data relating to smoking device 10. Ex. 1005 ¶¶ 54–55. Wang also teaches that the usage data electronic circuit 44 records can be transferred from charging means 40 to an external computing device via interface 45, which can be a standard interface such as a USB. *Id.* ¶ 55.

Wang explains that

[t]he data recorded gives the possibility to analyze ones smoking habits or in case an agent 33 with medicine compounds is used, to analyze results and dosages. In a further embodiment the computing device which is connected to the interface 45 is capable of transmitting the recorded data to a central database. In this case a more general statistical analysis can be drawn up using the data transmitted to said central database. These analyses can serve health, commercial or sociological purposes for example.

*Id.* Wang also teaches that, when a user inserts smoking device 10 into bay 41 of charging means 40, interface 28 of smoking device 10 establishes electrical contact with charger contacts 43 arranged in bay 41. *Id.* ¶ 50.

We find persuasive Dr. Nayfeh’s testimony that a POSA would have understood that Wang’s usage data includes “a variety of data, such as frequency of use, length of use, time of each use, number of puffs per use, [and] dosage and type of medications/chemicals expended per use.”

Ex. 1046 ¶ 8. Dr. Nayfeh explains that a skilled artisan “would have understood that this information could not come from the charging case because that case would have no way of monitoring the smoking device while it was in use.” *Id.*

Dr. Nayfeh's testimony is unrebutted, as Patent Owner did not submit expert testimony in support of its Patent Owner Response and did not cross-examine Dr. Nayfeh. *See* Pet. Reply 1. Furthermore, Patent Owner provides no counter to Dr. Nayfeh's description of the "general usage data relating to smoking device 10" that Wang discloses is transferred from the case from to an external computing device via interface 45. Ex. 1005 ¶ 55.

On this record, we also find persuasive Dr. Nayfeh's testimony that while the charging case could detect the frequency or size of the recharges, that information would only be accurate if that particular charging case were used every time a particular smoking device were charged. But a POSA would have understood that this would not always be true, therefore an accurate representation of the charging data must also come from the smoking device: if the device were charged in another case or elsewhere, those charges would not be recorded by the charging case. Therefore, Wang's teaching in paragraph 55 that that electronic circuit 44 of the case is capable of keeping a record of "general[] usage data related to the smoking device 10" and that the interface 45 is capable of "transmitting [that] recorded data to a central database" teaches that the case transfers data from the smoking device (vaporizing unit) to the computer via interface 45 (the connector).

*Id.* ¶ 9. Dr. Nayfeh's testimony on this issues is unrebutted by any evidence submitted by Patent Owner.

We further credit Dr. Nayfeh's testimony that a skilled artisan "would have understood that usage data related to the smoking device 10 is obtained from smoking device 10, over interface 28, which may be a mini-USB or cellphone connection for charging and data transfer." Ex. 1003 ¶ 88 (citing Ex. 1005 ¶ 32); *see also* Ex. 1046 ¶ 8 ("A POSA would have understood that this [usage data] must come from the smoking device itself and must be transferred to electronic circuit 44 from the smoking device."). Dr. Nayfeh



also testifies that “POSAs at the relevant time would have understood that mini USBs could transfer both data and charge,” and that connecting interface 28 to a mini-USB port “would have enabled the system of Wang to transfer the necessary usage and charging data from the smoking device to the charging case.” Ex. 1046 ¶¶ 11–12. Dr. Nayfeh’s testimony in this regard is consistent with the state of the art as the evidence of record cited in his testimony reflects. *See, e.g.*, Ex. 1047, 6:8–11 (describing a USB cable connected through a USB port “for transfer of data from a source such as a computer or the Internet to a device 12 and also for battery charging”); Ex. 1048, 5:55–57 (describing a USB port that provides a mobile device “with a serial port for linking directly with other computers to exchange data and/or to receive power”); Ex. 1049, 5:41–46 (describing USB data cable 250 that “is used to supply electric power from the terminal adapter 300 to the portable terminal 100 to recharge the battery, and also to transmit signals between the portable terminal 100 and the headset 200 during the data communication”).

On this record, we disagree with Patent Owner that Wang teaches that it is only in “embodiments where the smoking article 10 is connectable to a ‘standard charging device,’ not charging means 40” where “charging interface 28 may be connectable to a mini-USB port.” PO Resp. 25 (citing Ex. 1005 ¶ 32) (emphasis omitted). Wang specifically states that “[i]n the depicted embodiment” contacts 28.1 and 28.2 are arranged as two concentric circles, “but in different embodiments these contacts may be arranged differently.” Ex. 1005 ¶ 32. Wang goes on to state that “[i]n further embodiments, the charging interface 28 is a standardized interface connectable to a standard charging device 40, such as the charger of a mobile phone or a mini USB port for example.” *Id.* There is no indication

in Wang that “charging means 40” and “charging device 40” refer to different devices or structures. *See also* Ex. 1046 ¶ 10 (Dr. Nayfeh testifying that “a POSA would have understood that [Wang] teaches that the smoking device could transfer data and charge between the smoking device and charging case, for example, through a mini-USB port or through two electrical contacts.” (citing Ex. 1005 ¶ 32)). In any event, Patent Owner does not present any evidence supporting this contention beyond attorney argument, which, on this record, is not sufficient to rebut Dr. Nayfeh’s credible testimony to the contrary. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1359 (Fed. Cir. 2018) (rejecting attorney argument as to the alleged understanding of one of skill in the art on an issue when no evidence was presented).

