# United States Patent [19]

## Jimenez et al.

[11] **4,367,752**

[45] **Jan. 11, 1983**

[54] **APPARATUS FOR TESTING PHYSICAL CONDITION OF A SUBJECT**

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[73] Assignee: **Biotechnology, Inc.,** Miami, Fla.

[21] Appl. No.: **145,765**

[22] Filed: **Apr. 30, 1980**

[51] Int. Cl.³ ................................................ A61B 5/02
[52] U.S. Cl. ..................................... **128/689**; 128/706; 128/707; 128/782
[58] Field of Search ........................ 128/668, 670–672, 128/639, 644, 687–691, 706–707, 702–704, 718, 779, 782; 364/410, 413, 415, 417

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*Attorney, Agent, or Firm*—Lowe, King, Price & Becker

[57] **ABSTRACT**

The physical condition of a subject is tested by a transducer mounted on the subject which derives a first signal indicative of heart activity. An electronic instrument housing carried by the subject includes terminals responsive to the first signal and (a) an inertial member for monitoring the quantity of repetitive actions taken by a limb of the subject and for deriving a second signal indicative of the quantity, (b) a keyboard for enabling signals to be derived indicative of numerical quantities associated with plural physiological parameters of the subject, (c) a clock source for deriving timing signals, (d) a digital computer responsive to the first, second, timing and keyboard signals for deriving plural digital output signals indicative of different physical activities of the tested subject, (e) a visual digital indicator, (f) plural key switches, each associated with a different one of the physical activities, and (g) circuitry responsive to activation of the plural key switches for selectively coupling different ones of the plural output signals to the visual indicator so only one of the output signals is supplied to the indicator at a time.
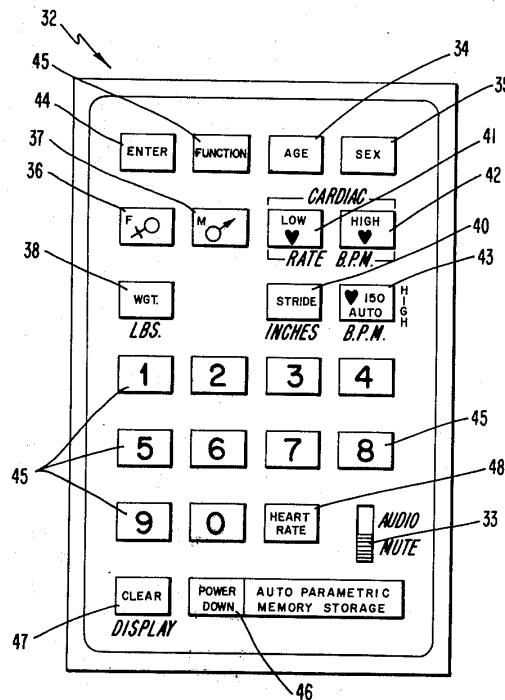
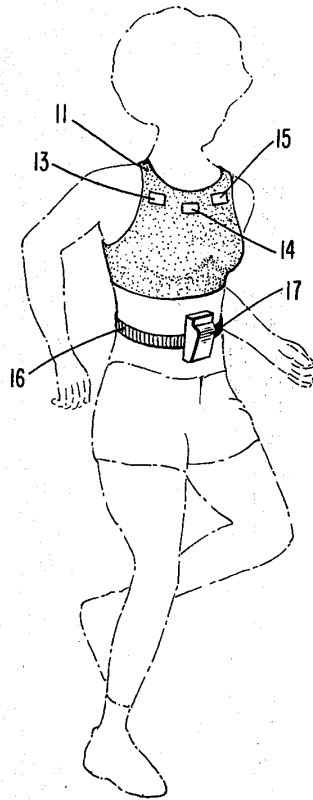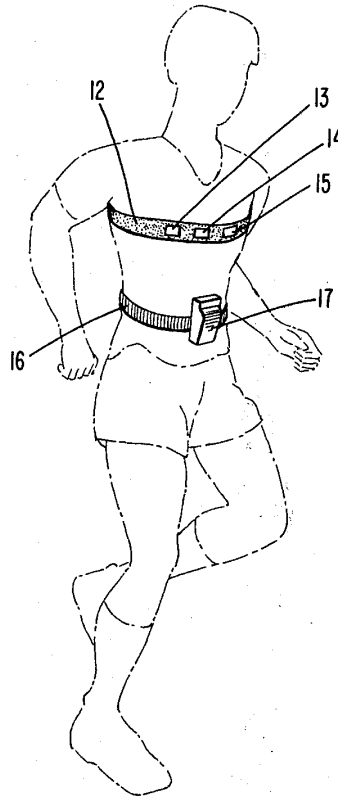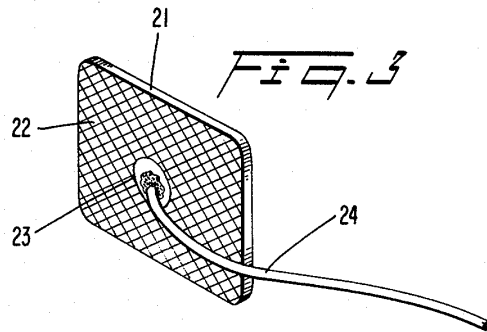**53 Claims, 15 Drawing Figures**

