



# United States Patent [19]

[11] Patent Number: **5,394,879**

Gorman

[45] Date of Patent: **Mar. 7, 1995**

[54] **BIOMEDICAL RESPONSE MONITOR-EXERCISE EQUIPMENT AND TECHNIQUE USING ERROR CORRECTION**

[57] **ABSTRACT**

[76] Inventor: **Peter G. Gorman**, Lakeview Dr., Mahopac, N.Y. 10541

A monitor-exercise equipment apparatus for measuring a biomedical response such as heartbeat rate, and for using the measured response to control exercise equipment. The monitor includes a transmitting unit and a receiving unit located in the exercise equipment. An encoded digital signal represents the heart rate and has a first identification part identifying the transmitting unit and a second data part representing the person's heart rate. This signal is wirelessly sent to the receiving unit which determines if it is from the transmitting unit. Only if that is so is the data part read. If there are too many errors in the data part, a new frequency of wireless transmission is used. If the errors are within a reasonable bound, the data part is sent to a memory and/or display. The receiving unit provides a signal to a parameter control means in the exercise equipment which automatically regulates the resistance offered to the user in accordance with the measured heart rate of the user to provide a proper workout. Memory provides exercise profiles unique to the user. An identification unit allows each user to identify himself/herself to the equipment to access the proper stored exercise profile for that person.

[21] Appl. No.: **65,564**

[22] Filed: **May 21, 1993**

### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 33,826, Mar. 19, 1993.

[51] Int. Cl.<sup>6</sup> ..... **A61B 5/0402**

[52] U.S. Cl. .... **128/707; 128/903**

[58] Field of Search ..... **128/696, 706, 707, 903**

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Primary Examiner—William E. Kamm

