No. 656,868. Patented Aug. 28, 1900.

J. VAN SLYKE.

CAR DOOR.

(Application filed June 11, 1900.)

(No Model.) 2 Sheets—Sheet 1.

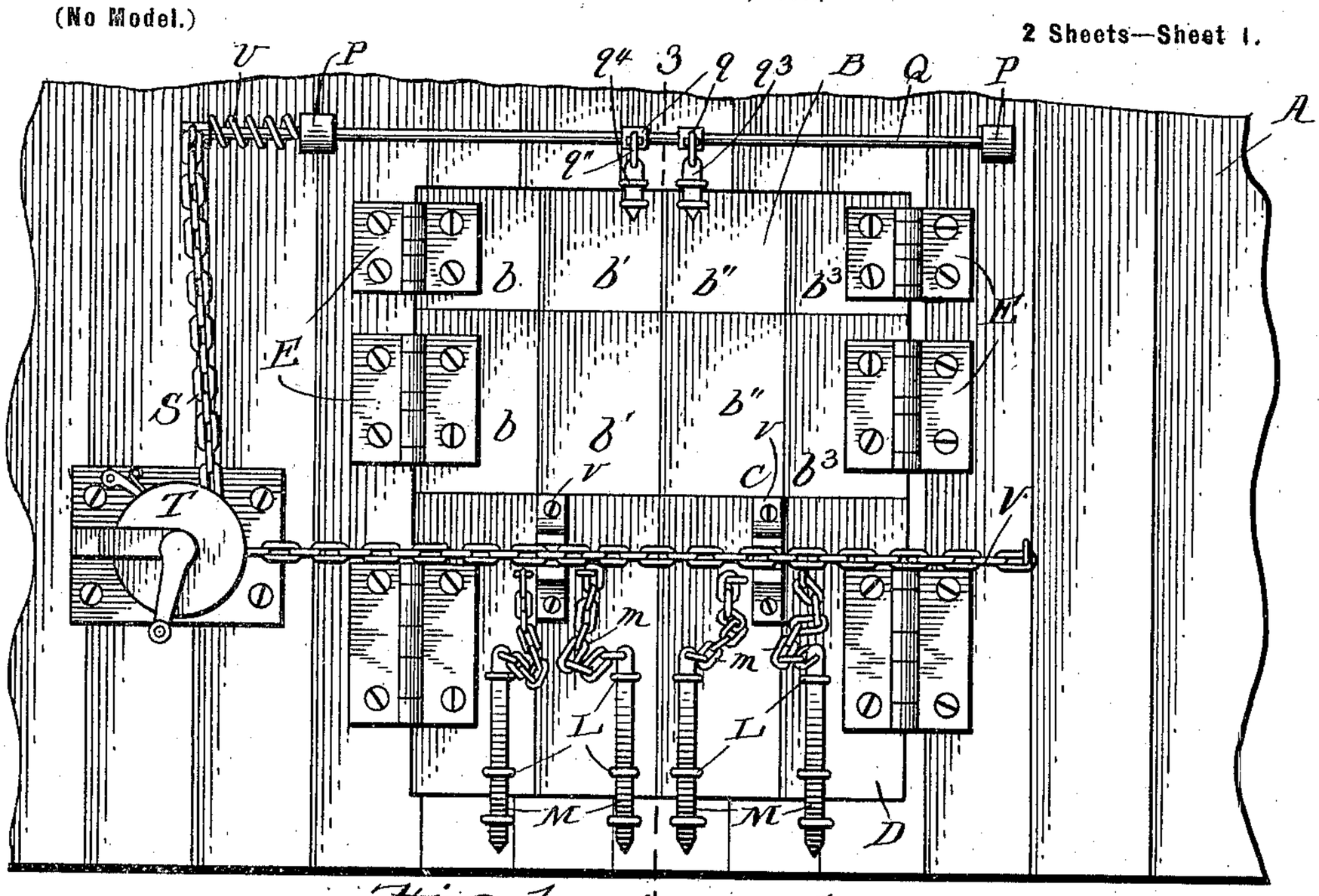

Fig. 1.

