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(54) **PATENT REGISTRY ARCHITECTURE WITH  
DIRECT PATENT OFFICE PAYMENT  
CONDUIT**

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USPC ..... **705/30**

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(57) **ABSTRACT**

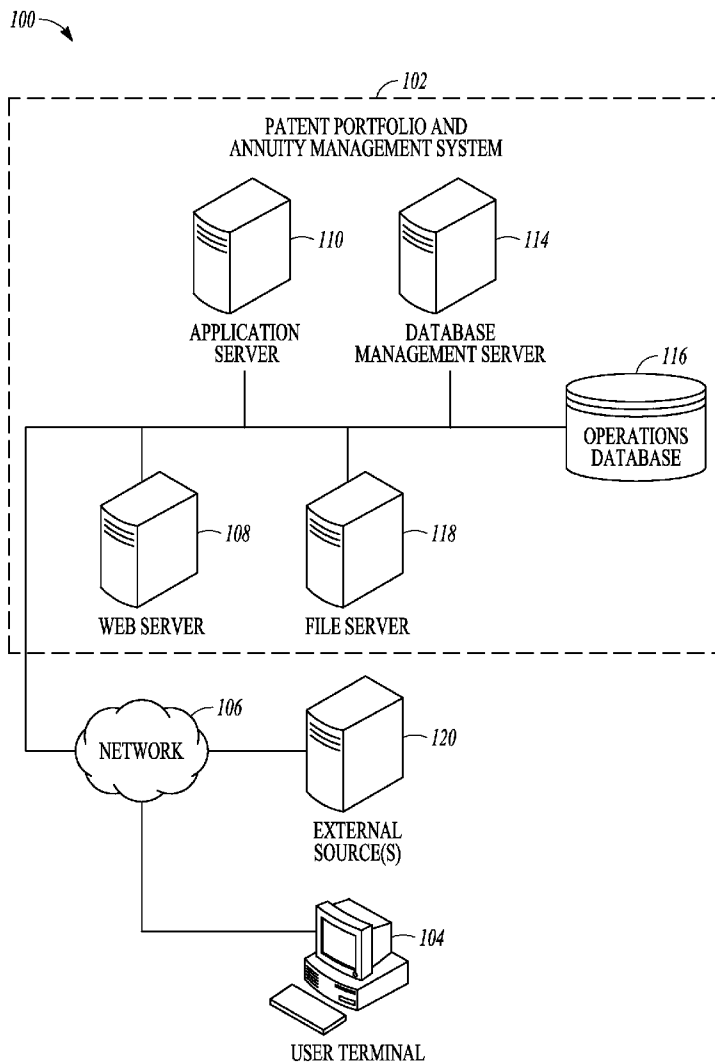
Various embodiments of the present disclosure include systems and methods for managing patent annuity fee payments. One method comprises using one or more processors to provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable. The method further includes registering customers of the registry as registered users of the registry, and allowing at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees. In one embodiment, a direct annuity payment conduit between a national patent office and at least one registered user of the registry is provided.

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**Related U.S. Application Data**

(60) Provisional application No. 61/542,515, filed on Oct. 3, 2011, provisional application No. 61/561,502, filed on Nov. 18, 2011.



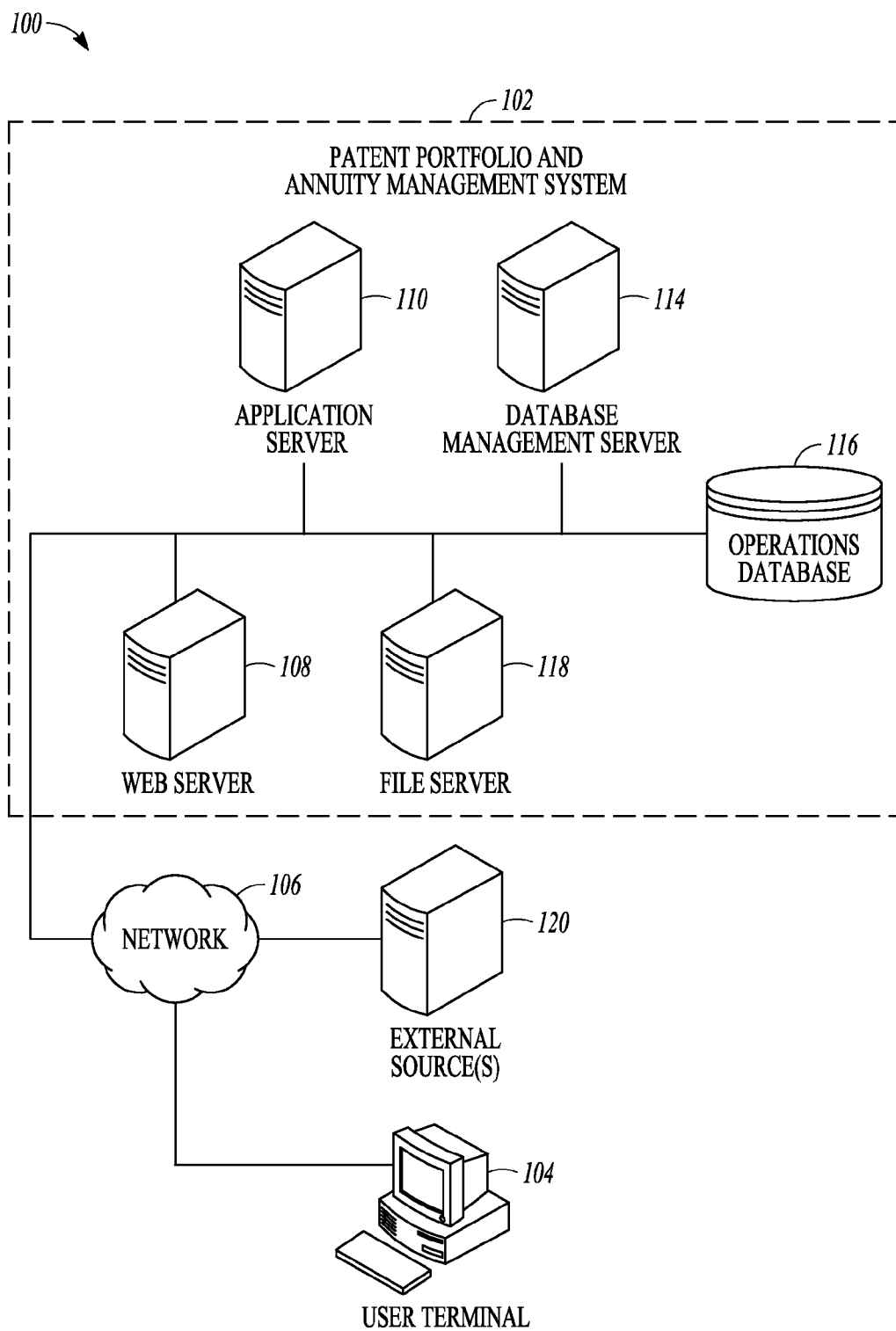


FIG. 1

200

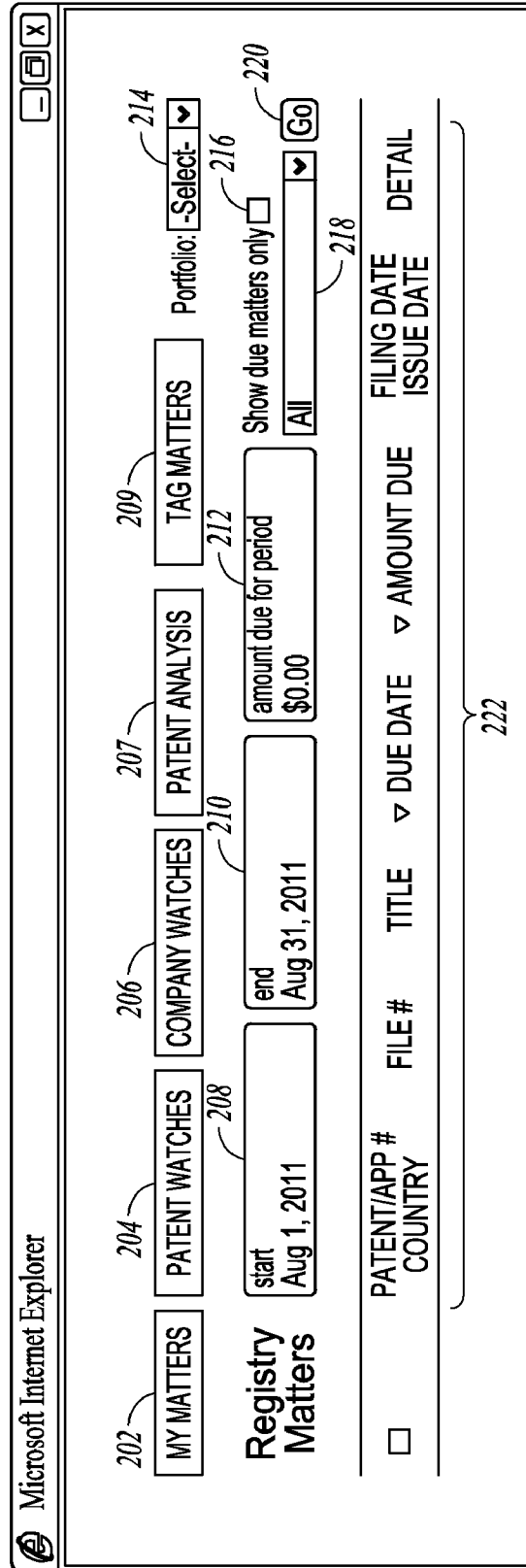
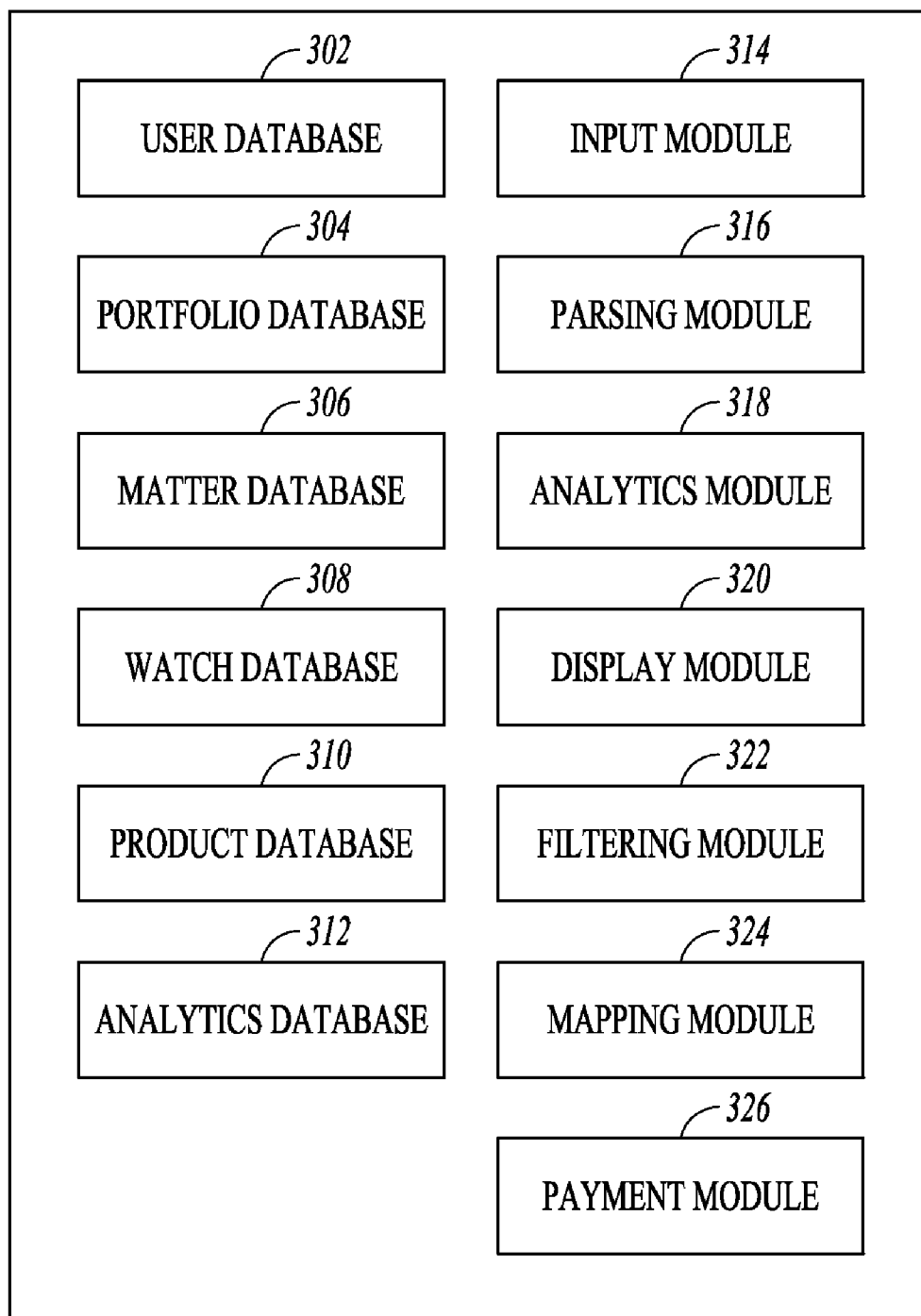


