

[54] SINGLE-ELECTRODE CAPACITANCE TOUCHPAD SENSOR SYSTEMS

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[52] U.S. Cl. .... 328/5; 307/116; 307/308; 340/562

[58] Field of Search ..... 328/5; 307/308, 116; 331/65; 340/552, 365 C; 202/DIG. 1

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Primary Examiner—Stanley D. Miller, Jr.

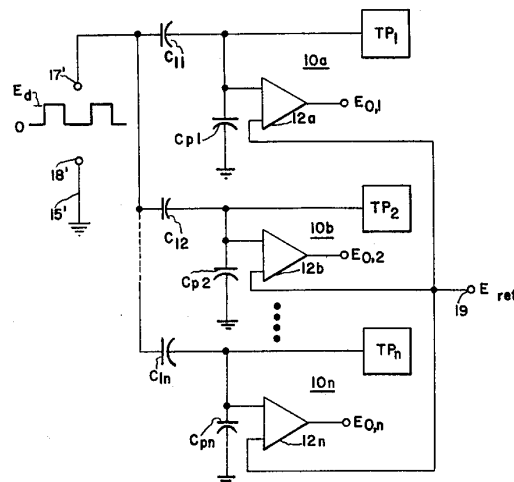
Assistant Examiner—B. P. Davis

Attorney, Agent, or Firm—Geoffrey H. Krauss; Marvin Snyder; James C. Davis

[57] ABSTRACT

Each of an array of capacitive touchpad sensors has a single touchpad electrode fabricated upon a substrate and accessible to user personnel, with series coupling and shunt capacitance being provided respectively between a driving generator and the touchpad electrode, and the touchpad electrode and an array ground. Each capacitive touchpad sensor operates with a sense amplifier to provide a high density sensor array requiring relatively low driving voltage amplitudes and may be utilized with driven shields and a normalization network to provide reliable capacitance sensing with reduced sensitivity to contamination of the surface of the sensor array.

20 Claims, 8 Drawing Figures



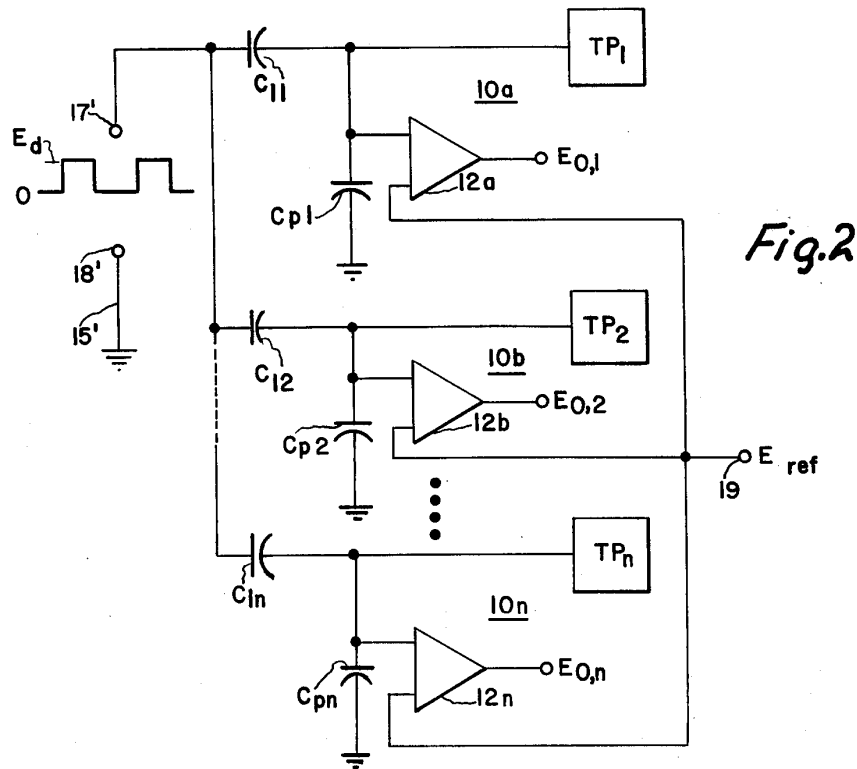
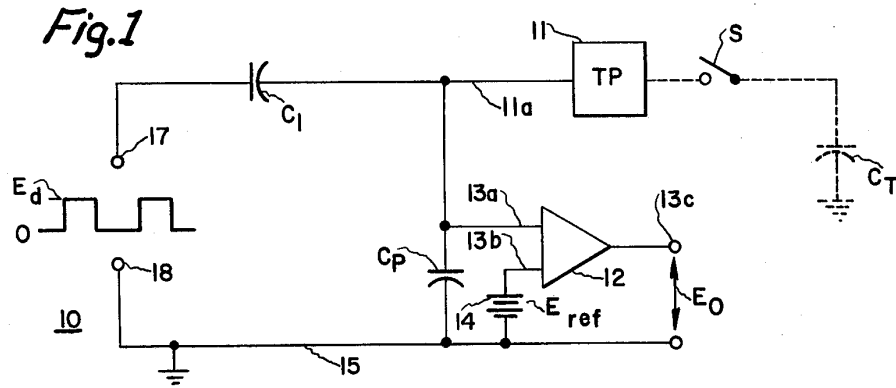


