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(54) **SYSTEM FOR EXTRACTING RELEVANT DATA FROM AN INTELLECTUAL PROPERTY DATABASE**

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(57) **ABSTRACT**

A method of extracting publications relevant to a reference entity, comprising the steps of generating an initial set of publications; associating the initial set with a database to generate a user-engageable display of at least one element relating to the at least one publication such that the at least one element is a required characteristic of the at least one publication in accordance with a predetermined standard of analysis; selecting at least a first element from the at least one element that represents a characteristic not present in the reference entity; yielding a result including publications in the initial set and excluding publications relating to the selected at least a first element in accordance with the predetermined standard of analysis.

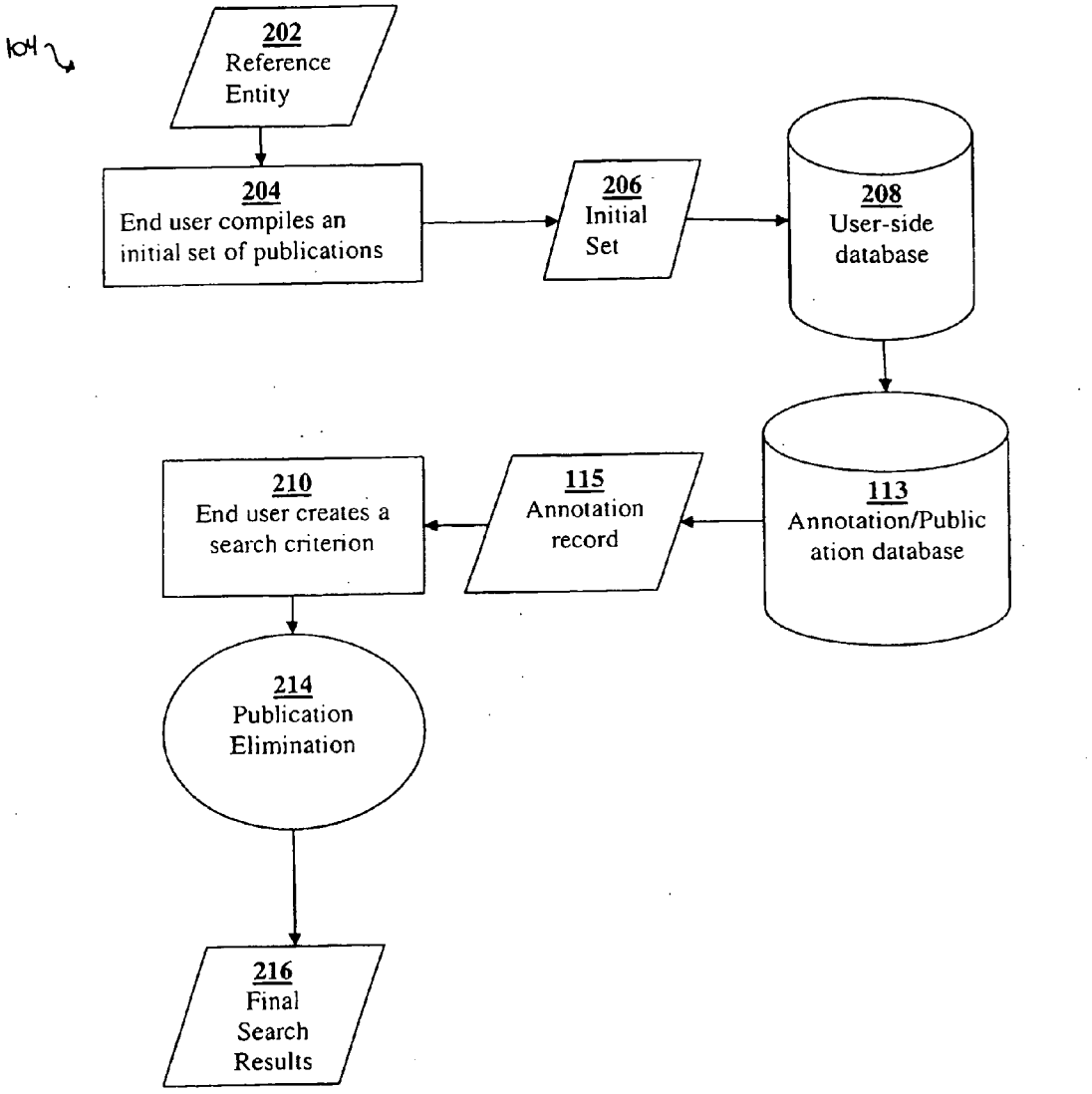


Fig. 1

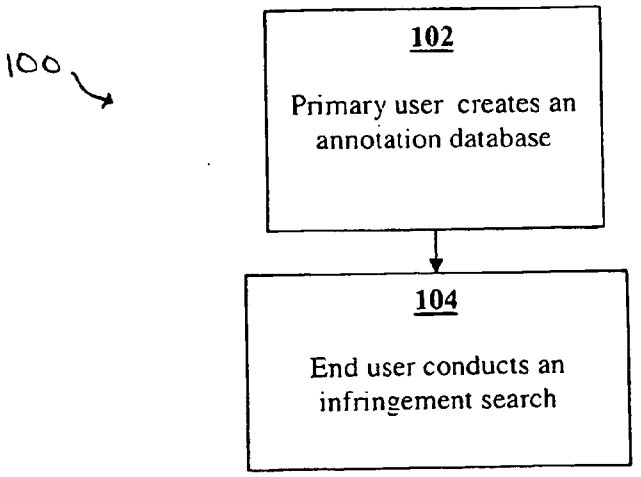

100
102
Primary user creates an annotation database
104
End user conducts an infringement search

Fig. 1(a)

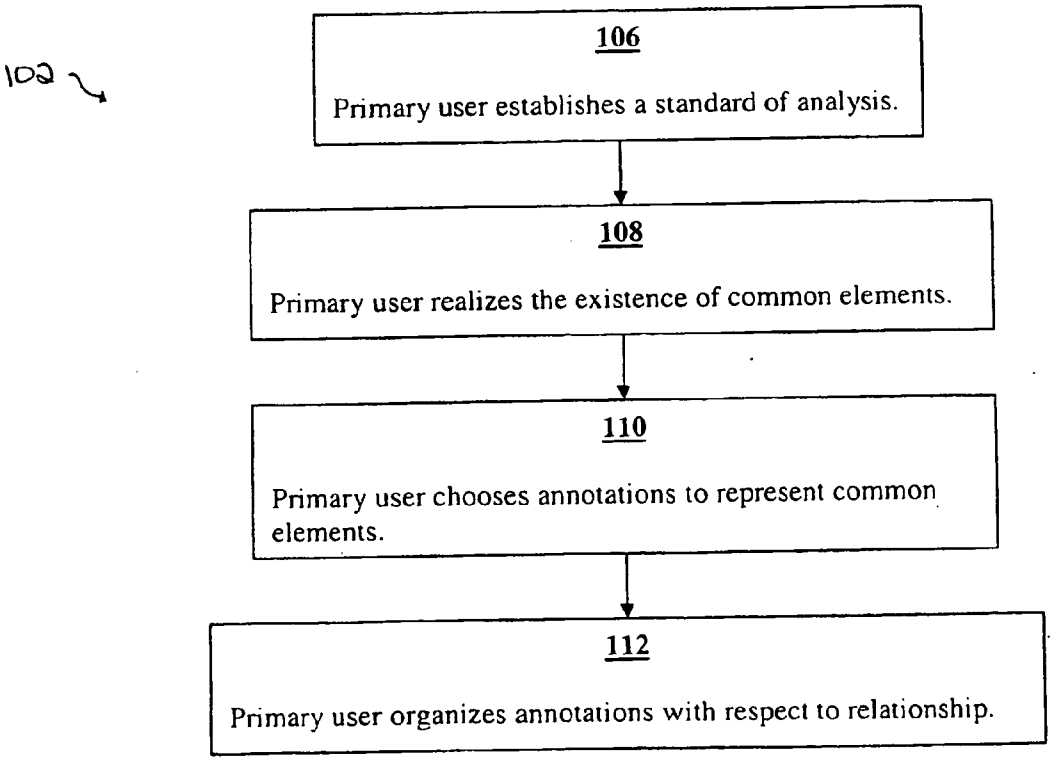

102
106
Primary user establishes a standard of analysis.
108
Primary user realizes the existence of common elements.
110
Primary user chooses annotations to represent common elements.
112
Primary user organizes annotations with respect to relationship.

Fig. 1(b)

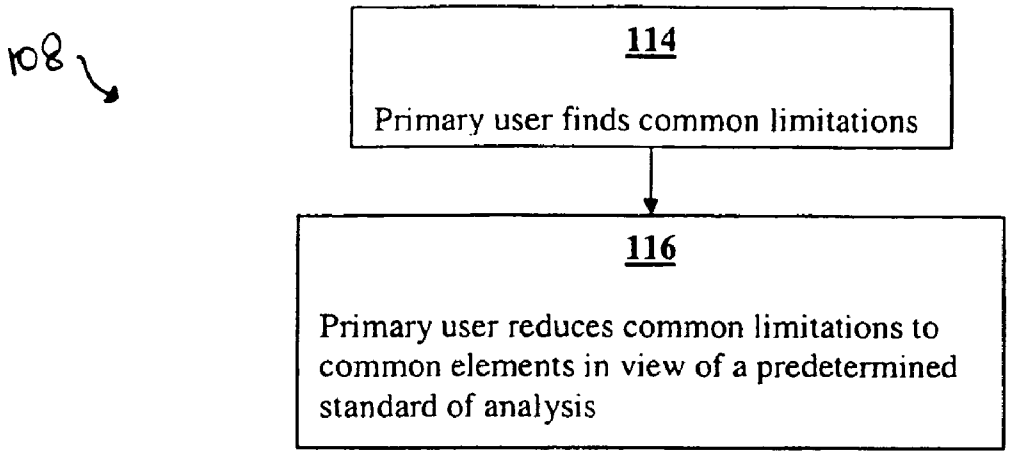

108
114
Primary user finds common limitations
116
Primary user reduces common limitations to common elements in view of a predetermined standard of analysis

