

[54] **SIGNAL ENCRYPTION AND DISTRIBUTION SYSTEM FOR CONTROLLING SCRAMBLING AND SELECTIVE REMOTE DESCRAMBLING OF TELEVISION SIGNALS**

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[52] **U.S. Cl.** 358/122; 178/22.07; 178/22.1; 178/22.16

[58] **Field of Search** 358/122; 178/22.07, 178/22.1, 22.14, 22.16

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Assistant Examiner—Linda J. Wallace
Attorney, Agent, or Firm—Edward W. Callan

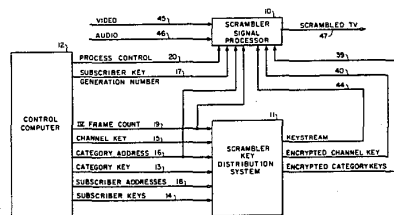
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[57] **ABSTRACT**

A system and method for scrambling and selectively descrambling television signals that are transmitted to subscribers' descramblers in a subscription television system. A working key signal is generated by processing an "initialization vector" signal in accordance with the DES algorithm upon the algorithm being keyed by either a common category key signal or some other key signal. A unique encryption keystream is generated by processing the initialization vector signal in accordance with the DES algorithm upon the algorithm being keyed by the working key signal. A television signal is scrambled in accordance with the unique encryption keystream to provide a scrambled television signal. A plurality of unique encrypted category key signals individually addressed to different selected subscribers' descramblers are generated by processing the initial common category key signal in accordance with the DES algorithm upon the algorithm being keyed by a plurality of different "unit key" signals unique to different selected descramblers. The scrambled television signal, the initialization vector signal, and the plurality of encrypted category key signals are broadcast to the descramblers. A corresponding tier of DES algorithms are employed at the descrambler to reproduce the encryption keystream; and the TV signal is descrambled in accordance therewith. Each descrambler has its unique unit key signal stored in a secure memory for use in reproducing the common category key signal when the descrambler is addressed by its unique encrypted category key signal.