We are also not persuaded by Patent Owner’s argument that Petitioner and Dr. Nayfeh are improperly “proposing to combine a charging interface that is for use with a ‘standard charging device’ in one alternative embodiment of Wang (Ex. 1005 ¶ 32) with the charging means 40 (case) of a different embodiment of Wang (*id.* at ¶55) that has a different charging interface.” PO Sur-reply 4 (citing *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008)). As set forth above, we disagree with Patent Owner’s premise that Wang describes using smoking device 10 with a mini USB as interface 28 with something other than charging means 40. Moreover, Wang teaches that charging means 40 is “intended to be used with the smoking device 10.” Ex. 1005 ¶ 49. Because Wang teaches that smoking device 10 with a mini USB as interface 28 is connectable to charging means 40, we are persuaded, on this record, that Wang shows all of the elements of claim 3 arranged in the same way as recited in the claim. *See Net MoneyIN*, 545 F.3d at 1371 (“[U]nless a reference discloses within

the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.”).

Patent Owner also asserts Dr. Nayfeh’s testimony in the Supplemental Nayfeh Declaration, and Petitioner’s corresponding arguments in the Reply, that Wang’s smoking device 10 stores and transmits data to Wang’s case should have been made in the Petition, and, accordingly, are untimely. PO Sur-reply 4. Specifically, Patent Owner asserts that Dr. Nayfeh provides two conclusory paragraphs on this issue in the Nayfeh Declaration, but the Supplemental Nayfeh Declaration “spends five pages trying to support Petitioner’s assertion that Wang discloses a case configured for ‘transferring data from said personal vaporizing unit to said computer via said connector.’” *Id.* at 3–4 (citing Ex. 1003 ¶¶ 87–88; Ex. 1046 ¶¶ 7–14) (emphasis omitted).

Our rules provide that a petitioner must include “[a] full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence including material facts, and the governing laws, rules, and precedent.” 37 C.F.R. § 42.22(a). Our rules also state that “[a] reply may only respond to arguments raised in the corresponding . . . patent owner response.” *Id.* § 42.23(b). “‘Respond,’ in the context of 37 C.F.R. § 42.23(b), does not mean proceed in a new direction with a new approach as compared to the positions taken in a prior filing.” Consolidated Trial Practice Guide (“Practice Guide”), 74 (Nov. 2019), available at <https://go.usa.gov/xpvPF>. Our Practice Guide explains that it is “improper for a reply to present new evidence (including new expert testimony) that could have been presented in a prior filing, for example, newly cited prior art

references intended to ‘gap-fill’ by teaching a claim element that was not present in the prior art presented with the petition.” *Id.* at 74–75. We evaluate Petitioner’s Reply and Patent Owner’s Sur-reply arguments in light of this guidance.

In our judgment, Petitioner’s arguments and evidence in the Reply are responsive to arguments made by Patent Owner in the Patent Owner Response and are not outside the scope of a proper reply. In the Patent Owner Response, Patent Owner argues that when Wang states that electric circuit 44 in charging means 40 is capable of keeping certain data relating to smoking device 10, that data is from charging means 40, not from smoking article 10. PO Resp. 22. Patent Owner also argues in the Patent Owner Response that Wang does not describe or suggest that interface 28 in smoking article 10 is for data transfer at all. *Id.* at 23. In the Reply, Petitioner responds to Patent Owner’s argument without straying from the case it presented in the Petition. The case presented in the Petition, as supported with the Nayfeh Declaration, is that Wang teaches the transfer of general usage data related to smoking device 10 to an external computer via interface 45, and that a POSA would have understood that Wang obtains this usage data from smoking device 10 over interface 28, which can be a mini USB. Pet. 23; Ex. 1003 ¶¶ 85–88. Petitioner makes this same argument in the Reply, and provides additional evidence and testimony from Dr. Nayfeh to rebut Patent Owner’s assertions regarding Wang’s disclosures. Pet. Reply 2–5; Ex. 1046 ¶¶ 7–14. This is not an attempt to argue a new case or to provide new evidence necessary to make out a *prima facie* case of unpatentability. Instead, Petitioner’s reply arguments and evidence respond to arguments in the Patent Owner Response, without proceeding in a new direction or taking a new approach. Petitioner confirms and reinforces the

arguments made in the Petition, which is a fair reply to the Patent Owner Response. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1078–1079 (Fed. Cir. 2015).

Patent Owner further asserts that even if we consider the Supplemental Nayfeh Declaration, we should give it little weight or no weight because it is not based on objective evidence from Wang’s disclosure. PO Sur-reply 4–5. As set forth above, however, we determine that Wang supports Dr. Nayfeh’s testimony that a POSA would have understood that the usage data electronic circuit 44 keeps must come from smoking device 10. *See* Ex. 1046 ¶¶ 8–10 (citing Ex. 1005 ¶¶ 32, 55). Dr. Nayfeh’s testimony in the Supplemental Nayfeh Declaration is also supported with other objective evidence of record that shows that a POSA would have understood that usage data is stored by the smoking device and transferred from that device to the charging case. *See, e.g., id.* ¶¶ 11, 12, 14; Ex. 1006, 5:66–6:27 (Voges describing that data from a personal inhaler can be downloaded from the personal inhaler to the memory of a recharging unit, and then to an external computer, via appropriate data ports); Ex. 1047, 6:8–11 (describing a USB cable connected through a USB port “for transfer of data from a source such as a computer or the Internet to a device 12 and also for battery charging”); Ex. 1048, 5:55–57 (describing a USB port that provides a mobile device “with a serial port for linking directly with other computers to exchange data and/or to receive power”); Ex. 1049, 5:41–46 (describing USB data cable 250 that “is used to supply electric power from the terminal adapter 300 to the portable terminal 100 to recharge the battery, and also to transmit signals between the portable terminal 100 and the headset 200 during the data communication”). We further note that, despite Patent Owner’s concerns regarding Dr. Nayfeh’s testimony, Patent Owner