FIG.1



FIG.2



FIG.3

_Fig. 4._

_Fig. 5._

Fig. 7

Fig. 6

Fig. 8

Fig. 5A

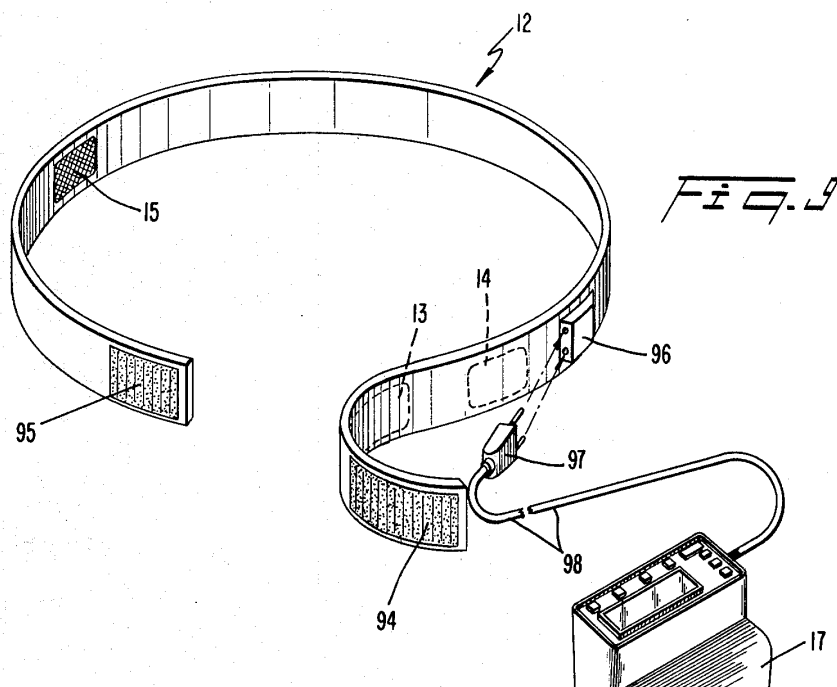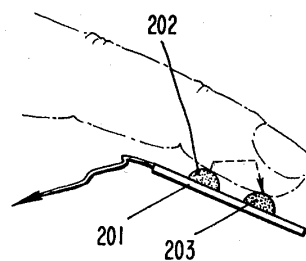| PROGRAM SEQUENCE | ♥ |
|---|---|
| E 1 | MAX. HEART RATE, BPM |
| E 2 | MIN. HEART RATE, BPM |
| E 3 | REST HEART RATE, BPM |
| E 4 | STRIDE, INCHES |
| E 5 | SEX |
| E 6 | AGE |
| E 7 | FITNESS FACTOR |
| E 8 | WEIGHT, LBS. |

