(No Model.)

H. M. TYRRELL.

GRAIN CAR DOOR.

No. 589,198. Patented Aug. 31, 1897.

FIG. 1.

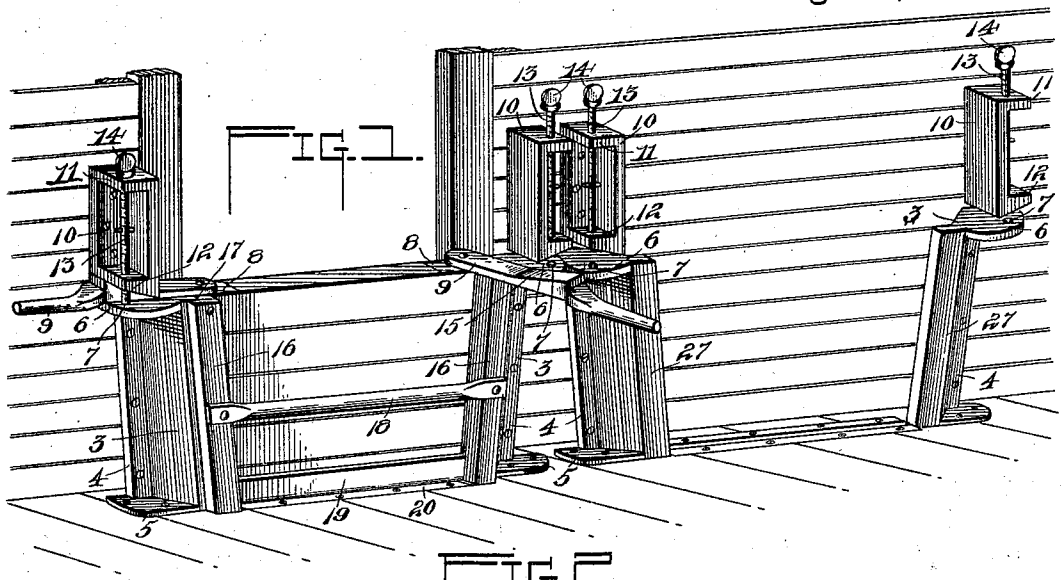


FIG. 2.

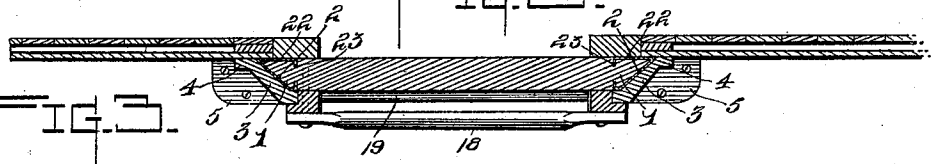


FIG. 3.

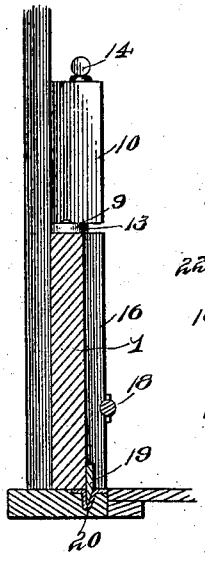


FIG. 4.

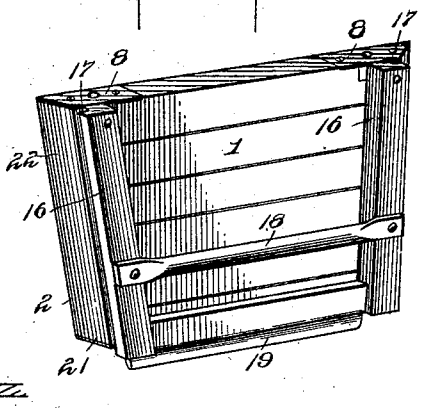
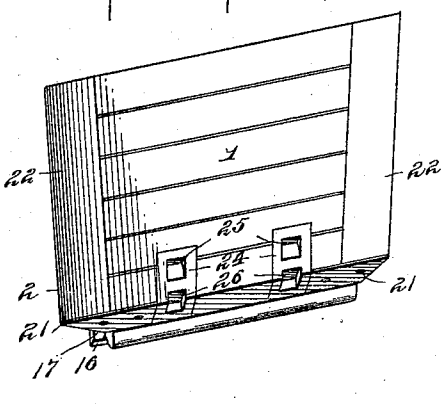


FIG. 5.



Inventor

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Witnesses

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UNITED STATES PATENT OFFICE.

HARRY MURRY TYRRELL, OF COFFEYVILLE, KANSAS.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 589,198, dated August 31, 1897.

Application filed October 12, 1896. Serial No. 608,688. (No model.)

To all whom it may concern:

Be it known that I, HARRY MURRY TYRRELL, a citizen of the United States, residing at Coffeyville, in the county of Montgomery and State of Kansas, have invented a new and useful Grain-Car Door, of which the following is a specification.

This invention relates to grain-car doors, and has for its object to provide a door of this character which will be perfectly grain-tight, durable, and capable of being easily operated, which will take up a minimum amount of space and be out of the way when not in use, and which has provision whereby it may be securely locked in either its operative or inoperative position.

Other objects and advantages of the invention will appear in the course of the ensuing description.

The invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter particularly set forth, illustrated in the drawings, and embodied in the claims.

