

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FEDEX CORPORATION,
Petitioner,

v.

FLECTERE LLC,
Patent Owner.

IPR2020-00402
Patent 6,272,506 B1

Before JOHN A. HUDALLA, AMBER L. HAGY, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*.

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

Petitioner, FedEx Corporation (“Petitioner”), filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–32 of U.S. Patent No. 6,272,506 B1 (Ex. 1001, “the ’506 patent”). Patent Owner, Flectere LLC (“Patent Owner”), waived the filing of a Preliminary Response. Paper 7. We determined that the information presented in the Petition established that there was a reasonable likelihood that Petitioner

would prevail with respect to at least one of the challenged claims. Pursuant to 35 U.S.C. § 314, we instituted this proceeding on July 9, 2020, as to all challenged claims and all grounds of unpatentability. Paper 8 (“Dec. on Inst.”).

During the course of trial, Petitioner filed a Reply addressing our analysis of claims 6–8 in the Decision on Institution. Paper 13 (“Pet. Reply”); *see also* Paper 12 (authorizing same). Patent Owner did not file a response or sur-reply. No oral hearing was held. *See* Paper 15.

Petitioner filed a Declaration of Benjamin B. Bederson, Ph.D. (Ex. 1006) with its Petition.

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–32 of the ’506 patent. For the reasons discussed below, Petitioner has demonstrated by a preponderance of the evidence that claims 1–32 of the ’506 patent are unpatentable.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies FedEx Corporation as the real party-in-interest. Pet. 65; Paper 6, 1; Paper 11, 1. Patent Owner identifies Flectere LLC as the real party-in-interest. Paper 4, 2.

B. *Related Proceedings*

Petitioner identifies the following proceedings related to the ’506 patent (Pet. 65–66; Paper 6, 1; Paper 11, 1):

Flectere LLC v. Costco Wholesale Corp., No. 2:19-cv-00017 (E.D. Tex. filed Jan. 18, 2019);

Flectere LLC v. FedEx Corp., No. 2:19-cv-00018 (E.D. Tex. filed Jan. 18, 2019);

Flectere LLC v. Target Corp., No. 2:19-cv-00019 (E.D. Tex. filed Jan. 18, 2019);

Flectere LLC v. United Parcel Serv., Inc., No. 2:19-cv-00020 (E.D. Tex. filed Jan. 18, 2019);

Flectere LLC v. Academy, Ltd., No. 2:18-cv-00227 (E.D. Tex. filed May 24, 2018);

Flectere LLC v. Sears Brands, LLC, No. 2:18-cv-00228 (E.D. Tex. filed May 24, 2018);

Flectere LLC v. Staples, Inc., No. 2:18-cv-00229 (E.D. Tex. filed May 24, 2018); and

Flectere LLC v. Office Depot, Inc., No. 2:18-cv-00230 (E.D. Tex. filed May 24, 2018).

We also note that Petitioner has challenged other patents owned by Patent Owner in IPR2020-00400 and IPR2020-00403. We previously issued a Final Written Decision in IPR2020-00403. We issue a Final Written Decision in IPR2020-00400 concurrently herewith.

C. The '506 patent

The '506 patent is titled “Computerized Verification Form Processing System and Method” and generally relates to “a computerized form processing system and method which provides an automatic and positive audit trail of changes made to data entries in electronic forms.” Ex. 1001,

code (54), 1:7–10. The disclosed system automatically stores in a database all information entered into the fields of a form, including all revisions. *Id.* at 3:11–12. Figure 2 of the '506 patent, reproduced below, is illustrative.

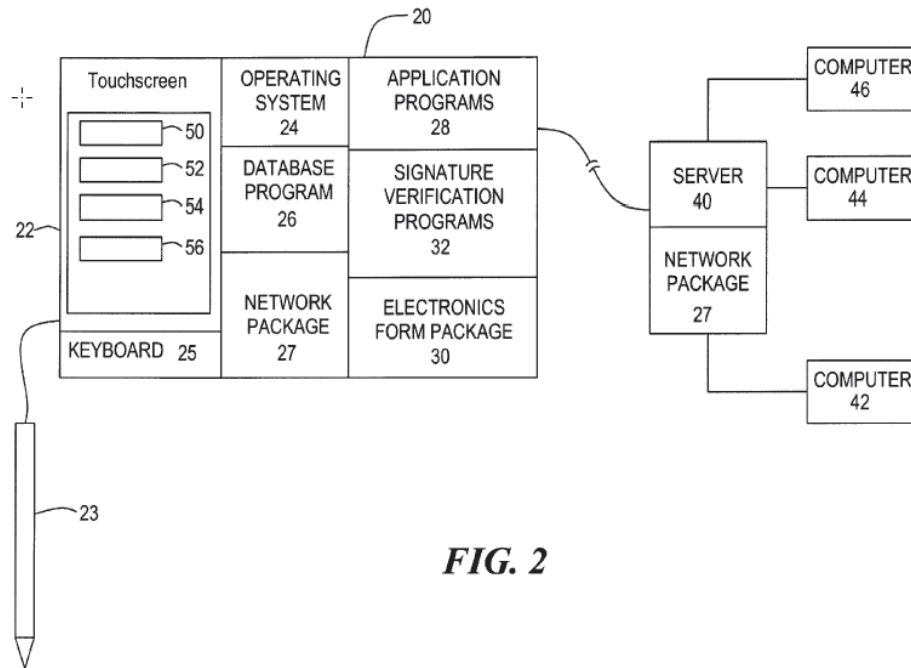


FIG. 2

Figure 2 illustrates a block diagram showing primary components of a computerized form processing system.

Id. at 4:16–18. As illustrated in Figure 2, computerized form processing system 20 includes touch screen 22, touch pen 23, operating system 24, database program 26, application program block 28, electronic form package 30, and signature verification program 32. *Id.* at 5:58–63. Database program 26 stores forms generated by electronic form generation package 30. *Id.* at 6:12–14. Database program 26 also stores the values entered by the user in fields of forms as well as all completed forms. *Id.* at 6:17–19. Pen 23 in combination with touch screen 22 and keyboard 25 act as data entry devices for all data entered into the fields of forms displayed on screen 22. *Id.* at 6:14–17.

Computerized form processing system 20 (1) automatically flags an occurrence of a value change; (2) requires a data entry technician to sign or initial a change or employ an electronic signature; (3) records the technician's biometric digital signature or electronic signature; (4) keeps a record of all previous entries for audit purposes; and (5) automatically provides a printout that indicates whether values were changed when the form was in the process of being completed or afterward. Ex. 1001, 5:25–33. If the technician does not initial the change, the value in the field is automatically changed back to its previous value to prevent the entry of unauthorized changes. *Id.* at 5:34–37. In addition, system 20 automatically performs a checksum calculation for all data entered into a computerized form as the data is entered into each field (field checksum) and then after the form is completed (final checksum). *Id.* at 5:36–40.

The '506 patent issued from an application that was filed September 12, 1997. Ex. 1001, code (22). As discussed below, Petitioner's asserted references qualify as prior art relative to the September 12, 1997, filing date of the application that led to the '506 patent.

D. Illustrative Claim

Of the challenged claims, claims 1, 11, 15, 19, 23, and 27 are independent. Claims 2–10 depend directly or indirectly from claim 1; claims 12–14 depend directly or indirectly from claim 11; claims 16–18 depend directly or indirectly from claim 15; claims 20–22 depend directly or indirectly from claim 19; claims 24–26 depend directly or indirectly from claim 23; and claims 28–32 depend directly or indirectly from claim 27. Claim 1 is illustrative of the challenged claims:

1. A computerized form processing system comprising:
 - a database for storing at least one form including one or more fields;
 - a viewer for viewing a stored form;
 - a data entry device for allowing a user to enter information into the fields of the form;
 - a monitoring routine configured to actively monitor whether previously entered information in a field of the form is being changed by the user;
 - a field modification verification routine configured to, on the viewer, prompt the user to sign off on any such change and which further stores and associates the user's sign off with the change, the field modification routine further configured to reset the change to the previously entered information if there is no user sign off; and
 - an authorization routine configured to reset the change to the previously entered information if the user's sign off is not authorized.

Ex. 1001, 9:4–23.

E. Prior Art

Petitioner relies on the following prior art:

U.S. Patent No. 5,600,554, filed Sept. 29, 1994, issued Feb. 4, 1997 (Ex. 1002, “Williams”);

U.S. Patent No. 5,544,255, filed Aug. 31, 1994, issued Aug. 6, 1996 (Ex. 1003, “Smithies”);

U.S. Patent No. 5,774,887, filed Nov. 18, 1992, issued June 30, 1998 (Ex. 1004, “Wolff”); and

U.S. Patent No. 5,325,478, filed Sept. 15, 1989, issued June 28, 1994 (Ex. 1005, “Shelton”).

F. The Instituted Grounds

We instituted *inter partes* review of claims 1–32 of the ’506 patent on the following grounds (Dec. on Inst. 30), which are all the grounds presented in the Petition (Pet. 2–3):

Claims Challenged	35 U.S.C. §	References
1–5, 9, 11–31	103(a) ¹	Williams, Smithies
1–9, 11–31	103(a)	Williams, Smithies, Wolff
10, 32	103(a)	Williams, Smithies, Shelton
10, 32	103(a)	Williams, Smithies, Wolff, Shelton

II. ANALYSIS

A. Legal Standards

A claim is unpatentable 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. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103. Because the ’506 patent was filed before March 16, 2013 (the effective date of the relevant amendment), the pre-AIA version of § 103 applies.

considerations.² *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (quoting *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

B. Level of Ordinary Skill in the Art

Citing testimony from Dr. Bederson, Petitioner contends that a person of ordinary skill in the art in the field of the ’506 patent would have had a minimum of a bachelor’s degree in computer science or an equivalent field, and approximately two years of industrial or academic experience working with graphical user interfaces. Pet. 5 (citing Ex. 1006 ¶¶ 63–65). In our Decision on Institution, we adopted Petitioner’s articulation of the level of ordinary skill in the art. Dec. on Inst. 6. After institution, neither party put forth arguments related to the level of ordinary skill. We discern no reason to change the level of ordinary skill in the art and again adopt Petitioner’s articulation in this Final Written Decision.

C. Claim Interpretation

In an *inter partes* review, we construe each claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2019). Accordingly, our claim construction standard is the same as that of a district court. *See id.* Under the standard applied by

² The record does not contain any evidence of secondary considerations of nonobviousness.

district courts, claim terms are generally given their plain and ordinary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Petitioner contends that we should apply the plain and ordinary meaning to all terms of the ’506 patent. Pet. 6. Petitioner further contends that several “routine” terms recited in the claims, including “monitoring routine,” “field modification [verification] routine,” “authorization routine,” “storage routine,” and “summation check routine,” should not be construed as means-plus-function limitations under pre-AIA 35 U.S.C. § 112 ¶ 6. *Id.* at 6–7. Petitioner reasons that these “routine” terms do not include the word “means,” and, thus, are presumed not to invoke 35 U.S.C. § 112 ¶ 6. *Id.* at 6 (citing *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007–08 (Fed. Cir. 2018)). Petitioner further reasons that the “routine” terms are not “black box” recitations because the claims recite the exact structure for performing the given functions. *Id.* at 6–7.

In our Decision on Institution, we found that there was a rebuttable presumption that the “routine” terms do not invoke § 112 ¶ 6 because they do not include the word “means.” Dec. on Inst. 7 (citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc)). As such, we did not treat the “routine” terms under § 112 ¶ 6. *Id.* The record

contains no further arguments on this issue since the time of institution, and we discern no reason to change our initial determination. Therefore, we apply the plain and ordinary meaning to the “routine” terms, and we do not apply § 112 ¶ 6.

We also determine that no terms require explicit construction. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Obviousness Ground Based on Williams and Smithies

Petitioner contends the subject matter of claims 1–5, 9, and 11–31 would have been obvious over the combination of Williams and Smithies. Pet. 14–44, 52–63. Patent Owner does not dispute Petitioner’s contentions.

