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(12) **United States Patent**  
**Dickenson**

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(54) **METHODS AND APPARATUSES FOR FILE SYNCHRONIZATION AND UPDATING USING A SIGNATURE LIST**

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(73) Assignee: **Symantec Corporation**, Cupertino, CA (US)

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

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This patent is subject to a terminal disclaimer.

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(74) *Attorney, Agent, or Firm*—Fliesler Meyer LLP

(21) Appl. No.: **10/452,156**

(57) **ABSTRACT**

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**Related U.S. Application Data**

(63) Continuation of application No. 09/303,958, filed on May 3, 1999, now Pat. No. 6,574,657.

(51) **Int. Cl.**<sup>7</sup> ..... **G06F 15/16**

(52) **U.S. Cl.** ..... **709/203; 709/217; 709/219; 709/229; 707/1; 707/203**

(58) **Field of Search** ..... **709/200-203, 709/216-219, 229, 231-232, 235-237; 717/10-12; 714/6-7; 707/1, 8-10, 200-204**

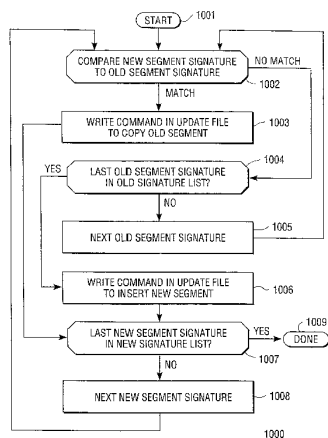
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A server generates an update file for transmission to a client that permits the client to generate a copy of a current version of a subscription file from a copy of an earlier version of the subscription file. For each segment of the current version of the subscription file, the server searches an earlier version of a signature list for an old segment signature which matches a new segment signature corresponding to the segment. When a match is detected, the server writes a command in the update file for the client to copy an old segment of the client's copy of the earlier version of the subscription file into the client's copy of the current version of the subscription file, where the old segment corresponds to the segment for which a match was detected. When no match is detected, the server writes a command into the update file for the client to insert a new segment of the current version of the subscription file into the client's copy of the current version of the subscription file, where the new segment of the current version of the subscription file is written into the update file. The update file is only generated when the server determines the subscription file has changed. The server periodically monitors the subscription file to determine if it has been altered before generating an update file.

**46 Claims, 12 Drawing Sheets**



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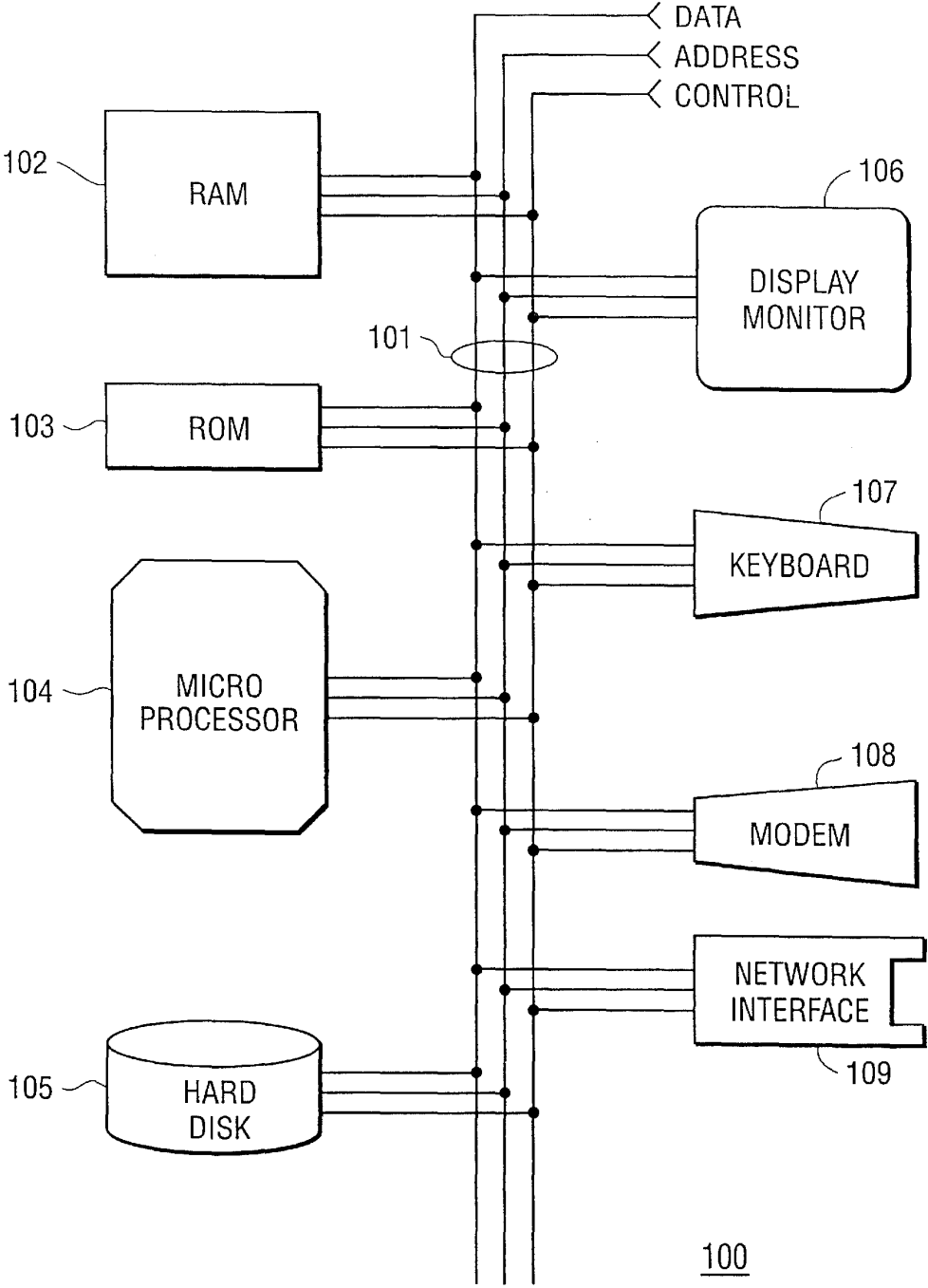