Fig. 3

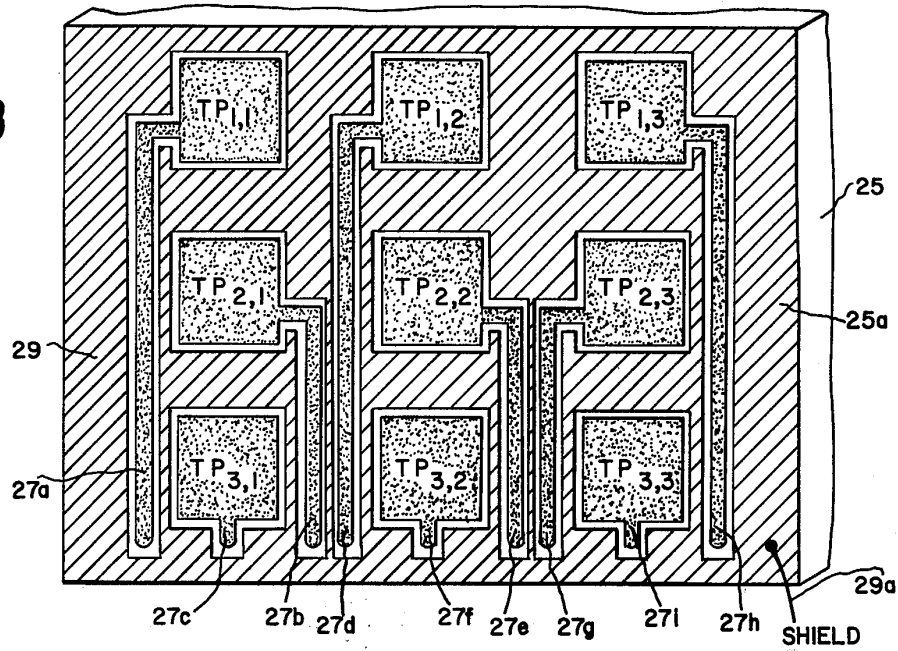


Fig. 4

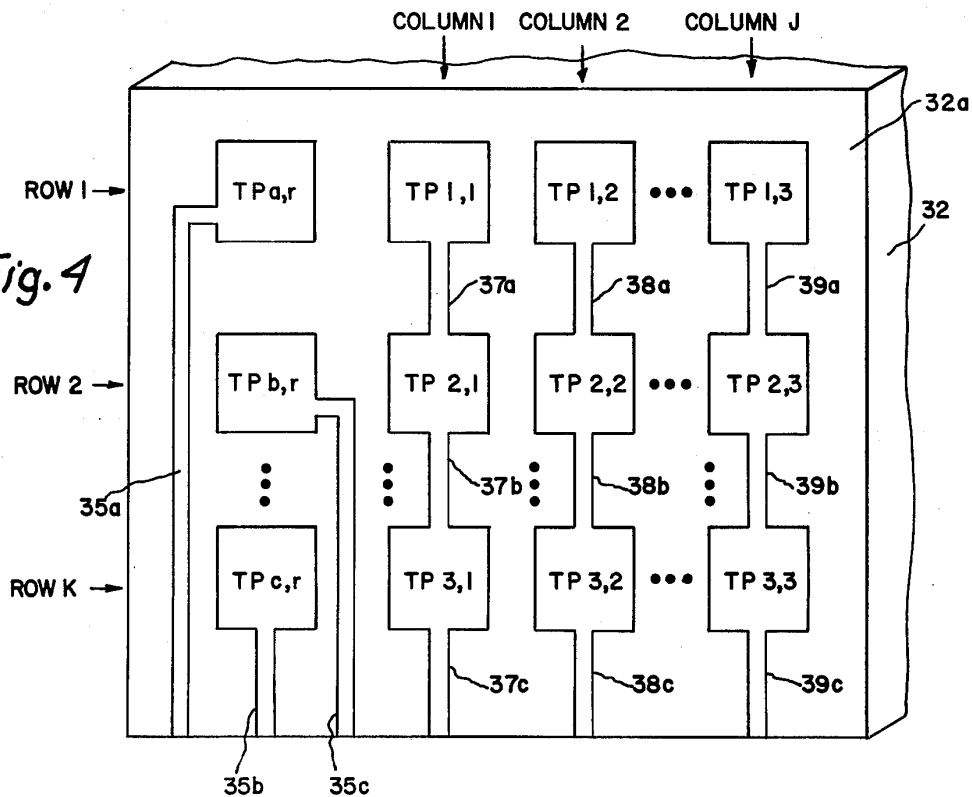
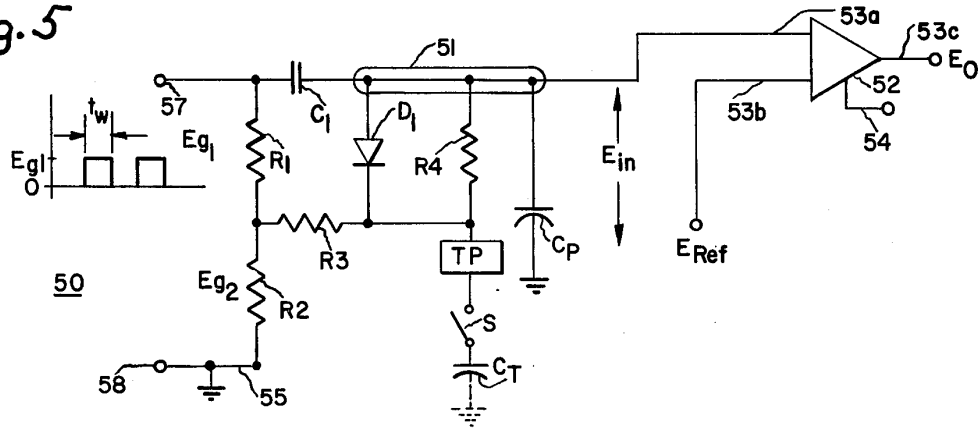
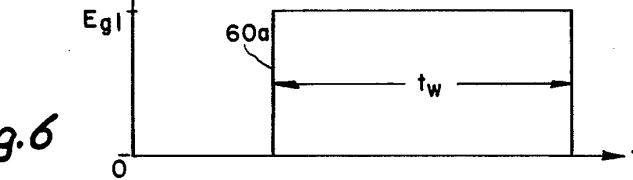


