

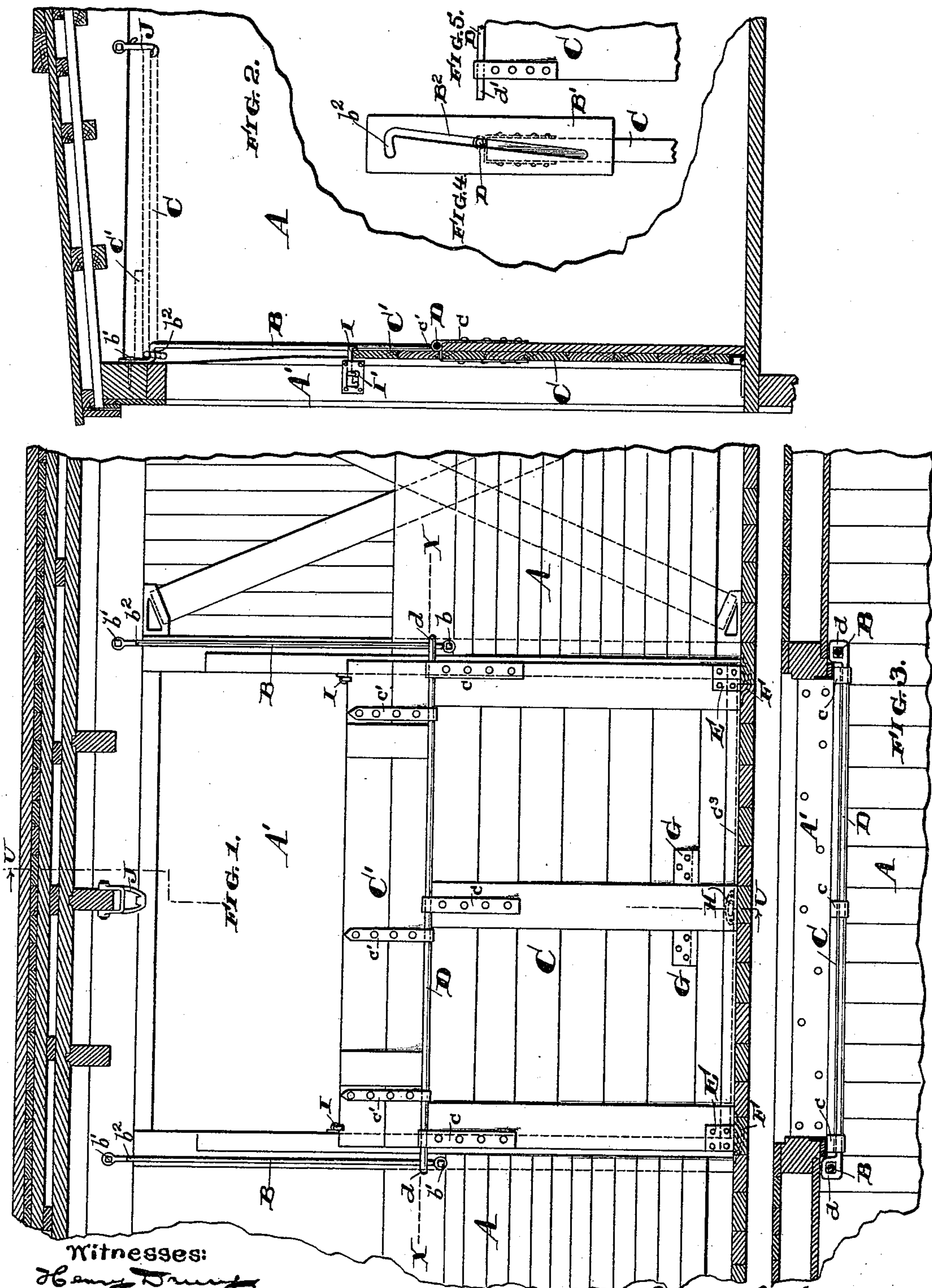
(No Model.)

2 Sheets—Sheet 1.

LE BARON REIFSNEIDER.
GRAIN CAR DOOR.

No. 438,737.

Patented Oct. 21, 1890.



