No. 713,167. Patented Nov. 11, 1902.

B. STEINE & C. JONES.

GRAIN CAR DOOR.

(Application filed Feb. 20, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

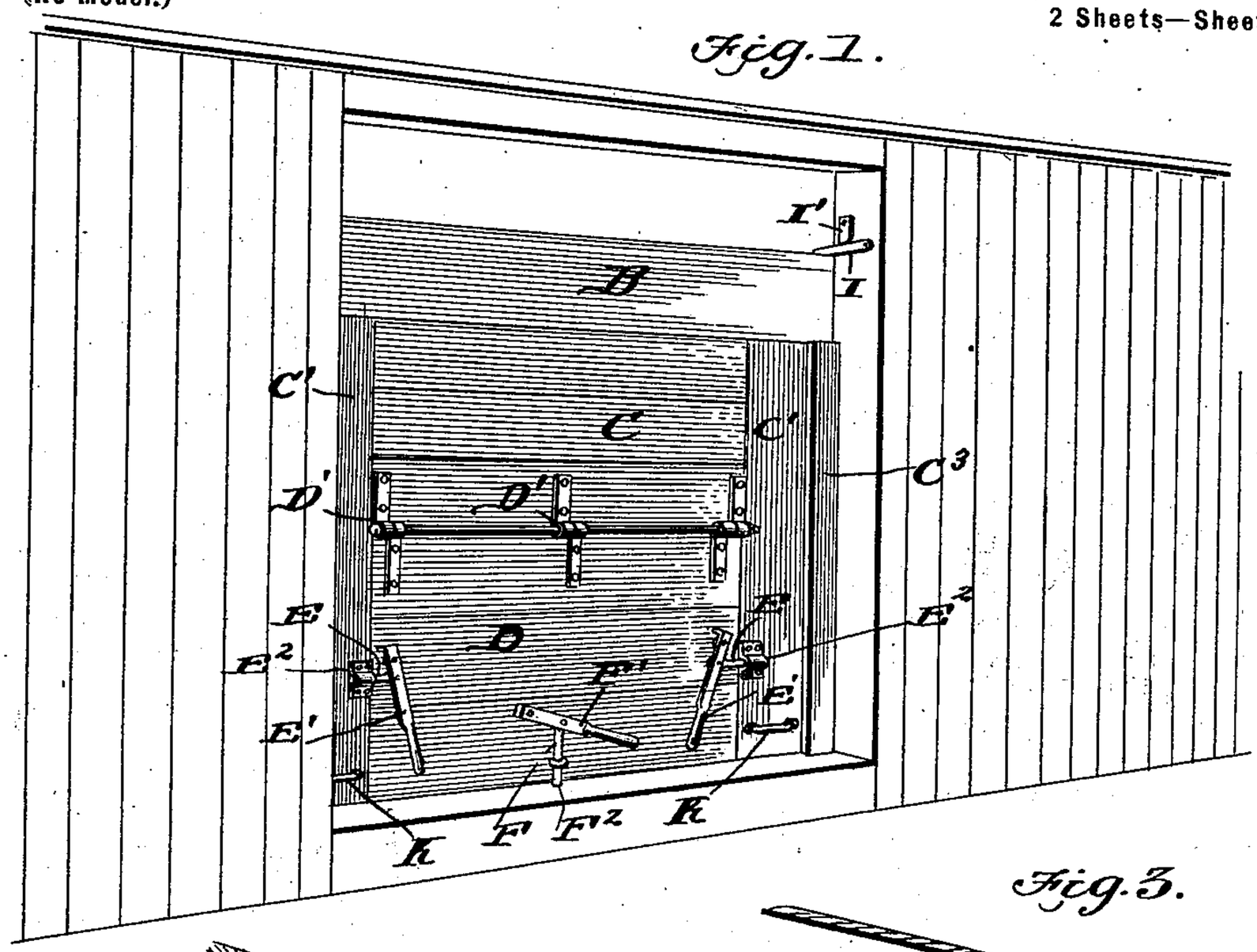

Fig. 3.