Fig. 5



WAVEFORM A

Fig. 6



WAVEFORM B

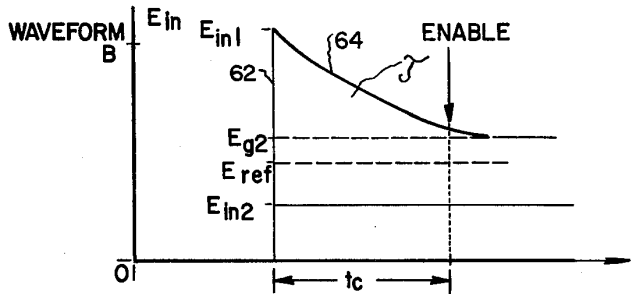


Fig. 7

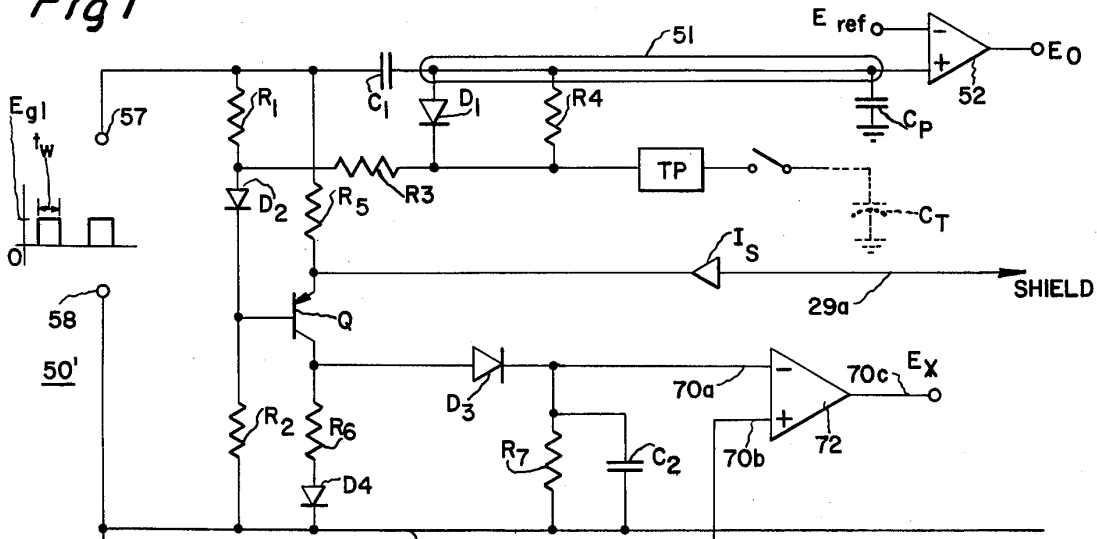
