No. 888,433. PATENTED MAY 19, 1908.

F. L. THOMPSON.

DOOR FOR GRAIN CARS.

APPLICATION FILED DEC. 4, 1906. RENEWED APR. 20, 1908.

2 SHEETS—SHEET 1.

Fig. 2.

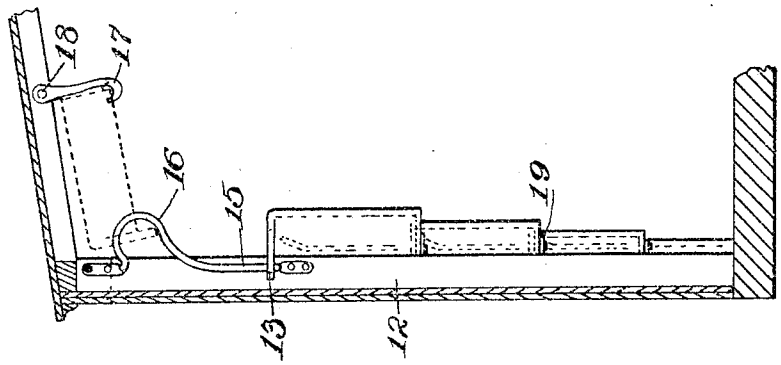
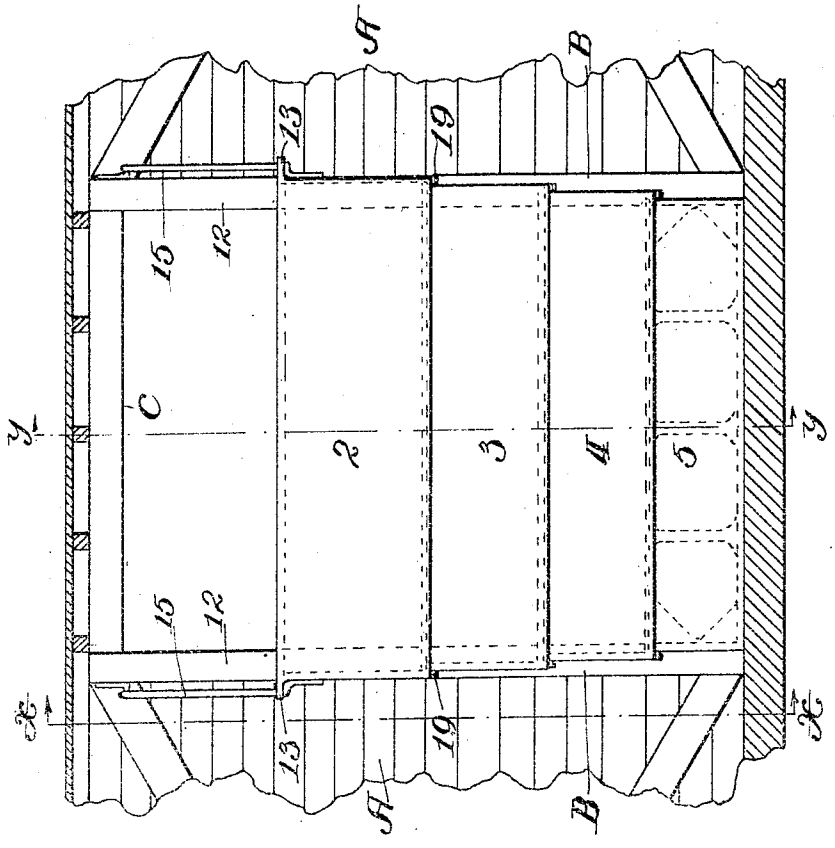


Fig. 1.



Witnesses:
W. R. Williams.
M. G. Lichtenkeidl

Inventor:
Frank L. Thompson
by: L. A. Pradburn
Attorney.

No. 888,433. PATENTED MAY 19, 1908.

F. L. THOMPSON.

DOOR FOR GRAIN CARS.

APPLICATION FILED DEC. 4, 1906. RENEWED APR. 20, 1908.

2 SHEETS—SHEET 2.

Fig. 3.