25 Claims, 6 Drawing Sheets

## TRANSMITTER UNIT

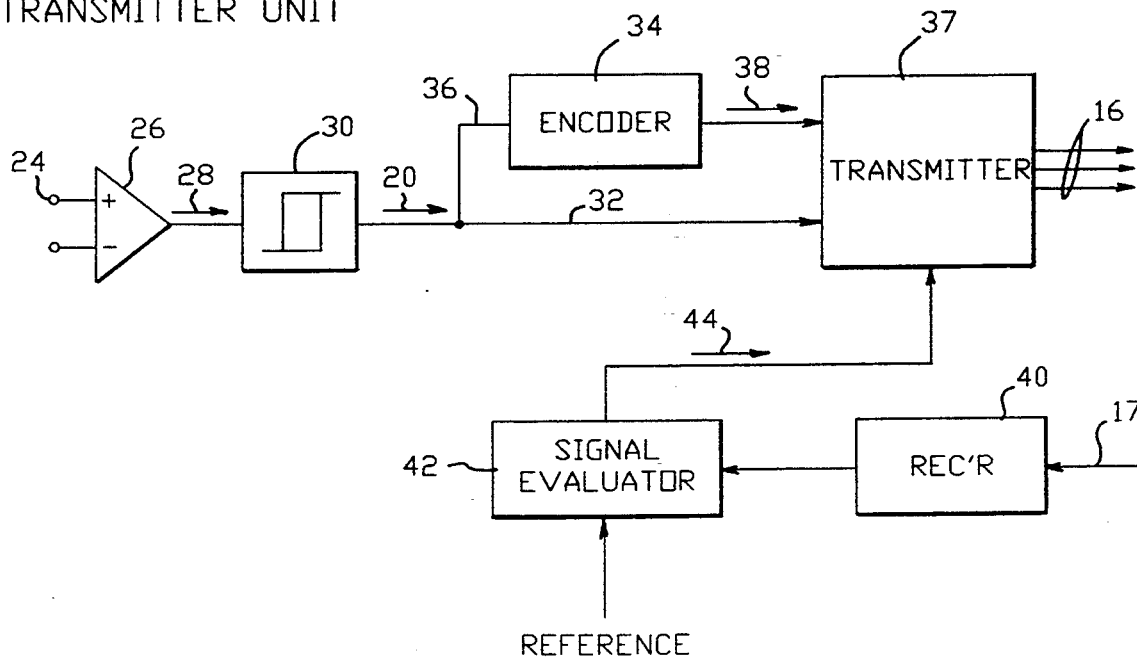


FIG. 1

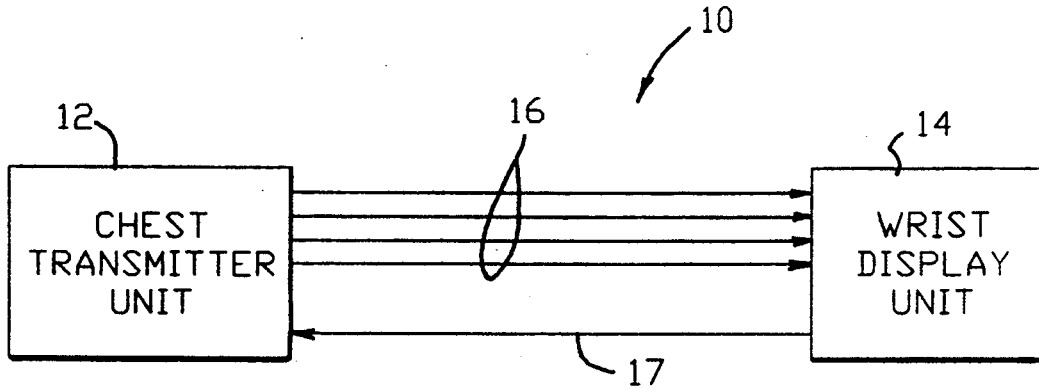


FIG. 2

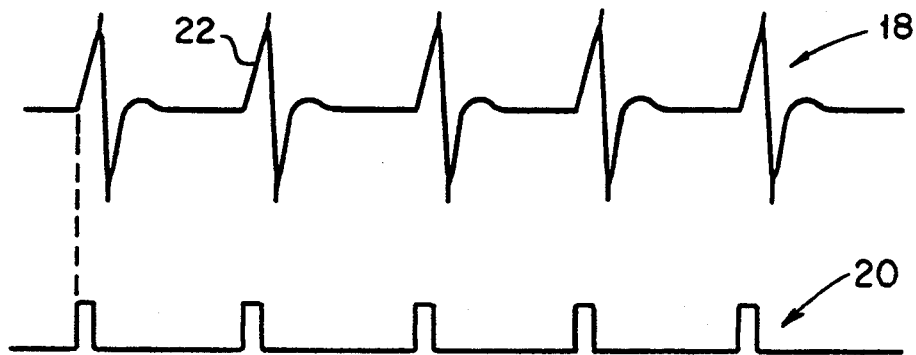
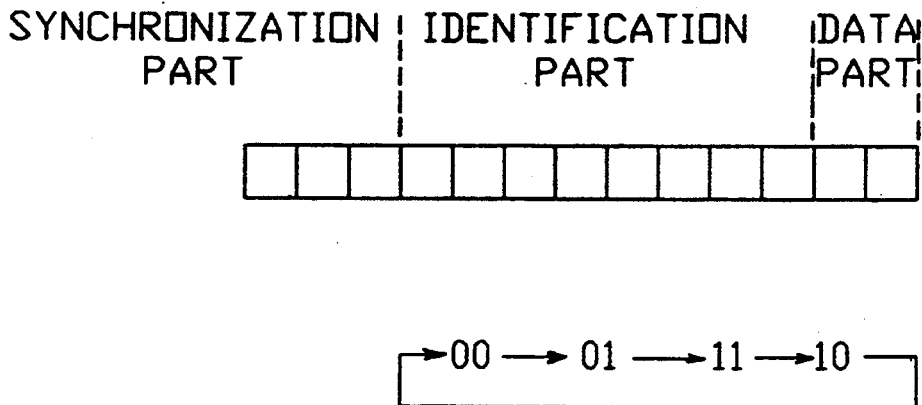