FIG. 2



**FIG. 3**

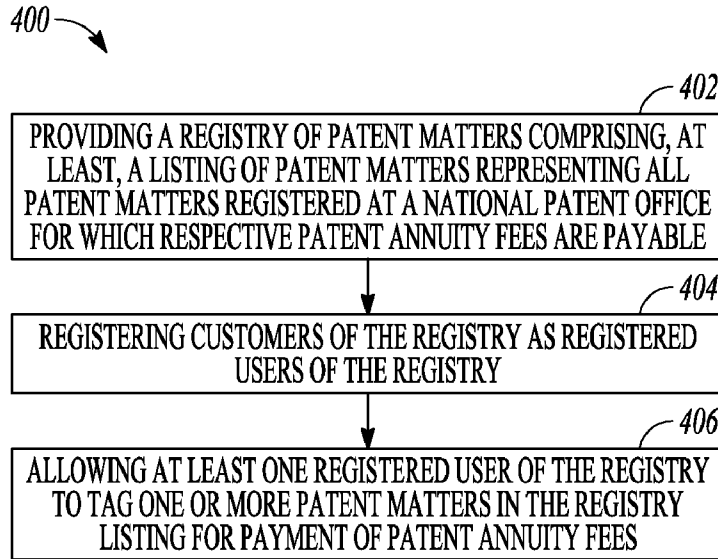


FIG. 4

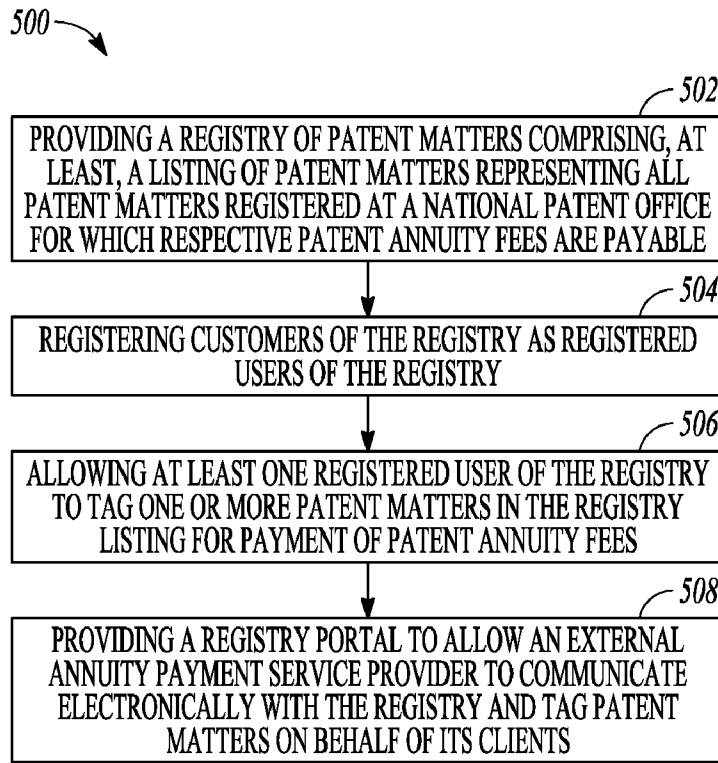
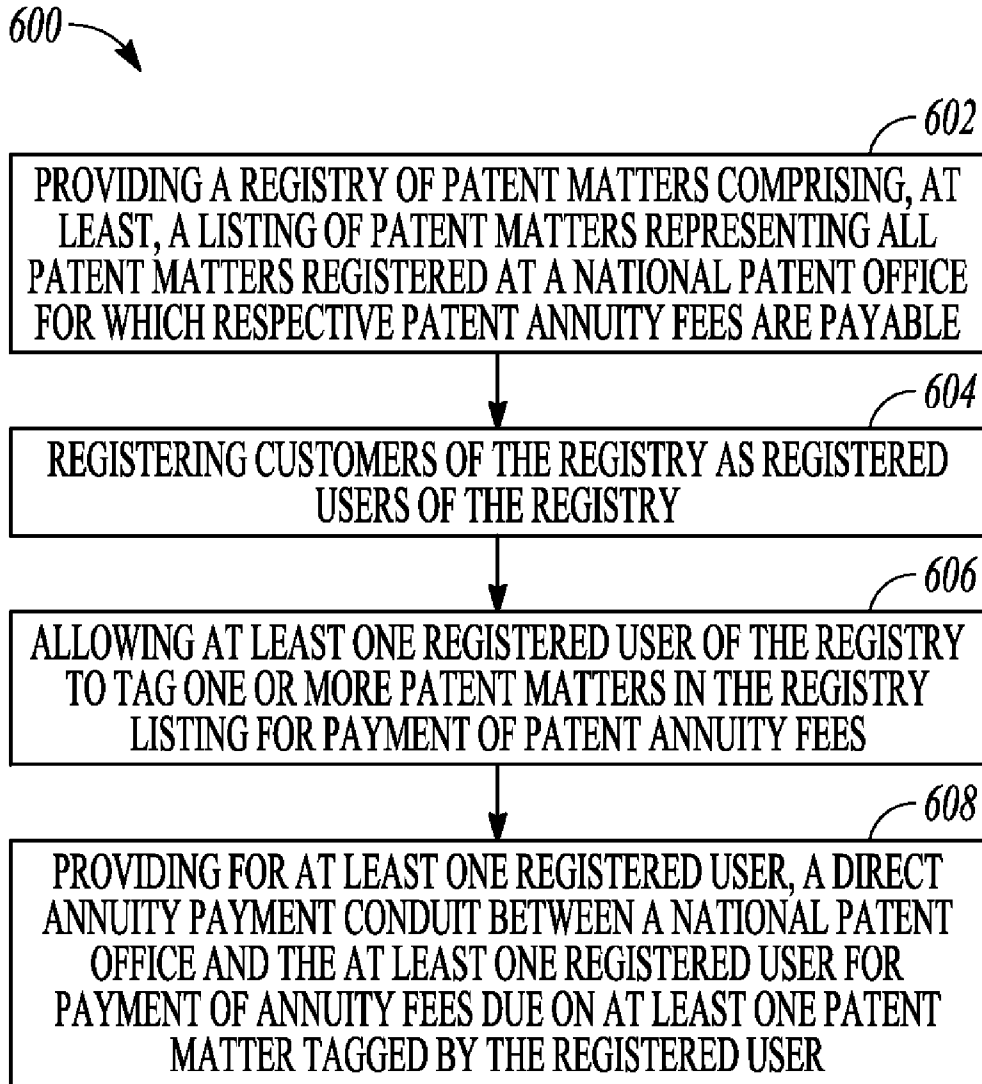


