

No. 677,379.

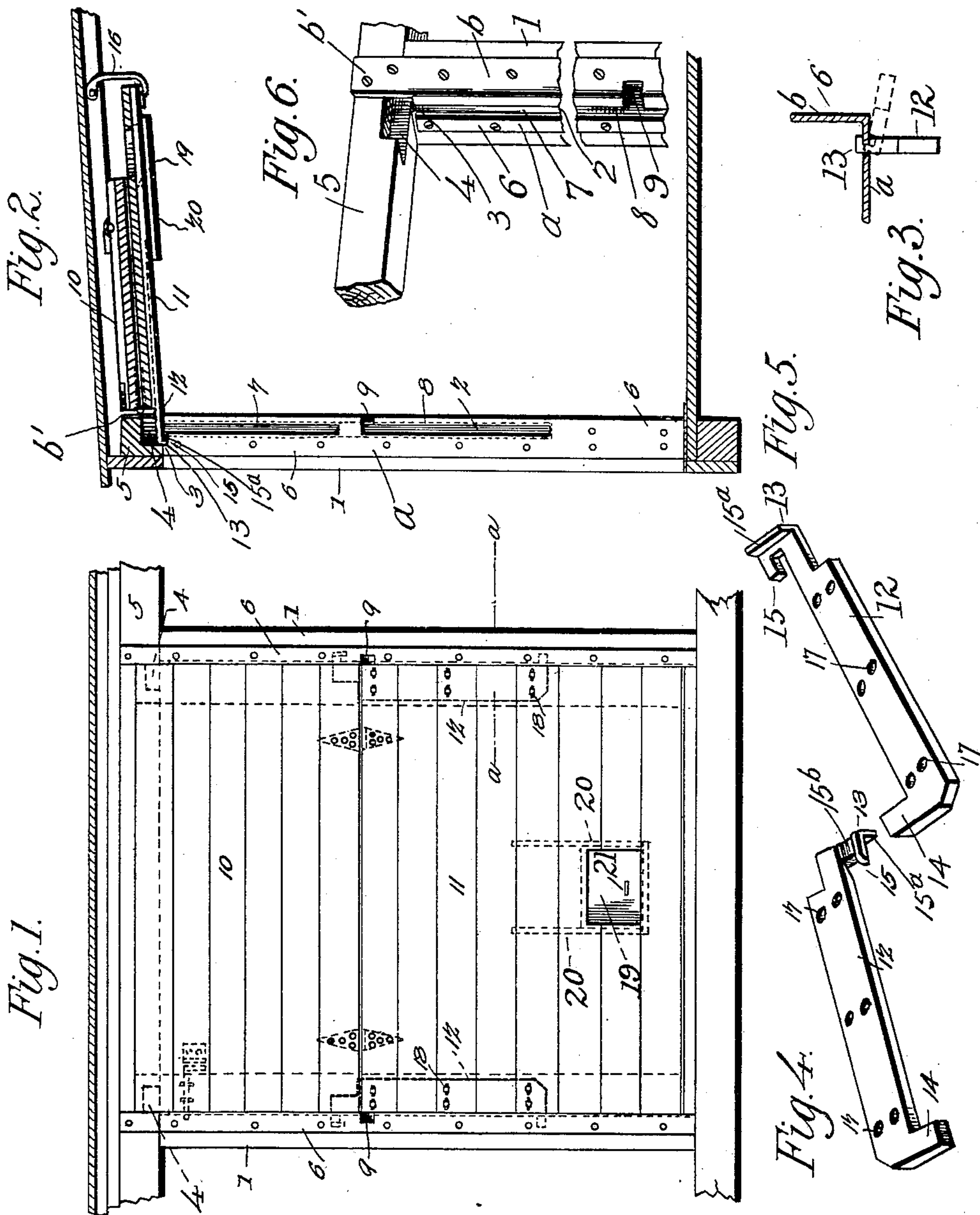
Patented July 2, 1901.

P. J. STONE.

GRAIN DOOR.

(Application filed Apr. 4, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## GRAIN-DOOR.

SPECIFICATION forming part of Letters Patent No. 677,379, dated July 2, 1901.

Application filed April 4, 1901. Serial No. 54,346. (No model.)

*To all whom it may concern:*

Be it known that I, PETER J. STONE, a citizen of the United States, residing at Athens, in the county of Bradford and State of Pennsylvania, have invented a new and useful Grain-Door, of which the following is a specification.

My invention is an improved grain-door for grain-cars; and it consists in the peculiar construction and combination of devices herein-after fully set forth and claimed.

In the accompanying drawings, Figure 1 is an elevation of the inner side of a grain-door constructed in accordance with my invention, showing the same closed. Fig. 2 is a sectional view of the same, showing the door raised and opened. Fig. 3 is a detail section taken on a plane indicated by the line *a a* of Fig. 1. Fig. 4 is a detail perspective view of one of the hinge-plates. Fig. 5 is a similar view of the same, showing the reverse side thereof. Fig. 6 is a detail perspective view of the upper portion of one of the angle-plates.

