



United States Patent [19]

Aoshima et al.

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[45] Date of Patent: **Aug. 8, 2000**

[54] **PULSE COUNTER AND PULSE DISPLAY METHOD**

5,795,300 8/1998 Bryars et al. 600/500
5,807,267 9/1998 Bryars et al. 600/500

[75] Inventors: **Ichiro Aoshima; Tsukasa Kosuda,**
both of Suwa, Japan

FOREIGN PATENT DOCUMENTS

60-259239 12/1985 Japan .
4-75503 7/1992 Japan .
6-245912 9/1994 Japan .
7-148127 6/1995 Japan .
7-227383 8/1995 Japan .
8-289876 11/1996 Japan .

[73] Assignees: **Seiko Epson Corporation,** Tokyo;
Seiko Instruments, Inc., Chiba, both of
Japan

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[51] Int. Cl.⁷ **A61B 5/02**

[52] U.S. Cl. **600/500; 600/502**

[58] Field of Search 600/500, 502,
600/503, 501, 481

[56] References Cited

U.S. PATENT DOCUMENTS

5,697,374 12/1997 Odagiri et al. 600/500

Primary Examiner—Cary O'Connor
Assistant Examiner—Navin Natnithadhha
Attorney, Agent, or Firm—Mark P. Watson

[57] ABSTRACT

A pulse counter is provided in which the value displayed for the detected value is highly reliable. An SN condition detecting means detects the SN condition of a pulse wave signal (step S201). The SN condition detecting means then determines whether or not the detected SN condition is good based on a specific threshold value (step S202). When a determination is made that the SN condition is good, a display control signal to display the pulse rate on a display means is output to a display method switching means (step S203). Conversely, when a determination is made in step S202 that the SN condition is not good, the pulse rate is not displayed on the display means, but rather a display control signal indicating that no information at all be displayed is output to the display method switching means (step S204).

