TECHNOLOGY LICENCING OPPORTUNITY

Grain Bin Imaging

Technology Details

This imaging system utilizes reconfigurable antenna assemblies to enhance grain bin monitoring and inspection. Each antenna assembly includes one or more antennas that can switch between multiple states, including a passive state, where antennas do not perturb the electromagnetic field. These antennas are positioned around the grain bin or measurement domain, such as a conductive chamber, to capture real-time data on the grain contents, ensuring efficient and precise imaging of stored grain.

Applications

1. Reconfigurable Antenna Assemblies:
    1. Multiple Antennas: The system features antenna assemblies, each equipped with one or more antennas capable of switching between active and passive states.
    2. Reconfigurability: The antennas can dynamically adjust their configurations to optimize electromagnetic field interactions for various measurement needs within the grain bin.
2. Measurement Domain (Grain Bin):The antennas are positioned around the grain bin or within the conductive measurement chamber, enabling the system to interact with the stored grain and measure electromagnetic properties. The grain bin serves as the environment for data collection, where the system examines the internal conditions and contents, such as grain density, moisture content, or potential spoilage.
3. Operational States:
    1. Active State: Antennas emit or receive electromagnetic signals to measure the internal properties of the grain, such as moisture, temperature, and density.
    2. Passive State: Antennas enter a passive state where they do not perturb the electromagnetic field, preventing interference with the grain bin's environment when minimal disruption is required.

Technology Benefits

Adaptability: Antennas can be reconfigured to optimize measurements based on varying environments.
Improved Accuracy: Passive state allows for interference-free measurements, ensuring more accurate imaging data.
Flexibility: Can be deployed in various industries where electromagnetic field manipulation is crucial, such as telecommunications, imaging, and materials testing.

Development Stage

Investment in the further development and commercialization of this technology will accelerate the transition to more effective grain bin monitoring. Stakeholders in the agriculture sector, including grain farmers, distributors, ag companies, and technology investors, are encouraged to explore partnerships and collaborations to bring this innovative solution to market.

Patent Status:
US Utility (App No. US 10,197,508 B2; filled 5 February 2019)

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