UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SYMPHONY HEALTH SOLUTIONS CORPORATION,
Petitioner,

v.

IMS HEALTH INCORPORATED,
Patent Owner.

Case CBM2015-00085
Patent 8,473,452 B1

Before MICHAEL P. TIERNEY, HYUN J. JUNG, and J. JOHN LEE,
Administrative Patent Judges.

TIERNEY, *Administrative Patent Judge*.

DECISION
Institution of Covered Business Method Patent Review
37 C.F.R. § 42.208

I.   INTRODUCTION

Symphony Health Solutions Corporation ("Symphony" or "Petitioner") filed a Petition ("Pet.") on February 20, 2015, to institute a covered business method patent review of claims 1, 2, 4, 7–9, 11, 12 and 15 of U.S. Patent No. 8,473,452 B1 (Ex. 1001, "the '452 patent"). Paper 1. IMS Health Incorporated ("Patent Owner" or "IMS") filed a Preliminary Response ("Prelim. Resp.") to the Petition on June 10, 2015. Paper 6. Patent Owner has statutorily disclaimed claims 4, 8, 9, and 12 of the '452 patent, which are no longer available for review. *Id*. at 3. We have jurisdiction under 35 U.S.C. § 324. *See* § 18(a) of the Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284, 329 (2011) ("AIA").

The standard for instituting a covered business method patent review is set forth in 35 U.S.C. § 324(a), which provides as follows:

> THRESHOLD.—The Director may not authorize a post-grant review to be instituted unless the Director determines that the information presented in the petition filed under section 321, if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.

Upon consideration of the information presented, we institute review, because Petitioner has demonstrated that claims 1, 2, 7, 11, and 15 are more likely than not unpatentable under 35 U.S.C. § 101 and 35 U.S.C. § 103.

A. Related Proceedings

Petitioner indicates that the '452 patent is asserted in a litigation titled *IMS Health Incorporated v. Symphony Health Solutions Corporation*, Civil Action No. 13-2071-GMS (D. Del.). Pet. 1.

B. The '452 Patent (Ex. 1001)

The '452 patent relates to a system and method for gathering and analysis of health-care related data as well as techniques for de-identifying individuals from pharmaceutical data, in order to maintain privacy. Ex. 1001, 1:14–20. In the medical information field, pharmaceutical claims are processed on computer systems that receive claims data filed with insurance companies in order to have the claim paid by the company. This claims data includes specific details and attributes about the individuals making the claims. *Id*. at 21–30. According to the '452 patent, laws have been passed that prevent the transmission of personal information associated with individuals within health care claims data. *Id*. at 1:46–48. Removing specific personal data, however, makes it harder to generate valuable research and marketing data. *Id*. at 1:49–55. The '452 patent recognizes that it is important to be able to associate records and creates a unique alias for an individual identified in a health care database, allowing for aggregation of segregated data for marketing research. *Id*. at 1:65–2:2.

The system of the '452 patent may include a first data store for storing at least one record where each record has identification fields, such as name and birth date, and at least one health care field for the identified individual. *Id*. at 2:3–8. The system may also have a second data store and a processor that selects a record of the first data store, selects a subset of identification fields within the selected record, links the subset of identification fields, and stores the linked fields in a record in the second data store along with at least one health care field from the selected record of the first data store. *Id*. at 2:8–15. The healthcare data can have personal data removed from the records such that only medically significant information remains with the

identifier, allowing medical information to be segregated such that the individual records are still identifiable. *Id*. at 2:27–31. The healthcare claims data that is de-identified includes pharmaceutical, medical and hospital claims data. *Id*. at 4:22–25.

Although not recited *ipsis verbis* in the '452 patent specification, the claimed system and method of challenged claims 1 and 2 identify the invention as involving extracting alphanumeric information from identification fields in a patient record that uniquely identifies the patient, and generating an encrypted unique patient identifier. *Id*. at 13:25–30, 13:49–54. A de-identified patient record is then generated to include the encrypted unique patient identifier and a health care field in the selected patient record. *Id*. at 13:31–37, 13:55–61.

The primary processing involved in the system and method of the '452 patent may be performed by conventional computer equipment such as a Sun Microsystems ES 10000 computer using conventional software. *Id*. at 4:15–37. For example, data can be loaded into database tables, such as an Oracle database. *Id*. at 4:26–33.