FIG. 5



**FIG. 6**

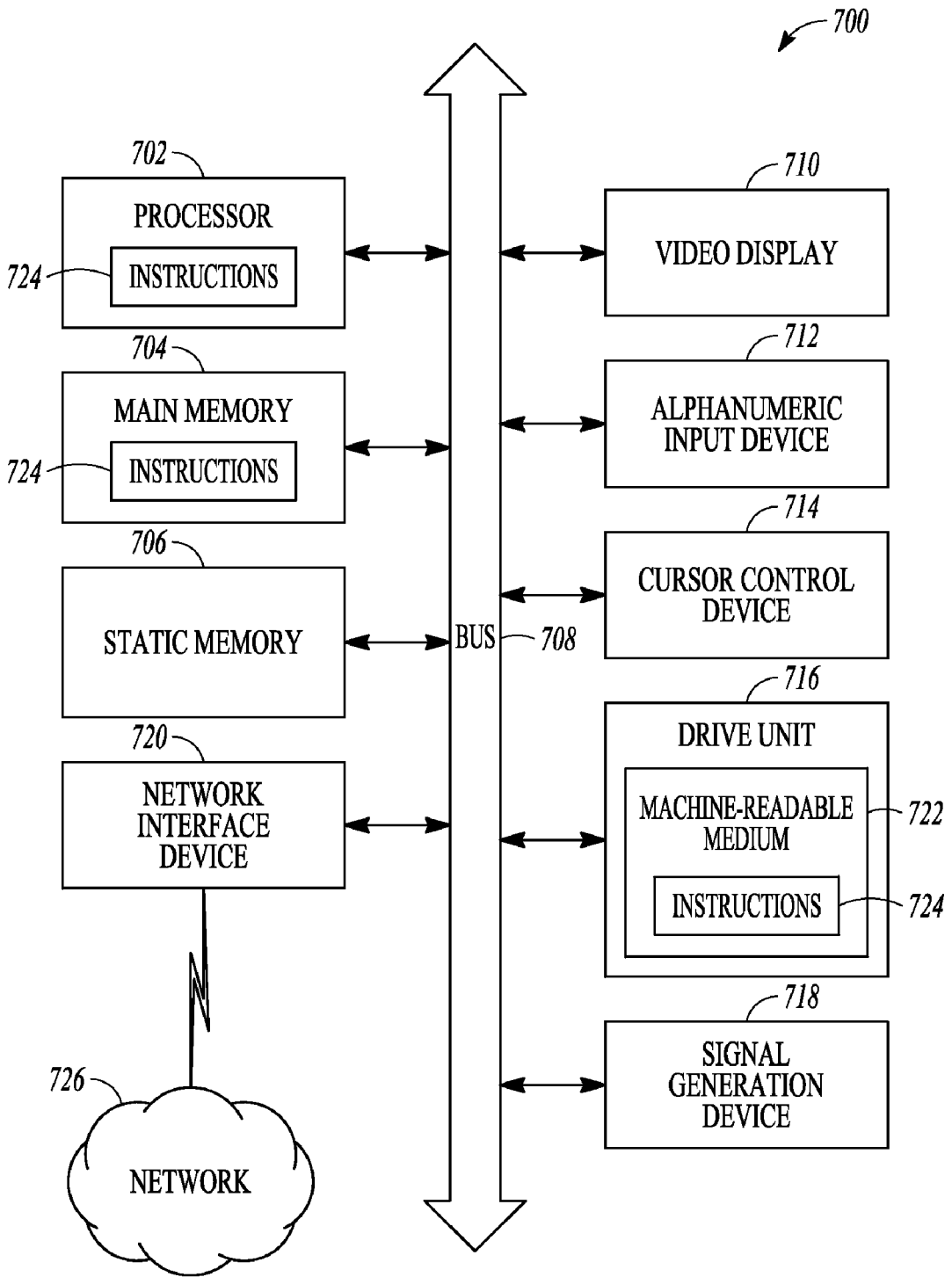


FIG. 7

**PATENT REGISTRY ARCHITECTURE WITH DIRECT PATENT OFFICE PAYMENT CONDUIT**

**RELATED APPLICATIONS**

[0001] This application claims the benefit under 35 U.S.C. 119(e) of U.S. Provisional Patent Application Ser. No. 61/542,545 filed Oct. 3, 2011, which is incorporated herein by reference in its entirety and made a part hereof. This application also claims the benefit under 35 U.S.C. 119(e) of U.S. Provisional Patent Application Ser. No. 61/561,502 filed Nov. 18, 2011, which is incorporated herein by reference in its entirety and made a part hereof.

**BACKGROUND**

[0002] The management of a patent portfolio involves multiple stages. Initially, a decision is typically made as to which inventions are worth the investment of filing a patent application. Then, each filed patent application goes through prosecution with the patent office. Finally, for each patent that is allowed, maintenance fees are usually payable at a variety of intervals to keep the patent in force.

**SUMMARY**

[0003] Patent Office Payment Registry

[0004] Current annuity payment services rely on keeping a proprietary database of patent information, where the annuity payment service has a client, and the client tells the annuity payment service which patent matters (i.e., patents or applications within or outside the US) that the client wants the annuity payment service to handle for the purpose of annuity payment. As such, various different annuity payment services keep track of various different clients to handle payments for those clients and their matters. The current disclosure turns that paradigm on its head. In this paradigm, a single payment registry is provided, where there is just one representation of each matter in any particular patent office, like the United States Patent and Trademark Office (USPTO) and all the patents issued from there.

[0005] Customers of the single registry are the patent owners or their agents. It works like this:

[0006] 1. Customers of the patent registry become registered users with the registry site.

[0007] 2. Registered users can tag any patent as a patent they want paid. Tagging can take place in a variety of ways:

- [0008] a. Pick a patent one at a time;
- [0009] b. Upload a list of patents;
- [0010] c. Search for patents that the owner is record owner of;
- [0011] d. Other function.

[0012] 3. Registered users can specify payment options, for example:

- [0013] a. Always pay;
- [0014] b. Pay only if instructed to pay;
- [0015] c. Pay under certain other circumstances.

[0016] 4. Registered users can specify different funding mechanisms:

- [0017] a. PayPal;
- [0018] b. Credit card;
- [0019] c. Bank account;
- [0020] d. Back up payment methods;
- [0021] e. Apply for credit.

- [0022] 5. Registered users can request “forward contract” pricing for payment of fees in other currencies.
- [0023] 6. Registered users can get quotes for currency conversion rates on a real time basis.
- [0024] 7. The patent registry system provides various features:
  - [0025] a. Cost projections;
  - [0026] b. Analytics;
  - [0027] c. Claim maps;
  - [0028] d. Title verification.
- [0029] 8. Database is secure, and all tagging can be encrypted.
- [0030] 9. Users can be notified if:
  - [0031] a. someone else tags the same patent;
  - [0032] b. someone else seeks to remove a tag before another entity adds one;
  - [0033] c. a payment was not made;
  - [0034] d. various other situations.
- [0035] 10. Users can pay for “track me” feature that collects back up contact information and follows the registered user to make sure they are available to authorize payments.
- [0036] 11. Users can pre-pay fees, held in escrow, to make sure payments are made.
- [0037] 12. Patent families can be registered at one time, both US families or international families.
- [0038] International Patent Registry Architecture
- [0039] The disclosure below describes how such a patent registry might be constructed. Some possible registry architectures are now described, according to example embodiments.
- [0040] 1. For each country, there is a maintenance fee registry or database that is synchronized with, mirrored, or is actually integrated with a country’s equivalent of a Patent Application Information Retrieval (PAIR)/maintenance fee system.
  - [0041] a. In one embodiment, this registry or database simply reflects the actual due dates kept on the PAIR system—i.e., the registry database does not calculate due dates, but simply reflects the due dates presented by the PAIR system.
  - [0042] b. Similarly, the registry database also simply reflects the amounts due as shown on the PAIR system, as opposed to keeping a separate database of them.
- [0043] 2. This registry could be one computer system/database that spans all the national Patent Offices that the registry serves, or could be split across several national registries.
- [0044] 3. The key is that there is no docket maintained separately from the PAIR system, so the possibility for errors in keeping docket dates is eliminated. Note, most if not all docket systems keep due dates for annuity payments based on a set of docket rules, not based on what is in PAIR itself.
- [0045] 4. Then, separately from this Registry database, there is a database that keeps track of patents/apps owned by a particular company, for example a database kept by annuity payment service such as Computer Packages, Inc (CPI) or Computer Patent Annuities (CPA), and that may also keep track of due dates for annuities, separately from the PAIR system.
  - [0046] a. This CPI/CPA system would/could talk to the registry database, and register with the registry database to have the registry make a payment on a particular patent, per the invention disclosure described above on this topic.
  - [0047] b. At least one difference in this architecture from prior art systems is that the registry would allow various heterogeneous systems (i.e., systems from different vendors



like CPI, CPA, Thompson, Dennemeyer, or a Corporate docket or matter management system) to register with the registry to pay annuities. This is different from current architecture in that all the patent maintenance payment providers only pay such fees for customers they handle, and only pay through their own database systems. In the new architecture, there is a payment engine or registry that can be shared by all the vendors or patent owners to make sure payments are made on patents they tag in the database.

**[0048]** c. Various other features can be effected through this new architecture. As the registry (or registries) grows to represent more and more patent offices, the principal function of annuity payment providers today will shift simply to tracking what patents a particular company owns, with the dates, cost and payment pipelines being provided by the registry.

**[0049]** Direct Pay Conduit

**[0050]** The Registry would also provide a verifiable direct payment conduit. For example, a corporation could provide an account, letter of credit, and/or other payment facility, that can be drawn down by patent office authority, such that only patents registered for payment through the Registry can be paid using the payment facility. Payment authorization options could include:

**[0051]** a. In one architecture, the registry provides the payment information to the docketing/matter management vendor (such as CPI/CPA), and that vendor gets approval from the patent owner to pay the fees, or

**[0052]** b. the docketing/matter management vendor authorizes the registry to draw down on the patent owner's payment facility, or

**[0053]** c. the registry seeks approval from or verifies with the patent owner that it is acceptable to draw down on the total maintenance fees payable, with an itemized report of what the patent owner plans on paying if desired. The patent owner can verify this instruction electronically, or the registry can get written or verbal approval from the patent owner, or

**[0054]** d. authorization keys are provided to run the system.

**[0055]** Patent Registry Themes and Characteristics

**[0056]** Themes and characteristics of this system include, for example:

**[0057]** 1. Distributed nature

**[0058]** a. For any given owner, the tracking of ownership of patents is done in one system with routine docketing done in this system, but

**[0059]** b. maintenance fee docket dates are extracted from a different system, i.e., the amounts due and dates due for annuities and maintenance fees are kept in the patent registry described above.

**[0060]** 2. Payment pipeline differs from conventional systems

**[0061]** a. Instead of patent owners paying the docket/matter management system vendor (CPI/CPA/Thompson) for payment of annuities, annuities are paid through the patent registry.

**[0062]** b. Payments are made to the registry entity, electronically orchestrated or tracked by registry.

**[0063]** c. CPA/CPI/Thompson vendor does not touch or handle money paid to the national patent offices; instead, payment is routed through a registry system or entity.

**[0064]** d. CPA/CPI/Thompson vendor gets paid for tracking ownership of patents and registering for payment, but not for paying the annuity or maintenance fees themselves.

**[0065]** e. Annuity or maintenance payments could be made by the patent owner directly to the relevant national patent offices through a conduit provided by the registry.

**[0066]** f. In an example embodiment, the registry provides an electronic exchange to pay annuities in any currency, either directly into the national patent office's system or through a banking/financial system.

