

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TWILIO INC.,
Petitioner,

v.

TELESIGN CORPORATION,
Patent Owner.

Case IPR2016-01688
Patent 9,300,792 B2

Before SALLY C. MEDLEY, MICHAEL W. KIM, and JUSTIN T. ARBES,
Administrative Patent Judges.

ARBES, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. BACKGROUND

Petitioner Twilio Inc. filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–6, 8, 10–15, and 17 of U.S. Patent No. 9,300,792 B2 (Ex. 1001, “the ’792 patent”) pursuant to 35 U.S.C. § 311(a). Patent Owner TeleSign Corporation filed, with its Preliminary Response, evidence that it filed with the Office a statutory disclaimer of claims 3, 5, 7, 12, 14, and 16 of the ’792 patent pursuant to 37 C.F.R. § 1.321(a). *See* Paper 8, 3; Ex. 2003, 380.

On March 8, 2017, we instituted an *inter partes* review of the remaining challenged claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17 on a single ground of unpatentability. Paper 10 (“Dec. on Inst.”); *see* 37 C.F.R. § 42.107(e) (“No *inter partes* review will be instituted based on disclaimed claims.”). Patent Owner subsequently filed a Patent Owner Response (Paper 15, “PO Resp.”) and Petitioner filed a Reply (Paper 18, “Reply”). Patent Owner also filed a Motion to Exclude (Paper 20, “Mot.”) certain evidence submitted by Petitioner, to which Petitioner filed an Opposition (Paper 24) and Patent Owner filed a Reply (Paper 25, “PO Reply”). An oral hearing was held on October 25, 2017, and a transcript of the hearing is included in the record (Paper 31, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17 are unpatentable.

A. The '792 Patent¹

The '792 patent pertains to “on-line or web-site registration,” and describes processes for (1) “verifying an on-line registration by a telephone connection separate from the on-line connection between the web-site and potential registrant,” and (2) “notifying registrants of predetermined events using information obtained during the registration process.” Ex. 1001, col. 1, ll. 29–36. According to the '792 patent, there was a need in the art for a way to accurately verify an individual’s identity during registration because “potential registrants often register with untraceable or false e-mail addresses and phone numbers.” *Id.* at col. 1, ll. 37–60. Similarly, there was a need to prevent fraud by subsequently notifying the registered individual when certain events occur and potentially seeking the individual’s authorization. *Id.* at col. 1, l. 61–col. 2, l. 25.

The registration process begins with a user filling out “an on-line registration form accessed through a website” (i.e., a “first communication connection”). *Id.* at col. 4, ll. 15–17, 51–54. “For example, the registrant or consumer could be an individual attempting to access a web-site and set up an account with a financial institution.” *Id.* at col. 4, ll. 35–38. The user provides certain information requested in the form, such as his or her telephone number. *Id.* at col. 4, ll. 55–58. The website then sends a Short

¹ The '792 patent also was challenged in Case CBM2016-00099, in which the petition seeking covered business method patent review was denied because Petitioner had not established that the '792 patent is eligible for such review. The '792 patent also is related to U.S. Patent No. 8,462,920 B2, challenged in Case IPR2016-00450, and U.S. Patent No. 8,687,038 B2, challenged in Case IPR2016-00451, in which the petitions seeking *inter partes* review were denied.

Message Service (SMS) message to the user's telephone (i.e., a "second communication connection") containing a verification code. *Id.* at col. 4, ll. 61–63, col. 6, ll. 29–36. The user enters the verification code in the website form and, if there is a match and the information provided shows that the user is who he or she purports to be, the user is verified and may login. *Id.* at col. 2, ll. 57–64, col. 4, ll. 63–67.

"After registration, notification events are established" by the user or business utilizing the system or by a third party. *Id.* at col. 2, l. 65–col. 3, l. 1. A notification event may comprise, for example, "a news event, or a request to access or alter [the] registrant's account." *Id.* at col. 3, ll. 1–3. When a previously established notification event occurs, the user is notified via the telephone number provided during registration. *Id.* at col. 3, ll. 4–10. For example, the system may send an SMS message or voice message to the user's telephone containing a verification code. *Id.* at col. 9, ll. 25–37. The user then enters the verification code into a website form, allowing the user to verify his or her identity, "provide[] confirmation of receipt of the information and, where necessary, authorization for the event to occur, such as access to the account, etc." *Id.* at col. 9, ll. 37–43.

B. Illustrative Claim

Claim 1 of the '792 patent recites:

1. A verification and notification method implemented by a computing system, the method comprising:

receiving, from a user, information via a computing interface presented to the user as a result of an attempt by the user to access a service, the received information including a telephone number associated with the user;

verifying the telephone number by:

establishing a short message service (SMS) connection with the user using the received telephone number;

communicating a verification code to the user through the SMS connection;

receiving, via the computing interface, a submitted verification code that is entered by the user; and

verifying the telephone number if the submitted verification code is the same as the communicated verification code;

completing a registration of the user based on the received information and verified telephone number, wherein the completed registration enables the user to access the service;

maintaining a record of one or more notification events associated with actions that require acknowledgement by the user;

upon receiving an indication of an occurrence of an established notification event, transmitting a message addressed to the verified telephone number indicating the occurrence of the notification event; and

receiving, from the user, an acknowledgement of an action associated with the established notification event.

C. Prior Art

The pending ground of unpatentability in the instant *inter partes* review is based on the following prior art:

U.S. Patent No. 8,781,975 B2, filed May 23, 2005, issued July 15, 2014 (Ex. 1003, “Bennett”); and

U.S. Patent Application Publication No. 2006/0020816 A1, filed July 5, 2005, published Jan. 26, 2006 (Ex. 1004, “Campbell”).

D. Pending Ground of Unpatentability

In the instant *inter partes* review, Petitioner challenges claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17 as unpatentable over Bennett and Campbell under 35 U.S.C. § 103(a).²

II. ANALYSIS

A. Claim Interpretation

The Board interprets claims in an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[].” 37 C.F.R. § 42.100(b); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). In the Decision on Institution, we preliminarily interpreted the claim term “notification event” to mean an event that results in the user being notified that the event occurred. Dec. on Inst. 6–10. The parties apply this interpretation in their Response and Reply, and we do not perceive any reason or evidence that compels any deviation from our earlier interpretation. *See* Resp. 14–15; Reply 11. We adopt the previous analysis and conclude that no other terms require interpretation.