chose not to cross-examine Dr. Nayfeh regarding his opinions. *See* Pet. Reply 1 (stating that Patent Owner did not take Dr. Nayfeh’s deposition).

It is within our discretion to assign the appropriate weight to Dr. Nayfeh’s testimony. *See, e.g., Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (holding that the Board has discretion to give more weight to one item of evidence over another “unless no reasonable trier of fact could have done so”); *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“[T]he Board is entitled to weigh the declaration and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”). Patent Owner’s contentions do not persuade us that we should disregard Dr. Nayfeh’s testimony. Thus, we give substantial weight to Dr. Nayfeh’s testimony because Wang and other objective evidence support it and it is unrebutted by any expert testimony from Patent Owner.

Accordingly, we determine that Petitioner shows, by a preponderance of the evidence, that Wang discloses a case comprising “a connector to interface to a computer, the case transferring data from said personal vaporizing unit to said computer via said connector” as claims 3 and 4 of the ’591 patent require. Pet. 23–24; Pet. Reply 1–5; Ex. 1003 ¶¶ 83–91; Ex. 1046 ¶¶ 7–14. Having reviewed all of the parties’ evidence and arguments, we determine that Petitioner has established by a preponderance of the evidence that Wang anticipates claims 3 and 4 of the ’591 patent.

*E. Obviousness over Wang and Voges*

Petitioner contends that claims 2–5 of the ’591 patent would have been obvious over the combined teachings of Wang and Voges. Pet. 25–33.

1. *Overview of Voges*

Voges is directed to “a respiratory delivery system which includes a portable inhaler and a recharging unit which may be used to recharge both the power and medicament supply of the portable inhaler.” Ex. 1006, 1:18–21. Voges teaches that the housing of the portable inhaler “may be configured to at least generally approximate the configuration and size of a cigarette.” *Id.* at 2:50–52.

Voges describes a recharging unit wherein the housing thereof is “configured/sized at least generally in the manner of the conventional package of cigarettes.” *Id.* at 12:1–4. The recharging unit includes an inhaler docking station within the housing, which includes an elongated recess or aperture that is configured to generally approximate the perimeter of the housing of the personal inhaler. *Id.* at 12:17–20. Voges explains that when the inhaler is docked in the recharging unit, the power contacts of the recharging system located therein “will be in appropriate electrical contact with the recharging contacts” on the inhaler. *Id.* at 14:25–29. Voges further explains that the existing energy levels within the power supply “may be monitored through some type of power indicator” that is associated with the recharging unit housing, such as a light. *Id.* at 14:47–54. Voges also teaches that data from the personal inhaler can be transferred to an external computer when the inhaler is docked in the recharging unit. *Id.* at 14:60–15:2.

2. *Claim 2*

Claim 2 depends from claim 1, and further requires “a light source visible on the exterior of the case to indicate a charge level of said battery.” Ex. 1001, 17:26–28. Petitioner contends that Wang does not disclose such an indicator light, but Voges “expressly teaches this commonplace feature.”

Pet. 26. In particular, Petitioner contends that “Voges teaches monitoring the remaining battery power to tell the user when the recharger itself needs recharging by including a ‘power indicator 172’ on the recharger housing,” and that “Voges explains that the power indicator could be as simple as a light that is on or off depending on whether the recharger’s battery needed recharging.” *Id.* (citing Ex. 1006, 14:39–59, Fig. 1; Ex. 1003 ¶¶ 98–105).

Petitioner also contends that a POSA “would have been motivated to use Voges’ power indicator on Wang’s charging means” because they “would have recognized the importance and utility of a power indicator gauging charge level.” Pet. 27 (citing Ex. 1003 ¶¶ 98–105). Petitioner contends that “both Voges and Wang emphasize the importance of managing the power level of the portable inhaler (Voges) or smoking device (Wang).” *Id.* (citing Ex. 1006, 11:41–62; Ex. 1005 ¶ 22; Ex. 1003 ¶¶ 98–105). Petitioner further contends that “this was a feature commonly found on battery-powered rechargers.” *Id.* at 27–28 (citing Ex. 1012, 4; Ex. 1003 ¶ 104; Ex. 1019 ¶¶ 6–25; Ex. 1020, 16:28–34).

Patent Owner does not address whether or not the combined teachings of Wang and Voges teach the limitations of claim 2. *See* PO Resp. 1 (“In order to streamline these proceedings, [Patent Owner] focuses its Patent Owner Response on claims 4, 5, and 8–14.”). Having reviewed all of Petitioner’s assertions regarding claim 2, as well as the supporting evidence, we determine that Petitioner has established, by a preponderance of the evidence, that claim 2 of the ’591 patent would have been obvious over the combined teachings of Wang and Voges and that Petitioner has established an evidence-supported rationale for combining the teachings. Pet. 26–28; Ex. 1003 ¶¶ 98–105.