1. Williams

Williams is a U.S. patent titled “Methods and Apparatus for Securing, Integrating, and Manipulating Employee Payroll and Human Resource Information.” Ex. 1002, code (54). Williams is directed to a network-based computer software application used to secure, integrate, and manipulate both employee payroll and human resource (personnel) information. *Id.* at 2:46–49. The software application facilitates the integration of employee payroll information with human resource information so that one or more network users can access or otherwise manipulate both types of information simultaneously. *Id.* at 2:49–53. Figure 3 of Williams, reproduced below,

depicts the software components of an exemplary application program referred to as “CRUPAY 230.”

FIG. 3

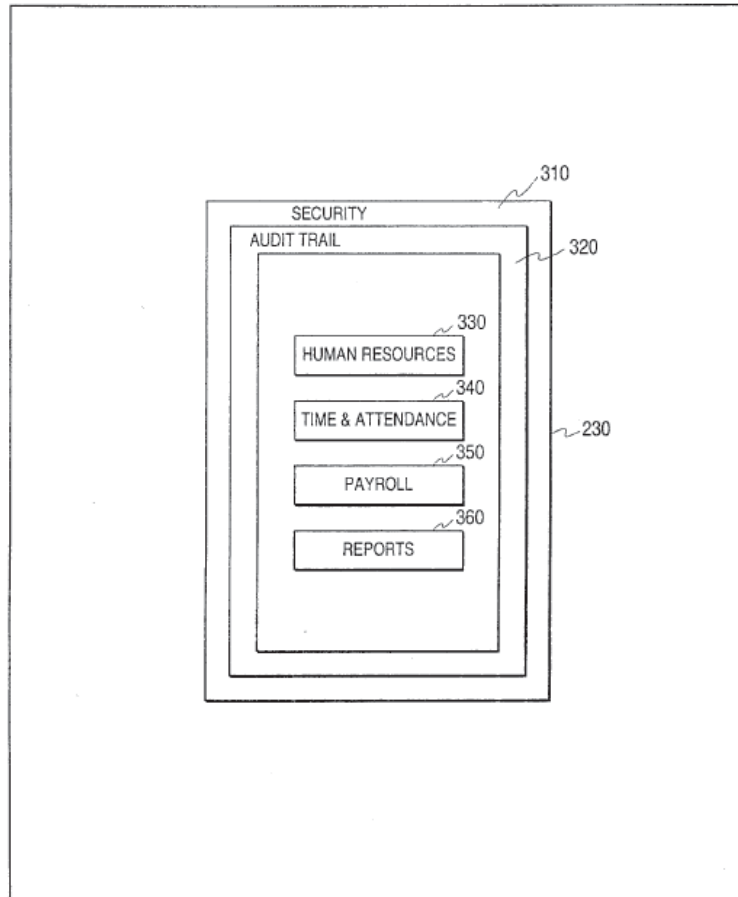


Figure 3 illustrates the software components of an exemplary application program known as CRUPAY 230.

Id. at 5:51–54. As illustrated in Figure 3, application program CRUPAY 230 comprises six software components: security 310, audit trail 320, human resources 330, time & attendance 340, payroll 350, and reports 360. *Id.* Audit trail component 320 records functions performed by each user. *Id.* at 5:58–59. In particular, a user’s complete record of functions performed in CRUPAY 230, including user ID, date, time, and function performed, is stored by audit trail component 320 in an audit trail

table. *Id.* at 7:3–7. The audit trail table may be reviewed to identify users who previously altered data, which is useful in locating sources of errors. *Id.* at 7:7–15.

Figure 6 of Williams, reproduced below, is a flow diagram of an audit trail process used by audit trail component 320.

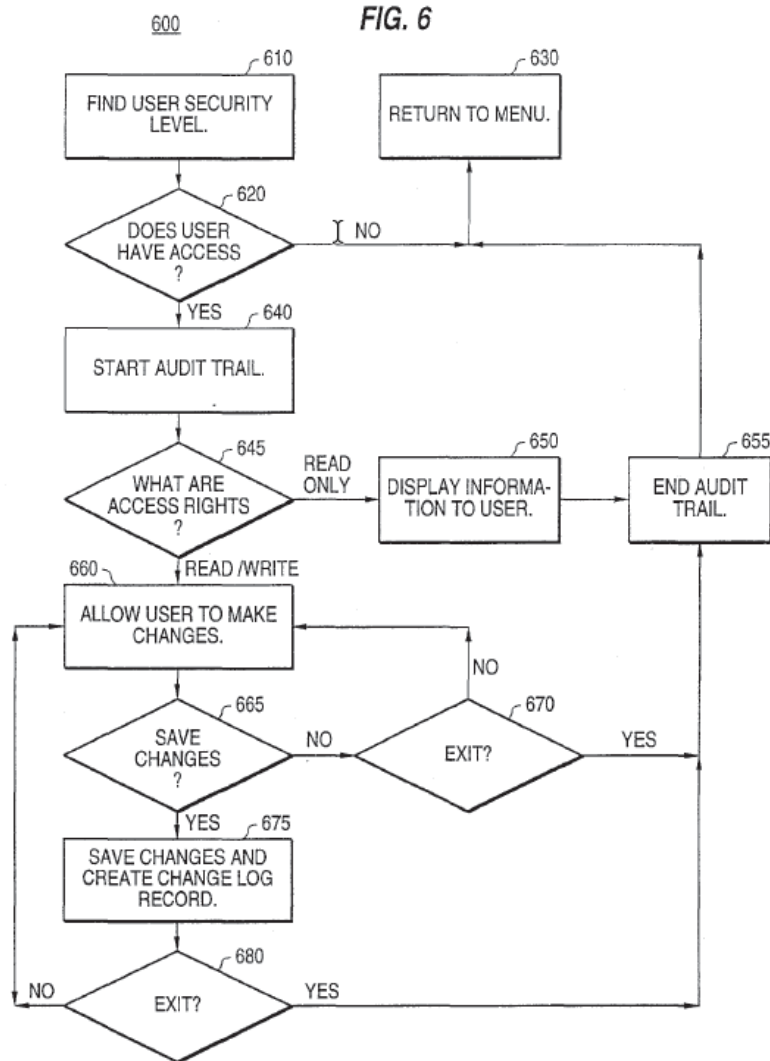


Figure 6 illustrates a flow diagram of an audit trail process.

Ex. 1002, 3:39–40. As illustrated in Figure 6, audit trail process 600 used by audit trail component 320 includes a series of steps. *Id.* at 7:16–18. At step 610, when a user selects an option from a main menu, audit trail

component 320 accesses an access level table to find the security level for the user. *Id.* at 7:18–21. If the user does not have access to the selected option, then, at step 630, audit trail component 320 returns to display the previously displayed menu. *Id.* at 7:21–25. If, on the other hand, the user does have access to a selected menu option, then, at step 640, audit trail component 320 begins to track the audit trail of the user. *Id.* at 7:36–38. First, audit trail component 320 determines what level of access rights the user has (i.e., read only or read and write). *Id.* at 7:38–41. If the user has read only access rights, then, at step 650, audit trail component 320 permits the user to view any data. *Id.* at 7:41–42. After viewing selected data, at step 655, audit trail component 320 completes tracking the audit trail of the user with read only access rights, and, at step 630, returns to the previously displayed menu. *Id.* at 7:47–50. If the user has both read and write access rights, then, at step 660, audit trail component 320 permits the user to make any changes to any data to which the access rights apply. *Id.* at 7:51–54. At step 665, audit trail component 320 prompts the user whether to save any changes to the data, and, at step 675, audit trail component 320 creates a change log record in the audit trail table to reflect the saved changes if the user answers yes at step 665. *Id.* at 7:60–63.

Petitioner contends that Williams qualifies as prior art under, *inter alia*, 35 U.S.C. § 102(e) based on its filing date. Pet. 2. Patent Owner does not contest the prior-art status of Williams.

We have no evidence of an invention date other than the filing date of the application that led to the challenged claims. Thus, we determine that Williams qualifies as prior art under 35 U.S.C. § 102(e) because Williams's filing date of September 29, 1994, is before the September 12, 1997, filing

date of the application that led to the '506 patent. Ex. 1001, code (22);
Ex. 1002, code (22).

2. *Smithies*

Smithies is a U.S. patent titled “Method and System for the Capture, Storage, Transport and Authentication of Handwritten Signatures.” Ex. 1003, code (54). Smithies is directed to a method and system operable on a plurality of platforms for verification of electronically stored handwritten signatures and related documents. *Id.* at 1:8–12. The method and system provide for the electronic capture of a handwritten signature, storage of the handwritten signature in electronic form, electronic transportation of the captured handwritten signature, and authentication of the captured handwritten signature. *Id.* at 3:36–41. Figure 1 of Smithies is reproduced below.

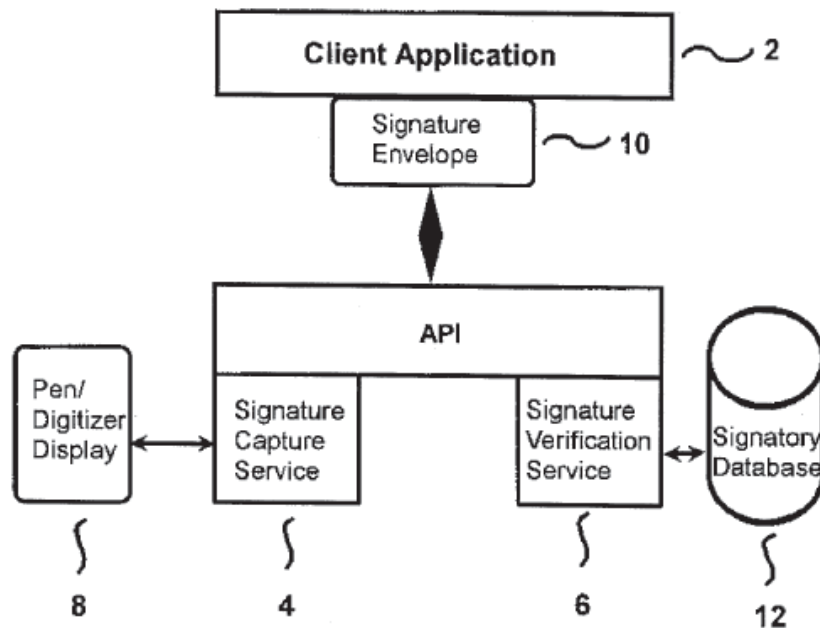


Figure 1 illustrates an architecture for performing signature capture and verification functions.

Id. at 7:36–37. As illustrated in Figure 1, client application 2 requests a signature capture by presenting required information to signature capture module 4. *Id.* at 7:37–40. Signature capture module 4 then requests a user signature via pen/digitizer and display 8. *Id.* at 7:41–43. Signature capture module 4 creates signature envelope 10, which is “a complex bundle of encrypted data . . . represent[ing] a digital recording of a physical act of signing,” and passes it to the client application 2. *Id.* at 7:44–46, 9:41–43; *see also id.* at 10:28–49 (specifying the contents of signature envelope 10). Client application 2 may verify a signature by passing signature envelope 10 to signature verification module 6. *Id.* at 7:47–49. Signature verification module 6 accesses template database 12, which contains templates of signature information for comparison, and returns a signature match percentage to the client application 2. *Id.* at 7:49–54. Signature capture module 4 also may create a checksum of the document that was signed, which later can be used to verify that the document alleged to have been signed is the one that was signed and that no change to that document has been made. *Id.* at 20:23–29.

Figure 3A of Smithies is reproduced below.

