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(54) MULTI-FUNCTIONAL ELECTRICAL STIMULATION SYSTEM

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(57) ABSTRACT

A multi-functional electrical stimulation (ES) system adapted to yield output signals for effecting faradic, electromagnetic, or other forms of electrical stimulation for a broad spectrum of different biological and biomedical applications. The system includes and ES signal stage having a selector coupled to a plurality of different signal generators, each generator producing a signal having a distinct shape such as a sine, a square or sawtooth wave or a simple or complex pulse form, the parameters of which are adjustable in regard to amplitude, duration, repetition rate and other variables. The signal from the selected generator in the ES stage is fed to at least one output stage where it is processed to produce a high or low voltage or current output of a desired polarity whereby the output stage is capable of yielding an electrical stimulation signal appropriate for its intended application. Also included in the system is a measuring stage which measures and displays the electrical stimulation signal operating on the substance being treated as well as the outputs of various sensors which sense conditions prevailing in this substance whereby the user of the system can adjust it to yield an electrical stimulation signal of whatever type he wishes and can then observe the effects of this signal on a substance being treated.

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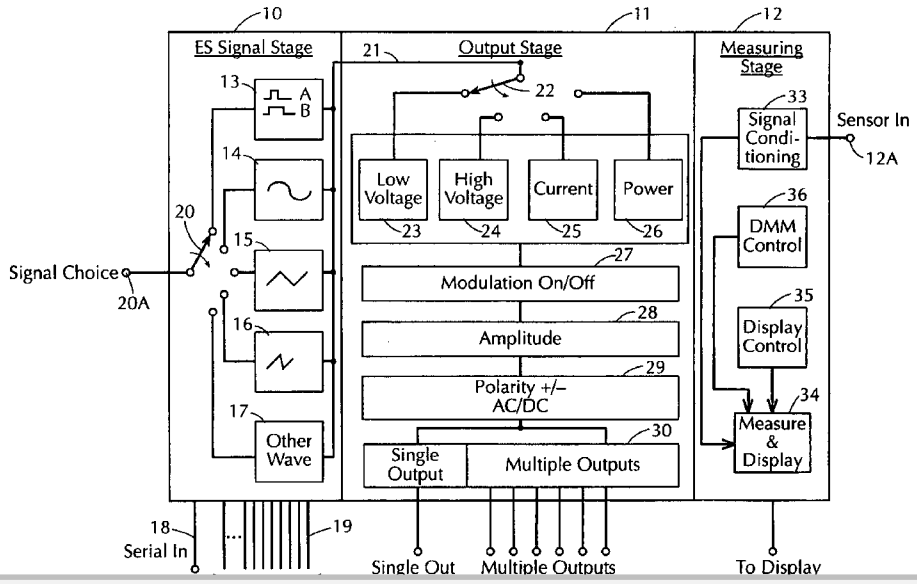