B. Principles of Law

To prevail in challenging claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17 of the ’792 patent, Petitioner must demonstrate by a preponderance of the

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the challenged claims of the ’792 patent have an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A claim is unpatentable for obviousness if, to one of ordinary skill in the pertinent art, “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). The question of obviousness is resolved on the basis of underlying factual determinations, including “the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.”³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A patent claim “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418. An obviousness determination requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418 (for an obviousness analysis, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to

³ Additionally, secondary considerations, such as “commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.” *Graham*, 383 U.S. at 17–18. Patent Owner, however, has not presented any such evidence.

combine the elements in the way the claimed new invention does”). A motivation to combine the teachings of two references can be “found explicitly or implicitly in market forces; design incentives; the ‘interrelated teachings of multiple patents’; ‘any need or problem known in the field of endeavor at the time of invention and addressed by the patent’; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013) (citation omitted). Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *In re Nuvasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

C. Level of Ordinary Skill in the Art

Petitioner argues that a person of ordinary skill in the art at the time of the ’792 patent would have had “at least an undergraduate degree in computer science, or equivalent experience, and in addition would be familiar with Internet and telephone communications.” Pet. 22 (citing Ex. 1002 ¶¶ 11–20). Patent Owner does not dispute Petitioner’s assessment in its Response. Based on the record developed during trial, including our review of the ’792 patent and the types of problems and solutions described in the ’792 patent and cited prior art, we agree with Petitioner’s assessment of the level of ordinary skill in the art and apply it for purposes of this Decision.

*D. Obviousness Ground Based on Bennett and Campbell
(Claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17)*

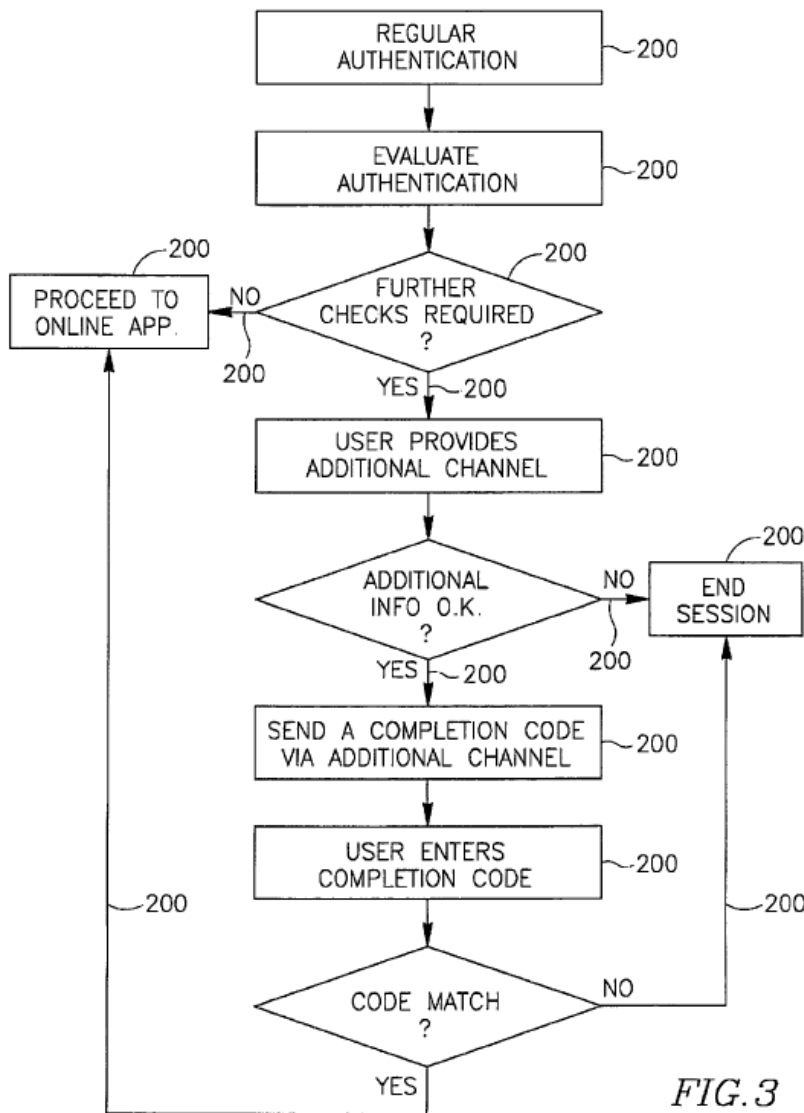
1. Bennett

Bennett describes a system for “extending authentication to a two factor, out of band form, requiring an additional data element or code via a channel different from the channel used for the primary transaction.” Ex. 1003, Abstract. The user first provides information, such as his or her mobile telephone number, to the system via a website (i.e., a “first communication channel”). *Id.* at col. 2, ll. 61–63, col. 14, ll. 46–56. The system then establishes a telephone connection with the user (i.e., a “second communication channel”) and sends a completion code to the user (e.g., in an SMS message). *Id.* at col. 2, ll. 63–67, col. 5, ll. 32–35, col. 10, l. 62–col. 11, l. 5, col. 15, ll. 8–13. The user enters the completion code into the website and the system determines, if there is a match, that the user is allowed to complete the transaction. *Id.* at col. 2, l. 67–col. 3, l. 4, col. 15, ll. 14–42. For example, the two-factor authentication process may be followed when a user initially registers with a service and when the user desires to perform various other types of transactions, such as an “online banking login,” “[o]nline purchasing,” “[m]oney transfers,” or “online banking transactions.” *Id.* at col. 12, l. 56–col. 13, l. 23.