Fig. 2

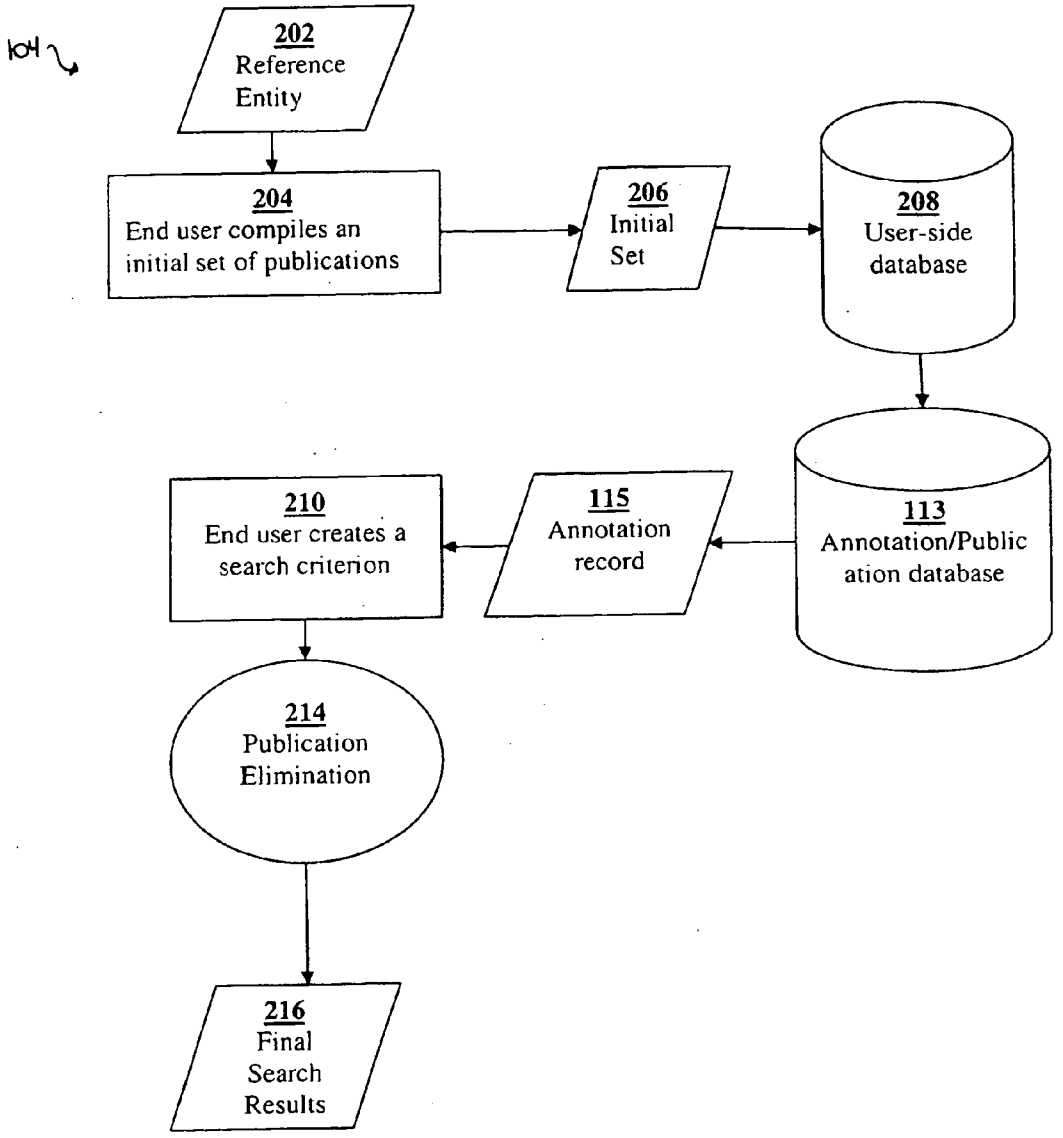

104
202
Reference Entity
204
End user compiles an initial set of publications
206
Initial Set
208
User-side database
113
Annotation/Publication database
115
Annotation record
210
End user creates a search criterion
214
Publication Elimination
216
Final Search Results

FIG. 3

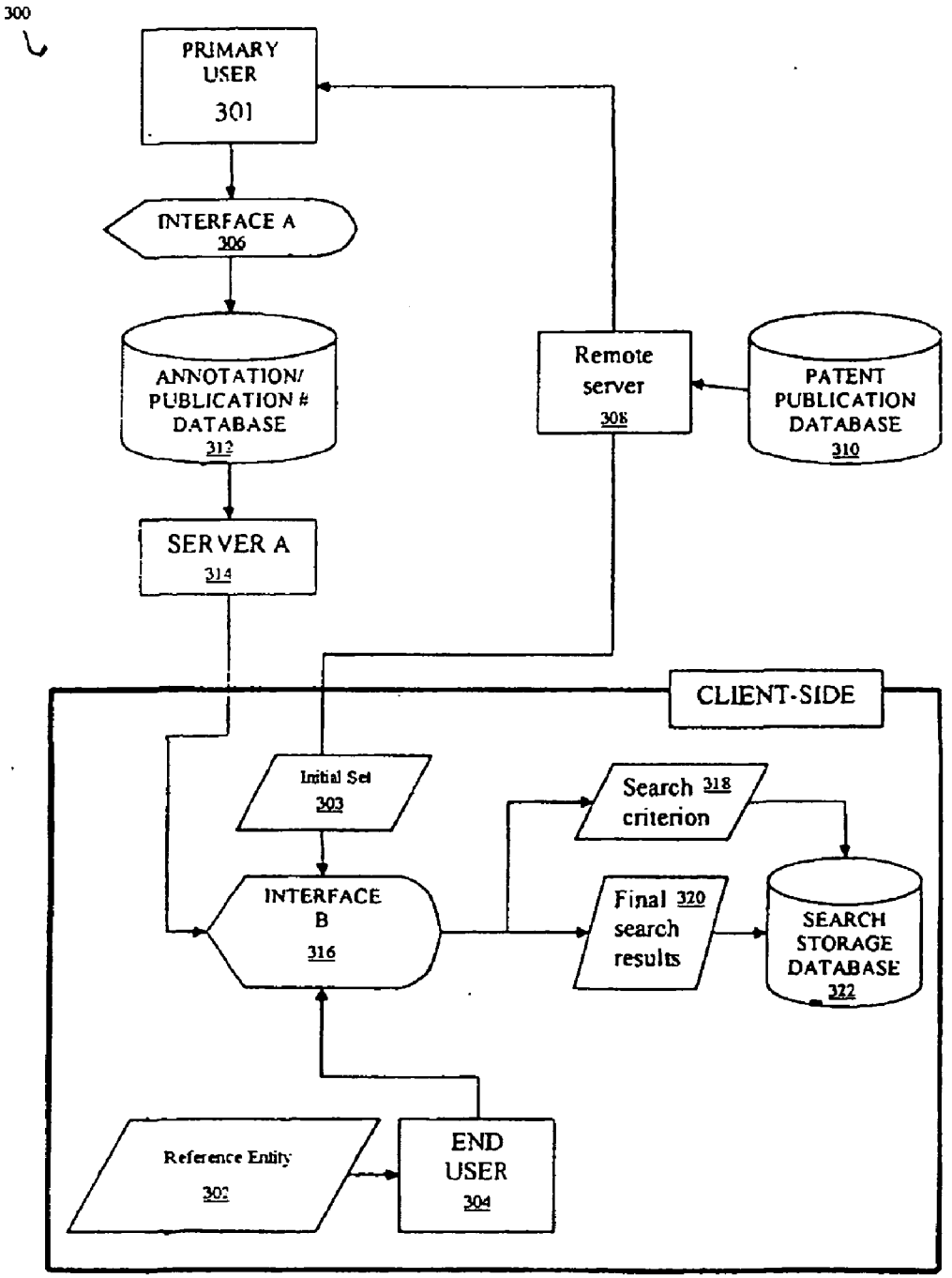
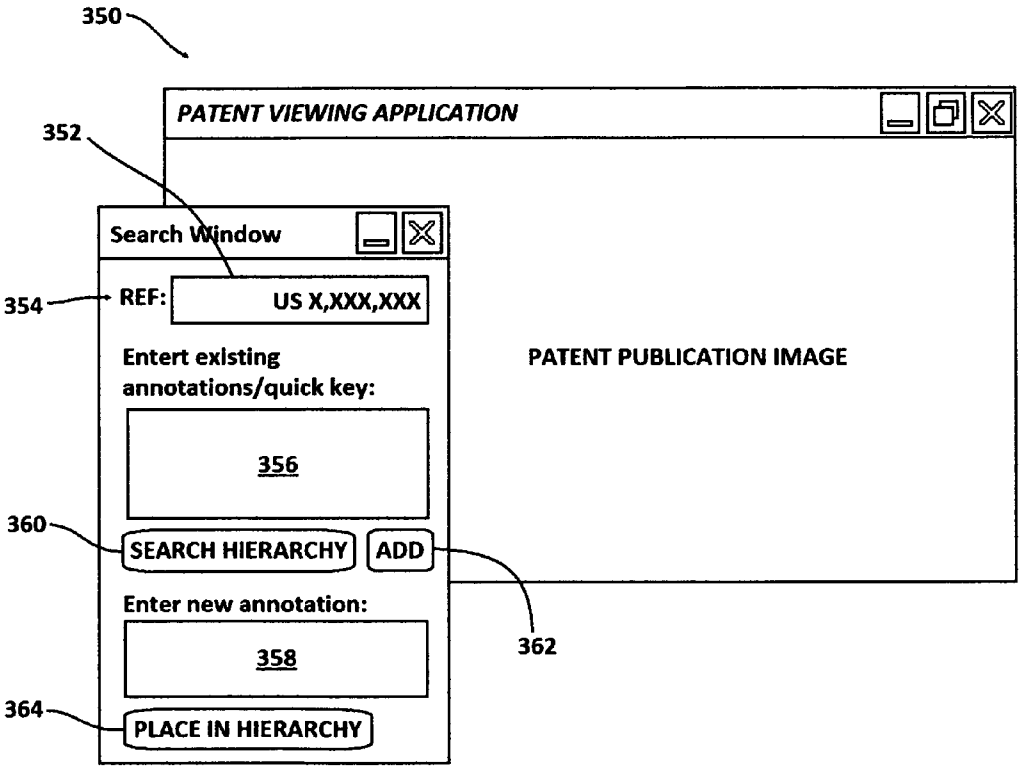