FIG. 3A



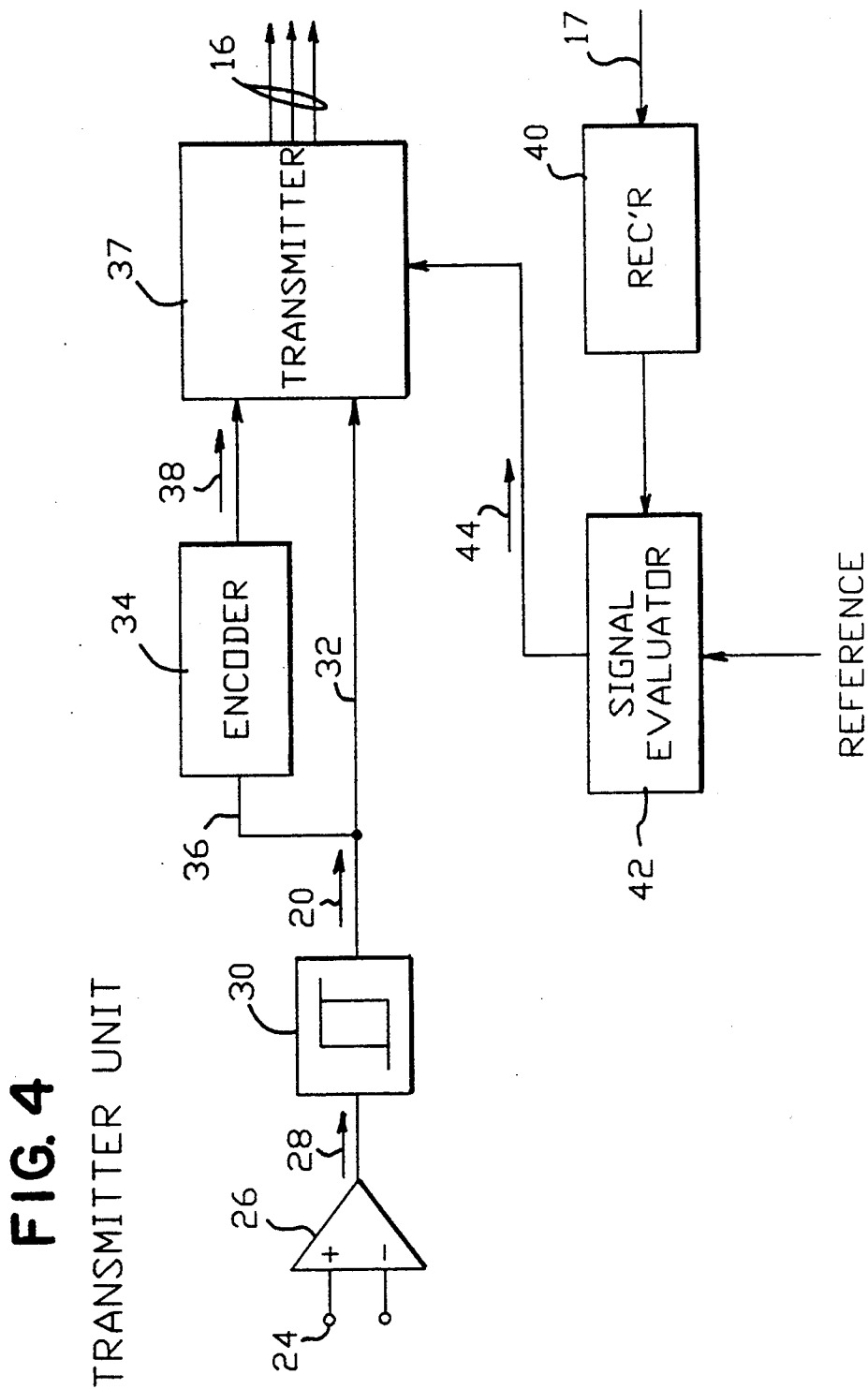


FIG. 5

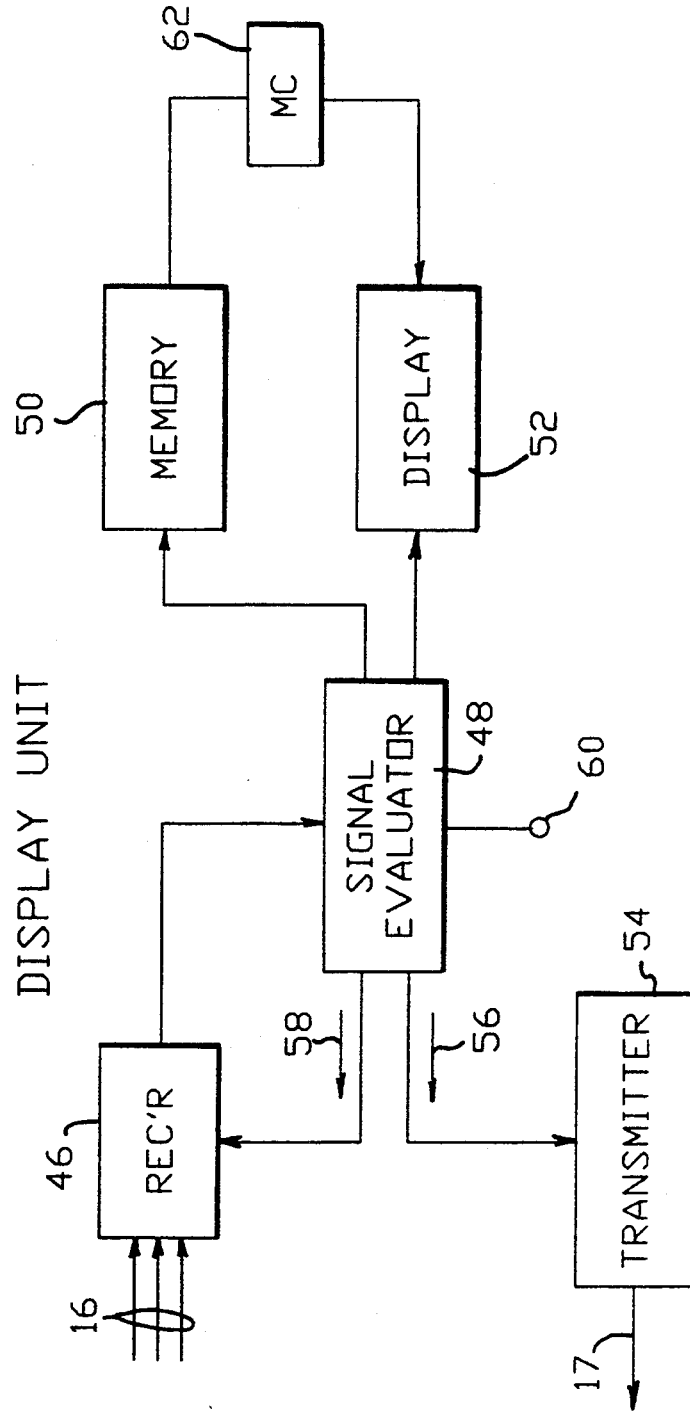
