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# United States Patent [19] Ferriere

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[45] **Date of Patent:** Nov. 10, 1998

[54] **SYSTEM AND METHOD FOR SCALEABLE STREAMED AUDIO TRANSMISSION OVER A NETWORK**

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Attorney, Agent, or Firm—Lee & Hayes, PLLC*

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[57] **ABSTRACT**

[73] Assignee: **Microsoft Corporation**, Redmond, Wash.

An audio data transmission system encodes audio files into individual audio data blocks which contain a variable number bits of digital audio data that were sampled at a selectable sample rate. The number of bits of digital data and the input sampling rate are scaleable to produce an encoded bit stream bit rate that is less than or equal to an effective operational bit rate of a recipient's modem. The audio data transmission system uses computing units which are designed to select an appropriate combination of block size and input sampling rate to maximize the available bandwidth of the receiving modem. For example, if the modem connection speed for one modem is 14.4 kbps, a version of the audio data compressed at 13000 bits/s might be sent to the recipient; if the modem connection speed for another modem is 28.8 kbps, a version of the audio data compressed at 24255 bits/s might be sent to the receiver. The audio data blocks are then transmitted at the encoded bit stream bit rate to the intended recipient's modem. The audio data blocks are decoded at the recipient to reconstruct the audio file and immediately play the audio file as it is received. The audio data transmission system can be implemented in online service systems, ITV systems, computer data network systems, and communication systems.

[21] Appl. No.: **540,818**

[22] Filed: **Oct. 11, 1995**

[51] **Int. Cl.<sup>6</sup>** ..... **H04J 3/18**

[52] **U.S. Cl.** ..... **370/465; 370/521; 375/222; 379/68**

[58] **Field of Search** ..... 370/252, 465, 370/486, 521, 477; 375/222, 241, 242, 245; 379/68, 88, 89

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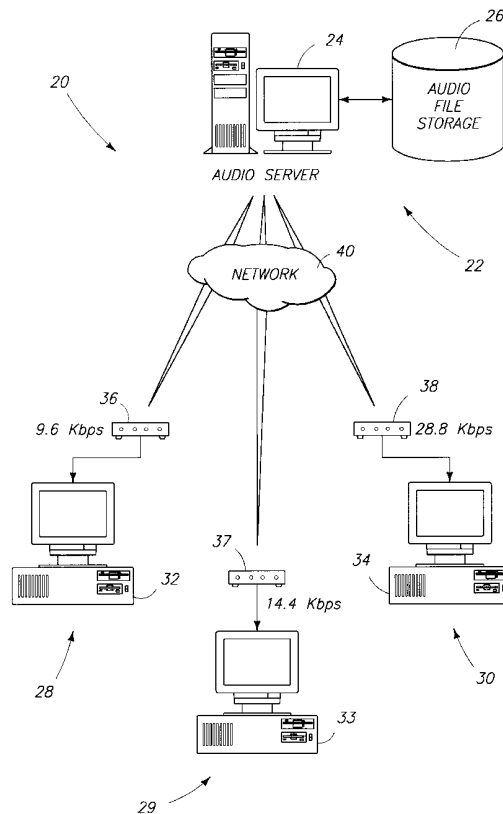
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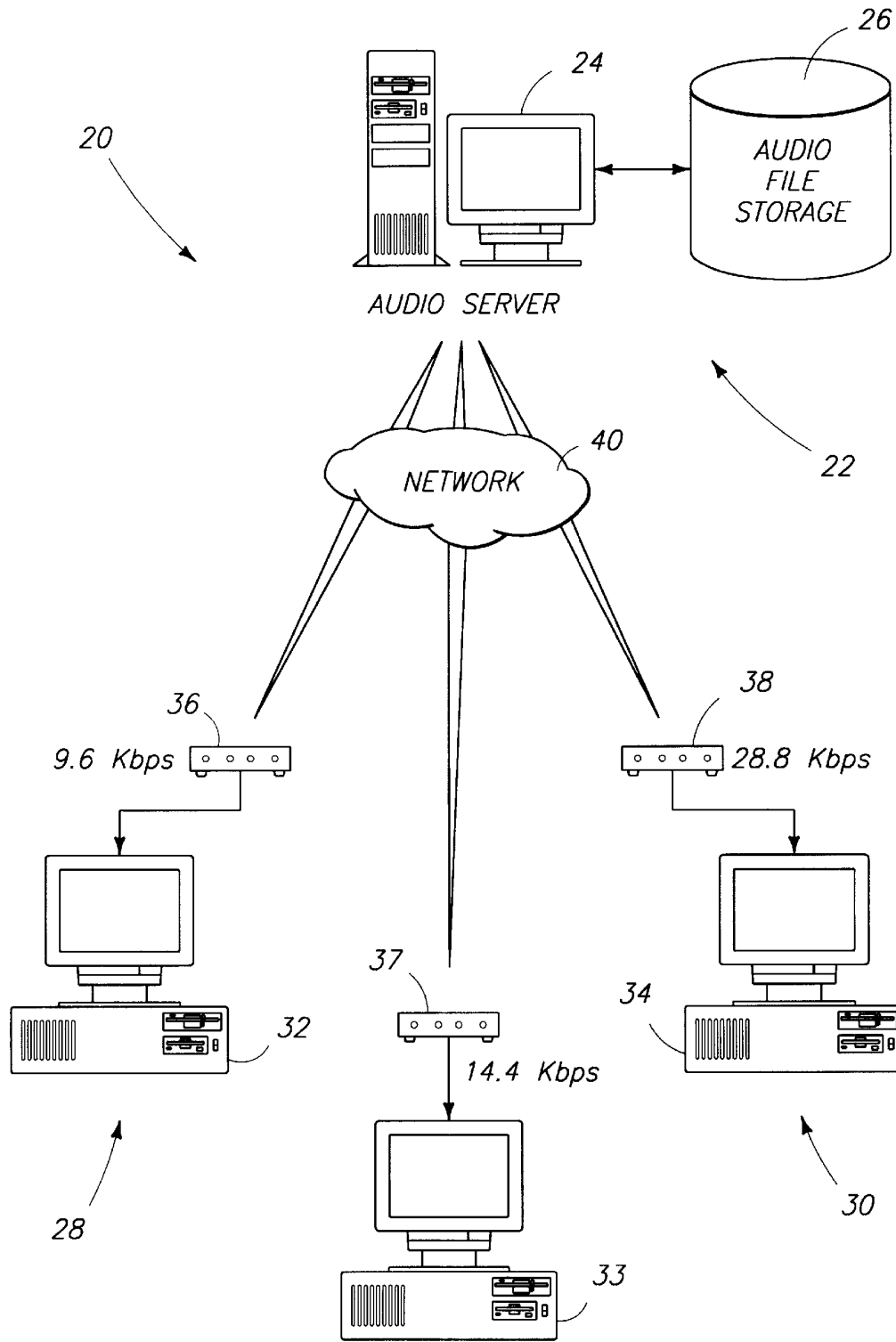
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**28 Claims, 6 Drawing Sheets**