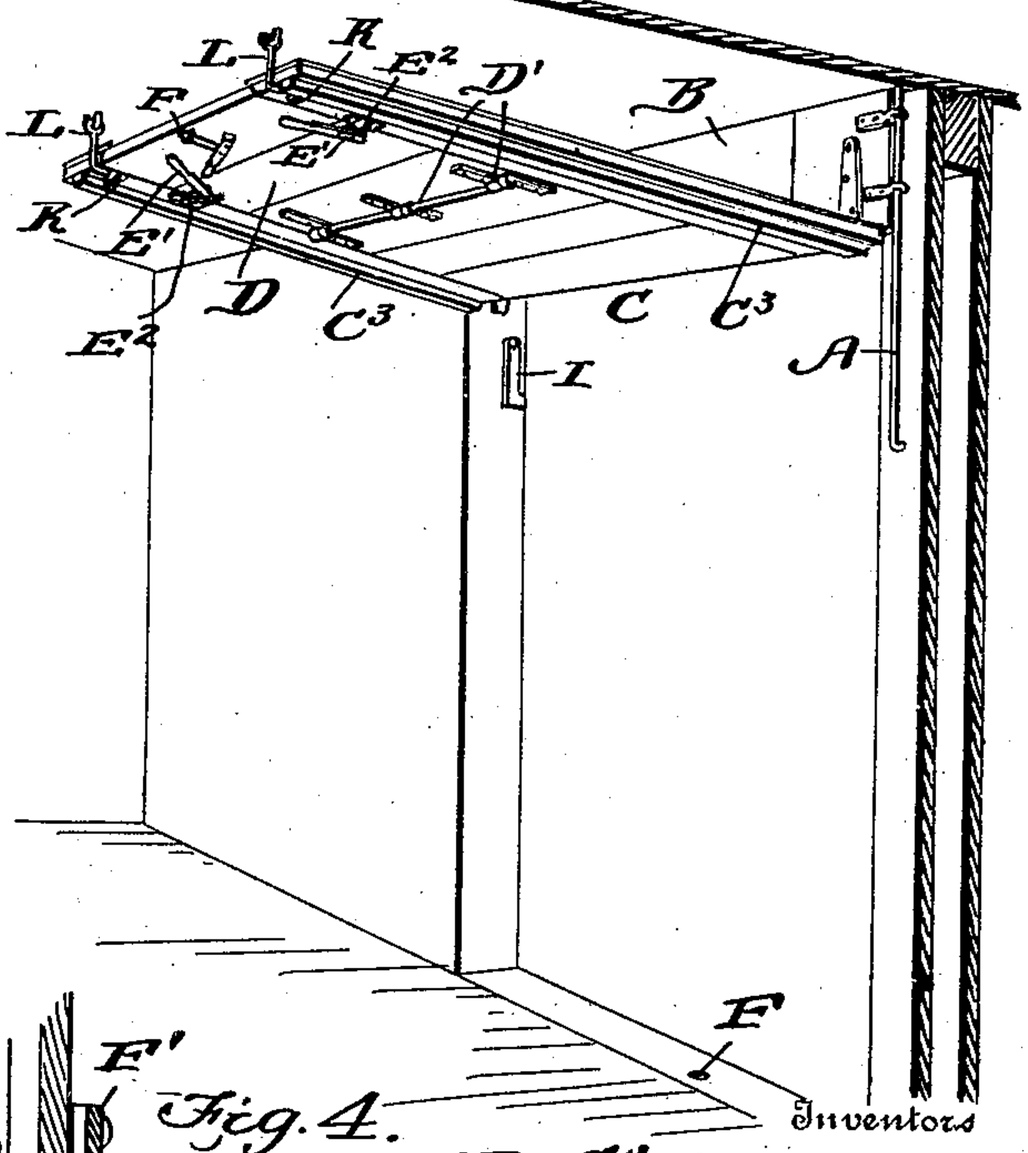

Fig. 2.