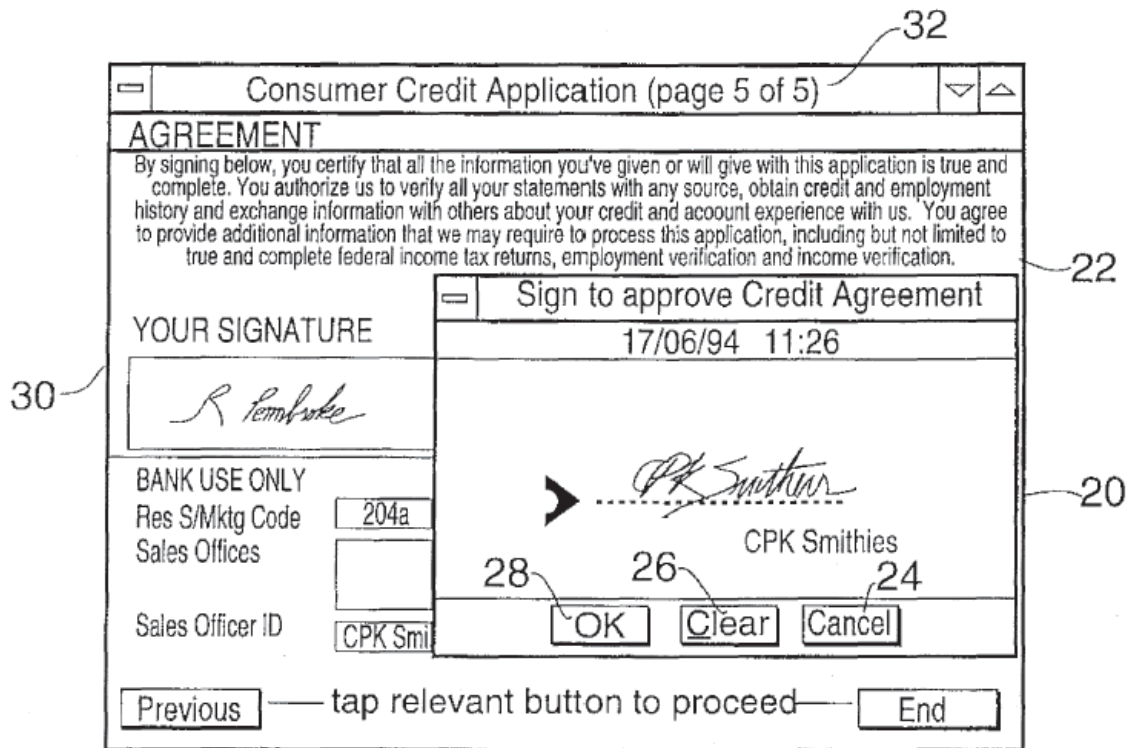


FIG. 3A

Figure 3A illustrates a window used for capturing handwritten signatures, and an example of a gravity prompt.

Ex. 1003, 7:14–16. As illustrated in Figure 3A, a document being signed is displayed in window 30 with the title of document displayed in title bar 32.

Id. at 11:1–5. Gravity prompt 22 is displayed in signature capture window 20, which is displayed over window 30. *Id.* at 10:55–61, 11:9–11.

Gravity prompt 22 allows the user to make sure that the document being signed is the one that the user believes he or she is signing and alerts the user to reason for and the gravity of the act of signing. *Id.* at 10:61–64. While the user moves the pen over signature capture window 20, pen data are stored internally in the form of X and Y movement values and time-differences. *Id.* at 22:1–3.

Petitioner contends that Smithies qualifies as prior art under 35 U.S.C. § 102(b) based on its issue date. Pet. 2. Patent Owner does not contest the prior-art status of Smithies. We determine that Smithies qualifies as prior art under 35 U.S.C. § 102(b) because Smithies’s issue date of August 6, 1996, is more than one year before the September 12, 1997, filing date of the application that led to the ’506 patent. Ex. 1001, code (22); Ex. 1003, code (45).

3. *Claim 1*

a. Preamble

The preamble of claim 1 recites “[a] computerized form processing system.” Ex. 1001, 9:4. Petitioner relies on Williams’s disclosure of a “network-based computer software application used to secure, integrate, and manipulate both employee payroll and human resource (personnel) information” and a “menu-based software application that displays . . . a plurality of different menus and data entry forms” that enables users to enter data in the displayed forms. Pet. 14 (citing Ex. 1002, 2:46–55, 6:4–18, Fig. 13). Petitioner asserts that an ordinarily skilled artisan would have understood Williams’s network-based computer software application that enables users to enter data into data entry forms, and processes the entered data and forms, discloses a computerized form processing system. *Id.* at 14–15 (citing Ex. 1006 ¶¶ 74–75).

Patent Owner does not dispute Petitioner’s analysis of the preamble of claim 1. Neither party addresses whether the preamble is limiting. We are persuaded that Williams teaches a network-based computer software application utilizing data entry forms. *See, e.g.*, Ex. 1002, 2:46–55, 6:4–18,

Fig. 13. Because Petitioner has shown that Williams teaches the preamble, we need not determine whether the preamble is limiting. *See Nidec*, 868 F.3d at 1017.

- b. “a database for storing at least one form including one or more fields”

Claim 1 further recites “a database for storing at least one form including one or more fields.” Ex. 1001, 9:5–6. Petitioner asserts Williams teaches this limitation in one of two ways. First, Petitioner relies on Williams’s database program that stores data for forms in tables. Pet. 15 (citing Ex. 1002, 5:31–46, 6:4–18, 7:51–59, Figs. 1, 2, 13). According to Petitioner, Williams’s database program is a “database” as recited in the claim because it stores data in the same manner as the ’506 patent Specification, which describes database program 26 for storing data forms, and is consistent with the ’506 patent Specification’s definition of the term “form” as a “collection of data regarding a transaction (e.g., a manufacturing process or medical patient records) required to be kept as a record.” *Id.* (citing Ex. 1001, 6:12–27, 4:54–56; Ex. 1006 ¶¶ 76–77). Second, Petitioner relies on Williams’s database storage, namely memory 220 of server 120, which stores form-based applications. *Id.* at 15–16 (citing Ex. 1002, 5:31–47, 6:4–7, Fig. 2; Ex. 1006 ¶ 78). Petitioner argues that an ordinarily skilled artisan would have recognized this to be the recited “database” because it is consistent with the ’506 patent Specification, which discloses that “[a]pplication program group 28 in conjunction with database program 2[6] also includes means for automatically storing in a database all values entered into a field so that a permanent record is kept of all previous values.” *Id.* at 16 (emphasis omitted) (quoting Ex. 1001, 6:23–27) (citing Ex. 1001, 4:54–

56; Ex. 1006 ¶ 78). Regarding the form’s inclusion of “one or more fields,” Petitioner relies on Williams’s disclosure of scrolling through multiple fields in the data entry form. *Id.* at 16 (Ex. 1002, 6:1–18, 8:24–54, 11:22–59, Figs. 11, 13).

Patent Owner does not dispute Petitioner’s analysis of the “database” limitation. We are persuaded that Williams teaches storing data in a relational database comprised of tables. *See, e.g.*, Ex. 1002, 5:4–6. Williams also teaches data entry forms with fields. *See, e.g., id.* at 6:4–18, Fig. 13. Thus, based on Petitioner’s analysis, we are persuaded that Williams teaches “a database for storing at least one form including one or more fields,” as recited in claim 1.

c. “a viewer for viewing a stored form”

Claim 1 further recites “a viewer for viewing a stored form.” Ex. 1001, 9:8. Petitioner cites Williams’s teaching of a display screen for personal computers 130, which is used to view stored data entry forms. Pet. 18–19 (citing Ex. 1002, 6:4–19, 6:23–32, 5:20–30, Fig. 1; Ex. 1006 ¶¶ 87–88). Patent Owner does not dispute Petitioner’s analysis of the “viewer” limitation. We are persuaded Williams teaches a display screen on computers 130 for viewing data entry forms. *See, e.g.*, Ex. 1002, 6:4–8, 6:23–32. Thus, based on Petitioner’s analysis, we are persuaded that Williams teaches the “viewer” of claim 1.

d. “a data entry device for allowing a user to enter information into the fields of the form”

Claim 1 further recites “a data entry device for allowing a user to enter information into the fields of the form.” Ex. 1001, 9:9–10. Petitioner

cites Williams's disclosure of a keyboard for entering data into forms. Pet. 19 (citing Ex. 1002, 6:4–17, 5:21–30). Petitioner also cites Smithies's teaching of a pen and digitizer for entering handwritten data, including signatures, into fields configured to receive a user's electronic signature. *Id.* at 19 (citing Ex. 1003, 1:28–54, 3:32–36, 3:62–64, 4:1–8, 7:36–46).

Patent Owner does not dispute Petitioner's analysis of the “data entry device” limitation. We are persuaded that Williams's keyboard (*see, e.g.*, Ex. 1002, 6:7–18) and Smithies's pen and digitizer (*see, e.g.*, Ex. 1003, 1:29–35, 7:36–46) are data entry devices for entering data into form fields. *See, e.g.*, Ex. 1005, 6:50–51. Thus, based on Petitioner's analysis, we are persuaded that the combination of Williams and Smithies teaches the “data entry device” limitation of claim 1.

e. “a monitoring routine”

Claim 1 further recites “a monitoring routine configured to actively monitor whether previously entered information in a field of the form is being changed by the user.” Ex. 1001, 9:11–13. Petitioner cites Williams's audit trail component 320, which executes simultaneously with other components and “maintains a complete record of functions performed by each user, including ID, date, time, and function performed.” Pet. 22 (quoting Ex. 1002, 4:42–49) (citing *id.* at 3:11–18, 6:60–67, 7:31–35). According to Petitioner, these records, which are stored in an audit trail table, allow for the identification of users who previously altered payroll and/or human resource data in Williams's system. *Id.* (citing Ex. 1002, 7:1–15). As such, Petitioner contends that an ordinarily skilled artisan would have understood that Williams's routine actively monitors for changes to

forms because Williams discloses that the routine executes simultaneously with a user interacting with the form and maintains a complete record performed by each user. *Id.* at 23–24 (citing Ex. 1002, 4:46–49, 6:60–67, 7:1–35, Fig. 6; Ex. 1006 ¶ 100).

Patent Owner does not dispute Petitioner’s analysis of the “monitoring routine” limitation. We are persuaded that Williams’s audit trail component teaches the recited “monitoring routine.” *See, e.g.*, Ex. 1002, 3:11–18, 4:46–49. We also are persuaded that Williams’s audit trail component actively monitors for changed information because Williams teaches that this component executes simultaneously while a user interacts with a form. *See, e.g.*, Ex. 1002, 6:60–67; Ex. 1006 ¶ 100. Thus, based on Petitioner’s analysis, we are persuaded that Williams teaches the “monitoring routine” limitation of claim 1.

f. “a field modification verification routine”

Claim 1 further recites

a field modification verification routine configured to, on the viewer, prompt the user to sign off on any such change and which further stores and associates the user’s sign off with the change, the field modification routine further configured to reset the change to the previously entered information if there is no user sign off.

Ex. 1001, 9:14–20. Petitioner contends that Williams teaches asking a user whether to save changes after the user changes data in a form. Pet. 25 (citing Ex. 1002, 7:16–8:3). In particular, Petitioner cites steps 665 (“SAVE CHANGES?”) and 675 (“SAVE CHANGES AND CREATE CHANGE LOG RECORD”) of Williams’s audit trail component routine, which is shown in Williams’s Figure 6. *Id.* at 25 (citing Ex. 1002, Fig. 6). Petitioner

explains that changes to data in a form are saved only if a user agrees to save the changes at step 665. *Id.* at 26 (citing Ex. 1002, 7:60–8:3). Petitioner contends that an ordinarily skilled artisan would have recognized that Williams’s process of asking a user to save changes at step 665 is a “field modification verification routine” because it is a software-based process within audit trail component 320 that verifies whether a user wishes to retain a change made to a field. *Id.* at 26 (citing Ex. 1006 ¶¶ 101–103). Petitioner further contends that an ordinarily skilled artisan would have understood that Williams’s step 665 is the recited “prompt” because this step prompts the user “to elect whether or not to save any changes.” *Id.* at 27 (citing Ex. 1002, 7:55–8:3, Fig. 6; Ex. 1006 ¶¶ 104–105).

For “prompt[ing] the user to sign off,” Petitioner additionally cites Smithies’s signature capture module 4 that captures and verifies handwritten, electronic signatures related to electronic documents. Pet. 28 (citing Ex. 1003, code (57), 10:5–15). Petitioner notes Smithies’s teaching that a “client application may require a handwritten signature for a document,” in which case signature capture module 4 may display “a signature capture window and request that the user inscribe his or her signature (for example, using an electronic stylus).” *Id.* (quoting Ex. 1003, 4:1–34). Petitioner further notes Smithies’s teaching that a signature captured with signature capture module 4 may be “stored in a computer archive as a record that a particular person approved a particular document.” *Id.* (quoting Ex. 1003, 6:31–45).

