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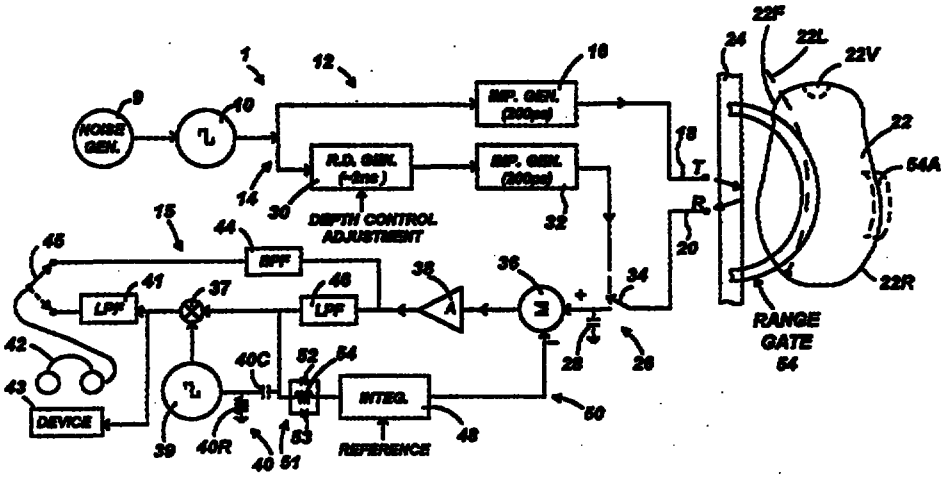
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(54) Title: MONITORING AND IMAGING APPARATUS AND METHOD



(57) Abstract

A non-acoustic pulse echo radar monitor (1) averages a large number of reflected pulses to produce a voltage that modulates an audio oscillator (39) to produce an audible tone that corresponds to the heart (22) or other body part motion. Both amplitude modulation and the Doppler effect are used. A dual time constant is used to reduce the effect of gross sensor-to-surface movement. The monitor includes a pulse generator (10) for simultaneously inputting a sequence of pulses to a transmit path (12) and a gating path (14). The pulses on the transmit path drive an impulse generator (16) which generates pulses to a transmit antenna (18). The gating path includes a range delay generator (30) which generates timed gating pulses. The timed gating pulses cause the receive path (15) to selectively conduct pulses reflected from the body part (22) and received by a receive antenna (20). Both antennas (18)(20) are flat copper foils which permit their use in a substantially flat housing.

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