26 Claims, 8 Drawing Figures



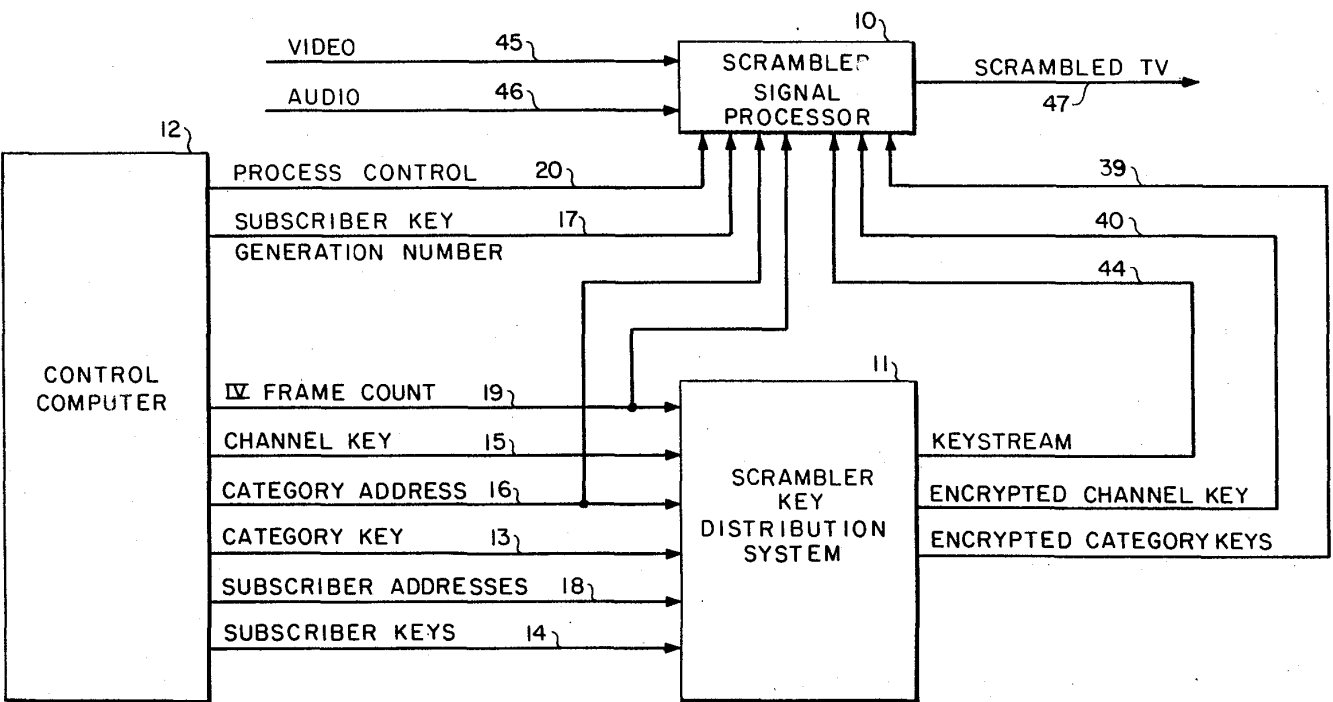


FIG. 1

