

[54] LOCATION INDEPENDENT TIME REPORTING MESSAGE RETRIEVAL SYSTEM

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[21] Appl. No.: 445,486

[22] Filed: May 22, 1995

[51] Int. Cl.⁶ H04M 1/64

[52] U.S. Cl. 379/67; 379/142; 379/201; 379/245

[58] Field of Search 379/67, 88, 89, 379/142, 201, 242, 245

[56] References Cited

U.S. PATENT DOCUMENTS

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Primary Examiner—Fan Tsang

[57] ABSTRACT

When a subscriber to message retrieval service retrieves a message, rather than reporting a time of day associated with the message that may not have any meaning to the subscriber if the subscriber, the message originator and the message depository are in diverse worldwide locations, the disclosed message retrieval system reports a delta time indicating to the retrieving subscriber the time elapsed since the message originator delivered the message.

11 Claims, 3 Drawing Sheets

11

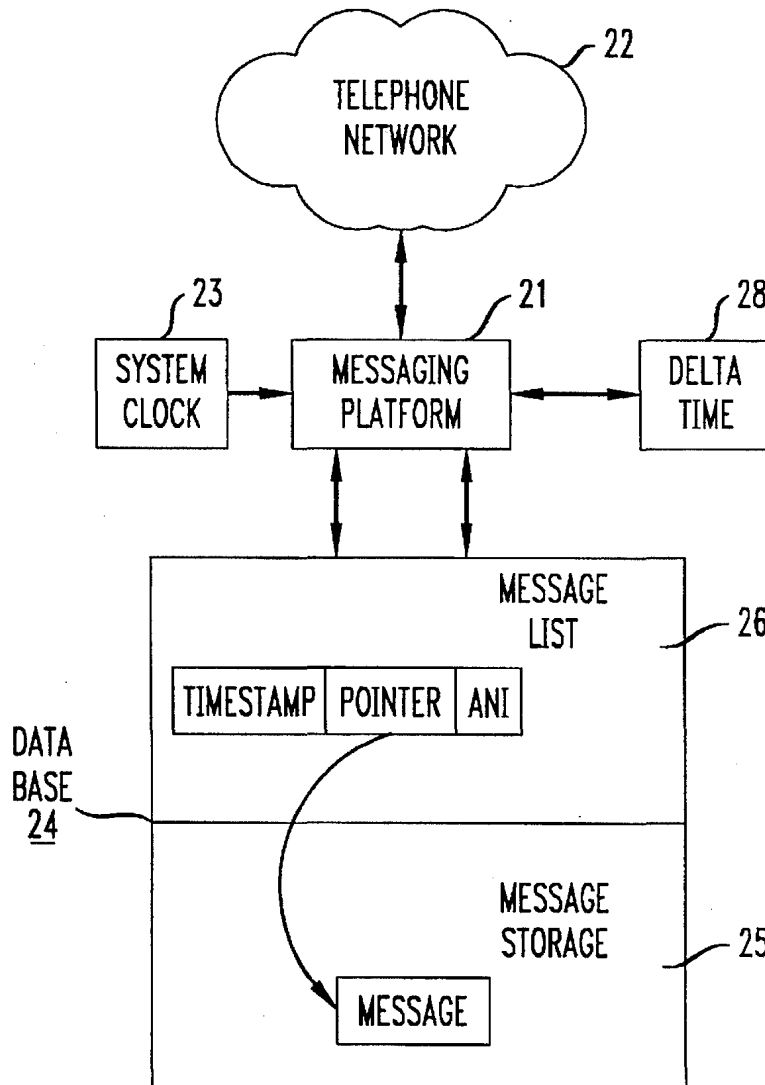


FIG. 1

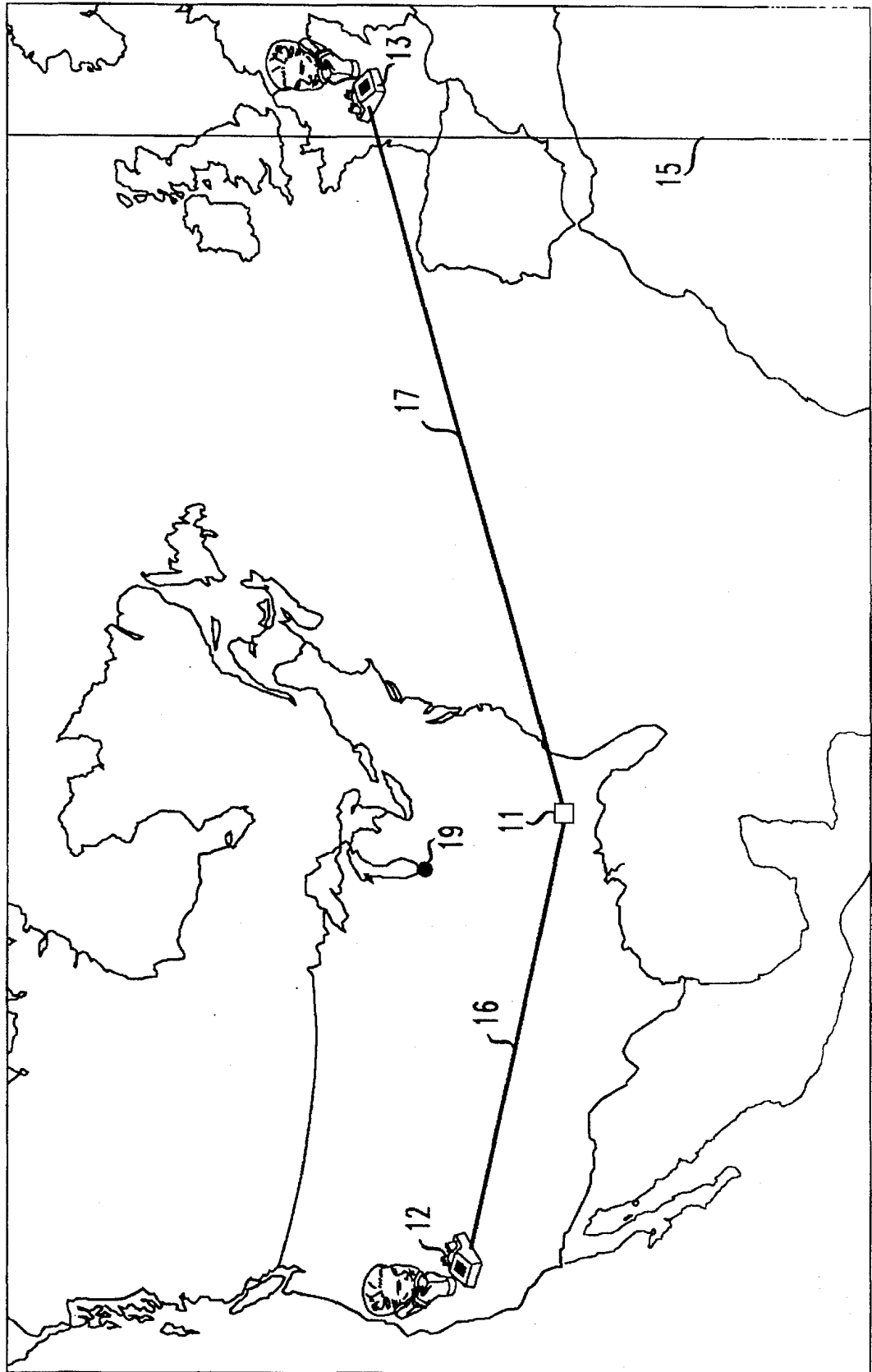


FIG. 2

11

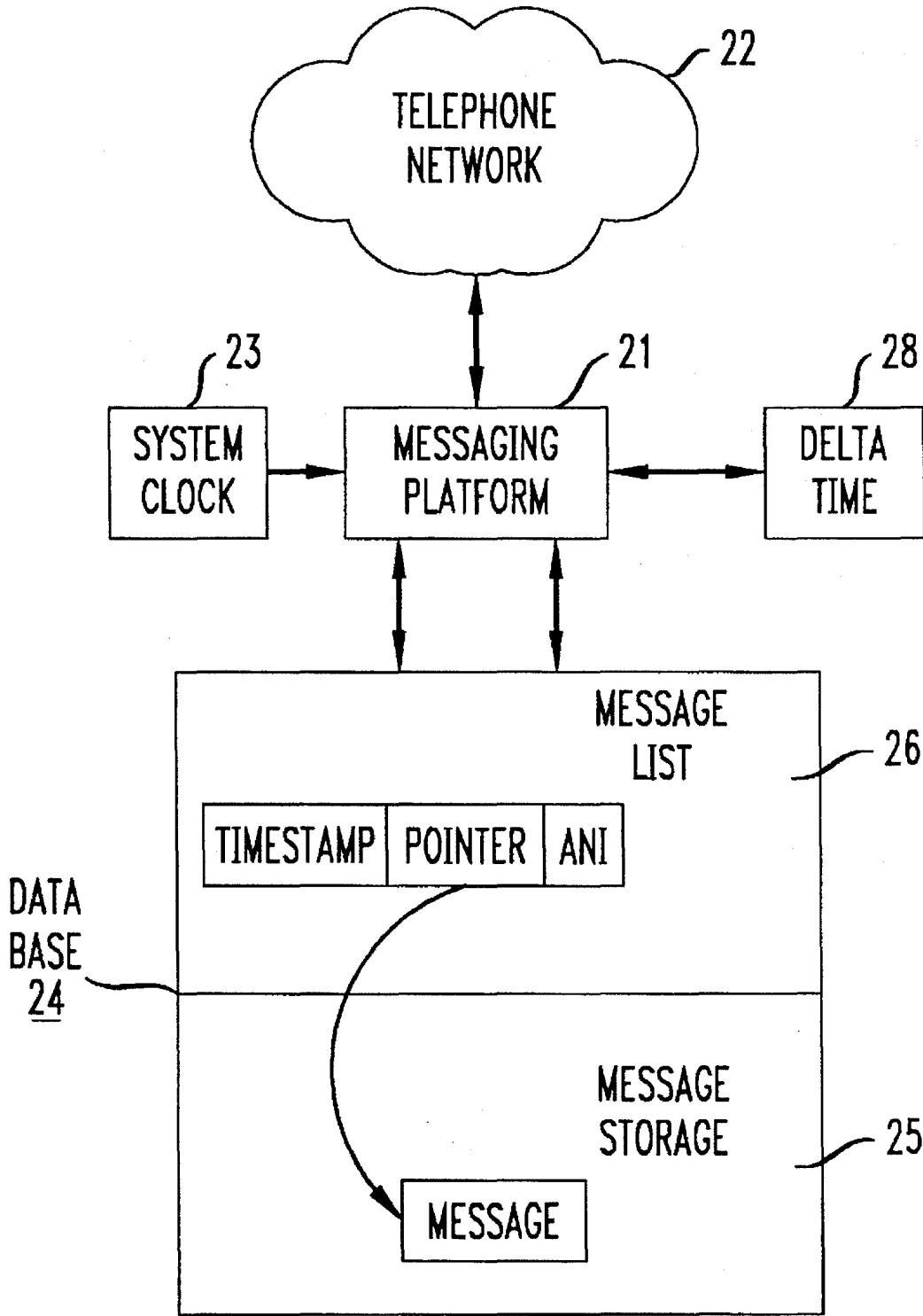


FIG. 3

31

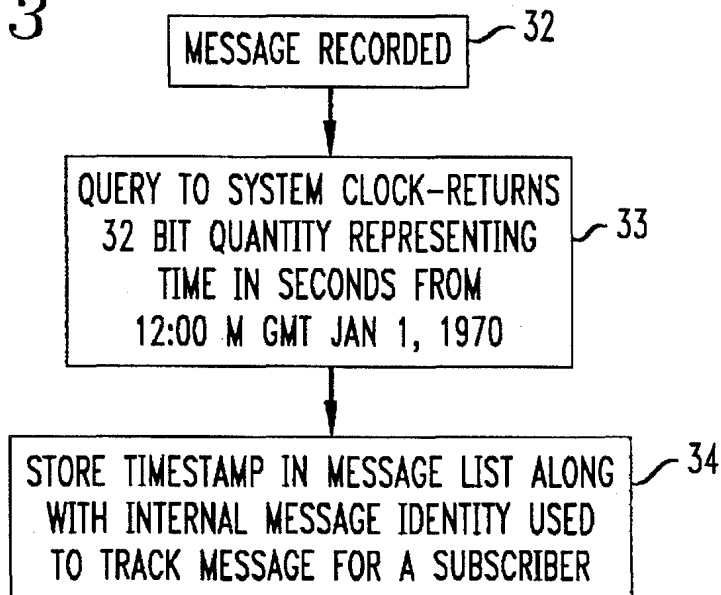