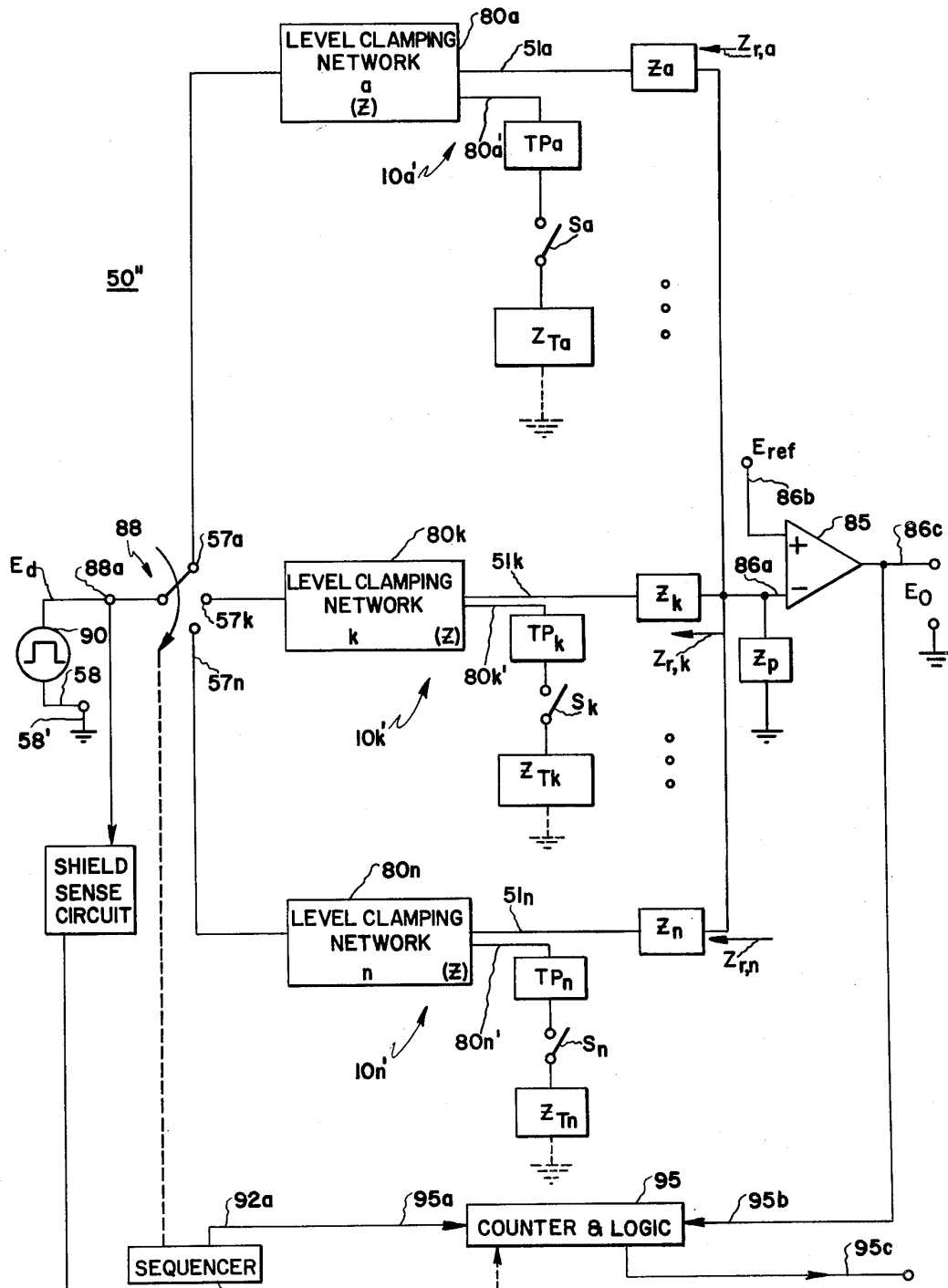


Fig. 8



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