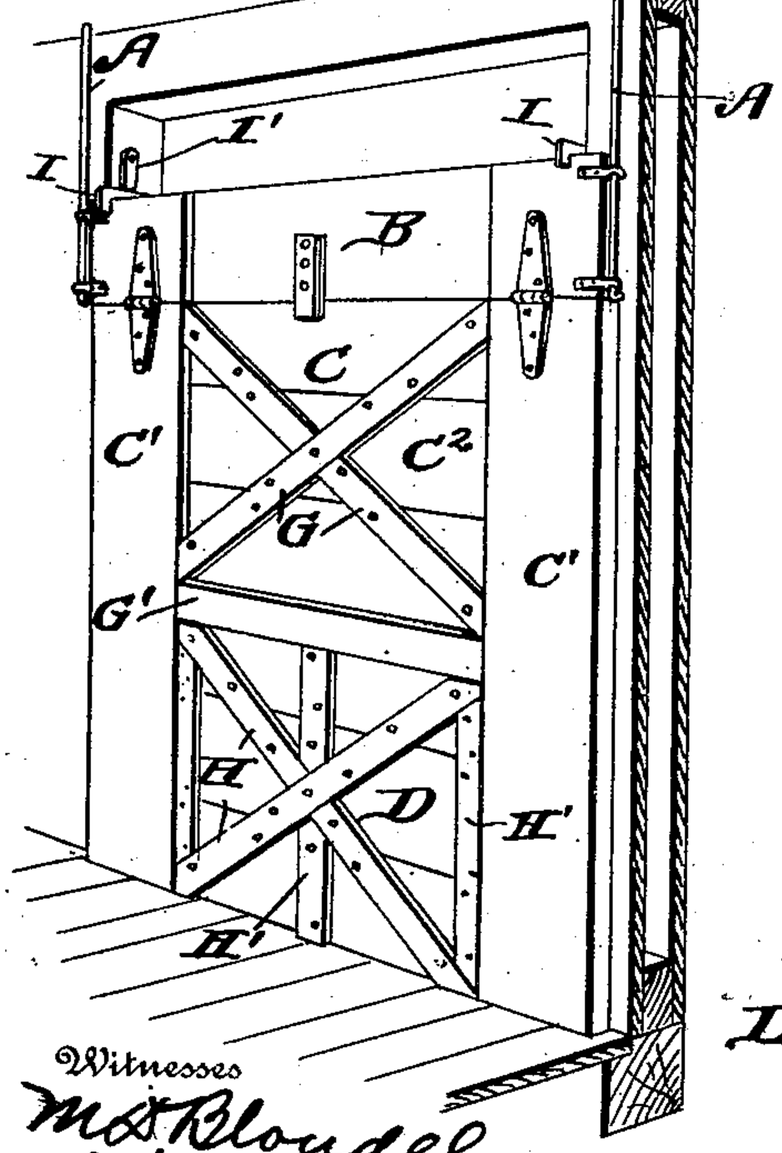

Fig. 4.

Witnesses
M. A. Blondell.
A. M. Magundy.

Inventors
B. Steine.
C. Jones.
By Mumford & Brock,
Attorneys

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Fig. 5.