300
PRIMARY USER 301
INTERFACE A 306
ANNOTATION/ PUBLICATION # DATABASE 312
SERVER A 314
Remote server 308
PATENT PUBLICATION DATABASE 310
CLIENT-SIDE
Initial Set 303
INTERFACE B 316
Search 318 criterion
Final 320 search results
SEARCH STORAGE DATABASE 322
Reference Entity 302
END USER 304

FIG. 4


350
PATENT VIEWING APPLICATION
352
Search Window
354
REF:
US X,XXX,XXX
Entert existing annotations/quick key:
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SEARCH HIERARCHY
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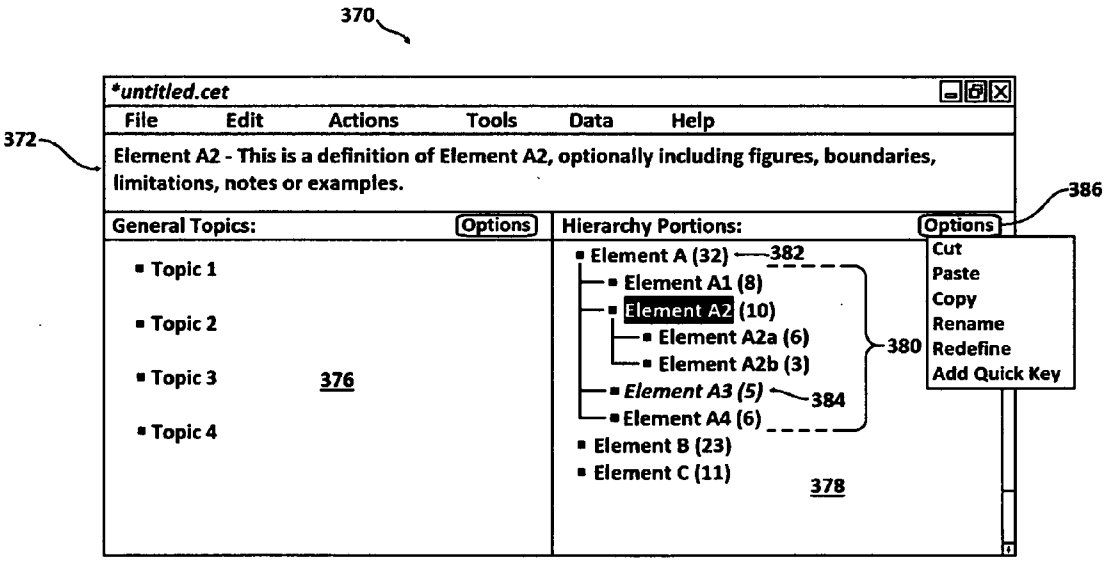
PLACE IN HIERARCHY
PATENT PUBLICATION IMAGE

FIG. 5


370
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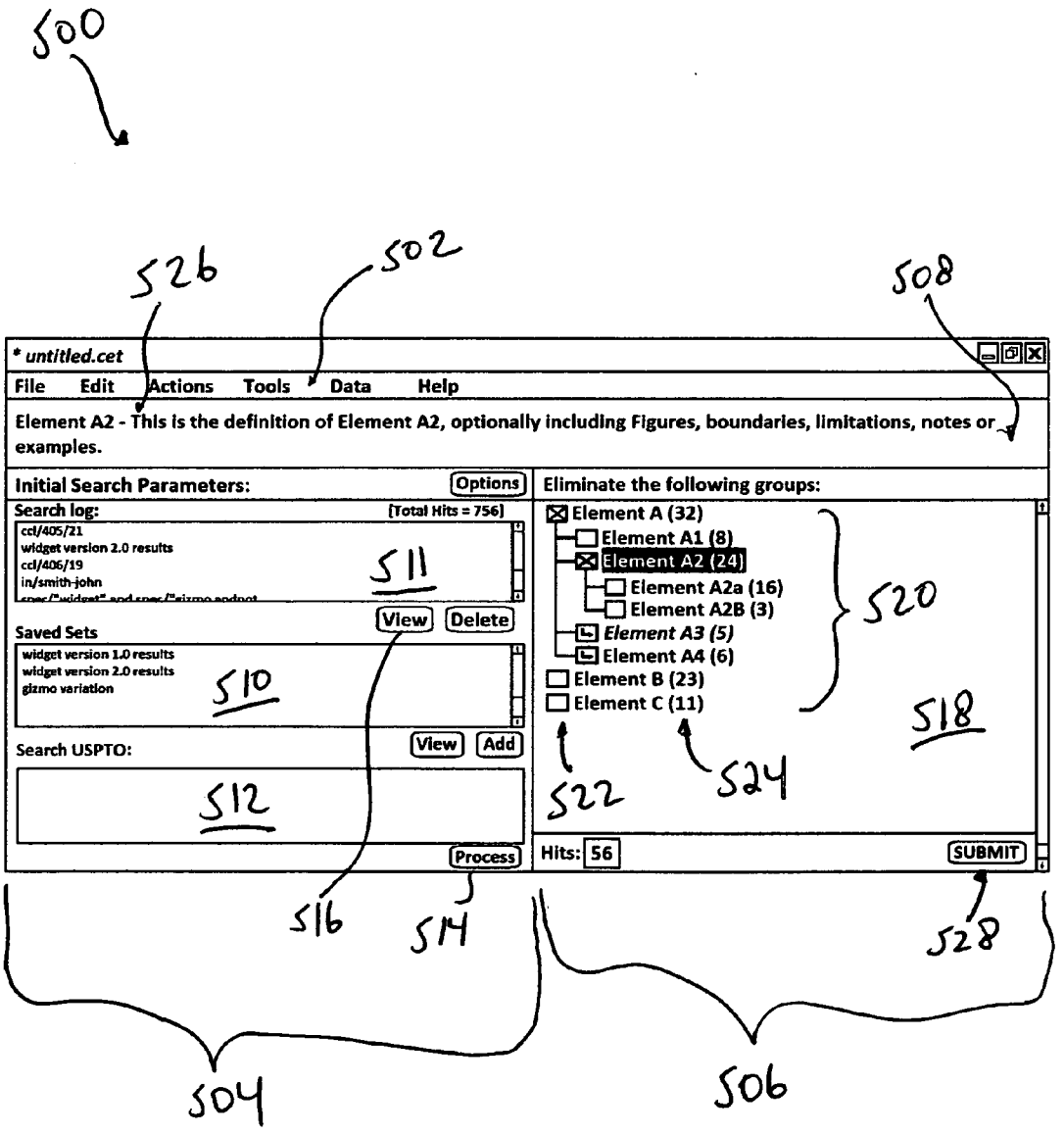
File
Edit
Actions
Tools
Data
Help
372
Element A2 - This is a definition of Element A2, optionally including figures, boundaries, limitations, notes or examples.
General Topics:
Options
Topic 1
Topic 2
Topic 3
Topic 4
376
Hierarchy Portions:
Options
386
Element A (32)
382
Element A1 (8)
Element A2 (10)
Element A2a (6)
Element A2b (3)
Element A3 (5)
384
Element A4 (6)
380
Element B (23)
Element C (11)
378
Cut
Paste
Copy
Rename
Redefine
Add Quick Key

FIG. 6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File Edit Actions Tools Data Help
Element A2 - This is the definition of Element A2, optionally including Figures, boundaries, limitations, notes or examples.
Initial Search Parameters:
Options
Search log:
[Total Hits = 756]
ccl/405/21
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in/smith-john
511
View
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widget version 1.0 results
widget version 2.0 results
gizmo variation
510
Search USPTO:
View
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512
Process
Eliminate the following groups:
Element A (32)
Element A1 (8)
Element A2 (24)
Element A2a (16)
Element A2B (3)
Element A3 (5)
Element A4 (6)
Element B (23)
Element C (11)
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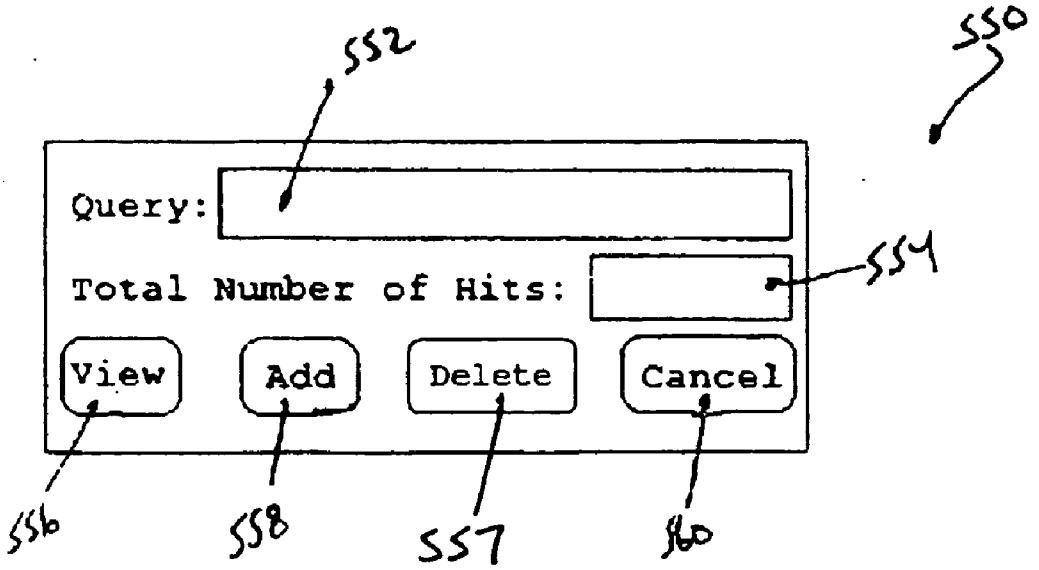
FIG. 6(a)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Query:
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FIG. 6(b)

