



(51) International Patent Classification:

G06F 17/30 (2006.01) G06Q 10/10 (2012.01)

(21) International Application Number:

PCT/CA2017/050262

(22) International Filing Date:

28 February 2017 (28.02.2017)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/383,301 02 September 2016 (02.09.2016) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,

(54) Title: SYSTEMS AND METHODS FOR SHARING DOCUMENTS

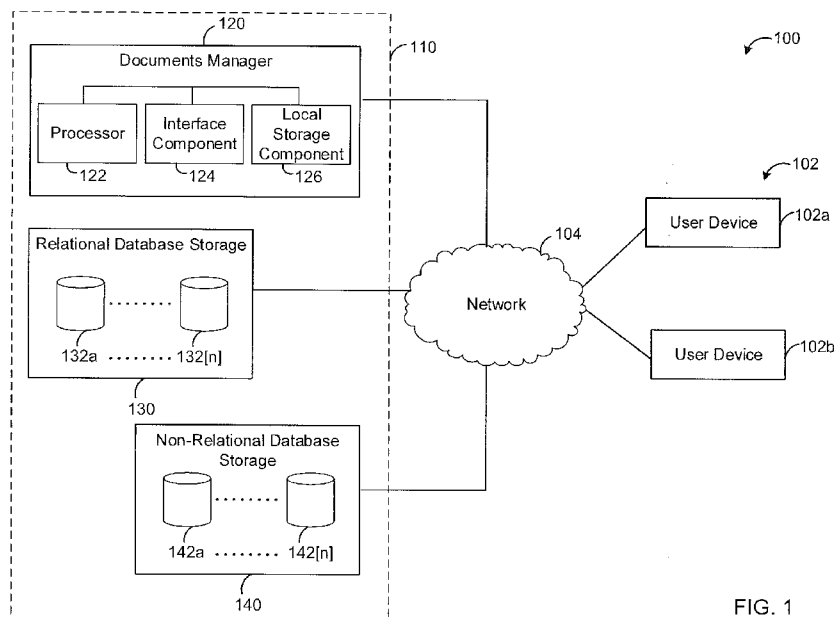


FIG. 1

(57) Abstract: Methods and systems for sharing electronic documents are described herein. The example method includes storing the electronic documents in a relational database storage; storing entity identifiers in the relational database storage, each entity identifier representing an entity type; recording in a non-relational database storage associations between the electronic documents and at least one entity identifier, each association comprising a relationship between a set of electronic documents and the at least one entity identifier; associating a delegate account with the at least one entity identifier; and based on an association recorded in the non-relational database storage for the at least one entity identifier, granting the delegate account a subset of document management functions available for the set of documents.



UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

SYSTEMS AND METHODS FOR SHARING DOCUMENTS

Field

[1] The described embodiments relate to methods and systems for sharing documents and in particular, for sharing documents with delegates.

5 Background

[1] In comparison to physical documents, electronic documents can be more portable and require less physical storage space. Electronic documents can also be easily modified, duplicated and disseminated.

[2] However, the convenience of electronic documents can result in other
10 limitations. The ease with which electronic documents can be duplicated and shared with others, for example, heightens the need for proper security safeguards. Also, since electronic documents can be created fairly easily and with minimal expense, the resulting volume of electronic documents that need to be managed can be fairly significant.

15 Summary

[3] The various embodiments described herein generally relate to methods (and associated systems configured to implement the methods) for sharing a plurality of documents.

[4] In accordance with some embodiments, there is provided a method for
20 sharing a plurality of electronic documents. The method includes: storing the plurality of electronic documents in a relational database storage; storing a plurality of entity identifiers in the relational database storage, each entity identifier representing an entity type selected from a plurality of entity types; recording in a non-relational database storage a plurality of associations between the plurality of electronic
25 documents and at least one entity identifier from the plurality of entity identifiers, each association comprising a relationship between a set of electronic documents from the plurality of electronic documents and the at least one entity identifier; associating a delegate account with the at least one entity identifier; and based on an association recorded in the non-relational database storage for the at least one
30 entity identifier, granting the delegate account a subset of document management

functions from a set of document management functions available for the set of documents.

[5] In some embodiments, each association includes a definition of the subset of document management functions for the set of documents and the at least one entity identifier.

[6] In some embodiments, the set of document management functions includes at least one of a modification function, a download function and a share function.

[7] In some embodiments, the delegate account is associated with a first set of documents and a second set of documents that is different from the first set of documents, and granting the delegate account the subset of document management functions includes: determining a first association between the first set of electronic documents and the at least one entity identifier; determining a second association between the second set of electronic documents and the at least one entity identifier; and granting the delegate account a first subset of document management functions for the first set of electronic documents based on the first association, and a second subset of document management functions for the second set of documents based on the second association.

[8] In some embodiments, the first subset of electronic document management functions is different from the second subset of document management functions.

[9] In some embodiments, the subset of electronic document management functions includes a conditional access to the set of documents, the conditional access indicating access to the set of documents is contingent on an occurrence of an event defined by an owner of the set of documents.

[10] In some embodiments, for the set of documents, the non-relational database storage includes a first association and a second association that is different from the first association; and the method includes associating a first delegate account with a first entity identifier in the first association and a second delegate account with a second entity identifier in the second association, the second delegate account being different from the first delegate account.

[11] In some embodiments, the set of documents includes one or more documents.

[12] In some embodiments, the relational database storage includes one or more relational databases organized based on a relational model.

[13] In some embodiments, the non-relational database storage includes one or more non-relational databases organized based on a non-relational model.

[14] In accordance with an embodiment, there is provided a system for sharing a plurality of documents. The system includes: a relational database storage for
5 storing, at least: the plurality of documents; and a plurality of entity identifiers, each entity identifier representing an entity type selected from a plurality of entity types; a non-relational database storage for recording a plurality of associations between the plurality of documents and at least one entity identifier from the plurality of entity
10 identifiers, each association comprising a relationship between a set of documents from the plurality of documents and the at least one entity identifier; and a documents manager operable to access each of the relational database storage and the non-relational database storage via a network, the documents manager comprising a processor operable to: associate a delegate account with the at least
15 one entity identifier; and based on an association recorded in the non-relational database storage for the at least one entity identifier, granting the delegate account a subset of document management functions from a set of document management functions available for the set of documents.

[15] In some embodiments, each association includes a definition of the subset of document management functions for the set of documents and the at least one entity
20 identifier.

[16] In some embodiments, the set of document management functions include at least one of a modification function, a download function and a share function.

[17] In some embodiments, the delegate account is associated with a first set of documents and a second set of documents that is different from the first set of
25 documents, and the documents manager operates to: determine a first association between the first set of documents and the at least one entity identifier; determine a second association between the second set of documents and the at least one entity identifier; and grant the delegate account a first subset of document management functions for the first set of documents based on the first association, and a second
30 subset of document management functions for the second set of documents based on the second association.

[18] In some embodiments, the first subset of document management functions is different from the second subset of document management functions.

[19] In some embodiments, the subset of document management functions comprises a conditional access to the set of documents, the conditional access indicating access to the set of documents is contingent on an occurrence of an event defined by an owner of the set of documents.

5 [20] In some embodiments, for the set of documents, the non-relational database storage comprises a first association and a second association that is different from the first association; and the documents manager associates a first delegate account with a first entity identifier in the first association and a second delegate account with a second entity identifier in the second association, the second delegate account
10 being different from the first delegate account.

[21] In some embodiments, the set of documents includes one or more documents.

[22] In some embodiments, the relational database storage includes one or more relational databases organized based on a relational model.