According to the '452 patent, linking medical and pharmacy transactions at the patient level provides new insights. *Id*. at 3:21–24. A report displayed by the '452 system may contain attributes such as market shares, source of business, and patient demographics. *Id*. at 3:25–33. The '452 patent states that the system can be used "in a number of ways to help make business decisions," including enhanced sales force targeting as well as detecting early warning market share shifts and obtaining accurate intelligence on market size and demand. *Id*. at 3:33–42.

C. Illustrative Claims

Independent claim 1 and dependent claim 7 are illustrative of the invention and are reproduced below:

1. A system for de-identifying health care data comprising:

    at least one health care database, the at least one health care database including at least one patient record, each patient record including a plurality of identification fields associated with a patient and at least one health care field, wherein at least one subset of the identification fields associated with a patient uniquely identifies the patient; and

    one or more processors in communication with the at least one health care database and a second database, wherein the one or more processors execute instructions that cause the one or more processors to:

    select a patient record from the at least one health care database,

    extract alphanumeric information from a plurality of the identification fields included in the patient record, the extracted alphanumeric information uniquely identifying the patient;

    generate an encrypted unique patient identifier by encrypting the extracted alphanumeric information,

    generate a de-identified patient record, wherein the de-identified patient record includes the at least one health care field that is included in the selected patient record and the encrypted unique patient identifier, and wherein the de-identified patient record does not include any information that identifies the patient other than the encrypted unique patient identifier, and

    transmit the de-identified patient record to the second database.

7. The system of claim 1, wherein the plurality of identification fields included in the selected patient record include one or more of a patient's name, address, social security number, birthday, or gender.

D. The Asserted Grounds

Petitioner challenges the claims based upon § 101 as well as § 103.

For § 103, Petitioner relies upon the following prior art:

K. Pommerening, et al., *Pseudonyms for Cancer Registries*, 35 METHODS INFO. MED. 112–21 (1996) (Ex. 1004, "Pommerening").

Dorothy Elizabeth Robling Denning, *Cryptography and Data Security*, Addison-Wesley Publishing Company, Inc. (1982) (Ex. 1003, "Denning").

U.S. 5,606,610   Johansson   February 25, 1997 (Ex. 1006, "Johansson")

Petitioner contends that the challenged claims are unpatentable under 35 U.S.C. § 101, and § 103 based on the following specific grounds (Pet. 18):

Basis	Reference(s)	Claims challenged
§ 101		1, 2, 7, 11, and 15
§ 103	Pommerening and Denning	1, 2, 7, 11, and 15
§ 103	Johansson and Denning	1, 2, 7, 11, and 15

E. Level of Ordinary Skill in the Art

The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. In a given case, one or more factors may predominate. *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

Petitioner contends that the claims are directed to the subject matter of de-identifying (anonymizing) data records in a database. Pet. 18. According

to Petitioner, one of ordinary skill in the art would have familiarity with encryption and database systems. *Id.* Petitioner contends that the person of ordinary skill in the art would have had a Bachelor-level or higher degree in computer science, or equivalent work experience, and two years' experience with database systems and encryption. *Id.* at 19.

For purposes of this Decision, we consider the cited prior art as representative of the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The prior art references, like the '452 patent specification, do not recite specific computer programming and/or engineering problems encountered but instead discuss the problems in terms of classification tasks and the adequacy of encryption procedures (Ex. 1004, 120). Consistent with the prior art, Petitioner's expert, Dr. Clark, testifies that the types of problems encountered include how to protect/anonymize personal information in database records and how to match records belonging to a common source. Ex. 1002 ¶ 14. Dr. Clark testifies that the education level for these problems would have been a master's degree in computer science or equivalent work experience implementing secure database systems. *Id.*

On this record, we conclude that one of ordinary skill in the art had Master-level degree or higher in computer science, or equivalent work experience, and two years' experience with database systems and encryption.

II.   ANALYSIS

A.   Claim Interpretation

Consistent with the statute and the legislative history of the AIA, the

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Board interprets claim terms by applying the broadest reasonable interpretation in the context of the specification in which the claims appears. 37 C.F.R. § 42.100(b); *see* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

Petitioner identifies the following three claim terms for construction: health care database, encrypted unique patent identifier and extracted alphanumeric information. Pet. 19–21. Generally, Petitioner seeks to interpret the claims by providing further clarification as to the meaning of the terms. Patent Owner does not propose distinct constructions of the identified terms but contends that the claim term "extracted alphanumeric information," should be given its plain and ordinary meaning. Prelim. Resp. 23–24. The identified claim terms are given their ordinary and customary meaning, as would be understood by one with ordinary skill in the art, and need not be construed explicitly at this time for purposes of this Decision.