For “stor[ing] and associat[ing] the user’s sign off with the change,” Petitioner cites Williams’s teaching of audit trail component 320 saving “a complete record of functions performed” in an audit trail table. Pet. 34–35

(citing Ex. 1002, 7:1–15). Petitioner further cites Williams’s teaching that the audit trail allows “users to identify, for example, the user(s) that previously altered the payroll and/or [human resource] data” so that errors can be located and associated with a particular user, date, time, and function performed. *Id.* at 35 (quoting Ex. 1002, 7:1–15). Petitioner contends that an ordinarily skilled artisan “would have considered user-identifying information and a ‘function performed’ to include a user’s sign off on a change.” *Id.* (citing Ex. 1006 ¶ 121). Petitioner additionally cites Smithies’s teaching of signature capture module 4 storing signature data, including “the date and time of the act of signing,” into signature envelope 10. *Id.* at 36 (citing Ex. 1003, 4:49–55, 8:51–52, 8:62–65, 10:28–31).

For “reset[ting] the change to the previously entered information if there is no user sign off,” Petitioner cites the case where a user responds “No” when prompted to save changes at step 665 of Williams’s Figure 6. Pet. 37 (citing Ex. 1002, 7:60–8:3, Fig. 6). Petitioner contends that when the user responds “No” (i.e., “no user sign off”) and elects to “Exit” (step 670 of Figure 6), an ordinarily skilled artisan would have understood that such exiting without saving changes would have resulted in the changes reverting back to the originally stored values, i.e., the changed information is reset to the previously entered information. *Id.* at 37–38 (citing Ex. 1006 ¶¶ 124–125).

Patent Owner does not dispute Petitioner’s analysis of the “field modification verification routine” limitation. We are persuaded that Williams’s steps 665 and 675 within audit trail component 320 teach the recited verification routine because changes to data in a form are saved only if a user agrees to save the changes when prompted at step 665. *See, e.g.,*

Ex. 1002, 7:16–8:3, Fig. 6. We also are persuaded that Smithies teaches prompting a user for a signature, which is captured and stored as a record of the user approving a document. *See, e.g.*, Ex. 1003, code (57), 4:1–34, 6:31–45, 10:5–15. For storing and associating the user’s sign off with a change, we are persuaded that Williams teaches saving a complete record of functions performed in an audit trail table (*see, e.g.*, Ex. 1002, 7:1–15) and that Smithies teaches capturing signature data (*see, e.g.*, Ex. 1003, 4:49–55, 8:51–52, 8:62–65, 10:28–31). We additionally are persuaded that an ordinarily skilled artisan would have known that the process of not saving changes (step 665) and exiting (step 670) in Williams’s Figure 6 results in resetting a change. *See, e.g.*, Ex. 1002, 7:60–8:3, Fig. 6; Ex. 1006 ¶¶ 124–125. Thus, based on Petitioner’s analysis, we are persuaded that the combination of Williams and Smithies teaches the “field modification verification routine” limitation of claim 1.

g. “an authorization routine”

Claim 1 further recites “an authorization routine configured to reset the change to the previously entered information if the user’s sign off is not authorized.” Ex. 1001, 9:21–23. Petitioner cites Smithies’s signature capture module, which determines the probability that a captured signature is authentic by comparing it against stored signature templates. Pet. 38 (citing Ex. 1003, code (57), 1:52–59, 2:60–65, 3:36–41, 4:4–21, 4:24–34, 4:64–5:45; Ex. 1006 ¶ 127). Petitioner contends that an ordinarily skilled artisan would have understood Smithies’s signature verification module to be an “authorization routine” because the module determines whether a signature is authentic (i.e., authorized). *Id.* at 39 (citing Ex. 1006 ¶ 128). Petitioner

further contends that it “would have been obvious to combine Williams with Smithies to reset a change to previously entered information if the user’s sign off is not authorized using Williams’s process of not saving changes at Step 665 of Fig. 6.” *Id.* at 40 (citing Ex. 1002, 7:60–8:3; Ex. 1006 ¶ 130). In particular, Petitioner proposes modifying Williams’s step 665 such that the process does not save the proposed changes if a user’s signature is deemed inauthentic by Smithies’s signature verification module. *Id.* (citing Ex. 1006 ¶¶ 130–132).

Patent Owner does not dispute Petitioner’s analysis of the “authorization routine” limitation. We are persuaded that Smithies’s signature verification module checks for authorized signatures. *See, e.g.*, Ex. 1003, 4:64–5:45. We also are persuaded that an ordinarily skilled artisan would have incorporated Smithies’s signature verification into the Figure 6 process of Williams so that changes are not saved when a signature is not authentic. *See, e.g.*, Ex. 1006 ¶¶ 130–132. Thus, based on Petitioner’s analysis, we are persuaded that the combination of Williams and Smithies teaches the “authorization routine” limitation of claim 1.

h. Conclusion Regarding Preamble and Claim Limitations

On the entire trial record, Petitioner has established that the combination of Williams and Smithies teaches all limitations of claim 1.

i. Reasons for the Combination

Petitioner contends that it would have been obvious to combine the data entry devices of Smithies (i.e., a pen and digitizer) and Williams (e.g., a keyboard) into a single system based on the two references’ collective

teachings and an ordinarily skilled artisan's knowledge. *Id.* (citing Ex. 1006 ¶¶ 89–95). Petitioner notes that Williams contemplates using input devices beyond just a keyboard. *Id.* at 21 (citing Ex. 1002, 5:21–23). And, as evidence of similarly combined data entry devices in the art, Petitioner identifies two contemporaneous references, Day (Ex. 1009) and Ballantyne (Ex. 1010), that contemplate such a combined system. *Id.* at 19–20 (citing Ex. 1009, 1:37–48, 6:12–29; Ex. 1010, 14:6–61, Fig. 6; Ex. 1006 ¶ 91). Petitioner also contends that combining Smithies's pen-based input with Williams's keyboard-based system would have enabled handwritten inputs into the forms of Williams. *Id.* at 20 (citing Ex. 1006 ¶ 92). Petitioner further contends that the “[u]se of pen-based inputs instead of (or in addition to) keyboard inputs also would have been mere substitution of one known type of computer input (pen-based input) for another known input (keyboard input) with the predicable result of providing a computer that enables handwritten and/or keyboard inputs.” *Id.* Petitioner also cites an additional advantage of “enabl[ing] mobile or remote users to access data stored in tables on Williams's server, and to make inputs via Williams's forms using Smithies's computer.” *Id.* at 21 (citing Ex. 1003, 8:22–31; Ex. 1006 ¶¶ 94–95).

Petitioner also contends it would have been obvious to combine Williams's save-changes prompt with Smithies's signature capture module in order to capture the user's signature when the user signs off on changes to Williams's forms. *Id.* at 28 (citing Ex. 1006 ¶¶ 106–111). As argued by Petitioner, signing off on changes to an electronic document and associating a sign off with a particular user were well known in the art, as indicated by Ballantyne. *Id.* at 28–29 (citing Ex. 1006 ¶ 108); Ex. 1006 ¶ 108 (citing

Ex. 1010 (Ballantyne), 8:53–65, 12:9–13:10, 14:6–15:39, 16:14–18).

Petitioner also notes Smithies’s teaching that its signature capture module is designed for integration with other client applications, which call Smithies’s signature capture module when a signature is desired. *Id.* at 29–30 (citing Ex. 1003, 8:1–13, 2:48–3:2, 5:47–60, 4:1–34, 7:36–46; Ex. 1006 ¶ 109).

Petitioner cites various security advantages that would have arisen from capturing a user’s signature as part of a system that processes electronic forms. Pet. 30 (citing Ex. 1003, 1:55–2:2, 2:22–28, 5:47–51; Ex. 1006 ¶ 110), 39 (citing Ex. 1003, 1:55–2:2, 2:22–28, 2:48–3:2, 3:27–31, 4:1–34, 5:47–60, 7:36–46, 8:1–13; Ex. 1001, 1:56–64; Ex. 1006 ¶¶ 101–119). Specifically, Petitioner contends that, unlike a user ID and password, a handwritten marker is unique to the user and is difficult for an unauthorized user to acquire and duplicate. *Id.* at 30 (citing Ex. 1003, 1:55–2:2, 2:22–28, 5:47–51; Ex. 1006 ¶ 110). Moreover, Petitioner cites Smithies’s teaching that requiring a signature conveys to a user the gravity of making changes to existing data and prevents repudiation of the changes at a later time. *Id.* (citing Ex. 1003, 4:14–23, 1:66–2:1; Ex. 1006 ¶ 110). As such, Petitioner contends that an ordinarily skilled artisan would have been motivated to incorporate Smithies’s signature verification module into the Smithies–Williams system in order to verify whether a user requesting to make a change is authorized to do so, rather than simply relying on the user ID and password. *Id.* at 39–40 (citing Ex. 1006 ¶ 129). Petitioner asserts that this would have resulted in improved security for the combined system and the avoidance of improper changes to stored data. *Id.* at 40 (citing Ex. 1006 ¶ 129). Petitioner additionally contends an ordinarily skilled

artisan predictably would have expected success in adding a layer of security and requiring additional input before changes are accepted. *Id.* at 30–31 (citing Ex. 1006 ¶ 111), 40 (citing Ex. 1006 ¶ 129).

Patent Owner does not dispute Petitioner’s rationale for the combination of Smithies and Williams. We are persuaded by Petitioner’s rationale, which is based on the unrebutted testimony of Dr. Bederson. *See, e.g.*, Ex. 1006 ¶¶ 91–95, 106–111, 129. In particular, Petitioner establishes that an ordinarily skilled artisan would have implemented Smithies’s pen and digitizer in Williams’s system to enable handwritten inputs. *See, e.g., id.* ¶¶ 91–92. Williams contemplates that its system could have input devices beyond just the disclosed keyboard (*see, e.g.*, Ex. 1002, 5:21–23), and other contemporaneous references describe information systems with pen-based input (*see, e.g.*, Ex. 1009, 1:37–48, 6:12–29; Ex. 1010, 14:6–61, Fig. 6). Petitioner further establishes that an ordinarily skilled artisan would have incorporated Smithies’s signature capture module in the system of Williams to obtain the security benefits of signature capture and verification. *See, e.g.*, Ex. 1006 ¶¶ 106–111. As noted by Dr. Bederson (*id.* ¶ 108), a contemporaneous reference, Ballantyne, teaches a similar system “that captures a user’s signature for changes to records and tracks the user’s activity via an audit server.” *See, e.g.*, Ex. 1010, 12:9–13:10, 15:2–39. Ballantyne also supports Petitioner’s persuasive showing that an ordinarily skilled artisan would have expected success in modifying Williams to obtain and verify signature input (per Smithies) before accepting changes to Williams’s forms. *See, e.g.*, Ex. 1006 ¶¶ 111, 129. Thus, based on the entire trial record, we are persuaded that an ordinarily skilled artisan would have had reasons to combine Williams and Smithies.

j. Conclusion Regarding Claim 1

Petitioner has persuasively shown that the combination of Williams and Smithies teaches all limitations of claim 1. Petitioner also has put forth persuasive reasons for combining these references and has established that an ordinarily skilled artisan would have had a reasonable expectation of success in making the combination. On the entire trial record, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 1 would have been obvious over the combination of Williams and Smithies.

4. Claim 2

Claim 2 depends from claim 1 and further recites “a storage routine configured to automatically store, in the database, all information entered into a field.” Ex. 1001, 9:24–26. Petitioner cites Williams’s teaching of a relational database system where “all payroll data and [human resource] data” are stored in tables. Pet. 41 (quoting Ex. 1002, 4:52–5:6) (citing *id.* at 5:31–47, Fig. 2). Petitioner further cites Williams’s teaching that, after a user makes changes to the payroll or human resource data of its forms, the user can elect to save those changes. *Id.* (citing Ex. 1002, 7:60–8:3, Fig. 6). Petitioner contends that an ordinarily skilled artisan would have understood Williams to teach “automatically stor[ing]” when “the user elects to save his or her changes at Step 655 of Williams, Fig. 6” because “Williams discloses storing the changed values, the user’s sign off, and an indication of who made the change” in that case. *Id.* at 41–42 (citing Ex. 1002, 7:1–15; Ex. 1006 ¶¶ 133–135).

