

(No Model.)

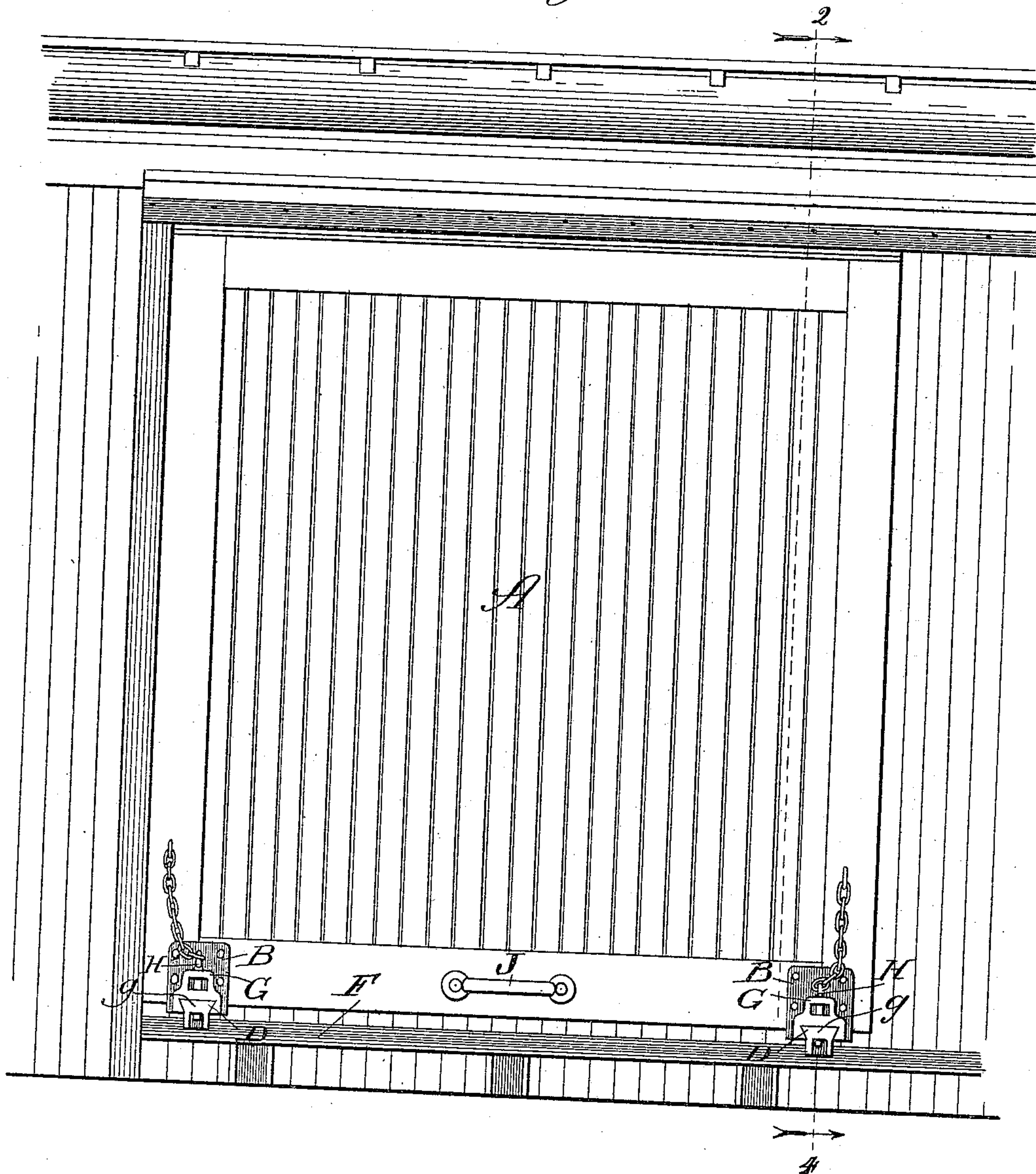
C. A. SCHROYER.
GRAIN CAR DOOR.

2 Sheets—Sheet 1.

No. 450,430.

Patented Apr. 14, 1891.

Fig. 1.



