



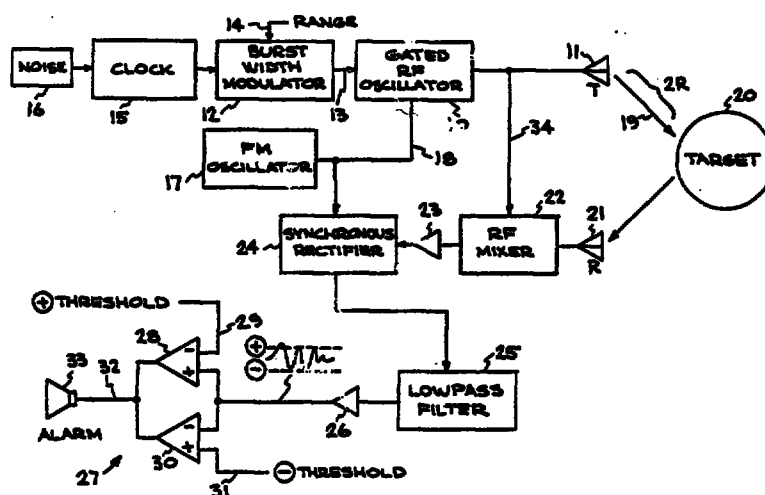
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(54) Title: RANGE-GATED FIELD DISTURBANCE SENSOR WITH RANGE-SENSITIVITY COMPENSATION



(57) Abstract

A field disturbance sensor operates with a relatively low power, provides an adjustable operating range, is not hypersensitive at close range, allows co-location of multiple sensors, and is inexpensive to manufacture. The sensor includes a transmitter (11) that transmits a sequence of bursts (19) of electromagnetic energy. The transmitter frequency is modulated at an intermediate frequency. The sequence of bursts has a burst repetition rate, and each burst has a burst width and comprises a number of cycles at a transmitter frequency. The sensor includes a receiver (21) which receives electromagnetic energy at the transmitter frequency, and includes a mixer (22) which mixes a transmitted burst with reflections of the same transmitted burst to produce an intermediate frequency signal. Circuitry, responsive to the intermediate frequency signal indicates disturbances in the sensor field. The burst repetition rate is randomly or pseudo-randomly modulated so that bursts in the sequence of bursts have a phase which varies.

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