Patent Owner does not dispute Petitioner’s analysis of the limitation in claim 2. We are persuaded by Dr. Bederson’s un rebutted testimony that Williams teaches “automatically stor[ing]” changed data after a user elects to save changes as step 655 of Figure 6. *See, e.g.*, Ex. 1002, 7:1–15; Ex. 1006 ¶¶ 133–135. In particular, we agree with Dr. Bederson that Williams teaches automatic “storing” of changed data after user signoff commensurate with the disclosures of the ’506 patent. *See* Ex. 1006 ¶¶ 133–135. Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 2 would have been obvious over the combination of Williams and Smithies.

5. *Claims 3 and 4*

Claim 3 depends from claim 1 and recites that “said data entry device is a touch screen.” Ex. 1001, 9:27–28. Claim 4 depends from claim 3 and recites that “said data entry device includes a pen device.” Ex. 1001, 9:29–30. Petitioner cites Smithies’s teaching that its pen-based computers include a screen to receive handwritten inputs via a stylus. Pet. 42–43 (citing Ex. 1003, 4:1–12, 4:24–34, 6:10–14); *see also id.* at 43 (relying on the same analysis for claim 4). Petitioner contends that an ordinarily skilled artisan “would have understood that a screen capable of capturing handwritten entries via a pen or stylus is a ‘touch screen’ according to claim 3 because the pen or stylus must touch the screen to make inputs.” *Id.* at 43 (citing Ex. 1006 ¶ 138).

Patent Owner does not dispute Petitioner’s analysis of the limitations in claims 3 and 4. We are persuaded that Smithies’s system utilizes computer screens that receive inputs via a stylus or pen, which teaches the

recited “touch screen” and “pen device.” *See, e.g.*, Ex. 1003, 4:1–12, 4:24–34, 6:10–14. Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claims 3 and 4 would have been obvious over the combination of Williams and Smithies.

6. *Claim 5*

Claim 5 depends from claim 1 and recites that “said field modification verification routine is further configured to display a signature block on the viewer and verify that an entry is made to the signature block.” Ex. 1001, 9:1–10. Petitioner relies on the same analysis from claim 1 (*see supra* § II.D.3.f, g) for the proposition that “Smithies’s signature capture module displays a signature block on the viewer to accept a user’s signature, and Smithies’s signature verification module verifies that the received signature is authentic.” Pet. 43–44. Petitioner contends that “[v]erifying that a received signature is authentic teaches verifying that an entry is made to the signature block because an entry is necessary before determining authenticity.” *Id.* at 44 (citing Ex. 1006 ¶ 140). Petitioner further cites Smithies’s teaching of monitoring the user’s inputs while entering a signature in the signature block, including “determining whether a signature occurred over a certain period of time, ensuring the signature has sufficient complexity to be a signature, and thereafter monitoring for whether the pen remains static.” *Id.* (citing Ex. 1003, 10:16–30).

Patent Owner does not dispute Petitioner’s analysis of the limitations in claim 5. As discussed above (*see supra* § II.D.3.f), Smithies teaches displaying a signature capture window. *See, e.g.*, Ex. 1003, 4:1–34. Smithies also teaches monitoring inputs to the signature capture window

based on time, movement, and complexity to determine the presence of a valid signature. *See, e.g., id.* at 10:16–30. We further are persuaded that, by necessity, Smithies’s system must determine whether a signature is present before the system authenticates it. *See, e.g., Ex. 1006 ¶ 140.* Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 5 would have been obvious over the combination of Williams and Smithies.

7. *Claim 9*

Claim 9 depends from claim 1 and further recites “including an output routine configured to output a completed form.” Ex. 1001, 9:24–32. Petitioner cites Williams’s teachings of displaying human resource and payroll forms. Pet. 52 (citing Ex. 1002, 6:4–18, 7:36–59). Petitioner contends that an ordinarily skilled artisan would have understood that “one way to ‘output a completed form’ would be to display it.” *Id.* (citing Ex. 1006 ¶¶ 153–154).

Patent Owner does not dispute Petitioner’s analysis of the limitations in claim 9. We are persuaded that Williams teaches displaying (i.e., outputting) completed forms. *See, e.g., Ex. 1002, 6:4–18, 7:36–59, Fig. 13.* Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 9 would have been obvious over the combination of Williams and Smithies.

8. *Claim 11*

Independent claim 11 is a system claim similar to claim 1, albeit with a shorter “field modification verification routine” limitation and without “an authorization routine” limitation. Claim 11 recites:

11. A computerized form processing system comprising:
- a database for storing at least one form including one or more fields;
 - a viewer for viewing a stored form;
 - a data entry device for allowing a user to enter information into the fields of the form;
 - a monitoring routine configured to actively monitor whether previously entered information in a field of the form is being changed by the user; and
 - a field modification verification routine configured to, on the viewer, prompt the user to sign off on any such change.

Ex. 1001, 9:46–10:2. Petitioner relies on the same analysis from claim 1. *See* Pet. 53–54. Patent Owner does not dispute Petitioner’s analysis for claim 11.

We have compared claims 1 and 11 in conjunction with Petitioner’s obviousness contentions as set forth for claim 1, and we are persuaded that the combination of Williams and Smithies teaches all limitations of claim 11 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.a–f. Moreover, based on the same reasons discussed above, we find that Petitioner has put forth persuasive reasons for combining Williams and Smithies and has established that an ordinarily skilled artisan would have had a reasonable expectation of success in making the combination. *See supra* § II.D.3.i. On the entire trial record, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of

claim 11 would have been obvious over the combination of Williams and Smithies.

9. *Claim 12*

Claim 12 depends from claim 11 and recites “the field modification routine is further configured to store and associate the user’s sigh [sic] off with the change.” Ex. 1001, 9:65–67. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 54. Patent Owner does not dispute Petitioner’s analysis for claim 12.

We have compared claims 1 and 12 in conjunction with Petitioner’s obviousness contentions as set forth for the “field modification verification routine” limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 12 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 12 would have been obvious over the combination of Williams and Smithies.

10. *Claim 13*

Claim 13 depends from claim 12 and recites “the field modification routine is further configured to reset the change to the previously entered information if there is no user sign off.” Ex. 1001, 10:1–3. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 54. Patent Owner does not dispute Petitioner’s analysis for claim 13.

We have compared claims 1 and 13 in conjunction with Petitioner's obviousness contentions as set forth for the "field modification verification routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 13 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 13 would have been obvious over the combination of Williams and Smithies.

11. Claim 14

Claim 14 depends from claim 13 and further recites "an authorization routine configured to reset the change to the previously entered information if the user's sign off is not authorized." Ex. 1001, 10:4–7. Petitioner relies on the same analysis from claim 1 related to the "authorization routine" limitation. *See* Pet. 54. Patent Owner does not dispute Petitioner's analysis for claim 14.

We have compared claims 1 and 14 in conjunction with Petitioner's obviousness contentions as set forth for the "authorization routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 14 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.g. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 14 would have been obvious over the combination of Williams and Smithies.

12. *Claim 15*

Independent claim 15 is a system claim similar to claim 1, albeit with a shorter “field modification verification routine” limitation and without “an authorization routine” limitation. Claim 15 recites:

15. A computerized form processing system comprising:
- a database for storing at least one form including one or more fields;
 - a viewer for viewing a stored form;
 - a data entry device for allowing a user to enter information into the fields of the form;
 - a monitoring routine configured to actively monitor whether previously entered information in a field of the form is being changed by the user; and
 - a field modification verification routine configured to store and associate a user’s sign off with any such change.

Ex. 1001, 10:8–19. Petitioner relies on the same analysis from claim 1. *See* Pet. 54–55. Patent Owner does not dispute Petitioner’s analysis for claim 15.

We have compared claims 1 and 15 in conjunction with Petitioner’s obviousness contentions as set forth for claim 1, and we are persuaded that the combination of Williams and Smithies teaches all limitations of claim 15 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.a–f. Moreover, based on the same reasons discussed above, we find that Petitioner has put forth persuasive reasons for combining Williams and Smithies and has established that an ordinarily skilled artisan would have had a reasonable expectation of success in making the combination. *See supra* § II.D.3.i. On the entire trial record, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of

claim 15 would have been obvious over the combination of Williams and Smithies.

13. Claim 16

Claim 16 depends from claim 15 and recites “the field modification routine is further configured to, on the viewer, prompt the user to sign off on any such changes.” Ex. 1001, 10:20–22. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 55. Patent Owner does not dispute Petitioner’s analysis for claim 16.

We have compared claims 1 and 16 in conjunction with Petitioner’s obviousness contentions as set forth for the “field modification verification routine” limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 16 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 16 would have been obvious over the combination of Williams and Smithies.

14. Claim 17

Claim 17 depends from claim 16 and recites “the field modification routine is further configured to reset the change to the previously entered information if there is no user sign off.” Ex. 1001, 10:23–25. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 55. Patent Owner does not dispute Petitioner’s analysis for claim 17.

We have compared claims 1 and 17 in conjunction with Petitioner's obviousness contentions as set forth for the "field modification verification routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 17 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 17 would have been obvious over the combination of Williams and Smithies.

15. Claim 18

Claim 18 depends from claim 17 and further recites "an authorization routine configured to reset the change to the previously entered information if the user's sign off is not authorized." Ex. 1001, 10:26–29. Petitioner relies on the same analysis from claim 1 related to the "authorization routine" limitation. *See* Pet. 56. Patent Owner does not dispute Petitioner's analysis for claim 18.

We have compared claims 1 and 18 in conjunction with Petitioner's obviousness contentions as set forth for the "authorization routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 18 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.g. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 18 would have been obvious over the combination of Williams and Smithies.

16. *Claim 19*

Independent claim 19 is a system claim similar to claim 1, albeit with a shorter “field modification verification routine” limitation and without “an authorization routine” limitation. Claim 19 recites:

19. A computerized form processing system comprising:
- a database for storing at least one form including one or more fields;
 - a viewer for viewing a stored form;
 - a data entry device for allowing a user to enter information into the fields of the form;
 - a monitoring routine configured to actively monitor whether previously entered information in a field of the form is being changed by the user; and
 - a field modification verification routine configured to reset the change to the previously entered information if there is no user sign off associated with a change.

Ex. 1001, 10:30–41. Petitioner relies on the same analysis from claim 1. *See* Pet. 56–57. Patent Owner does not dispute Petitioner’s analysis for claim 19.

We have compared claims 1 and 19 in conjunction with Petitioner’s obviousness contentions as set forth for claim 1, and we are persuaded that the combination of Williams and Smithies teaches all limitations of claim 19 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.a–f. Moreover, based on the same reasons discussed above, we find that Petitioner has put forth persuasive reasons for combining Williams and Smithies and has established that an ordinarily skilled artisan would have had a reasonable expectation of success in making the combination. *See supra* § II.D.3.i. On the entire trial record, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of

claim 19 would have been obvious over the combination of Williams and Smithies.

17. Claim 20

Claim 20 depends from claim 19 and recites “the field modification routine is further configured to, on the viewer, prompt the user to sign off on any such change.” Ex. 1001, 10:42–44. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 57. Patent Owner does not dispute Petitioner’s analysis for claim 20.

We have compared claims 1 and 20 in conjunction with Petitioner’s obviousness contentions as set forth for the “field modification verification routine” limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 20 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 20 would have been obvious over the combination of Williams and Smithies.

18. Claim 21

Claim 21 depends from claim 20 and recites “the field modification routine is further configured to store and associate the user’s sign off with the change.” Ex. 1001, 10:45–47. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 57. Patent Owner does not dispute Petitioner’s analysis for claim 21.

We have compared claims 1 and 21 in conjunction with Petitioner's obviousness contentions as set forth for the "field modification verification routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 21 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 21 would have been obvious over the combination of Williams and Smithies.