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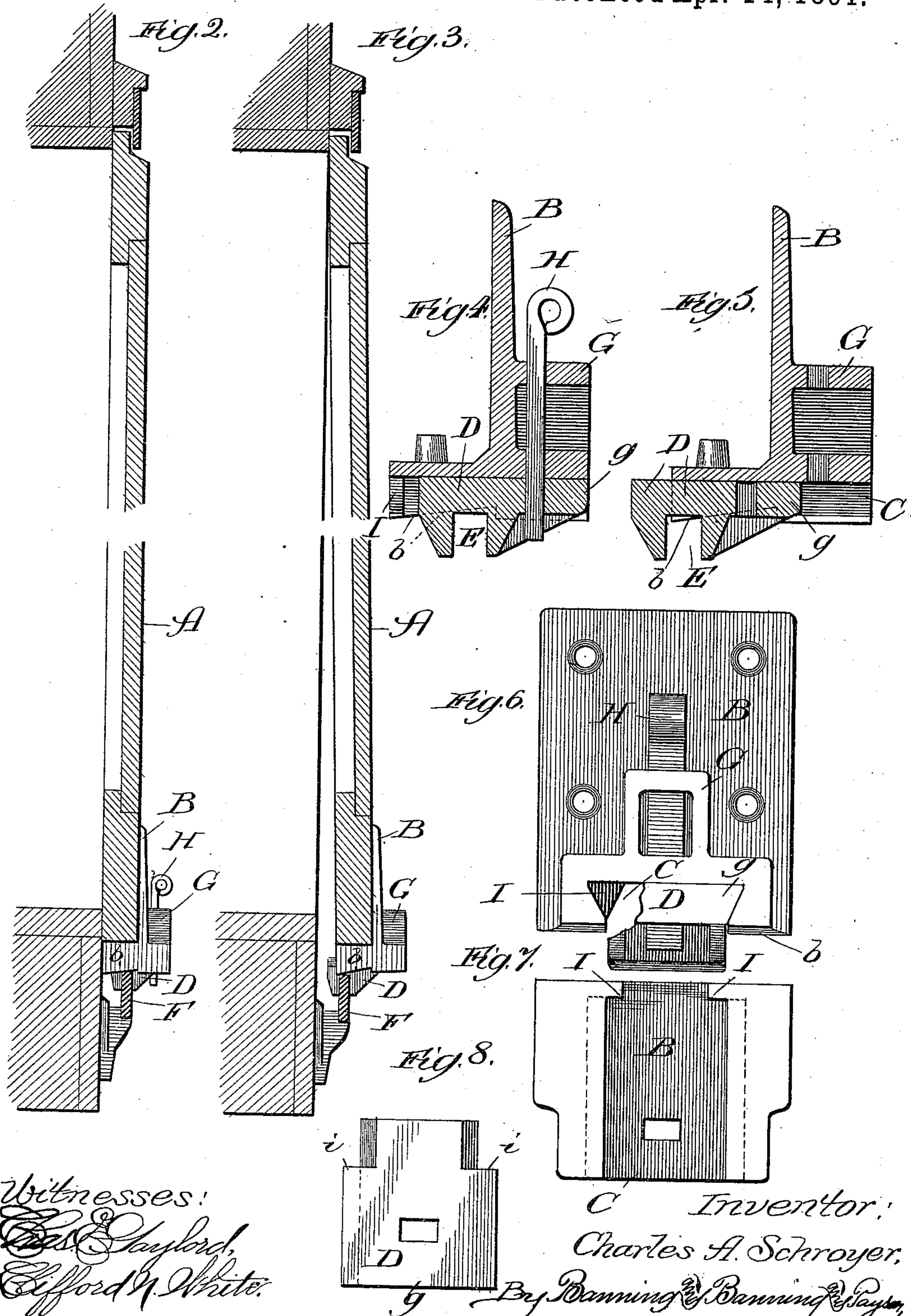
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UNITED STATES PATENT OFFICE.

CHARLES A. SCHROYER, OF CHICAGO, ILLINOIS.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 450,430, dated April 14, 1891.

Application filed December 4, 1890. Serial No. 373,574. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SCHROYER, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification.

The object of my invention is to make a car-door that will not bind against the side of the car when it is being opened, even though the side of the car be pressed or bulged out by the load of grain within; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my improved grain-car door closed. Fig. 2 is a transverse vertical section taken through the line 2 of Fig. 1, looking in the direction of the arrows, showing the door in its closed position. Fig. 3 is a transverse vertical section of the same, showing the door open or slid back along the side of the car. Fig. 4 is a transverse vertical section of one of the lower fastening-brackets of the door, taken through the line 4 of Fig. 1, looking in the direction of the arrow. Fig. 5 represents the same as it appears when the fastening-pin is removed and the door sprung out. Fig. 6 is an enlarged front elevation of the lower fasteners of the door with a part broken away. Fig. 7 is a bottom plan view of the fastening-bracket, and Fig. 8 is a plan view of the sliding plate of the fastener.