RPX Exhibit 1011



29 *Fig 1*

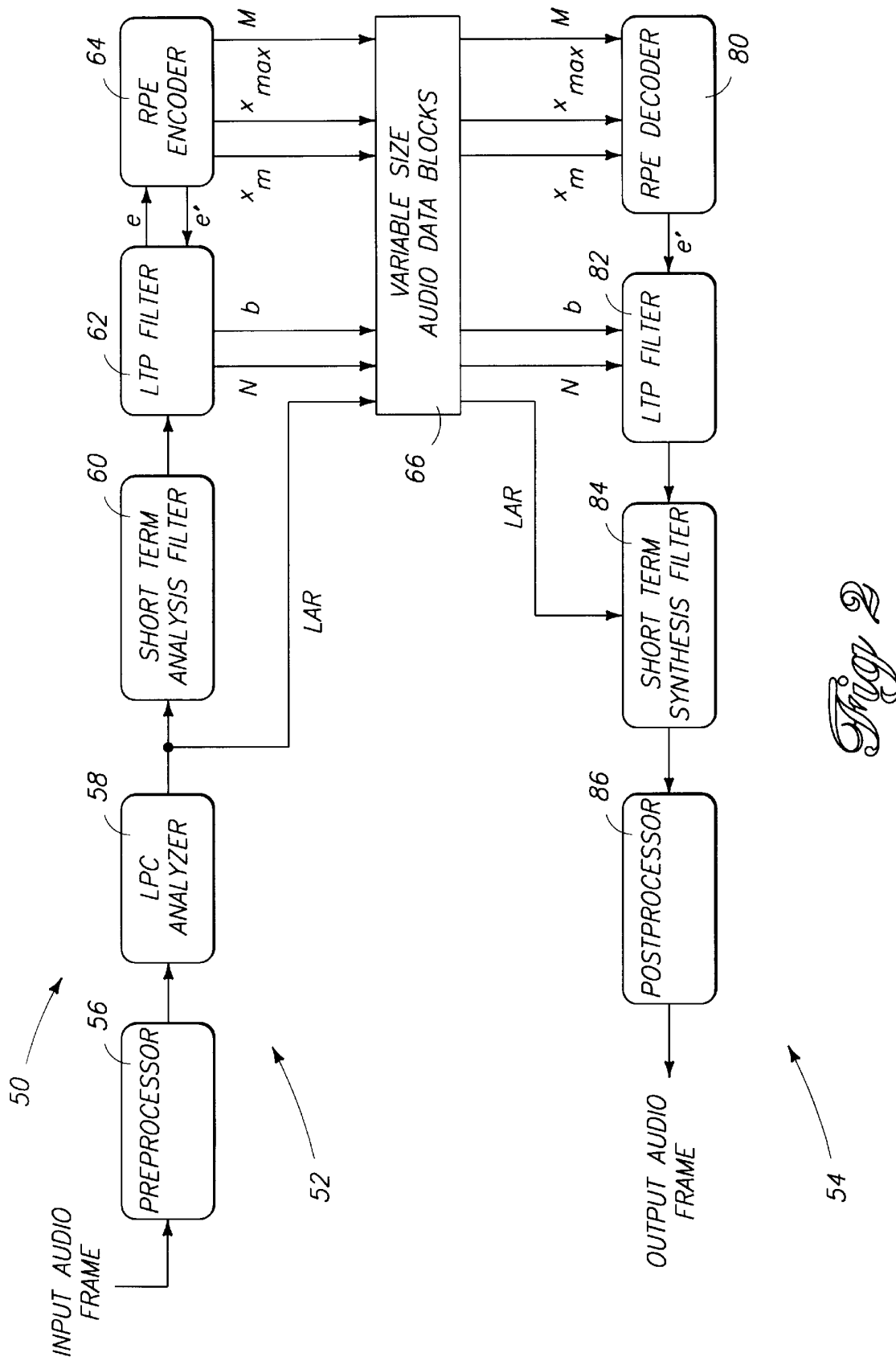


Fig. 2

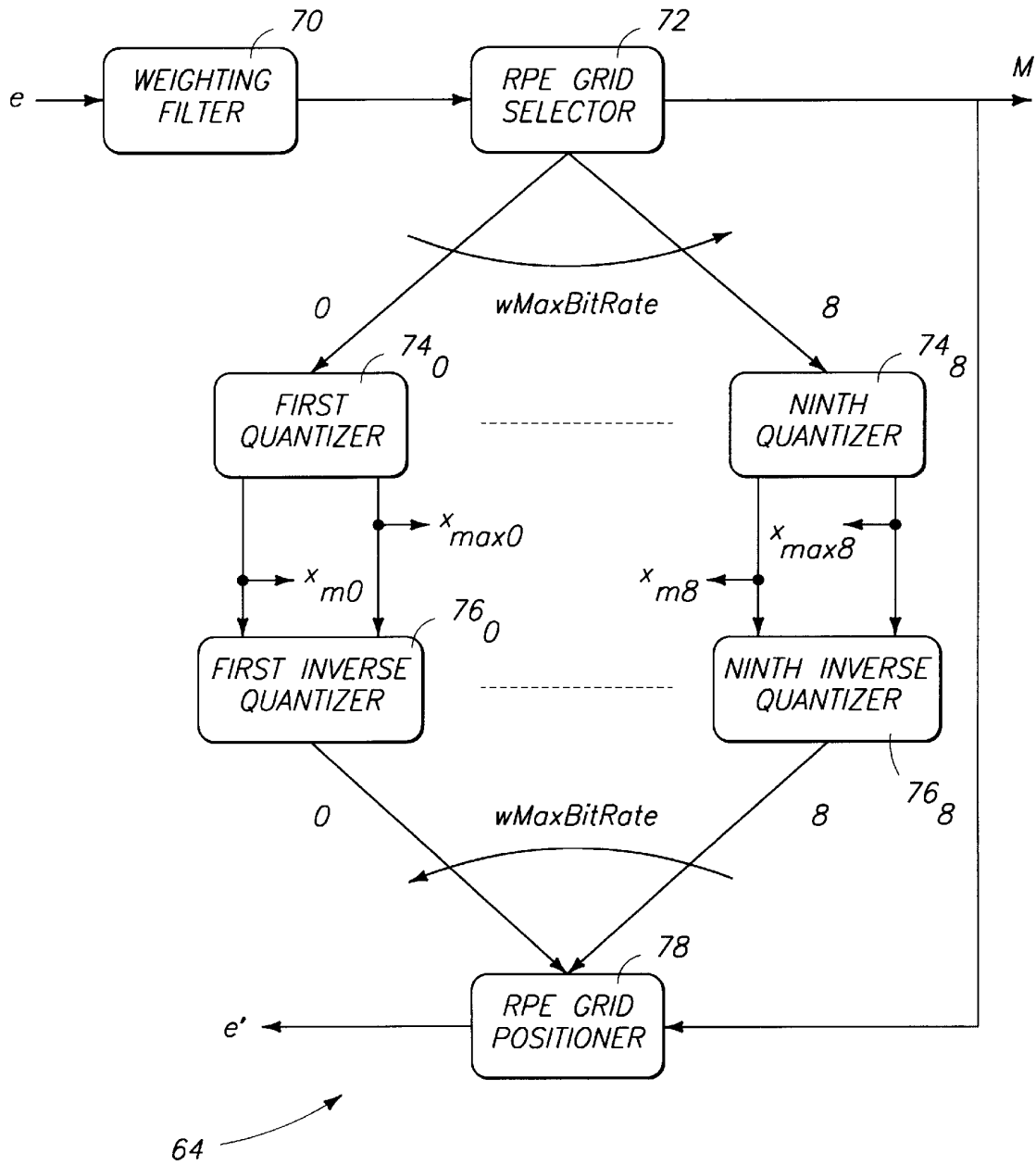