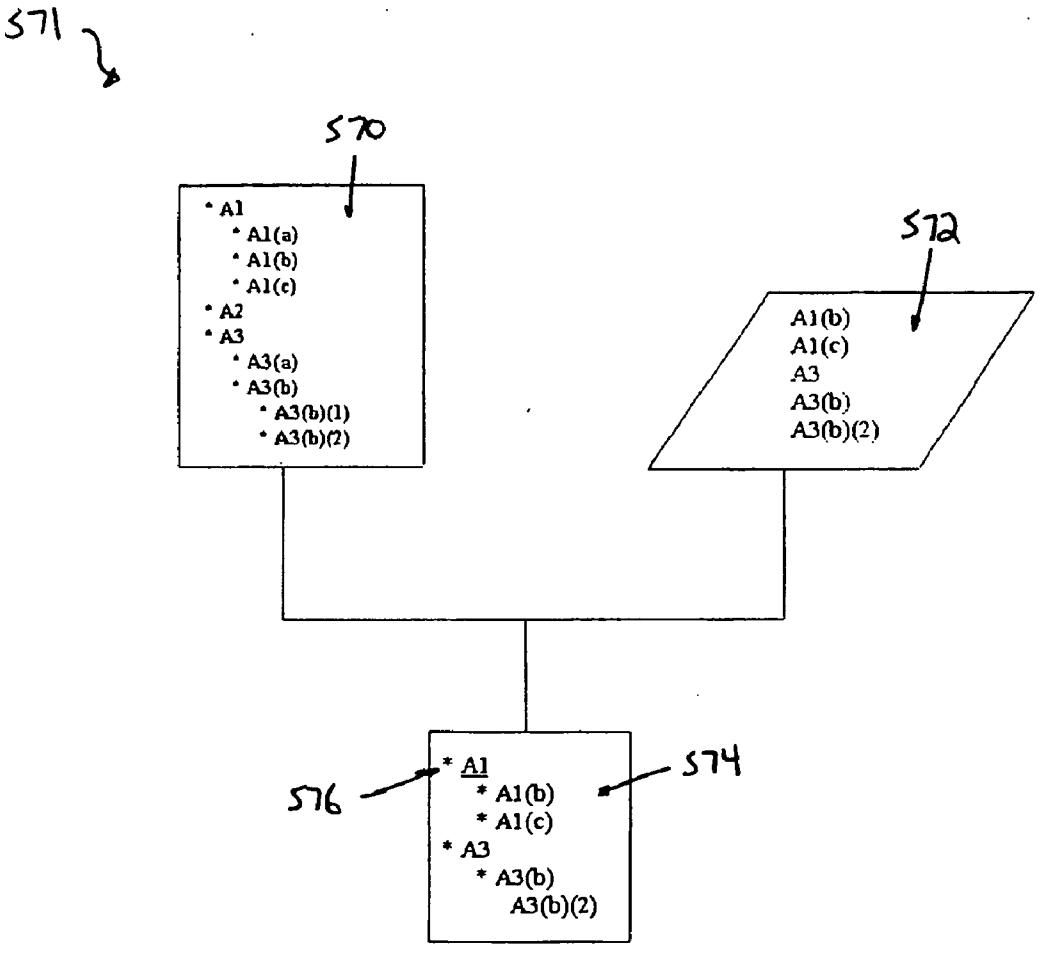
571
570
* A1
* A1(a)
* A1(b)
* A1(c)
* A2
* A3
* A3(a)
* A3(b)
* A3(b)(1)
* A3(b)(2)
572
A1(b)
A1(c)
A3
A3(b)
A3(b)(2)
576
574
* A1
* A1(b)
* A1(c)
* A3
* A3(b)
A3(b)(2)

FIG. 7

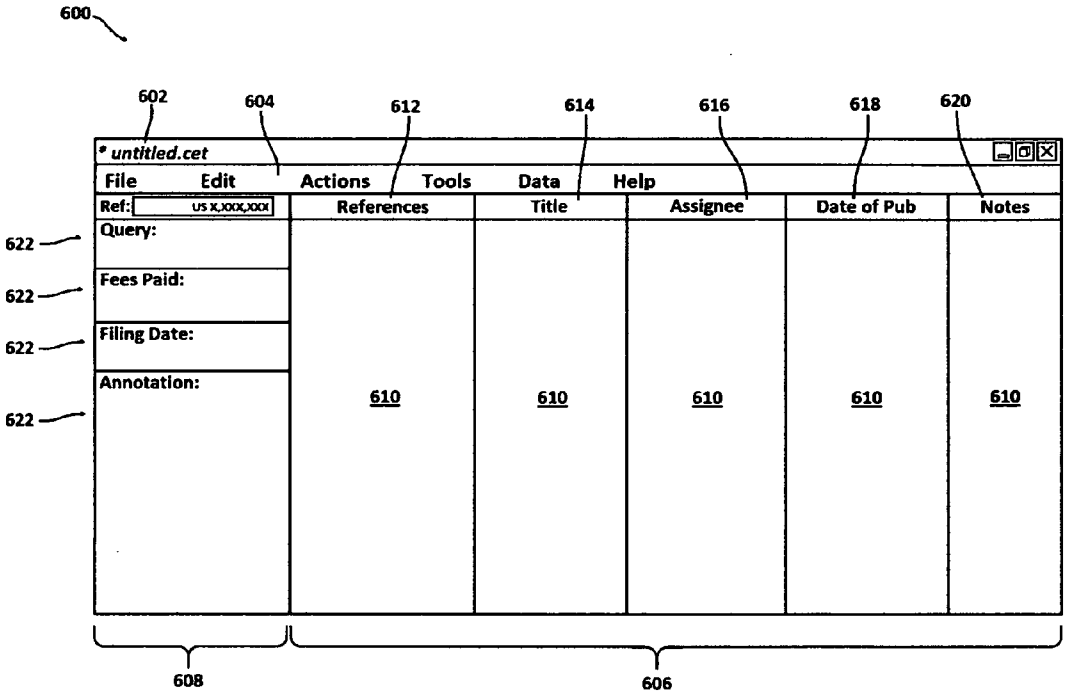
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FIG. 8

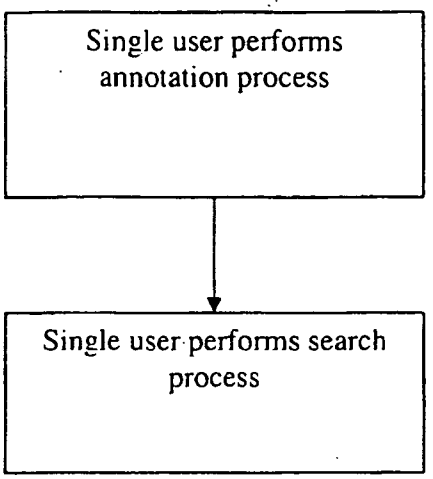

Single user performs annotation process
Single user performs search process

FIG. 8(a)

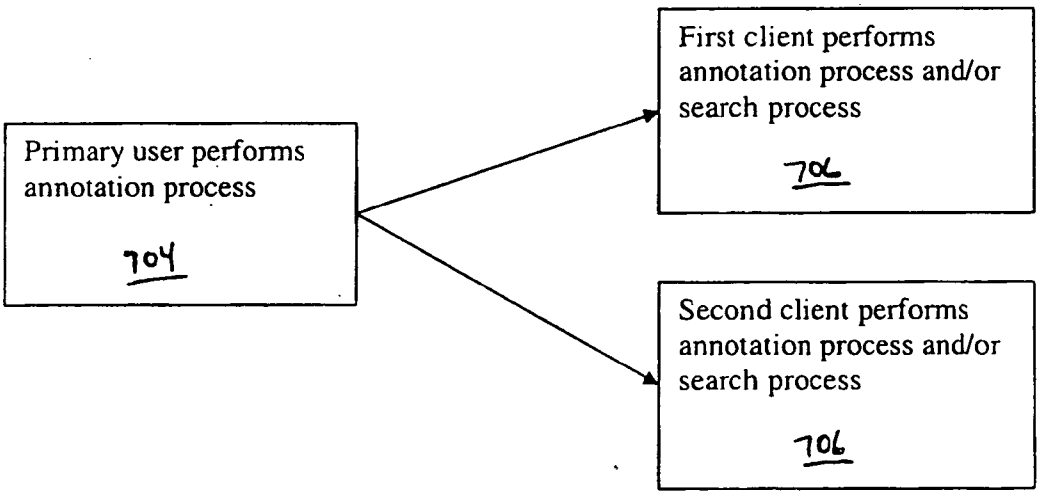

Primary user performs annotation process
704
First client performs annotation process and/or search process
706
Second client performs annotation process and/or search process
706

FIG. 8(b)

