

(12) **United States Patent**  
**Rutledge et al.**

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(54) **INFORMATION SEARCH SYSTEM FOR ENABLING A USER OF A USER TERMINAL TO SEARCH A DATA SOURCE**

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(75) Inventors: **Charles Wayne Rutledge**, Whitehouse Station, NJ (US); **Norman Ashton Whitaker, Jr.**, Atlantic Highlands, NJ (US)

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(73) Assignee: **AT&T Corp.**, New York, NY (US)

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(\*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

*Primary Examiner*—Ella Colbert  
 (74) *Attorney, Agent, or Firm*—Morgan & Finnegan, L.L.P.

(57) **ABSTRACT**

A network-based search system in which queries and information records are qualified by temporal and geographical references, such as those provided by a map-based directory system. Briefly, queries are submitted using text strings together with time tags and location tags. Time tags and location tags refer to the date/time the query was last submitted for a search and the geographical area of interest (defined by ranges of latitude and longitude coordinates), respectively. The information records being searched preferably contain similar time and location tags. However, time and location tags associated with information records refer to the date/time the record was last modified and the origin of the record, respectively. A mechanism is also provided for determining location tags for records that do not include location tags. In all, a comparison between the time and location tags associated with a query and the time and location tags associated with the information records permits geographically irrelevant records to be suppressed and allows the user to automatically receive only information that has been modified since the user last requested it. Thus, search results are automatically pre-filtered prior to being transmitted to the user who originated the query, which conserves network resources and reduces the amount of context-based filtering required of the user.

(21) Appl. No.: **08/901,249**

(22) Filed: **Jul. 28, 1997**

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 08/824,106, filed on Mar. 25, 1997, which is a continuation-in-part of application No. 08/613,307, filed on Mar. 11, 1996, now abandoned.

(51) **Int. Cl.**<sup>7</sup> ..... **G06F 17/30**

(52) **U.S. Cl.** ..... **701/211; 701/213; 707/3**

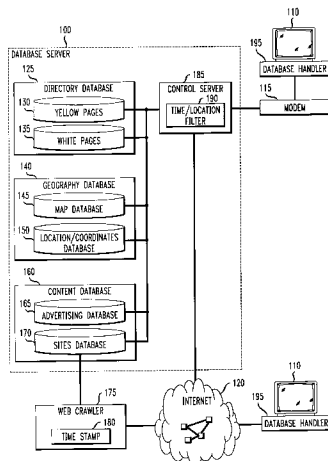
(58) **Field of Search** ..... 707/1, 5, 10, 100-104, 707/200-206; 434/112, 116; 455/12.1, 406, 412, 434, 456, 457, 466; 701/211; 370/352; 358/442

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**2 Claims, 9 Drawing Sheets**



