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Morgan et al.

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[54] **PULSE FORMING CIRCUITS**

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[51] Int. Cl.⁵ **A61N 1/00**
[52] U.S. Cl. **607/6**
[58] Field of Search 128/419; 307/540, 545, 307/547, 549, 631; 338/22; 307/310, 264

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[57] **ABSTRACT**

Circuits for controlling the current flow of an energy pulse as a function of the temperature of a resistive element in the circuit so that the current flow varies over time in accordance with a predetermined waveform. The circuits include at least one negative temperature coefficient thermistor connected between an energy storage device and connectors for delivering energy stored in the storage source to an external load. In one embodiment of the invention the circuit includes a second thermistor for shunting a residual portion of the current delivered by an energy pulse away from the external load. In another embodiment of the circuit, a small inductive device is used for adjusting the shape of the predetermined waveform. In yet another embodiment of the device, a plurality of thermistors arranged in a bridge-like configuration are used to control the current of the energy pulse so that its waveform is biphasic. Heat sinks may be attached to the thermistors for cooling the latter so as to increase the rate at which energy pulses may be delivered by the circuits.
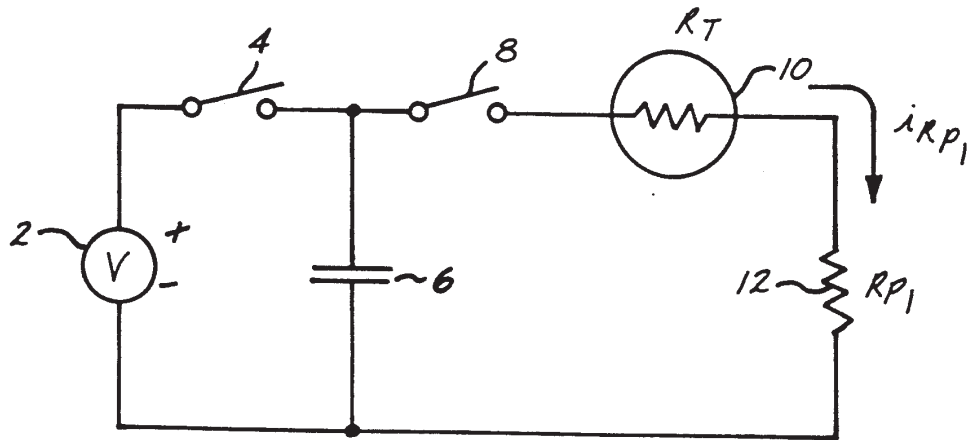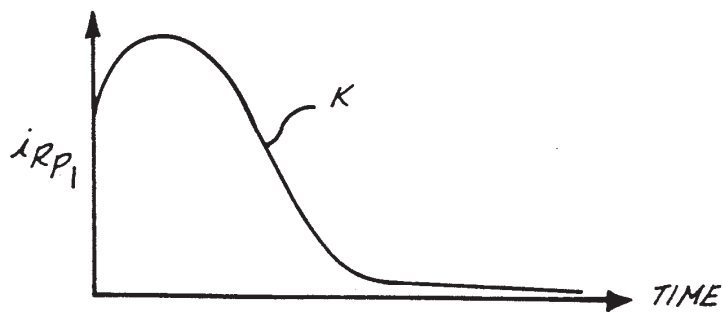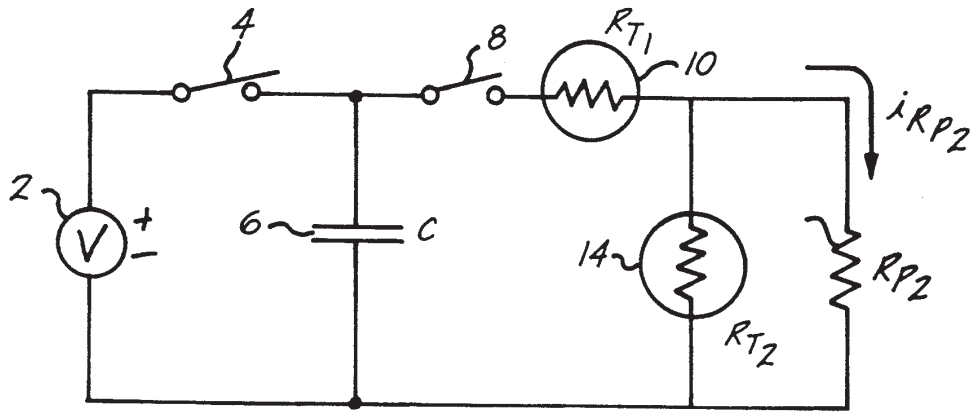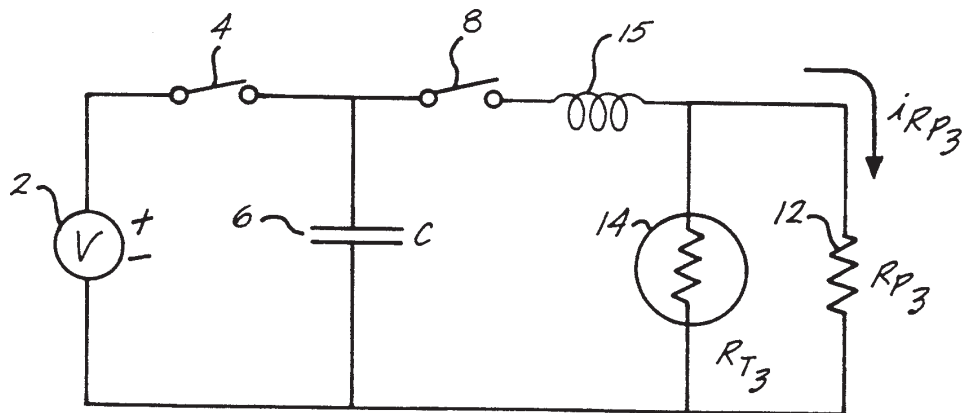
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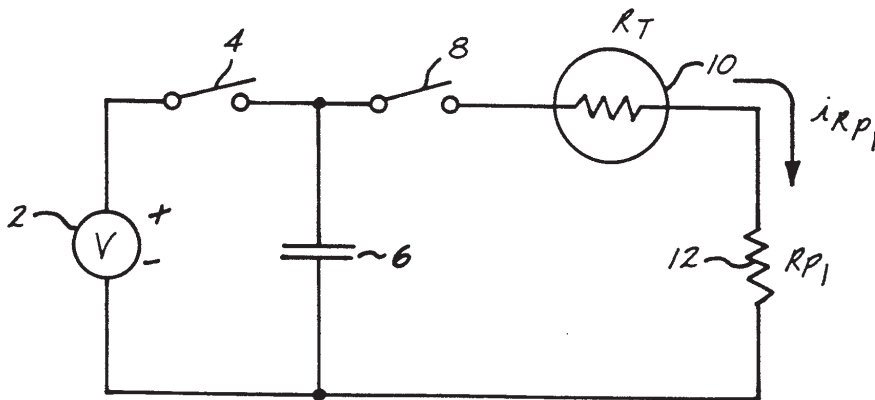
Fig.1.

