United States Patent [19]

Barnes et al.

[11] **4,172,213**

[45] **Oct. 23, 1979**

[54] **BYTE STREAM SELECTIVE ENCRYPTION/DECRYPTION DEVICE**

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[73] Assignee: **Burroughs Corporation**, Detroit, Mich.

[21] Appl. No.: **852,444**

[22] Filed: **Nov. 17, 1977**

[51] **Int. Cl.**[2] **H04L 9/00**

[52] **U.S. Cl.** ..... **178/22**; 340/146.1 AL

[58] **Field of Search** ..... 178/22; 340/146.1 AL

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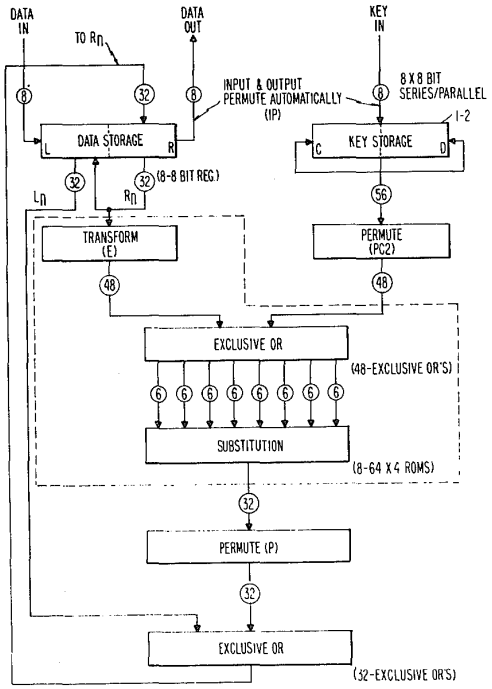
Primary Examiner—S. C. Buczinski

Attorney, Agent, or Firm—Mark T. Starr

[57] **ABSTRACT**

An apparatus for insertion in a communications line for providing message secrecy within a significant portion of existing communications networks. At the transmitter end, the apparatus receives messages from the communications line, enciphers them and retransmits them onto the communications line. At the receiver end, the apparatus receives messages from the communications line, deciphers them and retransmits them onto the communications line. The apparatus contains both a transmitter and receiver and is capable of full duplex operation in a bidirectional communications line. According to the invention, data is enciphered by combining the data received with the output of an algorithm, the algorithm output being dependent on the data previously enciphered and a unique key entered by the user. As data is received it is combined with the output of the algorithm, transmitted and using cipher feedback techniques fed back as an input to the algorithm to be used to encipher subsequently received data. Data is deciphered using equivalent elements as used for enciphering, the basic difference in the apparatus operation being the point from which data fed back into the algorithm is taken. The apparatus operates on a byte-by-byte basis, and contains provisions for responding to control characters and ignoring messages intended for a different apparatus.