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FIG. 1

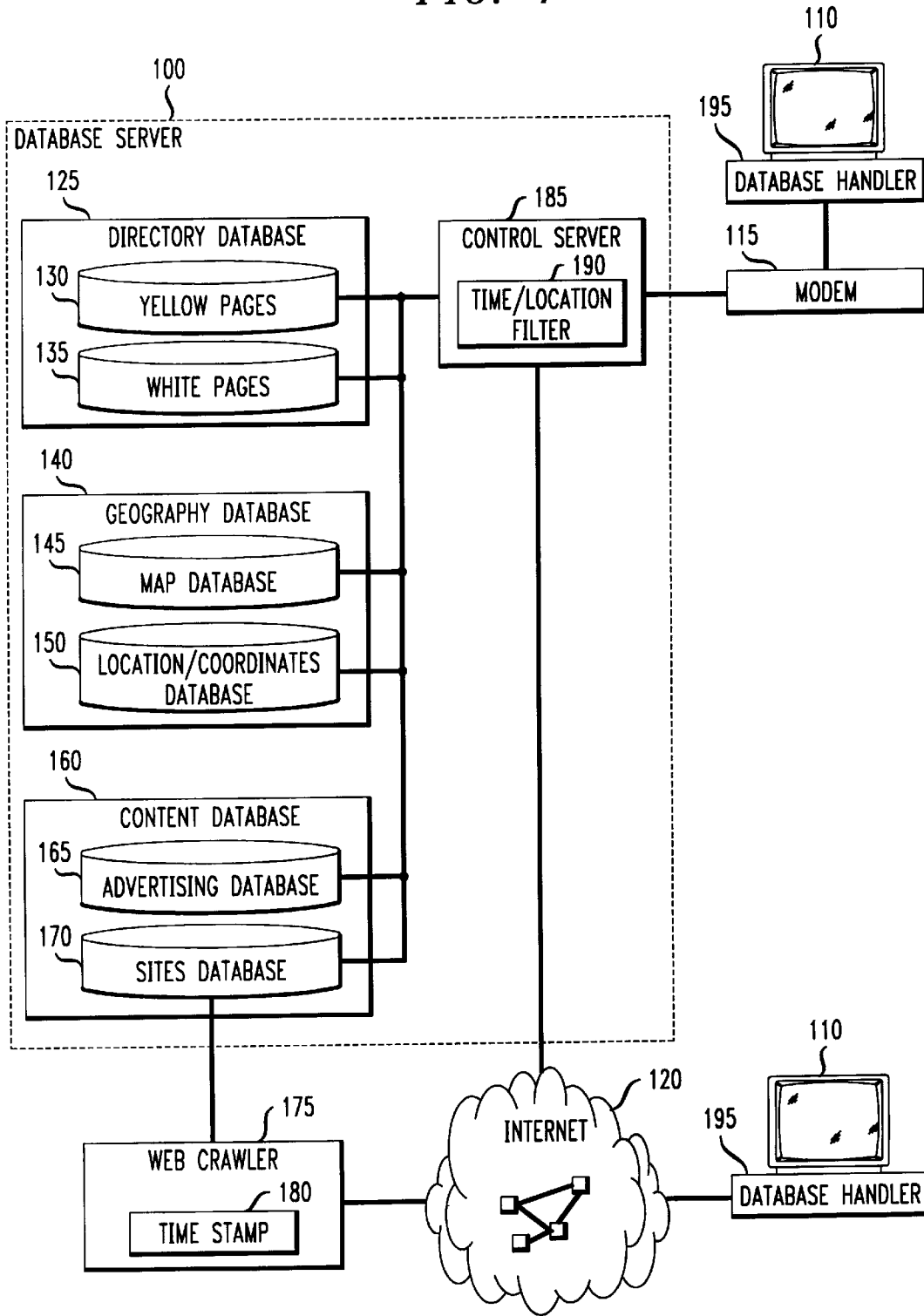


FIG. 2B

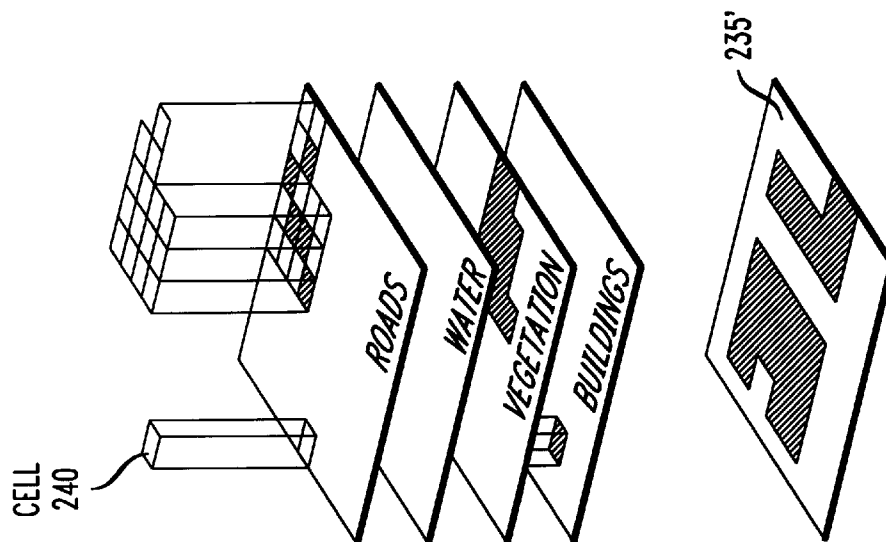


FIG. 2A