16 Claims, 10 Drawing Sheets

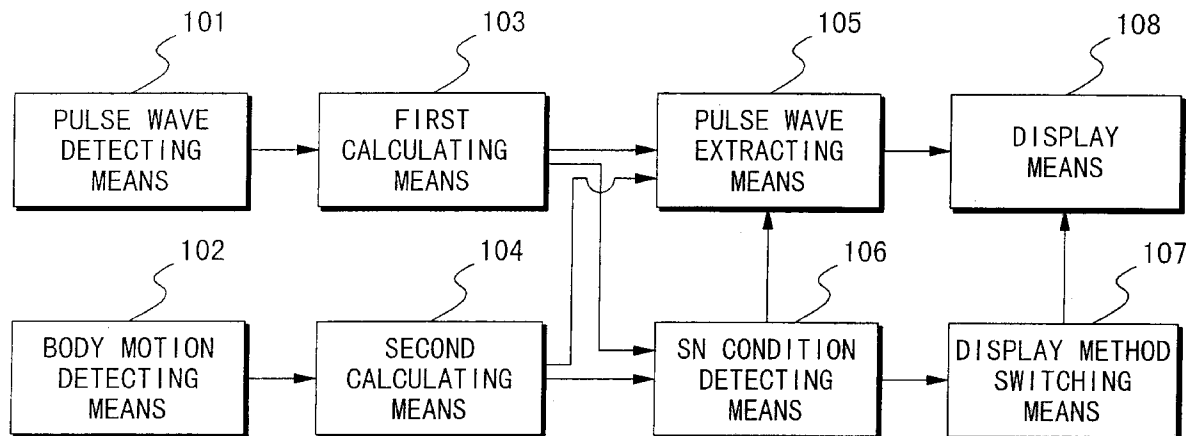


FIG. 1

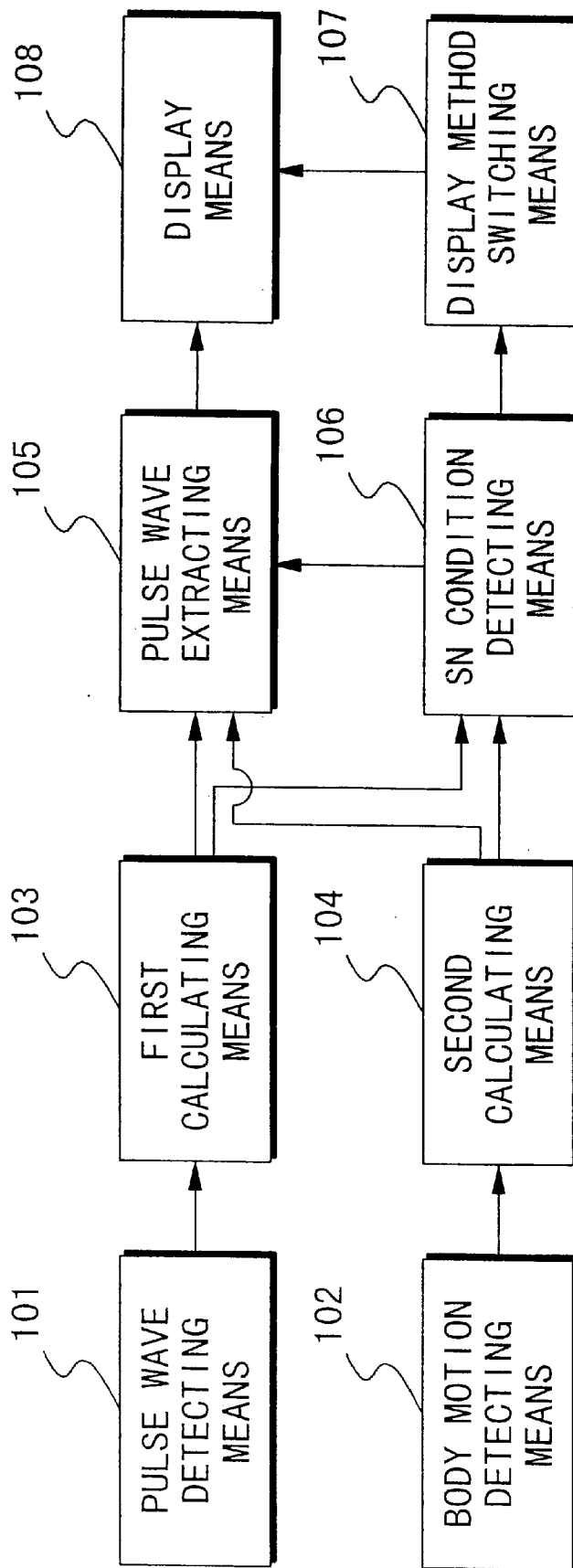


FIG. 2