B.   Standing for Covered Business Method Review of the '452 Patent

Petitioner contends that the '452 patent is directed to a covered business method patent. Petitioner states that they have been sued for infringement and that they are not estopped from challenging the '452 patent on the identified grounds. Pet. 17–18. Petitioner further states that the '452 patent claims are directed to systems and methods for aggregation of segregated data for marketing research where the de-identified patient record is rooted in the patient's financial history. *Id*. at 10. Specifically Petitioner states that the data involved in the challenged claims reflects financial transactions where payment is exchanged for a medical service, hospital stay or prescription medicine. *Id*. at 11. Petitioner notes that the '452 patent

describes using the de-identified data to make business decisions and provide accurate intelligence on market size and demand. *Id*. at 12. Petitioner further states that the challenged claims are not directed to a technological invention. *Id*. at 14–17. Patent Owner disputes Petitioner's standing, contending that the claims are not particularly related to the financial services industry and represent a technological invention. Prelim. Resp. 4–23.

Section 18 of the AIA provides for the creation of a transitional program for reviewing covered business method patents. A "[c]overed business method patent" is a patent that "claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions." AIA § 18(d)(1); *see* 37 C.F.R. § 42.301(a). To determine whether a patent is eligible for a covered business method patent review, the focus is on the claims. *See* Transitional Program for Covered Business Method Patents— Definitions of Covered Business Method Patent and Technological Invention; Final Rule, 77 Fed. Reg. 48,734, 48,736 (Aug. 14, 2012). A patent need have only one claim directed to a covered business method to be eligible for review. *Id*.

1. Sued for Infringement of the '452 Patent

The AIA provides that "[a] person may not file a petition for a transitional proceeding . . . unless the person or the person's real party in interest or privy has been sued for infringement of the patent or has been

charged with infringement under that patent." AIA § 18(a)(1)(B); *see also* 37 C.F.R. § 42.302(a).

As discussed above, Petitioner represents that it has been sued for infringement of the '452 patent in a litigation titled *IMS Health Incorporated v. Symphony Health Solutions Corporation*, Civil Action No. 13-2071-GMS (D. Del.). Pet. 1. Patent Owner does not dispute this representation. Thus, Petitioner has been sued for infringement for purposes of AIA § 18(a)(1)(B).

2. Financial Service or Product

A "covered business method patent" is a patent that "claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions." AIA § 18(d)(1); *see* 37 C.F.R. § 42.301(a).

Petitioner states that the '452 patent claims systems and methods that expressly cover financial transaction records. Pet. 11. Patent Owner contends that the '452 patent has no particular relation to the financial services industry, and does not "particularly target" the financial sector. Prelim. Resp. 4–12. Additionally, Patent Owner states that it has disclaimed claims 4, 8, 9 and 12 and that the Board may not institute on those claims. *Id*. at 3–4. We have considered Patent Owner's contention, but hold that AIA § 18(d)(1) does not require that the claimed invention particularly target the financial industry as argued by Patent Owner. Additionally, Petitioner has demonstrated sufficiently for purposes of this Decision that the

challenged claims recite a system and method used in the practice, administration, or management of financial services and products.

The '452 patent claims a system and method that de-identifies health care records. For example, each claim recites a "health care field" relating to "health care data," which is described in the specification as including claims data, such as pharmaceutical, medical and hospital claims data, i.e., claims for receiving payment or reimbursement. Pet. 5; Ex. 1001, 4:15–25. The system and method are disclosed as being used to generate reports such as market shares, sources of business, and patient demographics. *Id.* at 3:25–33. Further, the specification discusses the use of the claimed system "in a number of ways to help make business decisions," including enhanced sales force targeting, early warning of market share shifts, and accurate intelligence on market size and demand. *Id.* at 3:33–42. On the present record, we determine that the claimed system and method recite activities used in the practice, administration, or management of a financial product or service.

3. Technological Invention

The definition of "covered business method patent" in Section 18(d)(1) of the AIA excludes patents for "technological inventions." In determining whether a patent is for a technological invention, we consider "whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and solves a technical problem using a technical solution." 37 C.F.R. § 42.301(b). The following claim drafting techniques, for example, typically do not render a patent a "technological invention":

(a) Mere recitation of known technologies, such as computer hardware, communication or computer networks, software, memory, computer-readable storage medium, scanners, display devices or databases, or specialized machines, such as an ATM or point of sale device.