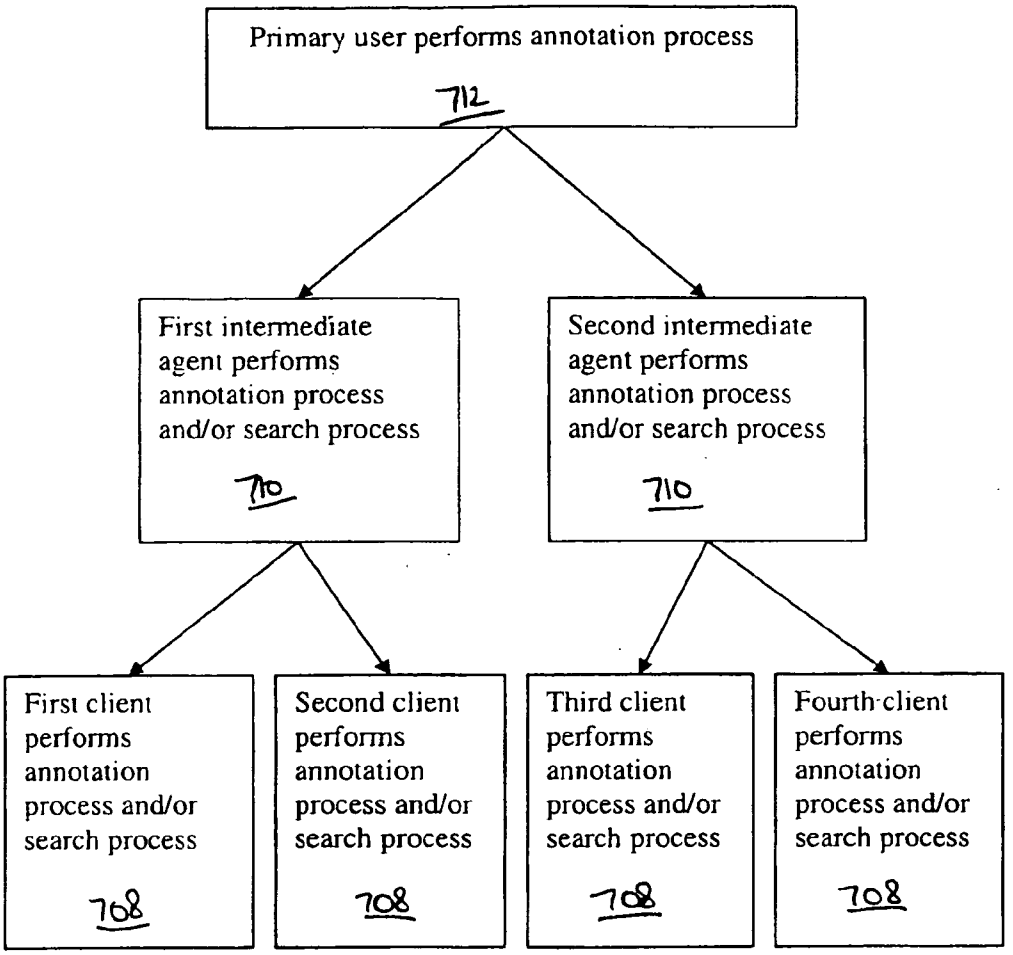
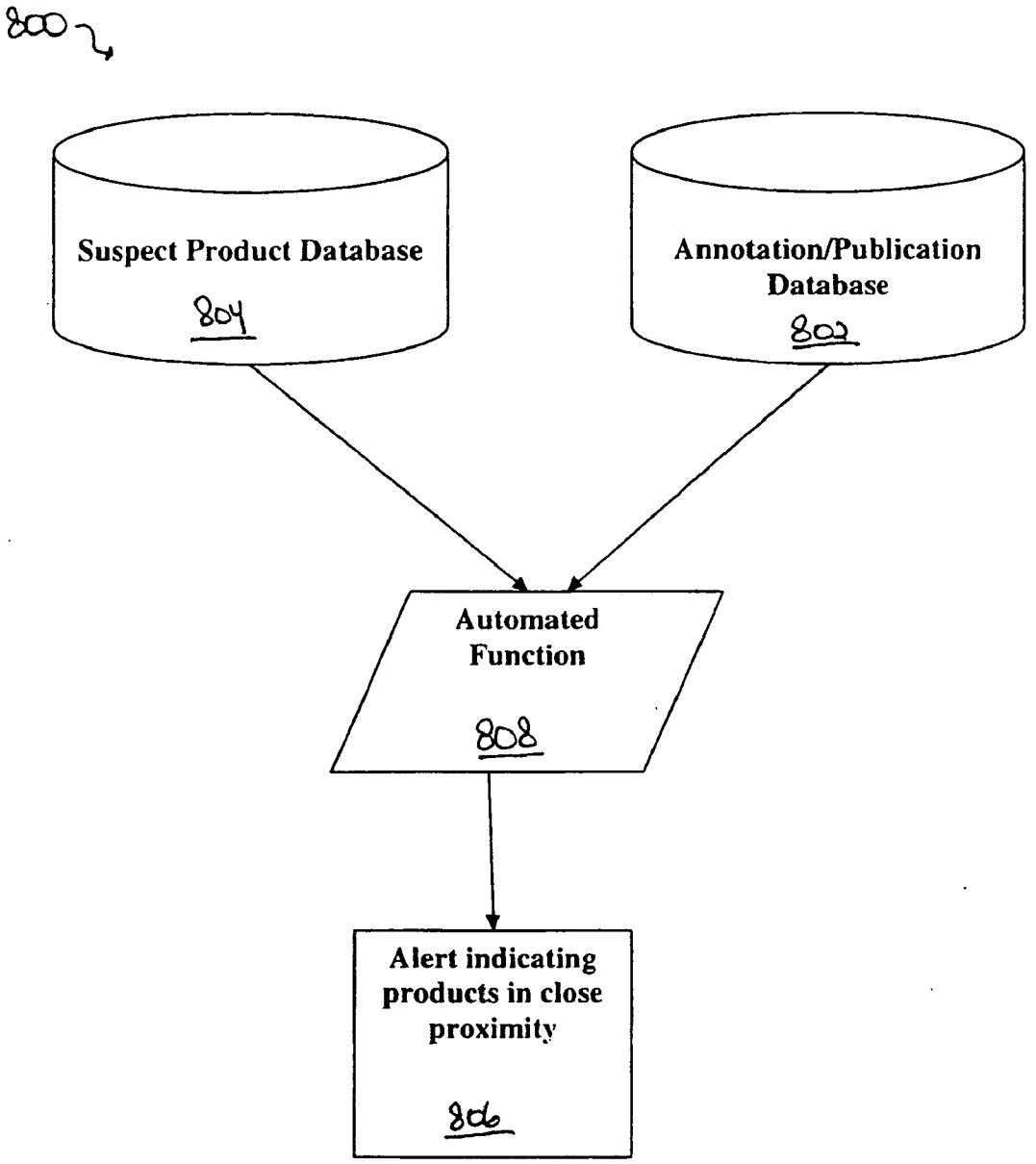

Primary user performs annotation process
712
First intermediate agent performs annotation process and/or search process
710
Second intermediate agent performs annotation process and/or search process
710
First client performs annotation process and/or search process
708
Second client performs annotation process and/or search process
708
Third client performs annotation process and/or search process
708
Fourth client performs annotation process and/or search process
708

FIG. 9


800
Suspect Product Database
804
Annotation/Publication Database
802
Automated Function
808
Alert indicating products in close proximity
806

SYSTEM FOR EXTRACTING RELEVANT DATA FROM AN INTELLECTUAL PROPERTY DATABASE

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority from U.S. Provisional Patent Application No. 60/670,735, filed Apr. 12, 2005, the entirety of the disclosure of which is hereby incorporated by reference into the present application.

BACKGROUND

[0002] This invention pertains to the field of database searching, and more particularly, searching an intellectual property database.

[0003] It is commonly desired by those within the legal practice, including law firms, practitioners, patent attorneys and agents, search firms, technology transfer managers, corporations, corporate Intellectual Property (IP) departments and the like, to extract relevant publications from an intellectual property database (e.g. information stored locally on CD-ROM, stored on network storage devices through a local area network, or stored on remote database systems through one or more disparate network paths, e.g. the Internet) with a predetermined expectation of accuracy. Relevant publications as used herein refer to publications that fall within the scope of having pertinence to a searcher, in accordance with a predetermined standard of analysis.

[0004] Accuracy, herein, is defined as the ratio of relevant publications actually retrieved (by a search system) to the total number of relevant publications within an initial set of publications. A search may be performed to determine one's right to use a product or right to produce a product, where the product may include an apparatus, composition, method, system, or a service (referred to as a reference entity, herein). As used herein, the term "infringement search" is meant to include any or all of a variety of terms used in the art to refer to database searching, including but not limited to "right to use search," "right to produce search," "clearance search," "infringement search," "freedom to operate," etc. Efficiency and accuracy may be of essence.

[0005] Methods of extracting IP data from databases are known that utilize keywords, annotations and publication summaries in retrieving publications. Algorithms that evaluate term frequency or assign specific weight to specific terms for effectually returning publications of greater relevance are also known. Also, methods are known that comprise the step of rephrasing portions of patent publications, such as the "Title," "Abstract" or "Claims," to conform to standard industry lexicography. Finally, search methods are known that match a set of "synonyms" to a specific search query to ensure that publications are not ignored solely due to differences in semantics.

[0006] While such methods are useful, improved results may be realized by search methods that take into account the inherent nature of infringement searches, as contemplated by the present invention. In conducting an infringement search for a reference entity, it is difficult for the searcher to conceptualize the range of relevant publications, due to the depth and complexity of the legal bounds of patent publications. Further, since an infringement search is generally conducted in consideration of a physically-existing object, the scope and variation of characteristics susceptible to infringement may be large. Although known methods may be helpful in preventing the searcher from missing relevant publications in certain instances, such methods only marginally increase the speed and efficiency of an infringement search. Efficiency, as used herein, is defined as the ratio of relevant publications retrieved to the total number of publications retrieved by a search system.

SUMMARY OF THE INVENTION

[0007] The present invention overcomes the foregoing disadvantages by providing an improved system of extracting relevant intellectual property data. In an exemplary embodiment, a system is described in which annotations, keywords, phrases, and/or symbols (collectively referred to as annotations, herein) represent elements or conditions taught, recited or implied in patent publications; each represented element or condition is deemed a necessary or essential characteristic, in accordance with a predetermined standard of analysis, for an object to infringe or to have relevance. A primary user stores the annotations in an annotation database and the annotations are arranged in hierarchal form with respect to scope and variation.

[0008] A client, or end user, then conducts an infringement search of a reference entity by inputting an initial set of publications, then creating a search criterion by selecting annotations relating to elements not present in the reference entity. A search criterion, as used herein, refers to a set a parameters for retrieving search results. Final search results are then retrieved. The final search results comprise publications of the initial set that do not correlate to annotations selected by the client. Thus, relevant intellectual property data may be obtained through the elimination, or filtering, of at least a set of annotated publications from a larger set of publications.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. **1** is a functional block diagram of an embodiment of the current invention.

[0010] FIG. **1**(*a*) is a functional block diagram illustrating a process of an embodiment of the current invention.

[0011] FIG. **1**(*b*) is a functional block diagram illustrating a process of an embodiment of the current invention.

[0012] FIG. **2** is a schematic diagram of an embodiment of the current invention.

[0013] FIG. **3** is a schematic flow diagram of an embodiment of the current invention.

[0014] FIG. **4** is a screen view illustrating an embodiment of the current invention.

[0015] FIG. **5** is a screen view illustrating an embodiment of the current invention.

[0016] FIG. **6** is a screen view illustrating an embodiment of the current invention.

[0017] FIG. **6**(*a*) is a screen view illustrating an embodiment of the current invention.

[0018] FIG. **6**(*b*) is a block diagram illustrating an embodiment of the current embodiment

[0019] FIG. **7** is a screen view illustrating an embodiment of the current invention.

[0020] FIG. **8** is a schematic diagram illustrating an embodiment of the current invention.

[0021] FIG. **8**(*a*) is a schematic diagram illustrating an embodiment of the current invention.

[0022] FIG. **8**(*b*) is a schematic diagram illustrating an embodiment of the current invention.