19. Claim 22

Claim 22 depends from claim 21 and further recites "an authorization routine configured to reset the change to the previously entered information if the user's sign off is not authorized." Ex. 1001, 10:48–51. Petitioner relies on the same analysis from claim 1 related to the "authorization routine" limitation. *See* Pet. 57. Patent Owner does not dispute Petitioner's analysis for claim 22.

We have compared claims 1 and 22 in conjunction with Petitioner's obviousness contentions as set forth for the "authorization routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 22 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.g. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 22 would have been obvious over the combination of Williams and Smithies.

20. *Claim 23*

Independent claim 23 is a system claim similar to claim 1, albeit without “a field modification verification routine” limitation. Claim 23 recites:

23. A computerized form processing system comprising:
- a database for storing at least one form including one or more fields;
 - a viewer for viewing a stored form;
 - a data entry device for allowing a user to enter information into the fields of the form;
 - a monitoring routine configured to actively monitor whether previously entered information in a field of the form is being changed by the user; and
 - an authorization routine configured to reset the change to the previously entered information if the user is not authorized.

Ex. 1001, 10:52–64. Petitioner relies on the same analysis from claim 1. *See* Pet. 57–58. Patent Owner does not dispute Petitioner’s analysis for claim 23.

We have compared claims 1 and 23 in conjunction with Petitioner’s obviousness contentions as set forth for claim 1, and we are persuaded that the combination of Williams and Smithies teaches all limitations of claim 23 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.a–e, g. Moreover, based on the same reasons discussed above, we find that Petitioner has put forth persuasive reasons for combining Williams and Smithies and has established that an ordinarily skilled artisan would have had a reasonable expectation of success in making the combination. *See supra* § II.D.3.i. On the entire trial record, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of

claim 23 would have been obvious over the combination of Williams and Smithies.

21. Claim 24

Claim 24 depends from claim 23 and further recites “a field modification verification routine configured to, on the viewer, prompt the user to sign off on any such changes.” Ex. 1001, 10:65–67. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 58. Patent Owner does not dispute Petitioner’s analysis for claim 24.

We have compared claims 1 and 24 in conjunction with Petitioner’s obviousness contentions as set forth for the “field modification verification routine” limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 24 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 24 would have been obvious over the combination of Williams and Smithies.

22. Claim 25

Claim 25 depends from claim 24 and recites “the field modification routine is further configured to store and associates the user’s sign off with the change.” Ex. 1001, 11:1–3. Petitioner relies on the same analysis from claim 1 related to the “field modification verification routine” limitation. *See* Pet. 59. Patent Owner does not dispute Petitioner’s analysis for claim 25.

We have compared claims 1 and 25 in conjunction with Petitioner's obviousness contentions as set forth for the "field modification verification routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 25 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 25 would have been obvious over the combination of Williams and Smithies.

23. *Claim 26*

Claim 26 depends from claim 25 and recites "the field modification routine is further configured to reset the change to the previously entered information if there is no user sign off." Ex. 1001, 11:4–6. Petitioner relies on the same analysis from claim 1 related to the "field modification verification routine" limitation. *See* Pet. 59. Patent Owner does not dispute Petitioner's analysis for claim 26.

We have compared claims 1 and 26 in conjunction with Petitioner's obviousness contentions as set forth for the "field modification verification routine" limitation of claim 1, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 26 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.f. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 26 would have been obvious over the combination of Williams and Smithies.

24. *Claim 27*

Independent claim 27 is a system claim similar to claim 1, albeit with an added “data entry verification routine” limitation. Claim 27 recites:

27. A computerized form processing system comprising:
- a database for storing at least one form including one or more fields;
 - a viewer for viewing a stored form;
 - a data entry device for allowing a user to enter information into the fields of the form;
 - a data entry verification routine configured to, on the viewer, prompt the user to sign off on any such entry and which further stores and associates the user’s identification, date, and time with the entry, the data entry verification routine further configured to not accept the entry if there is no user sign off;
 - a monitoring routine further configured to actively monitor whether previously entered information in a field of the form is being changed by the user;
 - a field modification verification routine configured to, on the viewer, prompt the user to sign off on any such change and which further stores and associates the user’s identification, date and time with the change, the field modification routine further configured to reset the change to the previously entered information if there is no user sign off; and
 - an authorization routine configured to reset the change to the previously entered information if the user’s sign off is not authorized.

Ex. 1001, 11:7–12:5. Petitioner relies mostly on the same analysis from claim 1. *See* Pet. 59–62. Petitioner additionally contends that the recited “data entry verification routine” is similar to claim 1’s “field modification verification routine” and that an ordinarily skilled artisan would have understood that a change to a field is an “entry.” *Id.* at 59–60 (citing Ex. 1006 ¶ 196). To the extent that the recited “entry” connotes a *new* data

entry, Petitioner further cites Williams’s teachings about adding human resource data for a new employee. *Id.* at 60 (citing Ex. 1002, 11:22–40). For “stor[ing] and associat[ing] the user’s identification, date, and time with the entry,” Petitioner cites Williams’s teaching of an audit trail component that creates a complete record including “the User ID, date, time, and function performed.” *Id.* (quoting Ex. 1002, 7:1–15) (emphasis omitted). Patent Owner does not dispute Petitioner’s analysis for claim 23.

We have compared claims 1 and 27 in conjunction with Petitioner’s obviousness contentions as set forth for claim 1, and we are persuaded that the combination of Williams and Smithies teaches all limitations of claim 27 for the same reasons discussed above with respect to claim 1. *See supra* § II.D.3.a–g. In particular, we are persuaded that the combination of Williams and Smithies teaches the recited “data entry verification routine” limitation of claim 27 for the same reasons mentioned above with respect to claim 1’s “field modification verification routine.” *See, e.g.,* Ex. 1006 ¶ 196. We also are persuaded that Williams teaches storing and associating user ID, date, and time with changes and/or new entries in an audit table. *See, e.g.,* Ex. 1002, 7:1–15. Moreover, based on the same reasons discussed above, we find that Petitioner has put forth persuasive reasons for combining Williams and Smithies and has established that an ordinarily skilled artisan would have had a reasonable expectation of success in making the combination. *See supra* § II.D.3.i. On the entire trial record, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 27 would have been obvious over the combination of Williams and Smithies.

25. *Claim 28*

Claim 28 depends from claim 27 and recites “said field modification verification routine is further configured to display a signature block on the viewer and verify that an entry is made to the signature block.” Ex. 1001, 12:6–7. Petitioner relies on the same analysis from claim 5 and, by extension, from claim 1 related to the “field modification verification routine” and “authorization routine” limitations. *See* Pet. 62. Patent Owner does not dispute Petitioner’s analysis for claim 26.

We have compared claims 5 and 28 in conjunction with Petitioner’s obviousness contentions as set forth for claim 5, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 28 for the same reasons discussed above with respect to claim 5. *See supra* § II.D.6. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 28 would have been obvious over the combination of Williams and Smithies.

26. *Claims 29 and 30*

Claim 29 depends from claim 27 and further recites “a summation check routine configured to perform a field summation check calculation for the information entered into each field of a form.” Ex. 1001, 12:10–13. Claim 30 depends from claim 29 and recites “said summation check routine is further configured to perform a summation check calculation for the information entered into the form and further configured to store a checksum value of said information for monitoring changes made to completed forms.” Ex. 1001, 12:15–20. Petitioner purports to rely on its analysis for claims 6 and 7 (*see* Pet. 62), but Petitioner does not challenge claims 6 and 7 in the

instant ground. *See id.* at 2. Having failed to put forth any evidence of obviousness for claims 29 and 30 in the instant ground, Petitioner has not shown, by a preponderance of the evidence, that the subject matter of claims 29 and 30 would have been obvious over the combination of Williams and Smithies.

27. *Claim 31*

Claim 31 depends from claim 27 and further recites “an output routine configured to output a completed form.” Ex. 1001, 12:21–22. Petitioner relies on the same analysis from claim 9. *See* Pet. 63. Patent Owner does not dispute Petitioner’s analysis for claim 31.

We have compared claims 9 and 31 in conjunction with Petitioner’s obviousness contentions as set forth for claim 9, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 31 for the same reasons discussed above with respect to claim 9. *See supra* § II.D.7. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 31 would have been obvious over the combination of Williams and Smithies.

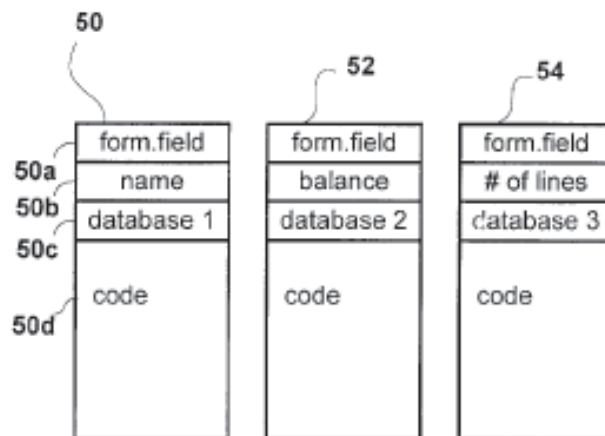
E. *Obviousness Ground Based on Williams, Smithies, and Wolff*

Petitioner contends the subject matter of claims 1–9 and 11–31 would have been obvious over the combination of Williams, Smithies, and Wolff. Pet. 14–63; Pet. Reply 5–13. Patent Owner does not dispute Petitioner’s contentions. We already have found claims 1–5, 9, 11–28, and 31 to be unpatentable over the combination of Williams and Smithies (*see supra* § II.D), so we confine our analysis to claims 6–8, 29, and 30 for this ground.

See SAS Inst. Inc. v. Iancu, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

1. *Wolff*

Wolff is a U.S. patent titled “Customer Service Electronic Form Generating System.” Ex. 1004, code (54). Wolff is directed to a computer system for producing a series of electronic forms. *Id.* at 2:36–37. Wolff describes that each form produced by the computer system can store and retrieve data directly from databases coupled to the computer system without requiring separate database commands to be entered. *Id.* at 2:37–41. An excerpt of Wolff’s Figure 2 is reproduced below.



This excerpt of Figure 2 illustrates form.field objects used by an electronic form-generating system to produce a series of forms.

Id. at 2:62–64, 4:51–54. As illustrated in this excerpt of Figure 2, form.field objects 50–54 each comprise an individual entry or field on an electronic form similar to a blank on a standard paper form. *Id.* at 4:54–57. Form.field objects 50–54 each include at least four slots. *Id.* at 5:10–11. For example, form.field object 50 includes slot 50a for specifying the type of object (e.g., form.field), slot 50b for specifying the type of data referenced by the object (e.g., a customer’s name), slot 50c containing a reference to a database in which the data referenced by the object are to be stored (e.g., database 1), and slot 50d including a section of computer code that is specifically written to operate on the data entered into the associated field. *Id.* at 5:11–17. In particular, the computer code contained in slot 50d contains those commands required to use the object’s corresponding database. *Id.* at 5:22–24. The actual functions performed by the code segment associated with each form.field may vary depending upon the result required. *Id.* at 10:32–34.

Figure 5 of Wolff is reproduced below.