FIG. 1

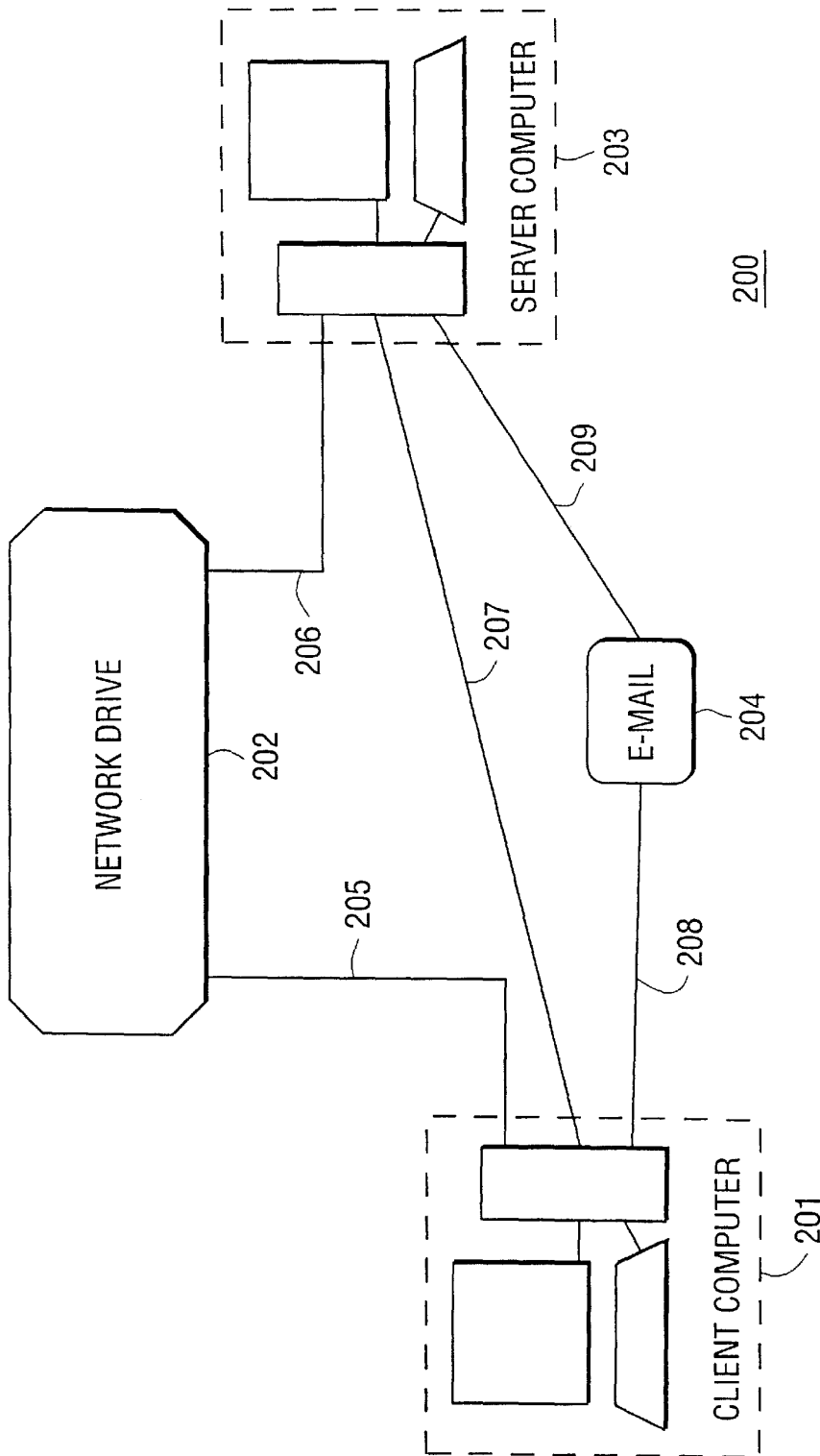


FIG. 2

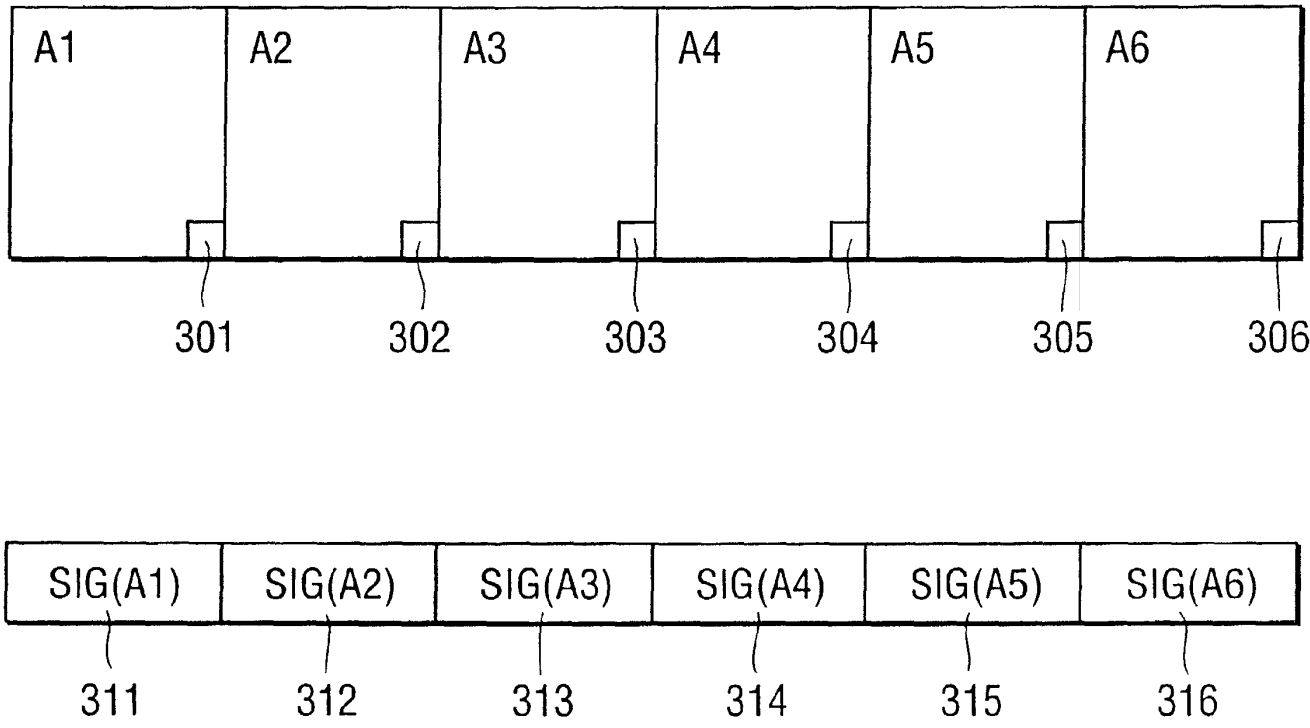


FIG. 3

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