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United States Patent [19]

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Zolock

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[54] **TECHNIQUE FOR SUBSTANTIALLY ELIMINATING TEMPERATURE INDUCED MEASUREMENT ERRORS FROM A CORIOLIS METER**

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[57] ABSTRACT

[21] Appl. No.: **728,546**

Apparatus and accompanying methods for inclusion in a Coriolis meter that substantially eliminate temperature induced measurement errors which might otherwise be produced by performance differences existing between the separate input channels contained in the meter. Specifically, two pairs of input channels are used in the meter. In operation, the meter repetitively measures the internal phase delay of each of these pairs and then subtracts the delay associated with each pair from actual flow based measurement data subsequently obtained therefrom. While one channel pair is measuring actual flow, the other channel pair is measuring its internal phase delay, with the channels being continuously cycled between these functions. Because both channel pairs are cycled at a sufficiently rapid rate, the current value of the internal phase delay for each of the pairs accurately reflects any temperature induced changes then occurring in the performance of that pair thereby eliminating substantially all temperature induced error components from the flow measurements subsequently obtained therefrom. In addition, the meter measures flow tube temperature in a manner that removes temperature induced errors therefrom.

[22] Filed: **Jul. 11, 1991**

[51] Int. Cl.⁵ **G01F 1/84**

[52] U.S. Cl. **73/861.38; 324/76.82;**
324/601

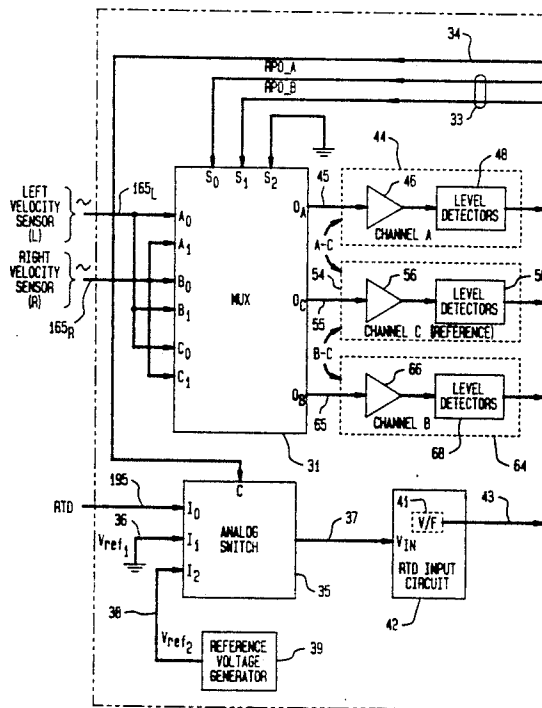
[58] Field of Search 73/861.37, 861.38;
324/84 D, 84 Q, 601

