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(12) **United States Patent**
Kovacevic

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(54) **SYSTEM FOR DIGITAL TIME SHIFTING
AND METHOD THEREOF**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 943 days.

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(22) Filed: **Nov. 6, 2000**

(51) **Int. Cl.**
H04N 9/80 (2006.01)

(52) **U.S. Cl.** **386/12; 386/46; 386/98**

(58) **Field of Classification Search** 386/46;
386/48, 68, 124-126, 12, 98; 348/423.1;
360/39, 48; 369/32.01

See application file for complete search history.

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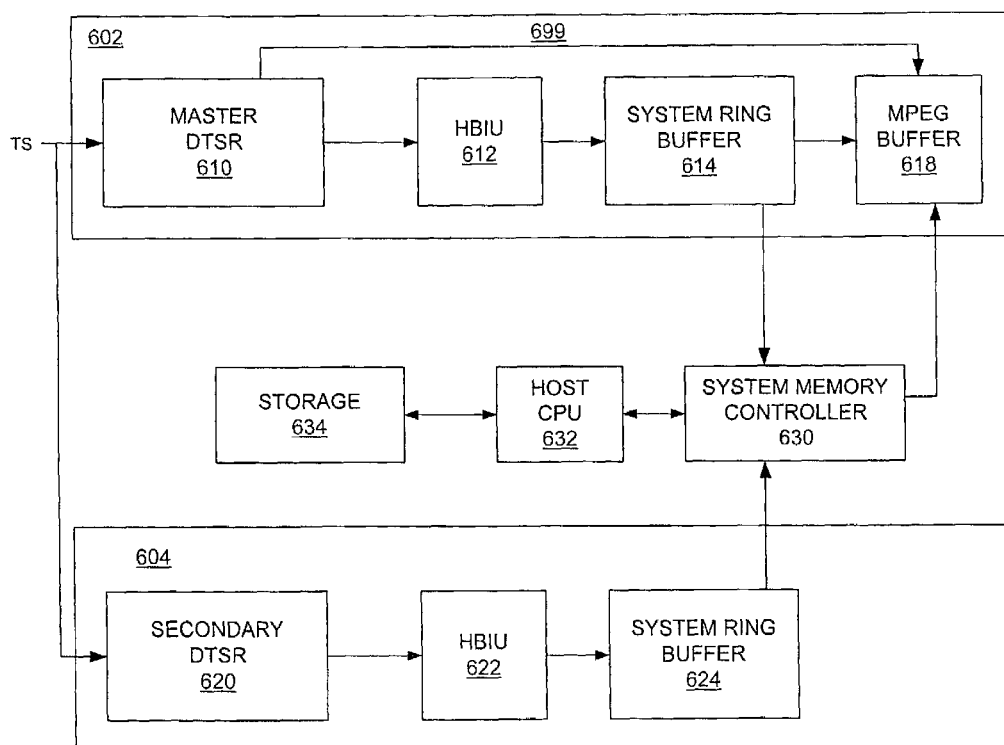
Primary Examiner—James J. Groody

