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United States Patent [19]

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Hoffert et al.

[45] **Date of Patent:** Oct. 1, 1996

[54] **METHOD AND APPARATUS FOR OPERATING A MULTICAST SYSTEM ON AN UNRELIABLE NETWORK**

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[75] Inventors: **Eric M. Hoffert**, San Francisco; **Mark A. Green**, Albany, both of Calif.

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Hayden, Peter C., "LAN Addressing for Digital Video Data", Digital Technical Journal, vol. 5, No. 2, Spring 1993, pp. 77-83.

[73] Assignee: **Apple Computer, Inc.**, Cupertino, Calif.

Jiang and Hopper, "Architectural Support for Multipoint Digital Video Communications", IEEE, Feb. 1993, pp. 1358-1362.

[21] Appl. No.: **242,138**

Strigini, Fratta and Albanese, "Multicast Services on High-Speed Interconnected LAN", IFIP, 1987, pp. 173-177.

[22] Filed: **May 13, 1994**

LaPorta and Schwartz, "The Multistream Protocol: A Highly Flexible High-Speed Transport Protocol", IEEE, vol. 11, No. 4, May 1993, pp. 519-530.

[51] **Int. Cl.⁶** **H04J 3/12**; H04L 12/56; H04N 7/08

Primary Examiner—Hassan Kizou

[52] **U.S. Cl.** **370/94.1**; 370/110.1; 348/6; 348/467; 348/474

Attorney, Agent, or Firm—Carr, DeFilippo & Ferrell

[58] **Field of Search** 370/60, 60.1, 94.1, 370/94.2, 94.3, 110.1, 119; 348/6, 10, 429, 460, 461, 462, 473, 474, 522, 555, 467; 380/10, 20; 340/825.3

[57] ABSTRACT

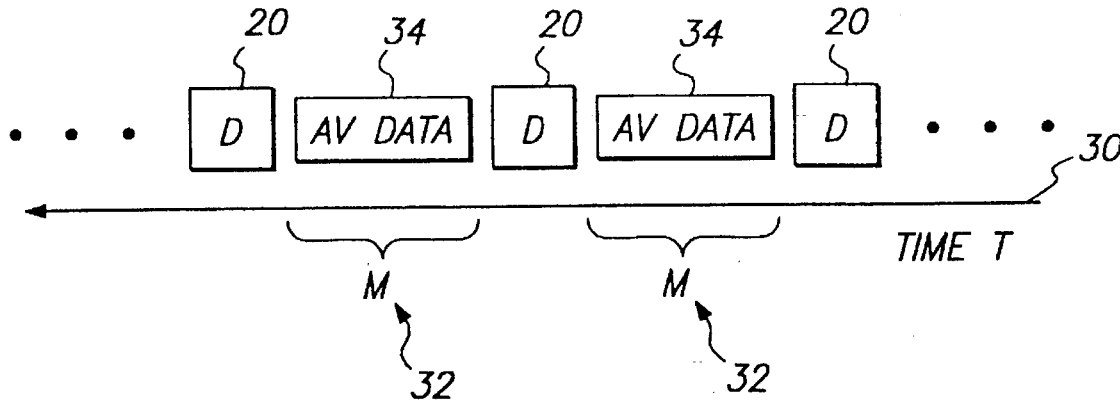
A multicast network system comprises a data network which provides a medium for data transfer. A media source having a control packet and media packets coupled to the data network broadcasts the control packet and the media packets to the data network and rebroadcasts the control packet in conjunction with the media packets to the data network. A media receiver is coupled to the network and receives the control packet and the media packets from the data network to process the control packet and the media packets to produce a media output.

