No. 808,108. PATENTED DEC. 26, 1905.

A. D. McMAHAN.

DOOR CONSTRUCTION FOR STORAGE RECEPTACLES.

APPLICATION FILED APR. 27, 1905.

2 SHEETS—SHEET 1.

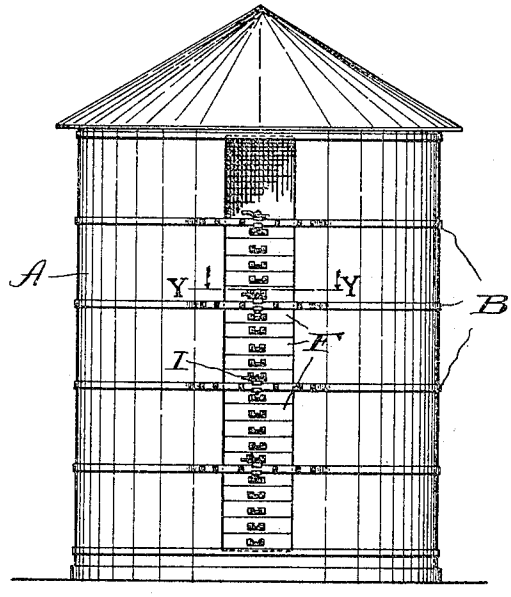


FIG. 1.

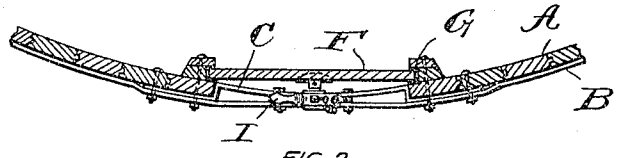


FIG. 2.

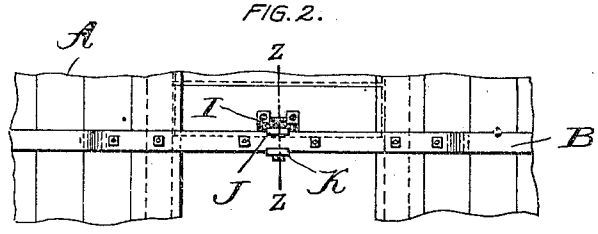


FIG. 3.

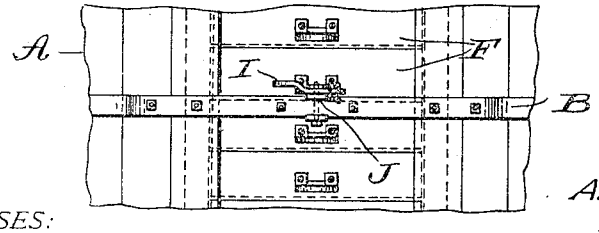


FIG. 4.

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2 SHEETS—SHEET 2.

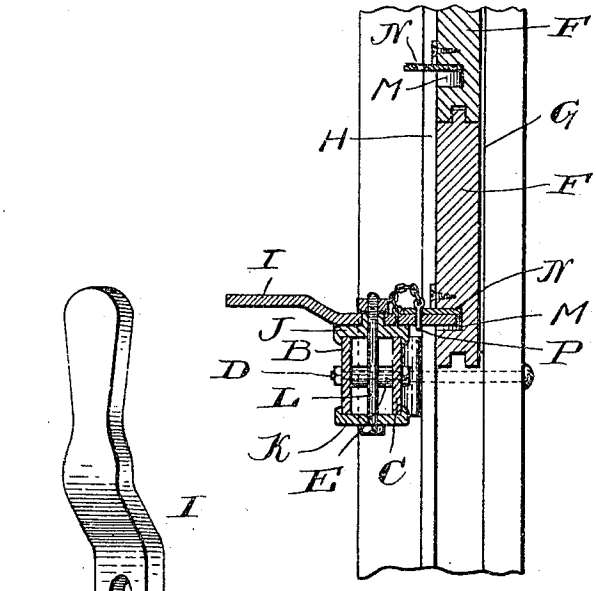


FIG. 6.

FIG. 5.

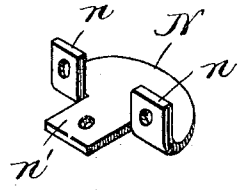


FIG. 7.

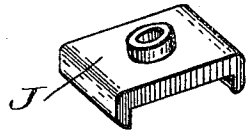


FIG. 8.