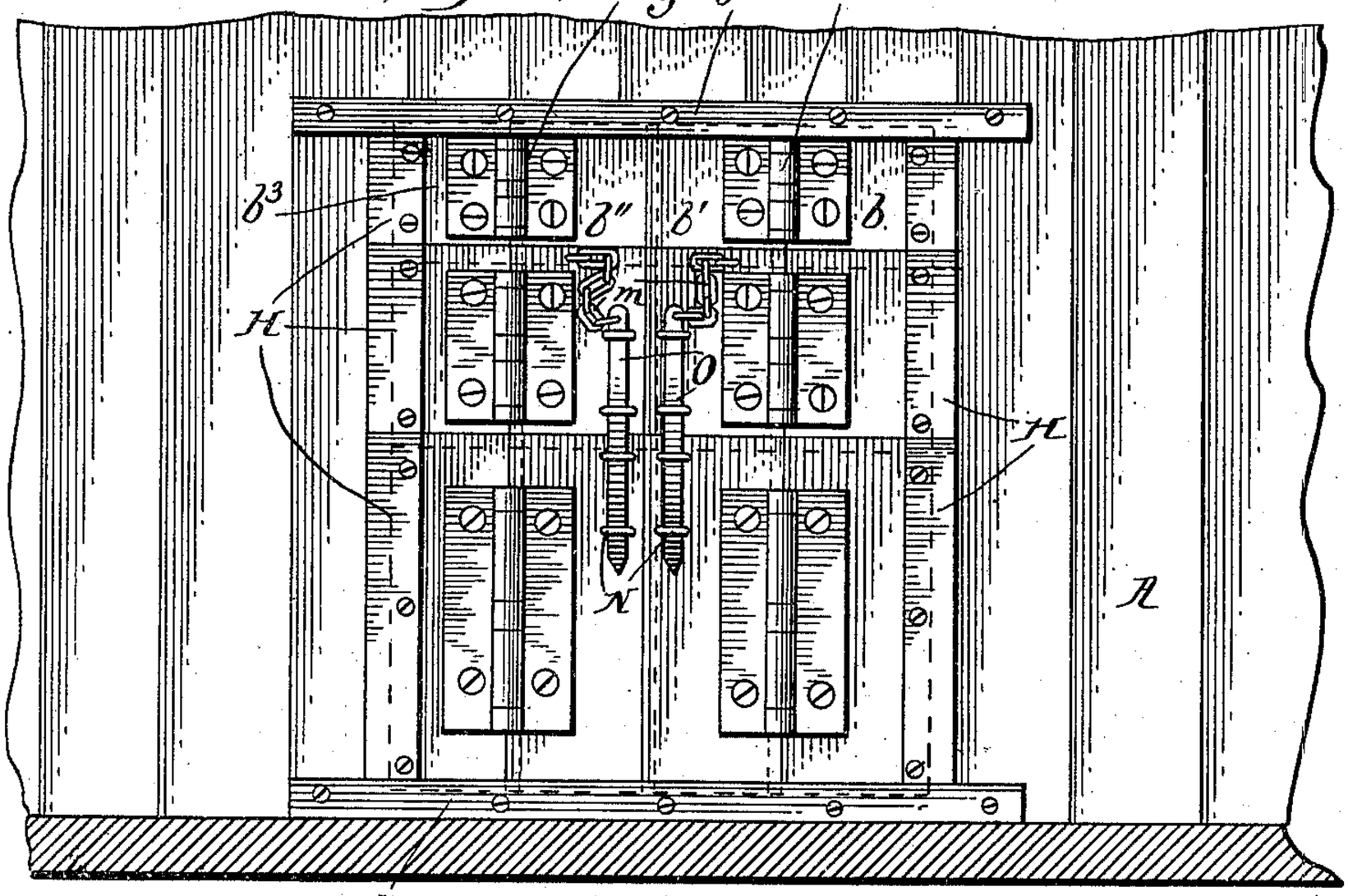

Fig. 2.

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Fig. 3.

