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United States Patent [19]

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Hourmand

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- [54] **CAPACITIVE RESPONSIVE ELECTRONIC SWITCHING CIRCUIT**
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- [73] Assignee: **Nartron Corporation**, Reed City, Mich.
- [21] Appl. No.: **601,268**
- [22] Filed: **Jan. 31, 1996**
- [51] Int. Cl.⁶ **H01H 35/00**
- [52] U.S. Cl. **307/116; 361/181; 307/125; 307/139**
- [58] Field of Search **307/112, 113, 307/116, 125, 139, 140, 157; 361/181**

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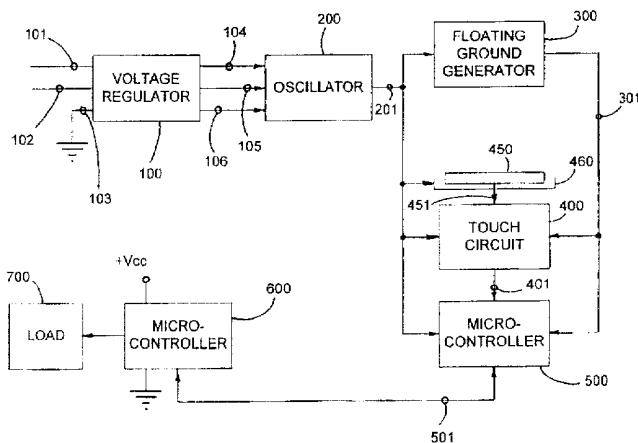
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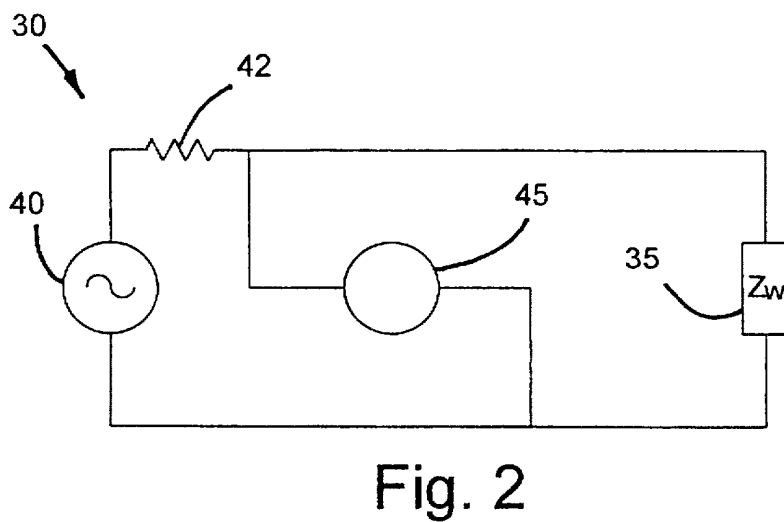
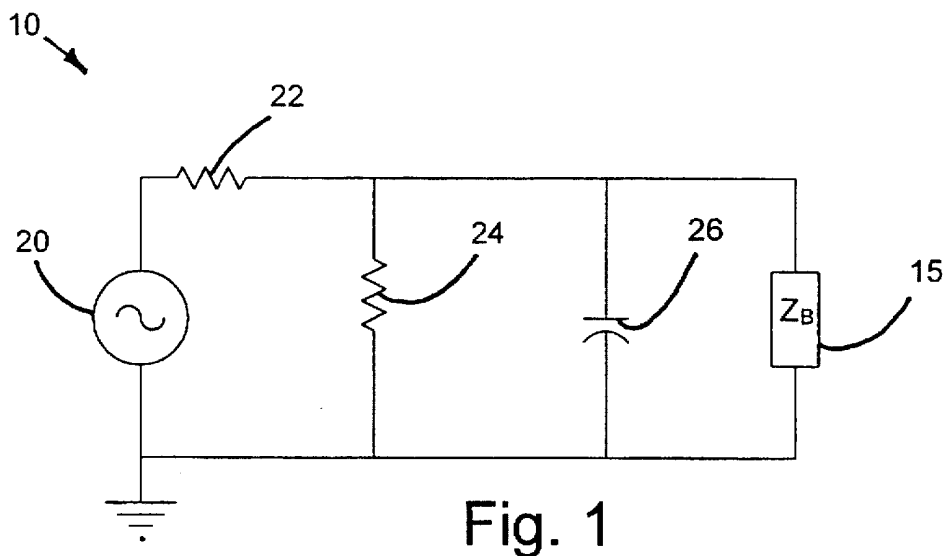
Primary Examiner—William M. Shoop, Jr.
Assistant Examiner—Jonathan Kaplan
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[57] **ABSTRACT**