15 [23] In some embodiments, the non-relational database storage includes one or more non-relational databases organized based on a non-relational model.

Brief Description of the Drawings

[24] Several embodiments will now be described in detail with reference to the drawings, in which:

20 FIG. 1 is a block diagram of components interacting with a documents management system in accordance with an example embodiment;

FIG. 2 is a flowchart of an example embodiment of various methods of sharing documents;

25 FIG. 3 is a screenshot of an example contact list in accordance with an example embodiment;

FIG. 4 is a screenshot of an example entity selection interface in accordance with an example embodiment;

FIG. 5 is an example delegate invitation in accordance with an example embodiment;

30 FIG. 6A is a screenshot of an example interface displaying a document directory for a user in accordance with an example embodiment;

FIG. 6B is a screenshot of an example interface displaying a set of documents from the document directory of FIG. 6A for which a delegate user has access, in accordance with an example embodiment; and

5 FIG. 6C is a screenshot of another example interface displaying a set of documents from the document directory of FIG. 6A for which another delegate user has access, in accordance with an example embodiment.

[25] The drawings, described below, are provided for purposes of illustration, and not of limitation, of the aspects and features of various examples of embodiments described herein. For simplicity and clarity of illustration, elements shown in the
10 drawings have not necessarily been drawn to scale. The dimensions of some of the elements may be exaggerated relative to other elements for clarity.

Description of Exemplary Embodiments

[26] It will be appreciated that for simplicity and clarity of illustration, where considered appropriate, reference numerals may be repeated among the figures to
15 indicate corresponding or analogous elements or steps. In addition, numerous specific details are set forth in order to provide a thorough understanding of the exemplary embodiments described herein. However, it will be understood by those of ordinary skill in the art that the embodiments described herein may be practiced without these specific details. In other instances, well-known methods, procedures
20 and components have not been described in detail since these are known to those skilled in the art. Furthermore, it should be noted that this description is not intended to limit the scope of the embodiments described herein, but rather as merely describing one or more exemplary implementations.

[27] The embodiments of the systems and methods described herein may be
25 implemented in hardware or software, or a combination of both. These embodiments may be implemented in computer programs executing on programmable computers, each computer including at least one processor, a data storage system (including volatile memory or non-volatile memory or other data storage elements or a combination thereof), and at least one communication interface. For example and
30 without limitation, the programmable computers (referred to below as computing devices) may be a server, network appliance, embedded device, computer expansion module, a personal computer, laptop, personal data assistant, cellular telephone, smart-phone device, tablet computer, a wireless device or any other

computing device capable of being configured to carry out the methods described herein.

[28] In some embodiments, the communication interface may be a network communication interface. In embodiments in which elements are combined, the communication interface may be a software communication interface, such as those for inter-process communication (IPC). In still other embodiments, there may be a combination of communication interfaces implemented as hardware, software, and combination thereof.

[29] Program code may be applied to input data to perform the functions described herein and to generate output information. The output information is applied to one or more output devices, in known fashion.

[30] Each program may be implemented in a high level procedural or object oriented programming and/or scripting language, or both, to communicate with a computer system. However, the programs may be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language. Each such computer program may be stored on a storage media or a device (e.g. ROM, magnetic disk, optical disc) readable by a general or special purpose programmable computer, for configuring and operating the computer when the storage media or device is read by the computer to perform the procedures described herein. Embodiments of the system may also be considered to be implemented as a non-transitory computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner to perform the functions described herein.

[31] Furthermore, the system, processes and methods of the described embodiments are capable of being distributed in a computer program product comprising a computer readable medium that bears computer usable instructions for one or more processors. The medium may be provided in various forms, including one or more diskettes, compact disks, tapes, chips, wireline transmissions, satellite transmissions, internet transmission or downloadings, magnetic and electronic storage media, digital and analog signals, and the like. The computer useable instructions may also be in various forms, including compiled and non-compiled code.

[32] Electronic documents can be fairly easy to create and modify, and shared with others. The convenience of electronic documents increases the need for electronic document management systems that can facilitate sharing of electronic documents in a secured and convenient manner, particularly in situations in which multiple entities require access to the electronic documents.

[33] In the methods and systems described herein, electronic documents can be shared with different entities, and those entities can be allowed to perform different actions in respect of those electronic documents depending on their entity type. These entities can act as delegates, or trusted advisors, of those electronic documents and are granted different degrees of responsibility for those electronic documents.

[34] Each set of electronic documents is associated with one or more different entity types, and each entity type is granted a set of document management functions that allow that entity to perform certain actions in respect of those electronic documents. An originator of the electronic documents, or a delegate, can assign the different levels of responsibility in respect of the electronic documents to different delegates with relative ease and in a secured manner.

[35] Reference is made to FIG. 1, which illustrates a block diagram 100 of components interacting with a documents management system 110. The documents management system 110 includes a documents manager 120, a relational database storage 130, and a non-relational database storage 140. The documents manager 120 can communicate with each of user devices 102, the relational database storage 130, and the non-relational database storage 140 via a network 104.

[36] Although only one documents management system 110 is shown in FIG. 1, there may be multiple documents management system 110 distributed over a wide geographic area and connected via the network 104.

[37] The documents manager 120 has a processor 122, an interface component 124 and a local storage component 126. Each of the processor 122, the interface component 124 and the local storage component 126 may be implemented in software or hardware, or a combination of software and hardware.

[38] The processor 122 may include one or more processing components with computing processing abilities and memory such as a database(s) or file system(s). Each processing component can be configured to perform different dedicated tasks.

The processor 122 may be any suitable processors, controllers or digital signal processors that can provide sufficient processing power depending on the configuration, purposes and requirements of the documents manager 120. The processor 122 may be configured to control the operation of the documents manager 120 based on received data, stored data and/or settings defined by the user or the system, for example.

[39] The interface component 124 may be any interface that enables the documents manager 120 to communicate with other devices and systems via the network 104. In some embodiments, the interface component 124 can include at least one of a serial port, a parallel port, or a USB port. The interface component 124 may also include at least one of an Internet, Local Area Network (LAN), Ethernet, Firewire, modem or digital subscriber line connection. Various combinations of these elements may be incorporated within the interface component 124.

[40] The local storage component 126 can include RAM, ROM, one or more hard drives, one or more flash drives or some other suitable data storage elements such as disk drives, etc. The local storage component 126 may further include one or more databases (not shown) for storing information relating to, for example, user accounts and the documents to be shared.

[41] The processor 122, the interface component 124 and the local storage component 126 may be combined into a fewer number of components, or may be separated into a greater number of components.

[42] The network 104 may be any network capable of carrying data, including the Internet, Ethernet, plain old telephone service (POTS) line, public switch telephone network (PSTN), integrated services digital network (ISDN), digital subscriber line (DSL), coaxial cable, fiber optics, satellite, mobile, wireless (e.g. Wi-Fi, WiMAX), SS7 signaling network, fixed line, local area network, wide area network, and others, including any combination of these, capable of interfacing with, and enabling communication between each of the documents manager 120, the user devices 102, the relational database storage 130 and the non-relational database storage 140.

[43] The user devices 102 can be any computing device operable to connect to the network 104 through a wired or wireless connection. As noted, the user devices 102 may include at least a processor and memory, and may be an electronic tablet device, a personal computer, workstation, server, portable computer, mobile device, personal digital assistant, laptop, smart phone, WAP phone, an interactive television,

video display terminals, gaming consoles, and portable electronic devices or any combination of these. In some embodiments, the user devices 102 may be a laptop, or a smartphone device equipped with a network adapter for connecting to the Internet. In some embodiments, the connection request initiated from the user
5 devices 102 may be initiated from a web browser and directed at the browser-based communications application supported by the documents manager 120.