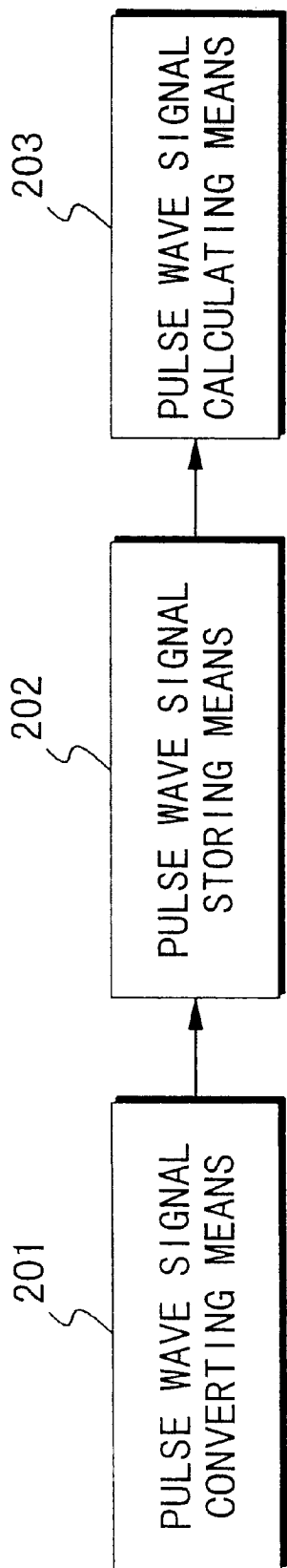


FIG. 3

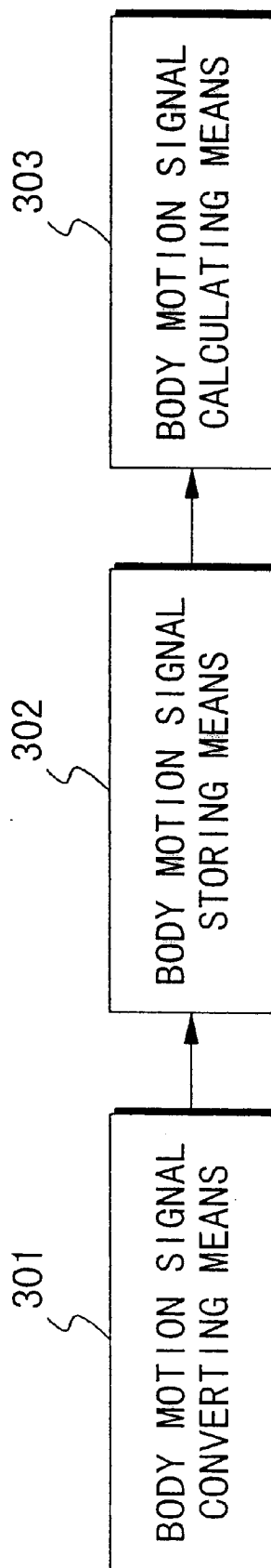


FIG. 4

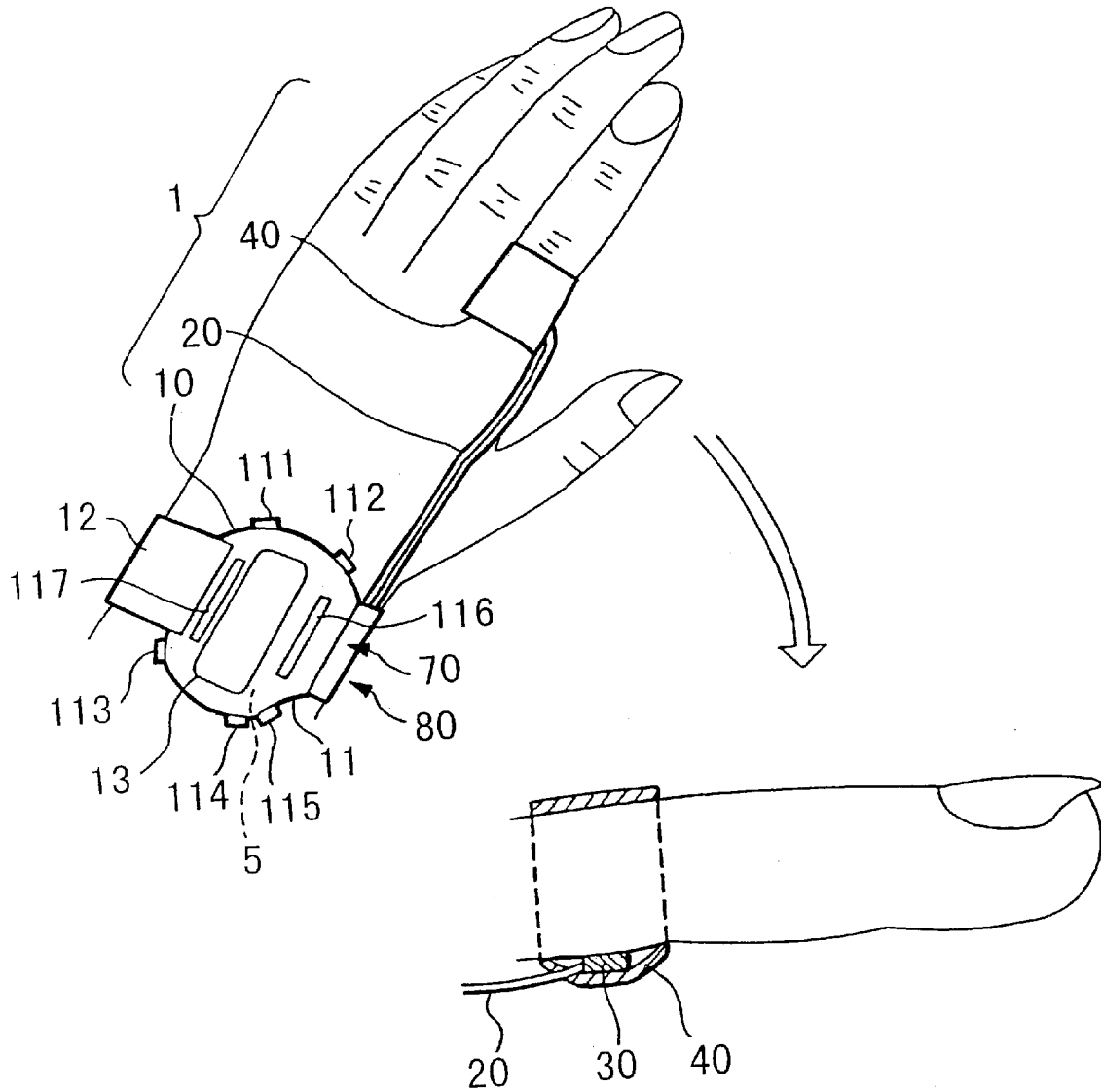


FIG. 5