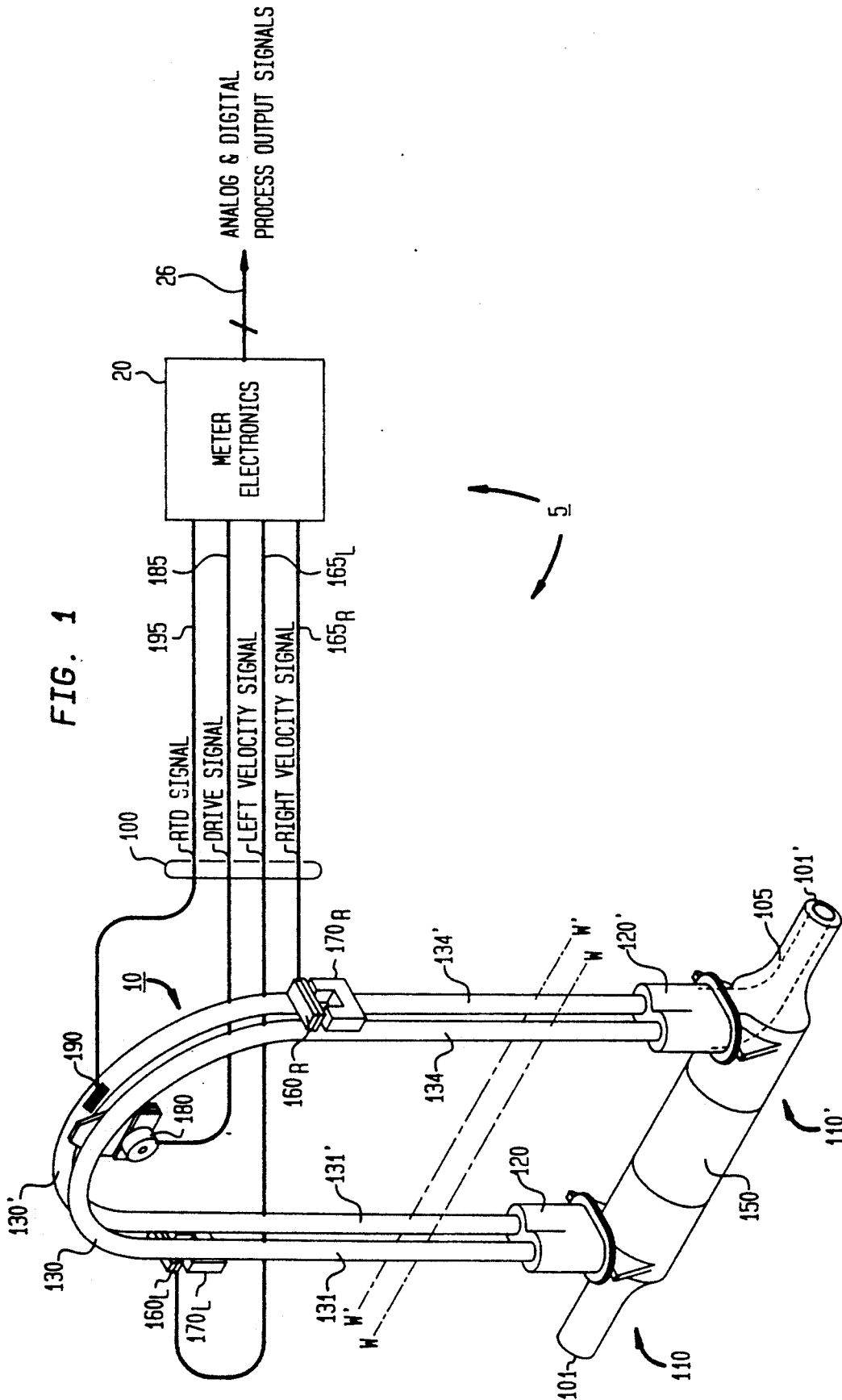
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26 Claims, 14 Drawing Sheets





