Title (en)

APPARATUS FOR ULTRASONIC IMAGING USING DYNAMIC FOCUSSING

Publication

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Application

EP 78100126 A 19780612

Priority

US 80600577 A 19770613

Abstract (en)

[origin: US4227417A] The disclosure is directed to an apparatus for imaging a body, such as an ultrasonic imaging system. In the disclosed apparatus, means are provided for transmitting energy, such as ultrasound energy, into the body. A transducer is provided for converting energy reflected from the body, typically ultrasound echoes, into electrical signals. The transducer, which is divided into a plurality of defined segments, such as concentric annular segments surrounding a central circular segment, is utilized for both transmitting and receiving. A plurality of register devices are provided, preferably analog registers of the charge-transfer type. The input of each of the register devices is coupled to a respective one of the transducer segments. A first clock is associated with each of the register devices. A plurality of second clocks are also provided, each being associated with one of the plurality of register devices.The second clocks have different characteristic clock rates. Timing means are provided for effecting clocking of the electrical signals from the segments into their respective devices with one of the device's associated clocks (i.e., either the common first clock or the device's associated second clock) and for subsequently effecting the clocking of the stored information out of each of the devices with the other of its associated clocks. Finally, means are provided for combining the signals clocked out of the devices to form an image-representative signal. In the present disclosure, the increasing or decreasing delay associated with the different transducer elements, as is required for dynamic focusing, is achieved by utilizing signals of slightly differing frequencies (e.g. the second clocks) so that, as time passes, the cumulative difference in sampling times for the different registers "builds up" to provide the desired variable delay.

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