When the car is filled with grain, there is a pressure on the inside against the sides of the car, which has the effect of causing them to bulge or to be pressed out more or less, according to the strength of the car. When the sides are bulged out by the pressure of the load of grain within, it of course bends or pushes out the guides or ways along which the door slides in opening. This has the effect of causing the door to bind against the side of the car or in its tracks or ways when it is attempted to slide it back to open it. In order to obviate this difficulty, I have provided means which enable the door, when released for the purpose of being opened, to spring or move out, so as to accommodate itself to the bend or bulge caused in the side of the car or in its ways by the pressure of the load of grain in the car.

In making my improved car-door I make a

door A, adapted to move back and forth along the sides of the car in upper and lower rails or ways, as usual. I provide the lower edge of the door with fastening-brackets B, which are secured to the sides of the door by bolts or screws, as may be desired. The under side of the fastening-bracket is provided with a groove or channel C, transverse to the track or way, preferably dovetailed, in which a sliding plate D is arranged. This sliding plate is provided on its lower side with a groove or channel E, adapted to engage with the lower rail or way F, along which the door slides or moves as it is opened or closed. The fastening-bracket is provided with an outwardly-projecting portion G, and the sliding plate is provided with an outwardly-projecting portion g, and a vertical hole is provided through the projecting portion of the fastening-bracket and projecting portion of the plate to admit of a bolt or fastening-pin being inserted to hold the door securely in place when closed.

In order to prevent the door from moving laterally entirely off of the sliding plate, I provide means for catching or stopping it after it has moved out a desired distance. These means may be of any desired kind, although I have shown in the drawings a stop I near the inner edge of the fastening-bracket and have provided the sliding plate with stops i, that engage with the stops on the fastening-brackets when the door is sprung or moved out a predetermined distance.

In order to keep the door in as close position to the sides of the car as possible, the under side of the fastening-brackets B are provided with an upwardly and outwardly inclined surface b, which rests at all times upon the track or rail F. This tends to cause the door to automatically slide or move in toward the side of the car, and all jarring of the car in transit will have the tendency of making the door constantly hug closer to the side of the car.

When the car has been filled with grain and shipped to its destination and it is desired to open the door, so as to remove the load, the pin H is withdrawn, which permits the door to move out on the sliding plate D sufficient to accommodate itself to any bulge which may have been caused by the pressure of the load on the inside of the car. As the

door is slid back on its ways F, it will move out enough on the sliding-plate to always permit it to accommodate itself to the bulge in the side of the car. A handle J is also provided to enable the door to be pulled out a sufficient distance on the sliding plate, if desired, to enable it to clear the car.

Although I have described my improvement in connection with grain-cars, yet it is obvious that it is applicable to stock and other cars in which heavy loads are carried. In the case of stock-cars the refuse accumulating in the car will be tramped and packed by the stock out through the slats, so as to bear against the lower end of the door and bind it against the rail or way on which it moves. I make this explanation so that it will be understood that I contemplate the use of my improvements in connection with cars of all kinds in which a binding-pressure against the door may be occasioned in use.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a car-door, the combination of a track or way along which the lower end of the door moves in opening and closing, a fastening-bracket secured to the lower end of the door and provided with a groove or channel in its lower side transverse to the track or way, and a plate arranged in the groove or channel and engaging the track or way and movable along the same and permitting the fastening-bracket to move on it toward and from the side of the car, substantially as described.

2. In a car-door, the combination of a track or way along which the lower end of the door moves in opening and closing, a fastening-bracket secured to the lower end of the door

and provided with a groove or channel in its lower side transverse to the track or way, a plate arranged in the groove or channel and engaging the track or way and movable along the same and permitting the fastening-bracket to move on it toward and from the side of the car, and stops to limit the extent of movement from the side of the car of the fastening-bracket on the plate, substantially as described.

3. In a car-door, the combination of a track or way along which the lower end of the door moves in opening and closing, a fastening-bracket secured to the lower end of the door and provided with a groove or channel in its lower side transverse to the track or way and extending out beyond the side of the door, and a plate arranged in the groove or channel and engaging the track or way and movable along the same and permitting the fastening-bracket to move on it toward and from the side of the car and extending out beyond the side of the door, and a fastening pin or bolt for locking the fastening bracket and plate, substantially as described.

4. In a car-door, the combination of a track or way along which the lower end of the door moves in opening and closing, and a fastening-bracket secured to the lower end of the door and provided with an upwardly and outwardly inclined bottom surface resting on the track or way to cause the door to slide in toward the side of the car until positively moved from it, substantially as described.

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Witnesses:

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