(b) Reciting the use of known prior art technology to accomplish a process or method, even if that process or method is novel and non-obvious.

(c) Combining prior art structures to achieve the normal, expected, or predictable result of that combination.

Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,763–64 (Aug. 14, 2012).

Petitioner contends that the '452 patent claims fail to recite a novel and unobvious technological feature and do not solve a technical problem with a technical solution. Pet. 14–17. Patent Owner disagrees and states that the '452 patent is directed to an improvement in a technological field, de-identifying and encrypting patient records, and solves the technical problem of providing consistent de-identification of a significant volume of health care records, numbering in the millions each month with the technical combination of a specifically programmed computer and uniquely structured database. Prelim. Resp. 13–23.

We exercise our discretion and analyze claim 1 of the '452 patent to determine whether it is directed to a technological invention.

Claim 1, is directed to a system for de-identifying health care data. The claim selects a patient record from a health care database and extracts alphanumeric information from a plurality of identification fields included in the patient record where the extracted information uniquely identifies the patient. An encrypted unique patient identifier is then generated by encrypting the extracted information. A de-identified patient record is then

generated using the encrypted unique patient identifier and at least one health care field is included with the patient record. The claim also requires the de-identified record to be transmitted to a second database.

a. Lack of Novel and Unobvious Technological Feature

Petitioner states that the challenged claims merely employ well known technology to de-identify health care database records using generic computer-implementation to encrypt and link data records. Pet. 14–16. Patent Owner contends that the claimed system of de-identifying health care records involves technological features such as extracting alphanumeric information from a plurality of identification fields and encrypting the extracted information. Prelim. Resp. 16–17. On this record, however, the technology required by the claims is conventional. For example, as stated in the '452 patent and noted by Petitioner, the claimed system employs general purpose computers, databases, and software to encrypt and link data, all of which were well-known in the art at the time of the invention. Pet. 15–16; Ex. 1002 ¶¶ 26–31.

Based on the record presented, we determine that claim 1 lacks a novel and unobvious technological feature. Specifically, we credit the testimony of Petitioner's declarant, Dr. Clark, and find that the claimed system for de-identification of health care records may be conducted using general purpose computers, in combination with conventional databases and software. *Id.* We credit Dr. Clark's testimony, as it is consistent with the art of record, that the concept of de-identifying and linking health care records was well known in the art and does not represent a technological feature. Ex. 1004, 116–118. Further, the claims recite known prior art technology to

accomplish the method. For example, the '452 patent specification discloses that the method may be accomplished using conventional computer equipment and databases. Ex. 1001, 4:15–37, 4:26–33.

b. Claim 1 Does Not Solve a Technical Problem Using a Technical Solution

Petitioner contends that the challenged claims do not solve any technical problems using a technical solution. According to Petitioner, the '452 patent specification identifies the problem to be solved as compliance with regulations governing transmission of personal health information. Petitioner states that an increased focus on privacy of personal health information is not a technological problem. Pet. 16–17. Additionally, Petitioner contends that the solution to the problem requires nothing more than conventional database technology and no significant programming or other technological improvement. *Id.*

Patent Owner disagrees and contends that the claimed invention provides a technical solution by permitting search, retrieval and analysis of specific attributes of de-identified patient records. Prelim. Resp. 18. Patent Owner states that the technical problem is that there is a significant volume of health care records, numbering in the millions each month that need consistent de-identification. *Id.* at 18–19. Patent Owner asserts that the '452 patent solves the problem through the use of a specially programmed computer and uniquely structured database. *Id.* at 19.

The '452 patent specification identifies the problem as one of laws having been passed that prevent the transmission of personal information associated with individuals within health care claims data, where removing the specific personal data makes it harder to generate valuable research and

marketing data. Ex. 1001 1:46–55.

Lack of standard identifiers is not a technical problem, nor is a need to assign a common encrypted identifier to a particular individual. Similarly, properly classifying (linking) data and employing adequate encryption procedures are not technical solutions in the context of the '452 patent. Specifically, the '452 patent employs conventional computer equipment and programming to encode, link and transmit the health care data. Ex. 1002 ¶¶ 26–31. We conclude that Petitioner has demonstrated on this record that claim 1 of the '452 patent claim is not a technical solution to a technical problem.