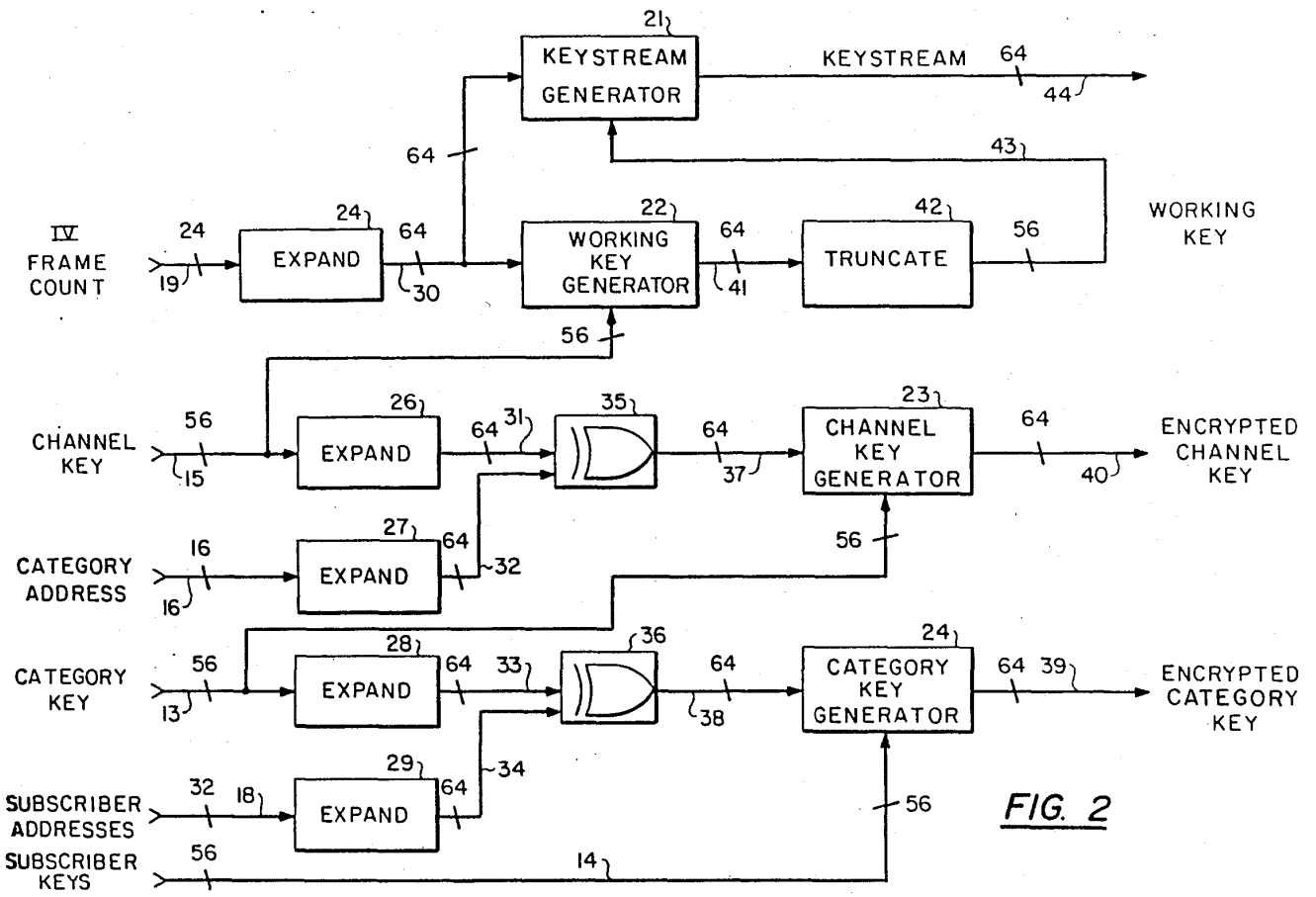
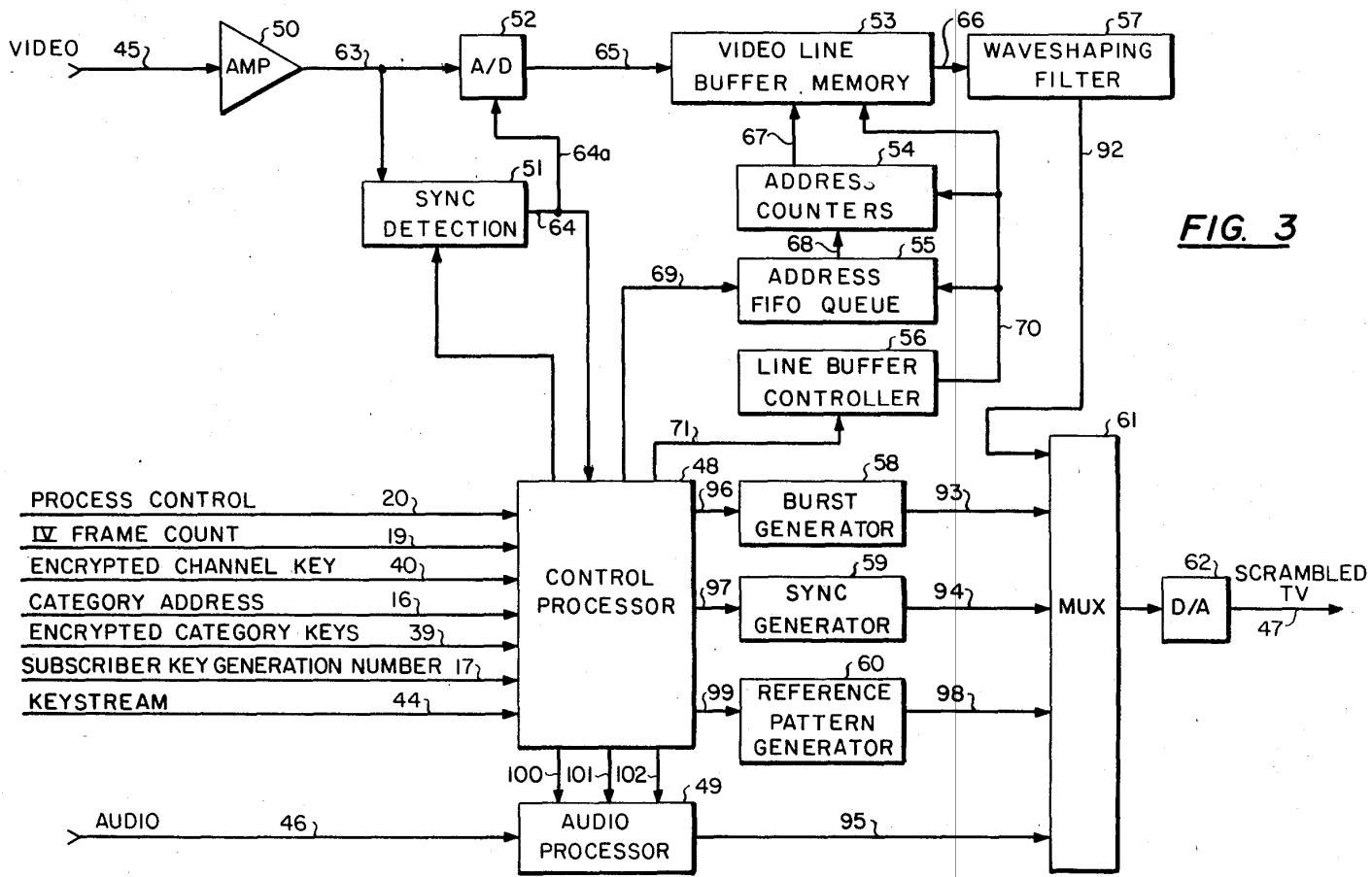


