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**D'Souza et al.**

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(54) **OBJECT FRAMEWORK AND SERVICES  
 FOR PERIODICALLY RECURRING  
 OPERATIONS**

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(52) U.S. Cl. .... **709/202; 709/217; 709/218;**  
**709/220; 709/224; 709/227; 707/3; 707/10**

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**395/712, 610, 603, 635, 183.14, 200.52,**  
**200.54; 709/300, 303, 202, 217, 218, 220,**  
**224, 227; 707/3, 10**

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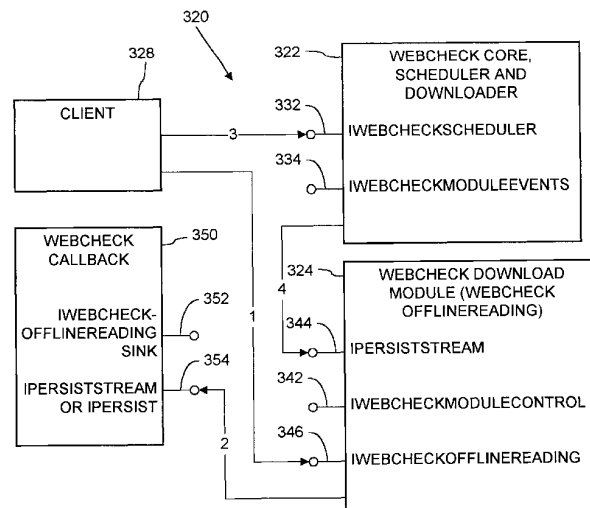
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(57) **ABSTRACT**

A computer system includes an object oriented framework that provides a set of application integration interfaces that support programmatic updating operations for maintaining locally stored copies of resources such as hypertext document pages from remote servers on a computer network. The updating operations continually check for updates to the data at the remote server and download updated versions of the resources to maintain concurrency of the locally stored copy. The updating operations are performed while a connection to the remote network is left idle, to maximize usage of on-line connection time. The updating operations also can be programmatically scheduled by a client program of the updating operations. The updating operations include updating the contents of a folder or directory in a local file system as specified in a file at a remote server on the network, and providing automatically updating and populating groups of sites or document pages organized by category.