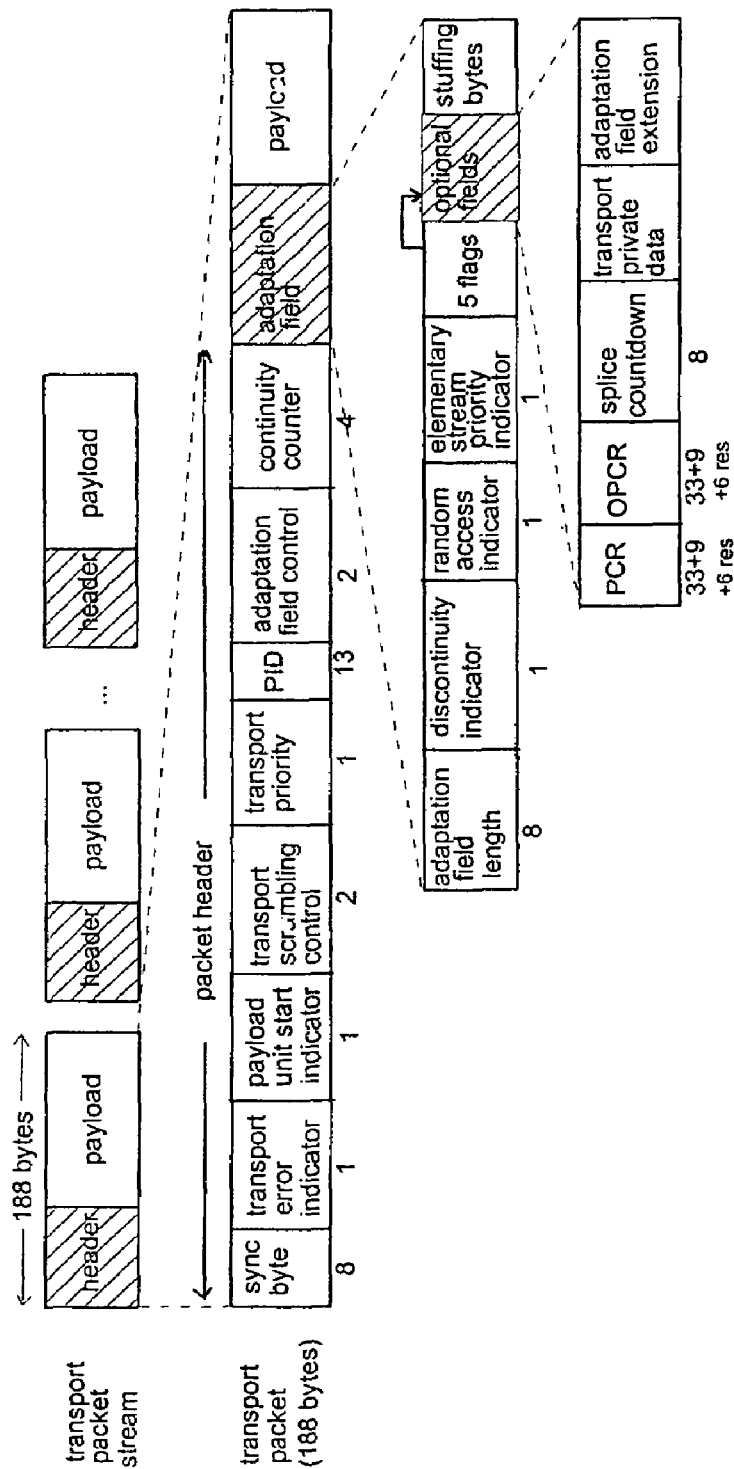
Assistant Examiner—Christopher Onuaku

(57) **ABSTRACT**

A multiplexed packetized data stream carrying real-time multimedia programs is received at a first hardware demultiplexer. Based on a user input, a video and timing portion of a program associated with the multiplexed packetized data stream can be stored for subsequent display. One type of subsequent display is time shifted display, where the stored portion of the program is played back while new portions of the program are being stored. During time shifted play back, a second hardware demultiplexer can be used, so that one demultiplexer stores new data and maintains a current clock value while the other decodes and displays the stored data.