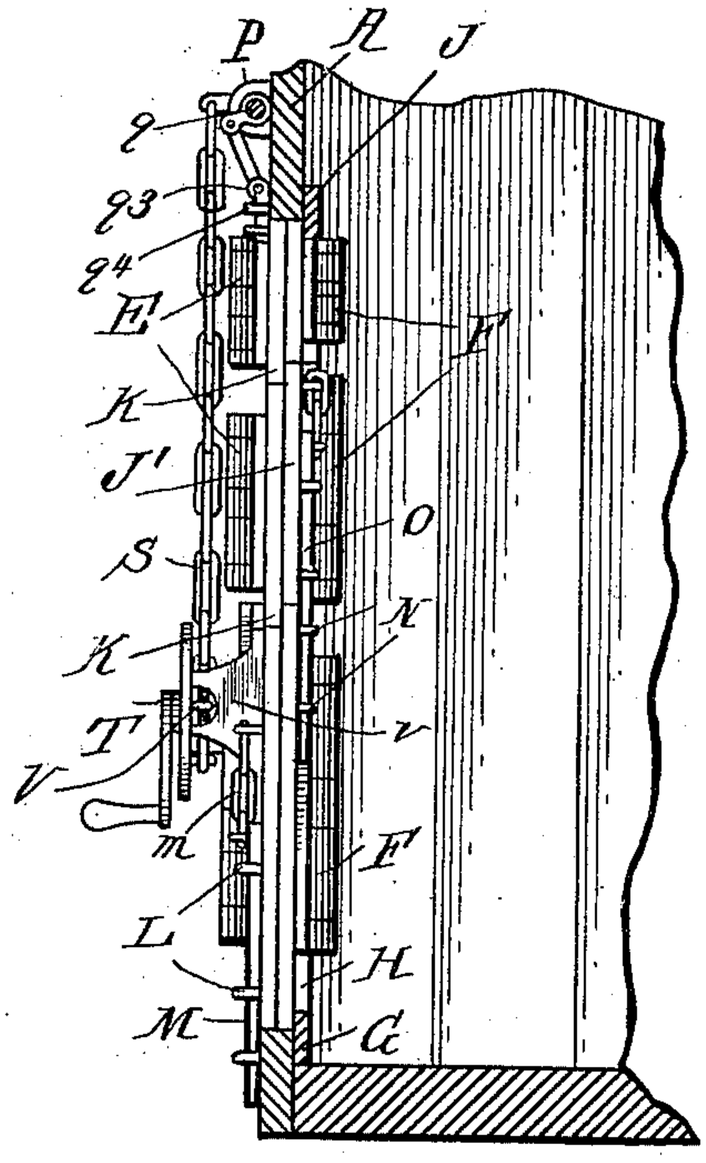
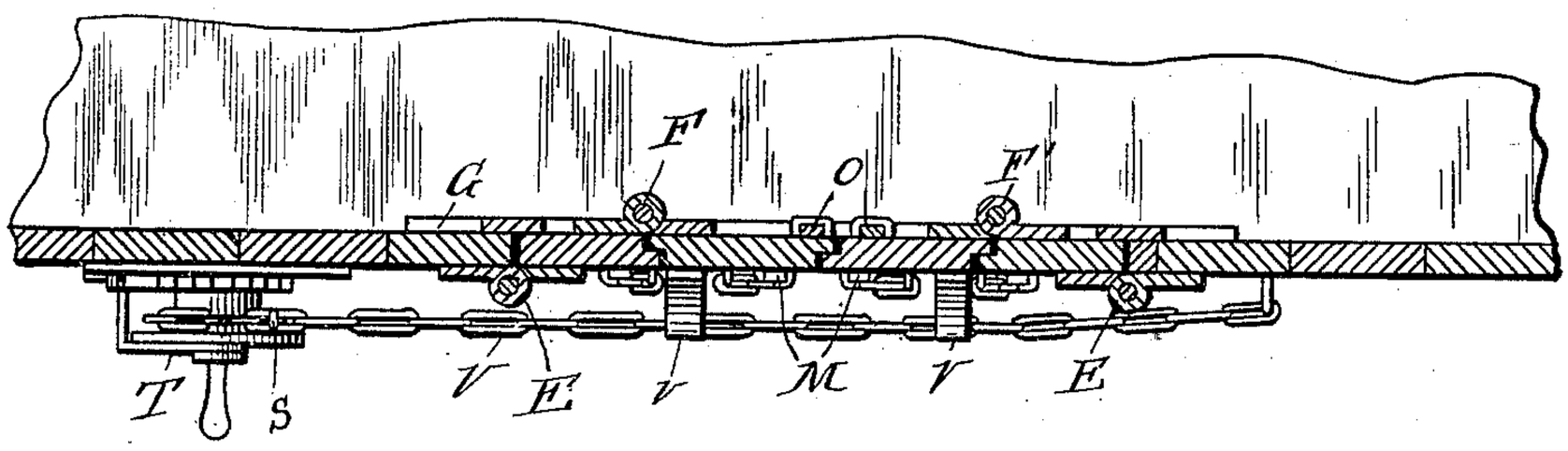