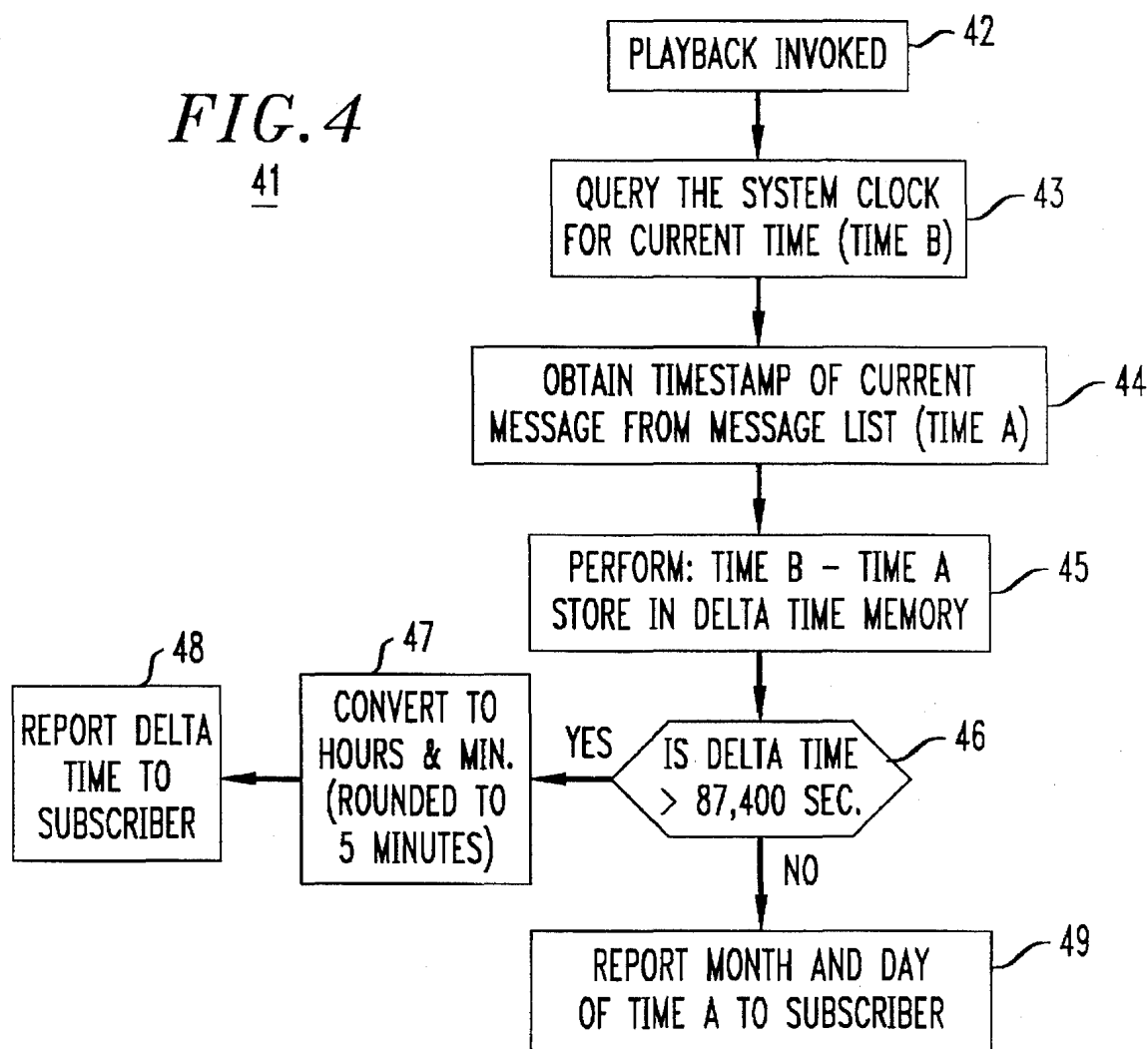


FIG. 4

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LOCATION INDEPENDENT TIME REPORTING MESSAGE RETRIEVAL SYSTEM

TECHNICAL FIELD

This invention relates to message retrieval systems, and more particularly, to a message retrieval system which reports an associated time with each message retrieved by the subscriber from his mailbox.