[0023] FIG. **9** is a schematic diagram of an embodiment of the current invention.

DETAILED DESCRIPTION

[0024] Preferred embodiments and applications of the invention will now be described. Other embodiments may be realized and structural or logical changes may be made to the disclosed embodiments without departing from the spirit or scope of the invention. Although the preferred embodiments disclosed herein have been particularly described as a system for extracting relevant intellectual property data in the form of patents and patent publications, it should be readily apparent that the invention may be embodied to implement any system in which similar problems may occur. For illustrative purposes, the discussion herein may refer to U.S. patent publications. Those skilled in the art will appreciate the application of the invention to other jurisdictions (e.g. Europe, Canada or Japan), either alone or in combination, and to other forms of information (e.g. trademarks, company structure, prosecution and litigation history, technical publications or general publications). It may also be appreciated that the current invention may be combined with other systems and methods known in the art of electronic searching and IP management.

I. Overview

[0025] As in FIG. **1**, a first non-limiting embodiment of the current invention **100** is illustratively depicted as a system comprising a first process **102** and second process **104**. The first process **102** comprises a process of creating an annotation database. The second process **104** comprises a process of conducting an infringement search. The first process **102** is described as being performed by a primary user. The second process **104** is described as being performed by an end user or client. While the invention is herein described as two processes, one skilled in the art will appreciate that it is within the scope of the invention, and it may be preferred in certain instances, for both the first and second process to be performed simultaneously, and/or by a single user and/or at a single location.

[0026] A. Creating an Annotation Database

[0027] The process of annotating a set of publications **102** will now be discussed in accordance with the first embodiment of the current invention, as in FIG. **1**(*a*). The annotation process comprises the steps of establishing a standard of analysis **106**; realizing the existence of common elements **108**; choosing annotations to represent common elements **110**; and organizing annotations with respect to relationship **112**.

[0028] 1. Establishing a Standard of Analysis

[0029] The first step of the annotation process **102** is the establishment of a standard of analysis **106** for determining infringement or, alternatively, relevance. In the case of patent publications, the standard of analysis may relate to a determination of which supporting information to consider and to what extent. For example, in developing a standard of analysis specifically tailored to a highly visual patent art, it may be deemed sufficient to detect infringement or relevance solely in view of the "Drawings" portion. For more complex patent arts, infringement may rely substantially on the "Claims" portion or a combination of portions. At a level of criticality, the standard of analysis may warrant consideration of any information potentially pertinent to the interpretation of the patent publications, both intrinsic and extrinsic, including prosecution history, related art and technical publications. The standard of analysis may further include legal considerations, level of expertise, degree of conservativeness, nature of the art, level of regard for intellectual property within the industry and additional business factors including risk analysis. Finally, the standard of analysis may take into account the transient nature of any particular consideration.

[0030] In an exemplary embodiment, the standard of analysis relates specifically to patent infringement. In the case of patent infringement, it is desirable that detection of elements be based on at least the "Claims" portion of patent publications. In accordance with current practice, patent publications may comprise at least one claim and each claim may be considered "independent" or "dependent" (including "multiple dependent claims"). Each "claim" of a patent may be considered to consist of a set of limitations, each limitation contributing to the formation of a boundary as to the scope of the claimed invention. "Design" patent publications may be considered, in essence, to consist of a single claim comprising limitations depicted visually through "Drawings."

[0031] 2. Realizing the Existence of Common Elements

[0032] As in FIG. **1**(*b*), the primary user, in consideration of the predetermined standard of analysis, analyzes patent publications for the purpose of detecting common elements **108**. A common element, in some embodiments, refers to an element or concept that is implicitly or explicitly recited in a patent publication that is deemed a necessary condition for infringement of that patent publication in accordance with a predetermined standard of analysis.

[0033] Where, for example, the predetermined standard of analysis is patent infringement under U.S. law, a common element is an element or concept that must be present in an accused infringing object (e.g. a product, method, apparatus, etc., that is being analyzed for infringement) in order for that object to infringe the patent publication.

[0034] In other words, a common element of a patent publication is a sine qua non for infringement of the patent publication, in accordance with a predetermined standard of analysis. Likewise, an object that comprises a common element (of a patent publication) may, but does not necessarily, infringe the patent publication.

[0035] In some embodiments, where the predetermined standard of analysis is related to "relevance," then a common element of a publication is an element or concept necessary for a reference entity to comprise for the reference entity to have relevance to the publication. Thus, a primary user would analyze a patent publication and detect those elements or concepts that are deemed essential or necessary conditions.

[0036] In an exemplary embodiment, the detection of common elements may involve, first, finding implicit or explicit limitations that are common to each "claim" (or at least each "independent claim") of a patent publication **114**, such a limitation herein referred to as a common limitation. The predetermined standard of analysis is then implemented to reduce a common limitation of a patent publication to a common element of the patent publication **116**. Thus, the predetermined standard of analysis operates to modify the scope of a common limitation, defined by the language of the inventor, to realize a common element.

[0037] For example, a patent publication may comprise a set of claims, each claim reciting the limitation of "a composition comprising the element argon." Thus, "comprising the

element argon" is a common limitation. However, in applying a predetermined standard of analysis, in view of, for example, legal considerations and conservativeness, the common limitation of "comprising argon" may be too narrow to function as a common element. Thus, in creating a common element, the common limitation, "comprising argon" may be broadened to the concept of "comprising an inert gas."

[0038] 3. Choosing Annotations to Represent Common Elements

[0039] The primary user then chooses annotations to represent common elements **110**. An annotation may be further supported by an assigned definition. It is preferred that both the annotation and the assigned definition comprise broadly-accepted terminology, irrespective of the lexicography of any specific patent publication. Due to the eliminatory nature of the preferred embodiment of the current invention, there is no inherent requirement to apply annotations where application would be futile, difficult or impossible.

[0040] a. Discretionary Nature of Annotation Application

[0041] Any individual publication may be assigned no annotations, one annotation, or several annotations. The degree to which a publication is annotated may not necessarily affect the accuracy of the system. In other words, the system may be considered eliminatory. Thus, the absence of annotation of a publication results in the retrieval of the publication in final search results rather than the elimination of the publication from the final search results. Thus, in a preferred embodiment, the extent to which publications are annotated relates neither to the complexity nor the extent of novelty of the publication, and is within the discretion of the primary user. The discretion of the primary user may rely heavily on'both the predetermined standard of analysis and the availability of broadly-accepted terminology in a specific art to represent a common element.

[0042] b. The Use of Logic Operators

[0043] In the course of the annotation process, it may be the case that specific publications seem not to comprise common elements or at least not to an extent to which annotations may easily be assigned. For example, in simplified terms, a publication comprises a set of twenty claims. The first ten claims each recite at least a first limitation, A. The remaining ten claims each recite at least a second limitation, B, and do not recite limitation A. In response, a primary user may attempt to realize a common element so broad in scope as to encompass both A and B. However, such an attempt may be ineffectual, since the resulting common element may be substantially broader than the scope of any particular claim. Alternatively, the primary user may employ the use of logic operators. Assume an appropriate annotation representing A is A' and an appropriate annotation for B is B'. In using logic operators, a common element in this case may be represented by "A' AND B'." In other words, while neither A', alone, nor B', alone, represent a common element of the publication, a reference entity (i.e., the object in question of infringement) cannot infringe the publication if the reference entity comprises "both A' and B'." Further, logic operators may be employed in more complex cases. For example, a publication comprises a set of twenty claims. The first ten claims recite at least limitations C and D. The final ten claims recite at least limitation E, but recite neither C nor D. In this case, it may be most effective to represent the common element as "(C' OR D') AND E'," where C', D' and E' represent annotations of limitations C, D and E, respectively.

[0044] 4. Organizing Annotations With Respect to Relationship

[0045] Next, a hierarchy (or network or listing of annotations) may be created for organizing annotations with respect to scope or likeness or a combination thereof **112**. It is preferable that annotations are arranged at least with respect to scope. A first annotation may be embedded within a second annotation, where the first annotation relates to a common element that is a species of the common element of the second annotation. It is also preferred that redundancy is minimized. In some embodiments, the primary user may utilize placeholder annotations. Placeholder annotations, herein, refer to annotations that do not correlate to common elements of any publication, but merely aid in forming the structure of the hierarchy, thereby increasing functionality.

[0046] The assigned annotations and related publication identifications (e.g. serial numbers, publication numbers, patent numbers or the like) are stored as the annotation record. The annotation record may be stored as data, preferably in a user-side database or storage module, herein referred to as the annotation/publication database **113**.

[0047] B. Conducting the Infringement Search

[0048] FIG. **2** illustrates the second process **104** of the first non-limiting embodiment of the current invention. The second process **104** may be considered to be the actual performance of the infringement search. The search is performed by an end user in view of a reference entity **202** or known characteristic of a reference entity **202**. The process of conducting a clearance or infringement search generally comprises the steps of compiling an initial set of publications **204** and creating a search criterion **210**.

[0049] 1. Compiling an Initial Set

[0050] An initial set of publications **206** may be realized as input data and stored. In some embodiments, input data may be stored in a user-side database **208**. The initial set of publications **206** may comprise a prior compilation of publications from a known source. For example, the initial set may comprise patent publications of designated classes or subclasses in accordance with the U.S. Patent and Trademark Office (USPTO) classification system, data field searches, natural language searches, Boolean searches, searches conducted with known patent searching software, prior final search results of the current invention or any combination thereof. In some embodiments, the initial set includes a set of publications encompassing the entire scope of publications that may conceivably lead to issues of infringement or relevance in regards to a reference entity, limited by the discretion of the client or end user and reasonability. The initial set may comprise publications not correlated with annotation of the annotation database described herein.

[0051] 2. Creating a Search Criterion

[0052] An end user then refers to the annotation record **115** represented in hierarchy form. The end user creates a search criterion **210** by selecting annotations (relating to common elements) of the annotation record **115** that are not present in relation to the reference entity **202** undergoing clearance. The search criterion **210** may be saved or stored in the user-side database **208**. At the completion of the creation of the search criterion, an automated function eliminates publications, from the initial set **214**, that relate to selected annotations of the search criterion. The remaining publications of the initial set **214** are returned as final search results **216**.

