



US005995553A

**United States Patent** [19]  
**Crandall et al.**

[11] **Patent Number:** **5,995,553**  
[45] **Date of Patent:** **Nov. 30, 1999**

[54] **ENCODER/DECODER FOR EMERGENCY ALERT SYSTEM**

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**Kenneth Fesler**, Stanford, both of Calif.

[73] Assignee: **TFT, Inc.**, Santa Clara, Calif.

[21] Appl. No.: **08/789,296**

[22] Filed: **Jan. 28, 1997**

[51] Int. Cl.<sup>6</sup> ..... **H04L 27/10**

[52] U.S. Cl. .... **375/272; 455/404; 455/521**

[58] **Field of Search** ..... 375/219, 222, 375/272, 303, 334, 242; 340/870.09, 901, 870, 945; 329/300, 315; 332/100, 118, 117; 348/14; 455/404, 521, 527

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*Primary Examiner*—Wellington Chin

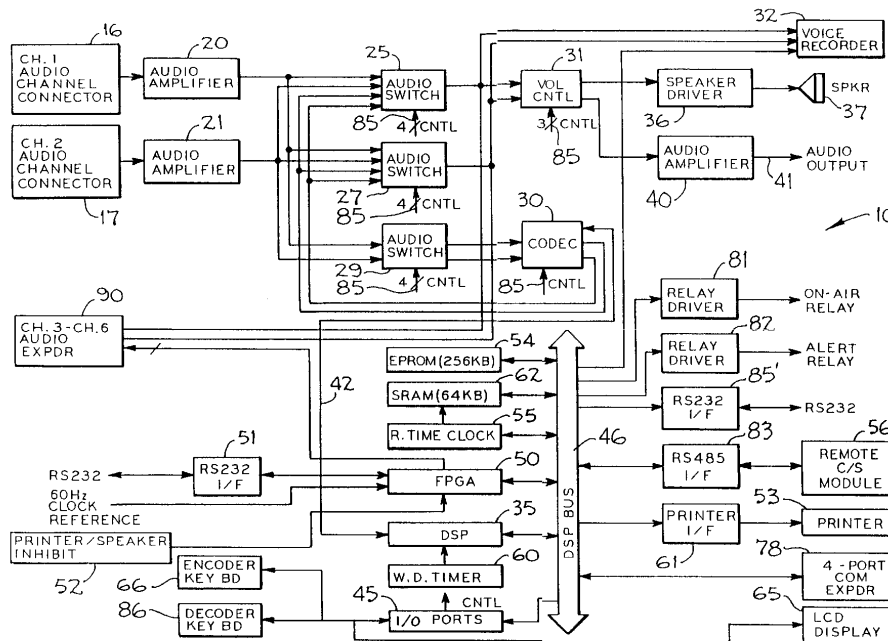
*Assistant Examiner*—Congvan Tran

*Attorney, Agent, or Firm*—Jack M. Wiseman

[57] **ABSTRACT**

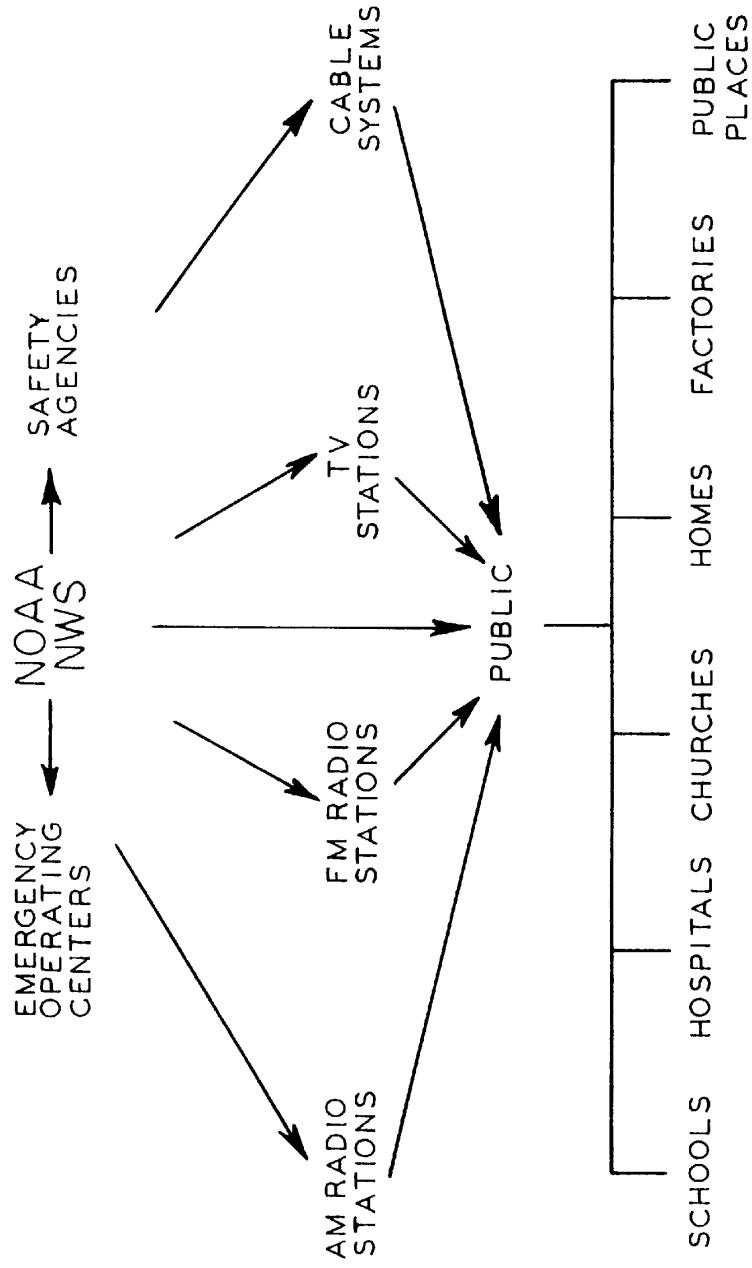
An encoder/decoder for an emergency alert system to enable broadcasters to receive, store, re-broadcast and originate emergency alert messages. Multiple emergency alert signals are received by the encoder/decoder. A digital signal processor of the encoder/decoder scans the reception of the multiple emergency alert messages to determine the presence of an incoming emergency alert signal. The digital signal processor provides digital implementation of a frequency shift key modulation and a frequency shift key demodulation to encode and decode emergency alert messages. Additionally, the digital signal processor functions as a central processing unit to control input/output ports over a digital signal processor bus for performing all encoding and decoding functions and to control all encoding and decoding functions.