We conclude that claim 1 of the '452 patent is not a technological invention under § 18(d)(1), based on the available record. Specifically, we have considered Patent Owner's contentions but determine that Petitioner has demonstrated that the claim does not recite a novel and unobvious technological feature. Further, Petitioner has demonstrated that claim 1 is not directed to a technical solution to a technical problem.

Based upon the record presented, we hold that Petitioner has standing to file a covered business method review of the '452 patent.

C.   Statutory Eligibility Under 35 U.S.C. § 101

Petitioner contends that claims 1, 2, 7, 11, and 15 are unpatentable under 35 U.S.C. § 101, because they are directed to ineligible subject matter. Pet. 21–27. Patent Owner disagrees. Prelim. Resp. 25–41.

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and

requirements of this title." 35 U.S.C. § 101. Supreme Court precedents provide three specific exceptions to the broad categories of § 101: laws of nature, physical phenomena, and abstract ideas. *Bilski v. Kappos*, 561 U.S. 593, 601 (2010). "The 'abstract ideas' category embodies the longstanding rule that '[a]n idea of itself is not patentable.'" *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014) (citing *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (quotations omitted)).

In *Alice*, the Supreme Court referred to the framework set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012), "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice*, 134 S. Ct. at 2355. In the first step, "we determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Id.* "If so, we then ask, '[w]hat else is there in the claims before us?'" *Id.* (quoting *Mayo*, 132 S. Ct. at 1297). In the second step, we consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application. *Id.* Step two of the analysis may be described as a search for an "inventive concept"—i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself. *Id.* (citing *Mayo*, 132 S. Ct. at 1294).

1. Abstract Idea

Petitioner contends that the claims recite an abstract idea. According to Petitioner, the claimed system and method of de-identifying patient

records in one database and transmitting the de-identified record to a second database represents abstract concepts of encrypting information and transmitting the information. Pet. 22–23; Ex. 1002 ¶¶ 18–19. Generally, Petitioner contends that the claimed system and method steps merely recite a generic computer implementation of an abstract idea that can be performed using paper and pencil. Pet. 17, 19; Ex. 1002 ¶ 25.

Patent Owner contends that the claims are not directed towards an abstract idea but require specific and concrete elements. These elements include selecting a patient record from at least one health care database, extracting alphanumeric information from a plurality of identification fields that uniquely identify the patient, generating an encrypted unique personal identifier, generating a de-identified patient record containing the encrypted identifier and at least one health care field in the selected patient record, and transmitting the de-identified record to a second database. Prelim. Resp. 30. Patent Owner further contends that Petitioner failed to provide sufficient specificity in analyzing the claims in the context of the alleged abstract idea. *Id*. at 31.

Each challenged claim is directed towards de-identifying health care data where a de-identified patient record is generated to include at least one health care field in a selected patient's record and an encrypted unique patient identifier, and the de-identified patient record is transmitted to a database. The specific steps of de-identifying health care data in claim 1 are directed towards an abstraction—a "disembodied concept" that represents a basic building block of human ingenuity. Specifically, the steps all describe an abstract idea of making personal identifiers secret (encrypting), indexing the secret with personal information, and communicating the indexed secret.

On this record, we do not agree with Patent Owner that the addition of the
conventional computing databases and other conventional components
(processors, encryption, and transmitting information) to the abstract idea
renders the abstraction concrete. Thus, we analyze the claims to determine
if they incorporate enough meaningful limitations to ensure that the claims
cover more than just an abstract idea. *See Mayo*, 132 S. Ct. at 1297.

2. Inventive Concept

Petitioner contends that the challenged claims fail to recite an
inventive concept but instead add only vague, conventional or routine
limitations to the abstract idea. Pet. 23. For example, Petitioner states that
the claims obtain data and process the data using generic computing
elements incidental to the abstract idea. *Id*. at 23–24. Specifically, the
claims merely recite conventional computer elements such as "database" and
"processor" and generically encrypt the obtained information and transmit it.
Id. at 26. Petitioner states that no special programming or improvement to a
basic computer is required to carry out the system and method of the
challenged claims, and that absent the specific claim recitations of computer
technology, the challenged claims could be performed manually. *Id*. at 16–
17; Ex. 1002 ¶¶ 31–32.

