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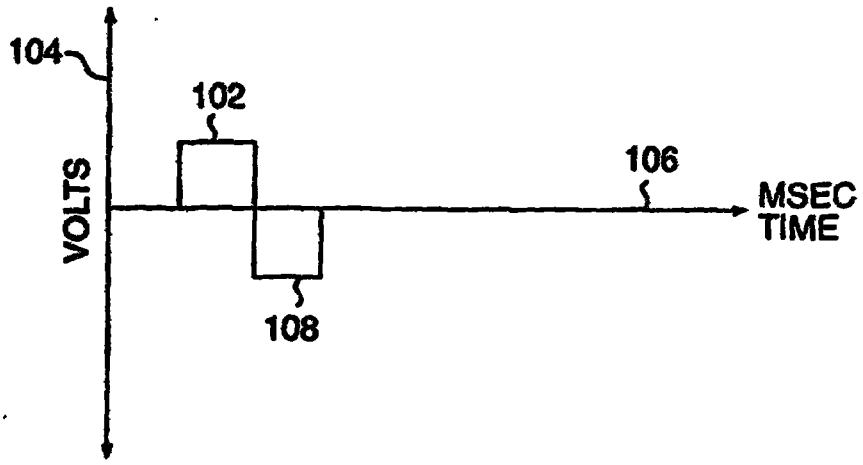
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(54) Title: AUGMENTATION OF MUSCLE CONTRACTILITY BY BIPHASIC STIMULATION



(57) Abstract

Augmentation of electrical conduction and contractility by biphasic stimulation of muscle tissue. A first stimulation phase has a first phase polarity, amplitude, and duration. The first stimulation phase, which acts as a conditioning mechanism, is administered at no more than a maximum subthreshold amplitude. A second stimulation phase has a second polarity, amplitude, and duration. The two phases are applied sequentially. Contrary to current thought, anodal stimulation is applied as the first stimulation phase, followed by cathodal stimulation as the second stimulation phase. In this fashion, pulse conduction through muscle is improved, together with an increase in contractility. Furthermore, this mode of biphasic stimulation reduces the electrical energy required to elicit contraction. In addition, the conditioning first stimulation phase decreases the stimulation threshold by reducing the amount of electrical current required for the second stimulation phase to elicit contraction. The muscle tissue encompassed by the present invention includes skeletal (striated) muscle, cardiac muscle, and smooth muscle.