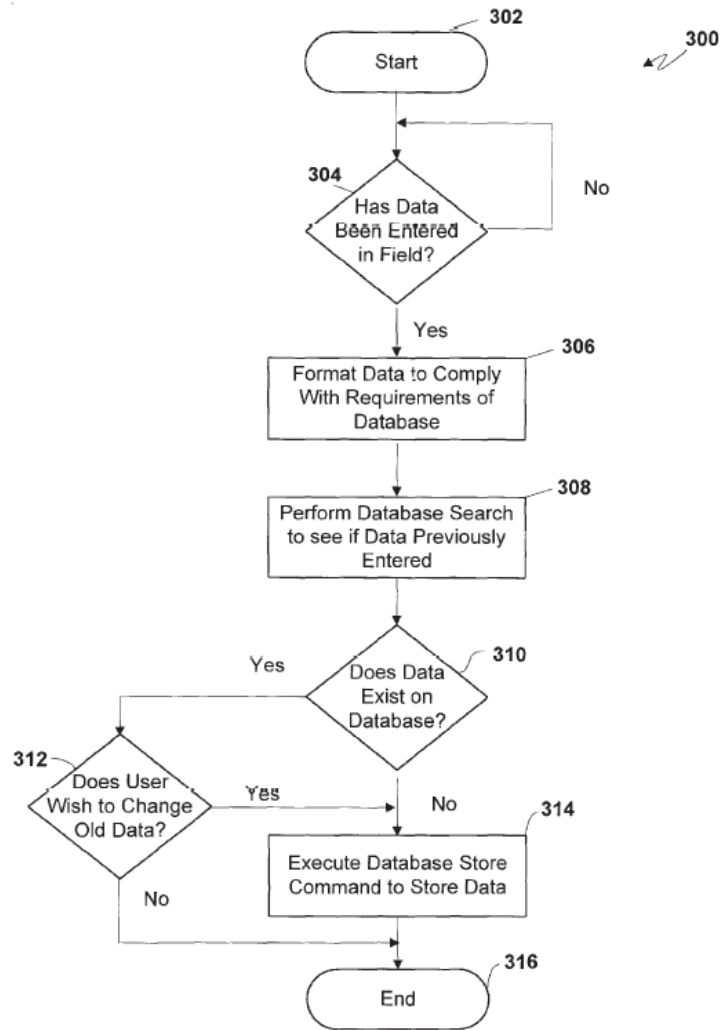


Fig. 5

Figure 5 illustrates a flow diagram that shows how a form field-type object accesses its corresponding database.

Ex. 1004, 3:3–4. As illustrated in Figure 5, flow diagram 300 shows the steps taken by a form-generating system when data is entered into a field by a customer service representative. *Id.* at 9:64–66. At step 302, the system starts, and, at step 304, the system determines if data has been entered into the field. *Id.* at 10:7–8. Once data has been entered into the field, the system proceeds to step 306, where the system formats the data in a way in

which the field's associated database expects the data to be formatted. *Id.* at 10:10–13. The system then proceeds to step 308, where the system performs a database search. *Id.* at 10:14–16. At step 310, the system determines if the data has been previously stored on the database. *Id.* at 10:16–18. If data has been previously stored, the system proceeds to step 312, where a customer service representative decides whether to change the stored data. *Id.* at 10:22–24. If the data is to be updated, or if there are no corresponding entries previously stored in the database, the system proceeds to step 314, where a series of database commands appropriate to the database are executed to store the data in the field's associated database. *Id.* at 10:27–31.

Petitioner contends that Wolff qualifies as prior art under, *inter alia*, 35 U.S.C. § 102(e) based on its filing date. Pet. 2. Patent Owner does not contest the prior-art status of Wolff.

We have no evidence of an invention date other than the filing date of the application that led to the challenged claims. Thus, we determine that Wolff qualifies as prior art under 35 U.S.C. § 102(e) because Wolff's filing date of November 18, 1992, is before the September 12, 1997, filing date of the application that led to the '506 patent. Ex. 1001, code (22); Ex. 1004, code (22).

2. *Claim 6*

Claim 6 depends from claim 1 and further recites “including a summation check routine configured to perform a field summation check calculation for the information entered into each field of a form.” Ex. 1001, 9:35–38. Petitioner's analysis for claim 6 builds on its analysis for claim 1 in the instant ground, wherein Petitioner proposes modifying the Williams–

Smithies combination to include Wolff's teaching of prompting for a sign-off on a field-by-field basis in a form. *See* Pet. 32–34. In particular, Petitioner cites Wolff's teaching of including a "code segment" in each field that "processes data as it is entered into the field and stores the data in the field's associated database." *Id.* at 32 (quoting Ex. 1004, code (57)) (citing *id.* at 2:45–49). Petitioner notes that the code segment, which "executes in the background and processes the data as it is being entered," can prompt the user to decide whether to change stored data associated with a field. *Id.* (citing Ex. 1004, 5:33–40, 10:16–24, Fig. 5). Petitioner contends that an ordinarily skilled artisan "would have combined Wolff's field-by-field sign off with the Williams–Smithies system because, as explained above, individual field sign off like Wolff and collective sign off like Williams are obvious approaches to the same problem that result in the same solution." *Id.* at 33 (citing Ex. 1006 ¶ 116). Petitioner explains that Williams's system would have been modified "to prompt the user to save changes (e.g., perform Step 665 of Fig. 6) after each change instead of after multiple changes," which Petitioner contends "would have yielded the predictable result of prompting a user for changes on a field-by-field basis." *Id.* at 34 (citing Ex. 1006 ¶ 118). Petitioner contends that enabling the saving changes after each entry in this way would have been desirable to prevent loss of data when multiple changes are made. *Id.* at 33 (citing Ex. 1006 ¶ 117). Petitioner further contends that prompting a user after each entry conveys to the user the gravity of changing the data and demonstrates the security applied to each change. *Id.* (citing Ex. 1003, code (57), 9:52–65; Ex. 1006 ¶ 117).

Addressing the “summation check routine” limitation in claim 6, Petitioner cites Smithies’s document checksum, which “verifies that the content of an electronic document has not been altered since being signed by the user.” Pet. 44 (citing Ex. 1003, code (57), 4:35–48, 6:59–7:5, 12:24–25, 13:50–62, 20:33–59). Petitioner contends that an ordinarily skilled artisan “would have understood Smithies’s document checksum to be a ‘summation check routine’ because it performs a summation associated with an electronic document that can be used to later determine, using a key, if alterations were made since the checksum was created.” *Id.* at 45 (citing Ex. 1003, 13:50–62; Ex. 1006 ¶¶ 141–143). Petitioner further contends that “it would have been obvious to combine Smithies’s document checksum . . . with the payroll and [human resource] forms of Williams and the field-by-field code segments of Wolff.” *Id.* (citing Ex. 1006 ¶ 144). Petitioner notes common teachings in Williams and Smithies about securing data associated with electronic forms and Smithies’s teaching that its features were designed to be implemented in existing platforms. *Id.* at 47 (citing Ex. 1002, 6:20–7:15; Ex. 1003, 4:1–8, 5:6–21, 5:47–6:14, 13:44–56, 13:50–62). As an advantage arising from the combination, Petitioner contends that Smithies’s checksums would “increase the integrity of [Williams’s] forms and the underlying data, complementing Williams’s audit trail and security components.” *Id.* at 44–45 (citing Ex. 1006 ¶ 144). Petitioner also contends the combination would have been “straightforward” and based on “known methods of securing electronic data (e.g., combining Williams’s user access rights and audit trail features with Smithies’s checksum feature),” thus leading to predictable results. *Id.* at 46 (citing Ex. 1006 ¶ 145). For example, Petitioner posits combining “Smithies’s checksum routine with Williams . . .

at Step 675 of Williams Fig. 6 (e.g., the moment the user saves changes and the change log record is created).” *Id.*

Petitioner proposes a modification of Smithies whereby checksum calculations are made for individual fields. *See* Pet. 45–48. Specifically, Petitioner contends that “it would have been obvious to apply the checksum feature of Smithies to the individual fields of Williams, as suggested by Wolff” based on Wolff’s teachings of code segments for each field. Pet. 47–48 (citing Ex. 1004, code (57), 3:63–4:12, 4:49–57, 5:21–43; Ex. 1006 ¶ 146). Petitioner also contends that an ordinarily skilled artisan “would have been motivated to apply Smithies’s checksum process on a field-by-field basis based on Wolff’s suggestion of executing code segments with respect to individual fields and not merely for an entire document.” *Id.* at 48 (citing Ex. 1006 ¶ 147). Thus, Petitioner contends that an ordinarily skilled artisan would have incorporated Smithies’s checksum feature into Wolff’s code segment “to generate the checksum value after data had been entered or altered in an individual field,” which would have provided an integrity check on each individual field. *Id.*

In our Decision on Institution, we did “not discern why associating a code segment with a field, as taught in Wolff, would have led to performing a checksum on a field-by-field basis.” Dec. on Inst. 28. Specifically, we were not persuaded that Wolff’s code segment feature, which is directed to storing data from a particular field in all associated databases, would have led to an ordinarily skilled artisan to make field-by-field checksum calculations. *See id.*

In reply, Petitioner notes that Wolff’s code segments represent “executable object code associated with individual fields in Wolff’s forms

that perform field-specific operations.” Pet. Reply 6–7 (citing Pet. 47–48; Ex. 1004, code (57), 3:63–4:12, 4:49–57, 5:21–43; Ex. 1006 ¶ 41).

Petitioner further cites Wolff’s teaching that “the actual functions performed by the code segment associated with each form.field may vary depending upon the result required.” *Id.* at 7 (quoting Ex. 1004, 10:32–34). Petitioner also contends that “[c]alculating a checksum after a change is made to information in one field versus calculating a checksum covering a change to information in more than one field is an obvious variation of understood techniques that yields nothing more than a predictable outcome: a checksum for at least one field.” *Id.* at 9 (citing *Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1340 (Fed. Cir. 2020)).

Petitioner also disputes our analysis in the Decision on Institution insofar as it allegedly “focused on Wolff’s database features that Petitioner did not rely on for its obviousness ground.” Pet. Reply 10 (citing Dec. on Inst. 28). Petitioner instead asks us to focus on Wolff’s teaching of a “field-specific code, which analyzes data as it is entered into each field and performs functions on a field-by-field basis”; Petitioner contends this teaching is not undermined by Wolff’s particular database operations. *Id.* at 10–11 (citing, *inter alia*, Pet. 47–48). Finally, Petitioner notes that Dr. Bederson’s supporting testimony is “unchallenged and unrebutted,” so Petitioner contends we should accord it substantial weight. *Id.* at 12–13.

Patent Owner disputes neither Petitioner’s analysis of the limitation in claim 6 nor Petitioner’s rationale for combining Wolff with Williams and Smithies.

We are persuaded that Smithies teaches the recited “summation check calculation.” *See, e.g.*, Ex. 1003, code (57), 4:35–48, 6:59–7:5, 12:24–25,

13:50–62, 20:33–59. We also have considered Petitioner’s reply arguments and now understand that Petitioner does not rely on Wolff’s particular teaching of using code segments to analyze and store field data in all associated databases. *See* Pet. Reply 10–11. Rather, Petitioner relies on the more general notion from Wolff that field-specific code segments may be executed as data is entered into a field. *See* Pet. 47 (citing Ex. 1004, code (57), 3:63–4:12, 4:49–57, 5:21–43) (“Wolff discloses a code segment associated with each field of a form that operates as a user enters information into the field.”). Wolff also teaches expressly that “the actual functions performed by the code segment associated with each form.field may vary depending upon the result required.” Ex. 1004, 10:32–34. This supports Petitioner’s contention that, based on Wolff’s teachings, an ordinarily skilled artisan would have known to implement field-specific code segments for purposes beyond just those disclosed in Wolff. *See, e.g.,* Ex. 1006 ¶ 147. As such, we are persuaded by Dr. Bederson’s unrebutted testimony that an ordinarily skilled artisan would have applied Smithies’s checksum routine to individual fields of Williams’s forms based on Wolff’s teachings of code segments for each field. *See, e.g., id.* ¶¶ 146–147.

Regarding Petitioner’s reasons for the combination, we are persuaded that an ordinarily skilled artisan would have implemented Wolff’s teaching of field-by-field signoffs to the Williams–Smithies combination to enable entry-by-entry saving (which prevents loss of data), to convey to users the gravity of making changes, and to demonstrate to users the security applied to each change. *See, e.g.,* Ex. 1006 ¶ 117. Petitioner also persuasively shows that an ordinarily skilled artisan would have implemented Smithies’s checksum routine for Williams’s forms to increase the integrity of these

forms and the underlying data and to complement Williams's audit trail and security components. *See, e.g.*, Ex. 1006 ¶ 117. We further are persuaded by Petitioner's other reasons for combining Smithies with Williams, as discussed above. *See supra* § II.D.3.i.

Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 6 would have been obvious over the combination of Williams, Smithies, and Wolff.