**[0067]** g. At least one key differentiating capability is to be able to provide a direct pay conduit.

**[0068]** Example Embodiments

**[0069]** In one example embodiment of this disclosure, a system for managing patent annuity fee payments comprises one or more processors to:

**[0070]** provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable;

**[0071]** register customers of the registry as registered users of the registry; and

**[0072]** allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees.

**[0073]** In another example embodiment, a system for managing patent annuity fee payments comprises:

**[0074]** a network;

**[0075]** at least one registry, accessible on the network, the registry including at least one database of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; and

**[0076]** a server, operatively connected to the network, wherein the server includes:

**[0077]** a processor;

**[0078]** a memory; and

**[0079]** software operable on the processor to:

**[0080]** provide a listing of at least some of the patent matters stored in the registry database;

**[0081]** register customers of the registry as registered users of the registry; and

**[0082]** allow at least one registered user of the registry to tag one or more patent matters in the registry database for payment of patent annuity fees.

**[0083]** In a further example embodiment, a system for managing patent annuity fee payments comprises one or more processors to:

**[0084]** provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable;

**[0085]** register customers of the registry as registered users of the registry;

**[0086]** allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees; and

**[0087]** provide a registry portal to allow an external annuity payment service provider to communicate electronically with the registry and tag patent matters on behalf of its clients.

**[0088]** In yet another example embodiment, a system for managing patent annuity fee payments comprises:

**[0089]** a network;

**[0090]** at least one registry, accessible on the network, the registry including at least one database of patent matters

representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; and

[0091] a server, operatively connected to the network, wherein the server includes:

[0092] a processor;

[0093] a memory; and

[0094] software operable on the processor to:

[0095] provide a listing of at least some of the patent matters stored in the registry database;

[0096] register customers of the registry as registered users of the registry;

[0097] allow at least one registered user of the registry to tag one or more patent matters in the registry database for payment of patent annuity fees; and

[0098] provide a registry portal to allow an external annuity payment service provider to communicate electronically with the registry and tag patent matters on behalf of its clients.

[0099] In a still further example embodiment, a system for managing patent annuity fee payments comprises one or more processors to:

[0100] provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable;

[0101] register customers of the registry as registered users of the registry;

[0102] allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees; and

[0103] provide, for at least one registered user, a direct annuity payment conduit between a national patent office and the at least one registered user for payment of annuity fees due on at least one patent matter tagged by the registered user.

[0104] In yet another example embodiment, a system for managing patent annuity fee payments comprises:

[0105] a network;

[0106] at least one registry, accessible on the network, the registry including at least one database of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; and

[0107] a server, operatively connected to the network, wherein the server includes:

[0108] a processor;

[0109] a memory; and

[0110] software operable on the processor to:

[0111] provide a listing of at least some of the patent matters stored in the registry database;

[0112] register customers of the registry as registered users of the registry;

[0113] allow at least one registered user of the registry to tag one or more patent matters in the registry database for payment of patent annuity fees; and

[0114] provide, for at least one registered user, a direct annuity payment conduit between a national patent office and the at least one registered user for payment of annuity fees due on at least one patent matter tagged by the registered user.

#### BRIEF DESCRIPTION OF DRAWINGS

[0115] Some embodiments are illustrated by way of example and not limitation in the figures of the accompanying drawings in which:

[0116] FIG. 1 is a schematic view of computer network system, according to various embodiments.

[0117] FIG. 2 is a user interface, as may be used in an example embodiment.

[0118] FIG. 3 is a block diagram of a system, according to example embodiments.

[0119] FIG. 4 is a flow chart showing a method, according to an example method embodiment.

[0120] FIG. 5 is a flow chart showing a method, according to another example method embodiment.

[0121] FIG. 6 is flow chart showing a method, according to yet another example method embodiment.

[0122] FIG. 7 is a block diagram of machine in the example form of a computer system within which a set of instructions may be executed for causing the machine to perform any one or more of the methodologies herein discussed.

#### DETAILED DESCRIPTION

[0123] The life cycle of a patent may include multiple stages. These stages generally include invention, filing a patent application on the invention, prosecuting the patenting application to allowance or abandonment, determining whether to file any continuing applications, and paying maintenance fees on the allowed patent.

[0124] At each stage, one or more parties determine the best course of action to take with respect to the invention. For example, when determining whether or not to file a patent, the inventor may know what products are out in the technology area of the invention, a business manager may know how the invention fits in with a company's goals, and a patent attorney may have researched existing patents or applications in the technology area of the patent. These parties will ultimately decide whether it is worth the initial investment of filing an application on the invention and then determine the next course of action at each future stage.

[0125] In some instances, an inventor, business manager, or portfolio manager may wish to monitor the patent activities of one or more competitors. The provision of up-to-date information relating to cited references or technology trends in the art to which a user's or competitor's patent portfolio relates may be particularly helpful in devising patenting strategy or making informed business decisions.

[0126] In various embodiments, a patent management system includes tools to help the parties involved in the patenting process make decisions at each stage in the life of a patent. These tools may also be used for general research by parties not immediately involved with the patenting of the invention. These tools may be used as standalone tools, in combination with other tools, and in combination with other patent management systems. Examples of tools include, but are not limited to, prosecution analytics, patent analysis, reference management, prior art analytics, docketing management, claim mapping, claim analytics, portfolio analytics, external database (e.g., PAIR) analytics, annuity management, strategic monitoring, and a white space indicator.

[0127] The systems, methods, and tools of the present disclosure set forth in this specification are described in relation to a patent management system and patent matters, but it will be understood that embodiments of the present invention

could equally be applied to other forms of intellectual property (trademarks, copyright, registered designs, and the like). Moreover, the term “patent” is not intended to be limited to an issued patent, but may include a pending patent application or un-filed application or invention disclosure. The term “user” or “registered user” is intended to cover any person interacting with the patent management system. A user may be an inventor, portfolio manager, business manager or patent attorney, for example. A “user” or “registered user” may be an annuity payment service provider such as Computer Packages, Inc (CPI) or Computer Patent Annuities (CPA), for example. In the patent field the term “annuity fees” typically refers to payments required to renew granted patents, while the term “maintenance fees” typically refers to payments required to maintain pending patent applications. In this specification, the terms “annuity fees” and “maintenance fees” are used interchangeably and refer to any kind of payment required to keep a patent or patent application (or other intellectual property right) in force.

[0128] FIG. 1 is a schematic view of computer network system 100 according to various embodiments. The computer network system 100 includes a patent portfolio and annuity management system 102 (also called a portfolio management system, or annuity management system) and user terminal 104, communicatively coupled via network 106. In an embodiment, patent portfolio and annuity management system 102 includes web server 108, application server 110, database management server 114, which is used to manage at least operations database 116, and file server 118. Patent portfolio and annuity management system 102 may be implemented as a distributed system; for example, one or more elements of the patent portfolio and annuity management system 102 may be located across a wide area network (WAN) from other elements of patent portfolio and annuity management system 102. As another example, a server (e.g., web server 108, file server 118, database management server 114) may represent a group of two or more servers, cooperating with each other, provided by way of a pooled, distributed, or redundant computing model.

[0129] Network 106 may include local area networks (LANs), WANs, wireless networks (e.g., 802.11 or cellular network), the Public Switched Telephone Network (PSTNs) network, ad hoc networks, personal area networks (e.g., Bluetooth) or other combinations or permutations of network protocols and network types. The network 106 may include a single LAN or WAN, or combinations of LANs or WANs, such as the Internet. The various devices coupled to network 106 may be coupled to network 106 via one or more wired or wireless connections.

[0130] Web server 108 may communicate with file server 118 to publish or serve files stored on file server 118. Web server 108 may also communicate or interface with the application server 110 to enable web-based presentation of information. For example, application server 110 may consist of scripts, applications, or library files that provide primary or auxiliary functionality to web server 108 (e.g., multimedia, file transfer, or dynamic interface functions). In addition, application server 110 may also provide some or the entire interface for web server 108 to communicate with one or more of the other servers in the patent portfolio and annuity management system 102 (e.g., database management server 114). Web server 108, either alone or in conjunction with one or more other computers in patent portfolio and annuity management system 102, may provide a user interface. The user

interface may be implemented using a variety of programming languages or programming methods, such as HTML (HyperText Markup Language), VBScript (Visual Basic® Scripting Edition), JavaScript™, XML® (Extensible Markup Language), XSLT™ (Extensible Stylesheet Language Transformations), AJAX (Asynchronous JavaScript and XML), Java™, JFC (Java™ Foundation Classes), and Swing (an Application Programming Interface for Java™)

[0131] User terminal 104 may be a personal computer (PC) or mobile device. In an embodiment, user terminal 104 includes a client program to interface with the patent portfolio and annuity management system 102. The client program may include commercial software, custom software, open source software, freeware, shareware, or other types of software packages. In an embodiment, the client program includes a thin client designed to provide query and data manipulation tools for a user of user terminal 104. The client program may interact with a server program hosted by, for example, application server 110. Additionally, the client program may interface with database management server 114.

[0132] Operations database 116 may be composed of one or more logical or physical databases. For example, operations database 116 may be viewed as a system of databases, which when viewed as a compilation, represent an “operations database.” Sub-databases in such a configuration may include a matter database, portfolio database, user database, patent reference document or prior art database, product database, watch database, and mapping database. The operations database or any one of the sub-databases may include a registry of patent matters of the type described above. Operations database 116 may be implemented as a relational database, a centralized database, a distributed database, an object-oriented database, or a flat database in various embodiments.

[0133] Data stored in a first database may be associated with data in a second database through the use of common data fields. For example, consider entries in the patent database formatted as [Patent ID, Patent Number] and entries in the product database formatted as [Product ID, Product Name, Patent ID]. In this manner, a product entry in the product database is associated with a patent in the patent database through the Patent ID data field. In various embodiments, a product may be associated with more than one patent by creating multiple entries in the product database (e.g., one for each patent the product is associated with). In other embodiments, one or more patent reference documents may be associated with a patent by creating multiple entries in the patent database, for example. The formats and data field titles are for illustration purposes, and other names and formats may be used. Additionally, further associations between data stored in the databases may be created as discussed further herein.

[0134] During operation of patent portfolio and annuity management system 102, data from multiple data sources (e.g., internal and external) is imported into or accessed by the operations database 116. Internal sources may include data from portfolio management and annuity payment services affiliated with patent portfolio and annuity management system 102. External sources 120 may include websites or databases associated with foreign and domestic patent offices, assignment databases, WIPO, and INPADOC. For example, annuity amounts due and annuity due dates for patent matters listed in the registry database may be drawn directly from such data kept at a national patent office in electronic form. In various embodiments, the data is scraped and parsed from the

websites if it is unavailable through a database. The data may be gathered using API calls to the sources when available. The data may be imported and stored in the operations database on a scheduled basis, such as weekly, monthly, quarterly, or some other regular or periodic interval. Alternatively, the data may be imported on-demand.

[0135] After data importation, the data may be standardized into a common format. For example, database records from internal or external sources may not be in a compatible format with the operations database. Data conditioning may include data rearrangement, normalization, filtering (e.g., removing duplicates), sorting, binning, or other operations to transform the data into a common format (e.g., using similar date formats and name formats).

