US005974238A

United States Patent [19]

Chase, Jr.

[11] Patent Number: 5,974,238

[45] Date of Patent: Oct. 26, 1999

[54] **AUTOMATIC DATA SYNCHRONIZATION BETWEEN A HANDHELD AND A HOST COMPUTER USING PSEUDO CACHE INCLUDING TAGS AND LOGICAL DATA ELEMENTS**

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[21] Appl. No.: **08/689,304**

[22] Filed: **Aug. 7, 1996**

[51] **Int. Cl.**[6] **G06F 1/00**; G06F 15/00; G06F 17/30; G06F 15/62

[52] **U.S. Cl.** **395/200.78**; 395/200.76; 395/821; 395/892; 395/893; 707/200; 707/203; 707/204

[58] **Field of Search** 395/200.78, 200.76, 395/821, 892, 893; 707/200, 203, 204

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[57] **ABSTRACT**

An apparatus is disclosed for performing dynamic synchronization between data stored in a handheld computer and a host computer, each having a plurality of data sets including at least one common data set, each computer having a copy of the common data set. The handheld computer has a processor, a communication port, and a data synchronization engine. The data synchronization engine has a pseudo-cache and one or more tags connected to the pseudo cache. Data is synchronized whenever data is written to main memory and/or when the associated pseudo-cache tag is invalidated. By strict adherence to a set of protocols, data coherency is achieved because the system always knows who owns the data, who has a copy of the data, and who has modified the data. The data synchronization engine resolves any differences in the copies and allows the storage of identical copies of the common data set in the host computer and in the handheld computer.

25 Claims, 25 Drawing Sheets

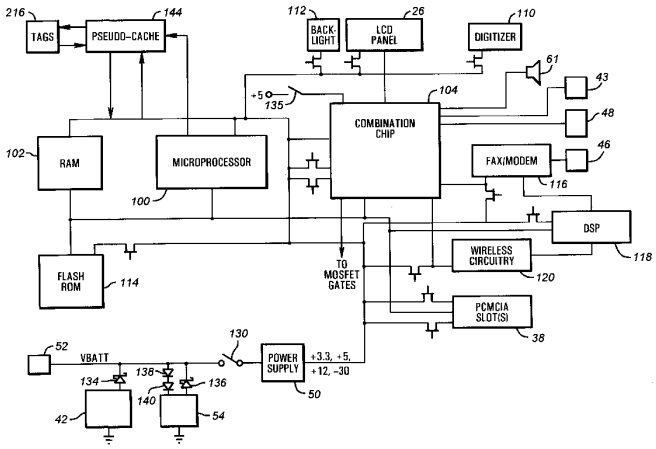

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FIG. 1A

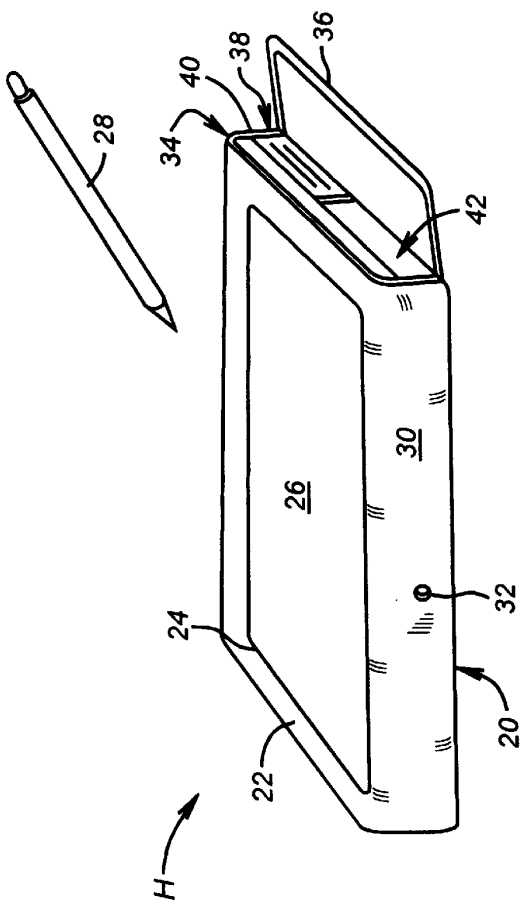
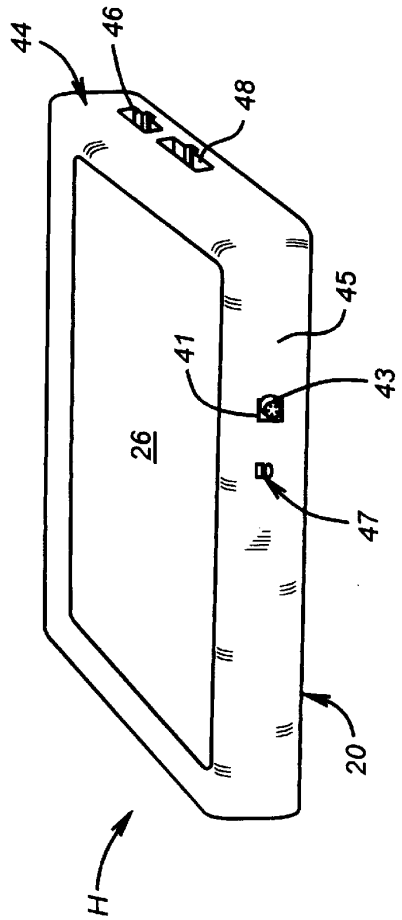