[0053] In some embodiments, final search results includes information such as additional characteristics of publications of the initial set either explicit or implicit. Such information includes any information known for assisting the end user **301** in accordance with a predetermined standard of analysis. In some embodiment, such information includes excluded publications or excluded annotations distinguished from the retrieved publications or unselected annotations. In some embodiments, final search results comprises an opinion or report, derived from the set of returned publications of the initial set.

II. Exemplary Implementation

[0054] The following illustrates an exemplary implementation of a preferred embodiment of the current invention. As shown in FIG. **3**, a system **300** may be carried out via central processing units (CPUs), such computing being performed on a single CPU, split up over several CPUs (e.g. networked) or performed remotely via the Internet. It is within the scope of the current invention to incorporate any known manner of interfacing information such as browser-type technology and windows-based formatting. "Pop-up" windows, referred to herein, includes any known form of windows, separate from a main window. The following embodiment illustrates a subscription-type software service in which a primary user **301** and an end user **304** are distinct entities.

[0055] The primary user **301** may access interface A **306** and access a remote server **308** via electronic network, internet, intranet or the like. Through the remote server, a patent publication database **310** may be accessed. The database may comprise electronic publications of the USPTO, European Patent Office, Japanese Patent Office or the like or any combination thereof. Additionally, the patent publication database may comprise any electronic collection of patent publications on magnetic disc, CD-ROM or the like or any combination thereof. Interface A **306** may comprise a CPU, display module, user interfaces such as a keyboard and mouse, and a server. Through interface A, the primary user may access an annotation/publication database **312** for saving and storing data of the annotation record. The annotation/publication database may be accessible remotely through electronic network, internet, intranet, CD-ROM, magnetic disc or the like for access by a remote user, namely an end user or client.

[0056] The data of the annotation/publication database may be accessed by the end user **304** through interface B **316**. Interface B **316** may also have remote access to the patent publication database **310** via the remote server **308**. Both the search criterion **318** and the final search results **320**, developed by the end user **304**, may be stored or saved in a search storage database **322**.

[0057] A. The Annotation Process

[0058] As shown in FIGS. **4-5**, a first display module **350** of interface A **306** may comprise a publication-viewing application, e.g. an application for displaying .pdf, .tiff, .rtf or the like. Additionally, a pop-up window **352** may be applied for the primary user **301** to input annotations. The pop-up window **352** may comprise a reference identification box **354**, automatically displaying the currently-viewed publication identification, and a first annotation input box **356** for manual input of annotations previously existent. A second annotation input box **358** may be applied for manual input of new annotations.

[0059] The first annotation input box may comprise a "Search Hierarchy" button **360**, in which a primary user **301** may enter a query comprising a letter, portion of an annotation or annotation and be automatically directed to a graphical hierarchy representation **370** (as in FIG. **5**) of the portion of the hierarchy containing the inputted query. From the graphical hierarchy representation **370**, annotations may be selected and added to the set of annotations correlated with the viewed publication. An annotation may also be typed in and added through the first annotation input box **356** alone using an "Add" button **362**.

[0060] The second annotation box **358** may be implemented for manual input of a new annotation. The primary user **301** may click on a "Place in hierarchy" button **364** for automatically linking to the graphical hierarchy representation. The primary user may than select a genus annotation of which the new annotation may belong. Topics may preferably be implemented to break down the entire hierarchy into several broad classifications. Thus, if an annotation is broader than any existing genus, the annotation may be placed within a topic. The primary user may then be prompted to input an annotation definition. An annotation definition may optionally be inputted.

[0061] As in FIG. **5**, the graphical hierarchy representation (GHR) **370** may comprise three windows or frames within a window. The first GHR window **372** may automatically display the annotation definition corresponding to a selected annotation **374**. The second GHR window **376** may display a macro view of general topics or broad annotations. The contents of the macro view may depend on at least the broadness, depth, or stage of development of the hierarchy. The third GHR window **378** comprises a detailed hierarchy portion of the general topic selected by the primary user **301**. Species annotations **380** may be embedded within respective genus annotations **382**. Species annotations **380** of a specific genus may be arranged in order of the number of publications **384** that each species annotation **380** yields. Alternatively (or in addition), annotations may be listed in alphanumeric order.

[0062] The primary user **301** may select annotations from the third GHR window **378**. An "Options" button **386** may be implemented for supplying a set of commands, each to operate on a selected annotation. For example, an annotation may be "cut" from one location in the hierarchy and optionally "pasted" in another. A "cut and paste" operation serves to reclassify each individual publication represented by the annotation to be "cut" and "pasted." Similarly, a selected annotation may be "copied" and placed within another genus or "dragged and dropped." An annotation may be "renamed." An annotation may be redefined. An annotation may be given a "quick key." A "quick key" refers to a combination of keys that will automatically apply an annotation to a reference. "Quick keys" may be most effective for annotations that are applied often in annotation development. An example may be applying "CTRL+A" (CTRL referring to the Control key of a standard QWERTY keyboard) for the annotation of "comprising an acidic substance."

[0063] B. Conducting an Infringement Search

[0064] 1. Compiling an Initial Set

[0065] FIG. **6** illustrates an electronic display **500** in accordance with Interface B **316**. The end user **304** may access Interface B **316**. Interface B may comprise a CPU, server and a display **500**. The display **500** may comprise a menu bar **502**, first window **504**, second window **506** and third window **508**. The first window **504** may include an organization of initial

search parameters. The end user **304** may use the first window **504** for compiling an initial set **303** of publications. Specifically, the first window **504** may include a first sub-window **510** for accessing saved sets of publications, labeled "Saved Sets." The end user **304** may access final search results of prior searches or a set of publications acquired by other known means as discussed herein. The end user **301** may input multiple sets.

[0066] The first window **504** may further comprise a second sub-window **512**. The second sub-window **512** may provide a means for accessing a known electronic publication database, such as the USPTO, European Patent Office, Japanese Patent Office or the like or any combination thereof. The end user **304** may process and add known publication database queries to the initial set **303**. Optionally, the known publication database query may be processed by clicking a "Process" button **514**.

[0067] Clicking the "Process" button **514** may call a first pop-up window as in FIG. **6**(*a*). The first pop-up window **550** may display the query **552** and data information pertaining to the query, such as "Total Number of Hits" **554**. The first pop-up window **550** may also provide a button **556** for the end user **304** to view results, resulting in the appearance of a second pop-up window (not shown) displaying resulting hits of the query and optionally data information such as "Filing Date," "Title," "Inventor," "Assignee" and the like. The end user **304** may delete individual publications from the query, add all results **558** to the initial set **303** or cancel the query **560** by clicking on respective buttons as shown.

[0068] As in FIG. **6**, the third sub-window **511** may display a log, labeled "Search Log," listing all queries and sets of publications inputted by the end user **304**. The end user **304** may view compiled publications of a query by optionally clicking on a "View" button **516**. Clicking on the "View" button **516** may result in the appearance of a third "pop-up" window (not shown) listing compiled resulting publications. As in the second pop-up window **550**, resulting hits may be displayed in the third pop-up window along with publication data information. The end user **304** may delete individual publications from the compilation. The end user **304** may also delete entire queries or sets of publications from the third sub-window **511**. The initial set **303** may be saved for later reference.

[0069] 2. The Custom Hierarchy

[0070] As in FIG. **6**, the second window **518** relates to the annotation record. Displayed may be a portion **520** of the annotation record arranged in hierarchy form. In some embodiments, an automated function may be employed to eliminate from display annotations within the annotation record that do not correlate to publications of the specific initial set inputted by the end user **304**. Such a function may operate by first reading in the initial set **303** of publications as compiled by the end user **304**, and relating the initial set **303** to the annotation/publication database. Annotations, and placeholders in some embodiments, that relate to publications of the initial set are extracted from the annotation record in creating a custom hierarchy. If a genus annotation does not relate to a publication of the initial set, but a species of the genus does relate, the genus annotation is listed, but serves as a placeholder. Thus, annotations that do not relate to publications of the initial set **303** are automatically eliminated in forming the custom hierarchy. It is preferred that the annotations comprise the same relative structure in the custom hierarchy as in the hierarchy of the annotation record. The end result is a custom hierarchy comprising only annotations that are relevant to publications of the initial set. As such, the end user or client is assured that time will not be wasted considering annotations that bear no effect on reducing the amount of publications of the initial set.

[0071] FIG. **6**(*b*) illustrates an example of the creation of a custom hierarchy. A portion of the hierarchy of the annotation record **570** is shown. An automated function compares annotations of publications of an initial set **572** with the hierarchy of the annotation record **570**. The result is a custom hierarchy **574** including annotations of publications of an initial set **572**. The relative structure of annotations is maintained. Further, annotation "A**1**" **576** becomes a placeholder annotation.

[0072] 3. Creating the Search Criterion

[0073] The custom hierarchy may be displayed in the second window **518** and may be listed in tree form, each species embedded within the related genus. Each annotation listing may comprise a check box **522**, hyperlink or tag. Each annotation may be followed by a numerical indicator **524** displaying the total number of hits retrieved per annotation. It is preferred that the selecting of a genus annotation automatically results in selecting each species annotation embedded within. The end user **301** may alternatively opt to expand the genus annotation, revealing the next generation of species embedded within it. The end user **301** may then select species annotations individually. Selecting the text of the annotation may result in the definition **526** of the annotation being displayed. Definitions may be displayed in the third window **508**. An annotation definition **526** may include figures, boundaries, limitations, notes, examples or the like or any combination thereof, used to further define and explain the related annotation.

[0074] a. Discretionary Nature of the Search Criterion

[0075] The end user **301** may select annotations on a discretionary basis. For example, if the end user **301** is either unsure of whether a specific element is present in conjunction with a reference entity **302** or unsure of the limits of the annotation, the end user **301** may opt not to select the annotation. Since selection of annotations relates to elimination of annotations, an end user **301** not selecting an annotation results in the retrieval of the publications correlated to the unchecked annotations (unless the publications are otherwise eliminated).

[0076] At the completion of the annotation selection, the end user may click on a "Submit" button **528**. The final search results **320** may then be displayed in a third display window **600** as shown in FIG. **7**. The third display window **600** may comprise an application identification bar **602**, a menu bar **604**, a right window **606** and a left window **608**. The right window **606** may comprise a plurality of columns **610**, each column **610** pertaining to a specific field. The fields may relate to publication data information such as reference number **612**, title **614**, assignee **616**, dates of publication **618** and notes **620**. The end user **301** may click on an individual publication of the final search results and be able to view the images associated with the publication through an application capable of reading the format of the publication.