[44] Although only user devices 102a, 102b are shown in FIG. 1, it will be understood that more user devices 102 can be in communication with each of the documents manager 120, the relational database storage 130 and the non-relational
10 database storage 140 at any one time.

[45] The user devices 102 can be operated by any user of the documents management system 110. For example, the user device 102a can be operated by an owner of a document to upload the document to the relational database storage 130 and to define the corresponding document management functions for the different
15 entities that can access that document. The user device 102b can be operated by a delegate associated with an entity type granted access to that document.

[46] The relational database storage 130 is a database computer (or computers) hosting one or more relational databases, such as 132a to 132[n], organized based on a relational model. Relational databases 132 have a table structure with each row
20 corresponding to a unique set of data, and each column containing a characteristic of that set of data. Each row of the relational database 132 has a defined set of columns.

[47] The relational database storage 130 stores a plurality of electronic documents provided by users of the documents management system 110. The relational
25 database storage 130 can also store data related to characteristics of the stored documents, such as document identifiers. In some embodiments, the electronic documents stored in the relational database storage 130 can be structured as a file directory system with one or more folder levels and subfolder levels as described further herein. Each folder level can be assigned a category and each subfolder level
30 can be assigned a subcategory.

[48] The relational database storage 130 also stores a plurality of entity identifiers that represent different entity types. Each entity type can identify a delegate that can be assigned responsibility for a set of documents. For example, a delegate can be a mortgage broker who can be assigned responsibility for a mortgage application and

related conveyance documents related to the real estate transaction. Other delegates can include insurance brokers, accountants, lawyers, wealth advisors, trustees, and other professionals. In some embodiments, the delegate can include personal acquaintances and family members.

5 [49] The number of relational databases 132 provided in the relational database storage 130 can vary with the requirements of the documents management system 110, such as a size of the documents and number of users, for example.

[50] The user providing a document can be an owner of the document and/or a delegate of the document or related documents. The documents can include various
10 types, such as personal documents (e.g., bank statements, tax forms, wills, etc.), transaction-related documents (e.g., documents for completing a mortgage application, etc.) and other related documents.

[51] The non-relational database storage 140 is a database computer (or computers) hosting one or more non-relational databases, such as 142a to 142[n],
15 organized based on a non-relational model, such as key-value, graph, column, document or other models. Unlike relational databases 132 that have a predefined set of data fields, non-relational databases 142 are not restricted to a set of data fields but can be implemented with more flexible data structures. Non-relational databases 142 can, therefore, be appropriate for storing unstructured data sets and
20 data that needs to be accessed regularly due to a high volume of requests.

[52] In comparison with non-relational databases 142, relational databases 132 can be computationally expensive for more complex data structures. Data structures that involve multiple nested hierarchies, for example, can require recursive calculations to be performed. As a result, there can be significant delays to the
25 retrieval and/or storage of data in relational databases 132. Relational databases 132, therefore, may not be effective when computational speed is critical and the data structure is fairly complex.

[53] The non-relational database storage 140 can store data related to the entity identifiers, the electronic documents, and associations defined for the electronic
30 documents and the entity identifiers. By providing the metadata related to the electronic documents and the entity identifiers in the non-relational database storage 140, the retrieval and/or updating of data related to the electronic documents will not be limited by the computational limitations associated with querying the relational databases 132 directly.

[54] The number of non-relational databases 142 provided in the non-relational database storage 140 can vary with the requirements of the documents management system 110, such as a size of the documents and number of users, for example.

5 [55] Referring now to FIG. 2, which is a flowchart diagram 200 illustrating an example method for sharing documents. To illustrate the example method, reference will be made simultaneously to FIGS. 3 to 6C.

[56] At 210, the documents manager 120 stores a plurality of documents in the relational database storage 130.

10 [57] The documents management system 110 described herein can be used for storing a variety of documents and for facilitating the sharing of the documents with different entities. Example documents that can be stored in the relational database storage 130 can include various types, such as personal documents (e.g., bank statements, tax forms, wills, etc.), transaction-related documents (e.g., documents
15 for completing a mortgage application, etc.) and other documents.

[58] The documents can be organized into hierarchies in the relational database storage 130. The hierarchies may take the form of folders and subfolders, for example.

20 [59] At 220, the documents manager 120 stores a plurality of entity identifiers in the relational database storage 130.

[60] A variety of entity identifiers can be stored in the relational database storage 130. The entity identifiers represent an entity type from a plurality of entity types. Each entity type identifies a professional, or a category of individuals, that can be assigned responsibility for a set of documents. The entity identifiers are not
25 associated with specific users of the documents management system 110, but rather, a category of individuals who require, or can be assigned, some degree of access to the electronic documents stored in the relational database storage 130. The degree of access granted to each entity type can vary. Example entity types can include personal assistants, insurance brokers, lawyers, accountants, wealth
30 advisors and other professionals. In some embodiment, an entity type can be personal acquaintances and family members.

[61] The documents manager 120 can generate a notification, and transmit that notification, to the owner of the electronic documents and/or the associated delegate when an electronic document is added to the relational database storage 130.

[62] At 230, the documents manager 120 records in the non-relational database storage 140 a plurality of associations between the electronic documents stored in the relational database storage 130 and at least one entity identifier.

5 [63] Each association includes a relationship between a set of electronic documents stored in the relational database storage 130 and an entity identifier stored in the relational database storage 130. For example, the association can include a definition of the subset of document management functions for that set of electronic documents and the entity identifier. The set of electronic documents can include one or more electronic documents, as determined by the user defining the
10 document management functions available for each entity identifier. The user defining the document management functions can be the owner of the electronic documents or a delegate assigned with the responsibility of managing the document management functions for those electronic documents.

15 [64] Depending on the entity identifier and the set of electronic documents, the association defines the degree of access for the delegate who will be associated with that entity identifier in subsequent actions in the system. An example association will be described with reference to FIGS. 3 and 4.

[65] FIG. 3 shows a screenshot 300 of an example contact list 320 for a user 310, Alan Smith. The contact list 320 can be stored in the local storage component 126 or
20 in the relational database storage 130 for the user 310.

[66] The contact list 320 includes a contact 322a, which is the user 310 himself, a contact 322b ("Brad Johnson") with a job title 324a of EBC mortgage specialist, and a contact 322c ("Cathy Patton") with a job title 324b of insurance broker. The user 310 may not need to be included in the contact list 320.

25 [67] To invite a contact 322 from the contact list 320 to become a delegate, the user 310 associates the contact 322 with one or more entity types in respect of the electronic documents that the user 310 has control. As explained, the user 310 can be the owner of the electronic documents and therefore, have complete access over the electronic documents, or can be a delegate granted complete access to the
30 electronic documents for another individual. In this example, the user 310 is the owner of the electronic documents.

[68] FIG. 4 shows a screenshot 400 of an example entity type selection interface 410. As shown in the entity type selection interface 410, the user 310 owns several sets of documents related to different categories 420, namely a personal category

420a, a family trust category 420b, and a company category 420c. The sets of documents are stored in the relational database storage 130. The entity type selection interface 410 provides a list 430 of entity types from which the user 310 can select for assigning the relevant entity type for each contact 322.

5 [69] In the example shown in FIG. 4, the user 310 has assigned the contact 322b ("Brad Johnson") with the "Example Bank" entity type 432 and mortgage entity type 434 for the electronic documents stored within the personal category 420a. This is appropriate since the contact 322b ("Brad Johnson") has the job title 324a of EBC mortgage specialist and therefore, should have access to electronic documents
10 related to mortgages and the Example Bank banking account, which is the bank from which the user 310 is seeking a mortgage.