Witnesses:

Henry D. Dwyer
Ag. Quinn

Inventor:

Le Baron Reifsneider
by his attorney
James T. Chamberlain

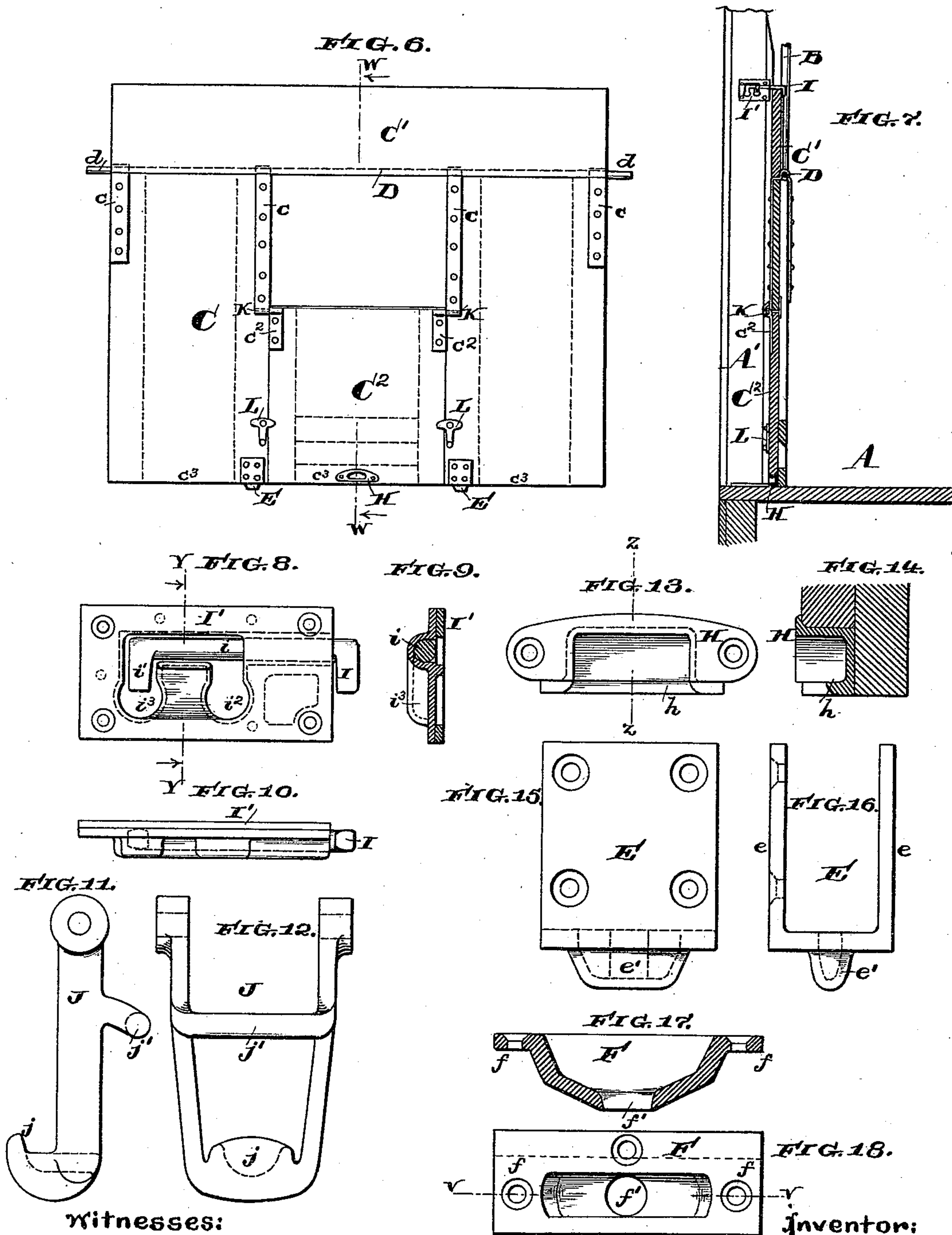
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Witnesses:

Henry Denny
A. J. Dunn

Inventor:

Le Baron Reifsnider
by his attorney
Francis T. Chambers

UNITED STATES PATENT OFFICE.

LE BARON REIFSNEIDER, OF ALTOONA, PENNSYLVANIA.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 438,737, dated October 21, 1890.