**35 Claims, 10 Drawing Sheets**



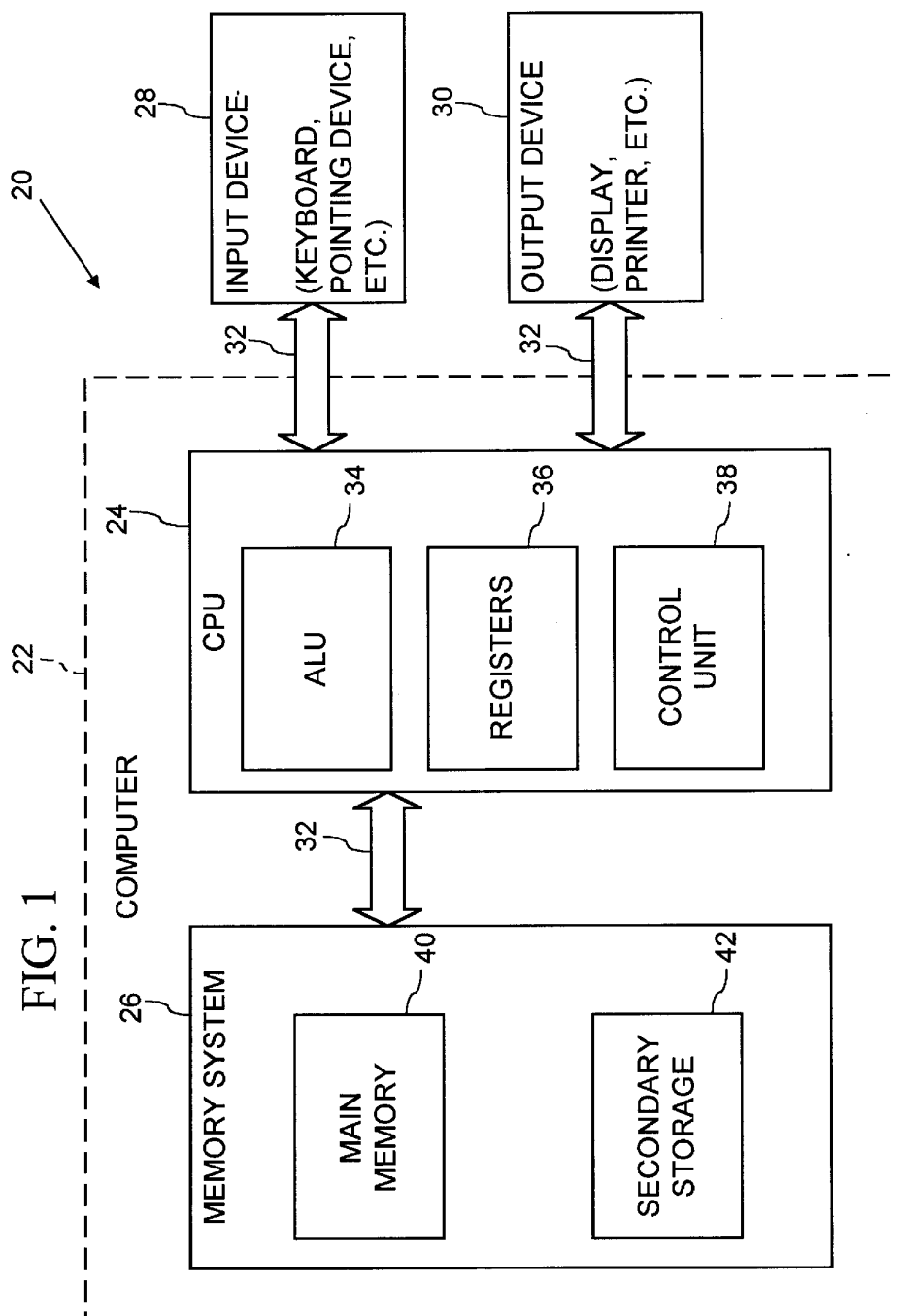


FIG. 2

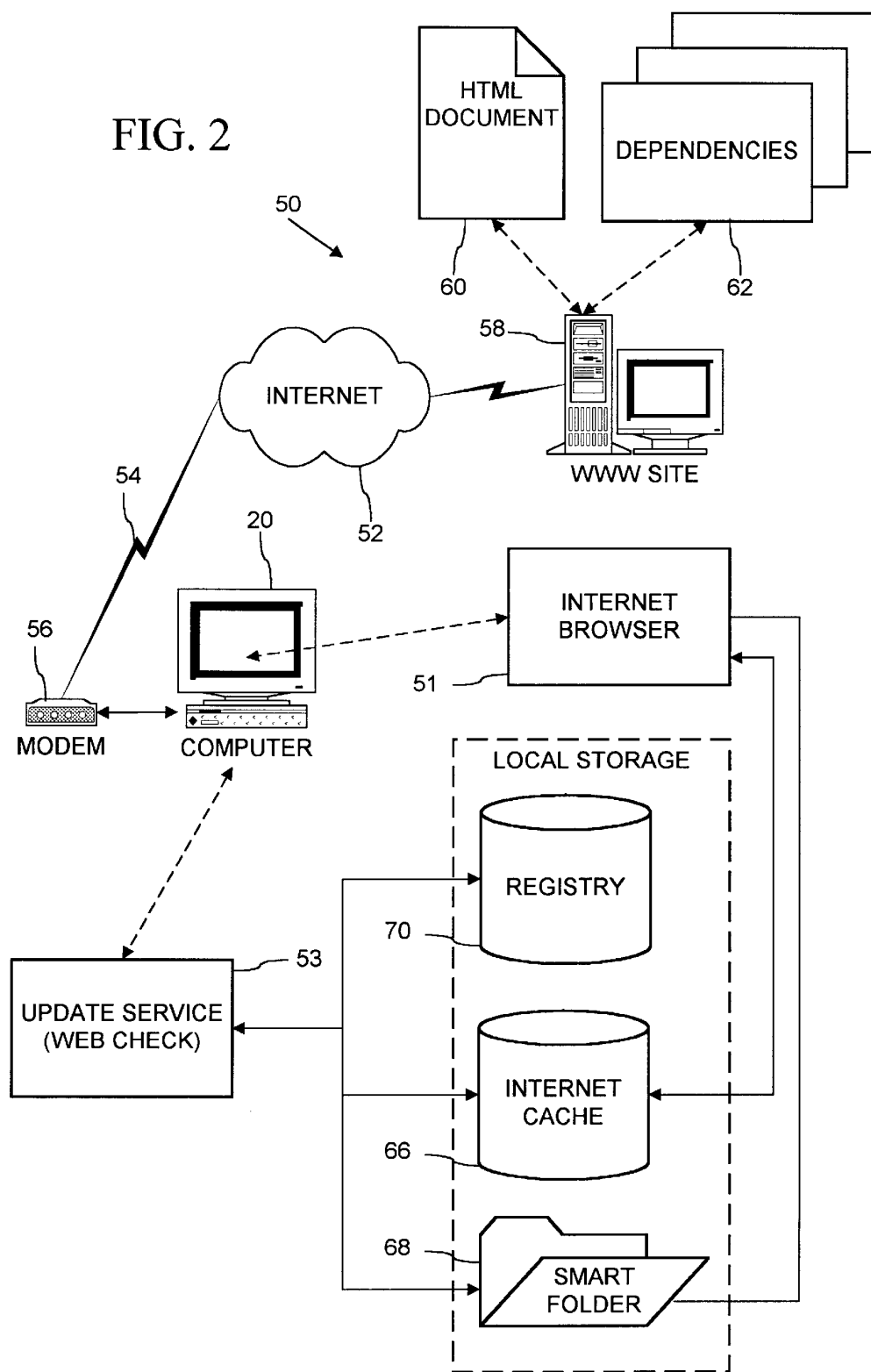


FIG. 3

80

WEB CHECK PROPERTIES

Monitoring Times:

82 ☒ Check sites for changes in the background while I'm connected to the Internet