[70] After establishing the association between the set of documents within the personal category 420a with the entity types 432 and 434, the documents manager 120 can generate and deliver a delegate invitation to the contact 322b ("Brad
15 Johnson") to invite him to become a delegate for the user 310.

[71] FIG. 5 shows an example delegate invitation 500 provided on a display 510 of a user device 502. As shown in FIG. 5, the delegate invitation 500 includes a text field 520 explaining the responsibility of being a delegate and an accept icon 530 for directing the recipient to the documents management system 110 for completing the
20 registration as a delegate.

[72] At 240, the documents manager 120 associates a delegate account with the at least one entity identifier.

[73] Continuing with FIG. 5, the accept icon 530, when selected, directs the recipient of the delegate invitation 500 to a secured acceptance link. The secured
25 acceptance link may be hashed. At the link, the documents manager 120 can complete a registration of a delegate account for the recipient. In this example, the documents manager 120 can associate the delegate account for the contact 322b ("Brad Johnson") with the entity types 432 and 434 for the set of documents within the personal category 420a.

30 [74] At 250, the documents manager 120 grants the delegate account a subset of document management functions.

[75] As the delegate for the user 310, the delegate account of the contact 322b can be granted various document management functions. A set of document management functions that are available for an electronic document, or a set of

electronic documents, can be stored in the relational database storage 130, for example.

[76] For example, the document management functions can include managing the electronic documents or folders (e.g., assigning access permissions to different entity types, organizing the electronic documents, uploading additional electronic documents, and related actions), modifying the electronic documents, viewing the electronic documents, downloading and sharing the electronic documents, creating reminders for the electronic documents, and other related functions.

[77] Another example document management function can be a conditional access to a set of electronic documents. The conditional access can be contingent on an occurrence of an event defined by an owner of the set of electronic documents, such as the user 310, or a delegate associated with the entity type defined for managing the set of electronic documents. For example, estate management documents, such as a will, can be assigned a conditional access. The delegate assigned with the trustee entity type for the estate management documents will not be granted access until the testator is deceased, which can be confirmed with a court order or death certificate, for example.

[78] In some embodiments, only the user 310 can permanently delete the electronic documents from the documents management system 110.

[79] Reference will now be made to FIGS. 6A to 6C.

[80] FIG. 6A is a screenshot 600A of an example interface displaying a document directory 620 for the user 310.

[81] The document directory 620 shows the electronic documents stored in the relational database storage 130 for the user 310 organized in a file directory format.

It will be understood that other data structures may be used.

[82] The document directory 620 includes five sets of electronic documents 622, 624, 626, 628 and 630. Each set of electronic documents 622, 624, 626, 628 and 630 includes one or more electronic documents and/or subfolders. The set of electronic documents 622 is for a bank category and includes electronic documents 622a and 622b, the set of electronic documents 624 is for a tax category and includes electronic documents 624a, 624b and 624c, the set of electronic documents 626 is for an insurance category and includes electronic documents 626a and 626b, the set of electronic documents 628 is for a real estate category and includes electronic documents 628a, 628b, and 628c, and the set of electronic documents

630 is for an employment category and includes an electronic document 630a and a subfolder 632. The electronic documents within the subfolder 632 are not shown.

[83] Continuing with the example described with respect to FIGS. 3 to 5, FIG. 6B shows a screenshot 600B of an example interface displaying a set of documents 640 for which the delegate 610 has been assigned responsibility by the user 310.

[84] As explained with reference to FIGS. 3 and 4, the contact 322b ("Brad Johnson") is a EBC mortgage specialist, and therefore, the contact 322b is now the delegate 610 associated with the "Example Bank" entity type 432 and mortgage entity type 434 for the electronic documents within the personal category 420a. The electronic documents owned by the user 310 that are associated with the "Example Bank" entity type 432 and mortgage entity type 434 include the electronic document 622a, which is a mortgage application, the set of electronic documents 628 related to the real estate category, namely electronic document 628a ("offer"), 628b ("listing details"), and 628c ("house inspection report"), and the electronic document 630a ("employment contract").

[85] It is possible that the electronic documents stored in the relational database storage 130 can have more than one association stored in the non-relational database storage 140. An example is now described with reference to FIG. 6C, which is a screenshot 600C of an example interface displaying a set of electronic documents 642 for which a delegate 612 ("Cathy Patton") has been assigned responsibility by the user 310.

[86] The contact 322c ("Cathy Patton") is an insurance broker. The user 310 has assigned the insurance entity type to the contact 322c. After the contact 322c completed the registration to become the delegate 612 (which can be similar to the description for the contact 322b with reference to FIGS. 4 and 5), the documents manager 120 associates the delegate account of the contact 322c with the insurance entity type and the corresponding set of electronic documents. To grant the corresponding set of document management functions for the delegate account of the delegate 612, the documents manager 120 can determine the association stored in the non-relational database storage 140 for the insurance entity type and the corresponding set of electronic documents within the personal category 420a.

[87] FIG. 6C shows that the set of documents 642 for which the delegate 612 has been granted responsibility includes the set of electronic documents 626 related to the insurance category, namely electronic document 626a ("car insurance") and

626b ("home insurance"), and the electronic document 628c ("home inspection report"). As described with reference to FIG. 6B, the delegate 610 was also granted responsibility of the electronic document 628c ("home inspection report"). The non-relational database storage 140, therefore, includes a first association between the
5 electronic document 628c and each of the "Example Bank" entity type 432 and mortgage entity type 434, and a second association between the electronic document 628c and the insurance entity type.

[88] Since the roles of the delegates 610 and 612 are different, the first and second associations can define different subsets of document management
10 functions for each delegate 610 and 612. For example, the delegate 610 is associated with the "Example Bank" entity type 432 and the mortgage entity type 434, and so, the delegate 610 can be granted document management functions involving reviewing and sharing of the electronic document 628c ("home inspection report") since the delegate 610 may need to share the home inspection report 628c
15 with other finance entities to obtain financing and/or approval for the mortgage application 622a. The delegate 612, in contrast, is associated with the insurance entity type and therefore, may be granted a document management function involving only reviewing of the electronic document 628c ("home inspection report") for finalizing the home insurance document 626b.

[89] The present invention has been described here by way of example only, while numerous specific details are set forth herein in order to provide a thorough understanding of the exemplary embodiments described herein. However, it will be understood by those of ordinary skill in the art that these embodiments may, in some cases, be practiced without these specific details. In other instances, well-known
25 methods, procedures and components have not been described in detail so as not to obscure the description of the embodiments.

[90] It should be noted that terms of degree such as "substantially", "about" and "approximately" when used herein mean a reasonable amount of deviation of the modified term such that the end result is not significantly changed. These terms of
30 degree should be construed as including a deviation of the modified term if this deviation would not negate the meaning of the term it modifies.

[91] In addition, as used herein, the wording "and/or" is intended to represent an inclusive-or. That is, "X and/or Y" is intended to mean X or Y or both, for example. As

a further example, "X, Y, and/or Z" is intended to mean X or Y or Z or any combination thereof.

[92] Various modification and variations may be made to these exemplary embodiments without departing from the spirit and scope of the invention, which is
5 limited only by the appended claims. Also, in the various user interfaces illustrated in the drawings, it will be understood that the illustrated user interface text and controls are provided as examples only and are not meant to be limiting. Other suitable user interface elements may be possible.