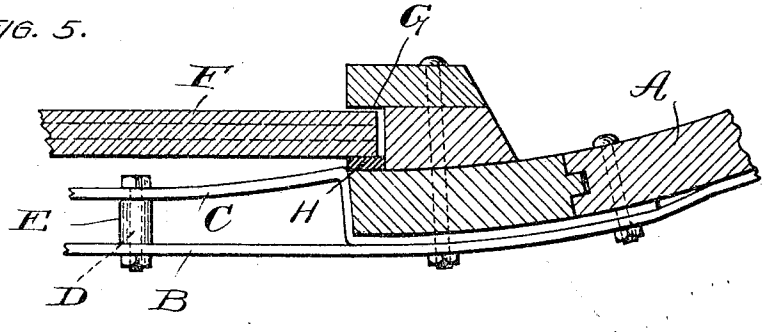


FIG. 9.

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UNITED STATES PATENT OFFICE.

ARTHUR D. McMAHAN, OF CENTERVILLE, INDIANA.

DOOR CONSTRUCTION FOR STORAGE-RECEPTACLES.

No. 808,108. Specification of Letters Patent. Patented Dec. 26, 1905.

Application filed April 27, 1905. Serial No. 257,786.

To all whom it may concern:

Be it known that I, ARTHUR D. McMAHAN, a citizen of the United States, residing at Centerville, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Door Constructions for Storage-Receptacles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to silos, granaries, storage-bins, and similar receptacles designed for storing and delivering grain, coal, or other granular materials and having a vertical opening or doorway with a continuous sliding door composed of superimposed sections or panels which can be raised either singly or in groups. The invention provides an improved door construction of this character and novel supporting and locking devices therefor arranged so as to allow a convenient manipulation of the door, the object being to enable one to provide the necessary opening for delivery of the contents of the receptacle at any desired location, to raise and support the sections one at a time or in groups of any desired number, and to effectually lock the doors below the opening against displacement and those above the opening from accidental release and dropping.

The invention will hereinafter be fully described with reference to the accompanying drawings, which form a part of this specification, and then more particularly pointed out and defined in the claims following this description.

In said drawings, Figure 1 is a front elevation of a silo embodying my invention, which, however, will be understood to be applicable to any analogous structure, such as a granary, storage-bin, or other receptacle for storage and delivery of granular material. Fig. 2 is an enlarged horizontal section through the doorway, taken on line Y Y of Fig. 1. Fig. 3 is an enlarged front elevation with respect to the subject-matter of Fig. 2, showing a section of the door raised and secured by the supporting and locking device therefor hereinafter to be described. Fig. 4 is a view similar to Fig. 3, showing a number of the door-sections closed. Fig. 5 is a detail enlarged view of one of the supporting and locking arms or levers carried by the bands or straps which girt the structure. Fig. 6 is an enlarged vertical section taken centrally through a portion of the doorway, showing one of the locking devices and a door-section engaged thereby. Fig. 7 is a detail perspective view of a bearing-plate which is secured in the top of the recess of each door-section. Fig. 8 is a detail perspective view of the top plate upon which the aforesaid supporting and locking lever is pivoted. Fig. 9 is an enlarged horizontal section through a part of the doorway, showing one of the door-sections, guiding groove or way therefor, straps, &c.

The letter A indicates the silo, bin, or other structure providing a receptacle for the grain or other material and having a vertically-disposed doorway extending from the bottom to the top, or said doorway may extend vertically any desired height.

B denotes hoops or bands which girt the structure, crossing the doorway at regular intervals. If, however, such hoops are not needed to hold and strengthen the structure, suitable straps may be arranged at like intervals across the doorway, terminating beyond the opposite sides thereof and bolted to the structure, as shown, Fig. 9, taking the place of such hoops. Straps C also extend across the doorway at the inner sides of the straps B and parallel therewith, said straps B and C being separated and bolted together, as by the bolts D and separators E.

F F denote superimposed panels or sections which constitute the continuous sliding door. These are shown as simple tongue-and-groove boards, the tongue of each board adapted to engage the groove of the adjacent board, Fig. 6. Said boards or sections slide up and down in side grooves or ways G and can be lifted either one at a time or in groups from the top. Felt strips H or other suitable insulations may be arranged in the grooves G between the door and the walls of the grooves.

The sections F do not extend clear to the top of the doorway, but an opening is left at the top for the introduction of grain or any other material into the storage-receptacle. This opening should be at least equal in height to the distance between any adjacent pair of hoops or straps B. Obviously, however the sections may be minipulated the opening or openings left in the doorway will be equal to the said opening at the top.