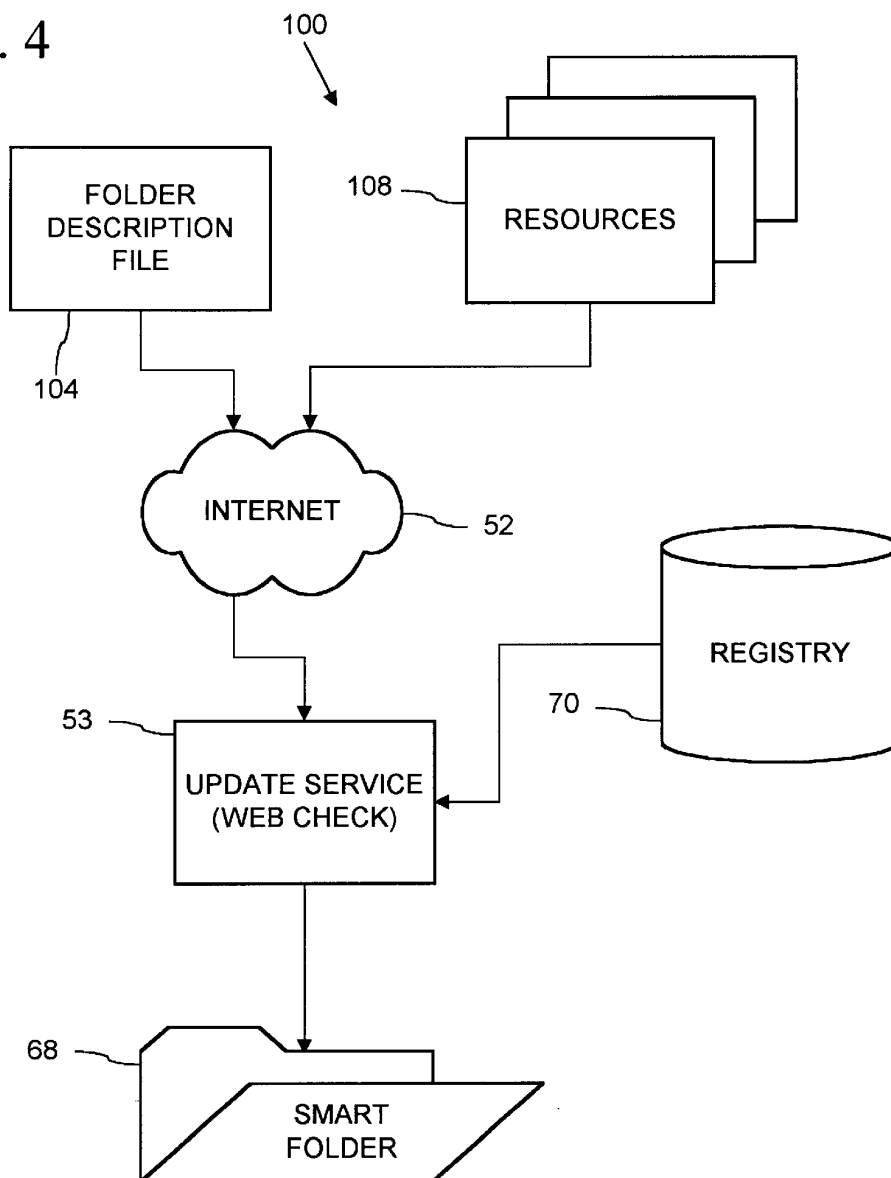
84 ☐ Check sites on a schedule at: WEEKLY ▼

90 ☐ Taskbar Notify for:

☒ new bulletins

☐ any site changes

FIG. 4



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