Fig. 4.



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JAMES VAN SLYKE, OF SHELL ROCK, IOWA.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 656,868, dated August 28, 1900.

Application filed June 11, 1900. Serial No. 19,857. (No model.)

To all whom it may concern:

Be it known that I, JAMES VAN SLYKE, a citizen of the United States, residing at Shell Rock, in the county of Butler and State of Iowa, have invented certain new and useful Improvements in Car-Doors; 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 improvements in car-doors, more especially such as intended for grain-cars, and is embodied in the novel parts, arrangement, and combinations of parts hereinafter described, and particularly set forth in the claims.

Among other objects it is one object of the invention to provide a door for the purpose described which will be strong and efficient and adapted to prevent the loss by falling out of grain and the entrance of water, so as to thoroughly protect the grain contained in the car.

A further object is to construct the door in sections, whereby ready and easy access can be had to the car at different elevations without opening the entire door or that portion below the level of the grain in the car as an additional safeguard against the loss of the grain.

A further object is to construct the door of a plurality of horizontal sections each composed of a plurality of movably-connected panels, which permit a more ready opening and closing of the door and enable the same to be folded into compact form or small space.

In the accompanying drawings I have shown a practical embodiment of the invention, but desire it understood that I do not wish to limit the same in its useful application to the particular construction which, for the sake of illustration, I have therein delineated.

In the drawings, Figure 1 is a front elevation of a car-door embodying my invention and showing a portion of the door-frame or car side. Fig. 2 is an inside elevation of the door shown in Fig. 1. Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 1, and Fig. 4 is a horizontal transverse cross-section.

Referring to the drawings, A indicates a door-frame or a portion of the side of a car. The door is composed of a plurality of horizontally-disposed sections B C D, and, as will be observed, each section is composed of a plurality of panels (indicated at b b' b'' b^3.) The outer panels b b^3 are hinged, as by hinges E, to the outer sides of the door-frame or car side, so as to swing outwardly. To the panel b is hinged on the inner side, as by a hinge or hinges F, the panel b', which is adapted to fold or swing inward on the panel b when the latter has been swung out. The panel b'' is similarly hinged to the panel b^3 by a hinge or hinges F'. Along the inside of the sill of the door-frame is a horizontal flange or rib, (indicated at G,) which is adapted to prevent the movement of the panels inward beyond the vertical plane of the car side or frame and also to prevent the escape of grain from the car or entrance of water to the car. Each of the outer panels b and b^3 is provided on its inner vertical edge with a rib or flange, (indicated at H,) which may be formed thereon or may be in the form of a metallic or thin strip secured thereto and adapted to overhang the vertical edge of the door-frame to close the crack or opening between the panel and the frame. Along the upper side of the door or frame opening is a horizontal flange or rib J for a similar purpose to that of the flange G. Preferably the inner panels b' b'' at their meeting edges are also provided with ribs or flanges, (indicated at J',) which are adapted to overlap and prevent the escape of grain, and, if desired, and I deem it preferable, all of the panels along their hinged edges are provided with similar overlapping ribs or flanges. I have also shown the panels of the two upper sections C and D provided along their bottom edges with horizontal flanges or ribs K. From this construction of door it will be observed that while the door is composed of a plurality of sections and panels, yet when closed the door forms a close, rigid, and tight closure for the opening.