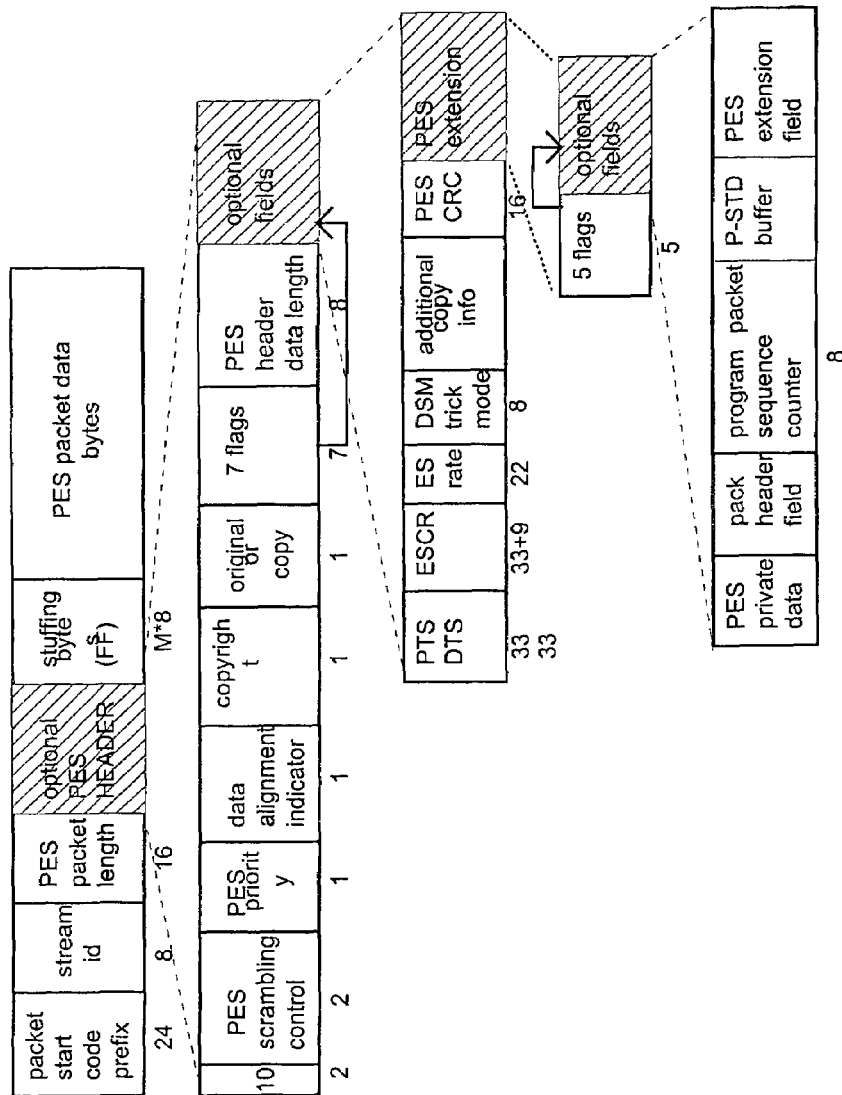
27 Claims, 6 Drawing Sheets





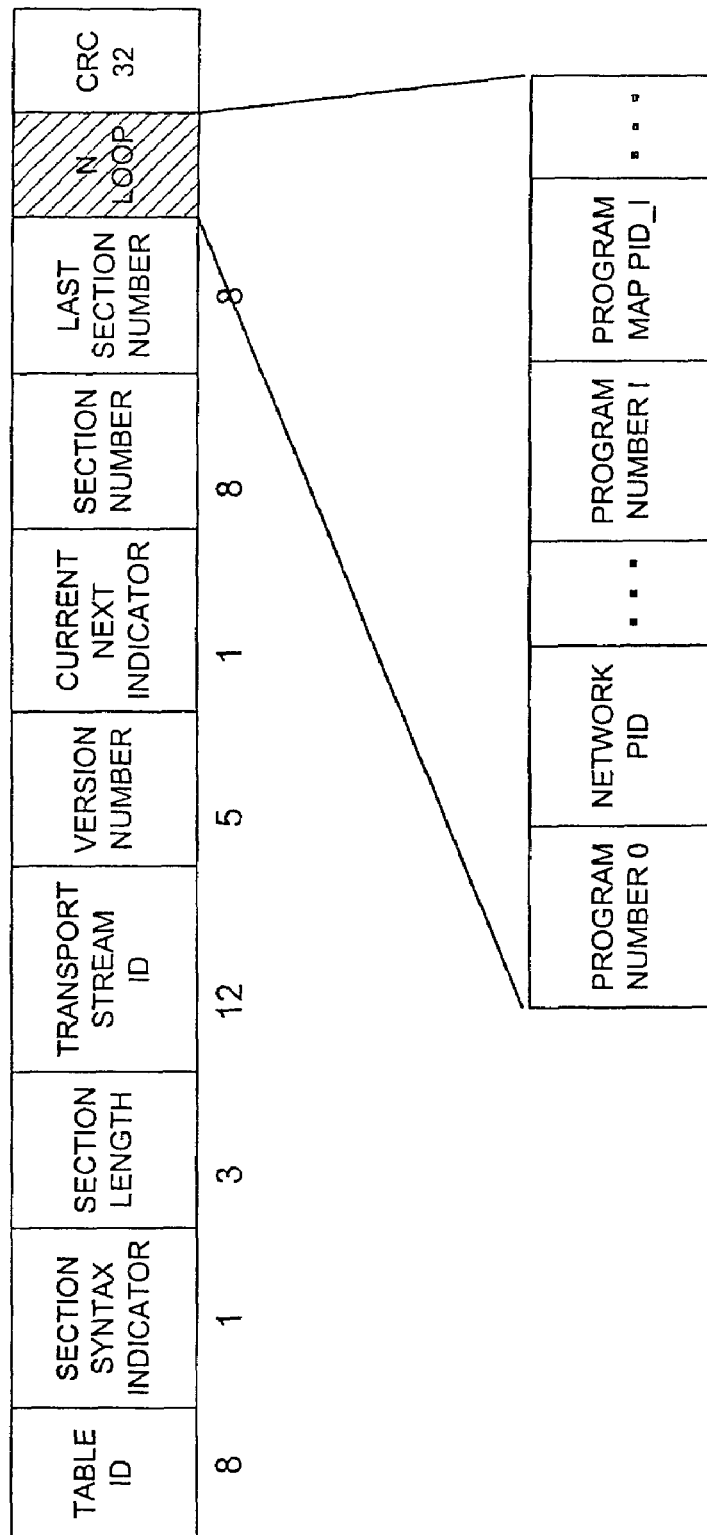
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FIGURE 1