The user may be required to go through the authentication process only for certain transactions, such as when the user is accessing the system from a different device than what was used in the past, or for “each and every transaction.” *Id.* at col. 11, ll. 44–45, col. 18, ll. 4–16. In Bennett’s disclosed system, a decision making module determines whether a particular transaction requires the two-factor authentication process based on various

factors, such as, for example, the current “alert level.” *Id.* at col. 11, l. 28–col. 13, l. 23, col. 16, ll. 3–13, Fig. 2 (decision making module 115 with decision engine 108).

Figure 3 of Bennett is reproduced below.



As shown in Figure 3, the process begins when the user “wish[es] to access an institution in order to receive service. For example, a user makes a request to open an account, pay a bill, transfer funds, or purchase goods from an institution,” and performs a “regular” authentication (e.g., providing

a user ID and password). *Id.* at col. 15, l. 64–col. 16, l. 3. Each “authentication transaction” is then “evaluated as to whether it requires further checks.” *Id.* at col. 16, ll. 3–6. If so, the user is “asked for additional authentication via an additional communication channel,” such as a mobile telephone number, and the system “send[s] a completion code or other information to the user via the additional channel supplied.” *Id.* at col. 16, ll. 22–43. The user then provides the completion code and, if it matches what the system provided, the transaction can be completed. *Id.* at col. 16, ll. 50–61.

2. *Campbell*

Campbell describes a system for managing “authentication attempts using . . . a real time communication channel with the end user that is separate from the channel being used for authentication.” Ex. 1004, Abstract. The system receives information about an authentication attempt (an “event”), such as a user attempting to access the Internet from a particular location, and determines whether the event meets certain criteria that would warrant additional procedures to prevent fraud. *Id.* ¶¶ 13–18. For example, an authentication attempt may be made where the same user ID was already used and Internet access is still active, or where multiple authentication attempts during a particular time period indicate “atypical use.” *Id.* ¶¶ 18–22.

If additional processing is required, the system communicates with the requesting user via a “separate communications channel,” such as a cellular network. *Id.* ¶¶ 23–24. For example, the system may automatically change the user’s password and send an SMS message to the user’s telephone with

the new password “along with a message explaining the reason a new password is being sent.” *Id.* ¶ 25. “An example message could read ‘Your password has been changed to XXXXXXXX due to a risk that your old password has been compromised.’ Thus the valid user is automatically equipped with and informed of a change in password.” *Id.* ¶ 39. Or, if the number of authentication attempts in a particular time period exceeds a designated threshold,

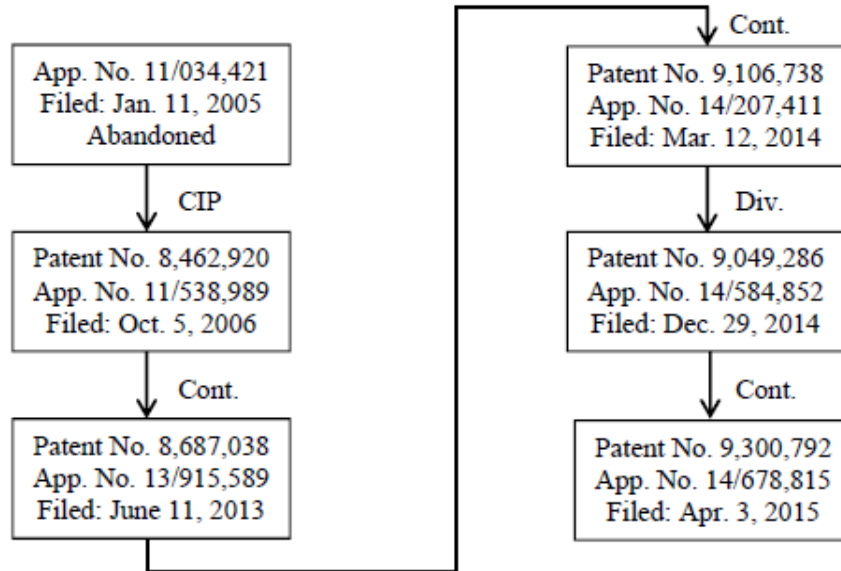
[t]he SMS message would indicate that the User account has been suspended and request the User to contact the authentication authority. The authentication authority could be a service provider or company that is granting access to, in this case, the internet. An example SMS message could read “Your account has been suspended due to a risk that your password has been compromised. Please contact 800-555-5555 for further information.” Thus the valid user is informed of the issue and can contact the authentication authority.

Id. ¶ 41.

3. Whether Bennett and Campbell are Prior Art to the Challenged Claims

Bennett issued on July 15, 2014, from an application filed on May 23, 2005. Campbell was published on January 26, 2006, from an application filed on July 5, 2005. Petitioner argues that both references are prior art because the earliest effective filing date of the challenged claims is October 5, 2006. Pet. 9–21.

Petitioner provides the following chart on page 10 of the Petition depicting the lineage of the '792 patent.



As shown in the chart above, the '792 patent claims priority as a continuation or divisional application of a series of applications, and as a continuation-in-part (CIP) of U.S. Patent Application No. 11/034,421 (Ex. 1027, "the '421 application"), filed on January 11, 2005. See Ex. 1001, col. 1, ll. 7–25. Petitioner argues that there is no presumption that the challenged claims are entitled to the filing date of the '421 application, because the Office did not consider priority during prosecution of the '792 patent, and the '421 application does not provide written description support for certain limitations pertaining to the recited "notification event" in independent claims 1 and 10 of the '792 patent. Pet. 9–15.

In our Decision on Institution, we agreed with Petitioner, based on the record at the time, that the challenged claims are not entitled to the filing date of the '421 application, and the earliest effective filing date of the challenged claims is October 5, 2006. Dec. on Inst. 10–12. Patent Owner does not dispute Petitioner's assertions regarding the effective filing date of

the challenged claims in its Response, and we do not perceive any reason or evidence that compels any deviation from our earlier conclusion. Thus, we adopt the previous analysis, and conclude that Bennett is prior art under 35 U.S.C. § 102(e) and Campbell is prior art under 35 U.S.C. § 102(a).