3. *Claims 3 and 4*

Petitioner contends that claims 3 and 4 would have been obvious over Wang alone, or the combined teachings of Wang and Voges. Pet. 28–31. Because Petitioner has shown that claims 3 and 4 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Wang, we do not reach these additional contentions with respect to claims 3 and 4. *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (“The Commission . . . is at perfect liberty to reach a ‘no violation’ determination on a single dispositive issue.”); *Boston Sci. Scimed, Inc. v. Cook Grp., Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (recognizing that “[t]he Board has the discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

4. *Claim 5*

Claim 5 depends from claim 1, and further recites that “at least a portion of personal vaporizing unit is visible from the outside of said case to allow a light source comprising said personal vaporizing unit to indicate a state of said personal vaporizing unit outside of said case.” Ex. 1001, 18:3–7. Petitioner contends that “Voges discloses having an indicator light (‘power indicator 90’) on a personal vaporizer,” which “could be as simple as a light that turns on or off to indicate whether the smoking device (personal vaporizer) has sufficient power remaining or could display the actual amount of power remaining.” Pet. 32 (citing Ex. 1006, 11:40–62, Fig. 1).

Petitioner contends that a POSA would have been motivated to modify Wang’s smoking device to include Voges’ power indicator light “because the consumer needs to know when the personal vaporizer needs to be recharged.” *Id.* (citing Ex. 1006, 11:40–62; Ex. 1003 ¶¶ 27, 37, 113–

118). Petitioner further contends that a POSA “would have been motivated to leave at least a portion of the personal vaporizer visible while docked and recharging so that the consumer could receive an indication of the smoking article’s battery charging state from outside the charging device.” *Id.* at 32–33 (citing Ex. 1003 ¶¶ 113–118).

Patent Owner responds that “Wang does not describe any need to provide a power indication to the user of its smoking device” because “Wang describes that charging means 40 provides a ‘minimum power’ in order to keep smoking device 10 ‘functional during an extended period of time, while the smoking device 10 resides in it.’” PO Resp. 30–31 (quoting Ex. 1005 ¶ 54). Patent Owner also argues Wang teaches that smoking device 10 has an indicating element that informs the user of the number of draws that accumulator 21 is able to provide. *Id.* at 31 (citing Ex. 1005 ¶ 20). According to Patent Owner, a POSA would not have been motivated to add Voges’ power indicator light to Wang’s smoking device because “Wang’s smoking device provides more specific information to the user on the number of available draws.” *Id.*

Patent Owner further argues that even if Voges’ power indicator light were added to Wang’s smoking article, it would not be visible from outside of the case as required by claim 5. PO Resp. 32. Patent Owner asserts that “the Voges power indicator 90 is clearly not visible from outside the case (recharging unit 100) when charging.” *Id.* (citing Ex. 1006, Fig. 1). Patent Owner also argues that when Wang’s smoking article 10 is inserted into charging means 40, “cover 46 is closed and the smoking device is not visible from outside of charging means 40 when the smoking device is inserted into the case.” *Id.* at 28–29 (citing Ex. 1005, Fig. 2).

Based on our review of the record, we find persuasive Petitioner’s argument that the combined teachings of Wang and Voges disclose “at least a portion of personal vaporizing unit is visible from outside of said case to allow a light source comprising said personal vaporizing unit to indicate a state of said personal vaporizing unit outside of said case” as recited in claim 5. Pet. 31–33; Pet. Reply 9–12; Ex. 1003 ¶¶ 113–118; Ex. 1046 ¶¶ 22–26. Wang teaches that smoking device 10 can comprise “an indicating element which is meant to indicate the user of the smoking device 10 the number of draws (puffs) the accumulator 21 is currently able to provide or / and the number of draws of the agent 33 in the second device 30 is enough for.” Ex. 1005 ¶ 20. Similarly, Voges teaches monitoring the energy levels within the power supply of its portable inhaler (personal vaporizing device) “through some type of power indicator 90 of the dispensing assembly 16 (FIG. 1),” such as “provid[ing] one type of indication when sufficient power existed within the power supply 74 (e.g., a ‘light on’ or ‘light off’ condition) and [providing] another type of indication when insufficient power existed within the power supply 74 (e.g., the converse).” Ex. 1006, 11:43–53. Voges also teaches that at least a part of the portable inhaler housing can extend beyond the recharging unit housing when the portable inhaler is docked in the recharging unit. *Id.* at 12:22–28.

