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Patent Search

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Abstract:

ENERGY EFFICIENT DRYING APPARATUS ABSTRACT A drying apparatus (100), connectable to a harvester (200) for drying of grains is disclosed. The apparatus (100) comprises an inner cylinder (110) arranged within an outer cylinder (102) with a predefined tolerance. The predefined tolerance allows a passage of flue gases between the inner cylinder and the outer cylinder (102). An inlet port (104) to enable an entrance of the flue gases within the predefined tolerance. A screw conveyor (112) is installed in the inner cylinder (110) to enable a passage of the grains through the inner cylinder (110). The flue gases in the outer cylinder (102) are adapted to dry the grains passing the inner cylinder (110). A control unit (118) coupled to a detection unit (116) for moderating a valve (120) to open and/or close the inlet port (104) and/or a bypass port (106). The apparatus (100) is adapted for drying of grains without reliance on external weather conditions. Claims: 10, Figures: 4 Figure 1 is selected.

Complete Specification

Description:BACKGROUND

Field of Invention

[001] Embodiments of the present invention generally relate to a drying apparatus and particularly to a drying apparatus, connectable to a harvester for drying of grains.

Description of Related Art

[002] Traditional agricultural practices have relied on various methods for drying grains post-harvest. Among these, open sun drying remains the most widely used due to its simplicity and low initial cost. Grains are spread over large open fields or flat surfaces to dry naturally using sunlight. However, this process has several inherent drawbacks, such as dependency on favorable weather, vulnerability to pests, and re-wetting during unexpected rainfall, all of which can lead to grain spoilage. Additionally, prolonged drying times in these methods delay subsequent operations like storage and transport.

[003] The advent of mechanical grain dryers brought a significant shift in the agricultural landscape. These systems, including flatbed, batch, and continuous-flow dryers, allow farmers to dry grains in controlled environments, reducing weather dependency and drying times. Solar-powered drying systems have also been employed in some regions to mitigate energy costs. Despite these advancements, standalone drying systems often involve logistical challenges and significant operational expenses, particularly due to high energy consumption and the need for additional labor and equipment. Furthermore, inconsistent drying in these systems can result in uneven moisture content, potentially degrading grain quality.

[004] The introduction of integrated drying solutions aimed to streamline post-harvest processes. However, these solutions generally rely on extensive infrastruc

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