According to Patent Owner, the claims include additional features
beyond any alleged abstract idea such that they do not preempt an entire
concept. Prelim. Resp. 36. Patent Owner states that the claims recite
substantive, concrete limitations that de-identify patient records, by
generating encrypted unique patient identifiers with health care data, and
transmit the de-identified record to a database. *Id*. at 37. Patent Owner

contends that these features meaningfully limit the challenged claims in ways that distinguish the prior art. *Id.* Patent Owner goes on to state that extracting alphanumeric information from a plurality of the identification fields also represents a meaningful limitation. *Id.* at 38.

The '452 patent specification states that the primary processing involved in the system and method of the '452 patent may be performed by conventional computer equipment such as a Sun Microsystems ES 10000 computer using conventional software. Ex. 1001, 4:15–37. For example, data can be loaded into database tables, such as an Oracle database, from which data cubes can be generated and then modeled on desktop computers running the Windows NT operating system. *Id.* at 4:26–33.

Consistent with the '452 patent specification, Dr. Clark testifies that the claims implement the abstract concepts through the use of general purpose computers, databases, and software. Ex. 1002 ¶¶ 25–26. Dr. Clark states that no special programming or improvements to a basic computer or database are required to implement the claims. *Id.* ¶¶ 27–31. We credit Dr. Clark's testimony at this stage of the proceeding as it is consistent with the teachings of the '452 patent specification.

Based on the record presented, we determine that the challenged claims do not add meaningful limitations to avoid preempting the basic concepts of making personal identifiers secret (de-identifying/encrypting), indexing the secret (indexing/linking), and transmitting the linked information. In essence, the challenged claims recite systems and methods for encoding personal identification information and linking that information using a computer, and do no more than merely recite the use of computer technology for one of its most basic functions, handling potentially large

datasets that would be labor intensive and tedious if conducted by hand. Ex. 1003, 79.

We have considered Patent Owner's remaining arguments but do not find them persuasive. For example, Patent Owner contends that the challenged claims recite meaningfully limitations in ways that distinguish the prior art. Prelim. Resp. 37–39. A claim however, may be novel but still lack subject matter eligibility. *Parker v. Flook*, 437 U.S. 584, 588 (1978) ("For the purpose of our analysis [under § 101], we assume that respondent's formula is novel and useful and that he discovered it.").

We have reviewed the Petition and all of Patent Owner's rebuttal arguments and evidence relied upon in its Patent Owner Preliminary Response. On this record, we conclude that Petitioner has demonstrated that it is more likely than not that claims 1, 2, 4, 7–9, 11, 12 and 15 are unpatentable under 35 U.S.C. § 101 as directed to non-statutory subject matter.

D.   Section 103 Obviousness Challenges

Petitioner raises two (2) separate challenges based on 35 U.S.C. § 103. Generally, Petitioner contends that all of the challenged claims are obvious over the combination of Pommerening and Denning as well as obvious over the combination of Johansson and Denning. Pet. 27–61. These contentions are discussed in detail below.

1. Background on Obviousness

An invention is not patentable under 35 U.S.C. § 103 if it is obvious. *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 426–27 (2007). The facts

underlying an obviousness inquiry include:

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

Graham v. John Deere Co., 383 U.S. 1, 17–18 (1966). In addressing the findings of fact, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 550 U.S. at 416. As explained in *KSR*:

> If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417. Accordingly, a central question in analyzing obviousness is "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.*

2. The Prior Art References

a. Pommerening

Pommerening provides a discussion of privacy and security for data flow and data storage for population-based cancer registries. Ex. 1004, 112. Pommerening employs a special trusted office that communicates with reporting physicians and generates a cryptographic pseudonym for each case, which is passed on to a registration office for permanent storage. *Id.*

The pseudonyms are said to be distinct and permit the matching of data while permitting privacy. *Id*. at 113.

Pommerening's registration office performs a second encryption that links data only in the main memory of the registration office's computer. *Id*. at 118. The cooperating registration office only sees the resulting linkage data in its own linkage format. *Id*. at 116. Pommerening's system is designed to provide identification data for record linkage, even where there are multiple notifications of the same individual. *Id*. at 113. Linkage data is generated by extracting information including name(s), surname(s), phonetic codes, and birthdate. *Id*. at 117.

b. Johansson

Johansson describes a method and apparatus for encrypting original identifying information to protect an individual's personal information, such as in the banking industry. Ex. 1005, 1:4–16. Johansson seeks to store information relating to "original identity" information and associated "descriptive information." *Id*. at 1:40–42. The original identity information can include name, address, and personal code numbers. *Id*. at 4:28–35. The original identity information is kept separated from the descriptive information by initially having the original identity information encrypted to form an "update identity." *Id*. at 1:47–52. The update identity then undergoes a second encryption to result in a storage identity, which is associated with the descriptive information. *Id*. at 1:52–54. The storage identity is then stored along with the descriptive information on a storage medium. *Id*. at 1:54–56. According to Johansson, the resulting records may be regarded as pure information records as opposed to personal records. *Id*.