[0136] FIG. 2 is an example user interface 200 of patent portfolio and annuity management system. User interface 200 is illustrated with multiple user interface elements. In an example embodiment, a user interface element is a graphical or textual element with which a user may interact to cause an application to perform an assigned action for the interface element. Data representing user interface 200 may be transmitted via network 106 (FIG. 1) and presented on a display of user terminal 104 (FIG. 1) through the use of a web browser. A user (e.g., manager of a patent portfolio) may interact with the user interface elements of user interface 200 through the use of an input device (e.g., stylus, cursor, mouse, finger) of the user terminal 104. In an embodiment, a user selection is based on the coordinates of the input device as it makes contact with the display or where a user “clicks” the mouse. The coordinates are compared to the coordinates of the user input element to determine the selection. The type of user elements, names, and layout depicted in FIG. 2 are intended to be an illustration of an example user interface of patent portfolio and annuity management system 102. Other types of user elements, names, and layouts may be used.

[0137] The user interface elements may include my matters 202, patent watches 204, company watches 206, patent analysis 207, and tag matters 209. These elements may be used to select a context/view of the portfolio and annuity management system 102. For example, my matters 202 may list the patents included within a portfolio of a user, or list patent matters tagged by a registered user in a registry database as described above. Patent watches 204 may list information on patents that the user has indicated the management system 102 is to watch, and company watches 206 lists information on companies that the user has indicated the system 102 should watch. Patent analysis 207 may allow a user to perform analysis on selected patent matters. Tag matters 209 may be selected to allow a registered user to tag patent matters in a registry for payment of annuity fees. Further details of each of these are included herein.

[0138] Date boxes 208 and 210 are user elements that allow a user to select a time period, for example to select a display of tagged patent matters in the registry having annuity fees due in that period. Amount due box 212 displays the amount due with respect to annuities for patents in the portfolio, or patent matters in the registry, of the user within the period indicated by date boxes 208 and 210. Upon activating (e.g., clicking) one of the date boxes 208 and 210, a user may be presented with a calendar, which allows the selection of a date. Upon selecting a date, the date boxes 208 and 210 will update to reflect the user’s choice.

[0139] Drop-down menu 214 includes a list of portfolios or registry listings that a user of the patent portfolio and annuity

management system 102 is authorized to view. For example, before user interface 200 is displayed, a login screen requesting a user ID and password may be presented to the user. In various embodiments, the user ID is associated with one or more portfolios. In turn, each portfolio is associated with one or more matters. Matters may include US and foreign issued patents, pending patents, abandoned patents, and not yet filed applications. Thus, upon selection of a portfolio using drop-down menu 214, user interface 200 is populated with matters associated with the portfolio or registry listing.

[0140] Checkbox 216 is an option to only display matters that currently have an annuity due. Drop-down menu 218 allows further filtering of matters. For example, the matters may be filtered by US patents only, by US patent applications, and by foreign applications only.

[0141] In various embodiments, activation of button 220 updates user interface 200 to reflect the choices made by the user with respect to date boxes 208 and 210, checkbox 216, and drop-down menu 218. For example, the amount due box 212 will be updated to reflect the amount due within the new period, and the matters listed under column headings 222 may be filtered. In various embodiments, user interface 200 is updated as the user selections are made with respect to elements 208 to 218 without activating button 220.

[0142] FIG. 3 is a block diagram of patent portfolio and annuity management system, according to an example embodiment. Illustrated are user database 302, portfolio database 304, matter database 306, watch database 308, product database 310, analytics database 312, input module 314, parsing module 316, analytics module 318, display module 320, filtering module 322, mapping module 324, and payment module 326. In various embodiments, the data stored in databases 302, 304, 306, 308, and 310 may be in the same or multiple physical locations. For example, portfolio database 304 may be located in one or more computers associated with a portfolio management service. In various embodiments, patent portfolio and annuity management system 102 may minor databases stored in other locations. In an embodiment, when a request is made to access data stored in the databases, such as databases 302-310, patent portfolio and annuity management system 102 determines where the data is located and directs the request to the appropriate location.

[0143] In an example embodiment, user database 302 stores data representing users of patent portfolio and annuity management system 102. The data may represent registered users that are registered to use the patent matter registry database, for example. The data may include data fields of user credentials, including a user ID and password, and access rights with respect to the management system 102. The user ID may be the same as the user ID of other systems associated with patent portfolio and annuity management system 102. For example the user ID may be used in a portfolio management system. In this manner, access rights of the user with respect to the portfolio management system may follow to the patent portfolio and annuity management system 102. In various embodiments, each user ID is associated with one or more portfolio IDs. Thus, when a user logs into the patent portfolio and annuity management system 102, the user is presented with access to only the portfolios that have been associated with that user ID. More or fewer data fields associated with a user may be included in a user entry stored in user database 302.

[0144] Portfolio database 304, in an example embodiment, stores data representing portfolios of one or more matters. A

matter may include foreign or domestic issued patents in addition to applications. Data stored in portfolio database **304** may have been initially generated in a portfolio management system and imported into patent portfolio and annuity management system **102** through the use of one or more API calls or direct access to the data in the portfolio management system. In various embodiments, a portfolio may be generated by a user using the patent portfolio and annuity management system **102**. For example, a user interface may be presented to the user requesting a portfolio name and the identifiers of matters to be included in the portfolio. In an embodiment, a portfolio entry in portfolio database **304** includes the data fields of portfolio ID and portfolio name. Additionally, a data field for matter ID may also be included in an entry in the portfolio database **304**. Thus, each portfolio may be associated with one or more matters through the use of the matter ID data field. More or fewer data fields associated with a portfolio may be included in a portfolio entry of portfolio database **304**.

**[0145]** In an embodiment, matter database **306** stores data representing matters. Each matter may be associated with one or more portfolios as well as one or more watches. In some embodiments, a matter is associated with no portfolios or watches. In an embodiment, a matter entry includes data fields representing a matter ID, title (e.g., the name of the patent or application), type of the matter (e.g., application, issued patent, PCT application), status of the matter (e.g., issued, abandoned, allowed), a link to the patent office where the matter was filed, a link to a PDF download of the matter, abstract of the matter, inventors of the matter, current owner of the matter, cited references on the face of the matter, filed date, issue date, docket number, and annuity information (e.g., due date, country, and amount due). In some embodiments, other patent reference documents or prior art in any form may be stored and associated with one or more matters. More or fewer data fields associated with a patent may be included in a matter entry stored in matter database **306**. In an example embodiment, matter database **306** may store a patent matter database, wherein this database includes data about the patent matters. The data may include, for at least one patent matter, a claim set or statement of invention and a priority date for the claim set or statement of invention. Matter database **306** may also store a database of prior art documents (also known as “references”), wherein the prior art database includes data about the prior art documents. The data may include, for at least one prior art document, a priority date or publication date of the document. One or more of the prior art documents may be associated with a first patent matter in the patent matter database.

**[0146]** In various embodiments, a matter is associated with one or more other matters as a family with a family ID. Family members may be priority documents, continuation patents/applications, divisional patents/applications, and foreign patent/application counterparts. In an embodiment, family information is determined according to an external source such as INPADOC. Patent reference documents and/or other prior art may be manually or automatically stored, cross-cited, and associated with related family matters, for example.

**[0147]** In an embodiment, watch database **308** stores data representing user preferences with respect to objects that the user wants to track (e.g., watch). In an embodiment, an object is a company or a matter. With respect to matters, a user may indicate a preference to track the matter for any forward

citations within a time period (e.g., 60 days, 3 months, etc.). Thus, watch database **308** may store entries with a watch ID that is associated with a user ID and a matter ID. With respect to companies, a user may indicate a preference to watch for publications or issued patents with an associated time period. Thus, watch database **308** may store entries with a watch ID, a user ID, and a company name. In various embodiments, the watches are user ID-specific such that no matter which profile the user is viewing, the watches do not change.

**[0148]** In an embodiment, product database **310** stores data representing products. The products may be actual products manufactured by the user, products yet to be released, planned products, products covered in a licensing agreement, or a fictional product. In various embodiments, product database **310** stores entries with a product ID and product name which are associated with a user ID. In various embodiments, a user may tag a product as associated with a matter. Thus, an entry in the product database **310** may also be associated with a matter ID. In an embodiment, one or more products stored in the product database **310** may be mapped to one or more matters stored in the matter database **306**.

**[0149]** In various embodiments, analytics database **312** stores data representing information on matters and companies associated with patent portfolio and annuity management system **102**. This information may be organized according to an individual matter, a portfolio, a family, or company. The information may be gathered from internal or external sources of patent portfolio and annuity management system **102** or may be generated by examining the data stored in one or more databases of the management system **102**.

**[0150]** In various embodiments, information for an individual matter may include status (e.g., disclosure received, drafting, filed, completed-waiting examination, in prosecution, allowed, issued), cited prior art, list and type of rejections (e.g., 35 U.S.C. §101, 102, 103), number of claims allowed, office action count, interviews held, IDS statements filed, attorney fees to date, and PTO fees to date. Further metrics for an individual matter stored in analytics database **312** may include time waiting for examiner, total time in examination, time waiting for PTO while in examination, and time on appeal. An additional prosecution details formatter may include upcoming docket dates (e.g., due dates for office action, IDS due dates, etc.). A claim prosecution history chart may also be stored in analytics database **312** for each matter. The prosecution history may include a history of claim amendments and arguments made in prosecution.

**[0151]** In various embodiments, analytics for an individual matter may also include data representing a claim chart. The claim chart may include one or more scope concepts on one axis and claims on the other axis. In an embodiment, a scope concept is a textual description of what a patent claim is at least limited to. Thus, if a claim comprises A, B, and C, a scope concept may be A. In various embodiments, a scope concept for the claim may be broader than A because the claim will still be limited to the broader scope concept. In an embodiment, the claim charts store mappings between claims and scope concepts. The claim chart may include a variety of levels of granularity of scope concepts. Some claims may be mapped to all of the scope concepts while others may not be mapped to any scope concepts. In various embodiments, the mappings may have already been generated in a program external to the management system (e.g., a portfolio mapping system). In various embodiments, claim charts may be combined at the portfolio level. Thus, a portfolio level chart may

include scope concepts for all the claims (or, in some examples, only the independent claims) in the portfolio.

**[0152]** In various embodiments, portfolio and family analytics information may be stored in analytics database **312** based on aggregating the metrics for an individual matter. In an embodiment, the analytics of a family may differ from those in a portfolio since not all family member matters may be part of a portfolio. Additionally, the analytics may be stored for multiple time periods such that comparisons may be made between current metrics and metrics from a year ago (or other time period).

