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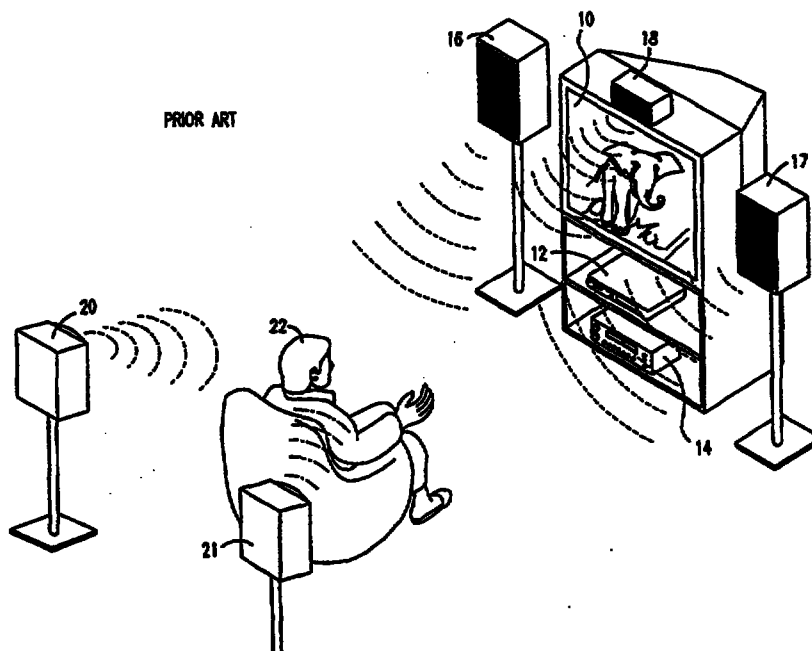
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(54) Title: SYSTEM FOR PRODUCING AN ARTIFICIAL SOUND ENVIRONMENT



(57) Abstract

A method for simulating an artificial sound environment including sending an ultrasound reference signal to a headphone assembly worn by a user having two ears, the headphone assembly audibly providing at least one audio signal to each of the ears, processing arrival times of the ultrasound reference signal at each ear, so as to measure a phase difference of the signal as perceived by one ear in contrast to the other ear, modulating at least two audio signals, at least one signal for each ear, in accordance with the phase difference, and sending the at least two audio signals via the headphone assembly to each of the ears.