4. Claim 1

a. Whether Bennett and Campbell Collectively Teach All of the Limitations of Claim 1

Petitioner explains in detail how Bennett and Campbell⁴ collectively teach every limitation of claim 1, relying on the testimony of Michael Shamos, Ph.D., as support. *See* Pet. 26–59; Ex. 1002 ¶¶ 70–137. Petitioner relies on Bennett for the majority of the limitations of claim 1. Pet. 26–59. For example, Petitioner argues that Bennett teaches receiving a telephone number from a user via a “computing interface presented to the user as a result of an attempt by the user to access a service” (i.e., a web page provided to the user), establishing an SMS connection with the user using the telephone number, communicating a “verification code” (i.e., completion code) to the user through the SMS connection, receiving the completion code entered by the user via the “computing interface,” verifying the user’s telephone number if there is a match, and completing the registration of the user. *Id.* at 26–37.

With respect to the last three steps of claim 1, which pertain to “notification events,” Petitioner again relies primarily on Bennett, but relies on the combined teachings of Bennett and Campbell for one aspect of the

⁴ Campbell was not considered during prosecution of the ’792 patent. *See* Ex. 1001, (56).

limitations. *Id.* at 44–59. Petitioner first argues that Bennett teaches “notification events associated with actions that require acknowledgement by the user,” as recited in the claims, based on Bennett’s use of “decision rules.” *Id.* at 38–41. For example, Bennett’s decision making module may apply the rules and determine that two-factor authentication is required “when a logon attempt is detected from a new device” or when there were “log-in attempts from suspicious [Internet Protocol (IP)] addresses and password recovery attempts.” *Id.* at 27, 40–41 (citing Ex. 1003, col. 18, ll. 4–50). According to Petitioner, the user acknowledges the action associated with the notification event by entering the completion code that he or she received. *Id.* at 38–39.

As explained in the Decision on Institution, we do not agree with Petitioner that Bennett alone teaches “notification events,” because there is no indication in Bennett that the SMS message to the user containing the completion code notifies the user that the underlying event occurred.⁵ *See* Dec. on Inst. 16–17. In other words, Bennett teaches an “event” (e.g., a login attempt from an unknown device or suspicious IP address, a request to perform a particular type of financial transaction) that triggers the SMS message with the completion code being sent to the user, but that event is not a “notification event” as we have interpreted the term (i.e., an event that results in the user being notified that the event occurred). *See supra* Section II.A.

⁵ We do not perceive any reason or evidence that compels any deviation from that conclusion, and adopt our previous analysis for purposes of this Decision.

Petitioner, therefore, relies on the combined teachings of Bennett and Campbell for the concept of a “notification event.” Pet. 44–47, 56–58. Specifically, Petitioner cites Campbell’s disclosure of determining, based on set criteria, that additional processing is required, and sending an SMS message to the user with an explanation. *Id.* at 44–45. One example, in Campbell, is “suspension of the user’s account as the result of multiple attempts to access the account using invalid user ID and password combinations within a certain time period,” where the corresponding SMS message reads ““Your account has been suspended due to a risk that your password has been compromised. Please contact 800-555-5555 for further assistance.”” *Id.* (citing Ex. 1004 ¶¶ 40–41). Thus, according to Petitioner, suspension of the user’s account is an example of a “notification event,” because the user is notified of its occurrence via the text in the SMS message. *Id.*

Petitioner asserts that it would have been obvious to combine this teaching from Campbell with Bennett, by “includ[ing] a sentence [in Bennett’s SMS message] along with the completion . . . code that describes the occurrence of the event that triggered the notification” (i.e., the reason why the user is being sent a completion code), and provides reasons as to why a person of ordinary skill in the art would have been motivated to do so. *Id.* at 45–47, 56–58. Thus, Petitioner makes clear in the Petition exactly how the references are being combined—Petitioner is relying on Bennett for all limitations of the claim other than a “notification event,” and by adding a sentence to Bennett’s SMS message describing what triggered the message, Bennett’s triggering “event” becomes a “notification event” (because it would result in the user being notified that the event occurred).

See id.; Dec. on Inst. 18–19; Tr. 20:16–24 (Patent Owner acknowledging the particular combination asserted by Petitioner). Petitioner’s analysis, supported by the testimony of Dr. Shamos, which we credit, is persuasive.

Patent Owner makes three arguments concerning Petitioner’s alleged shortcomings with respect to the aforementioned combination, relying on the testimony of Seth Nielson, Ph.D. (Ex. 2008), as support. First, Patent Owner argues that Bennett and Campbell fail to teach the “action” limitations of the claim. PO Resp. 17–25. Claim 1 recites “maintaining a record of one or more notification events associated with *actions* that require acknowledgement by the user” and “receiving, from the user, an acknowledgement of an *action* associated with the established notification event” (emphases added). According to Patent Owner, Petitioner improperly “collapses the recited ‘action’ with a notification-event itself” by “attempting to show acknowledgement of the notification events themselves rather than of the recited ‘actions’ *associated with* notification events.” *Id.* at 17. With respect to Bennett, Patent Owner argues that Bennett cannot disclose “actions” associated with “notification events,” because it does not disclose “notification events” in the first place. *Id.* at 18. Patent Owner then argues that Campbell also fails to teach “actions” associated with “notification events,” because the alleged “notification event” in Campbell—the suspension of the user’s account—happens automatically, and, thus, has no associated “action” that requires user acknowledgement to occur. *Id.* at 18–24.

By focusing on each reference individually, however, Patent Owner fails to consider the references’ teachings in combination, which is the basis for Petitioner’s obviousness assertion. As explained above, Bennett teaches

a decision making module that applies decision rules and evaluates whether the occurrence of a particular “event” (e.g., a login attempt from an unknown device or suspicious IP address, a request to perform a particular type of financial transaction) warrants two-factor authentication, in which case an SMS message is sent to the user with a completion code. See Pet. 27, 38–41. The “event” in Bennett is what occurs that triggers the SMS message being sent to the user. Those “events,” however, are not “notification events,” as we have interpreted the term, because the SMS message does not tell the user anything (other than the completion code). Petitioner, therefore, relies on a combination with Campbell for the “notification event” concept. *Id.* at 44–47, 56–58. By adding a sentence to the SMS message notifying the user that the event occurred, Bennett’s “event” becomes a “notification event.”