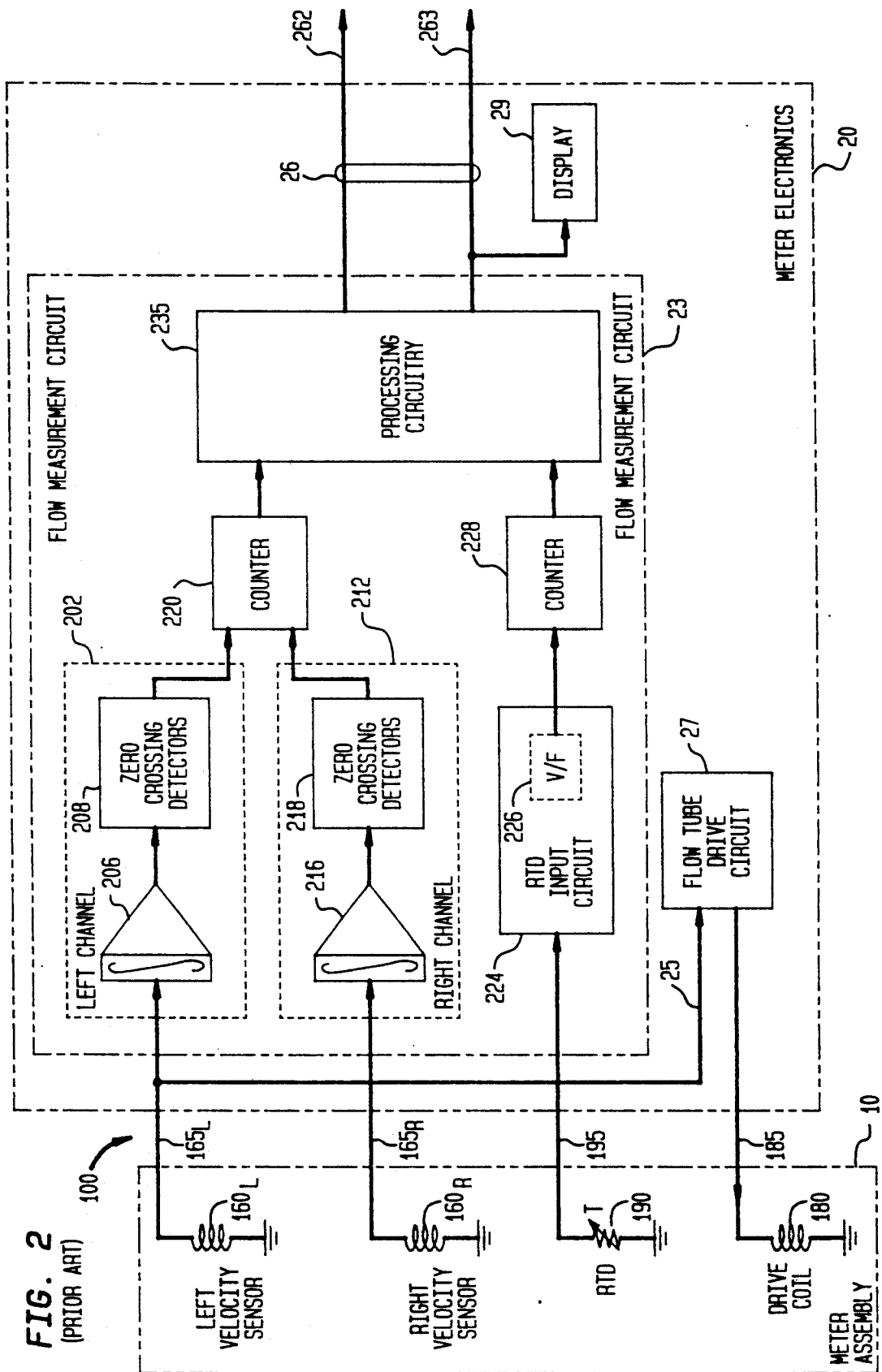


FIG. 3

FIG. 3A	FIG. 3B
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FIG. 3A