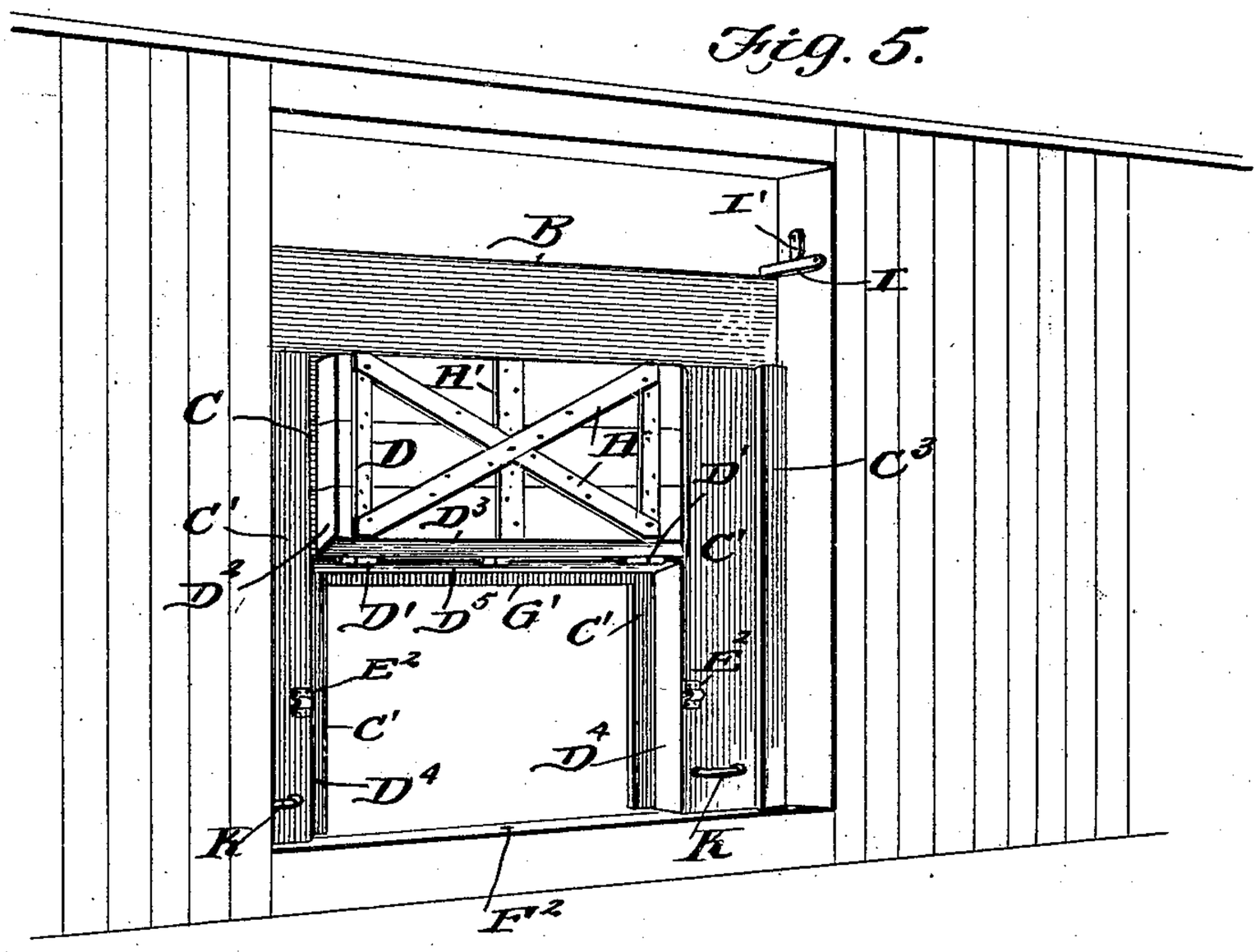


Fig. 6.