In the accompanying drawings, Figure 1 is an interior perspective view of a portion of a box-car, taken adjacent to the door-opening and showing the improved grain-door and the manner of mounting the same. Fig. 2 is an enlarged horizontal section through the door and its keepers. Fig. 3 is a vertical section through the door and a portion of the car-floor. Fig. 4 is a perspective view of the car-door detached, taken from the inside and showing the top edge thereof. Fig. 5 is a similar view of the car-door, taken from the outside and showing the bottom edge of the door.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

The grain-door contemplated in this invention is vertically slidable and removable and is wedge shaped. In other words, the side edges of the door (indicated at 1) converge toward the bottom edge of the door, so that as soon as the door is started upward its removal is greatly facilitated. The converging side edges of the door are also chamfered off or beveled, as indicated at 2, leaving the door wider at its front side than at the inside. To receive and hold the door, keepers 3 are arranged at each side of the door-opening, and these keepers converge toward their lower ends to correspond to the convergence of the side edges of the door. The keepers 3 are provided with flanges 4, by which they are secured to the inner surface of the side of the car, and at their bottom ends they are also provided with foot-flanges 5, by which they may be bolted or otherwise secured to the car-floor. The door-engaging surfaces of the keepers 3 are beveled so as to firmly and frictionally engage the chamfered edges 2 of the door, so that as the door is moved downward into place it will be crowded against the inner surface of the car side or against the door-posts, as the case may be.

At their upper ends the keepers 3 are provided with horizontal rests or flanges 6, extending in opposite directions therefrom and provided with vertical openings 7, the purpose of which will hereinafter appear. The door 1 is provided on its upper edge and at each side with metal plates 8, and pivotally mounted on each of said plates is a locking-lever 9. These locking-levers are arranged at each side of the door and are adapted to be swung outward, so as to extend in opposite directions and move onto the horizontal rests or flanges 6. At each side of the door-opening and located above the flanges 6 are brackets 10, provided at top and bottom with horizontal extensions 11 and 12, through which pass locking bolts or pins 13, provided at their upper ends with heads 14, whereby they may be turned, the said bolts having a threaded engagement with said brackets, so that when turned their lower ends may be moved downward and caused to enter the openings 7 in the flanges 6, above referred to. The locking-levers are provided intermediate their ends with inclined surfaces 15, which engage beneath the correspondingly-inclined lower ends of the brackets 10. The relation of the locking-levers and locking-bolts is such that when said levers are moved outward, as shown in Fig. 1, and the locking-bolts moved downward said bolts will confine the locking-levers between them and the side of the car, thus preventing any movement of said levers and rendering it impossible for the door to

get loose or become displaced. By moving the bolts 13 upward the locking-levers 9 may be rocked inward toward each other and from beneath the brackets 10, after which the door may be moved upward and taken out.

Upon its inner side the door 1 is provided at each side edge with a cleat 16, the outer edge of which is rabbeted, as at 17, to embrace the inner edge of the adjacent keeper 3, and these cleats, which also converge downwardly to correspond with the side edges of the door, are connected by a horizontal bar 18, which serves to brace the cleats and also forms a handhold by which the door may be lifted. Along the bottom edge of the door extends a metal strip 19, the lower edge of which projects beneath the edge of the door and enters a grooved plate 20, set into the floor of the car so as to be flush therewith, the plate 19 thus forming a cut-off for preventing grain from getting under the bottom edge of the door. Wear-plates 21 are secured to the bottom edge of the door, at each side, and the chamfered side edges of the door are protected by strips of sheet metal 22, which are bent around such chamfered edges and extended inward a short distance upon the outside and inside of the door, the extreme edges of the strip being bent inward toward each other and embedded in the door, as indicated at 23. It will thus be seen that the door, which is preferably made of wood, is thoroughly protected and reinforced upon all its edges, and that it is a matter of impossibility for grain to escape around the side edges of the door or beneath the bottom edge thereof.

The door is provided in its outer side with metal hand-lifts 24, which are set into the door so as to be flush therewith and recessed, as at 25, to admit the fingers. They are further recessed, as indicated at 26, to admit the end of a pry for starting the door upward should it become stuck.

At a convenient point within the car, and preferably adjacent to the door-opening on one side, other keepers 27 are provided for holding the door when the same is not required for use. Other sets of brackets 10 and lock-bolts 13 may be provided at this point for engaging the locking-levers 9, and thus the door, when not in use, may be held firmly where it will be out of the way until again needed.

It will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. The combination of fixed keepers provided at their upper ends with horizontal rigid flanges, stationary brackets arranged above said flanges, and spaced vertically with relation thereto, to leave openings between said brackets and said flanges, a door fitted slidably between said brackets, locking-levers fulcrumed on, and carried by, said door and adapted to be swung horizontally to occupy the spaces between said brackets and the keeper-flanges, and vertically-adjusted locking rods or pins carried by said brackets and arranged to be projected across the levers to confine the latter in their locked positions, as and for the purposes described.

2. The combination with fixed keepers and a slidable door, of brackets fastened above, and spaced vertically with relation to said keepers, locking-levers fulcrumed on, and carried by, said door, and provided with wedge or cam formed faces arranged to have wedging engagement with said brackets, and locking devices carried by the brackets to have fixed engagement with the keepers and to confine the locking-levers against displacement beneath the brackets, as and for the purposes described.

3. A vertically-sliding grain-door, in combination with locking-levers fulcrumed on vertical axes on the top edge of the door at opposite sides and provided with inclined surfaces, as described, stationary brackets on the car-body having inclined portions for engagement with said levers, and locking-bolts mounted in said brackets and adapted to engage said levers, substantially as described.

4. A sliding grain-door, in combination with spaced keepers between which the door slides, horizontal flanges at the upper ends of said keepers having vertical openings as described, locking-levers pivotally connected to said door at opposite sides, stationary brackets on the car-body arranged above said flanges, the locking-levers being movable between said flanges and brackets, and vertically-movable locking-bolts mounted in said brackets and adapted to engage the openings in said flanges, 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.

HARRY MURRY TYRRELL.

Witnesses:
CYRUS EVANS,
D. W. STEVENSON.