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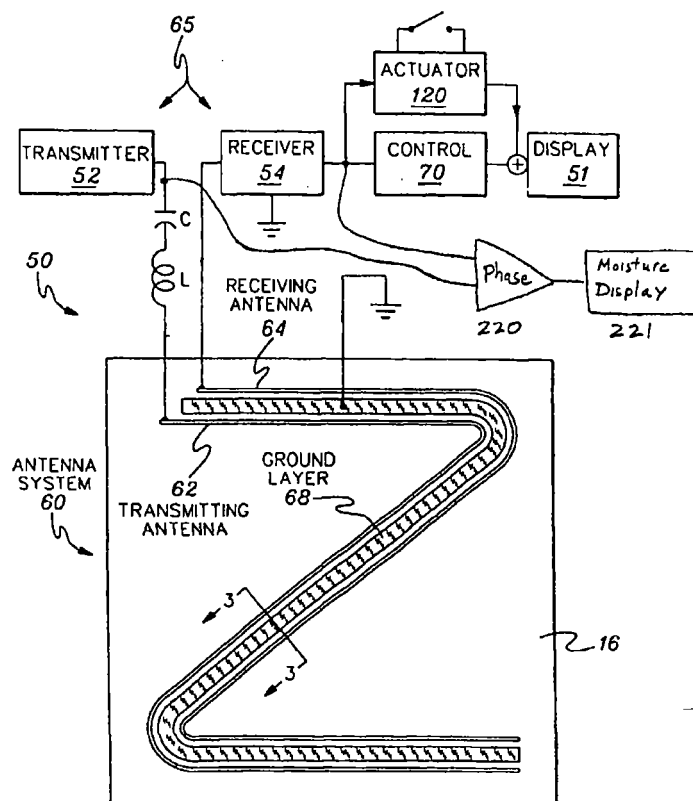
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(54) Title: MATERIAL SEGREGATION, DENSITY, AND MOISTURE ANALYZING APPARATUS AND METHOD



(57) Abstract: A material analyzing apparatus and associated method for analyzing. The apparatus comprises an analyzer body (10) that contains a generally insulative material casing (14); a material analyzing circuitry (50) that includes a transmitter (52), a receiver (54), and a control (70); an antenna system (60) that includes a transmitting antenna (62), a receiving antenna (64), and a ground layer (68); a coupling structure (65) that couples the antenna system (60) to the material analyzing circuitry (50). The transmitter (52) of the material analyzing circuitry (50) generates an electromagnetic wave signal that is adapted to be sent by the transmitting antenna (62) and directed into the material to be analyzed. The receiving antenna (64) receiving any returned signal from the material and send the returned signal to the receiver (54) and control (70). The control (70) then analyzes the signal for material characteristics, including at least one of density, material segregation, and moisture.

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