Importantly, Petitioner relies on Bennett—not Campbell—as teaching “actions” associated with an event. Specifically, Petitioner references what Bennett refers to as “transactions” that the user acknowledges by entering the completion code. *Id.* at 38–39 (“Bennett’s decision rules define which *transactions (actions)* require notifying the user and receiving user acknowledgement, in the form of two-factor authentication.” (emphasis added)); see also *id.* at 60, 62–63 (arguing for various dependent claims that Bennett teaches numerous types of financial and non-financial “transactions” that require two-factor authentication by “notifying the user and requiring an acknowledgement” of the transaction, including “online banking login, online purchasing, money transfers, online brokerage trading, [and] company extranet logon”); Tr. 20:25–21:1 (Patent Owner acknowledging that Petitioner does “rely on Bennett for everything

associated with an action that requires acknowledgement”). Petitioner cites the following portion of Bennett, which broadly defines what Bennett means by “transactions”:

As referred to in this description of the invention the term “Transaction” or “Transactions” may refer to any of the following non-limiting examples of online or other transactions, interactions, enrollment to a service, re-enrollment and password recovery using some sort of authentication/challenge or use of various services. It should be noted that the term Transaction is applicable not only to “financial” transactions but to any transaction involving authentication. For example, without limitation, Transaction refers not only to transactions such as an online banking login, but also to a company extranet login. It should be applicable to any transaction where the user is being authenticated by some means, regardless of the purpose of the authentication. Without limiting the foregoing, the following list illustrates certain types of transactions it may apply to: (1) Online enrolment, such as financial account opening: banking, brokerage, and insurance; subscriptions for example for ISP, data and informational content deliveries; customer service enrollment; enrollment to Programs (partnership, MLM, beta, etc.) and any other similar type of transaction; (2) Online transactions such as Online Purchasing, B2B, B2c and C2C transactions; Electronic Bill payment; Internet ACH providers; Money transfers between accounts; Online brokerage trading; Online insurance payments; Certain online banking transactions; Tax filing or Any other similar type of transaction; (3) Online Applications such as for credit cards; loans; memberships; patent applications or information; Governmental applications or other similar type of transactions; (4) Online password resetting, as well as online change or update to personal data by re-authentication/re-enrollment; by combining a mechanism involving secret questions; or by a combination of the above; (5) any login to a restricted service, or other operations that involve an element of risk. Other suitable transactions may be included as well.

Ex. 1003, col. 12, l. 56–col. 13, 23; *see* Pet. 38 (also citing Ex. 1003, col. 15, l. 61–col. 16, l. 13 (“For example, a user makes a request to open an account, pay a bill, transfer funds, or purchase goods from an institution.”))).

In other words, the “action” in Bennett is the transaction that the user is attempting to complete, which will be completed once acknowledged. In Petitioner’s particular cited examples, a user is attempting to login, for instance. *See* Pet. 27, 38–41. The user acknowledges the transaction by entering the *completion* code he or she received, after which the transaction can be completed (e.g., the user can login, or the financial transaction can be completed). *Id.* at 58–59 (citing Ex. 1003, col. 15, ll. 12–41; Ex. 1002 ¶¶ 136–137 (explaining how when a user attempts to login from an unknown device or suspicious IP address, the two-factor authentication process requires the user to “acknowledg[e] that he or she is the one logging in by entering the completion [code]”))).

Notably, Bennett’s descriptions of a user attempting to login and initiating a financial transaction are very similar to what is described in the Specification of the ’792 patent. *See, e.g.,* Ex. 1001, col. 3, ll. 1–4, col. 9, ll. 14–48 (disclosing that entering the verification code provides “authorization for the event to occur, such as access to the account,” after which “the process is complete”), col. 10, l. 48–col. 11, l. 33 (disclosing verification “during a business transaction,” and describing various examples, such as bank withdrawals and credit card purchases), Fig. 9, steps 906 (“User logs into account”), 908 (“User attempts to make a transaction”). They also comport with Dr. Nielson’s understanding of “actions” as the term is used in claim 1. *See* Ex. 1035, 18:13–19:7 (testifying that a “financial operation,” such as a “a large withdrawal,” is “an example of an action”),

21:23–22:16 (testifying that an example of a “notification event” is “transferring money” and an example of an associated “action” is “the actual transferring of the money,” where the message is transmitted to the user when the system “detected this transfer in progress”); *see* Reply 10–12.

Patent Owner’s position, in effect, would require that a single prior art reference have to disclose the full concept of a “notification event” “associated with” an “action” requiring user acknowledgement. *See, e.g.*, PO Resp. 18–19 (arguing that “[t]he Petition would need to rely on Campbell to teach the notification-event limitations . . . because Bennett does not, . . . but Petitioner fails to adequately argue or show that Campbell teaches such actions”); Tr. 18:7–19:9 (acknowledging that there need not be one reference disclosing the entire limitation, but arguing that “one cannot untether the action from the notification event”). The test for obviousness, however, is “what the combined teachings of the references would have suggested to those having ordinary skill in the art.” *In re Mouttet*, 686 F.3d 1322, 1332–33 (Fed. Cir. 2012); *see also Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1166 (Fed. Cir. 2006) (explaining that in an obviousness analysis, “the prior art must be considered *as a whole* for what it teaches”); *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”).

Petitioner explains sufficiently what the combined teachings of Bennett and Campbell would have suggested to a person of ordinary skill in the art, namely, “events” in Bennett that trigger an SMS message to the user and that have associated “actions,” and adding a sentence to the SMS

message in Bennett to provide notification to the user that the event occurred. *See* Pet. 37–59; Reply 16 (“*Bennett* discloses different types of ‘actions’ and *Campbell* discloses ‘notification events.’ . . . Thus, it is the combination of *Bennett* and *Campbell* that discloses ‘notification events associated with actions.’”). Thus, we are persuaded that, collectively, Bennett and Campbell account for a “notification event” “associated with” an “action” requiring user acknowledgement, as recited in claim 1.