Noting that “Voges explains that a user needs to know when a personal vaporizer’s battery is depleted to ensure proper operation,” Dr. Nayfeh credibly testifies that a POSA “would have understood that providing the user with the ability to monitor the personal vaporizer battery was essential to ensuring that the device could be properly managed and used.” *Id.* ¶ 116. Additionally, Dr. Nayfeh credibly testifies that a POSA “would have been motivated to implement a power indicator on the portion

of a personal vaporizer that remains visible while docked and recharging” because doing so “would allow a user to receive an indication of the status of the smoking article’s battery while it is charging.” Ex. 1003 ¶ 117. Dr. Nayfeh explains that “[a] POSA would have understood that this would also allow the user to determine when the device might be sufficiently charged for use, even if not yet fully charged.” *Id.* Moreover, Dr. Nayfeh’s testimony that a visible power indicator was a common configuration for charging devices at the time of the invention is supported with objective evidence of record. *Id.* ¶ 118 (citing Ex. 1021; Ex. 1022; Ex. 1023; Ex. 1040; Ex. 1041; Ex. 1043; Ex. 1044); Ex. 1046 ¶ 22. Patent Owner does not submit any expert testimony to rebut Dr. Neyfah’s testimony about what a POSA would have understood from the prior art.

We have considered Patent Owner’s arguments to the contrary and do not agree with them for the following reasons. Patent Owner contends that Wang does not describe a need to provide a power indication to the user of its smoking device. PO Resp. 30–31. Petitioner, however, does not argue that Wang provides the reason for adding a visible power indicator, and, in any event, the motivation to modify a reference need not come from the reference itself. *See DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006) (“Because of the desire to enhance commercial opportunities by improving a product or process is universal—and even common-sensical—we have held that there exists in these situations a motivation to combine prior art references even absent any hint of suggestion in the references themselves.”); *see also Perfect Web Techs., Inc. v. Info USA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (A reason to combine or modify the prior art 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 the invention and addressed by the patent,” and “the background knowledge, creativity, and common sense of the person of ordinary skill in the art.” (quoting *KSR*, 550 U.S. at 418–421)).

We also disagree with Patent Owner’s argument that a POSA would not have added a power indicator light to Wang’s smoking device because, according to Patent Owner, Wang teaches charging means 40 provides minimum power to keep smoking device 10 functional for an extended period of time,. PO Resp. 30–31 (citing Ex. 1005 ¶ 54). In this regard, we credit Dr. Nayfeh’s testimony that

[a] minimum amount of charge to the device does not mean that the device’s charge would not be depleted during use, and the power indicator light would inform users [of] the status of the battery. Further, even if the charging case provides a minimum power level, users would benefit from an indication of the charging state of the smoking device while it is charging. For instance, a POSA would have understood that users may prefer that the smoking device is fully charged, not charged to a minimum power level, before removing from the charging case. Moreover, users would benefit from an indication of the power level and whether the smoking device has achieved that minimum power level during charging.

Ex. 1046 ¶ 23. Patent Owner’s unsupported attorney argument is not sufficient to rebut Dr. Nayfeh’s credible testimony on this issue. *See Elbit*, 881 F.3d at 1359.

Furthermore, we have considered Patent Owner’s argument that Petitioner improperly “resorts to references outside of Wang and Voges” to show that a POSA would have been motivated to leave at least a portion of the personal vaporizing unit visible while docked and recharging.

PO Resp. 32–36. Here, Petitioner and Dr. Nayfeh provide background

references to illustrate the state of the art at the time of the invention, namely, that configuring a display indicator that is visible when a device is docked in a charging station was a common way to inform a user of the battery's state while charging. Pet. 32–33; Pet. Reply 12; Ex. 1003 ¶¶ 113–118; Ex. 1046 ¶ 22. Petitioner does not argue that these background references disclose a case as recited in the challenged claims, and does not rely on any of these references to supply a missing limitation as Patent Owner suggests. *See* PO Sur-reply 10. Instead, Petitioner asserts, and we agree, that the references “are reasonably pertinent because they deal with the same problem: how to indicate the state of a portable device while charging.” Pet. Reply 11. Dr. Nayfeh explains that

[e]ach of the background references I cited in my opening declaration are portable charging devices for a portable device. Ex. 1003 ¶ 118. Each of these references is directed to solving the same problem: how to indicate the charging status of a portable device while it is in the process of being charged. And to be clear, these references are not obscure documents, but instead illustrate the design of many products that a POSA would have encountered often before the time of the alleged invention. Like the '591 patent, each of these references discloses a charging device in which the device being charged is not completely encompassed within the charger during charging. A POSA would have had reason to look to these references, and references like them, in designing a charge case for smoking device.

Ex. 1043 ¶ 25. For the reasons discussed below, we credit Dr. Nayfeh's un rebutted testimony regarding what a POSA would have considered when designing a charging case for a smoking device. Dr. Nayfeh's opinions are logical and supported by the prior art references cited in his testimony.

As set forth above in Section II.B, we adopted Petitioner's undisputed assessment of the level of ordinary skill in the art, which includes familiarity

“with charging devices used in commercial electronics and/or the components and underlying technology used therein.” Pet. 9. The background references Petitioner and Dr. Nayfeh illustrate such charging devices, and the components and underlying technology used therein, and provide objective evidentiary support for Dr. Nayfeh’s testimony regarding how a POSA would have been motivated to modify Wang and Voges based on their knowledge at the time of the invention. Patent Owner, on the other hand, does not present any expert testimony or objective evidence supporting its contention that a POSA would not have been motivated to modify Wang and Voges. Instead, Patent Owner relies on unsupported attorney argument, which is not sufficient to rebut Dr. Nayfeh’s credible testimony on the issue. *See Elbit*, 881 F.3d at 1359 (rejecting attorney argument as to the alleged understanding of one of skill in the art on an issue when no evidence was presented).

