

(No Model.)

E. A. HILL.
GRAIN DOOR FOR CARS.

No. 479,070.

Patented July 19, 1892.

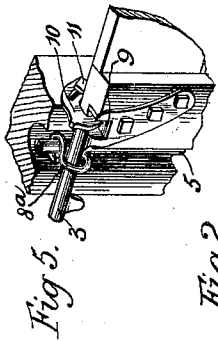


Fig. 5.

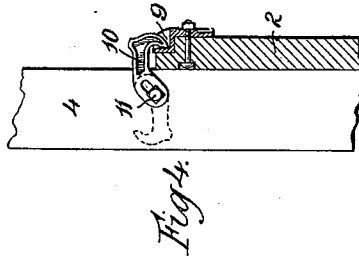


Fig. 4.

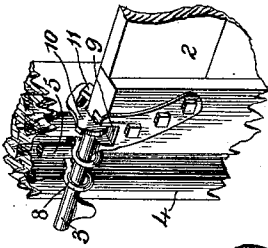


Fig. 3.

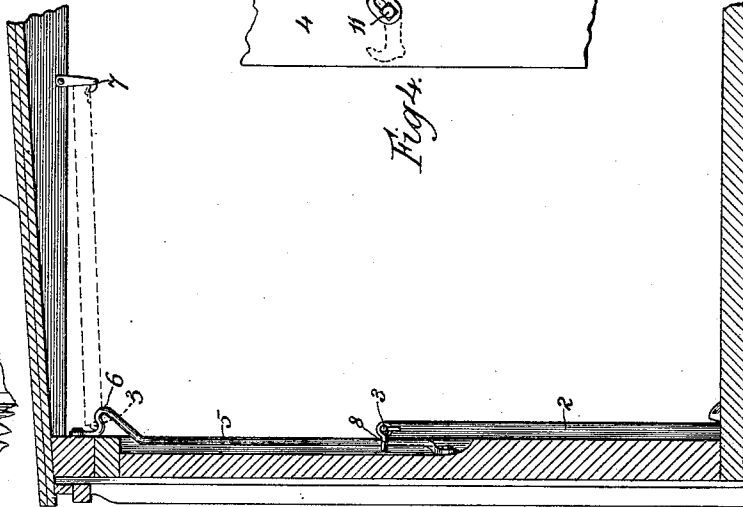


Fig. 2.

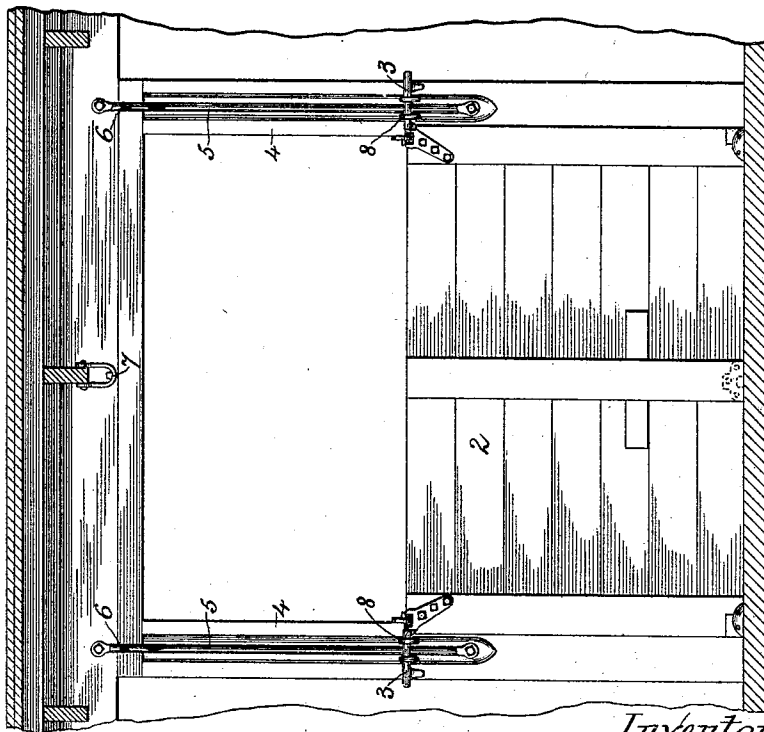


Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD A. HILL, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
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GRAIN-DOOR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 479,070, dated July 19, 1892.

Application filed January 5, 1892. Serial No. 417,053. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. HILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Grain-Doors for Cars, of which the following is a specification, reference being had to the accompanying drawings.

The devices forming the subject-matter of this specification are applicable to grain-doors generally, the improvement embodied herein relating to the connection of the vertical side rods on which the door is elevated, and the corner-pieces projecting from the door, and to the combination of devices for holding the top edge of the door when the latter is lowered.

My invention consists in the parts and combinations hereinafter described and claimed.

In the drawings, Figure 1 is a side view of the door in its lowered position and of a portion of the car adjacent thereto as seen from within. Fig. 2 is a vertical cross-section of the same. Fig. 3 shows in detail, on an enlarged scale, the corner of the door and the parts adjacent thereto. Fig. 4 shows a cross-section of the corner of the door and shows, also, the adjacent parts; and Fig. 5 shows a modified form of the ring or shackle forming the connection between the pivot on the door and the vertical rod.

2 is the grain-door, provided at or near each upper corner with pivots 3 3.

4 4 are the side posts of the car, which are preferably grooved, as shown, to permit the setting in of the guide-rods 5 5 flush with the inner surface of the posts. Said rods 5 5 have ledges 6 6 at their top upon which the pivots 3 3 may rest when the door is raised.

7 designates the hook by which the inner edge of the door is held when raised.

The connection between each rod 5 and its corresponding pivot 3 consists of a shackle 8 of clevis-like form which surrounds the rod 5 and the pivot 3, as shown in Fig. 3. It may

have either one eye, as shown at 8^a in Fig. 5, or two eyes, as seen at 8 in the other figures, encircling the pivot 3, these eyes being in either case at right angles, or approximately so, to the opening through which the rod 5 passes. Thus a universal joint is formed which permits free rotation of the door upon its pivots and also permits it to be raised and in rising to pass easily over the bends forming the ledges 6 in the rods.

By providing a separate aperture for the guide-rod and for the pivot I preserve the freedom of motion of the door upon its pivot at every point and also allow the door to easily pass the bends forming the ledges at the upper end of the guide-rods, while the connection may be made as a whole to work smoothly with very little slack.

At the upper edge of the corner-piece, upon which the pivot 3 is formed, is made a pocket or recess 9, in which the hook 10, secured to the door-post, may engage when the door is lowered, the latter being thus prevented from rising and being held close to the car-side. The hook 10 is slotted at its outer end to receive the bolt 11, which secures it to the car-side. This slotting of the hook 10 allows it to be made long enough to reach across the top of the door, while it can still be swung back in the limited space between the grain-door and the outer door.

I claim—

The combination of a door, a pivot at or near each upper corner thereof, a guide-rod at each side of the doorway, and a shackle connecting each pivot and rod, said shackle having separate apertures through which the pivot and rod respectively pass, substantially as described.

EDWARD A. HILL.

Witnesses:

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