We claim:

1. A method for sharing a plurality of electronic documents, the method comprising:
storing the plurality of electronic documents in a relational database storage;
5 storing a plurality of entity identifiers in the relational database storage, each
entity identifier representing an entity type selected from a plurality of entity types;
recording in a non-relational database storage a plurality of associations
between the plurality of electronic documents and at least one entity identifier from
the plurality of entity identifiers, each association comprising a relationship between
10 a set of electronic documents from the plurality of electronic documents and the at
least one entity identifier;
associating a delegate account with the at least one entity identifier; and
based on an association recorded in the non-relational database storage for
the at least one entity identifier, granting the delegate account a subset of document
15 management functions from a set of document management functions available for
the set of documents.
2. The method of claim 1, wherein each association comprises a definition of the
subset of document management functions for the set of documents and the at least
20 one entity identifier.
3. The method of any one of claims 1 to 2, wherein the set of document
management functions comprise at least one of a modification function, a download
function and a share function.
25
4. The method of any one of claims 1 to 3, wherein the delegate account is
associated with a first set of documents and a second set of documents that is
different from the first set of documents, and
granting the delegate account the subset of document management functions
30 comprises:
determining a first association between the first set of electronic
documents and the at least one entity identifier;
determining a second association between the second set of electronic
documents and the at least one entity identifier; and

granting the delegate account a first subset of document management functions for the first set of electronic documents based on the first association, and a second subset of document management functions for the second set of documents based on the second association.

5

5. The method of claim 4, wherein the first subset of electronic document management functions is different from the second subset of document management functions.

10

6. The method of any one of claims 1 to 5, wherein the subset of electronic document management functions comprises a conditional access to the set of documents, the conditional access indicating access to the set of documents is contingent on an occurrence of an event defined by an owner of the set of documents.

15

7. The method of any one of claims 1 to 6, wherein, for the set of documents, the non-relational database storage comprises a first association and a second association that is different from the first association; and

the method comprises associating a first delegate account with a first entity identifier in the first association and a second delegate account with a second entity identifier in the second association, the second delegate account being different from the first delegate account.

20

8. The method of any one of claims 1 to 7, wherein the set of documents comprises one or more documents.

25

9. The method of any one of claims 1 to 8, wherein the relational database storage comprises one or more relational databases organized based on a relational model.

30

10. The method of any one of claims 1 to 9, wherein the non-relational database storage comprises one or more non-relational databases organized based on a non-relational model.

11. A system for sharing a plurality of documents, the system comprising:

a relational database storage for storing, at least:
the plurality of documents; and
a plurality of entity identifiers, each entity identifier representing an
entity type selected from a plurality of entity types;
5 a non-relational database storage for recording a plurality of associations
between the plurality of documents and at least one entity identifier from the plurality
of entity identifiers, each association comprising a relationship between a set of
documents from the plurality of documents and the at least one entity identifier; and
a documents manager operable to access each of the relational database
10 storage and the non-relational database storage via a network, the documents
manager comprising a processor operable to:
associate a delegate account with the at least one entity identifier; and
based on an association recorded in the non-relational database
storage for the at least one entity identifier, granting the delegate account a
15 subset of document management functions from a set of document
management functions available for the set of documents.

12. The system of claim 11, wherein each association comprises a definition of the
subset of document management functions for the set of documents and the at least
20 one entity identifier.

13. The system of any one of claims 11 to 12, wherein the set of document
management functions comprise at least one of a modification function, a download
function and a share function.

25

14. The system of any one of claims 11 to 13, wherein the delegate account is
associated with a first set of documents and a second set of documents that is
different from the first set of documents, and
the documents manager operates to:
30 determine a first association between the first set of documents and the
at least one entity identifier;
determine a second association between the second set of documents
and the at least one entity identifier; and

grant the delegate account a first subset of document management functions for the first set of documents based on the first association, and a second subset of document management functions for the second set of documents based on the second association.

5

15. The system of claim 14, wherein the first subset of document management functions is different from the second subset of document management functions.

16. The system of any one of claims 11 to 15, wherein the subset of document management functions comprises a conditional access to the set of documents, the conditional access indicating access to the set of documents is contingent on an occurrence of an event defined by an owner of the set of documents.

17. The system of any one of claims 11 to 16, wherein, for the set of documents, the non-relational database storage comprises a first association and a second association that is different from the first association; and

the documents manager associates a first delegate account with a first entity identifier in the first association and a second delegate account with a second entity identifier in the second association, the second delegate account being different from the first delegate account.

18. The system of any one of claims 11 to 17, wherein the set of documents comprises one or more documents.

19. The system of any one of claims 11 to 18, wherein the relational database storage comprises one or more relational databases organized based on a relational model.

20. The system of any one of claims 11 to 19, wherein the non-relational database storage comprises one or more non-relational databases organized based on a non-relational model.