Accordingly, after considering Petitioner’s and Patent Owner’s positions, as well as the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claim 5 would have been obvious over the combined teachings of Wang and Voges, and that Petitioner has established an evidence-supported rationale for combining the teachings.

*F. Obviousness over Wang, Voges, and Nielsen*

Petitioner contends that claims 8–14 of the ’591 patent would have been obvious over the combined teachings of Wang, Voges, and Nielsen. Pet. 34–39.

*1. Overview of Nielsen*

Nielsen relates to “improved electronic vaporizing devices (EVD) and docking stations that provide a heated or non-heated vapor for inhalation

utilizing liquid substances.” Ex. 1007 ¶ 2. Nielsen describes a docking station that includes a housing with a dedicated charging slot for engaging the EVD to charge the EVD’s battery. *Id.* ¶ 5. Nielsen teaches that “[t]he docking station may store data relative to consumption” that may be viewed “on a user’s personal computer in electrical communication contact with the docking station.” *Id.* ¶ 29. In that regard, Nielsen teaches that a data port “may be configured to accept external memory devices, data transfer cables (i.e., universal serial bus (USB), firewire, etc.), or wireless data transfer adaptors (i.e., Bluetooth, WiFi, IEEE 811 standards, etc.)” *Id.* ¶ 42.

## 2. Claims 8–11

Claim 8 depends from claim 1, and further recites “a wireless interface, the case transferring data from said personal vaporizing unit to a computer via said wireless interface.” Ex. 1001, 18:12–15. Claims 9, 10, and 11 depend from claim 8, and further recite that the wireless interface comprises an infrared transmitter (claim 9), an 802.15 specified interface (claim 10), and an 802.11 specified interface (claim 11).<sup>6</sup> *Id.* at 18:16–21.

Petitioner asserts that “Wang discloses transferring data from its smoking device (personal vaporizer) to an external computer over standard interfaces, such as miniUSB (from smoking device to recharger) and USB (from recharger to external computer),” and, “[f]urther, such data transfers would have been obvious in view of Voges.” Pet. 34–35 (citing Ex. 1003 ¶¶ 119–126). Petitioner asserts that transferring the same data via a wireless interface, as claims 8–11 require, “would have been an obvious variation” because, at the time of the invention, “it was well known that available

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<sup>6</sup> Petitioner explains that a POSA would have understood claims 10 and 11 “to be referring to IEEE 802.15 (*i.e.*, Bluetooth) and IEEE 802.11 (*i.e.*, common WiFi),” respectively. Pet. 34 (citing Ex. 1003 ¶ 119–126).



USB/WiFi (IEEE 802.11), USB/Bluetooth (IEEE 802.15), or USB/infrared adapters could be used to incorporate such wireless capability.” *Id.* at 35 (citing Ex. 1003 ¶¶ 119–126; Exs. 1013–1018, 1029–1031, 1033–1036). Petitioner further asserts that “Nielsen expressly disclosed a recharging device using wireless data transfer protocols, and specifically identifies IEEE 802.15 (Bluetooth) and WiFi (including 802.11).” *Id.* at 35 (citing Ex. 1007 ¶¶ 32, 43). According to Petitioner, “[a] POSA would have been motivated to make this simple modification for the same reasons wireless networking became ubiquitous—users enjoy the convenience of wireless and prefer to avoid cables that can be lost, get tangled, restrict movement, and cause clutter.” *Id.* (citing Ex. 1003 ¶¶ 119–126).

Patent Owner responds that “Petitioner’s obviousness argument is built on the foundation of its erroneous assertion that Wang discloses the subject matter in claims 3 and 4 of the ’591 patent,” and “Wang does not disclose transferring data from its smoking device 10 to an external computer or transferring data from its smoking device 10 to its charging means 40.” PO Resp. 37. Patent Owner also argues that “[n]one of the references Petitioner points to describe a case with a wireless interface.” *Id.* at 38. Patent Owner argues that Petitioner cites to a number of documents other than Wang, Voges, and Nielsen “for the proposition that available external USB-to-wireless adapters could be used to add wireless capability to Wang (alone or combined with Voges),” but that such external adapters are separate devices that are not part of a case. *Id.* (citing Pet. 35; Exs. 1013–1018, 1029–1031, 1033–1036). Patent Owner further argues that “Nielsen just discloses the same type of external adapters that are capable of plugging into a port provided in Nielsen’s NPAK case 102.” *Id.* at 39 (citing Ex. 1007 ¶ 32). Patent Owner argues that “an external wireless adapter

would be just another external component that plugs into the case (like a data transfer cable) that causes clutter and could be lost,” and, in any event, “Wang and Voges describe using an external cord or cable to charge the batteries in their respective cases.” *Id.* at 39–40. Patent Owner argues that, even if a POSA would have been motivated to plug an external wireless data transfer adapter into Wang’s charging means 40, “this does not show that a POSA would have had reason to modify Wang’s charging means 40 to add a wireless interface as part of the case itself.” *Id.* at 40. According to Patent Owner, “the alleged ubiquity of external wireless data transfer adapters suggests the opposite—a POSA would have simply used such an external adapter if she desired wireless capability rather than modifying Wang’s case to add a wireless interface to the internal electronics in the case.” *Id.*