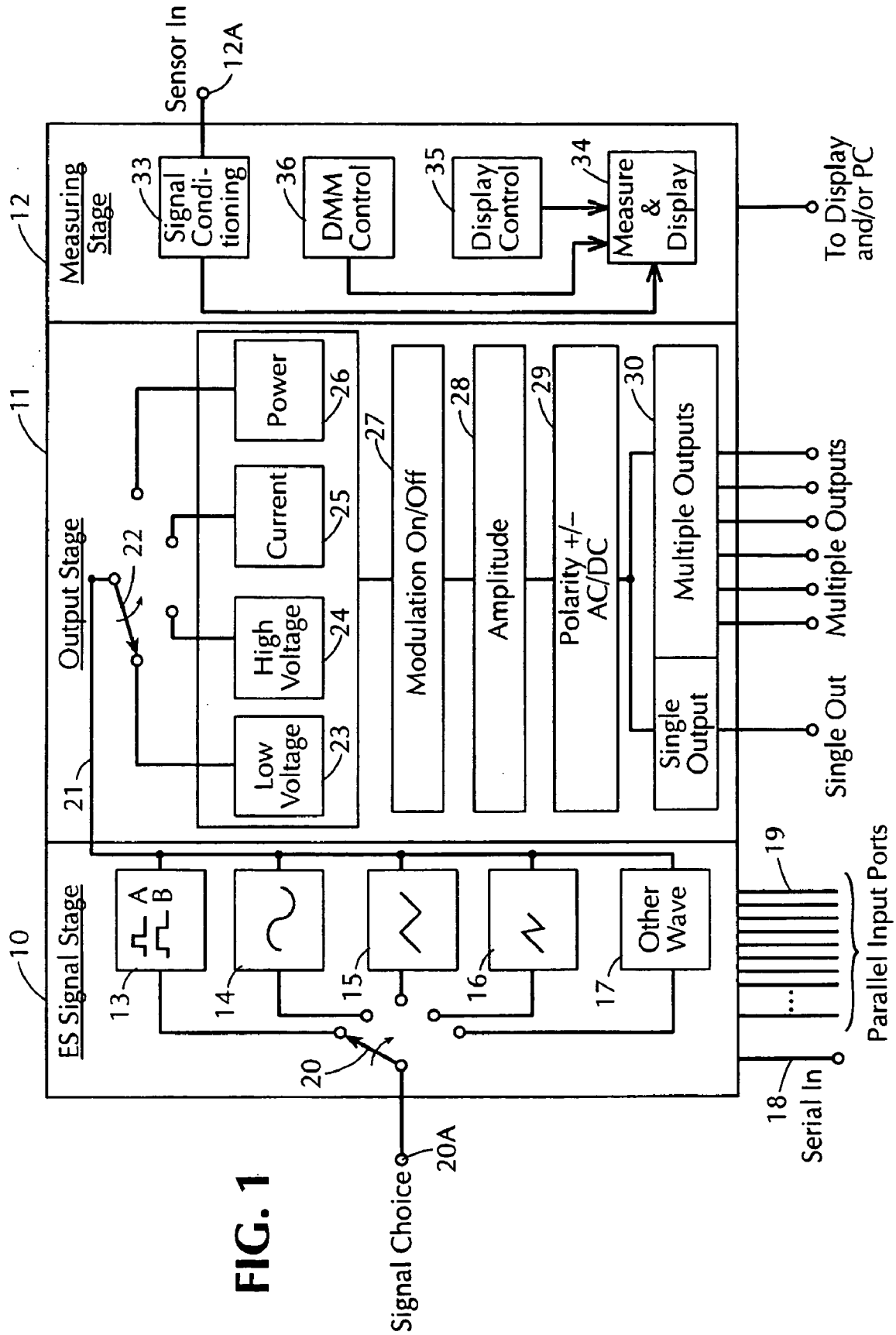


FIG. 1

FIG 2

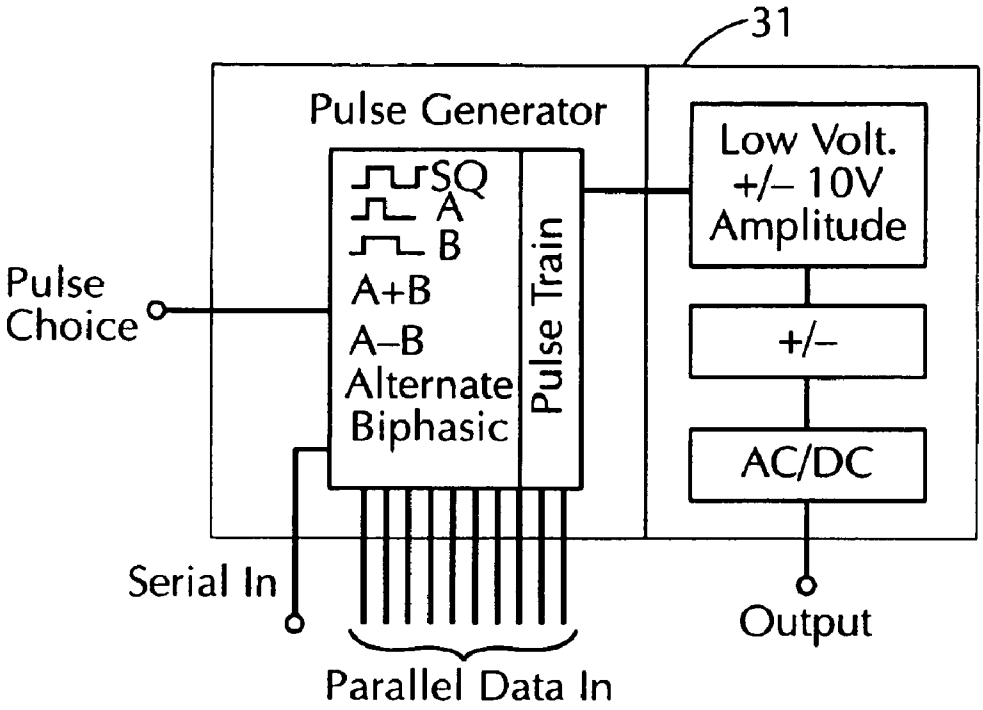


FIG. 3