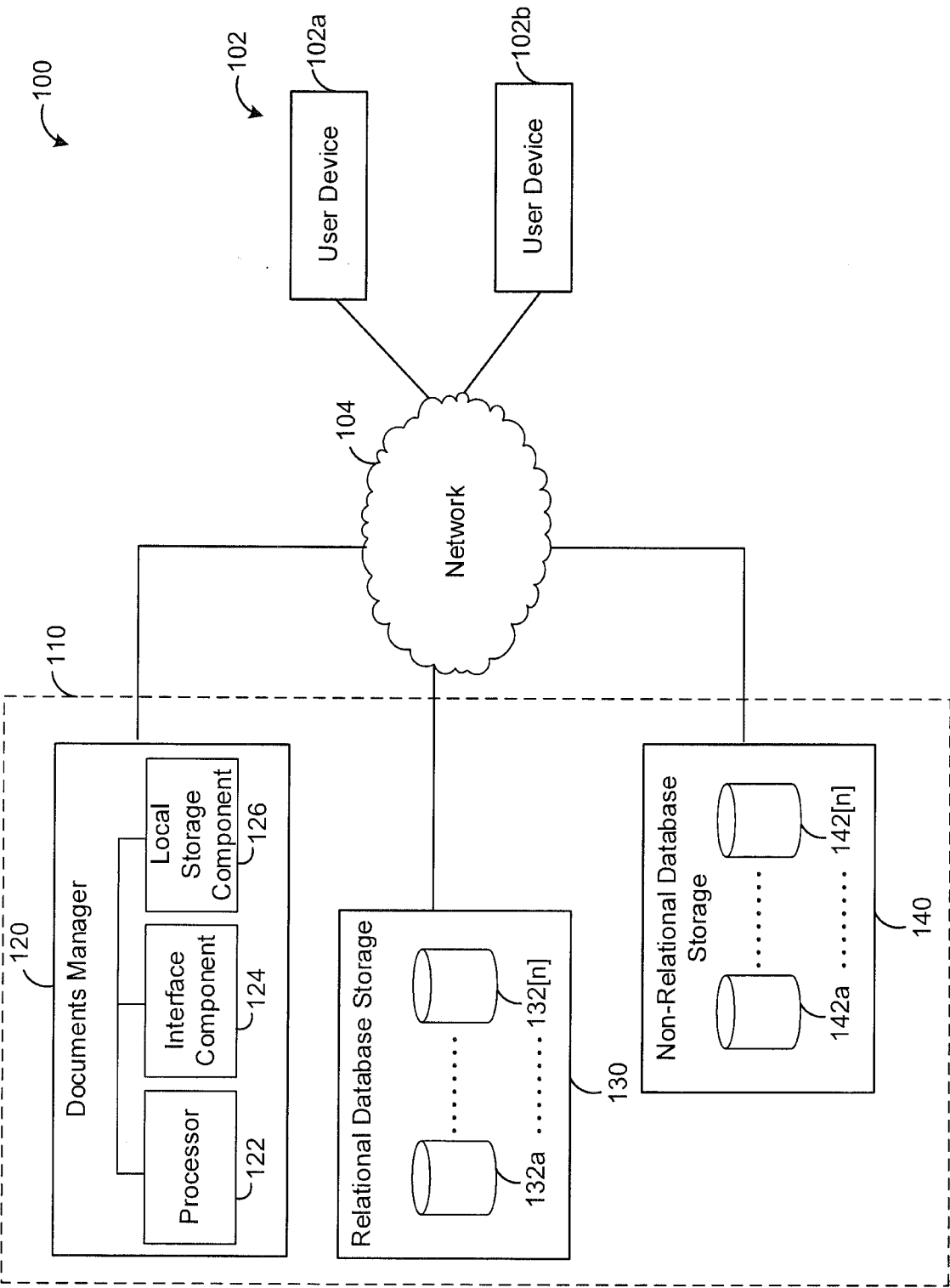


FIG. 1

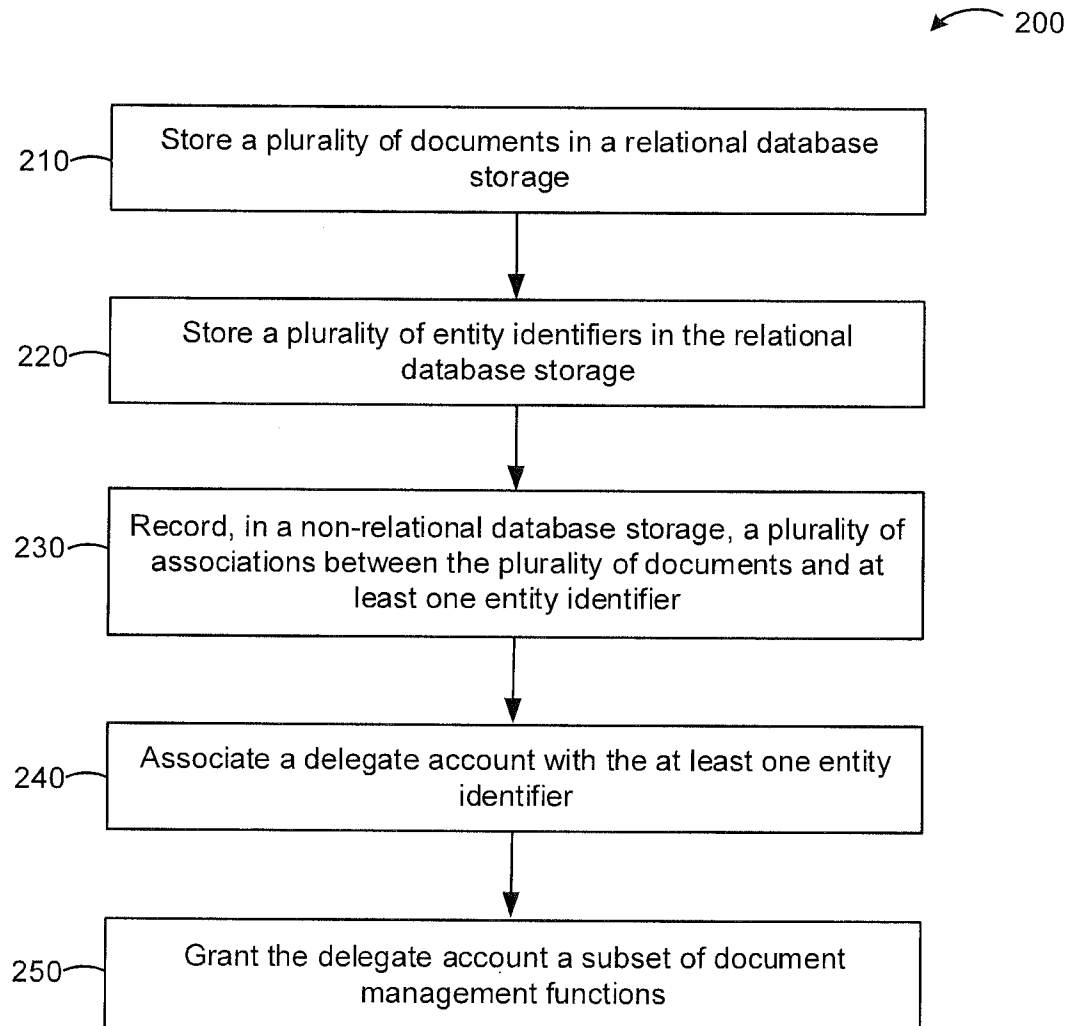


FIG. 2

300

310

320

322a

322b

324a

322c

324b

DOCUMENT MANAGEMENT SYSTEM				
Contacts	Sort By: Last Name/First Name	Documents	Reminders	Contacts
Search		+ Import Contact Card + Add New Contact		
NAME		CONTACT INFO		ASSOCIATED DOCUMENTS
Smith, Alan		alan@mail.com		7
Johnson, Brad Example Bank Mortgage Specialist		brad.johnson@ebc.com		5
Patton, Cathy Insurance Broker		cpatton@insured.ca		3

FIG. 3

400

310

410

420

420a

420b

430

432

434

DOCUMENT MANAGEMENT SYSTEM

Contacts Sort By: Last Name/First Name

Documents Reminders

Contacts

Search

Import Contact Card + Add New Contact

Alan Smith

BRAD JOHNSON Permissions

Choose which entity types apply.