Application filed April 4, 1890. Serial No. 346,581. (No model.)

To all whom it may concern:

Be it known that I, LE BARON REIFSNEIDER, of Altoona, county of Blair, State of Pennsylvania, have invented a certain new and useful Improvement in Grain-Car Doors, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to railroad-cars used for carrying grain, and particularly to the construction of the inner or grain door of such cars.

The object of my invention is to provide grain-doors and coacting appliances which will be better fitted for the exigencies of use than those heretofore employed.

The nature of my improvements will be best understood as described in connection with the drawings in which they are illustrated, and the novel features which I desire to protect by this patent are hereinafter set forth in the claims.

In the drawings, Figure 1 is a side view showing a portion of a grain-car provided with my improved device. Fig. 2 is a sectional elevation taken on the line *u u* of Fig. 1. Fig. 3 is a sectional plan taken on the line *x x* of Fig. 1. Figs. 4 and 5 illustrate a modification of the device shown in the above figures. Fig. 6 is an elevation of the grain-door, showing in addition to the features shown in Fig. 1 a supplemental door formed in the grain-door proper. Fig. 7 is a sectional elevation on the line *w w* of Fig. 6. Fig. 8 is an elevation of the catch or swing bolt used to hold the grain-doors down. Fig. 9 is a cross-section on the line *y y* of Fig. 8; Fig. 10, a plan view of the catch shown in Figs. 8 and 9; Fig. 11, an elevation of the catch or hook used to hold the grain-door up to the top of the car; Fig. 12, a back view of the said catch or hook. Fig. 13 is a front elevation of the socket secured to the lower edge of the grain-door and adapted to engage with the catch on the roof thereof. Fig. 14 is a cross-sectional elevation taken on the line *z z* of Fig. 13. Fig. 15 is a front elevation, and Fig. 16 a side elevation, of one of the shoes with projecting ends used to hold the lower part of the door in place on the floor of the car. Fig. 17 is a sectional view taken on the

line *v v* of Fig. 18 of the socket used to engage the ends of the shoes aforesaid, and Fig. 18 is a plan view of said socket.

A is the grain-car; A', a doorway formed in the side thereof. The outside of this doorway can be provided with doors of any usual construction. I have not thought it necessary to show any in the drawings.

B B are guides secured on the inside of the door-framing and having a shoulder *b²* formed on their tops, *b' b'* indicating screws or spikes used to hold the guides in place. As shown, and as I prefer to construct them, these guides are formed out of bent rods.

C is the grain-door, made usually of about one-half the height of the doorway.

D is a rod secured along and above the top of the door C by means of straps *c*. The rod D is continued beyond the edges of the grain-door and formed with loops *d d* at its ends, which pass around the guide-rods B and secure the door to said rods.

Instead of rods, such as B B, I could use as guides plates B', (see Fig. 4,) having slots B² formed therein; and in that case instead of using a loop, such as *d*, a projecting rod end, such as *d'*, Fig. 5, would pass into the slot B² and secure the door to the guide. This modified construction is, generally speaking, an obvious equivalent for the preferred construction shown in the other drawings.

E E are projecting shoes secured to the lower edges of the grain-door and consisting of straps *e e*, by which it is secured to the door, and a projection or tenon *e'* extending downward from the bottom of said straps.

F F are sockets to receive the projections *e'* of the shoes E. These sockets are secured to the floor of the car by means of flanges *f*, and are preferably provided with a central opening *f'*, which, if necessary, registers with a hole through the floor, so that any dirt or grain getting into the sockets will fall through to the ground.

G G are handles by which the door is raised or adjusted in position.

H is a socket attached to the lower edge of the door, as shown, and having a projecting lip *h* (see Figs. 13 and 14) to engage the hook on the roof of the car.

i i are longitudinally-retractible and axially-rotatable hook-bolts, the function of which

is twofold—first, to hold the grain-door down in position, and, second, to hold the flap-door C' up. This flap-door C' is hinged to the top of the grain-door C by means of strap-hinges 5 *c'* passing around the rod D, and it is arranged so as to fold down against the door C, as indicated by the dotted curve in Fig. 2. When this flap-door C' is used, the catches *i* are thrust out and their hooked ends I turned down, as shown, so that they will hook over the top edge of the flap and hold it in position, as shown in Figs. 1 and 2, serving at the same time their other function of holding the grain-door down and preventing its being raised 15 until the catches or hooks are withdrawn. The catch or hooked end is formed on the outer end of the bolt *i*, which slides in the socket I', having two detents *i*³ *i*² to engage the turned-down end *i'* of the bolt. By this construction the downwardly-turned ends I and *i'* of the bolt *i* both act to cause the end *i'* to fall downward by gravity and engage itself in one of the detents in the socket.