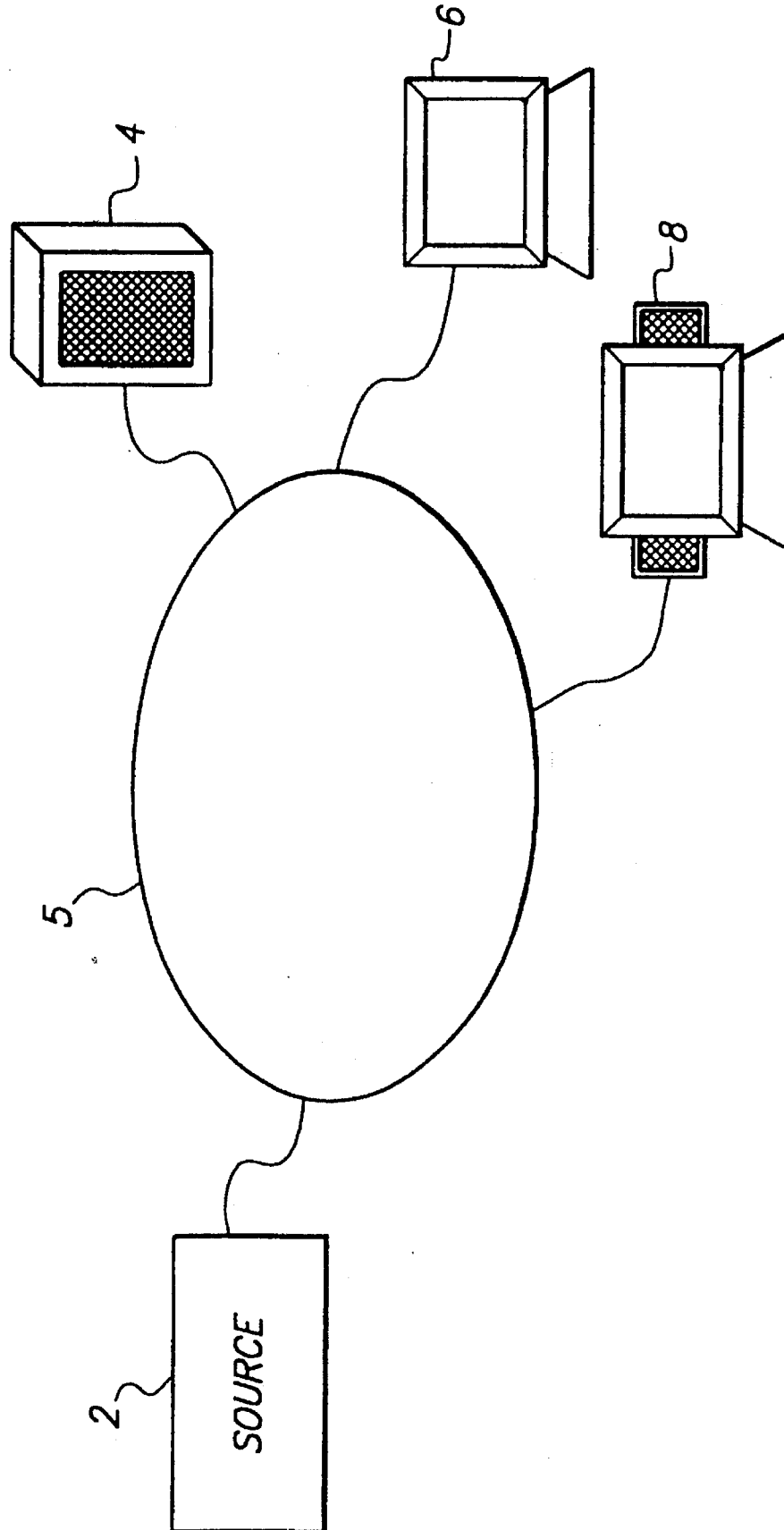
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15 Claims, 6 Drawing Sheets