FIG. 1B



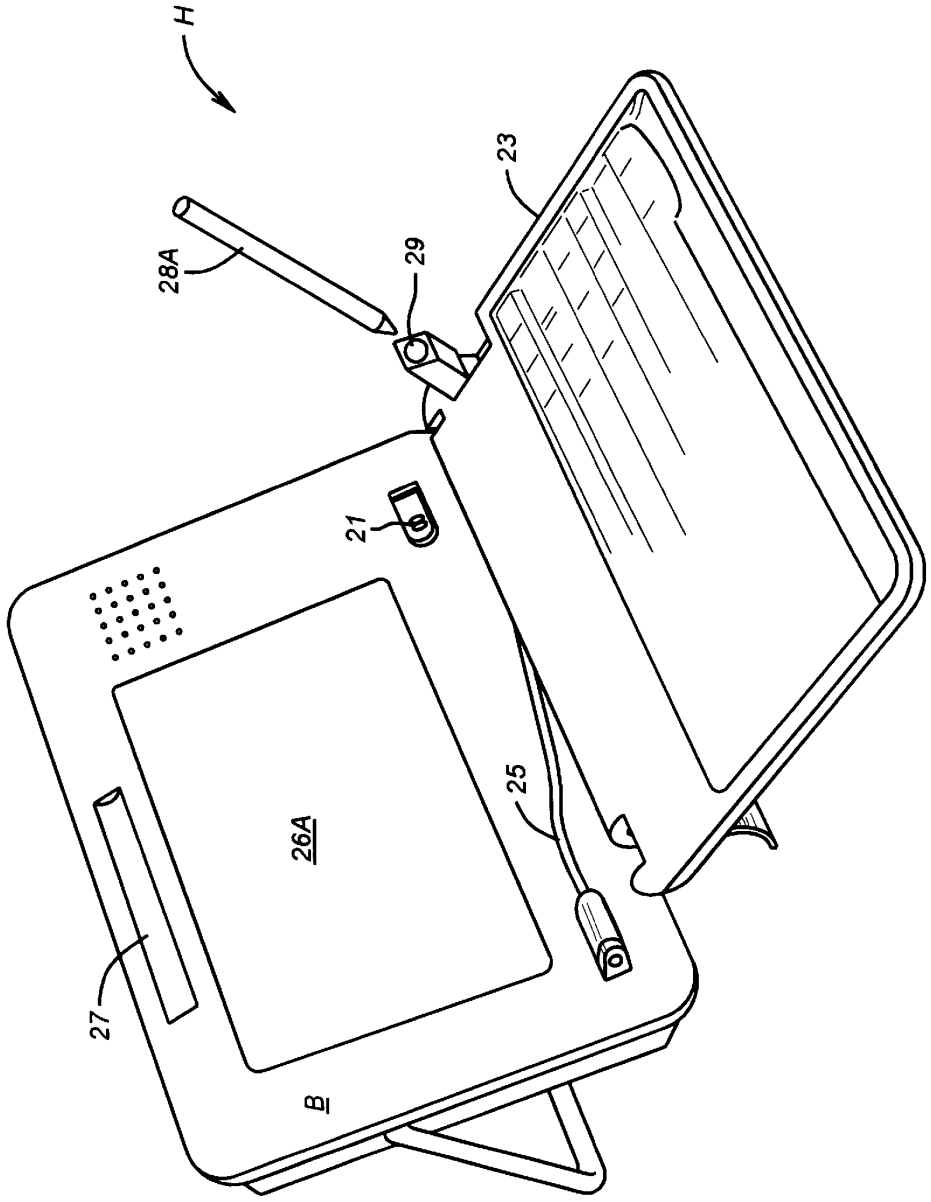


FIG. 1C

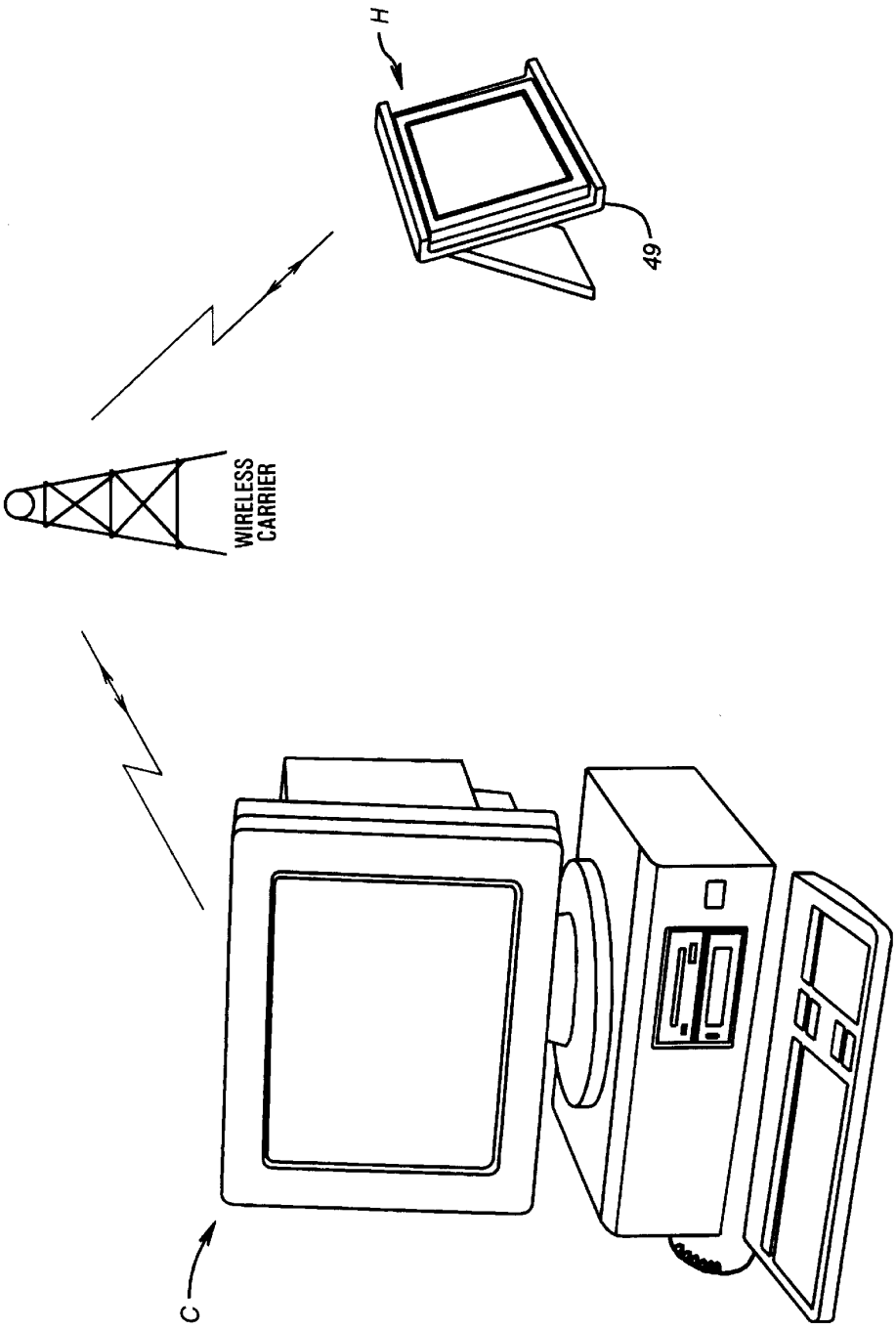


FIG. 1D

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