BACKGROUND OF THE INVENTION

Message retrieval systems are well known in the art. Generally, in such systems, subscribers are provided with a voice mailbox into which non-subscribers or other subscribers can deliver voice messages for the mailbox subscriber, which can be retrieved by that subscriber at his or her convenience at any later time. Such message retrieval systems are expanding world-wide, allowing both messages to be originated and retrieved from any place in the world having access to a telephone. A useful piece of information usually provided to the subscriber with each retrieved voice message is the time at which the message was inputted into the system by the originator. This information may be critical to the subscriber to determine what action and when that action needs to be taken after listening to the message.

In smaller, more localized message retrieval systems, the message repository, the subscriber, and the message originator are likely to be located in the same time zone or separated by at most one or two time zones. Thus, the time reported to the subscriber for a retrieved message that is based on the time standard at the message repository, or the time standard of the subscriber's home location, or some other time standard, such as Eastern Standard Time (EST), may be sufficiently informative to the subscriber. In a world-wide system, however, in which messages could be both originated and retrieved from different ones of the twenty-four possible time zones, and in which the message repository could exist anywhere, associating a time with each message that has real meaning to the subscriber is difficult. Since automatic number identification (ANI) information that provides the calling party's number, and from that an identifiable location, is not always available from either the originator when the message is left or from the subscriber when retrieving the message, the system would be unable to associate a time with the message other than the local time at the message repository or a time based on an assumed location of the subscriber.

SUMMARY OF THE INVENTION

The present invention eliminates the aforescribed problems by associating and reporting with each message retrieved by the subscriber, not an actual time, but the elapsed time, delta time, between the absolute time at which the subscriber retrieves the message as referenced to a predetermined time standard, such as Greenwich Mean Time (GMT), and the absolute time at which the message was delivered by the message originator to the message repository as referenced to that same predetermined time standard. Thus, when being informed of that elapsed time, the subscriber can better determine his course of action. If automatic number identification (ANI) information can be detected from the message originator's call, then the current time in the time zone associated with the identified area code or the time in that time zone at which the message was left may also be provided to the subscriber together with the delta time. Furthermore, if the delta time exceeds a pre-

terminated time interval, such as twenty-four hours, rather than reporting the elapsed time, the system can report the actual month and day on which the message originator delivered the message.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a partial world map showing diverse global locations of a message originator, a subscriber, and a message repository;

FIG. 2 is a block diagram of the message repository showing a data base including a messaging platform and a message storage database;

FIG. 3 is a flow chart showing the recording module employed in the messaging platform used for recording a message and an associated timestamp with each received message; and

FIG. 4 is a flow chart showing the retrieval module employed in the messaging platform used for accessing a message for playback to the subscriber together with its associated delta time for that message.

DETAILED DESCRIPTION

With reference to FIG. 1, a world-wide message retrieval system is shown in which a message repository 11 is located in the south-eastern portion of the United States in the Eastern Standard Time (EST) Zone, which is five hours behind Greenwich Mean Time (GMT), which is determined at the prime meridian 15 that passes through Greenwich, England. A message originator 12 is located in the western United States in the Pacific Standard Time (PST) Zone, which is eight hours behind GMT, and a subscriber 13, who resides in Chicago, 19, in the Central Standard Time (CST) Zone, which is six hours behind GMT, is traveling on business in France, which is one hour ahead of GMT. The subscriber 13 accesses his voice mailbox over the telephone network from France to retrieve and then respond to the messages left in his voice mailbox.

The message retrieval 11 system operates in a standard manner, well known in the art. The message originator 12 accesses the system by dialing an 800 number on the telephone network 16, which connects him to the message repository 11. By following a set of instructions, the originator can leave a message for a designated subscriber in the subscriber's mailbox for later retrieval. The subscriber when later accessing the message repository 11 over the telephone network 17 from France and identifying himself to the system by means of a touch-tone inputted identification code, retrieves this and all other messages left in his voice mailbox.

The message repository 11, shown in block diagram in FIG. 2, includes a messaging platform 21, connected to the POTS telephone network 22, a system clock 23, and a database 24. The messaging platform 21 receives calls from the telephone network 22 from a message originator; validates access to the system by the message originator for delivery of messages to a subscriber's mailbox; and converts the incoming message to digital format for storage in the database 24. Similarly, the messaging platform 21 receives calls from the telephone network 22 from a subscriber; validates access to the system by the subscriber by means of a touch-tone inputted subscriber identification and password; and retrieves selected messages from the system's digital memory and converts the stored digital messages to analog format for playback to the subscriber.

The database 24 includes an area of memory 25 allocated for storing the digitally converted messages for each sub-

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