Based on our review of the record, we find that the combined teachings of Wang, Voges, and Nielsen disclose a case comprising a wireless interface, the case transferring data from the personal vaporizing unit to a computer via the wireless interface as claims 8–11 require. Pet. 34–35; Pet. Reply 12–16; Ex. 1003 ¶¶ 119–126. For the reasons set forth in Section II.D.3 above, we determined that Wang discloses a case that transfers data from the personal vaporizing unit to a computer via a connector as claim 3 requires. As Petitioner notes, claims 8–11 “require transferring the same data via a wireless interface rather than a wired one.” Pet. 35. Dr. Nayfeh’s testimony supports Petitioner’s contention that transferring the data wirelessly was an obvious variation. In particular, Dr. Nayfeh testifies that “[t]he use of such wireless interfaces would have been obvious to a POSA in May 2010” because it was known at the time “that USB or WiFi (IEEE 802.11), USB/Bluetooth (IEEE 802.15), or USB/infrared adapters could be used to incorporate wireless capabilities.”

Ex. 1003 ¶ 122. Dr. Nayfeh also testifies, with supporting evidence, that USB/WiFi, USB/Bluetooth, and USB/infrared adapters were well-known before May 2010. *Id.* ¶ 123. Dr. Nayfeh testifies that “[b]y May 2010, it was known that wireless data transfers had numerous advantages,” including “that users tend to prefer to avoid cables that could be lost, tangled, restrict movement, and cause clutter.” *Id.* ¶ 124.

Moreover, Nielsen teaches a docking station that, in addition to storing and charging an electronic vaporizing device, “may store data relative to consumption” that may be viewed “on a user’s personal computer in electrical communication contact with the docking station.” Ex. 1007 ¶29. Nielsen further teaches that the docking station can have a data port configured to accept wireless data transfer adaptors, such as Bluetooth and WiFi. *Id.* ¶ 32. Nielsen’s teachings provide compelling support for Petitioner’s contention that substituting a wireless interface for Wang’s USB interface would have been obvious to a POSA.

Patent Owner argues that neither Wang, Voges, nor Nielsen discloses a case with a wireless interface. PO Resp. 38. Wang, however, describes a case that transfers data from a smoking device to an external computer. Ex. 1005 ¶¶ 32, 54–55. Nielsen describes transferring data from an electronic vaporizing device that is stored in a docking station to an external computer via a wireless interface. Ex. 1007 ¶¶ 29, 32. Petitioner persuasively establishes, with supporting testimony from Dr. Nayfeh, that a POSA would have been motivated to modify Wang’s case to transfer data using a wireless interface (as was known in the art and described in Nielsen) because wireless connectivity is more convenient for users by avoiding cables that can restrict movement, get lost or tangled, and cause clutter. Ex. 1003 ¶¶ 119–126. Therefore, Patent Owner’s argument that neither

Wang, Voges, nor Nielsen discloses a case with a wireless interface attacks the references individually, rather than as part of the asserted combination. Nonobviousness cannot be established by attacking the references individually when the ground of unpatentability is predicated upon a combination of prior art disclosures. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *see also In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (“But one cannot show non-obviousness by attacking references individually where, as here, the [the grounds of unpatentability] are based on combinations of references.”).

Furthermore, we are persuaded, on this record, that Petitioner sufficiently establishes that a POSA would have been motivated to integrate a wireless interface into Wang’s case. Pet. 35; Pet. Reply 14–15; Ex. 1003 ¶¶ 124–126; Ex. 1046 ¶¶ 31–33. Petitioner relies on Nielsen as evidence that recharging devices using wireless transfer protocols were well known to a POSA. *See* Pet. 35; Ex. 1003 ¶ 125. Petitioner and Dr. Nayfeh also point to several other references that illustrate integrated wireless interfaces in things like key fobs and camera cases. Pet. 35–36 (citing Ex. 1009 ¶ 138); Pet. Reply 14–15 (citing Ex. 1009 ¶¶ 39, 89, 134, 138, 190, Figs. 36, 37, 42; Ex. 1018, 8:41–43, 9:14–25, Figs. 4–5; Ex. 1031, 2:14–34, 11:3–19, Fig. 7); Ex. 1046 ¶ 32 (citing Ex. 1009 ¶¶ 39, 89, 138, 190, Figs. 36, 42; Ex. 1018, 8:41–43, 9:14–25, Figs. 4–5; Ex. 1031, 2:14–45, 11:3–19, Fig. 7).

In light of this supporting evidence, we credit Dr. Nayfeh’s testimony that

[a] POSA would have understood that a wireless interface could be added to the case either using an adapter or by integrating the interface into the case. A POSA would have known how to do so—both of these types of wireless interfaces were well known before the time of the alleged invention—and would

have had a reasonable expectation of success in doing so. Because there were only two options for including a wireless interface (either using an adapter or by integrating the interface into the case), both options would have been obvious for a POSA to implement. However, a POSA would have understood that integrating a wireless interface into the case itself could be advantageous because it would have avoided an additional component that could be lost, and resulted in a more compact, robust, and low-cost device.

Ex. 1046 ¶ 33; *see also* Ex. 1003 ¶ 124 (Dr. Nayfeh testifying that a “POSA would have been motivated to use wireless interfaces rather than a wired connections” because “it was understood that users tend to prefer to avoid cables that could be lost, tangled, restrict movement, and cause clutter”). Because the record establishes that a POSA would have been motivated to integrate a wireless interface into Wang’s case, we need not reach Patent Owner’s argument that the claims do not encompass a case with an external wireless adapter. *See* PO Sur-reply 13–14.