FIG. 9

FIG. 13

FIG. 12
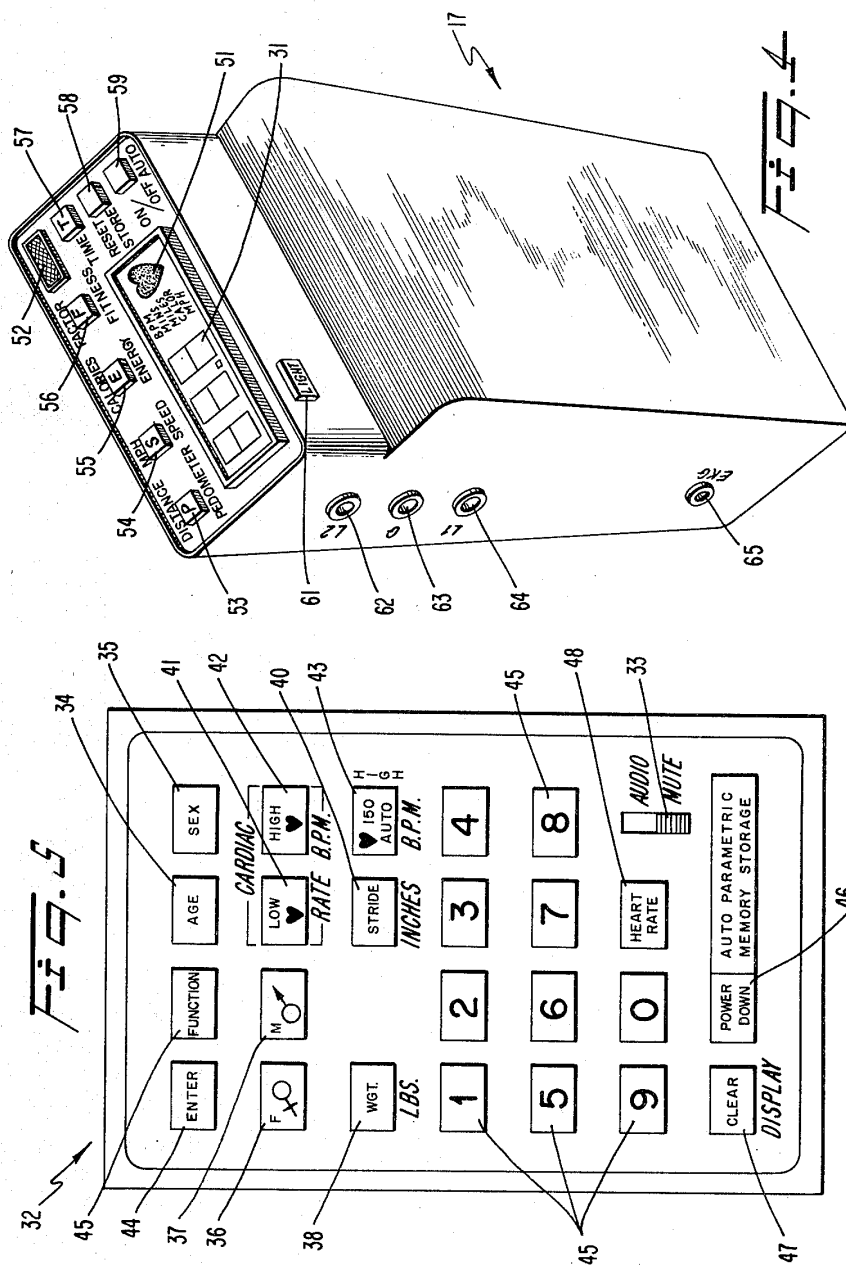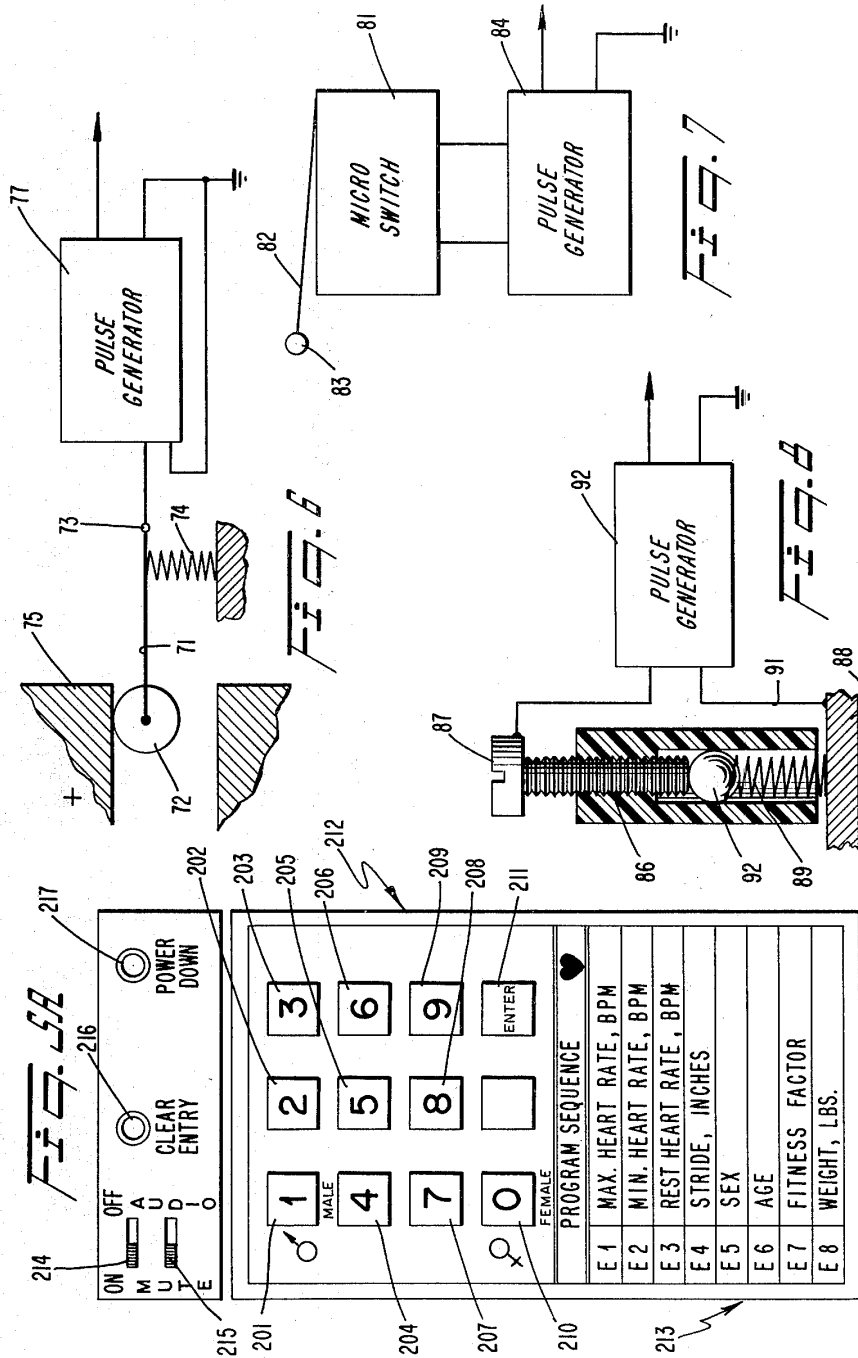
# DOCKET ALARM
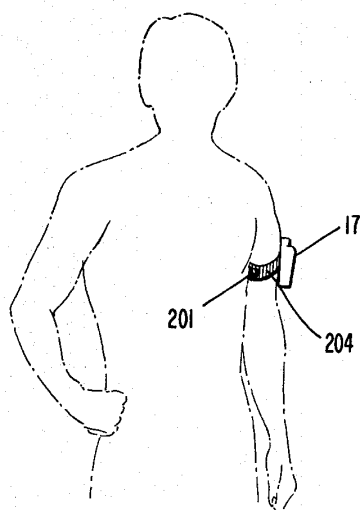
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