Alan Smith Personal

Smith Family Trust Discretionary Inter Vives

Smith Platforms LLC Limited Liability Company

Check All Uncheck All

Accounting

Chartered Accountants

Financial Statements

General Ledger

Other

Estate

Estate Plan

Funeral Plan

Last will & Testament

Other

Safety Deposit Box

Trust

Banking

Bank Account

Royal Bank

CIBC

Credit Card

Line of Credit

Loan

Mortgages

Other

Safety Deposit Box

Student loan

Vehicle Financing

Donation 2

Fundraising Activities

Incoming

Outcoming

Employment

Board Position

Career Management

Charity & Volunteer

Employer

Entrepreneurial

Other

Education

Grade School

Independent Coursework

Other

Post Secondary

Professional Certification

Student Loan

Family

Caregiver

Children

Dependent

Genealogy

Save

Cancel

FIG. 4

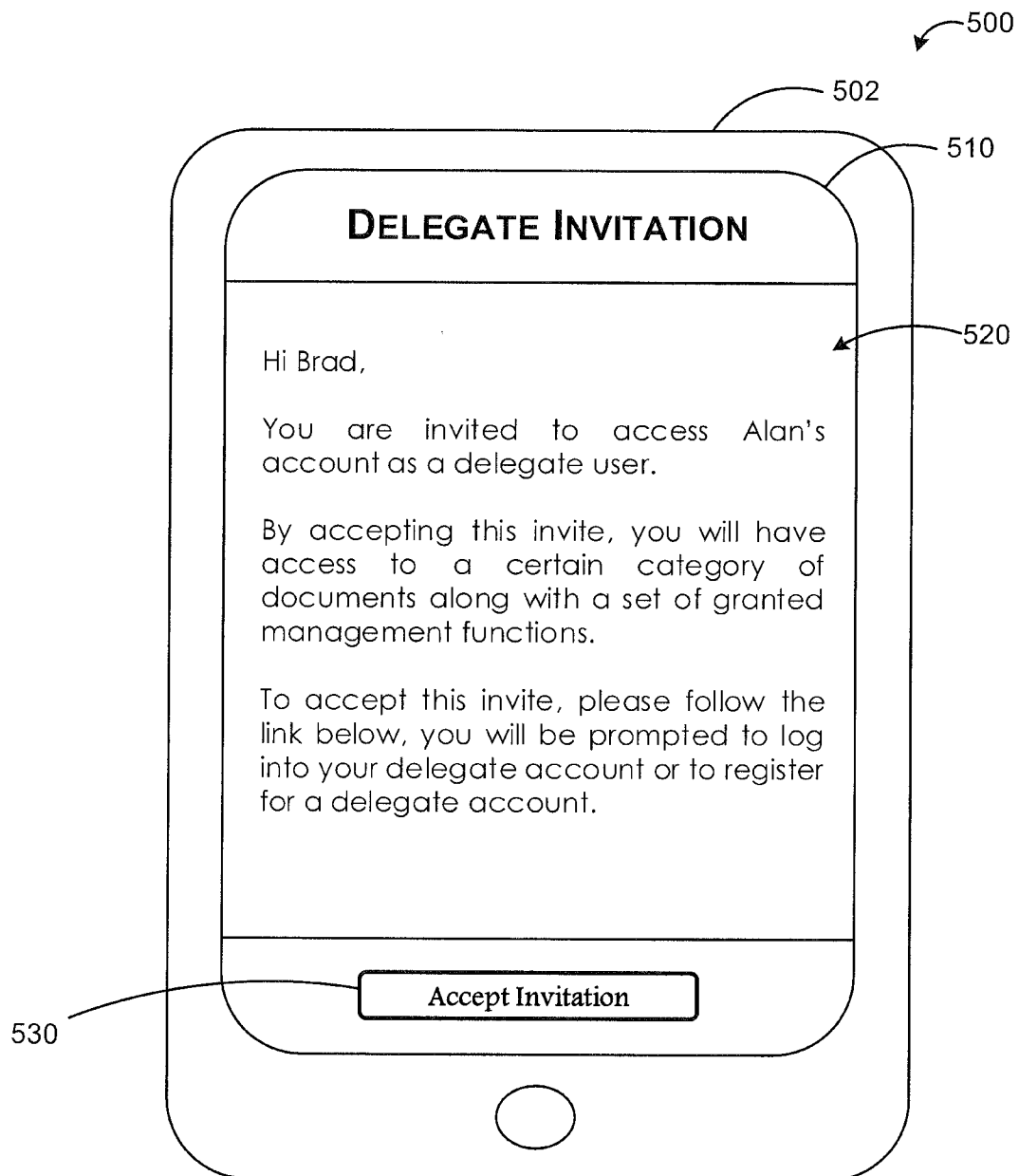


FIG. 5

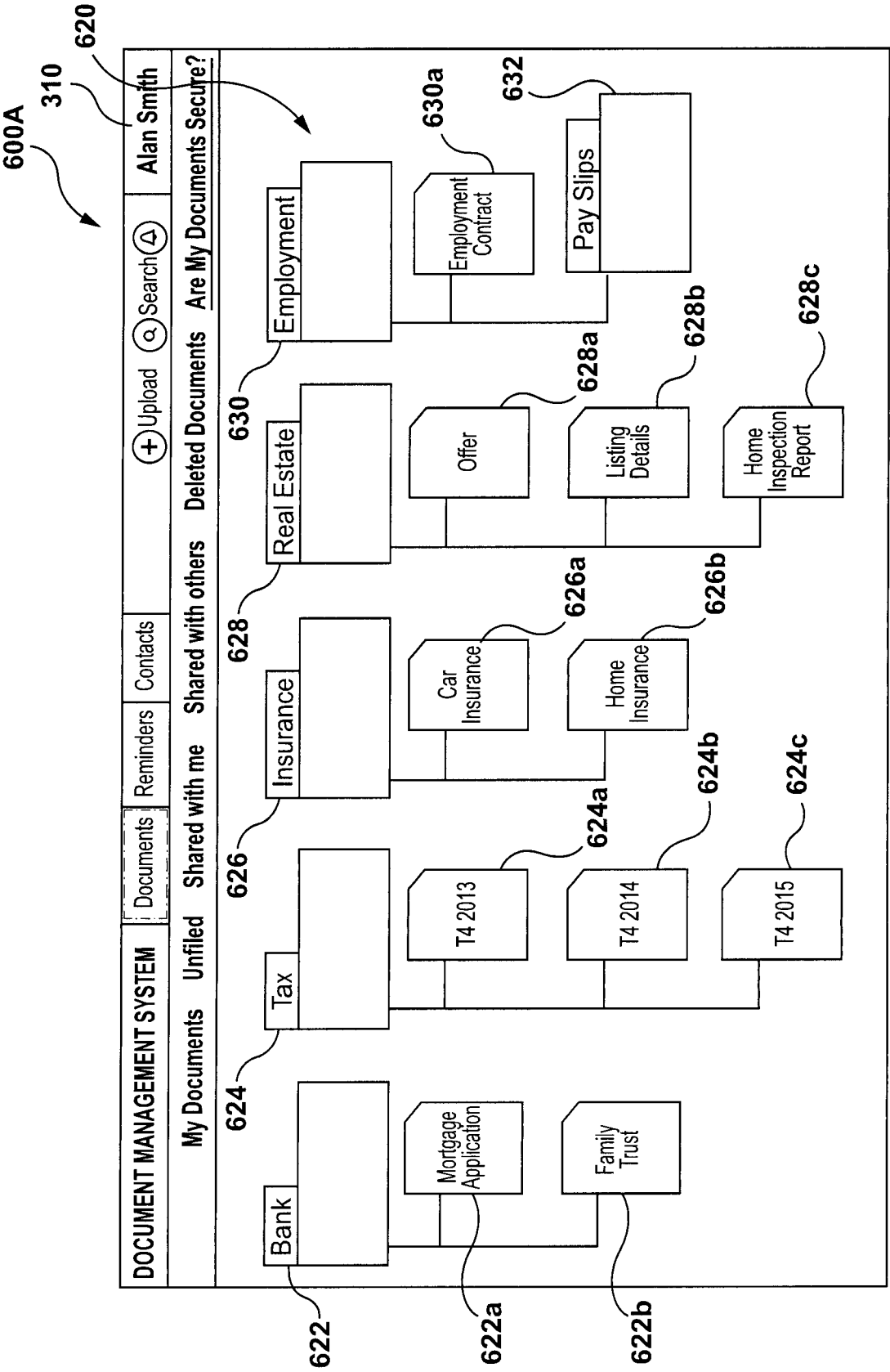


FIG. 6A

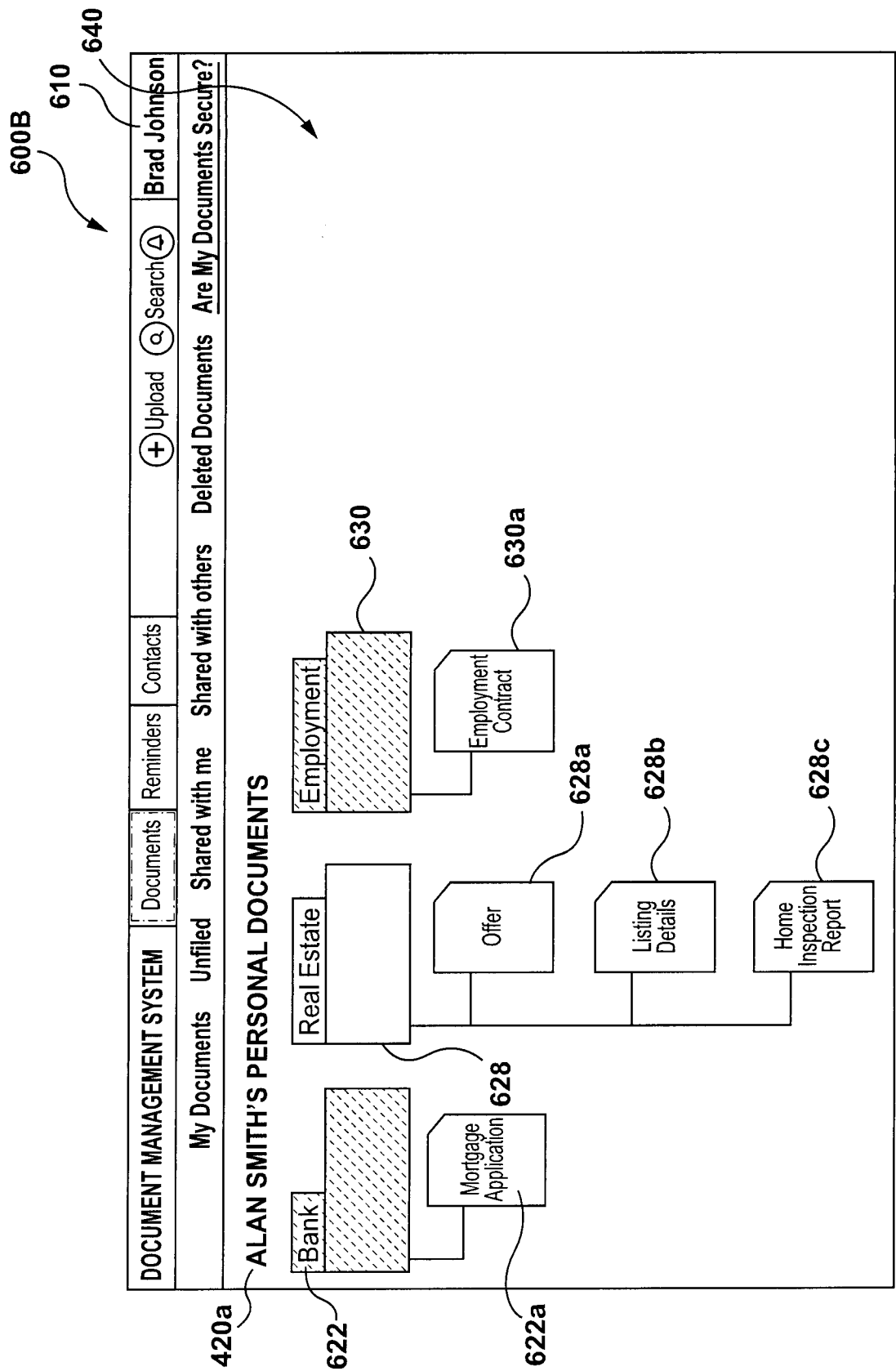


FIG. 6B

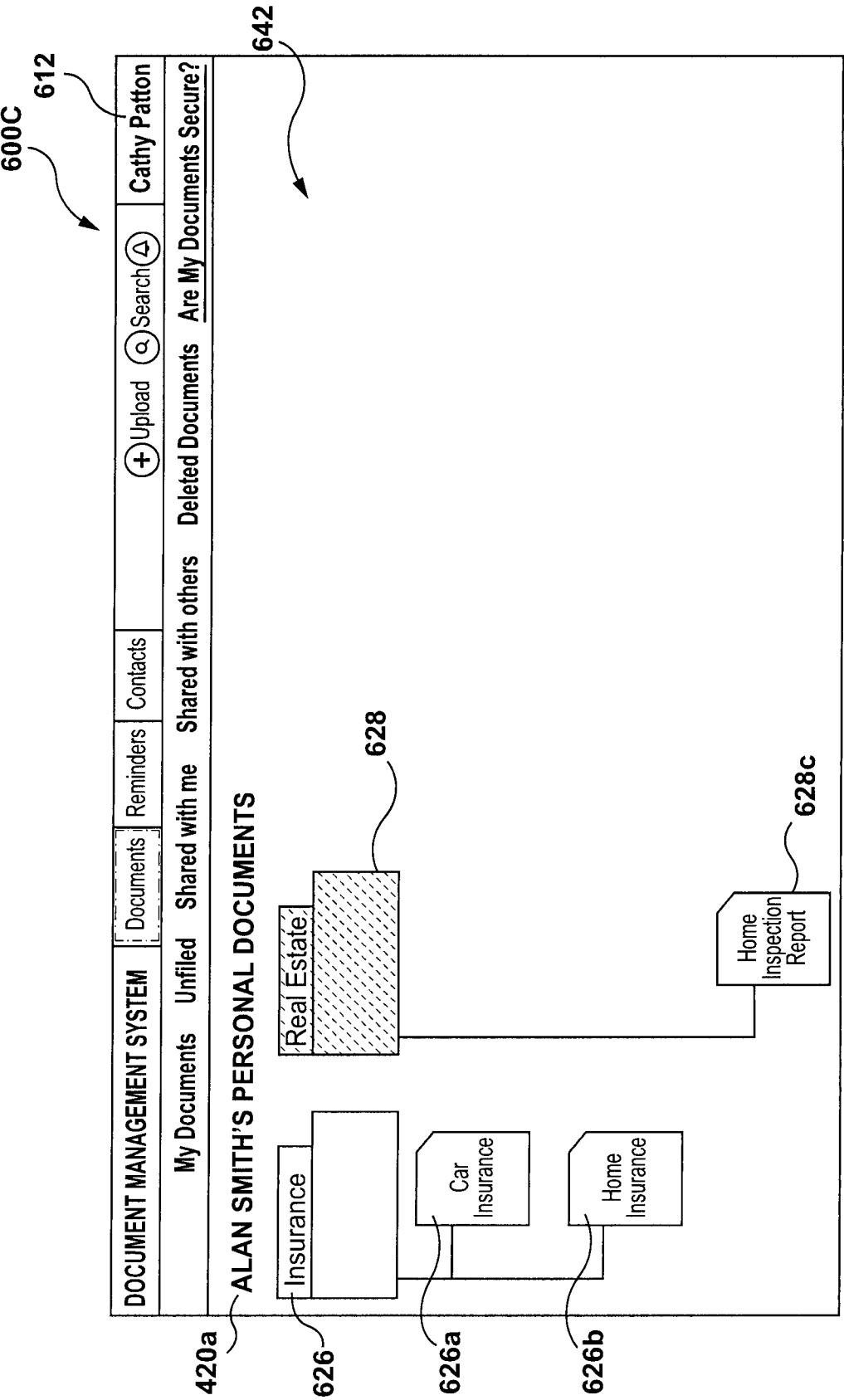


FIG. 6C

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2017/050262

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **G06F 17/30** (2006.01), **G06Q 10/10** (2012.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC: G06F 17/30 (2006.01), G06Q 10/10 (2012.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
 Databases: Questel Orbit, Canadian Patent Database.

Keywords: electronic document, identifier, delegate account

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 20150082453 A1 (WANG X. et al.) 19 March 2015 (19-03-2015) * Entire document *	1-20
A	US 20020184517 A1 (TADAYON B. et al.) 5 December 2002 (05-12-2002) * Entire document *	1-20
A	US 7231595 B1 (FUJINO Y. et al.) 12 June 2007 (12-06-2007) * Entire document *	1-20
A	CA 2545940 C (SYLTHE O. A. et al.) 5 January 2016 (05-01-2016) * Entire document *	1-20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
 03 May 2017 (03-05-2017)

Date of mailing of the international search report
 19 May 2017 (19-05-2017)

Name and mailing address of the ISA/CA
 Canadian Intellectual Property Office
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Authorized officer

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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Continued on Extra Sheet.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2017/050262

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