Second, Patent Owner argues that Petitioner fails to show that the references teach a notification event associated with an action that “require[s] acknowledgement by the user,” as recited in claim 1. PO Resp. 26–29. According to Patent Owner, as reflected in the Specification of the ’792 patent, “[n]ot all events require user acknowledgement—such as notifications of stock prices and sports scores. Others do.” *Id.* at 26. Patent Owner again points to Campbell individually, arguing that suspension of the user’s account occurs automatically and, therefore, it is not a “notification event” with an associated “action” that requires user acknowledgement to occur. *Id.* at 28–29. We are not persuaded for the same reasons set forth above. Patent Owner’s argument does not address the particular combination of teachings in Bennett and Campbell asserted by Petitioner. *See* Pet. 27, 38–41, 58–59 (explaining and providing examples of how Bennett teaches events associated with “transactions (actions)” that are set by the decision rules to require “receiving user acknowledgment” via the user entering the completion code into the website); Ex. 1002 ¶¶ 73, 98–99, 136–137.

Third, Patent Owner argues that Petitioner’s analysis is deficient with respect to the final step of claim 1—“receiving, from the user, an

acknowledgement of an action associated with the established notification event”—because Petitioner relies solely on Bennett, and Bennett alone does not teach a “notification event.” PO Resp. 30–32. We are not persuaded.

There are three steps in claim 1 referencing “notification events”:

maintaining a record of one or more notification events associated with actions that require acknowledgement by the user;

upon receiving an indication of an occurrence of an established notification event, transmitting a message addressed to the verified telephone number indicating the occurrence of the notification event; and

receiving, from the user, an acknowledgement of an action associated with the established notification event.

Petitioner first addresses the concept of “notification events” in connection with the “maintaining” step, making two alternative arguments: (1) Bennett alone teaches or suggests “notification events,” or, if not, (2) the combination of Bennett and Campbell does. Pet. 38–52. As explained above, we disagree with the former but agree with the latter. Petitioner further explains exactly how the teachings of the two references would be combined (i.e., based on the teachings of Campbell, adding a sentence to Bennett’s SMS message along with the completion code that “describes the occurrence of the event that triggered the notification”) and how Bennett’s events have associated “actions” that require user acknowledgement. *Id.* at 44–52. Then, with respect to the “transmitting” step, Petitioner similarly argues, in the alternative, that Bennett alone or the combination of Bennett and Campbell teach the recited limitations pertaining to “an established notification event.” *Id.* at 52–58.

Finally, for the “receiving” step, Petitioner argues that Bennett teaches a user acknowledging an action by entering the completion code into the website in order to complete the transaction. *Id.* at 58–59. Although Petitioner does not mention Campbell specifically in this portion of the Petition, the basis for Petitioner’s contention as to why the references collectively teach “notification events” is clear from the immediately preceding sections. Indeed, the “receiving” step references “the established notification event,” which finds antecedent basis in the prior steps’ recitations of “notification events” and “an established notification event.” Thus, once Petitioner established in the preceding sections that modifying Bennett’s SMS message based on the teachings of Campbell makes Bennett’s “event” a “notification event” (with an associated “action”), we do not find it necessary for Petitioner to have repeated the same analysis every time the claims later mention “the established notification event.” Petitioner’s alleged “notification event” (and associated “action”) are the same throughout.

Thus, we are persuaded that Bennett and Campbell collectively teach every limitation of claim 1.

b. Whether a Person of Ordinary Skill in the Art Would Have Been Motivated to Combine Bennett and Campbell and Would Have Had a Reasonable Expectation of Success in Doing So

Petitioner explains in its Petition why a person of ordinary skill in the art would have been motivated to add a sentence to Bennett’s SMS message along with the completion code that “describes the occurrence of the event that triggered the notification” (i.e., the reason why the user is being sent a completion code), based on the teachings of Campbell. Pet. 41–47, 56–58.

According to Petitioner, doing so would “provide better customer service” by allowing the user to understand *why* he or she was receiving the completion code and being required to complete the two-factor authentication process. *Id.* at 43–44, 47. “In cases of fraudulent attempts to access the service, the receipt of a completion code may alarm a user that has not attempted to access their account.” *Id.* at 47. “Including additional information with the SMS message would, as taught by Campbell, have been obvious to a [person of ordinary skill in the art], in order to keep the customer informed and instill confidence in the service.” *Id.* Petitioner further contends that both Bennett and Campbell “address the same problem and offer similar solutions—namely, using SMS text messages to notify users of attempted transactions that are at higher risk for fraud,” and adding a sentence to Bennett’s SMS message would have been nothing more than “combining prior art elements according to known methods” to achieve the predictable result of providing “a word-based notification” to the user. *Id.* at 46–47.

Petitioner’s assertions regarding motivation to combine are supported by the references themselves and the testimony of Dr. Shamos, which we credit. *See id.* at 41–47, 56–58; Ex. 1002 ¶¶ 116–118, 134–135. We also agree with Petitioner and Dr. Shamos that a person of ordinary skill in the art would have had a reasonable expectation of success in making the combination, because doing so would only involve adding a sentence to an SMS message that already contains text, and “including information about the occurrence of an event was well known in the art.” *See* Pet. 42, 46 (citing Ex. 1004 ¶¶ 24, 27–28); Ex. 1002 ¶¶ 112 (“Including the additional information, as taught by the prior art and motivated by Bennett’s system,

would have been a trivial task known to a [person of ordinary skill in the art], because Bennett discloses sending a message including the code to the user. Including the additional information would merely have required altering the content of the message to include the notification.”), 116–118. Indeed, as Dr. Shamos points out, Bennett discloses “send[ing] a completion code *or other information* to the user via the additional channel.” *See* Ex. 1003, col. 16, ll. 39–43 (emphasis added); Ex. 1002 ¶ 112, 135.