**[0153]** Aggregated metrics may include total patents and applications, pending and waiting for examination, in prosecution with no claims allowed, in prosecution with some claims allowed, appealed, notice of allowance received, and issued. These metrics may be compiled for both US and international matters in the portfolio. Additional information may include the international portfolio distribution by country. An age distribution of the portfolio may also be compiled. For example, the portfolio may be broken down by less than one year old, 1 to 3 years old, 3 to 5 years old, 5 to 10 years old, 10 to 20 years old, and 20 or more years old. Recent filing and issue activity as well as upcoming foreign filing deadlines may be stored in analytics database **312**.

**[0154]** In various embodiments, prosecution metrics across a portfolio or family are determined and stored in analytics database **312**. This data may include matters waiting for examination, matters in examination, matters appealed, and cases allowed but not yet issued. Analytics with respect to office actions may also be compiled and stored. For example, success of allowance after a first office action response, a second response, and the like, may be stored in analytics database **312**. Additional prosecution analytics may include allowance rate (e.g., 10%) after a telephone interview, allowance after an in-person interview, percentage of interviews with response, number and type of rejections, average time in prosecution (e.g., in months), average time to file a response, and average time to next office action. Further, the list of recently allowed cases, recently appealed cases, stalled cases, and recently abandoned cases may also be stored for each portfolio and family in analytics database **312**.

**[0155]** In various embodiments, data stored in the database for a group of matters in a portfolio or family is analyzed to determine the top (e.g., ten) most cited patents, top most cited inventors, top most cited prior art owners (e.g., according to assignment documents or the face of the patent), newly (e.g., within the last 60 days) cited prior art owners, and top most cited prior art inventors. This information may be stored in analytics database **312**.

**[0156]** In various embodiments, annuity cost information regarding cost projections for both US issued patents and international patents may also be stored. Upcoming foreign filing deadlines with respect to annuities may also be stored in analytics database **312**.

**[0157]** In various embodiments, the results of keyword analysis on one or more matters and/or prior art references may be stored in analytics database **312**. The keyword analysis may be based on the occurrences of the keywords in the matter or references to derive a score or keyword overlap.

**[0158]** In various embodiments, input module **314** receives data from multiple sources where it may be further processed by one or more other modules and stored in one or more of databases **302-312**. For example, input module **314** may be configured to utilize one or more APIs to collect data from one

or more external sources **120** (e.g., public PAIR, private PAIR, INPADOC, foreign patent offices, patent docketing systems, portfolio management systems, etc.) (see FIG. 1). The data may include published patent documents (for example, published claims of a patent), issued patent documents (for example, granted claims of a patent), patent applications, office actions or other patent office correspondence, prior art references, claim mappings, dockets dates, and annuity payment data.

**[0159]** In various embodiments, input module **314** is configured to receive input from one or more user interface elements. For example, the patent portfolio and annuity management system **102** may present multiple user interfaces to users. These user interfaces may enable users to input data directly into databases **302-312**, instruct the management system **102** to retrieve data from patent data stores, and instruct the management system **102** to perform various operations on the data in databases **302-312**.

**[0160]** Additionally, input module **314** may be configured to determine the selection of one or more user interface elements by a user and initiate the action associated with the selected user interface element. For example, a user interface element may include a drop-down menu to select a portfolio. Input module **314** may be configured to receive a selection of the portfolio and a drop-down menu. Then, input module **314** may pass the selection to one or more other modules for further processing. For example, display module **320** may update the drop-down menu to indicate the selection of a portfolio.

**[0161]** In various embodiments, parsing module **316** takes the data that has initially been inputted by input module **314** and formats it according to the data fields of databases **302-312** as discussed above. For example, consider a patent publication that has been inputted by input module **314**. Parsing module **316** may use a combination of automatic image recognition and text analysis to determine the filing date, issue date, title, abstract, and claims of the patent. In some embodiments, parsing module **316** may flag certain pieces of data that had been determined to be potentially inaccurate (e.g., a number that could not be read). A user of patent portfolio and annuity management system **102** may then examine the flagged data and manually enter the information.

**[0162]** The resulting data that has been parsed by parsing module **316** may then be entered as an entry in one or more of databases **302-312**. This may be accomplished by, for example, formulating an SQL query with the parsed information. In various embodiments, parsing module **316** may parse multiple pieces of information before generating a database entry. For example, input module **314** may receive a docket number for an issued patent. The docket number may be combined with the information parsed from the issued patent to form an entry in matter database **306**.

**[0163]** In various embodiments, analytics module **318** is configured to examine and run calculations on the data stored in the databases **302-312** to generate the analytics discussed previously. For example, analytics module **318** may formulate an SQL query that retrieves the number of times that a prior art reference has been cited within a portfolio. This query may be run for each prior art cited within the portfolio to determine a list of the most cited (e.g., the top ten) prior art references within a portfolio. In an embodiment, the queries are formulated and run as requested by a user. In an embodiment, once the analytics information has been determined, it is stored within analytics database **312**. In various embodi-

ments, queries are formulated and run on a period basis (e.g., nightly) and entries in analytics database 312 may be updated to reflect any changes.

[0164] In various embodiments, the analytics module 318 is configured to receive input identifying a pool of keywords for a first patent matter and associated prior art documents in matter database 306. The term “keyword” is intended to include individual keywords as well as a number of keywords grouped together (making up a key phrase, for example). The analytics module 318 may be further configured to perform a keyword analysis on the first patent matter and associated prior art documents based on occurrences of the keywords in the first patent matter and associated prior art documents. The analytics module 318 may be further configured to identify, based on the analysis, keywords occurring uniquely in the first patent matter. In view of their uniquely occurring nature, these keywords may be regarded as claim elements that potentially differentiate the claim set or statement of invention over the disclosures contained in the one or more prior art documents.

[0165] In an embodiment, display module 320 is configured to display user interfaces and information retrieved from one or more databases 302-312. For example, display module 320 may generate user interface 200 of FIG. 2. If a user is accessing patent portfolio and annuity management system 102 remotely (e.g., through a web browser), display module 320 may be configured to transmit data representing a user interface through a network to a user terminal. In various embodiments, display module 320 is configured to generate one or more charts of data stored in databases 302-312. For example, display module 320 may generate a pie chart of the top 10 inventors within a portfolio.

[0166] In various embodiments, filtering module 322 is configured to filter a set of matters according to a user preference. For example, a user may activate a check box that indicates only pending matters should be shown in a user interface. Filtering module 322 may formulate a query consistent with retrieving only pending matters. The results of the query may then be shared with display module 320, where the user interface may be updated.

[0167] In various embodiments, mapping module 324 is configured to receive or generate mappings from a product to a matter. This may be accomplished, for example, by receiving a selection of a product and a matter by the user. The product may be one or more of the products stored in product database 310. In various embodiments, mapping module 324 is configured to present an automated mapping of the product to a matter for the user to confirm or deny. For example, mapping module 324 may present a claim chart for an issued patent to a user. As discussed, the claim chart includes one or more scope concepts to which one or more the claims of the patent are limited. In conjunction with input module 314, mapping module 324 may receive selections of the user of one or more of the scope concepts that are potentially affiliated with the product. Thus, a comparison may be made between what the claims are limited to and what the product may be. For example, if a product, as defined by the selection of one or more scope concepts by the user, is affiliated with scope concepts A, B, and C, and claim 1 of the patent has been mapped to scope concepts A, B, and C, the mapping module 324 may present an option to map the product to the patent. In various embodiments, the user may override this recommendation and select to not map the product to the patent. Simi-

larly, a user may indicate that a product is affiliated with the patent even if the scope concepts do not match.

[0168] In various embodiments, the mapping module 324 is configured to receive or generate mappings from prior art to a matter. This may be accomplished, for example, by receiving a selection of prior art and a matter by the user. The selection of the prior art may be based on cited references or through other external prior art search. The selections may be conducted manually, by a user, or automatically, by analytics module 318, for example. In various embodiments, mapping module 324 is configured to present an automated mapping of the prior art to a matter for the user to review. In various embodiments, the mapping module 324 can be configured to carry out any of the keyword analysis described above in relation to analytics module 318, or to map products stored in product database 310.

[0169] In an embodiment, once the product or prior art mapping information has been determined, it is stored within analytics database 312 or matter database 306. In various embodiments, queries are formulated and run on a periodic basis (e.g., nightly), and entries in analytics database 312 or matter database 306 may be updated to reflect any changes.

[0170] In various embodiments, payment module 326 is configured to receive selections, or tags, by the user of which annuities to pay for matters in a portfolio or registry listing. Additionally, payment module 326 may receive user preferences related to the payment of the annuities. Payment module 326 may receive payment information from a user and forward the payment information to the appropriate agency/office. In some embodiments, the annuity management system 102 organizes payment of the annuity on behalf of the user, and the user pays patent portfolio and annuity management system 102.

[0171] Any of the databases 302-312 or modules 314-326 described above may be used or configured partially or entirely as appropriate to perform one or more of the patent management functions described herein, or as set forth below in the following method steps.

[0172] Some embodiments of the present inventive subject matter include methods for electronic analysis of patent white space in a patent portfolio and annuity management system 102.

[0173] One such embodiment is illustrated in FIG. 4. In this example embodiment, a computer-implemented method 400 of managing patent annuity fee payments comprises using one or more processors to: at block 402, provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; at block 404, register customers of the registry as registered users of the registry; and at block 406, allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees.

[0174] Another such method embodiment is illustrated in FIG. 5. In this example embodiment, a computer-implemented method 500 of managing patent annuity fee payments comprises using one or more processors to: at block 502, provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; at block 504, register customers of the registry as registered users of the registry; at block 506, allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of

patent annuity fees; and at block **508**, provide a registry portal to allow an external annuity payment service provider to communicate electronically with the registry and tag patent matters on behalf of its clients.

**[0175]** Yet another such method embodiment is illustrated in FIG. **6**. In this example embodiment, a computer-implemented method **600** of managing patent annuity fee payments comprises using one or more processors to: at block **602**, provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; at block **604**, register customers of the registry as registered users of the registry; at block **606**, allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees; and at block **608**, provide, for at least one registered user, a direct annuity payment conduit between a national patent office and the at least one registered user for payment of annuity fees due on at least one patent matter tagged by the registered user.

**[0176]** Providing a direct annuity payment conduit for the at least one registered user in method **600** may include identifying or establishing a payment facility in the name of, or for the benefit of, the at least one registered user that can be accessed or drawn down by a national patent office to effect payment of an annuity fee due on one or more patent matters tagged by a registered user in the registry.

**[0177]** In example embodiments, the payment facility may be a bank account, annuity payment account, letter of credit or other financial instrument that is recognized by a national patent office as a source of funds for effecting payment of an annuity fee due on one or more patent matters tagged by a registered user in the registry.