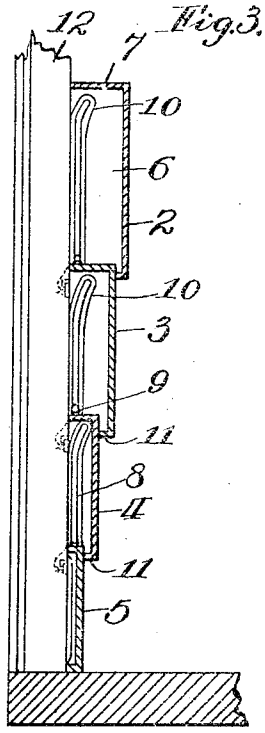


Fig. 4.

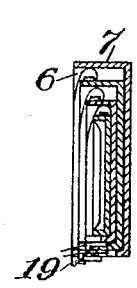


Fig. 5.

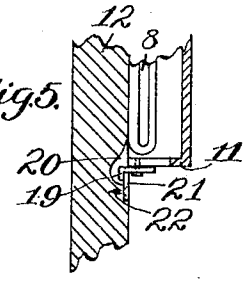


Fig. 6.

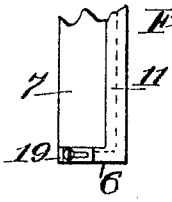


Fig. 7.

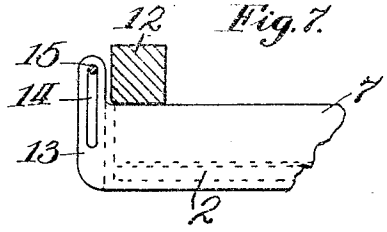
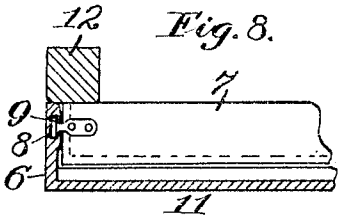


Fig. 8.



Witnesses:
W. Worthington.
M. G. Lichtenheidt

Inventor:
Frank L. Thompson
by: H. A. Bradbury.
Attorney.

UNITED STATES PATENT OFFICE.

FRANK L. THOMPSON, OF GREAT BEND, NORTH DAKOTA.

DOOR FOR GRAIN-CARS.

No. 888,433. Specification of Letters Patent. Patented May 19, 1908.

Application filed December 4, 1906, Serial No. 346,241. Renewed April 20, 1908. Serial No. 428,051.

To all whom it may concern:

Be it known that I, FRANK L. THOMPSON, a citizen of the United States, residing at Great Bend, in the county of Richland and State of North Dakota, have invented a new and useful Improvement in Doors for Grain-Cars, of which the following is a specification.

My invention relates to improvements in doors for grain cars. The conditions under which such cars are used make it necessary to provide an easily movable door which in the act of opening shall not be destroyed, and when opened shall be out of the way.

It is a fact familiar to those using grain cars that large numbers of doors are destroyed in the effort to open loaded cars and when opened they project or lie in such position as to be easily injured by accident. To obviate these difficulties and provide simple and efficient means of closing the opening in box cars is one of the objects of my invention.

Another object is to provide a car door that will effectively close the doorways of box cars against the leakage of grain.

In the accompanying drawings forming part of this specification, Figure 1 is a detail side view taken from inside of a box car showing my improved door; Fig. 2 is a detail sectional end view taken upon the line X—X of Fig. 1, showing the door in full; Fig. 3 is another detail sectional view, taken upon the line Y—Y of Fig. 1; Fig. 4 is a sectional end view illustrating the sections of the door nested together; Fig. 5 is an enlarged detail sectional view looking toward the ends of one of the door sections; Fig. 6 is an enlarged detail view looking up at one of the door sections; Fig. 7 is an enlarged detail view looking down upon the upper section and showing one of the vertical posts of the doorway in section, and Fig. 8 is an enlarged horizontal sectional view through one of the door sections showing the flight immediately below it in full.

In the drawings A represents a detail portion of a grain car, B one of its door frames, and C the doorway which is surrounded by said frame.

My improved door consists in part of a series of horizontal sections 2, 3, 4, and 5 which are adapted to nest together when raised vertically over the doorway. These sections may be made out of either plain or corrugated metal or other suitable material and construction by which a strong structure is provided. Each section is in the form of a back having end flanges 6 and top flanges 7, said flanges decreasing in width from the upper to the lower sections so that each lower section is adapted when raised to nest into the one immediately above it. All of the sections above the lower one are provided with vertical grooves 8 on the inner sides of their end flanges and each of the sections below the upper one is provided with tongues 9 which slide in said grooves when the sections are raised or lowered to nest together or open. The upper ends of the grooves 8 turn inward at 10 toward the backs of the sections and the lower edges of the sections above the lower section are turned forward at 11 to form ledges. When the sections are nested together each of the lower sections is moved slightly forward upon approaching home position, and the lower edges of each section below the upper flight rest upon the ledges 11 where they are adapted to remain until the sections are lowered and the doorway closed.