Patent Owner argues that a person of ordinary skill in the art would not have been motivated to combine Bennett and Campbell, relying on the testimony of Dr. Nielson as support. PO Resp. 33–40 (citing Ex. 2008). Patent Owner contends that “Campbell’s teaching of including contact instructions inviting a user to call for more information actually exposes the user to phishing scams,” where the user would be led to call the telephone number provided, and potentially divulge confidential information. *Id.* at 33–34. Thus, according to Patent Owner, “skilled artisans would not have combined Campbell’s teachings with Bennett such that Bennett would have included Campbell’s contact instructions within the same text as Bennett’s completion code.” *Id.* at 33–36. Patent Owner also cites general concerns with providing “call-back instructions” via an “un-verifiable channel,” such as SMS messaging, due to the increased risk of fraud, and contends that the result of adding information to Bennett’s SMS message would not have been predictable due to the different security methods employed by Bennett and Campbell. *Id.* at 34–35, 38–40 (citing Exs. 1006, 2007, 2008).

We disagree with Patent Owner’s arguments. As an initial matter, the portion of Campbell relied on by Petitioner discloses an SMS message with two sentences. Ex. 1004 ¶ 41. The first sentence notifies the user *why* the

user is receiving the message (i.e., a particular event occurred): “Your account has been suspended due to a risk that your password has been compromised.” *Id.* (further stating that the “user is [thereby] informed of the issue”). The second sentence informs the user of what to do in response: “Please contact 800-555-5555 for further information.” *Id.* Petitioner’s position is that, based on the teachings of Campbell, a person of ordinary skill in the art would have been motivated to add a sentence to Bennett’s SMS message along with the completion code “describ[ing] the occurrence of the event that triggered the notification,” to, thereby, “inform the user of the reason he is receiving a completion code.” Pet. 46–47, 57–58.

We see no reason why it would be necessary to also include contact information in the SMS message, as in Campbell, when Petitioner’s combination is premised on simply adding information to inform the user *why* he or she is receiving the completion code (after which the user would enter the completion code into Bennett’s website). Nor would a person of ordinary skill in the art insert the exact message of Campbell in Bennett’s SMS message, as the language used would be tailored to the types of events contemplated by Bennett (e.g., a login attempt from an unknown device or suspicious IP address, a request to perform a particular type of financial transaction). “It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements. . . . [T]he test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.” *Mouttet*, 686 F.3d at 1332–33; *see also MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (“[t]he test for obviousness is not whether the features of a secondary

reference may be bodily incorporated into the structure of the primary reference” (citation omitted)), *cert. denied*, 137 S. Ct. 292 (2016).

Moreover, the possibility that a fraudulent entity could send an SMS message provoking a response from a user is something that already exists in both Bennett and Campbell. Both references have a goal of preventing fraud, and do so by utilizing similar multi-channel authentication processes as well as other security measures. *See, e.g.*, Ex. 1003, Abstract, col. 2, l. 47–col. 3, l. 16, col. 13, l. 31–col. 15, l. 55, col. 18, ll. 4–50; Ex. 1004, Abstract, ¶¶ 4–5, 24–28. We are not persuaded that the risks of phishing outweigh the stated benefits of adding an explanatory sentence to an SMS message (e.g., providing better customer service via a more informative message), particularly given that Campbell already teaches doing so, despite the possibility of phishing or other security risks.

Patent Owner also disputes Dr. Shamos’s reliance on the fact that Bennett discloses sending the completion code “or other information” to the user. PO Resp. 36–38; *see* Ex. 1003, col. 16, ll. 39–43; Ex. 1002 ¶ 112, 135. According to Patent Owner and Dr. Nielson, a person of ordinary skill in the art would have understood the “other information” referenced in Bennett to be “information equivalent to that of the completion code” used to authenticate the user, not “contact information.” PO Resp. 36–37 (citing Ex. 2008 ¶ 8.2). Regardless of what the “other information” in Bennett may be, however, the disclosure at minimum indicates that Bennett’s SMS message can include text other than a completion code, which supports Petitioner’s position that it would have been a simple change and within the skill of an ordinarily skilled artisan to add a sentence explaining why the user is receiving the SMS message. *See* Pet. 45–47, 57–58.

c. Conclusion

For the reasons set forth by Petitioner and explained above, we are persuaded that Bennett and Campbell collectively teach all of the limitations of claim 1 and that a person of ordinary skill in the art would have had reason to combine those teachings to achieve the method of claim 1 and would have had a reasonable expectation of success in doing so. Petitioner has proven, by a preponderance of the evidence, that claim 1 would have been obvious based on Bennett and Campbell under 35 U.S.C. § 103(a).

5. Claim 10

Claim 10 recites a non-transitory computer-readable storage medium containing instructions that cause a processor to perform a method very similar to the one recited in claim 1. The only difference between the method steps in each claim is that claim 10 recites establishing and communicating a verification code to the user through a “telephonic” connection, whereas claim 1 recites doing so via a more specific “short message service (SMS)” connection. The parties argue claims 1 and 10 together, and Petitioner accounts for both recitations in its analysis. *See* Pet. 30–32; PO Resp. 14; Reply 1. For reasons similar to those set forth above, we are persuaded that Bennett and Campbell collectively teach all of the limitations of claim 10 and that a person of ordinary skill in the art would have had reason to combine those teachings to achieve the computer-readable storage medium of claim 10 and would have had a reasonable expectation of success in doing so. Petitioner has proven, by a preponderance of the evidence, that claim 10 would have been obvious based on Bennett and Campbell under 35 U.S.C. § 103(a).