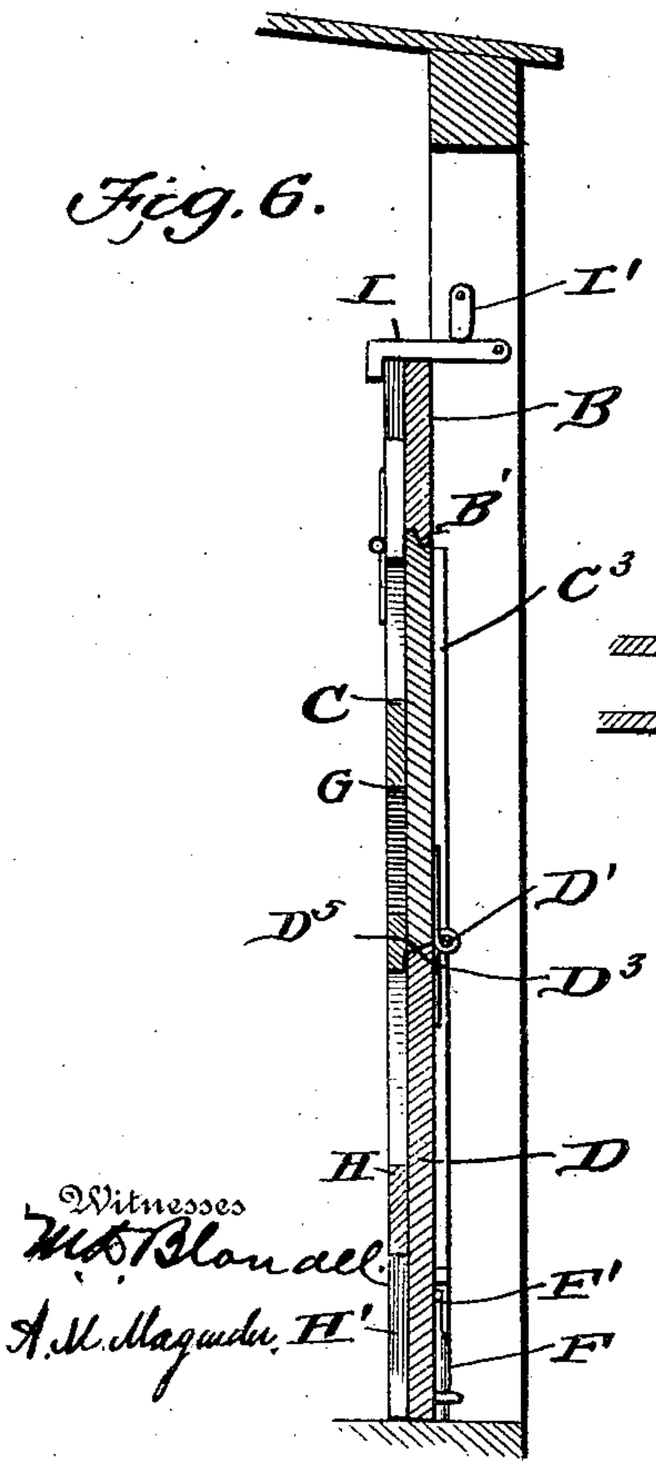
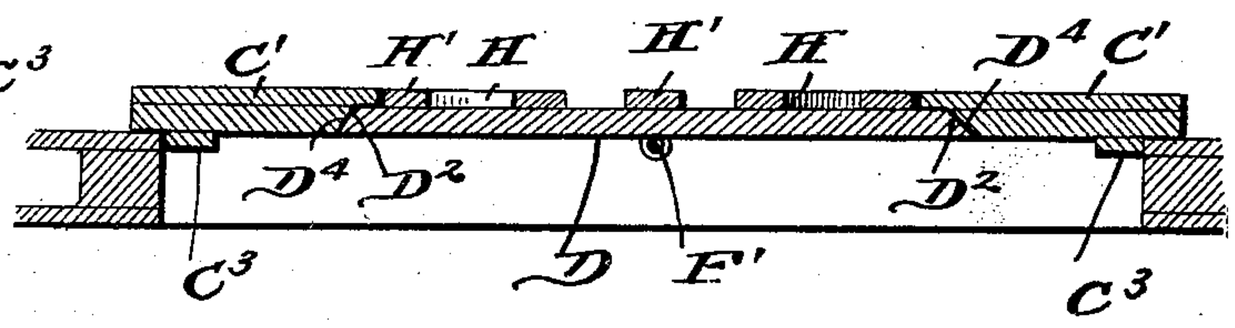


Fig. 7.



Witnesses
W. D. Blondell.
A. M. Magruder.

Inventors
B. Steine.
C. Jones.
By Owen & Brock
Attorneys

UNITED STATES PATENT OFFICE.

BEN STEINE AND CORNELIUS JONES, OF NEW ORLEANS, LOUISIANA.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 713,167, dated November 11, 1902.

Application filed February 20, 1902. Serial No. 94,940. (No model.

To all whom it may concern:

Be it known that we, BEN STEINE and CORNELIUS JONES, citizens of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Grain-Car Door, of which the following is a specification.

This invention is an improved construction of grain-car door, and the object being to provide an exceedingly strong, durable, and practical construction by means of which the doorway of the car can be completely closed when desired and also one in which the lower section of the door can be opened and swung outwardly whenever it is desired to unload the car; and a still further object is to provide an upwardly-movable and inwardly-swinging door which can be moved up, swung inwardly, and secured whenever it is desired for the purpose of completely opening the doorway of the car.

These various objects are accomplished by the novel construction and combination of parts hereinafter fully described, and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a perspective view illustrating the practical application of our invention, the door being closed and locked. Fig. 2 is a view taken from the interior of the car, all of the parts being in the same position, as shown in Fig. 1. Fig. 3 is a detail perspective view showing the door open and secured adjacent to the roof of the car. Fig. 4 is a detail sectional view illustrating the manner of locking the door at the bottom. Fig. 5 is a perspective view illustrating the lower section of the door opened for the purpose of discharging the grain, said door being turned completely up in order to more clearly disclose the detail of construction. Fig. 6 is a vertical sectional view of the door, and Fig. 7 is a horizontal sectional view taken through the lower section of the door.

Our invention is applicable to any and all constructions of grain-cars, and no description of the car is therefore necessary.