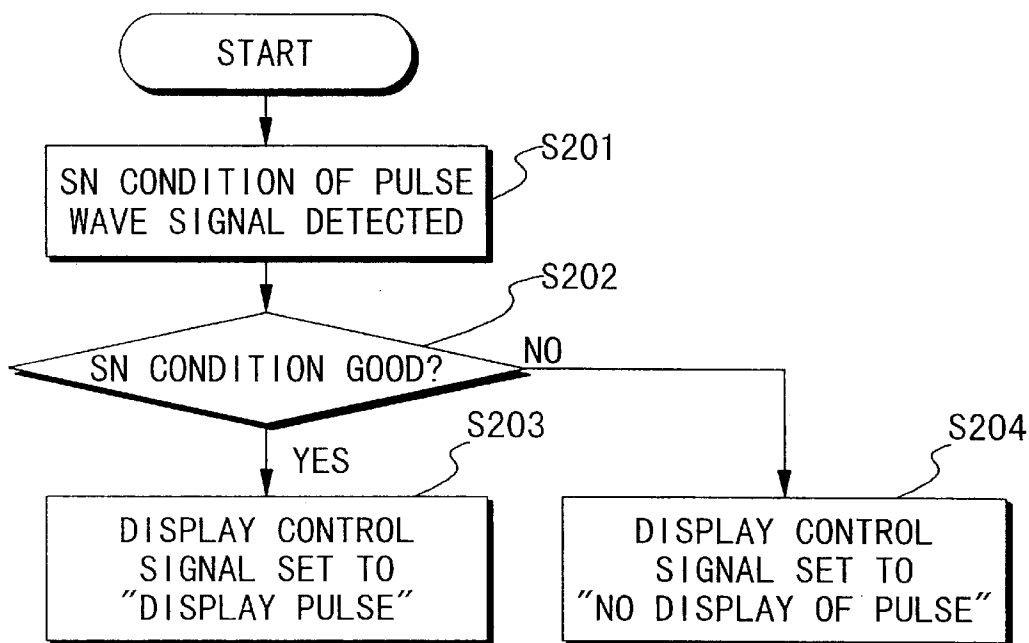
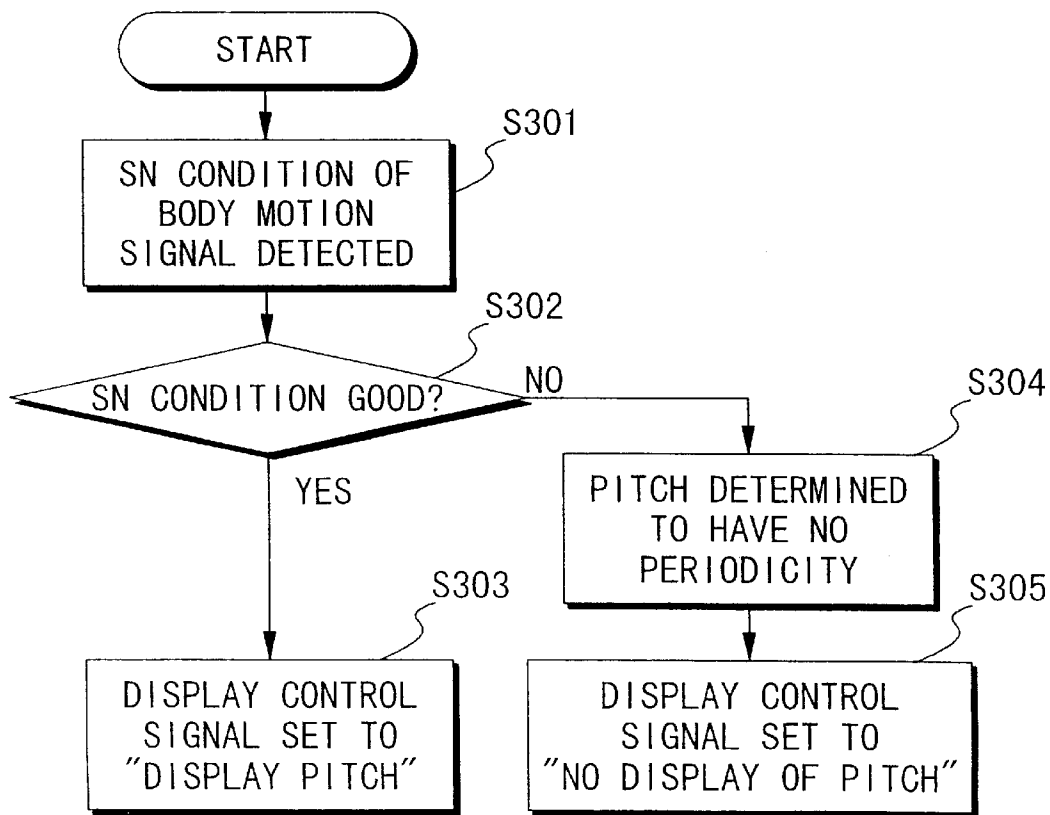


FIG. 6



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