The posts 1 in the side of the car and which form the sides of the doorway are provided in their opposing inner sides with vertical slots 2, which are open at their upper ends, as at 3, and communicate with rabbets 4 in the plate 5. The inner corners of the posts 1 are covered by angle-plates 6, as shown. The sides *a* of said angle-plates form the jambs, and the sides *b* thereof form the trimmers. The jambs extend from the floor to the lower side of the plate 5. The trimmers have at their upper ends the vertical extensions *b'*, which bear upon and are secured to the inner side of the plate 5. The jambs *a* of said angle-plates are provided with vertical slots 7, which extend downward from the upper ends thereof for a suitable distance, which slots 7 are open at their upper ends, and which slots 7, which are narrower than the slots 2 in the posts 1, communicate with the upper portion of said slots 2, which are otherwise covered by said angle-plates. The latter below the slots 7 are provided with bayonet-slots 8, the vertical portions of which register with the slots 2 of the posts 1, and the horizontal portions 9 of which at the upper ends of the vertical portions of said slots 8 are open on the inner sides of said angle-

plates, as shown, and communicate laterally with the slots 2.

The grain-door comprises the usual upper hinged leaf 10 and the lower leaf 11. Said upper leaf 10 is adapted to be folded over the lower leaf 11 when opened and to be carried up by said lower leaf when the latter is swung up and secured under the roof of the car. On the outer side of the lower leaf 11, at the sides thereof, are secured hinge-plates 12, which at their upper ends are provided with heads 13 and at their lower ends with arms 14, which heads and arms project laterally beyond the side edges of the door and are adapted to travel, respectively, in the slots 7 8, and hence in the slots 2. The heads 13 are provided with hooks 15, having flanges 15<sup>a</sup>, which are adapted to bear on the upper ends of the angle-plates 6 when the door is raised and swung up under the roof of the car and secured by the hook or other device 16, as shown in Fig. 2. In the sides of said heads 13 opposite said flanges 15<sup>a</sup> are grooves 15<sup>b</sup> to admit of the insertion of said heads in said slots 7 prior to the attachment of the hinge-plates 12 to the grain-door, as is indicated in Fig. 5. When the hinge-plates have been secured to the angle-plates and door, the latter, while free to be opened or closed, cannot be removed, excepting by first removing the hinge-plates therefrom. When the grain-door is lowered to a vertical position between the posts 1 at the upper side of the doorway, the arms 14 of the hinge-plates 12 enter the slots 8 through the lateral open portions 9 thereof, and the heads 13, which form the pivots for the door and are prevented from becoming unshipped from the rabbets 4 by the vertical extensions *b'* of the angle-plates, enter the upper slots 7, said heads and arms forming guides and adapting the door to slide vertically in the ways formed by the slots 2 7 8, as will be understood. Hence the said slotted plates and the said hinge-plates 12 not only adapt the door to be opened inward and swung upward from its lower side when raised to the top of the doorway, but also form means to securely hold the door between the posts 1 when lowered and to sustain the same in place against the thrust of the grain. The said plates 12 are provided with lateral slots



17 for their securing bolts or screws 18, so that the said plates may be adjusted as may be required to compensate for any sagging or racking of the car-frame, as will be understood.

5 The grain-door is provided with a wicket 19 in its lower side, which operates in guides 20 on the outer side of the door. Said wicket is provided with any suitable means, as at 10 21, whereby it may be raised, and the guides 20 thereof may be provided with any suitable means whereby a stack or a grain-spout may be attached thereto to catch the grain as the same passes through the grain-door when the 15 wicket is raised. Hence the grain in the car may be readily sacked as it is taken therefrom, and, moreover, the wicket when raised is effective in relieving the pressure of the grain on the inner side of the door prior to 20 the raising of the grain-door, as will be understood.

Having thus described my invention, I claim—

1. In combination with a doorway having 25 vertical slots in its sides, said slots open at their upper ends and having lateral openings communicating with said slots, angle-plates on the sides of said doorway, said angle-plates having vertical slots and lateral openings, 30 registering with those of the doorway, the inner sides of said angle-plates projecting above the slotted sides thereof, a door having hinge-plates at its sides, said plates being provided at their outer edges with projecting heads and 35 arms adapted to operate in said slots, said heads having hooks to engage the sides of said angle-plates at the upper ends of said

slots, to form pivots for the door, said hooks having flanges 15<sup>a</sup> on one side and grooves 15<sup>b</sup> on the opposite side, for the purposes set 40 forth, and said arms being adapted to register with the lateral openings in said slots when said door is raised to the upper side of the doorway, substantially as described.

2. In combination with a doorway having 45 vertical slots in its sides, said slots open at their upper ends and having lateral openings communicating therewith, at points between the upper and lower sides of the doorway, angle face-plates on the sides of the doorway, 50 said angle-plates having slots and lateral openings registering with those of the sides of the doorway, a door having hinge-plates at its sides, provided at their outer edges with projecting heads and arms adapted to oper- 55 ate in said slots, said heads having hooks to engage the sides of the doorway at the upper ends of said slots and form pivots for the door, and said arms being adapted to register with the lateral openings in said slots when 60 said door is raised to the upper side of the doorway, to permit the inward swinging thereof, said arms and said angle-plates locking said door against other than vertical move- 65 ment when said door is lowered, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PETER J. STONE.

Witnesses:

EDWARD S. JOHNSON, Jr.,  
GEO. GROSVENOR.