Guide-rods A are arranged upon the interior of the door-post, and slidably connected to the said guide-rods is the top section or apron B, to which is hinged the main portion or door proper, C, said door consisting of the side battens C′, the boards C^2, connected to the said battens upon their forward sides, and the guide-strips C^3, arranged upon the forward side of the boards C^2, said guide-strips C^3 being adapted to rest against the side post or jambs of the doorway, and thereby hold the door in its proper position when closed, as most clearly shown in Fig. 1. The door C has an outwardly-swinging section D, hinged at D′, having the beveled side edges D^2 and the beveled upper edge D^3, which engage the beveled edges D^4 and D^5, respectively. The inner face of the section D bears against the outer faces of the battens C′, as most clearly shown in Fig. 7, and in order to lock the said lower section to the door proper we employ bolts E, which are pivotally connected to the hand-levers E′, which are pivoted upon the outer face of the lower section adjacent to each end and by means of which the bolts are moved horizontally in or out, as desired, in order to disengage or engage the keepers E^2, arranged upon the outer face of the door C adjacent to the ends of the movable section.

A bolt F, connected to the hand-lever F′, is adapted to engage a recess F^2, produced in the sill of the doorway, for the purpose of locking the entire door against movement in any direction. The door is braced upon the inner side by means of the diagonal braces G and horizontal braces G′, which are arranged at a point above the pivotal point of the outwardly-swinging section D. This section is also braced by means of the diagonal braces H and the vertical braces H′. In this manner the door is made exceedingly strong, and thereby enabled to stand considerable strain.

In practice we prefer to construct the meeting edges of the apron B and door C with rabbeted or shouldered faces, as indicated at B′ in Fig. 6, thereby preventing the escape of any grain at that point.

In order to prevent the upward movement of the door, we pivot hooks I to each door-post or jamb, said hooks being adapted to rest upon the upper edge of the apron at each end, and the hooks are held in such engagement by means of the locking-buttons I′, pivoted above the hooks and adapted to be turned

down upon them when the said hooks are in engagement with the apron, as most clearly shown in Figs. 2 and 6.

K indicates handles connected to the bottom of the door, by means of which it can be raised whenever desired.

When the door is intended to close the doorway of the car, all of the parts are arranged as shown in Figs. 1 and 2, and it will be noted that there is an open space between the top of the doorway and the top of the apron. When it is desired to unload the car, the bolts E are withdrawn from their keepers and the bolt F is withdrawn from the sill, and the weight of the grain will immediately force the lower section of the door outwardly. In case, however, it is desired to completely open the doorway the hooks I are disengaged from the top of the apron and the said apron is slid upwardly upon the guide-rods and the main portion or door proper swung upwardly upon its hinges and suspended from the top of the car by means of the depending hooks L, the lower section D being previously connected to the main portion of the door by throwing the bolts E into engagement with the keepers.

It will thus be seen that we provide an exceedingly simple, durable, and efficient construction of grain-car door capable of accomplishing all of the objects hereinbefore mentioned.

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

1. A car-door comprising a sliding top section, an inwardly-swinging main section, said main section having an outwardly-swinging lower section, substantially as specified.

2. A grain-car door, comprising a slidable top section, an inwardly and upwardly swinging main section, said main section having an outwardly-swinging lower section, of a width less than the width of the said main section, and means for locking the said lower section to the main section, substantially as specified.

3. A grain-car door, comprising a slidable top section and the guide-rods upon which it slides, the inwardly and upwardly swinging main section, having an outwardly-swinging lower section, means for locking the said lower section to the main section, means for locking the said main section against inward movement, and the means for locking the door against upward movement, substantially as described.

4. A grain-car door comprising in combination the top section or apron, the guide-rods upon which said apron slides, the main section of the door hinged to the apron, said door being battened and braced, an outwardly-swinging lower section hinged to the main section of the door, said outwardly-swinging lower section being braced, the laterally-moving bolts arranged at the opposite ends of the outwardly-swinging section, the keepers arranged upon the main section and adapted for engagement with the bolts, a vertically-movable bolt attached to the door and adapted to engage the sill of the doorway, the hooks pivoted to the door-post or jambs, the buttons arranged above the hooks and adapted to engage them, and the suspending-hooks depending from the top of the car, substantially as shown and described.

BEN STEINE.
CORNELIUS JONES.

Witnesses:
FRED SCHAUB,
PATRICK STAKELUM.