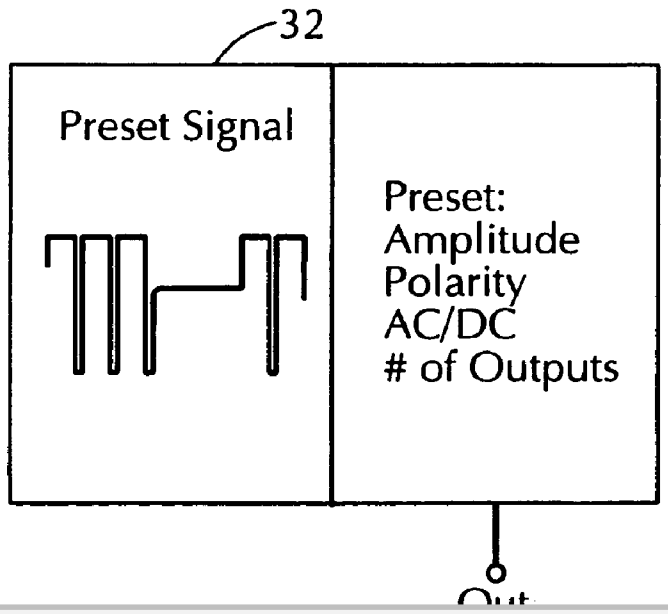


FIG. 4A

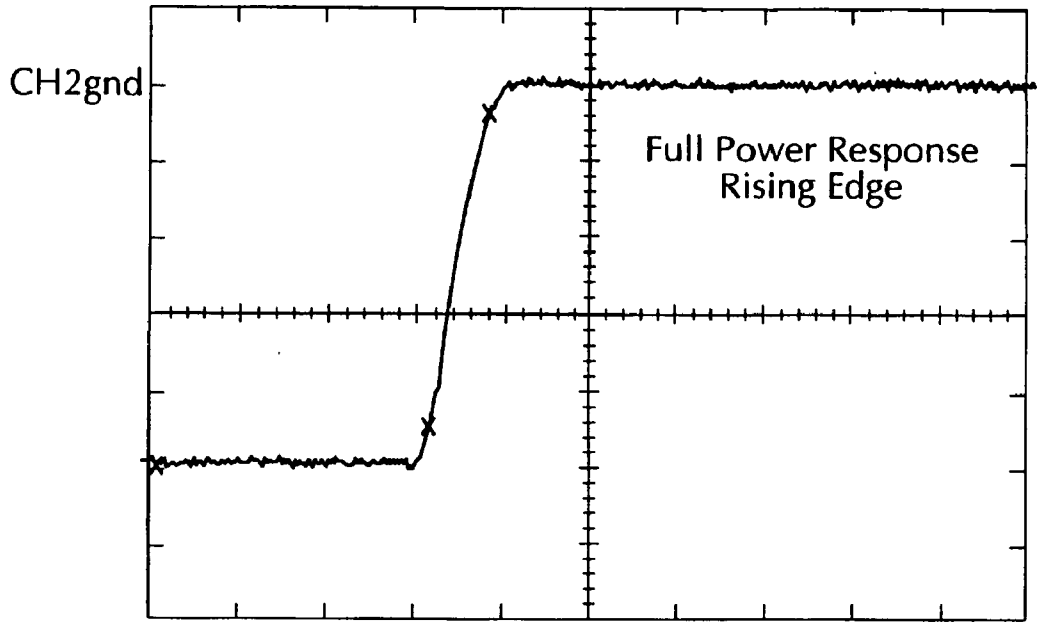
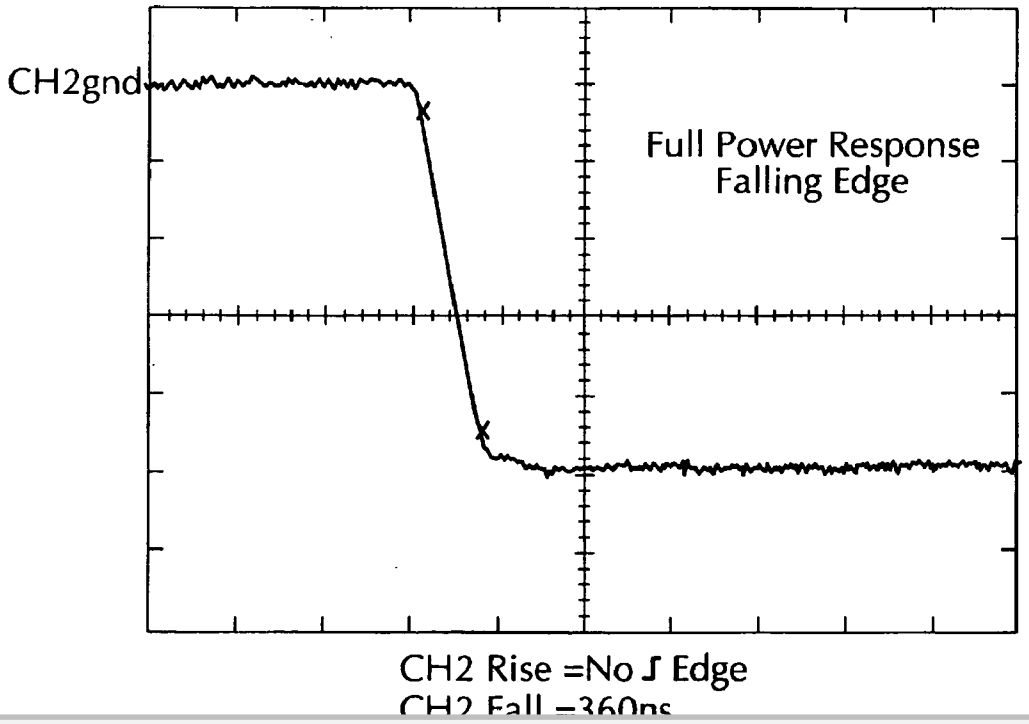