49 Claims, 17 Drawing Figures



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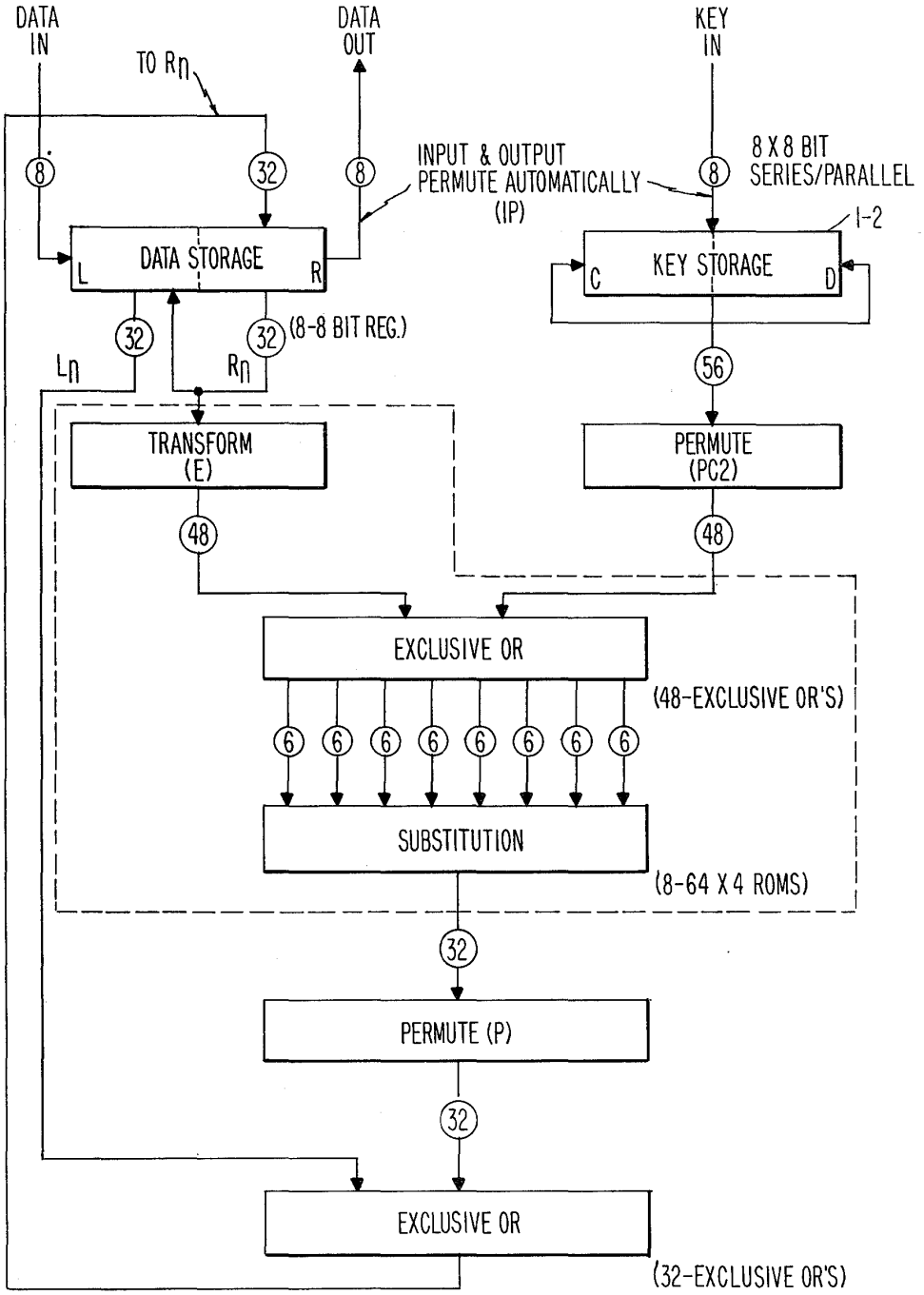

Fig. 1

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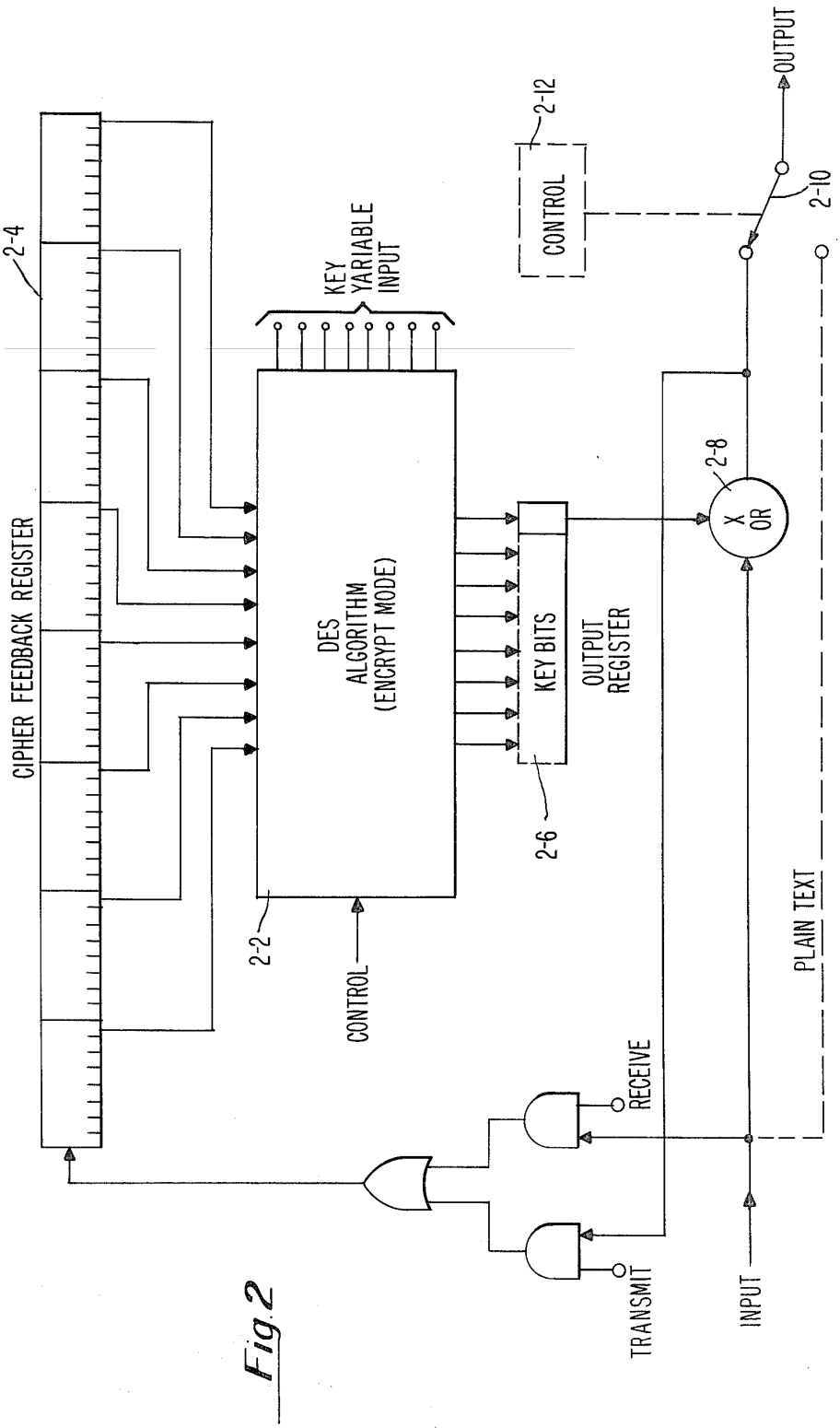