**[0178]** The payment facility identified or established in the name of, or for the benefit of, the at least one registered user may in one example embodiment only be accessed or drawn down by a national patent office to effect annuity payments due on patent matters tagged by that at least one registered user.

**[0179]** In some example embodiments, methods **400**, **500** and **600** illustrated in FIGS. **4-6** of the accompanying drawings may also include the following.

**[0180]** For each patent matter represented on the registry listing, and in relation to the respective annuity fees payable, the registry may include data relating only to the due date and amount due of the respective annuity fees payable. The annuity fee data included in the registry may be drawn directly from, or mirror corresponding annuity fee data at a national patent office. In other words, the data may not be “rules-based”.

**[0181]** In some embodiments, providing a registry of patent matters in methods **400**, **500** or **600** may include providing a single international registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a plurality of national patent offices for which respective patent annuity fees are payable.

**[0182]** Further, allowing at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of annuity fees may include allowing a user to perform any one or more of the functions in the following group including:

**[0183]** tagging one patent matter at a time;

**[0184]** uploading a listing of patent matters for annuity fee payment; and

**[0185]** searching for patent matters in the registry that the user owns, or against which the user is recorded as an assignee.

**[0186]** The methods **400**, **500** or **600** may further include allowing registered users of the registry to specify, for tagged patent matters, different annuity payment options selected from the group including:

**[0187]** always pay;

**[0188]** pay only if instructed to pay; and

**[0189]** pay under certain other circumstances.

**[0190]** The methods **400**, **500** or **600** may further include allowing registered users of the registry to specify, for tagged patent matters, different funding mechanisms selected from the group including:

**[0191]** PAYPAL or other online payments;

**[0192]** credit card payments;

**[0193]** bank account payments;

**[0194]** back-up payment methods;

**[0195]** application for registry credit; and

**[0196]** prepayment of fees held in escrow by the registry.

**[0197]** The methods **400**, **500** or **600** may further include allowing registered users of the registry to request and obtain forward contract pricing for payment of annuity fees in other currencies. In some embodiments, the methods **400**, **500**, or **600** may further include allowing registered users of the registry to request and obtain quotes for currency conversion rates on a real-time basis for annuity payments of tagged patent matters.

**[0198]** The methods **400**, **500** and **600** may further include allowing registered users to request and obtain from the registry one or more of the elements in the following group including:

**[0199]** cost projections for annuity fee payments on tagged patent matters;

**[0200]** analytics information on selected patent matters listed in the registry;

**[0201]** patent matter claim maps for selected patent matters listed in the registry; and

**[0202]** patent matter title verification for selected patent matters listed in the registry.

**[0203]** Providing a registry of patent matters in method **400**, **500** or **600** may include securing the registry from unauthorized access by non-registered users, or the tagging of patent matters in these methods by the at least one registered user may be encrypted.

**[0204]** The method **400**, **500** or **600** may further include providing notification to at least one registered user of the registry in the event one or more of the situations set forth in the following group occurs:

**[0205]** another user tags the same patent matter;

**[0206]** another user seeks to remove a tag from a tagged patent matter; and

**[0207]** an annuity payment for a tagged patent matter was not made.

**[0208]** The method **400**, **500** or **600** may further include providing, for at least one registered user, a “track me” feature that collects back-up contact information for the at least one registered user and follows the at least one registered user to make sure the user is available to authorize annuity fee payments for tagged patent matters.

**[0209]** The method **400**, **500** or **600** may allow at least one registered user of the registry to tag one or more patent matters in the registry by allowing the registered user to tag a domestic or international family of patent matters at one time.



**[0210]** The method **400**, **500** or **600** may further include paying at least one annuity fee due on a tagged patent matter to a national patent office on behalf of a registered user. Such methods may further comprise providing at least one annuity payment authorization method for a registered user or owner of a patent matter listed in the registry, wherein the method is selected from the following group including:

**[0211]** providing annuity payment information to an external annuity payment service provider and allowing that provider to secure payment authorization from the registered user or patent matter owner;

**[0212]** allowing an external annuity payment service provider to authorize the registry to draw down on a payment facility established in the name of, or for the benefit of, the registered user or patent matter owner;

**[0213]** seeking authorization from or verifying with the registered user or patent matter owner directly that it is acceptable to draw down on a payment facility established in the name of, or for the benefit of, the registered user or patent matter owner; and

**[0214]** providing payment authorization keys for the registered user, patent matter owner, or an external annuity payment service provider.

#### Modules, Components and Logic

**[0215]** Certain embodiments are described herein as including logic or a number of components, modules, or mechanisms. Modules may constitute either software modules (e.g., code embodied (1) on a non-transitory machine-readable medium or (2) in a transmission signal) or hardware-implemented modules. A hardware-implemented module is a tangible unit capable of performing certain operations and may be configured or arranged in a certain manner. In example embodiments, one or more computer systems (e.g., a standalone, client, or server computer system) or one or more processors may be configured by software (e.g., an application or application portion) as a hardware-implemented module that operates to perform certain operations as described herein.

**[0216]** In various embodiments, a hardware-implemented module may be implemented mechanically or electronically. For example, a hardware-implemented module may comprise dedicated circuitry or logic that is permanently configured (e.g., as a special-purpose processor, such as a field programmable gate array (FPGA) or an application-specific integrated circuit (ASIC)) to perform certain operations. A hardware-implemented module may also comprise programmable logic or circuitry (e.g., as encompassed within a general-purpose processor or other programmable processor) that is temporarily configured by software to perform certain operations. It will be appreciated that the decision to implement a hardware-implemented module mechanically, in dedicated and permanently configured circuitry, or in temporarily configured circuitry (e.g., configured by software) may be driven by cost and time considerations.

**[0217]** Accordingly, the term “hardware-implemented module” should be understood to encompass a tangible entity, be that an entity that is physically constructed, permanently configured (e.g., hardwired), or temporarily or transitorily configured (e.g., programmed) to operate in a certain manner and/or to perform certain operations described herein. Considering embodiments in which hardware-implemented modules are temporarily configured (e.g., programmed), each of the hardware-implemented modules need not be configured

or instantiated at any one instance in time. For example, where the hardware-implemented modules comprise a general-purpose processor configured using software, the general-purpose processor may be configured as respective different hardware-implemented modules at different times. Software may accordingly configure a processor, for example, to constitute a particular hardware-implemented module at one instance of time and to constitute a different hardware-implemented module at a different instance of time.

**[0218]** Hardware-implemented modules can provide information to, and receive information from, other hardware-implemented modules. Accordingly, the described hardware-implemented modules may be regarded as being communicatively coupled. Where multiple of such hardware-implemented modules exist contemporaneously, communications may be achieved through signal transmission (e.g., over appropriate circuits and buses) that connect the hardware-implemented modules. In embodiments in which multiple hardware-implemented modules are configured or instantiated at different times, communications between such hardware-implemented modules may be achieved, for example, through the storage and retrieval of information in memory structures to which the multiple hardware-implemented modules have access. For example, one hardware-implemented module may perform an operation and store the output of that operation in a memory device to which it is communicatively coupled. A further hardware-implemented module may then, at a later time, access the memory device to retrieve and process the stored output. Hardware-implemented modules may also initiate communications with input or output devices and can operate on a resource (e.g., a collection of information).

**[0219]** The various operations of example methods described herein may be performed, at least partially, by one or more processors that are temporarily configured (e.g., by software) or permanently configured to perform the relevant operations. Whether temporarily or permanently configured, such processors may constitute processor-implemented modules that operate to perform one or more operations or functions. The modules referred to herein may, in some example embodiments, comprise processor-implemented modules.

**[0220]** Similarly, the methods described herein may be at least partially processor-implemented. For example, at least some of the operations of a method may be performed by one or more processors or processor-implemented modules. The performance of certain of the operations may be distributed among the one or more processors, not only residing within a single machine, but deployed across a number of machines. In some example embodiments, the processor or processors may be located in a single location (e.g., within a home environment, an office environment, or as a server farm), while in other embodiments the processors may be distributed across a number of locations.

**[0221]** The one or more processors may also operate to support performance of the relevant operations in a “cloud computing” environment or as a “software as a service” (SaaS). For example, at least some of the operations may be performed by a group of computers (as examples of machines including processors), with these operations being accessible via a network (e.g., the Internet) and via one or more appropriate interfaces (e.g., APIs).

### Electronic Apparatus and System

[0222] Example embodiments may be implemented in digital electronic circuitry, or in computer hardware, firmware, or software, or in combinations of them. Example embodiments may be implemented using a computer program product, e.g., a computer program tangibly embodied in an information carrier, e.g., in a machine-readable medium for execution by, or to control the operation of, data processing apparatus, e.g., a programmable processor, a computer, or multiple computers.

[0223] A computer program can be written in any form of programming language, including compiled or interpreted languages, and it can be deployed in any form, including as a stand-alone program or as a module, subroutine, or other unit suitable for use in a computing environment. A computer program can be deployed to be executed on one computer or on multiple computers at one site or distributed across multiple sites and interconnected by a communication network.

[0224] In example embodiments, operations may be performed by one or more programmable processors executing a computer program to perform functions by operating on input data and generating output. Method operations can also be performed by, and apparatus of example embodiments may be implemented as, special purpose logic circuitry (e.g., a FPGA or an ASIC).

[0225] The computing system can include clients and servers. A client and server are generally remote from each other and typically interact through a communication network. The relationship of client and server arises by virtue of computer programs running on the respective computers and having a client-server relationship to each other. In embodiments deploying a programmable computing system, it will be appreciated that both hardware and software architectures usually require consideration. Specifically, it will be appreciated that the choice of whether to implement certain functionality in permanently configured hardware (e.g., an ASIC), in temporarily configured hardware (e.g., a combination of software and a programmable processor), or a combination of permanently and temporarily configured hardware may be a design choice. Below are set out hardware (e.g., machine) and software architectures that may be deployed, in various example embodiments.

### Example Machine Architecture and Machine-Readable Medium

[0226] FIG. 7 is a block diagram of machine in the example form of a computer system 700 within which instructions for causing the machine to perform any one or more of the methodologies discussed herein may be executed. In alternative embodiments, the machine operates as a standalone device or may be connected (e.g., networked) to other machines. In a networked deployment, the machine may operate in the capacity of a server or a client machine in server-client network environment, or as a peer machine in a peer-to-peer (or distributed) network environment. The machine may be a personal computer (PC), a tablet PC, a set-top box (STB), a PDA, a cellular telephone, a web appliance, a network router, switch or bridge, or any machine capable of executing instructions (sequential or otherwise) that specify actions to be taken by that machine. Further, while only a single machine is illustrated, the term “machine” shall also be taken to include any collection of machines that individually or

jointly execute a set (or multiple sets) of instructions to perform any one or more of the methodologies discussed herein.