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FIG. 1

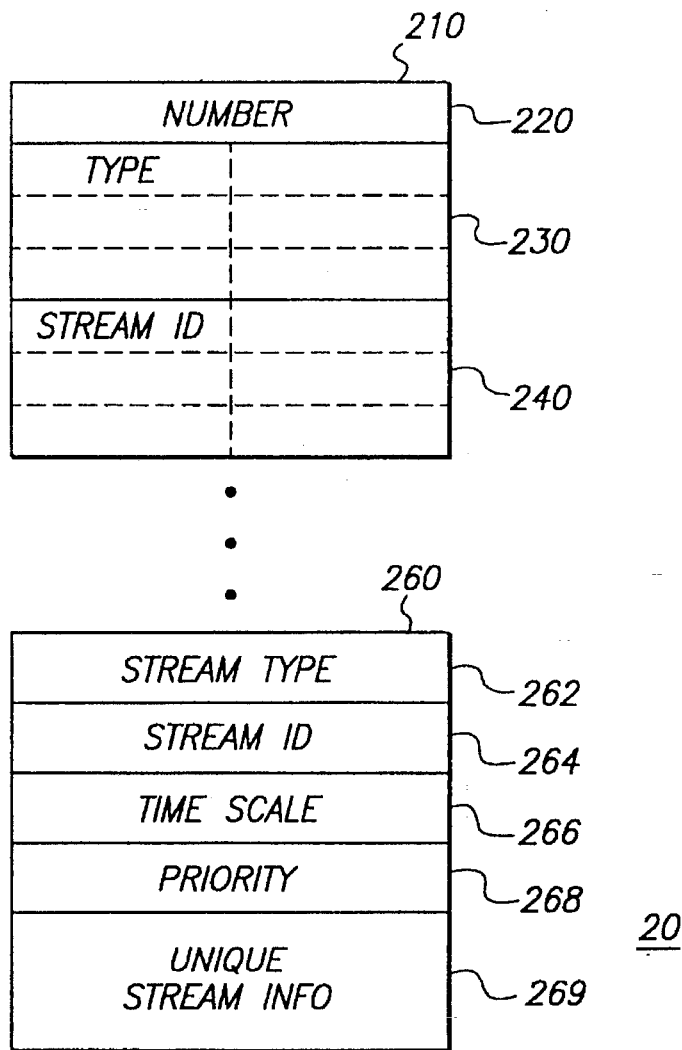


FIG. 2A

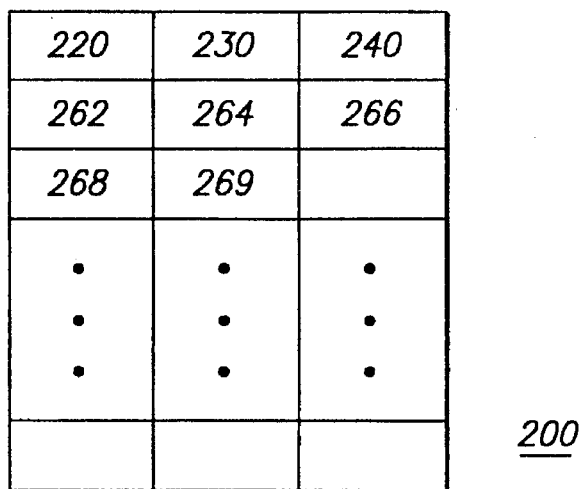


FIG. 2B

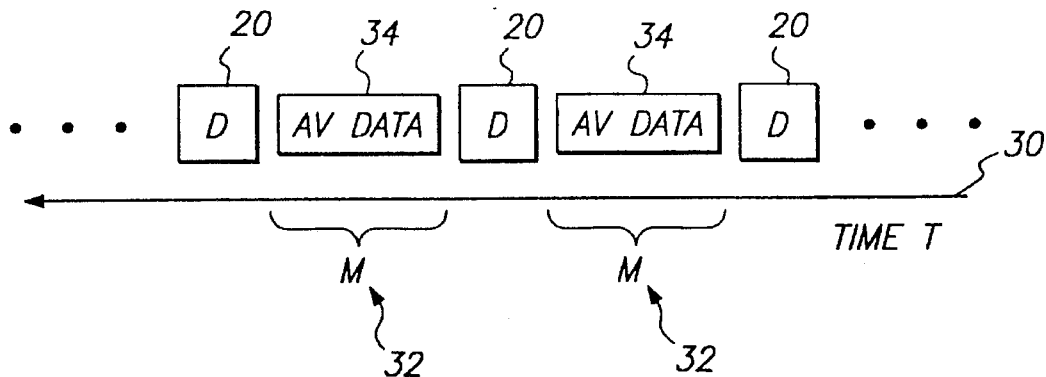


FIG. 3