The hoops or straps B, which cross the

doorway, are provided with supporting and locking devices. It will suffice to describe one of them, reference being had more particularly to Figs. 5 to 9, inclusive. In these figures I denotes a supporting and locking arm or lever, carried by the straps B C, pivoted to turn horizontally and having its outer end fashioned as a handle and its inner end adapted to engage in a notch or recess M in the outer section F, whichever particular door-section may be brought into apposition with said lever. As shown, said arm or lever turns on a boss in the top plate J, on which the lever is supported, and is secured by the bolt L, which passes through said top plate and the bottom plate K, said plates J and K being flanged to embrace the straps B and C, to which they are clamped by the said bolt L, as shown in Fig. 6. A bearing-plate N is secured in the top of the aforesaid recess M of the door-section. Said bearing-plate is shown having opposite front lugs *n* to receive screws or the like for attaching the plate to the door-section and also has a forwardly-projecting tongue *n'*, apertured to receive a locking-pin P, which is carried by the lever I. Said pin is shown attached by a chain O to said lever and is adapted to engage in registering apertures in the lever and said tongue *n'*, when the lever is engaged in the said recess M.

It will be understood that each of the hoops B C is provided with such a locking device, the straps B and C being bolted together at opposite sides thereof by the bolts D and separators E, as aforesaid. Each of the door sections or panels is provided with a recess M and bearing-plate N in the top of such recess.

When a board or section F is raised past one of the hoops or straps, said section, together with those above it, can be supported by the arm I, which engages in the recess M of the section under its bearing-plate N. By inserting the locking-pin P through the registering apertures in I and N the section and all those above it can be locked in place and prevented from accidental unlocking and dropping.

Turning to Fig. 1, it is obvious that the topmost section of the series can be raised and locked in position, or any section between the first and second hoops, together with the sections above it, can likewise be lifted and suspended. Any section between the second and third hoops can be lifted and supported by the locking device on the second band from the top, and so on down. Thus the doorway may be opened gradually from the top to the bottom for delivery of the contents from the receptacle as the top surface of the contents is lowered.

It will also be observed that each supporting and locking lever may serve to lock all the sections or panels below it, so that when the uppermost lever is unlocked the series of sections above the second lever may be raised, but those below it may be locked in their down position by the second lever.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A storage-receptacle having, in combination, a casing provided with a doorway having vertical guideways at opposite sides thereof, a continuous sliding door working in said guideways and composed of a plurality of superimposed sections or panels adapted to be raised singly or in groups, said sections when all down leaving an opening at the top of said doorway, straps disposed at intervals across the doorway, and supporting devices mounted on said straps adapted to engage and hold the sections adjacent to the straps, whereby each supporting device can support a section brought into apposition therewith together with the sections above it, substantially as described.

2. A storage-receptacle having, in combination, a casing provided with a doorway having vertical guideways at opposite sides thereof, a continuous sliding door working in said guideways and composed of a plurality of superimposed sections or panels adapted to be raised singly or in groups, said sections when all down leaving an opening at the top of said doorway, said sections having recesses in their front faces, and supporting-arms pivoted on said straps to turn horizontally and each adapted to engage in a recess of a section brought into apposition with the respective strap, substantially as described.

3. A storage-receptacle having, in combination, a casing provided with a doorway having vertical guideways at opposite sides thereof, a continuous sliding door working in said guideways and composed of a plurality of superimposed sections or panels adapted to be raised singly or in groups, said sections when all down leaving an opening at the top of said doorway, said sections having recesses in their front faces and bearing-plates in the upper sides of said recesses with forwardly-projecting apertured lugs or tongues, supporting-arms pivoted on said straps to turn horizontally and each adapted to engage in a recess of a section brought into apposition therewith, said arms having apertures adapted to register with the apertures of the respective bearing-plates, and locking-pins carried by said arms adapted to be inserted through said registering apertures.

4. A storage-receptacle having, in combination, a casing provided with a doorway having vertical guideways at opposite sides thereof, a continuous sliding door working in said guideways and composed of a plurality of superimposed sections or panels adapted to be raised singly or in groups, said sections when all down leaving an opening at the top of said doorway, and devices fixed at inter-

vals along the doorway adapted to engage and hold sections of the door brought into apposition therewith.

5. In combination with a door composed of superimposed sections adapted to slide up and down, said sections having recesses therein and bearing-plates in the upper sides of said recesses, a pair of straps disposed across the doorway, a top plate and bottom plate embracing said straps and clamped thereto, and a supporting-arm pivoted on the top plate and adapted to engage in the recess of a section brought into apposition therewith.

In testimony whereof I have affixed my signature in presence of two subscribing witnesses.

ARTHUR D. McMAHAN.

Witnesses:
H. R. MARLATT,
S. C. DUVALL.