A capacitive responsive electronic switching circuit comprises an oscillator providing a periodic output signal having a frequency of 50 kHz or greater, an input touch terminal defining an area for an operator provide an input by proximity and touch, and a detector circuit coupled to the oscillator for receiving the periodic output signal from the oscillator, and coupled to the input touch terminal. The detector circuit being responsive to signals from the oscillator and the presence of an operator's body capacitance to ground coupled to the touch terminal when in proximity or touched by an operator to provide a control output signal. Preferably, the oscillator provides a periodic output signal having a frequency of 800 kHz or greater. An array of touch terminals may be provided in close proximity due to the reduction in crosstalk that may result from contaminants by utilizing an oscillator outputting a signal having a frequency of 50 kHz or greater.

32 Claims, 13 Drawing Sheets





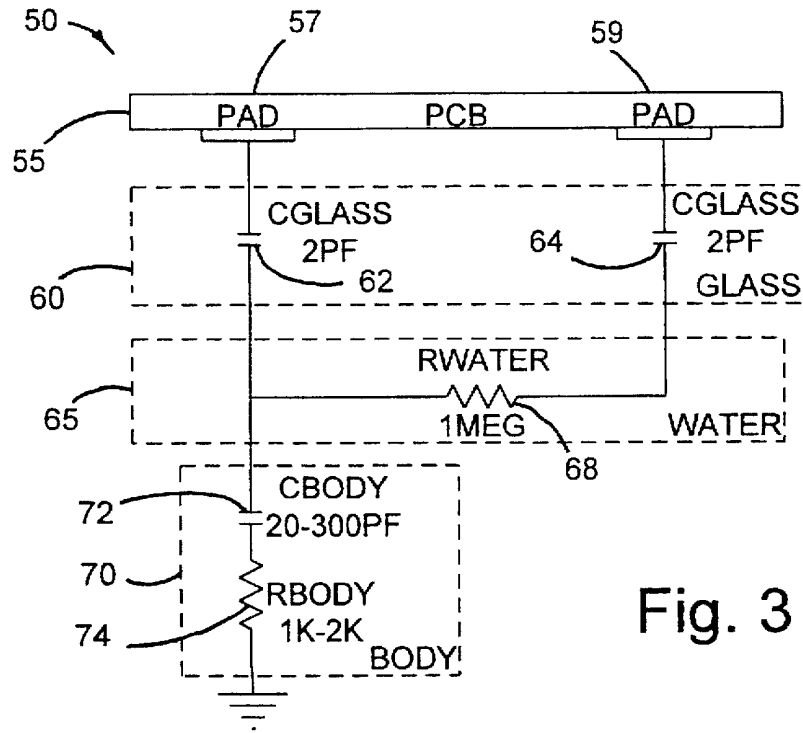


Fig. 3

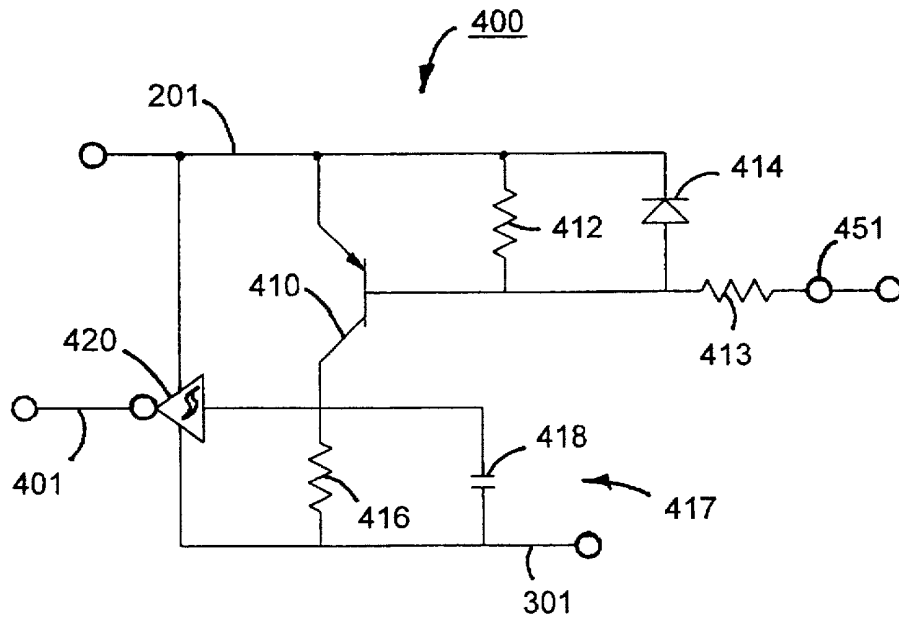


Fig. 8

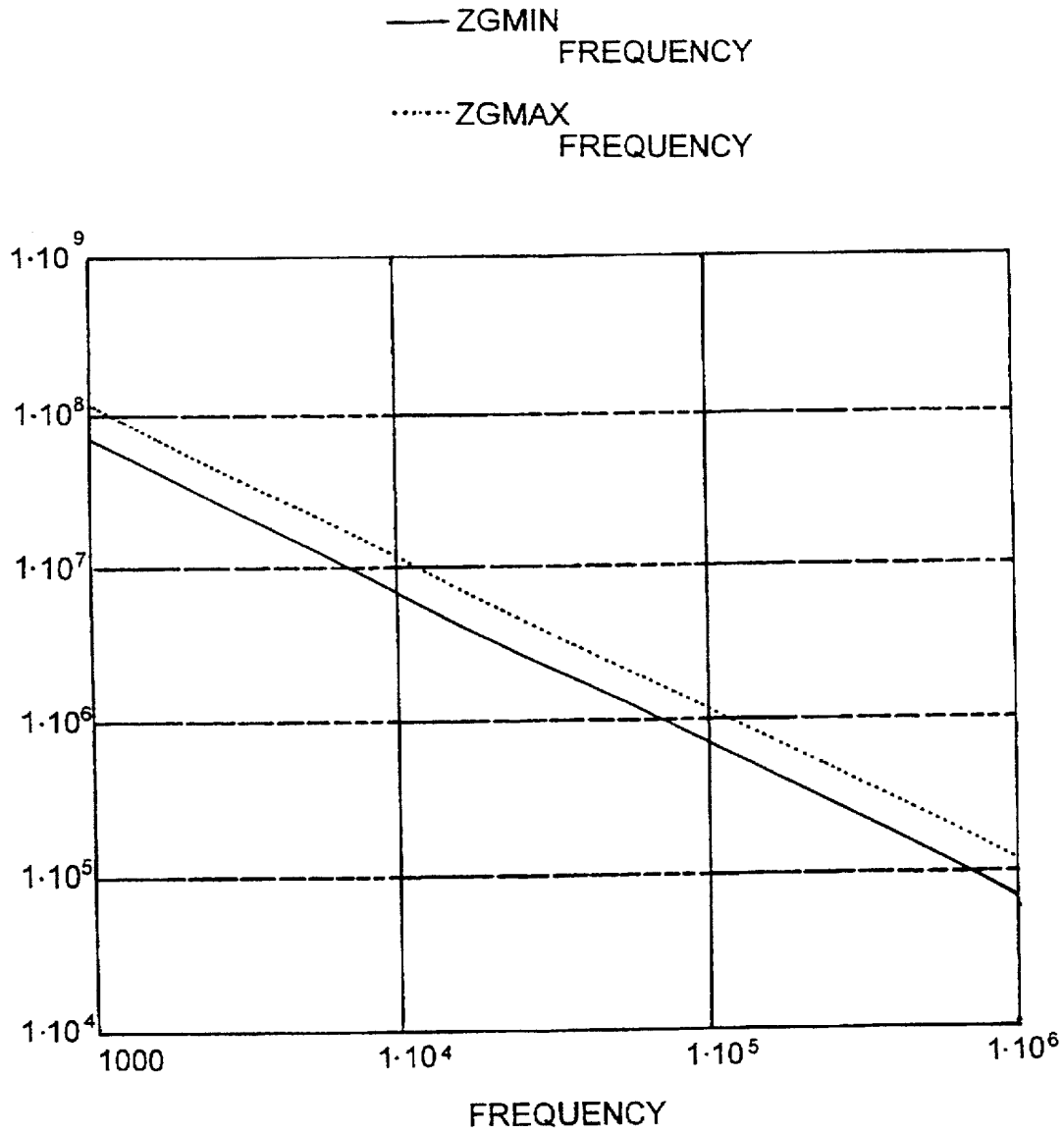


Fig. 3A

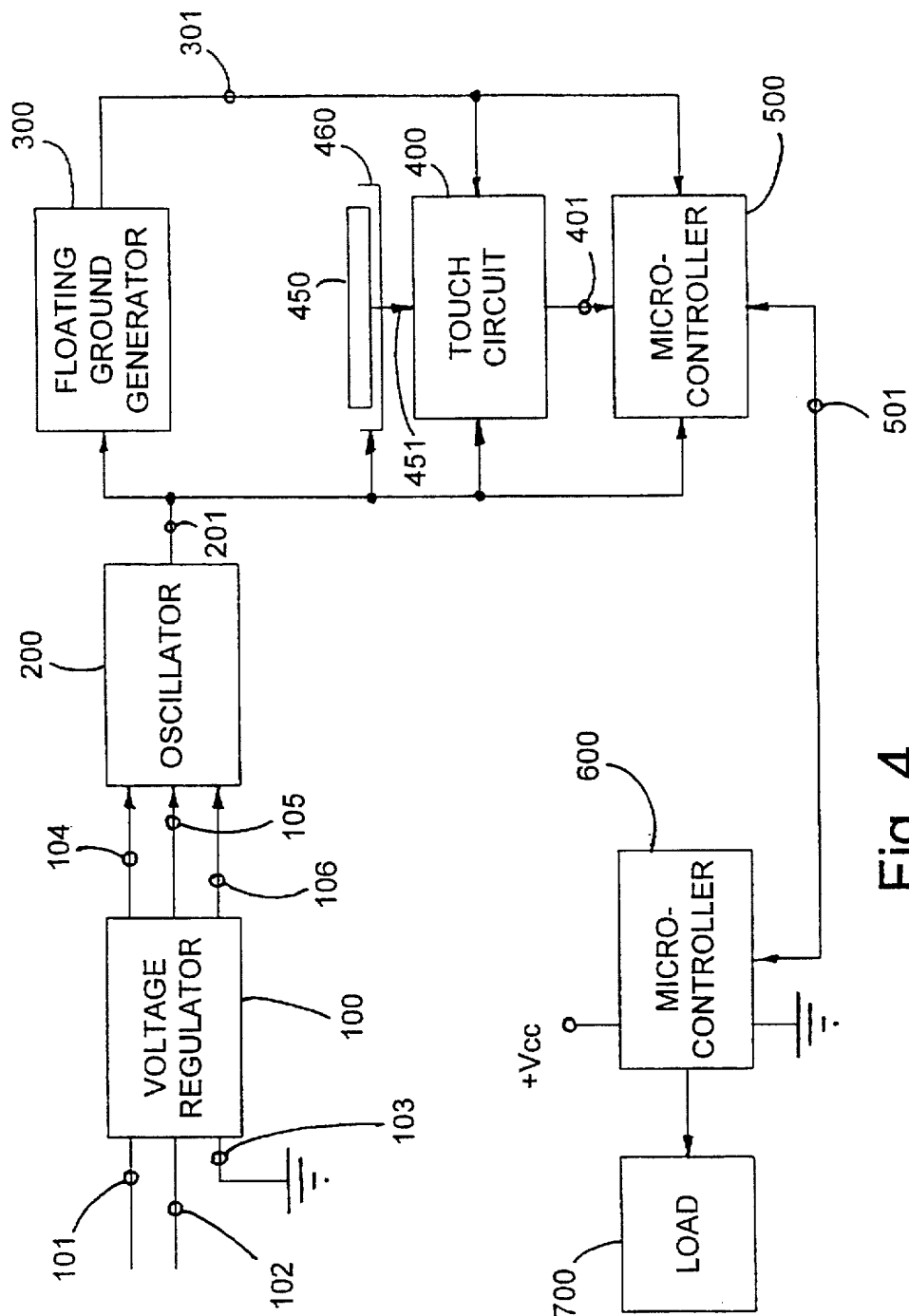


Fig. 4

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