**21 Claims, 8 Drawing Sheets**

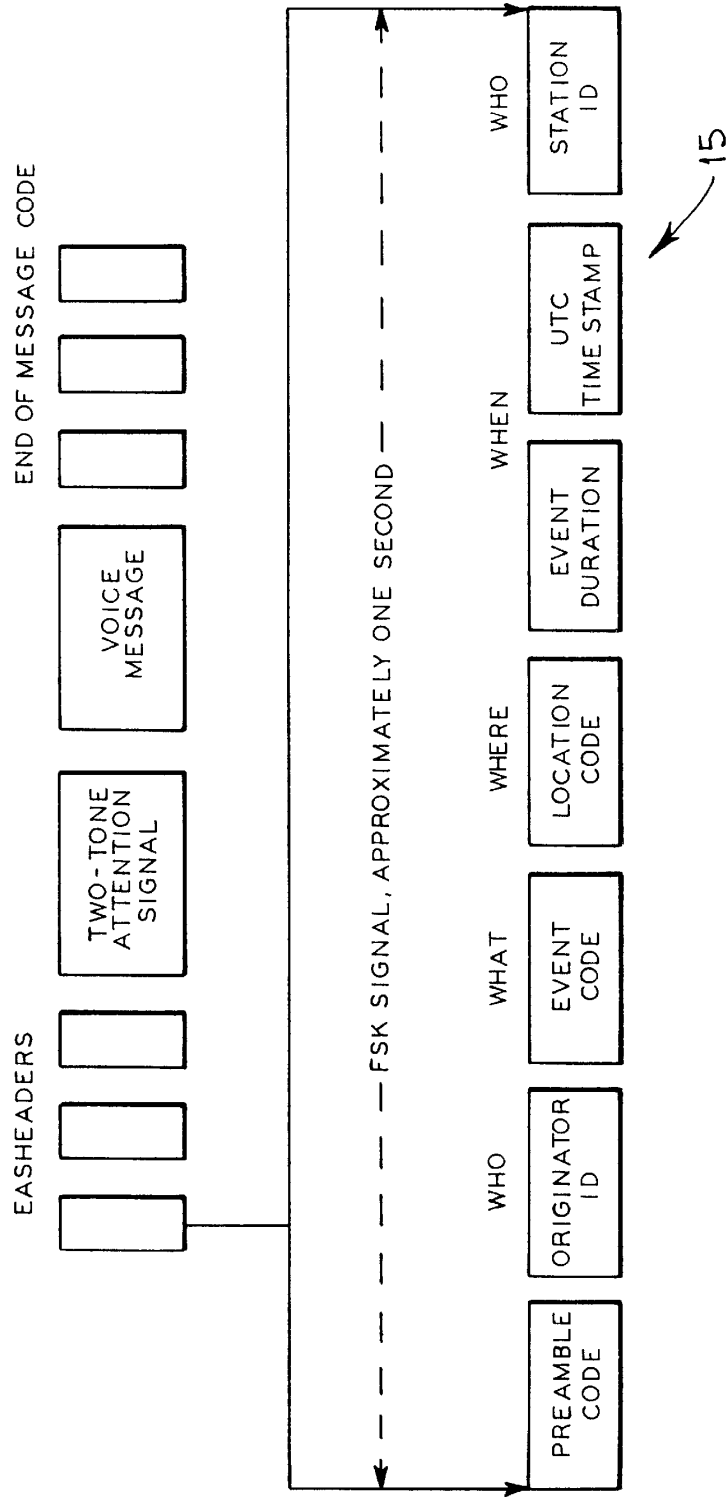


**IBM EX. 1012**