at 1:58–61. By encrypting the original identity information in two separate steps when generating the storage identity, Johansson is said to enable the creation of "floating" storage identities of the records, which prevents unauthorized tracking. *Id.* at 2:1–7.

c. Denning

Denning describes cryptographic mechanisms for encrypting data fields deemed to be sensitive, such as personnel records in a database. Ex. 1003, 148–50. Denning discloses protecting sensitive fields, such as identity fields and medical records, through a wide range of encoding techniques, including methods best suited for digital computers and communications. *Id.* at 6, 135–39, 148–50, 194, 275. For example, personnel records containing name fields and hospital databases containing patient medical records may be encrypted. *Id.* at 148, 331. Denning also describes assigning pointers to encrypted values, storing them in lookup tables, and assigning shared access keys across partitioned sections. *Id.* at 6, 148, 151–73, 340–70.

3. Pommerening and Denning

Petitioner states that Pommerening describes a system and method to de-identify and link health records by assigning each record a pseudonym. Pet. 27. Petitioner contends that Denning discloses multiple encryption mechanisms for encrypting sensitive data fields, including hospital medical records. *Id.* Petitioner provides detailed claim charts identifying where Pommerening and Denning describe the claimed elements, which are supported by the Declaration of Dr. Clark. *Id.* at 29–44; Ex. 1002 ¶¶ 40–49.

As apparent from the claim charts, Denning is relied upon principally for its detailed teachings of encrypting computer database records, including medical records. Petitioner states that it would have been obvious to one of ordinary skill in the art to combine the teachings of Pommerening and Denning to arrive at the challenged claims as the claims represent a combination of known elements (de-identification of health care records using encryption and linking records) for their known purpose to achieve a predictable result of de-identifying selected fields of a data record for medical informatics. *Id*. at 27–29. Patent Owner disagrees.

Patent Owner contends that the combination of Pommerening and Denning fails to address the features recited in independent claims 1 and 2. Prelim. Resp. 46. Patent Owner states that Pommerening requires a series of coordinated interactions between at least six different parties whereas the challenged claims requires only communication between one or more processors and two databases. *Id.* The independent claims of the '452 patent, however, are all written using the open-ended transitional phrase "comprising." The term "comprising" is an open-ended term of art used in claim language, "which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." *Genentech, Inc. v. Chiron Corp*., 112 F.3d 495, 501 (Fed. Cir. 1997). Accordingly, we hold that the challenged claims are not limited to communications involving only one or more processors and two databases.

Patent Owner also contends that Pommerening and Denning fail to disclose one or more processors in communication with at least one health care database and a second database. Prelim. Resp. 49. As noted by Petitioner's expert, Dr. Clark, Pommerening describes transferring health

care records between a trusted office and a registration office. Ex. 1002 ¶
41; Ex. 1004, 112–13. As noted by Petitioner, Denning describes hospital
databases where doctors and medical researchers are given different access,
and also describes transmitting encrypted data over computer networks from
one location to another for processing or storage. Pet. 31, 35; Ex. 1002 ¶ 46;
Ex. 1003, 154, 331. Based on the record presented, we hold that one skilled
in the art would have understood the combined teachings of Pommerening
and Denning to have disclosed using one or more processors in
communication with at least one health care database and a second database.

Patent Owner states that Pommerening and Denning fail to describe or
suggest generating an encrypted unique patient identifier by encrypting
alphanumeric information extracted from a plurality of identification fields
of a patient record. Prelim. Resp. 50–55. Patent Owner alleges that
Pommerening's "pseudonym" includes random numbers that prevent it from
being a patient identifier, let alone an encrypted unique patient identifier. *Id.*
at 52–53. Patent Owner, however, does not explain sufficiently how the
alleged inclusion of additional random numbers in the pseudonym would
preclude the pseudonym from meeting the claimed encrypted unique patient
identifier limitation. Additionally, Patent Owner alleges that Petitioner
failed to explain properly how Denning teaches such a limitation. *Id.* at 53–
55. As noted by Dr. Clark, Denning describes multiple cryptographic
mechanisms for encrypting personal identity references, and that these
mechanisms for encrypting sensitive information were well known in the art.
Ex. 1002 ¶ 21; Ex. 1003, 6, 148–50.