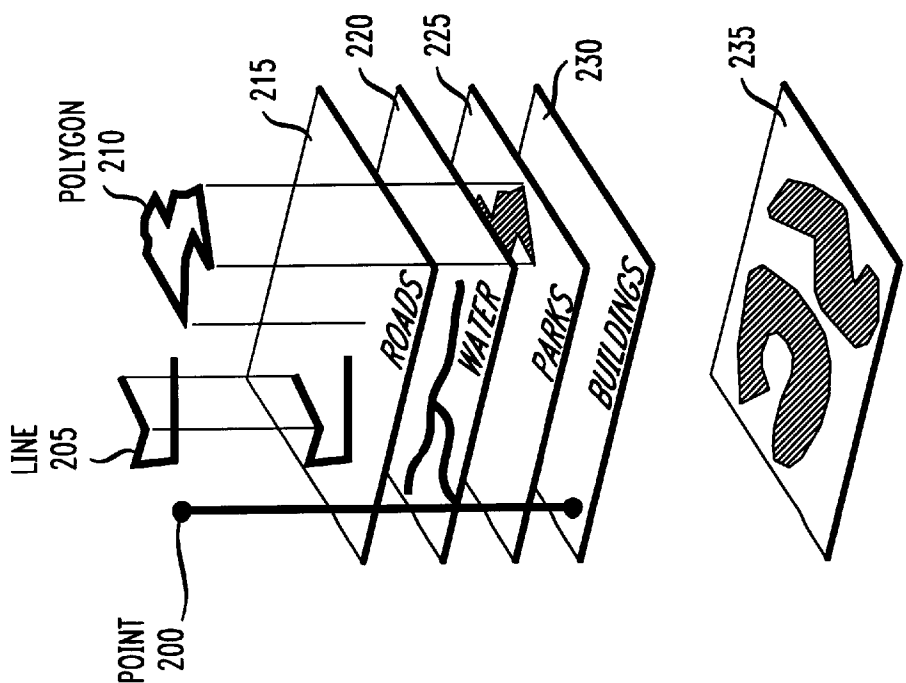


FIG. 3

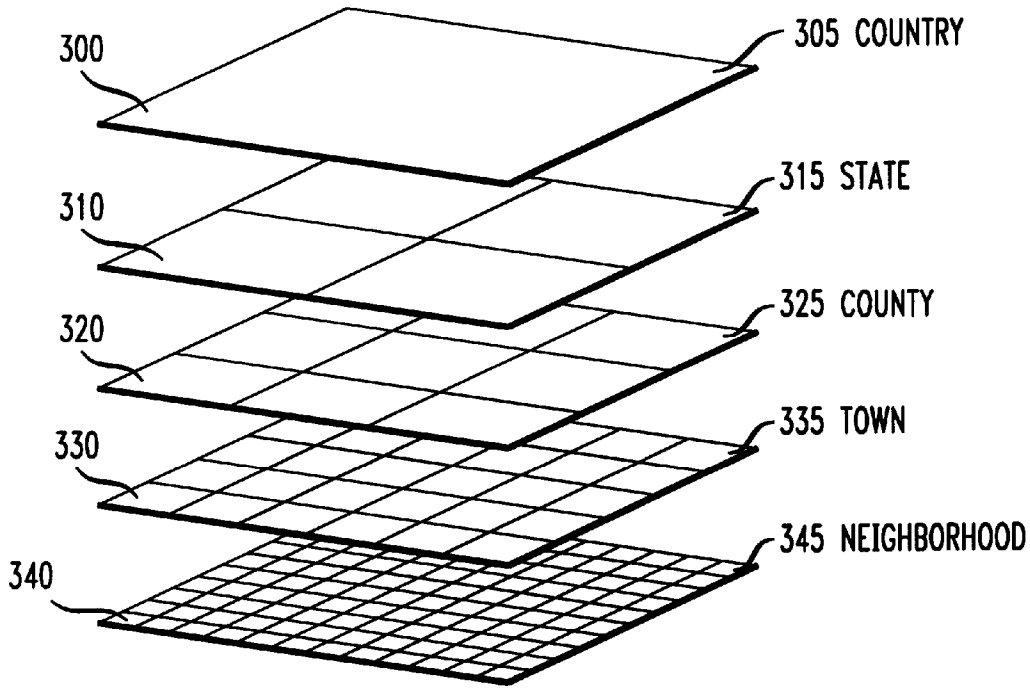
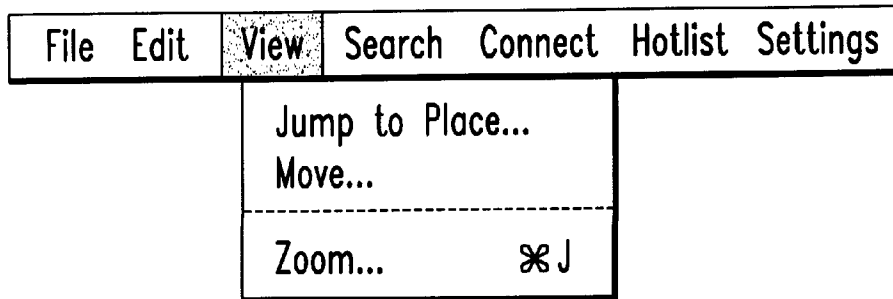


FIG. 4A



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