Fig 3

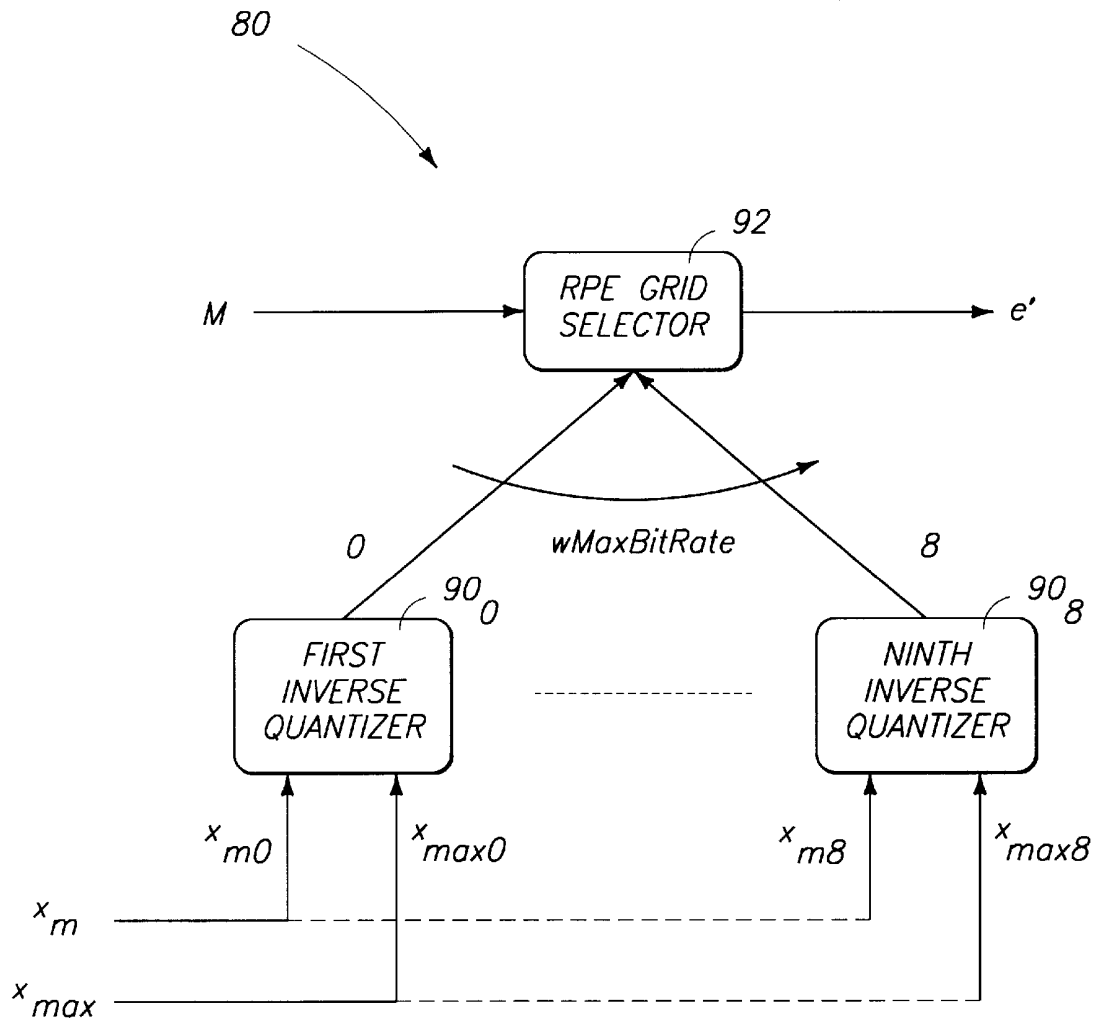


Fig 4

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