Fig. 2

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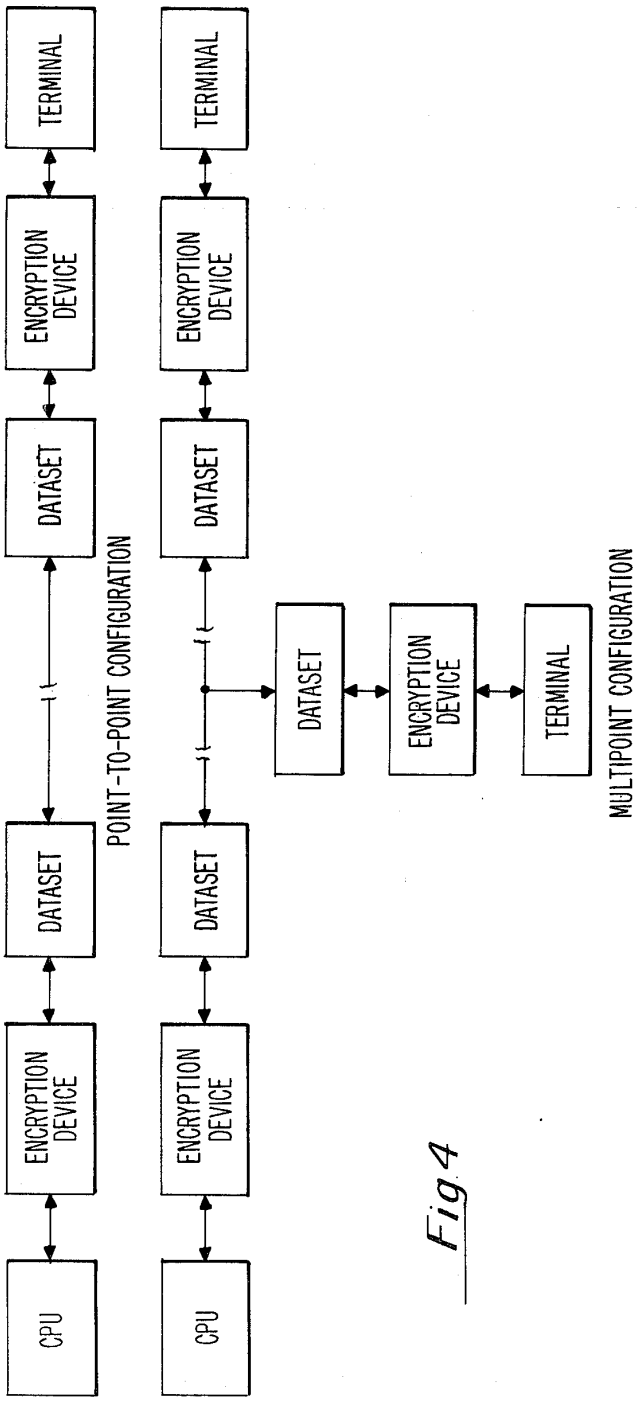