6. Claims 2, 4, 6, 8, 11, 13, 15, and 17

Petitioner explains sufficiently how the limitations of the remaining challenged claims are taught or suggested by the combination of Bennett and Campbell, with supporting testimony from Dr. Shamos. *See* Pet. 59–64. Claims 2 and 11 recite that “the telephone number is associated with a mobile phone.” Claim 8 recites that “the message indicating the occurrence of the notification event is an SMS message,” and claim 17 recites a similar limitation. As explained above, Bennett’s system transmits an SMS message with the completion code to the user’s mobile telephone, and Petitioner asserts that a person of ordinary skill in the art would have been motivated to add an explanatory sentence to the message based on the teachings of Campbell. *See* Ex. 1003, col. 5, ll. 32–35, col. 9, ll. 47–56; Pet. 59–60, 63–64; Ex. 1002 ¶¶ 138, 146; *supra* Section II.D.4. Claims 4 and 13 recite that “the notification event is established by a party associated with the service.” Bennett discloses that the administrator of the service may set what events trigger the two-factor authentication process (via the decision rules). *See* Ex. 1003, col. 11, l. 58–col. 12, l. 6, col. 17, l. 66–col. 18, l. 3; Pet. 60–62; Ex. 1002 ¶¶ 141–143. Claims 6 and 15 recite that “the notification event is associated with a request to alter an account of the user.” Bennett discloses numerous types of events that can trigger the verification process, including the fact that a user made a request to reset an “[o]nline password” or for “an online change or update to personal data.” *See* Ex. 1003, col. 12, l. 56–col. 13, l. 23; Pet. 63; Ex. 1002 ¶ 145.

Patent Owner does not argue separately the challenged dependent claims in its Response. We have reviewed Petitioner’s contentions and supporting evidence, including the testimony of Dr. Shamos, and are

persuaded that Petitioner has proven, by a preponderance of the evidence, that dependent claims 2, 4, 6, 8, 11, 13, 15, and 17 would have been obvious based on Bennett and Campbell under 35 U.S.C. § 103(a), for the reasons stated by Petitioner.

E. Patent Owner's Motion to Exclude

The party moving to exclude evidence bears the burden of proof to establish that it is entitled to the relief requested—namely, that the material sought to be excluded is inadmissible under the Federal Rules of Evidence. *See* 37 C.F.R. §§ 42.20(c), 42.62(a). Patent Owner moves to exclude the following portion of the cross-examination of its declarant, Dr. Nielson:

Q. And what was your understanding that you used in analyzing the '792?

A. So let me give an example here. So in my declaration in Paragraph 9.2, it's about – it's the last sentence of the paragraph on that page that says: That action, such as a large withdrawal, would not be allowed to take place without an acknowledgment by the user.

So that's an example of an action, withdrawal or a, for example, financial operation.

Q. Okay. So that is an example of an action. What is the definition of "action" then?

A. Well, I was looking at it with what I would probably describe as just conventional, you know, how one of skill in the art would understand "action," which would be an operation transaction. I don't know that those are exact definitions.

Ex. 1035, 18:13–19:7.⁶ Patent Owner points out where it objected to Petitioner’s line of questioning, and argues that the testimony is outside the scope of Dr. Nielson’s declaration (Ex. 2008) because Dr. Nielson did not “offer an opinion on the claim construction of the term ‘actions’ (or variations thereof).” Mot. ii–iii (citing Ex. 1035, 17:8–9, 27:6–13); PO Reply 1–3; *see* 37 C.F.R. § 42.53(d)(5)(ii) (“For cross-examination testimony, the scope of the examination is limited to the scope of the direct testimony.”).

Patent Owner does not argue that the cited portion of Dr. Nielson’s cross-examination is inadmissible under any Federal Rule of Evidence. *See* 37 C.F.R. §§ 42.62(a), 42.64(c); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,767 (Aug. 14, 2012) (explaining that “[a] motion to exclude must explain why the evidence is not admissible (*e.g.*, relevance or hearsay)”). Further, we are not persuaded that Petitioner’s questioning was beyond the proper scope for cross-examination of Dr. Nielson under 37 C.F.R. § 42.53(d)(5)(ii).

In the first answer reproduced above, Dr. Nielson quotes paragraph 9.2 of his declaration as an “example” of an “action” as recited in the challenged claims. Ex. 1035, 18:13–23. Specifically, Dr. Nielson opines in his declaration that the claims “require that the acknowledgement by the user be required for an action. That action (such as a large withdrawal) would not be allowed to take place without an acknowledgement by the user, or

⁶ The parties both cite column 18, line 15 to column 19, line 5 of the cross-examination. *See* Reply 10; Mot. ii. We include additional lines above to reflect the full questions and answers.

else it is not a requirement.” Ex. 2008 ¶ 9.2. Dr. Nielson’s quoting of his own declaration is plainly within the scope of his direct testimony.

As to the second question and answer, Petitioner asked Dr. Nielson for his definition of the term “action” in the claims, given his previously offered example of a type of “action.” Ex. 1035, 18:24–19:7. Dr. Nielson explains in his declaration what he believes the claims to “require” with respect to an “action,” and why he disagrees with Dr. Shamos’s view that Bennett and Campbell collectively teach the “action”-related limitations of the claims. *See, e.g.*, Ex. 2008 ¶¶ 9.1–9.4 (opining that the claims “require” an acknowledgement by the user of “an action associated with the established notification event” for the action to take place, and “the supposed events explained in the Petition are not said to be associated with an action that must be acknowledged”). Given Dr. Nielson’s direct testimony on what, and what does not, constitute a “notification event” and “action,” we are persuaded that it was proper and within the scope of permitted cross-examination for Petitioner to inquire as to Dr. Nielson’s understanding of the term “action” that he used to formulate his opinions on the claim limitations. Accordingly, for the foregoing reasons, Patent Owner’s Motion to Exclude is *denied*.

III. ORDER

Petitioner has demonstrated, by a preponderance of the evidence, that claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17 are unpatentable over Bennett and Campbell under 35 U.S.C. § 103(a).

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, 4, 6, 8, 10, 11, 13, 15, and 17 of the '792 patent have been shown to be unpatentable; and

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 20) is *denied*.

This is a final 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.

IPR2016-01688
Patent 9,300,792 B2

PETITIONER:

Wayne O. Stacy
Eliot D. Williams
BAKER BOTTS L.L.P.
wayne.stacy@bakerbotts.com
eliot.williams@bakerbotts.com

PATENT OWNER:

Jesse Camacho
Elena McFarland
Ryan Dykal
Christine Guastello
Mary Peal
Amy Foust
SHOOK, HARDY & BACON L.L.P.
jcamacho@shb.com
emcfarland@shb.com
rdykal@shb.com
cguastello@shb.com
telesignipr@shb.com
afoust@shb.com