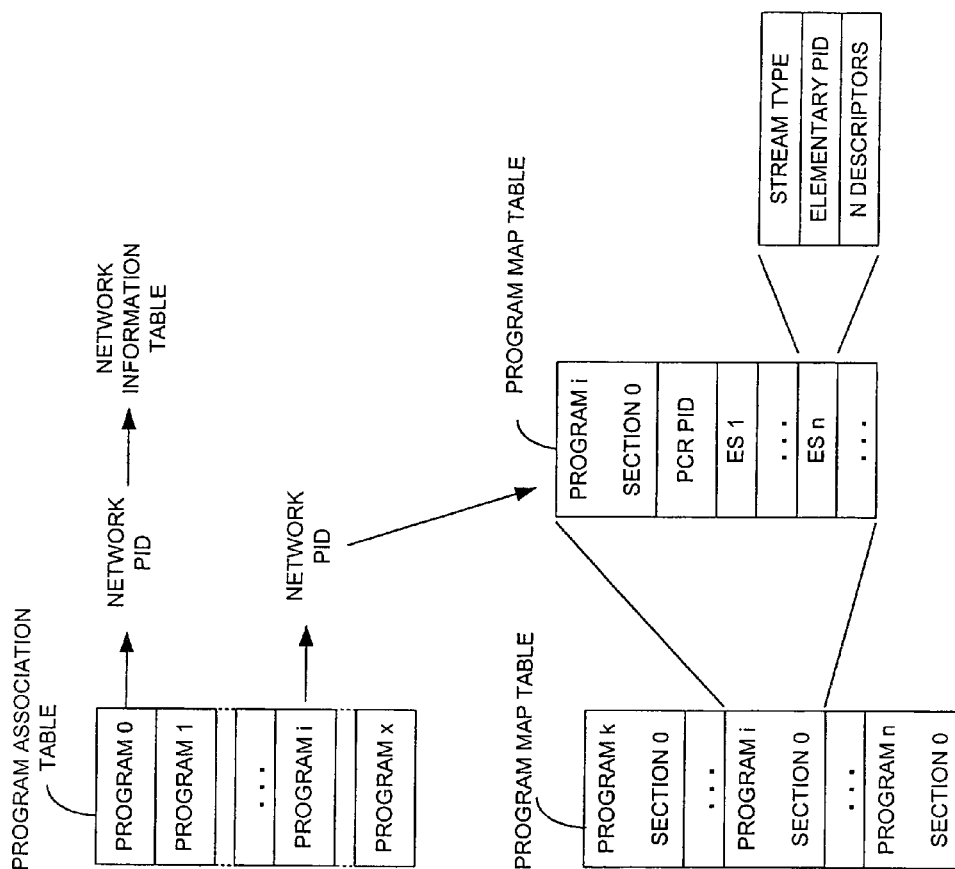
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FIGURE 2



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FIGURE 3



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FIGURE 4

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