The sections are placed across the doorway with their backs in the car and their ends lapping over the vertical door posts 12 of the door frame. The upper section is formed with a lip 13 on each of its ends which is slotted at 14. Upon the posts 12 are secured vertical guide rods 15 passing loosely through the slots 14 in the lips from which the sections are hung, said rods being of sufficient length to allow the sections to extend to the floor of the car. The upper ends of the guide rods 15 have off-sets 16 so that the sections when nested together may be raised and hung above the doorway by means of a hook 17 which is shown secured to the roof of the car by a pivot bolt 18. The slot 14 and the off-set 16 permit the movement of the sections as described and the hook 17 engaging all of the lower edges of the sections, supports said flights when raised above the doorway. The off-set also assists in supporting the sections during the operation of raising them toward the roof of the car. To hold the sections securely upon the posts 12 when in lowered position, the end of each section above the lowermost section is provided with a catch 19 which interlocks with a metal plate 21 projecting over a pocket 20 in the door frame and fastened to said posts by means of screws 22 or other suitable means. The force of the grain holds all of the sections tightly against the side posts and the

means which is provided for securing the sections to said posts is merely to hold them temporarily in position.

In use, when it is desired to fill the car with grain, the sections are lowered into the position shown in Figs. 1 and 2, and the catches dropped into engagement with the pocket plates 21. To allow the grain to be unloaded from the car the lower section is pried open by a crowbar or other suitable means and then all of the sections may be raised and nested together in the top of the car where they are hung from the roof by means of the hook 17.

In accordance with the patent statutes I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. A sectional car door, the sections of which are adapted to spread open vertically and nest together, consisting of a plurality of plates having marginal flanges, across the door opening in the car, vertical guide rods secured to the car and upon which said plates are supported, said guide-rods permitting said plates to be moved upward toward the roof of the car, and means for supporting said plates when in superior position.

2. In combination with a car having a frame surrounding a doorway, a plurality of sections formed by plates having marginal flanges, in the car across said doorway, said plates being provided with means by which they are adapted to nest together when raised, means on said door frame for guiding and permitting said plates to be raised, and means for supporting said plates in superior position.

3. In combination with a car having a doorway and a door frame, a plurality of plates having marginal flanges provided with means by which they are permitted to nest together when raised, guides secured to said door frame to which the upper plate of said series is connected, said guides being of sufficient length to allow the plates to extend to the floor of the car when lowered and to be raised to the roof of the car when the doorway is opened, and means for supporting said plates in superior position.

4. The combination with a car having a doorway and a frame therein, of a series of substantially horizontal telescoping sections across said doorway in the car, said sections comprising backs with flanges upon their side and top ends, the upper section being formed with slotted lips on its ends, substantially vertical guide rods secured on each side of said door frame and passing through the slots in said lips, said rods being of sufficient length to allow the sections to extend to the floor of the car, and having off-sets near their upper ends to permit the sections, to be swung near the roof of the car, and means for supporting said sections in superior position.

5. The combination with a car having a doorway and a door-frame therein, of a series of horizontal sections across said doorway provided with end and top flanges and inner ledges along their lower edges, substantially vertical intermeshing tongues and grooves in the corresponding outer and inner surfaces of said flanges, said grooves inclining toward the backs of said sections near their upper ends, to cause said sections to advance upon said ledges when nested together, guides on the sides of said door frame to which the upper section is secured and having off-sets near their upper ends to permit said sections being swung in nested position toward the roof of the car, and means for supporting said sections in superior position.

6. The combination with a car having a doorway and a frame therein, of a series of horizontal sections provided with means by which they are adapted to nest back of each other, said sections being provided with ledges upon their lower edges for the lower sections to rest upon when nested and with guides and hooks by which they may be secured to said door frame when in lowered position, substantially vertical guide rods secured to said door frame upon which said guides are adapted to slide, and means for supporting said sections above the doorway when in superior position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK L. THOMPSON.

Witnesses:
A. C. LUBENOW,
FRANK J. KNUPPEL.