For a locking means for holding the door rigid and firm against inward or outward pressure I employ the following or similar instrumentalities: Each of the panels of the lower section D is provided on its outer side with one or more staples, eyebolts, or the like, (indicated at L,) and in vertical

alinement with these on the door-frame are other staples, eyebolts, or the like L′, through which and through the staples on the panels vertically-moving bolts or wedges M are adapted to be inserted for the purpose of preventing outward movement of the lower-section panels. Each of the bolts or wedges M is preferably secured to the door or frame by means of a chain or the like *m*. On the inner side of the panels *b′ b″* of the sections B and C are staples, eyebolts, or the like N, which are alined and are adapted to receive vertically-moving bolts or wedges O, which, like the wedges M, are preferably connected to the door-panels by means of chains *m*. Mounted in bearings P and extending horizontally across the upper portion of the door-frame, above the upper panels, is a rock-shaft Q, which, opposite the inner panels *b′ b″* of the upper door-section, is provided with outwardly-extending arms or fingers *q*, each of which is movably connected in any suitable manner, as by a link *q″*, with a vertically-sliding wedge or bolt q^3, adapted to enter a staple, eyebolt, or the like q^4 on the panel beneath the arm to which it is attached, whereby the upper section of the door may be securely held. It will be readily understood that by rocking the shaft Q the wedges or bolts q^3 will be inserted in or drawn from the staples. For the purpose of rocking the shaft Q, I have shown the same provided at one end with a crank-arm connected, as by a chain S, with a windlass or the like, (indicated at T,) by the turning of which windlass the chain S will be drawn upon and the rock-shaft moved in one direction. Suitable means may be provided for rocking the shaft in the opposite direction—such, for instance, as a coil-spring U, sleeved on the shaft and connected at one end thereto, and at the other end to a suitable fixed part, as the door frame or bearing for the shaft Q. It will be understood that the windlass is provided with a suitable operating handle, drum, or spool for the chain S and a suitable retaining pawl or locking means to prevent back movement of the drum. As an additional holding means for the lower section B of the door, I have shown a chain V secured at one side to the door-frame and passing through suitable eyes or loops or hooks, (indicated at *v* on the panels of the lower section,) the other end of the chain V being connected to the drum of the windlass and being adapted to be thereby drawn taut across the panels of the lower section.

From the above-described locking means it will be observed that the door is very firmly and rigidly held in place in the door-opening when closed and that to open the door it is necessary to release the windlass to permit the slackening of the chains S and V, whereupon the rock-shaft Q will be rocked by the spring U to retract the bolts or wedges q^3, whereupon the upper section D of the door can be opened. After this when it is desired to open the next section C the bolts or wedges N on the inside of the panels can be retracted from their staples, permitting the opening of the section C. This frees the lower section B, which upon the withdrawal of the bolts M can be swung outward, the chain V being sufficiently slack to permit the opening movement.

It is thought the manner of use or operation of the door will be sufficiently comprehended from the above description.

It will be observed that by reason of the construction of the panels the several panels of each section have a flange or portion overlapping the adjacent panel, which will permit of a limited movement of the panels relative to each other in case of sagging of the frame or of the sections without making a gap between the sections or panels, and thus permitting the escape of the grain. It will also be observed that when desired or when found necessary the entire door from the top to the bottom can be opened in halves—that is, the two right-hand panels of each section can be swung out to one side and the two left-hand panels of each section to the other side by releasing the securing chain and bolts for the lower section and the securing-bolts for the upper section.

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

1. The combination with a door-frame, of a door composed of a plurality of horizontally-disposed sections, each section composed of a plurality of hinged panels, means for holding the upper section, means for holding the lower section, and means for securing together on the inside of the door one of the door-sections to the other, substantially as described.

2. The combination with a door-frame, of a door composed of a plurality of horizontally-disposed sections hinged to the frame, means for holding the upper section, means for holding the lower section, and a common device for operating the holding means, substantially as described.

3. The combination with a door-frame, of a door composed of a plurality of sections, a rock-shaft mounted on the door-frame, locking devices connected to said rock-shaft and adapted to be moved thereby to lock or release one section a chain secured to the door-frame and adapted to lie across the other door-section, a windlass or the like for operating said chain, and a connection from said windlass to said rock-shaft for operating the latter, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES VAN SLYKE.

Witnesses:
JIM CARTER,
F. M. MANSFIELD.