FIG. 4B



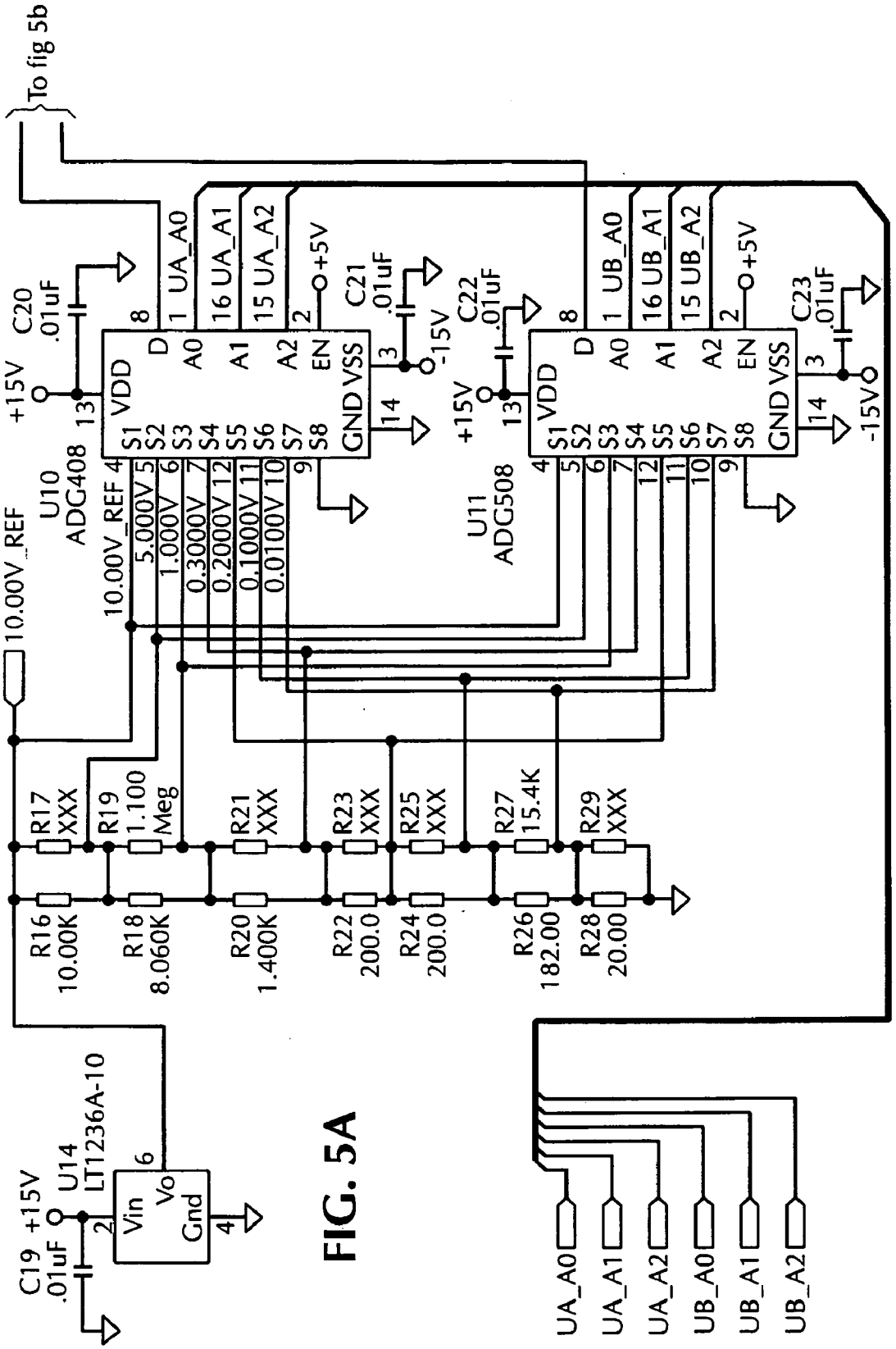


FIG. 5A

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