FIG. 2



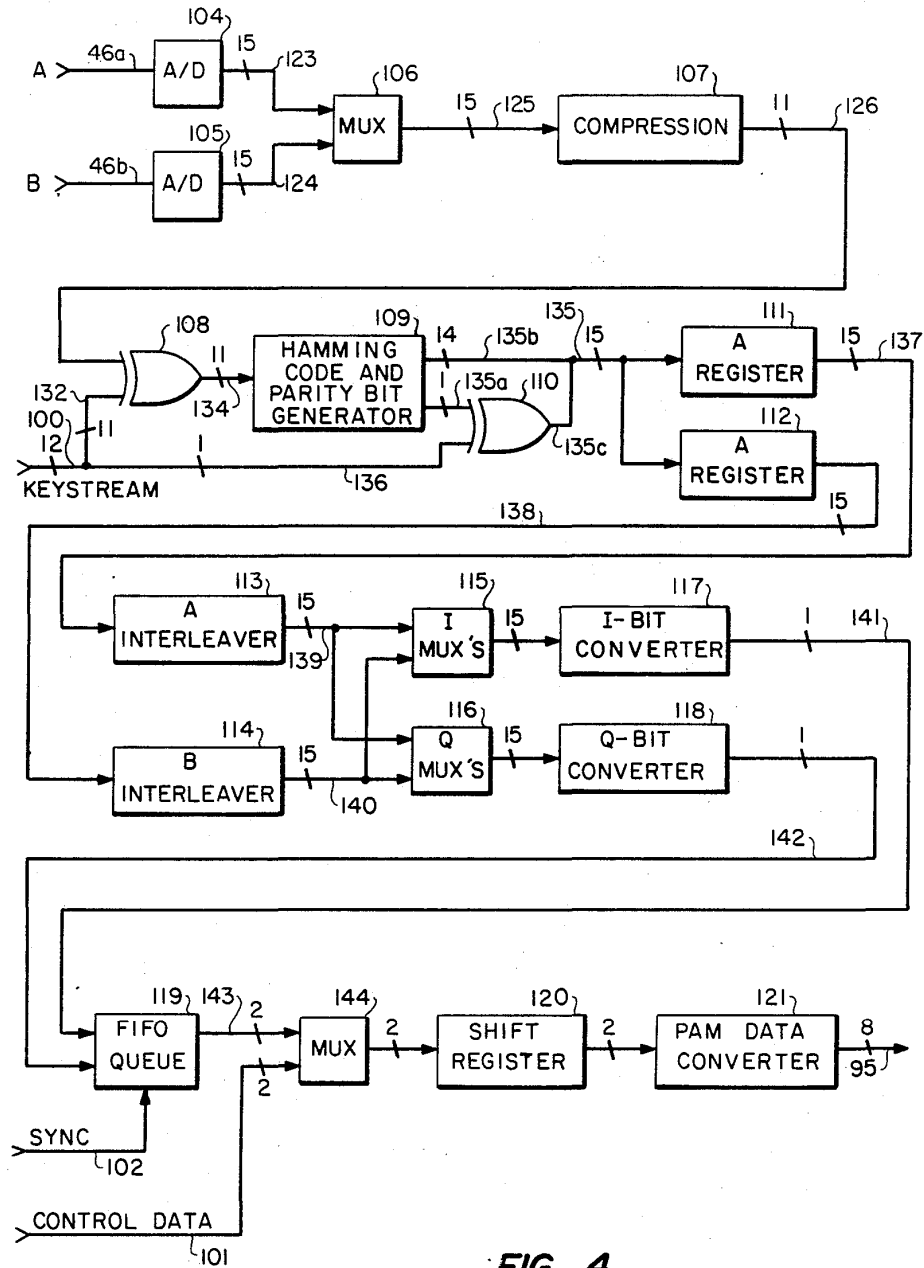


FIG. 4

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