[0077] The left window **608** may comprise a second set of fields **622**. The second set of fields may pertain to publication-specific fields relating to the publication that the end user clicks on in the right window **606**. The second set of fields **622** may include reference number, query, fee payment status, filing date and a list of applied annotations.

[0078] An option (not shown) may be provided allowing an end user **301** to view the specific set of publications that correlate to specific annotations of the custom hierarchy. Viewing sets of publications of annotations may be advantageous in novelty-type searches or patentability-type searches.

[0079] If a publication of the initial set relates to more than one annotation in the custom hierarchy, the end user may eliminate the publication by selecting of any of several annotations of the custom hierarchy. Thus, the process of creating a search criterion may be quickened by an automated function for updating or refreshing the custom hierarchy at specific intervals. The automated refreshing process may eliminate annotations of the custom hierarchy that correspond to publications relating to annotations previously selected by the end user. In some embodiments, the search criterion may be refreshed on the end user's command. In other embodiments, the search criterion may be refreshed at periodic intervals or upon each annotation selection by the end user.

[0080] b. Accounting for Subsequent Design Variations of a Reference Entity

[0081] The search criterion may be saved and retrievable for future searches. For example, consider the case of conducting a clearance search for a reference entity where it is conceivable that there may be a variation of one or more of the characteristics of the reference entity within the object's developmental life cycle. A first search may be conducted for a first version of the reference entity. The first search criterion may then be saved. A second search may then be conducted with respect to a second version of the reference entity, which may be a variation of the first version of the reference entity. For the second search, the end user **301** may input the same initial set as in the first search or input a new initial set. The end user **301** may then retrieve the search criterion of the first search and indicate that a variation is to take place. Such an indication may visually result in a change to the font or appearance of the selected annotations of the first search criterion and allow the end user **301** to override the selections of the first search criterion in accordance with the variation or variations in characteristics of the reference entity. It is preferred that modifications of the search criterion are visually distinguishable from the original annotation selections. The end user **301** may then "submit" the modified criterion. The result, in final search results, is a compilation of publications that are relevant solely due to the variation of the reference entity vis-à-vis the original reference entity.

III. Additional Embodiments

[0082] A. Global Structure

[0083] As illustrated in FIG. **8**, in an alternative embodiment, both the annotation process and the search process, as described herein, takes place at a single location **702** by a single user. The single user may be an individual, corporate entity, law firm, search firm or the like. In such an embodiment, the annotation process may be continuous and occur simultaneously with the search process. Annotations are continuously added, deleted, applied to publications or modified to further the efficiency and speed of the overall system. In this case, annotations may be specifically defined in accordance with the user's specific understanding. Further, in this case, annotations may be specifically directed to technical areas of concern to the user.

[0084] As illustrated in FIG. **8**(*a*), in another embodiment, the annotation process, as described herein, is shared between a primary user **704** and at least one client **706**, preferably through means of a subscription service. The primary user **704** may develop an annotation/publication database directed toward a broad technical field, while providing computer-implemented tools for the client to modify and further develop the annotation/publication database in accordance with the client's specific technical field. An advantage of this embodiment may be in overcoming diminishing returns associated with annotating a broad technical field. While benefits generally exist in developing annotations directed toward a broad technical field, a critical point in the annotation process may exist where further development may be ineffective as compared to further development directed toward a specific technical field.

[0085] As illustrated in FIG. **8**(*b*), in yet another embodiment, at least one of either the annotation process or the searching process is shared between at least one client **708** and at least one intermediate agent **710**. In such a case, the primary user **712** may develop an annotation database directed toward a broad technical field. The agent **710** may further develop the annotation database directed toward a narrower technical field. Finally, the client **708** may develop the database directed towards the client's specific technical field. The agent **710** may also conduct infringement searches on behalf of the client **708**. Other structural configurations sharing processes of any of the embodiments of the current invention amongst discrete parties may be realized without departing from the scope and spirit of the current invention.

[0086] In yet a further embodiment of the current invention, the annotation/publication database is developed to include patent publications from multiple jurisdictions. While the standard of analysis may differ for various jurisdiction (e.g. EPO, JPO), it is preferred that the annotation record is universal. Where the current invention is to be implemented for a client of another language, it is preferred that only the annotations be translated. Thus, a client of another language, conducting an infringement search, may eliminate a substantial portion of publications without undue translation of each individual publication. Alternatively, a multi-language system may comprise independent annotation/publication databases, the annotations of each translated in multiple languages.

[0087] B. Specific Intellectual Property Portfolio Management

[0088] In yet a further embodiment of the present invention, an annotation/publication database **802**, as described herein, may form the basis of a management system **800** for a client's own portfolio of IP publications. Assuming the annotation/publication database **802** to be sufficiently developed with regards to the technical field of the client, a second database, a suspect product database **804**, may be created where suspect products are annotated according to the same annotation record as the annotation/publication database **802**. The client may designate a first set of publications of interest. An automated function may then continuously, periodically, or at command of the client, compare annotations of products of the second database with annotations of the first set and alert the client **806** if a product falls within the scope of annotations of a patent publication of the first set. Additional algorithms **808** may be applied to filter either products or patent publications that are either scantily-annotated or otherwise likely to create false alerts. Such a system may be beneficial for a client who operates within a complex technical art or has a large IP portfolio.

[0089] While specific embodiments have been described above, it will be appreciated that the invention may be practiced otherwise than as described. The descriptions above are intended to be illustrative and not limiting. Thus it will be apparent to one skilled in the art that modifications may be made to the invention as described without departing from the scope of the claims set out below.

1-15. (canceled)

16. A computer program product comprising a computer-usable medium having a computer-readable program code embodied therein, the computer-readable program code adapted to be executed to implement a method for identifying patent documents of interest in view of a specific reference entity, the method comprising:

displaying a user-engageable arrangement of a plurality of annotations that are associated with a first plurality of document identifiers, each of the first plurality of document identifiers uniquely representing one of a first plurality of patent documents;

receiving a selection from a user of at least one of the plurality of annotations;

excluding, from the first plurality of document identifiers, all document identifiers associated with the at least one annotation selected by the user; and

outputting a resultant set of document identifiers that does not include any of the excluded document identifiers,

wherein each particular patent document of the first plurality of patent documents has at least one required characteristic satisfying conditions of a standard of analysis such that each required characteristic is necessary for any reference entity to embody in order to infringe the particular patent document based on a claims portion of the particular patent document, and

wherein the plurality of annotations include annotations that correspond to required characteristics of the first plurality of patent documents, and wherein each particular document identifier is associated only with annotations corresponding to required characteristics of the patent document represented by the particular document identifier.

17. The program of claim **16**, wherein the step of displaying a user-engageable arrangement of annotations further comprises displaying a genus annotation and a species annotation such that the species annotation is hierarchically embedded within the genus annotation.

18. The program of claim **17**, wherein the method further comprises:

receiving a user request to remove an annotation from the displayed user-engageable arrangement from a first location in the user-engageable arrangement and replace the annotation in a second location in the user-engageable arrangement, wherein the second location is different from the first location;

removing the annotation from the first location; and

replacing the annotation in the second location.

19. The program of claim **16**, wherein the method further comprises displaying a definition associated with at least one annotation of the displayed plurality of annotations.

20. The program of claim **16**, wherein:

the plurality of annotations are further associated with a second plurality of document identifiers that are each different from the first plurality of document identifiers and that each uniquely represent one of a second plurality of patent documents;

for each of the second plurality of document identifiers, a first annotation and a second annotation of the plurality of annotations represent, in conjunction, but not individually, a required characteristic of the particular patent document represented by the document identifier, wherein, the required characteristic is evaluated, under a standard of analysis, to be necessary for any reference entity to embody in order to infringe the particular patent document based on a claims portion of the patent document;

the method further comprises, for each of the second plurality of document identifiers, excluding the document identifier if, and only if, both the first annotation and the second annotation constitute user-selected annotations; and

the resultant set of identifiers does not include any of the excluded document identifiers from the second plurality of document identifiers.

21. The program of claim **16**, wherein the method further comprises:

receiving a primary selection of one or more primary annotations from the displayed arrangement of annotations, resulting in primary selected annotations and primary non-selected annotations, wherein the primary annotations correspond to one or more document identifiers from the first plurality of document identifiers;

removing, from the display, all non-selected annotations that only correspond to the one or more document identifiers; and

receiving a secondary selection of one or more secondary annotations from the displayed arrangement of annotations.

22. The program of claim **16**, wherein the method further comprises:

generating a record of each annotation of the plurality of annotations correlated with a value indicating whether or not the annotation constitutes a user-selected annotation; and

storing the record as a search criterion.

23. The program of claim **22**, wherein the method further comprises:

displaying a second user-engageable arrangement of a second plurality of annotations;

based on a user request, accessing the search criterion;

comparing each annotation of the search criterion to each annotation of the second plurality of annotations; and

for each annotation of the second user-engageable arrangement, if the particular annotation corresponds to a user-selected annotation, modifying the second arrangement by displaying the particular annotation as selected.

24. A computer program product comprising a computer-usable medium having a computer-readable program code embodied therein, the computer-readable program code adapted to be executed to implement a method for identifying patent documents of interest in view of a specific reference entity, the method comprising:

receiving, from a user, an initial set of document identifiers that each uniquely represent one of a first plurality of patent documents;

accessing a stored collection of document identifiers that each uniquely represent one of a second plurality of patent documents, wherein the stored collection of document identifiers are associated with a first plurality of annotations, such that, for each document identifier of

the stored collection of document identifiers, only annotations of the first plurality of annotations that correspond to a required characteristic of the patent document represented by the patent document identification are associated with the patent document identification, wherein the required characteristic is evaluated, under a standard of analysis, to be necessary for any reference entity to embody in order to infringe the patent document based on a claims portion of the patent document;

comparing the initial set of document identifiers with the stored collection of document identifiers;

displaying a user-engageable arrangement of annotations including, from the first plurality of annotations, only annotations that are each associated with at least one document identifier of the first plurality of document identifiers;

receiving a selection from a user of at least one of the second plurality of annotations; and

outputting a resultant set of patent document identifications that, from the first plurality of patent document identifications, excludes all patent document identifications associated with the user-selected annotations.

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