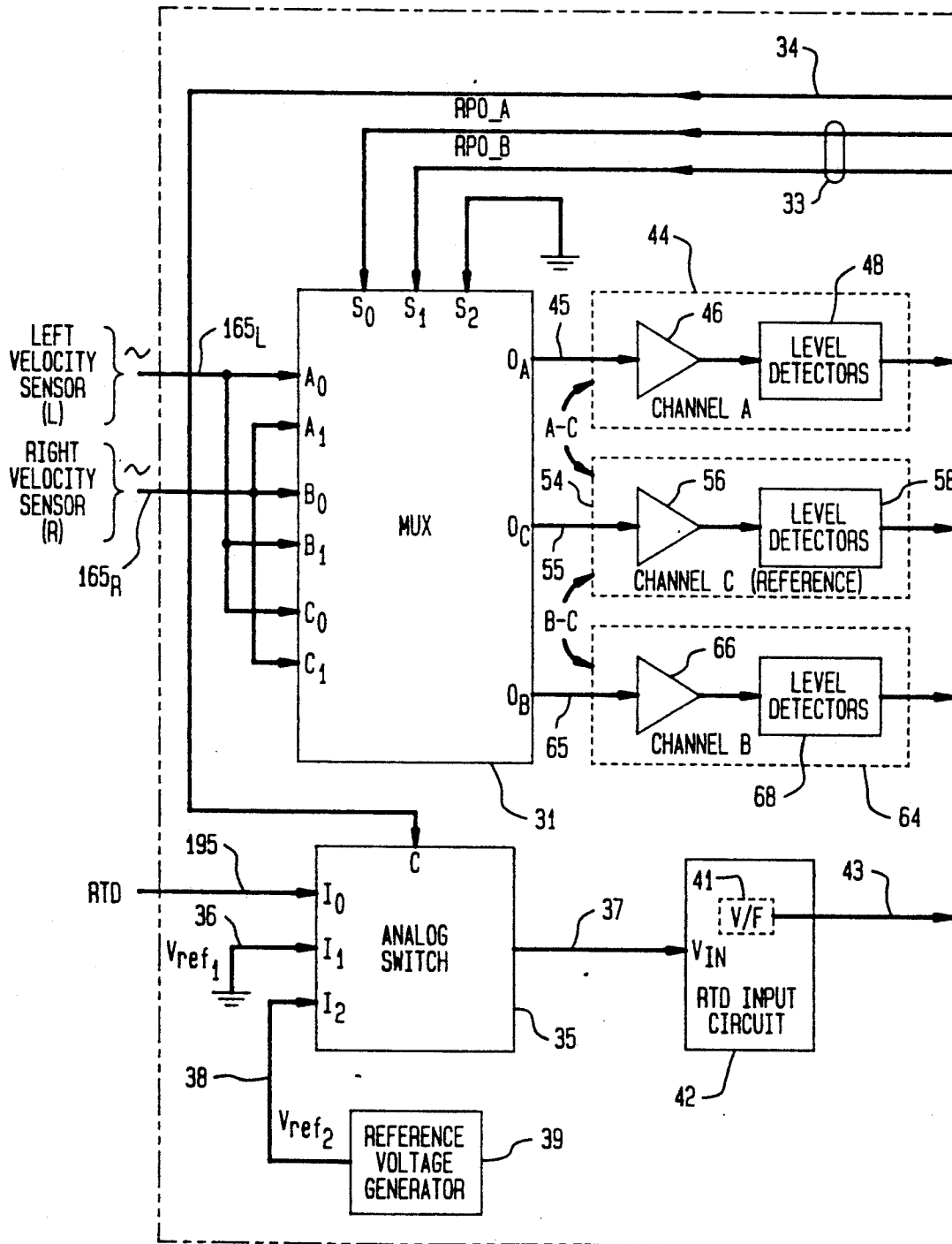
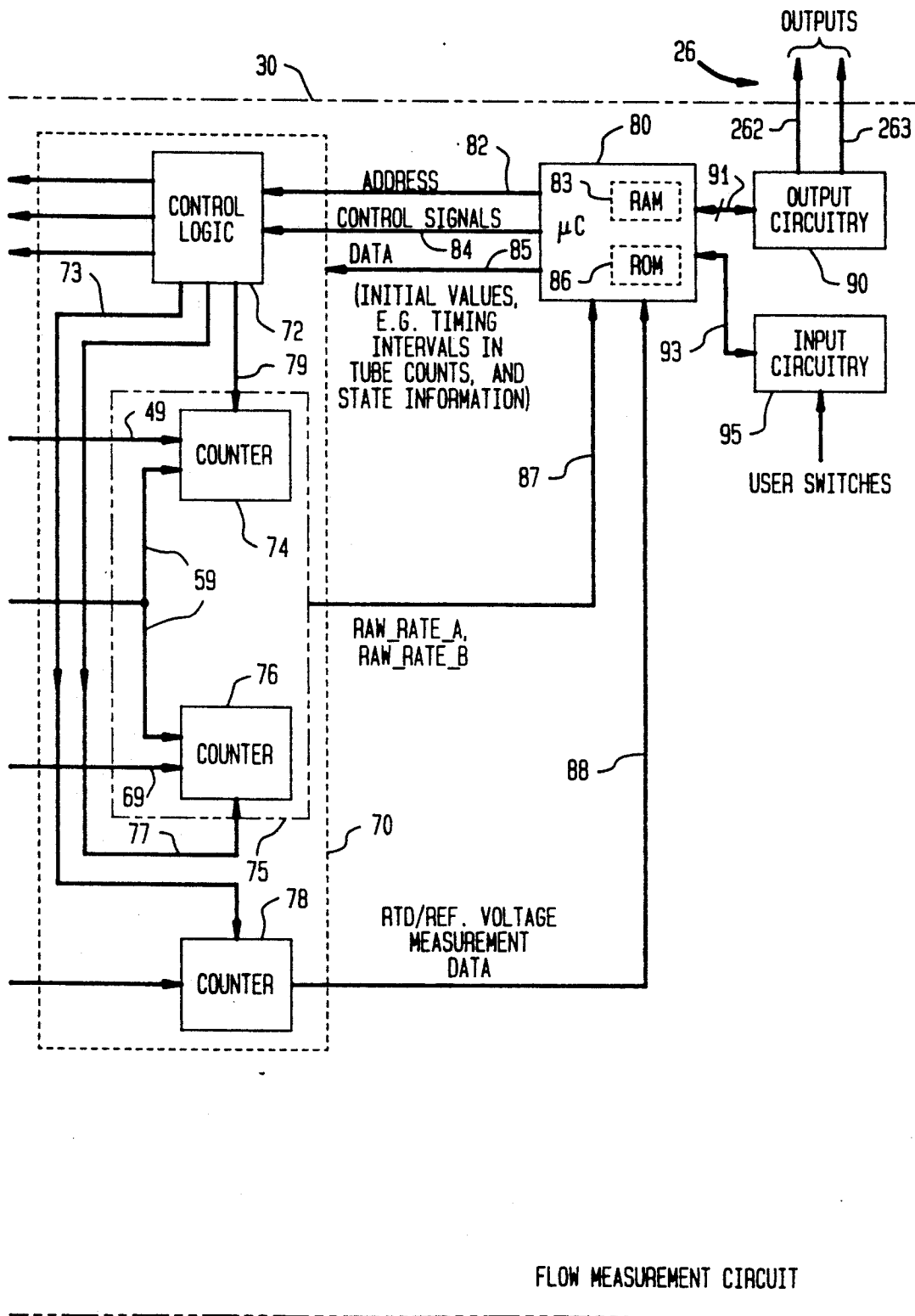


FIG. 3B



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