Patent Owner contends that Pommerening and Denning fail to
describe or suggest generating a de-identified patient record that does not

include any information that identifies the patient other than the encrypted unique patient identifier. Prelim. Resp. 55–59. Both Pommerening and Denning are directed to protecting sensitive information, including medical records. Further, as noted by Petitioner, Pommerening teaches that a patient should not be able to uncover their own pseudonym. Pet. 34.

Patent Owner contends that Petitioner did not specifically challenge independent claim 3 but challenges dependent claim 15, which depends from claim 3. Claim 3 is directed to a non-transitory computer-readable medium. Except for the recitation of the computer-readable medium, claim 3 mirrors the language of method claim 2. Pommerening and Denning describe de-identifying data using computers, which one skilled in the art would have understood as including the use of computer-readable mediums.

We credit Dr. Clark's testimony, as it is consistent with the teachings of the Pommerening and Denning references. We conclude, based on the record presented, that one skilled in the art would have combined the teachings of Pommerening and Denning to arrive at the challenged claims as the claims represent known elements, combined for their known purpose to achieve a predictable result, de-identifying health care data.

We hold that, based on the record presented, Petitioner has demonstrated that it is more likely than not that the challenged claims are obvious over the combined teachings of Pommerening and Denning.

4. Johansson and Denning

Petitioner states that Johansson describes methods and systems of de-identifying and storing database records by encoding identity information and creating a unique identifier. Pet. 45. Johansson refers to the encrypted

original identity information as an "update identity." Ex. 1005, 1:40–52. According to Petitioner, the update identity is subjected to a second encryption by a reversible algorithm to form a storage identity. Pet. 46. Petitioner concludes that Johansson teaches one skilled in the art to encode subsets of identity references and assign them anonymous identifiers. *Id*. Petitioner states that Denning teaches encrypting records, such as medical records, and transmitting data from one location on a network to another for processing or storage. *Id*. at 48–52. Dr. Clark testifies that one skilled in the art would have understood that combining the teachings of Johansson and Denning would have led to the challenged claims as the claims represent the use of well-known elements, used for their known purpose to achieve a predictable result, de-identifying data records. Ex. 1002 ¶ 56.

Patent Owner contends that Johansson and Denning fail to describe or suggest a health care database including at least one patient record. Patent Owner also contends that neither reference describes or suggests the use of one or more processors in communication with two databases. Prelim. Resp. 62–66. As discussed above, Denning describes encrypting medical records, and Denning also describes the use of computer databases and transmitting information from one location to another.

We have considered Patent Owner's remaining arguments but do not find them persuasive. For example, Patent Owner contends that Johansson and Denning fail to describe or suggest generating a de-identified patient record that does not include any information that identifies the patient other than the encrypted unique patient identifier. Prelim. Resp. 70–73. Both Johansson and Denning, however, are directed to protecting sensitive information, such as personal identifiers.

We hold that, based on the record presented, Petitioner has demonstrated that it is more likely than not that the challenged claims are obvious over the combined teachings of Johansson and Denning.

III. CONCLUSION

The Petitioner has demonstrated that it is more likely than not that claims 1, 2, 7, 11, and 15 are not patentable as being directed to subject matter that is not patent-eligible and, further, would have been obvious over the prior art.

The Board has not made a final determination on the patentability of any challenged claim.

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that pursuant to 35 U.S.C. § 324(a), a covered business method patent review of the '452 patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 324(d) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial;

FURTHER ORDERED that the trial is instituted as to '452 patent claims 1, 2, 7, 11, and 15 on the ground of 35 U.S.C. §101 as being directed to non-statutory subject matter;

FURTHER ORDERED that the trial is instituted as to '452 patent claims 1, 2, 7, 11, and 15 on the obviousness grounds as follows:

    i)   over Pommerening and Denning;

    ii)   over Johansson and Denning;

FURTHER ORDERED that no other ground set forth in the Petition is

authorized;

FURTHER ORDERED that an initial conference call with the Board is scheduled for 2 PM Eastern Time on October 6, 2015. The parties are directed to the Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,765–66 (Aug. 14, 2012) for guidance in preparing for the initial conference call. The parties should be prepared to discuss any proposed changes to the Scheduling Order herewith and any motions the parties anticipate filing during the trial.

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