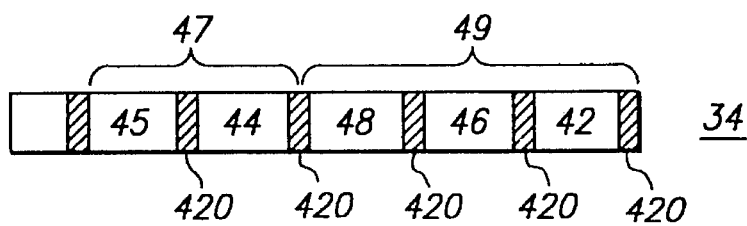


FIG. 4A

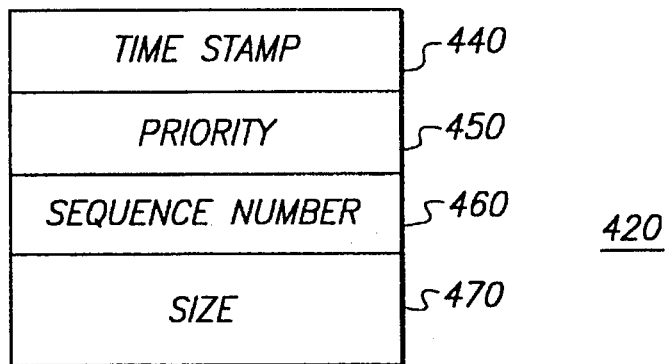


FIG. 4B

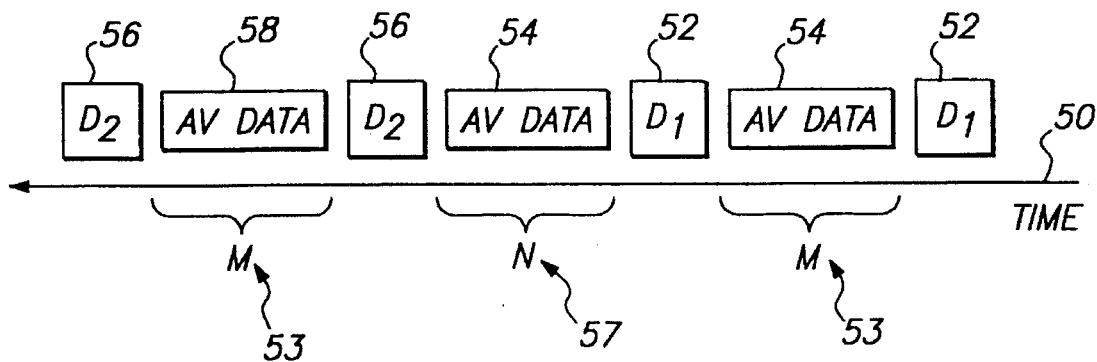


FIG. 5

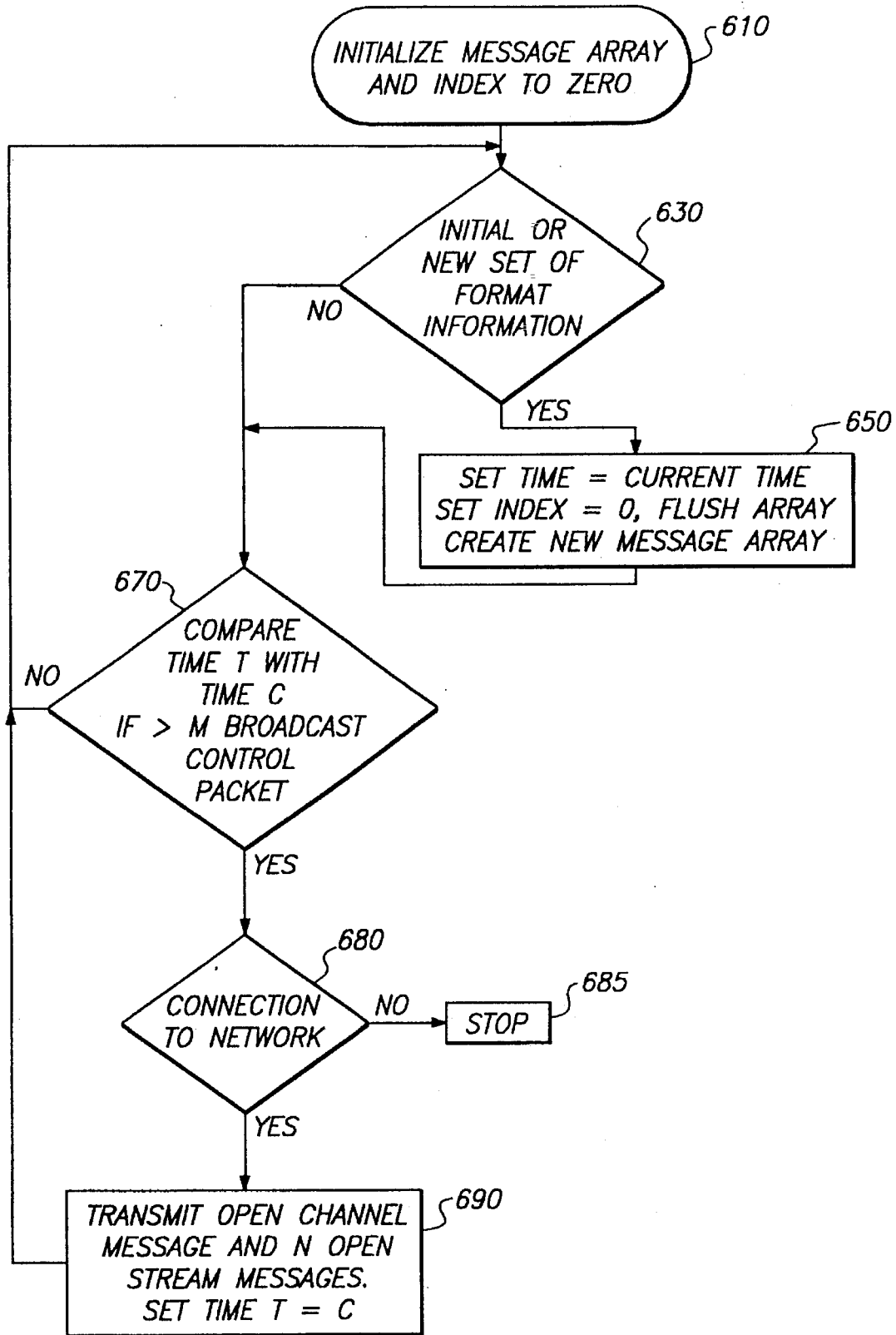


FIG. 6

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