Fig.2.

Fig.3.

Fig.3a.
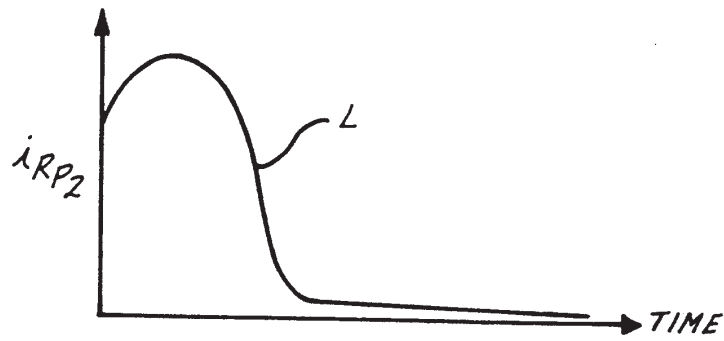
Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

DOCKET ALARM
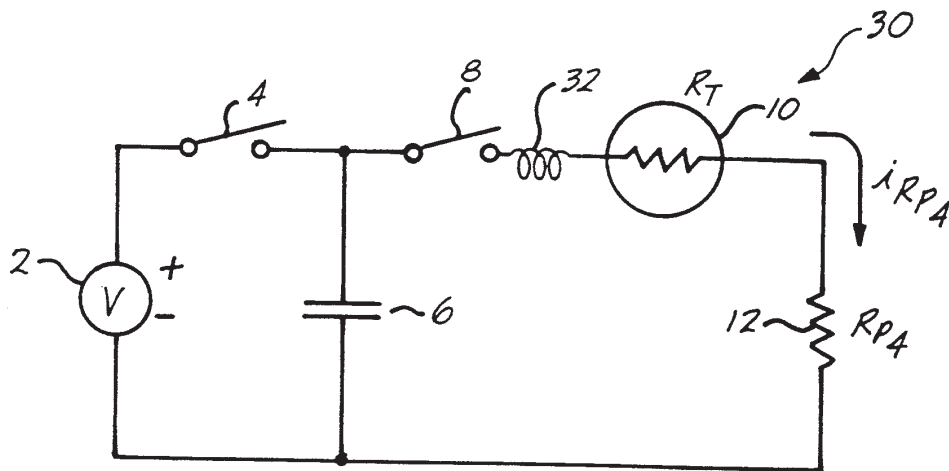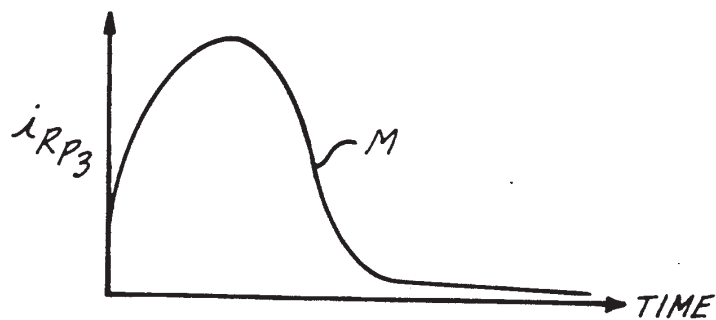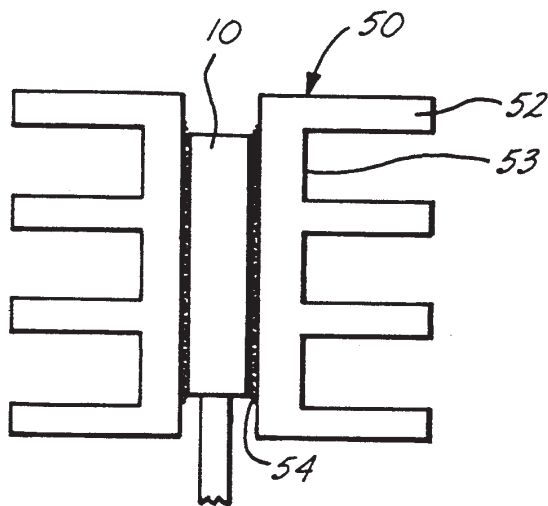
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