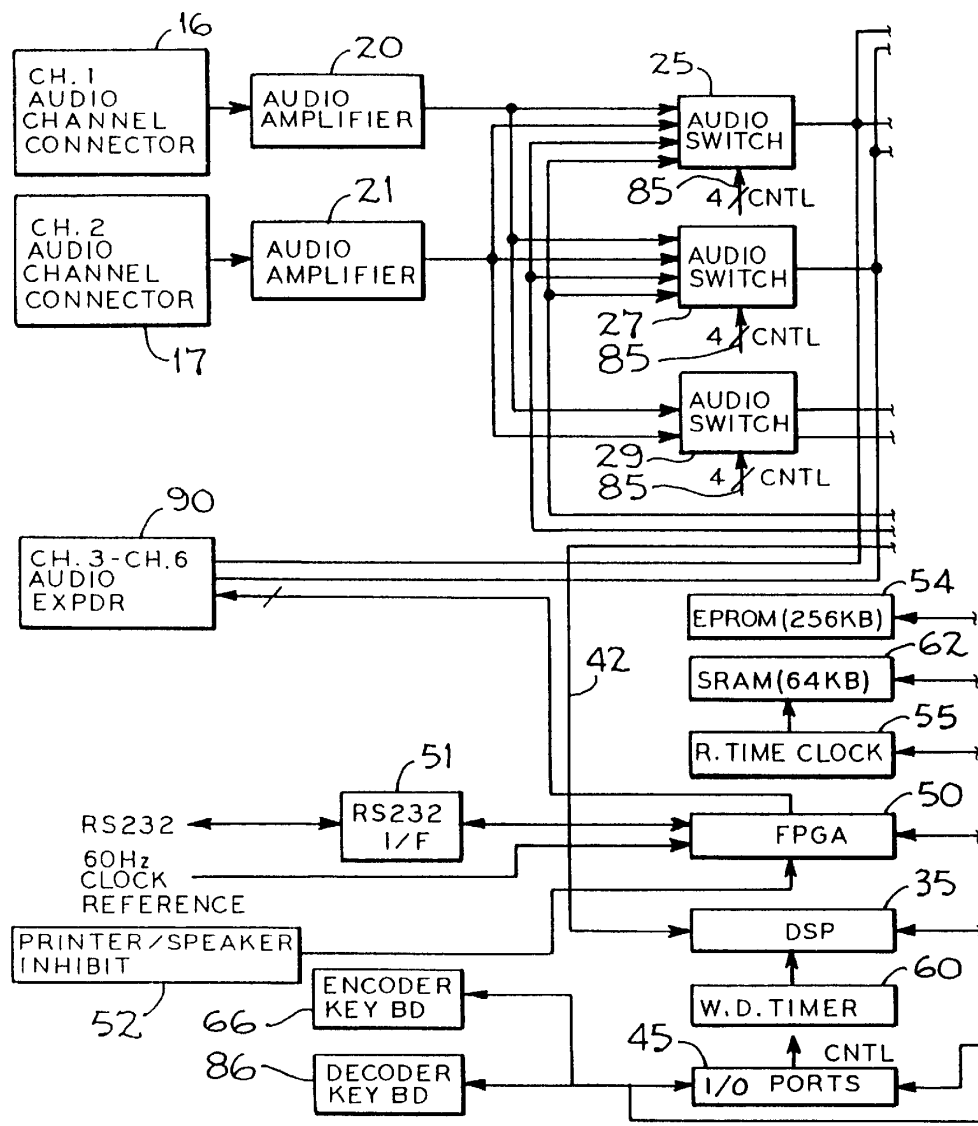
**FIG-1**



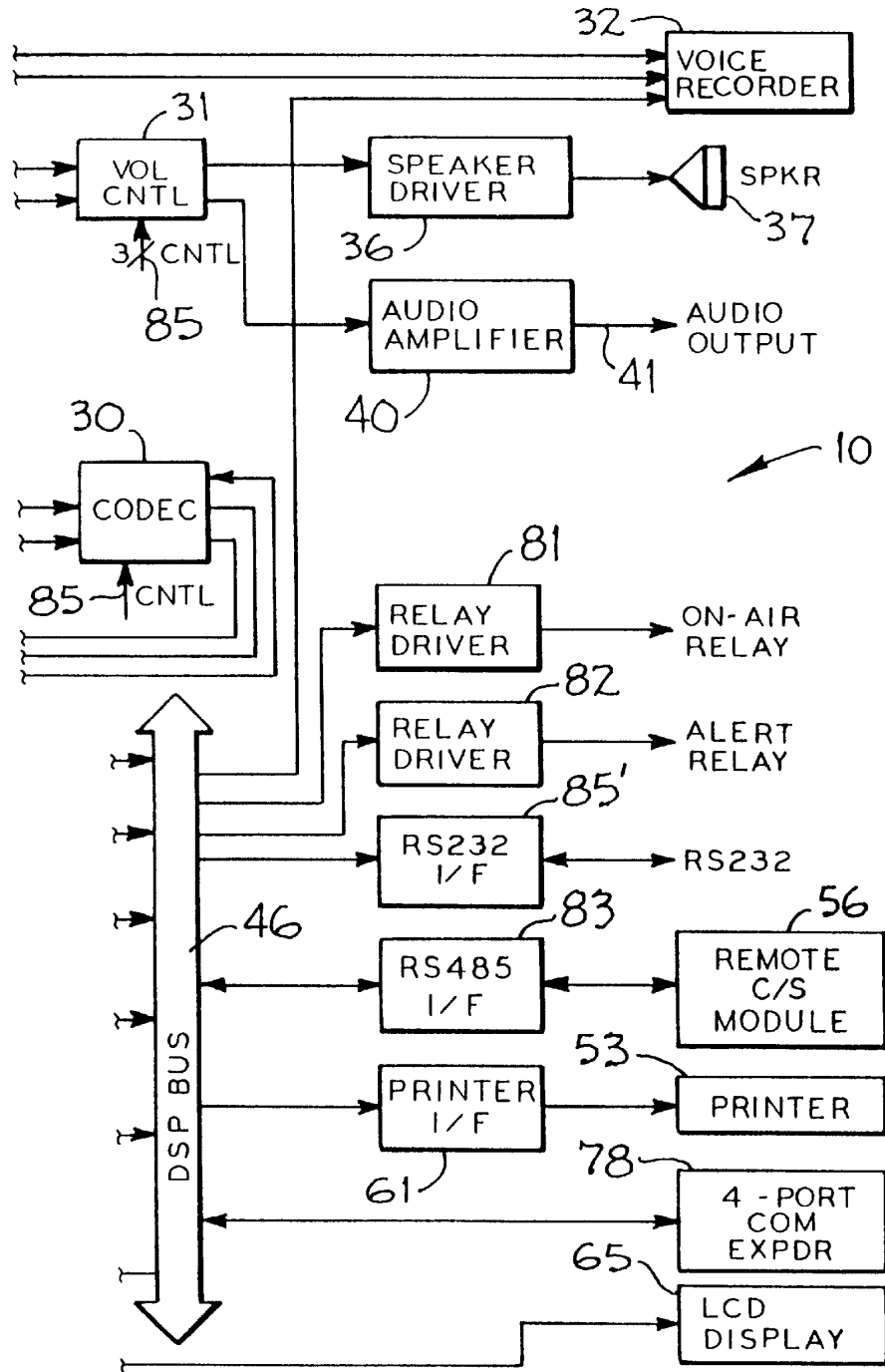
**FIG. 2**



**Fig. 3A**



**FIG. 3B**



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