J is a catch, which I secure to the roof of 25 the car by pivoting it on a carling, as shown, in such a position that it will engage the lower end of the grain-door when it is pushed upward. This catch is constructed as shown in Figs. 11 and 12, having a hooked end *j* adapted to engage the projection *h* on the catch H, and having, also, a projection or counter-weight *j'* on its back, which will tend to throw the hooked end forward and keep it engaged with the flange *h*, and also as by 35 coming in contact with the carling as a stop which prevents the door C from sliding forward on the shoulders *b*² far enough to become disengaged from them. I prefer to construct my grain-door with a flap-door C' (see Figs. 6 and 7) in its lowest part. This door can conveniently be hinged to a rod K by means of strap-hinges *c*², and is held in place so as to close the opening in the grain-door, by means of swing-hasps L L. Preferably I provide a 45 shoe of sheet metal *c*³ to protect the lower edge of the grain-door.

When the grain-door is in use, the projecting ends of the shoes E extend into the sockets F, holding the lower edge of the door in 50 place. The flap-door C' is turned up, as shown in Figs. 1 and 2, and the catches *i* are forced in and turned over the top edge of the flap-door, holding it up and both it and the grain-door C from being raised. When it is 55 desired to raise the grain-door, the catches *i* are withdrawn, the flap-door C' turned down against the inside of the grain-door C, and the said grain-door is then lifted up, sliding on the guides B B until it reaches the top thereof, when it turns over the shoulder *b*² and rests upon the same, the lower edge of the door folding up against the roof of the car and being engaged by the catch J, leaving doorway A' open. In devices heretofore

used as grain-doors laborers in unloading the 65 car frequently break or cut away the upper portion of the door, practically destroying it. By running the rod D above the upper edge of the grain-door proper I make it practically impossible for them to break away the upper 70 edge.

The hook-bolts *i* afford a secure fastening for the doors C and C', and one which will only engage them at the will of the operator. The combination of the rods B with shoulders 75 *b*², the door C, and the peculiar catch J avoids a difficulty common to many devices for similar purposes, and the shoes E at the same time strengthen the bottom of the door and afford convenient devices for securing it in 80 place.

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

1. In a grain-car, an inner grain-door C, 85 having a continuous rod D, secured along and above its upper edge by straps *c c*, extending down on both sides of the door, said rod D extending beyond the edges of the door, in combination with guides B B or their 90 equivalents, as described, to which guides the rod D is secured at its ends, means for securing the door at the bottom of the car, and a catch to hold said door at the top of the car. 95

2. In a grain-car, an inner grain-door C, having a continuous rod D, secured along and above its upper edge by straps *c c*, extending down on both sides of the door, said rod D extending beyond the edges of the 100 door, in combination with a flap-door C', hinged by straps *c' c'* to the rod D, guides B B or their equivalents, as described, to which guides the rod D is secured at its ends, means for securing the door at the bottom of the car, 105 a catch, as *i*, arranged to hold the flap-door up and the door C in its lower position, and a catch to hold said door at the top of the car.

3. In a grain-car, substantially as described, the combination, with the vertically-movable 110 grain-door C and hinged flap-door C', of the longitudinally-retractible and axially-rotatable hook-bolt *i*.

4. In a grain-car, substantially as described, the combination of the guides B B or their 115 equivalents, as described, having shoulders *b*² at their upper ends, the grain-door C, sliding on said guides, and the hook J, pivoted to a carling of the car, as shown, and having a backwardly-projecting arm *j'*, arranged as 120 described, and so as to act as a counter-weight and as a stop to prevent the hook moving back far enough to permit the door to become disengaged from the shoulders *b*².

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