UNLOADING ARRANGEMENT FOR EXISTING CORN CRIBS

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ABSTRACT

A labor saving arrangement is provided for storing and removing ear corn from existing corn cribs. Hopper structure is described for installation into any shape of existing corn crib to easily convert it for removal of the contents by gravity feed to the unloader sloping beams support steel plating of simple geometrical shapes in a downwardly converging floor which terminates in a gate frame. The gating may be either of the removable board type or consist of slide boards which are manipulated to valve any dispensing rate desired.

1 Claim, 8 Drawing Figures
UNLOADING ARRANGEMENT FOR EXISTING CORN CRIBS

This invention relates generally to storage magazines, and more particularly it pertains to corn crib auxiliary flooring facilitating the removal of the contents by gravity flow. Although this invention is illustrated in conjunction with the storage of corn, it is to be pointed out that it is readily adaptable for use in storage of other types of grain or equivalent material. This application is a continuation of U. S. Patent application Ser. No. 847,038 for "Self Unloading Arrangement for Existing Corn Crib" filed Aug. 4, 1969 now abandoned.

There are many different designs and sizes of existing corn cribs, for example, rectangular, circular, and hexagonal. The gravity feed unloading arrangement of this invention is applicable to all whether of the wood slat type or wire mesh type.

In the past, corn crib unloading was by hand labor. This represented a sizable cost which was usually deducted from the profit of the farmer or owner. Usually a conveyor was available to elevate the corn when loading the crib but this machine was useless for extracting the corn from the bottom.

It is an object of this invention, therefore, to provide a corn crib hopper arrangement which is simple to install in existing structures.

Another object of the invention is to provide a flooring arrangement for new or existing corn cribs which automatically moves the contents to a dispensing door by gravity feed.

Still another object of this invention is to provide a structural construction to support and define flooring in a storage magazine which can be used to gravity feed the contents therefrom.

Yet another object of this invention is to provide the interface of a storage magazine with an unloader which is self-operational to completely empty the magazine.

And still another object of this invention contemplates a joist arrangement for a sloping converging floor which requires only simple geometric shapes to cover.

Other subjects and attendant advantages of this invention will become more readily apparent and understood from the following detailed specification and accompanying drawings in which:

FIG. 1 is a front elevating the lower portion of a corn crib embodying features of this invention;

FIG. 2 is a side view of the crib of FIG. 1 but with crib slats depicted in dashed lines;

FIG. 3 is a plan view of the crib of FIGS. 1 and 2 with the metal flooring removed to expose the underlying support structure;

FIG. 4 is a vertical section taken on line 4—4 of FIG. 5;

FIG. 5 is a plan view of a second embodiment of the corn crib with the floor plating removed;

FIG. 6 is a detail drawing taken on line 6—6 of FIG. 5 depicting the slide gates;

FIG. 7 is a front elevation of a third embodiment of the corn crib showing only the support structure for the flooring; and

FIG. 8 is a plan view of the embodiment of the corn crib shown in FIG. 7.

Referring now to the details of the invention as shown in FIGS. 1, 2, and 3, the unloading corn crib system indicated generally by reference numeral 10 is constructed by installing an elevated sill 12 secured onto the inside rear of the crib 14 and at the same level therewith a left sill 28 and right side sill 30.

Intermediate the ends of the sill 12, a pair of parallel spaced joists 16 and 18 are secured at one end and sloped downwardly to the front face of the crib 14 at its floor line. A doorway 20 of approximate width equal to the spacing of these joists 16 and 18 extends vertically at this lower end and is provided with a plurality of removable gate boards 22. At the juncture of each joist 16, 18 with the door-way 20, diagonal joists 24, 26 respectively slope upwardly to their respective ends of the sill 12.

It will be noted from the plan view, FIG. 3, that joists 16 and 18 can be spanned with a sheet floor A of rectangular shape. The area between joists 16 and 24 require a simple triangular shaped flooring B. That area between joists 18 and 26 is coverable with another triangular sheet C as are the respective ones D and E between joists 24 and 28 and joists 26 and 30.

Where the capacity of the crib 14 is great and the above-mentioned sheets A, B, C, D, and E too large to handle it is relatively simple to employ a plurality of elemental pieces (not shown) totaling each respective geometrical flooring shape recited. Furthermore, to support the greater weight, a plurality of intermediate joists 32 may be included between the diagonal joists and the sills as shown. These joists 32 then, advantageously, can be located at the junctures of the elemental pieces for making up the floors B, C, D, and E.

The unloading corn crib system 10 discharges into a doorway at ground level or a little above. An unloader 40 is depicted in FIGS. 4 and 5 which discharges instead into a boot 42. This allows screw or drag conveyors to be used instead of the bucket type required by the former crib arrangement 10. Elevated left and right side sills 50 and 52, respectively, only are required and the boot 42 is formed by a pair of parallel side frames 44 and 46 on edge.

Spaced parallel joists 48 extend upwardly from the side frames 44 and 46 and are attached, respectively, to the side sills 50 and 52. The top of the boot 42 is closed with doors 54 which are slidably mounted in edge guides 46 as shown in FIG. 6. These doors 54 are individually opened by means of a handle 58 as shown by the arrows in FIGS. 4 and 5 wherever it is desirable to dispense stored corn into the boot 42 for removal by a screw or drag conveyor.

It will be noted that flooring (not shown) required to cover this arrangement of joists 48 is merely of rectangular shape and easy to fit and install.

Short vertical studs 60 resting on base plates 62 are advantageously used to bolster the joists intermediate their ends as shown in the drawings.

Similar studs 72 are useful for support at the outer ends of the slanting joists 74 in the embodiment of the wire crib 70 shown in FIG. 7 and 8. This is in lieu of elevated sills such as employed in the previous two embodiments of the invention.

It is important to note that the joist arrangements for supporting the flooring as described can readily be applied to all types of existing corn cribs. While some storage space is lost, the convenience of the unloading arrangement more than compensates for this in labor cost.
Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is therefore, to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A circular unloading hopper arrangement comprising a corn crib having substantially upright enclosing walls, a door means normally entrapping corn stored in said crib for permitting selective discharge of corn from said crib, plural sill means connected to said walls and positioned at a horizontal level within said enclosing walls, parallel spaced joist means affixed to said sill means and sloping downwardly therefrom to said corn entrapping door means and connected thereto, flat sheet metal means attached to said sill and joist means thereby forming a continuous flooring within said crib along one end of a diameter thereof, said door means comprising a slideable rectangular member horizontally disposed in the lower part of said crib along one end of a diameter thereof, a boot forming portion of said crib extending from one side thereof to an opposite side thereof and located below said slideable horizontal member for receiving discharged corn therein, flat sheet means square with the respective ends and one side of said rectangular member supported by said parallel spaced joist means, and with substantially radially disposed joist means supporting flat sheet means at the corners of said rectangular member.

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