Accordingly, after considering Petitioner’s and Patent Owner’s positions, as well as the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claim 8, and claims 9–11 that depend directly therefrom, would have been obvious over the combined teachings of Wang, Voges, and Nielsen.

### 3. *Claims 12–14*

Claim 12 depends from claim 8 and further recites that “said wireless interface communicates with a cellular telephone network.” Ex. 1001, 18:22–23. Petitioner contends that “[b]y the time of the purported invention (around the year 2010), it was a well-known practice to use a USB cellular modem to facilitate remote wireless communications.” Pet. 36 (citing Ex. 1003 ¶¶ 127–131; Ex. 1024, 2:40–43; Ex. 1025, 5:14–18; Ex. 1026

¶ 16). Petitioner contends that a POSA “would have been motivated to make this simple modification to Wang to enable a user to communicate with a computer or other remote monitoring station, which would greatly extend the user’s geographic freedom and increase data transfer flexibility.” *Id.* at 37 (citing Ex. 1003 ¶¶ 127–131).

Claim 13 depends from claim 8 and further recites “said data from said personal vaporizing unit is associated with an identification number stored by said personal vaporizing unit.” Ex. 1001, 18:24–26. Claim 14 depends from claim 13 and also requires that “said data from said personal vaporizing unit is transmitted via said wireless interface in association with said identification number stored by said personal vaporizing unit.” *Id.* at 18:27–30.

Petitioner contends that a POSA “would have been motivated to incorporate Voges’ data storage capability into Wang’s smoking device,” and “Voges further teaches using an ‘identification code’ ‘so as to specifically identify’ a portable inhaler (personal vaporizing unit) ‘where more than one portable inhaler maybe used with the recharging unit,’ to track how each unit is used.” Pet. 38 (quoting Ex. 1006, 6:30–40).

Petitioner contends that a POSA

would have understood that recorded usage data—including data downloaded to Wang’s recharger from a smoking device (as in claim 13) and data transmitted from that charging means to an external computer (as in claim 14)—could be, and should be, associated with such identifying information, including an “identification code” like that disclosed by Voges. *See* [Ex. 1003] ¶¶ 132–135. Such identifying information would advance the “health, commercial or sociological purposes” served by the recordation and analysis of usage data, *see* Wang ¶ 55, because the retention and transfer of such information results in more granularity in collected data, which supports, for

example, more robust analyses of correlated data, such as usage data matched to particular devices, users, and user grounds, *see* [Ex. 1003] ¶¶ 132–135.

Pet. 38.

Patent Owner does not address whether or not the combined teachings of Wang, Voges, and Nielsen teach the additional limitations of claims 12–14. Having reviewed all of Petitioner’s assertions regarding claims 12–14, as well as the supporting evidence, we determine that Petitioner has established, by a preponderance of the evidence, that claims 12–14 of the ’591 patent would have been obvious over the combined teachings of Wang, Voges, and Nielsen. Pet. 36–38; Ex. 1003 ¶¶ 127–135.

#### *G. Remaining Grounds*

Petitioner also contends that (1) claims 1–4 are anticipated by Voges; (2) claims 1–6 and 8–14 would have been obvious over the combined teachings of Voges and Nielsen; and (3) claim 7 would have been obvious over the combined teachings of Voges, Nielsen, and Counts. Pet. 39–64. Because Petitioner has shown that claims 1–14 are unpatentable as discussed above, we do not reach these additional asserted grounds. *See Beloit*, 742 F.2d at 1423 (“The Commission . . . is at perfect liberty to reach a ‘no violation’ determination on a single dispositive issue.”); *Boston Sci. Scimed*, 809 F. App’x at 990 (recognizing that “[t]he Board has the discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

### III. CONCLUSION<sup>7</sup>

For the reasons given, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–14 of the '591 patent are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 3, 4, 6, 7	102(b)	Wang	1, 3, 4, 6, 7	
2–5	103(a)	Wang, Voges	2, 5 <sup>8</sup>	
8–14	103(a)	Wang, Voges, Nielsen	8–14	
1–4	102(b) <sup>9</sup>	Voges		
1–6, 8–14	103(a) <sup>10</sup>	Voges, Nielsen		

<sup>7</sup> 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).

<sup>8</sup> As explained above, we do not reach this ground with respect to claims 3 and 4 because Petitioner has shown that claims 3 and 4 are anticipated by Wang.

<sup>9</sup> As explained above, we do not reach this ground because Petitioner has shown that claims 1, 3, and 4 are anticipated by Wang, and claim 2 would have been obvious over the combined teachings of Wang and Voges.

<sup>10</sup> As explained above, we do not reach this ground because Petitioner has shown that claims 1, 3, 4, and 6 are anticipated by Wang, claim 5 would have been obvious over the combined teachings of Wang and Voges, and claims 8–14 would have been obvious over the combined teachings of Wang, Voges, and Nielsen.



7	103(a) <sup>11</sup>	Voges, Nielsen, Counts		
<b>Overall Outcome</b>			1–14	

#### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–14 of the '591 patent are unpatentable; and

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

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<sup>11</sup> As explained above, we do not reach this ground because Petitioner has shown that claim 7 is anticipated by Wang.

IPR2020-00920  
Patent 8,314,591 B2

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