3. *Claim 7*

Claim 7 depends from claim 6 and recites that "said summation check routine is further configured to perform a summation check calculation for the information entered into the form and further configured to store a checksum value of said information for monitoring changes made to completed forms." Ex. 1001, 9:39–43. Petitioner relies on its analysis for claim 6 and further cites Smithies's teaching of storing a "document checksum [that] is calculated from the character codes making up the document" away from the document in a signature envelope. Pet. 49 (quoting Ex. 1003, 6:59–66). Petitioner also relies on its contention for claim 6 that an ordinarily skilled artisan "would have found it obvious to apply Smithies's document checksum on a field-by-field basis as suggested by Wolff, and thereafter generate and store a checksum value associated with each field as taught by Smithies." *Id.* at 49–50 (citing Ex. 1006 ¶ 149).

Patent Owner does not dispute Petitioner's analysis of the limitation in claim 7. We are persuaded that Smithies teaches storing a checksum. *See, e.g.*, Ex. 1003, 6:59–66. We also are persuaded by Dr. Bederson's un rebutted testimony that an ordinarily skilled artisan would have generated

and stored checksum values for each field based on Wolff's teachings. *See, e.g.,* Ex. 1006 ¶ 149. Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 7 would have been obvious over the combination of Williams, Smithies, and Wolff.

4. *Claim 8*

Claim 8 depends from claim 7 and recites "said summation check routine is further configured to perform a final summation check calculation for all field summation check calculations." Ex. 1001, 9:44–46. Petitioner cites Smithies's teaching of an "integrity checksum" of its signature envelope that includes the signed document, which Smithies calls a "checksum of a checksum." Pet. 50 (quoting Ex. 1003, code (57), 10:43–49) (citing *id.* at 12:41–50). Specifically, Petitioner cites Smithies's disclosure that "the contents of the signature envelope 10, together with a key provided by the client application 2, are checksummed using the same technique as is used for checksumming the file." *Id.* at 51 (quoting Ex. 1003, 13:44–56) (emphasis omitted). Petitioner explains that "Smithies's document checksum, when applied as suggested by Wolff, would have ensured that the form or electronic document is not changed (e.g., is a 'field checksum'), and Smithies's integrity checksum would have ensured the integrity of all data associated with the form is valid (e.g., is a 'final checksum')." *Id.* at 51–52 (citing Ex. 1006 ¶ 152).

Patent Owner does not dispute Petitioner's analysis of the limitation in claim 8. We are persuaded that Smithies's "integrity checksum" teaches the recited "final summation check calculation for all field summation check calculations" of claim 8. *See, e.g.,* Ex. 1003, code (57), 13:44–56. Thus, we

determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 8 would have been obvious over the combination of Williams, Smithies, and Wolff.

5. *Claim 29*

Claim 29 depends from claim 27 and further recites “a summation check routine configured to perform a field summation check calculation for the information entered into each field of a form.” Ex. 1001, 12:10–13. Petitioner relies on the same analysis from claim 6. *See* Pet. 62. Patent Owner does not dispute Petitioner’s analysis for claim 29.

We have compared claims 6 and 29 in conjunction with Petitioner’s obviousness contentions as set forth for claim 6, and we are persuaded that the combination of Williams, Smithies, and Wolff teaches the limitation of claim 31 for the same reasons discussed above with respect to claim 6. *See supra* § II.E.2. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 29 would have been obvious over the combination of Williams, Smithies, and Wolff.

6. *Claim 30*

Claim 30 depends from claim 29 and recites “said summation check routine is further configured to perform a summation check calculation for the information entered into the form and further configured to store a checksum value of said information for monitoring changes made to completed forms.” Ex. 1001, 12:15–20. Petitioner relies on the same analysis from claim 7. *See* Pet. 62. Patent Owner does not dispute Petitioner’s analysis for claim 30.

We have compared claims 7 and 30 in conjunction with Petitioner's obviousness contentions as set forth for claim 7, and we are persuaded that the combination of Williams, Smithies, and Wolff teaches the limitation of claim 30 for the same reasons discussed above with respect to claim 7. *See supra* § II.E.3. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 30 would have been obvious over the combination of Williams, Smithies, and Wolff.

F. Obviousness Ground Based on Williams, Smithies, and Shelton

Petitioner contends the subject matter of claims 10 and 32 would have been obvious over the combination of Williams, Smithies, and Shelton. Pet. 63–65. Patent Owner does not dispute Petitioner's contentions.

1. Shelton

Shelton is a U.S. patent titled "Method for Displaying Information from an Information Based Computer System." Ex. 1005, code (54). Shelton generally describes a method for displaying information from an information-based computer system which comprises the consolidation of information from various related object instances onto a form. *Id.* at 3:8–12. The display may have an indicator that changes and/or corrections have been made to the underlying object instances. *Id.* at 3:17–19. Figure 10 of Shelton, reproduced below, is illustrative.

FIG. 10

102		DOE, JOHN K. M 08/19/40 01-56-16		9NB ALLERGIES: CODEINE	
SECTIONS: FLOWSHEET ORDERS ASSESSMENT NCP KARDEX 103					
FORMS: ORDER SHEET ORDER HISTORY 111 112 113					
ORDER TEXT 116		STATUS	ORDER DATE / TIME	MD	
MEDS	DIGOXIN 0.125 mg IV qd	ACTIVE	03/24 0900	JB / LN	
	MORPHINE SULFATE 1-5 mg IV q4h PRN SEVERE PAIN	ACTIVE	03/24 0900	JB / LN	
	AMPICILLIN 500 mg IVPB q6h	ACTIVE	03/24 0900	JB / LN	
121	VALIUM TABLET 5 mg ORAL qd 123 124	NOW	03/24 0900	JB / LN	
125	PRN RESTLESSNESS 122	141	140 142	150 151	
IV'S	500cc NS FLUSH SWAN- 1000 UNITS HEPARIN	TIVE	03/24 0900	JB / LN	
	250cc D5W LEFT ARM 50 mg NIPRIDE	TIVE	03/24 0900	JB / LN	
	500cc D5W TKO LEFT A	TIVE	03/24 0900	JB / LN	
LAB	H & H	TIVE	03/24 0900	JB / LN	
	LYTES	TIVE	03/24 0900	JB / LN	
	EKG	TIVE	03/24 0900	JB / LN	
	MCL1				

MEDICATION ORDER ENTRY

ORDER DATE: 03/24-302
ORDER TIME: 0900-303
ORDERING MD: JB-304
DRUG NAME: VALIUM TABLET-305
ROUTE: ORAL-306
DOSE: 5 mg-307
FREQUENCY: qd-308
NUMBER OF DOSES:
START DATE: 03/24-309
START TIME: 0900-310
COMMENTS: PRN RESTLESSNESS 314
316 OK 312-OLDER 314 ORIG

NEW ORDER SIGN

Figure 10 shows a form and illustrates the tracking of historical changes to underlying object instances displayed on the form.

Id. at 3:43–45. As illustrated in Figure 10, form 300 is displayed where a change and/or correction has been made to some information of a previous entry displayed in form 300. *Id.* at 6:44–47. This is indicated by the appearance of an “OLDER” button 312. *Id.* at 6:47–49. Modified data may also be indicated in a different font, a different color, blinking text, etc. *Id.* at 7:15–18.

Petitioner contends that Shelton qualifies as prior art under 35 U.S.C. § 102(b) based on its issue date. Pet. 2. Patent Owner does not contest the prior-art status of Shelton. We determine that Shelton qualifies as prior art under 35 U.S.C. § 102(b) because Shelton’s issue date of June 28, 1994, is more than one year before the September 12, 1997, filing date of the application that led to the ’506 patent. Ex. 1001, code (22); Ex. 1005, code (45).

2. *Claim 10*

Claim 10 depends from claim 9 and recites “said output routine is further configured to automatically flag on the output any changes to information entered into a field.” Ex. 1001, 9:49–51. Petitioner cites Shelton’s teaching of displaying a form on a display screen and identifying the changes that have been made to data values. Pet. 63 (citing Ex. 1005, 2:28–48, 2:66–3:2, 3:17–20, 3:67–4:11, 6:44–52). In particular, Petitioner cites Shelton’s teaching of indicating changes by displaying modified data “in a different font, different color, blinking text, etc.” *Id.* at 63–64 (citing Ex. 1005, 7:15–18).

Regarding Petitioner’s rationale for the combination, Petitioner notes that both Williams and Shelton disclose tracking changes to the fields of forms for subsequent audit, and Williams’s audit trail helps identify sources of error. Pet. 64 (citing Ex. 1005, 7:1–15). Petitioner contends an ordinarily skilled artisan “would have combined Shelton’s identification of changes to Williams’s forms in order to assist this process and to enable a subsequent user to identify what was changed through visual inspection before consulting Williams’s audit trail to identify what was changed.” *Id.* (citing Ex. 1006 ¶ 211). Petitioner contends the combination would have been desirable to improve the efficiency of identifying potential errors. *Id.*

Patent Owner disputes neither Petitioner’s analysis of the limitation in claim 10 nor Petitioner’s rationale for combining Shelton with Williams. We are persuaded by Shelton’s teaching of highlighting modified data in a different font or color teaches “automatically flag[ging] on the output any changes to information entered into a field.” *See, e.g.*, Ex. 1005, 7:15–18. Building on Petitioner’s persuasive rationale for combining Williams and

Smithies (*see supra* § II.D.3.i), Petitioner also persuasively shows that an ordinarily skilled artisan would have implemented Shelton’s highlighting in Williams’s audit trail process to make the visual identification of errors more efficient. *See, e.g.*, Ex. 1006 ¶ 211. Thus, we determine Petitioner has shown by a preponderance of the evidence that the subject matter of claim 10 would have been obvious over the combination of Williams, Smithies, and Shelton.

3. *Claim 32*

Claim 32 depends from claim 31 and recites “said output routine is further configured to automatically flag on the output any changes to information entered into a field.” Ex. 1001, 12:23–25. Petitioner relies on the same analysis from claim 10. *See* Pet. 65. Patent Owner does not dispute Petitioner’s analysis for claim 32.

We have compared claims 10 and 32 in conjunction with Petitioner’s obviousness contentions as set forth for claim 10, and we are persuaded that the combination of Williams and Smithies teaches the limitation of claim 32 for the same reasons discussed above with respect to claim 10. *See supra* § II.F.2. Thus, we determine Petitioner has shown, by a preponderance of the evidence, that the subject matter of claim 32 would have been obvious over the combination of Williams, Smithies, and Shelton.

G. *Obviousness Ground Based on Williams, Smithies, Wolff, and Shelton*

Petitioner contends the subject matter of claims 10 and 32 would have been obvious over the combination of Williams, Smithies, Wolff, and Shelton. Pet. 63–65. We already have found claims 10 and 32 to be

unpatentable over the combination of Williams, Smithies, and Wolff (*see supra* § II.F), so we do not reach the ground based on Williams, Smithies, Wolff, and Shelton. *See SAS*, 138 S. Ct. at 1359; *Boston Sci.*, 809 F. App'x at 990.

III. CONCLUSION

Petitioner has shown, by a preponderance of the evidence, that (1) the subject matter of claims 1–5, 9, 11–28, and 31 would have been obvious over the combination of Williams and Smithies; (2) the subject matter of claims 6–8, 29, and 30 would have been obvious over the combination of Williams, Smithies, and Wolff; and (3) the subject matter of claims 10 and 32 would have been obvious over the combination of Williams, Smithies, and Shelton. Petitioner has not shown, by a preponderance of the evidence, that the subject matter of claims 29 and 30 would have been obvious over the combination of Williams and Smithies.³

³ 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).

IV. ORDER

Accordingly, it is

ORDERED that claims 1–32 of the '506 patent are unpatentable; and

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

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–5, 9, 11–31	103(a)	Williams, Smithies	1–5, 9, 11–28, 31	29, 30
1–9, 11– 31	103(a) ⁴	Williams, Smithies, Wolff	6–8, 29, 30	
10, 32	103(a)	Williams, Smithies, Shelton	10, 32	
10, 32	103(a) ⁵	Williams, Smithies, Wolff, Shelton		
Overall Outcome			1–32	

⁴ As explained above, we do not reach claims 1–5, 9, 11–28, and 31 for this ground. *See supra* § II.E.

⁵ As explained above, we do not reach this ground. *See supra* § II.G.

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