[0227] The example computer system 700 includes a processor 702 (e.g., a central processing unit (CPU), a graphics processing unit (GPU) or both), a main memory 704 and a static memory 706, which communicate with each other via a bus 708. The computer system 700 may further include a video display unit 710 (e.g., a liquid crystal display (LCD) or a cathode ray tube (CRT)). The computer system 700 also includes an alphanumeric input device 712 (e.g., a keyboard), a user interface (UI) navigation or cursor control device 714 (e.g., a mouse), a disk drive unit 716, a signal generation device 718 (e.g., a speaker) and a network interface device 720.

### Machine-Readable Medium

[0228] The disk drive unit 716 includes a machine-readable medium 722 on which is stored one or more sets of data structures and instructions 724 (e.g., software) embodying or utilized by any one or more of the methodologies or functions described herein. The instructions 724 may also reside, completely or at least partially, within the main memory 704 and/or within the processor 702 during execution thereof by the computer system 700, with the main memory 704 and the processor 702 also constituting machine-readable media.

[0229] While the machine-readable medium 722 is shown in an example embodiment to be a single medium, the term “machine-readable medium” may include a single medium or multiple media (e.g., a centralized or distributed database, and/or associated caches and servers) that store the one or more data structures or instructions 724. The term “machine-readable medium” shall also be taken to include any tangible medium that is capable of storing, encoding, or carrying instructions for execution by the machine and that cause the machine to perform any one or more of the methodologies of the embodiments of the present invention, or that is capable of storing, encoding or carrying data structures utilized by or associated with such instructions. The term “machine-readable medium” shall accordingly be taken to include, but not be limited to, solid-state memories and optical and magnetic media. Specific examples of machine-readable media include non-volatile memory, including by way of example semiconductor memory devices (e.g., Erasable Programmable Read-Only Memory (EPROM), Electrically Erasable Programmable Read-Only Memory (EEPROM), and flash memory devices); magnetic disks such as internal hard disks and removable disks; magneto-optical disks; and CD-ROM and DVD-ROM disks.

### Transmission Medium

[0230] The instructions 724 may further be transmitted or received over a communications network 726 using a transmission medium. The instructions 724 may be transmitted using the network interface device 720 and any one of a number of well-known transfer protocols (e.g., HTTP). Examples of communication networks include a LAN, a WAN, the Internet, mobile telephone networks, Plain Old Telephone (POTS) networks, and wireless data networks (e.g., WiFi and WiMax networks). The term “transmission medium” shall be taken to include any intangible medium that is capable of storing, encoding or carrying instructions for execution by the machine, and includes digital or analog

communications signals or other intangible media to facilitate communication of such software.

Non-Limiting Embodiments

[0231] Although an embodiment has been described with reference to specific example embodiments, it will be evident that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the disclosure. Accordingly, the specification and drawings are to be regarded in an illustrative rather than a restrictive sense. The accompanying drawings that form a part hereof show by way of illustration, and not of limitation, specific embodiments in which the subject matter may be practiced. The embodiments illustrated are described in sufficient detail to enable those skilled in the art to practice the teachings disclosed herein. Other embodiments may be utilized and derived therefrom, such that structural and logical substitutions and changes may be made without departing from the scope of this disclosure. This Detailed Description, therefore, is not to be taken in a limiting sense, and the scope of various embodiments is defined only by the appended claims, along with the full range of equivalents to which such claims are entitled.

[0232] Such embodiments of the inventive subject matter may be referred to herein, individually and/or collectively, by the term "invention" merely for convenience and without intending to voluntarily limit the scope of this application to any single invention or inventive concept if more than one is in fact disclosed. Thus, although specific embodiments have been illustrated and described herein, it should be appreciated that any arrangement calculated to achieve the same purpose may be substituted for the specific embodiments shown. This disclosure is intended to cover any and all adaptations or variations of various embodiments. Combinations of the above embodiments, and other embodiments not specifically described herein, will be apparent to those of skill in the art upon reviewing the above description.

Note on the Abstract

[0233] The Abstract of the Disclosure is provided to comply with 37 C.F.R. §1.72(b), requiring an abstract that will allow the reader to quickly ascertain the nature of the technical disclosure. It is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims. In addition, in the foregoing Detailed Description, it can be seen that various features are grouped together in a single embodiment for the purpose of streamlining the disclosure. This method of disclosure is not to be interpreted as reflecting an intention that the claimed embodiments require more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive subject matter lies in less than all features of a single disclosed embodiment. Thus the following claims are hereby incorporated into the Detailed Description, with each claim standing on its own as a separate embodiment.

1. A computer-implemented method of managing patent annuity fee payments, the method comprising using one or more processors to:

provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable;

register customers of the registry as registered users of the registry;  
allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees; and  
provide, for at least one registered user, a direct annuity payment conduit between a national patent office and the at least one registered user for payment of annuity fees due on at least one patent matter tagged by the registered user.

2. The computer-implemented method of claim 1, wherein providing a direct annuity payment conduit for the at least one registered user includes identifying or establishing a payment facility in the name of, or for the benefit of, the at least one registered user that can be accessed or drawn down by a national patent office to effect payment of an annuity fee due on one or more patent matters tagged by the registered user in the registry.

3. The computer-implemented method of claim 2, wherein the payment facility is a bank account, annuity payment account, letter of credit or other financial instrument that is recognized by a national patent office as a source of funds for effecting payment of an annuity fee due on one or more patent matters tagged by a registered user in the registry.

4. The computer-implemented method of claim 2, wherein the identified or established payment facility in the name of, or for the benefit of, the at least one registered user can only be accessed or drawn down by a national patent office to effect annuity payments due on patent matters tagged by that at least one registered user.

5. The computer-implemented method of claim 1 wherein, for each patent matter represented on the registry listing, and in relation to the respective annuity fees payable, the registry includes data relating only to a due date and amount due of the respective annuity fees payable.

6. The computer-implemented method of claim 5, wherein the due date and amount due data included in the registry is not rules-based but is drawn directly from corresponding annuity fee data at the national patent office.

7. The computer-implemented method of claim 1, wherein providing the registry of patent matters includes providing a single international registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a plurality of national patent offices for which the respective patent annuity fees are payable.

8. The computer-implemented method of claim 1, wherein allowing at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of annuity fees includes allowing a user to perform any one or more of the functions in the following group including:

tag one patent matter at a time;  
upload a listing of patent matters for annuity fee payment; and  
search for patent matters in the registry that the user owns, or against which the user is recorded as an assignee.

9. The computer-implemented method of claim 1, further including allowing registered users of the registry to specify, for tagged patent matters, different annuity payment options selected from a group including:

always pay;  
pay only if instructed to pay; and  
pay under certain other circumstances.

10. The computer-implemented method of claim 1, further including allowing registered users of the registry to specify,

for tagged patent matters, different funding mechanisms selected from the group including:

- PayPal or other online payments;
- credit card payments;
- bank account payments;
- back-up payment methods;
- application for registry credit; and
- prepayment of fees held in escrow by the registry.

11. The computer-implemented method of claim 1, further including allowing registered users of the registry to request and obtain forward contract pricing for payment of annuity fees in other currencies.

12. The computer-implemented method of claim 1, further including allowing registered users of the registry to request and obtain quotes for currency conversion rates on a real-time basis for annuity payments of tagged patent matters.

13. The computer-implemented method of claim 1, further including allowing registered users to request and obtain from the registry one or more elements in the following group including:

- cost projections for annuity fee payments on tagged patent matters;
- analytics information on selected patent matters listed in the registry;
- patent matter claim maps for selected patent matters listed in the registry; and,
- patent matter title verification for selected patent matters listed in the registry.

14. The computer-implemented method of claim 1, wherein providing the registry of patent matters includes securing the registry from unauthorized access by non-registered users, or wherein the tagging of patent matters by the at least one registered user is encrypted.

15. The computer-implemented method of claim 1, further including providing notification to the at least one registered user of the registry in the event one or more of the situations set forth in the following group occurs:

- another user tags a same patent matter;
- another user seeks to remove a tag from a tagged patent matter; and
- an annuity payment for a tagged patent matter was not made.

16. The computer-implemented method of claim 1, further including providing for the at least one registered user a "track me" feature that collects back-up contact information for the at least one registered user and follows the at least one registered user to make sure the user is available to authorize annuity fee payments for tagged patent matters.

17. The computer-implemented method of claim 1, wherein allowing the at least one registered user of the registry to tag one or more patent matters in the registry includes allowing the at least one registered user to tag a domestic or international family of patent matters at one time.

18. The computer-implemented method of claim 1, further including paying at least one annuity fee due on a tagged patent matter to a national patent office on behalf of a registered user.

19. The computer-implemented method of claim 1, further comprising providing at least one annuity payment authorization method for a registered user or owner of a patent matter

listed in the registry, wherein the authorization method is selected from the following group including:

- providing annuity payment information to an external annuity payment service provider and allowing that provider to secure payment authorization from the registered user or patent matter owner;
- allowing an external annuity payment service provider to authorize the registry to draw down on a payment facility established in the name of, or for the benefit of, the registered user or patent matter owner;
- seeking authorization from or verifying with the registered user or patent matter owner directly that it is acceptable to draw down on a payment facility established in the name of, or for the benefit of, the registered user or patent matter owner; and
- providing payment authorization keys for the registered user, patent matter owner, or an external annuity payment service provider.

20. A system for managing patent annuity fee payments, the system comprising one or more processors to:

- provide a registry of patent matters comprising, at least, a listing of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable;
- register customers of the registry as registered users of the registry;
- allow at least one registered user of the registry to tag one or more patent matters in the registry listing for payment of patent annuity fees; and
- provide, for at least one registered user, a direct annuity payment conduit between a national patent office and the at least one registered user for payment of annuity fees due on at least one patent matter tagged by the registered user.

21. A system for managing patent annuity fee payments, the system comprising:

- a network;
- at least one registry, accessible on the network, the registry including at least one database of patent matters representing all patent matters registered at a national patent office for which respective patent annuity fees are payable; and
- a server, operatively connected to the network, wherein the server includes:
  - a processor,
  - a memory,
  - software operable on the processor to:
    - provide a listing of at least some of the patent matters stored in the registry database;
    - register customers of the registry as registered users of the registry;
    - allow at least one registered user of the registry to tag one or more patent matters in the registry database for payment of patent annuity fees; and
    - provide, for at least one registered user, a direct annuity payment conduit between a national patent office and the at least one registered user for payment of annuity fees due on at least one patent matter tagged by the registered user.

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