Fig 4

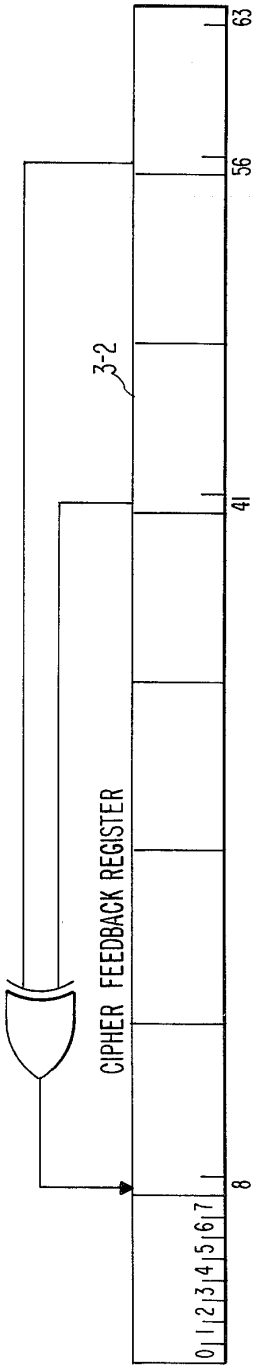

Fig.3

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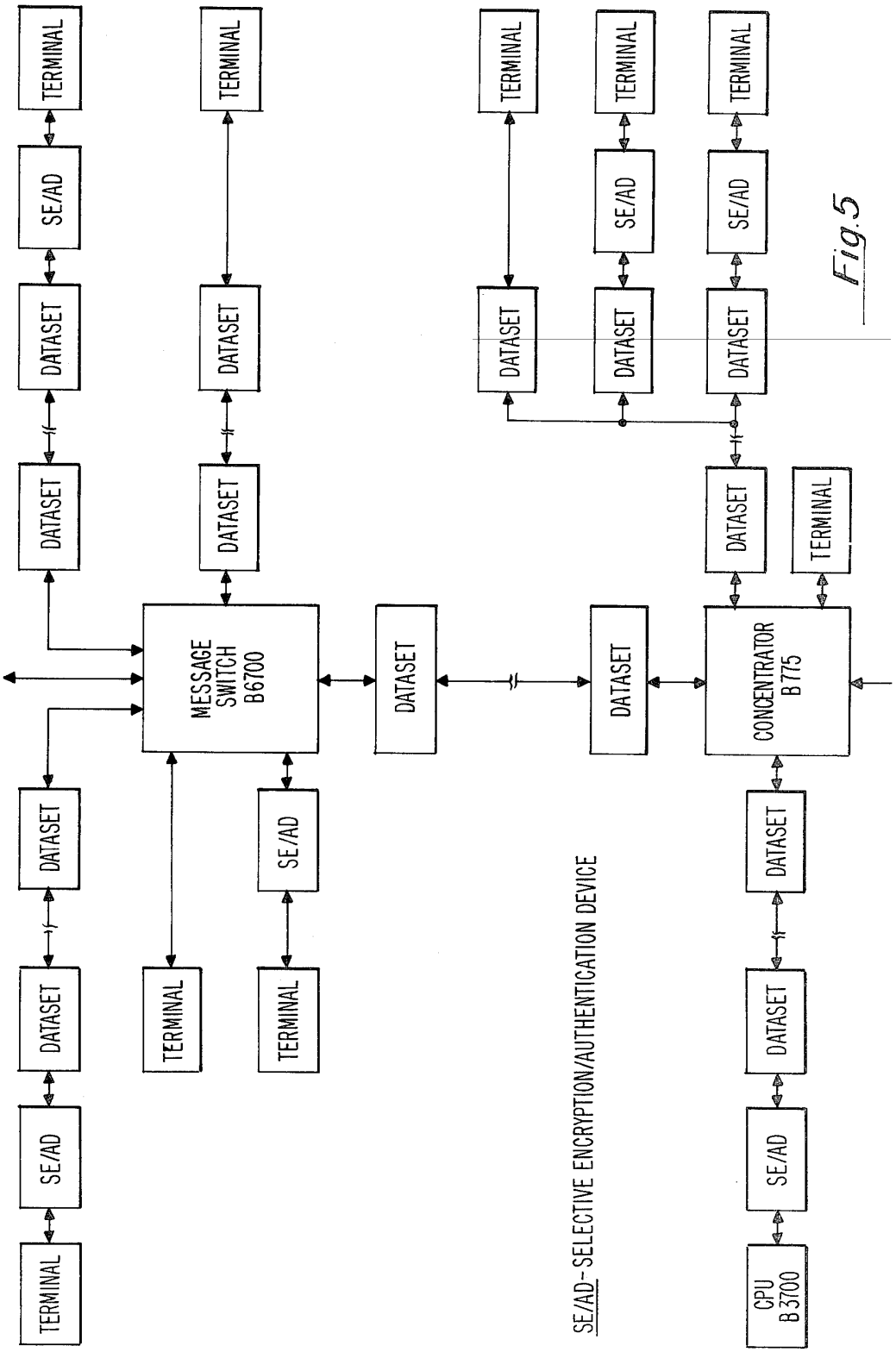

Fig.5

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