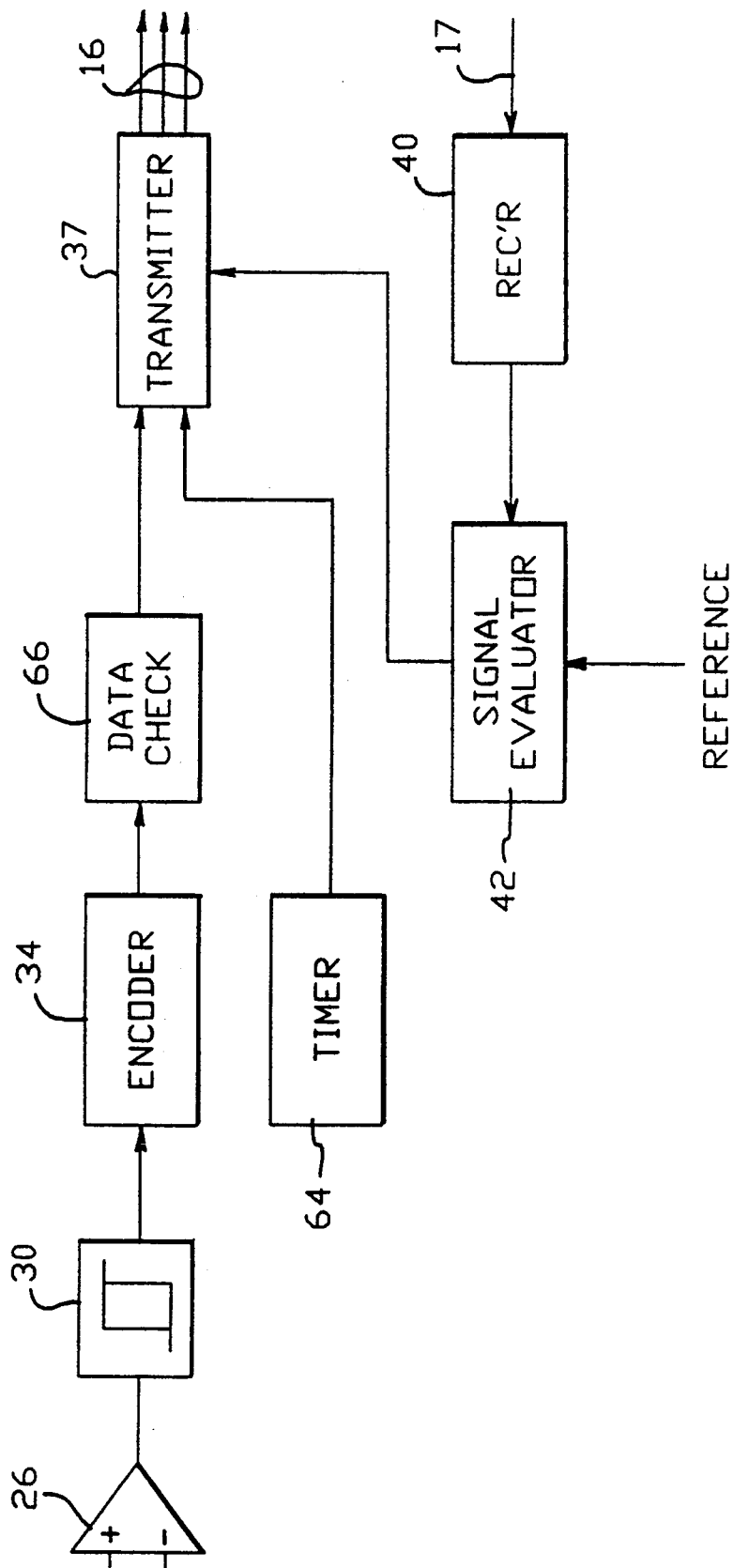


FIG. 6



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