No. 676,052. Patented June 11, 1901.

M. SORLLE.

GRAIN CAR.

(Application filed July 10, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

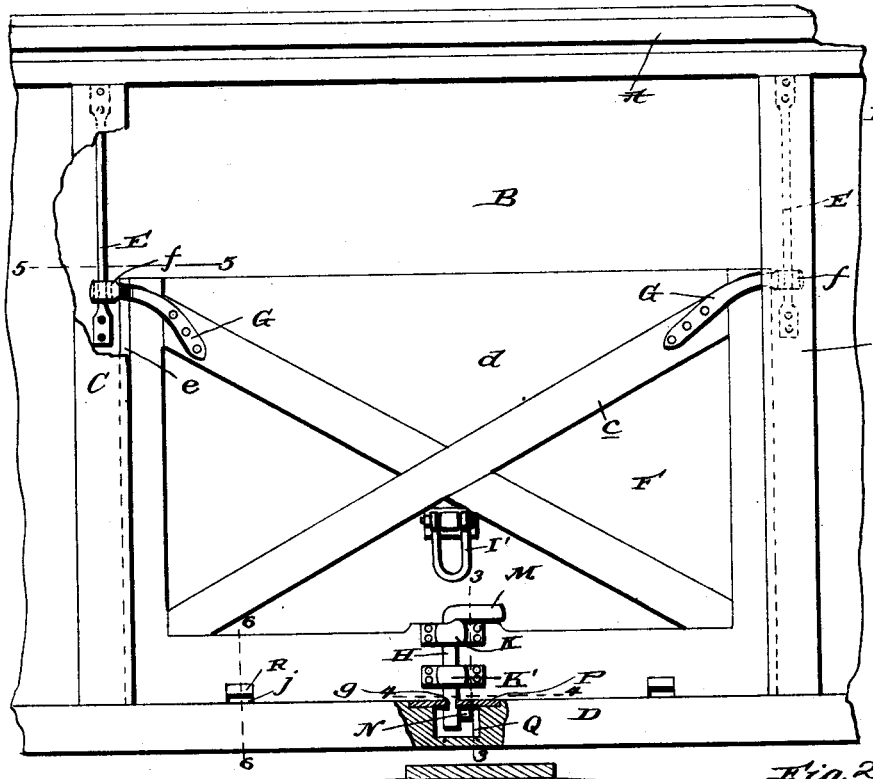

Fig. 2.

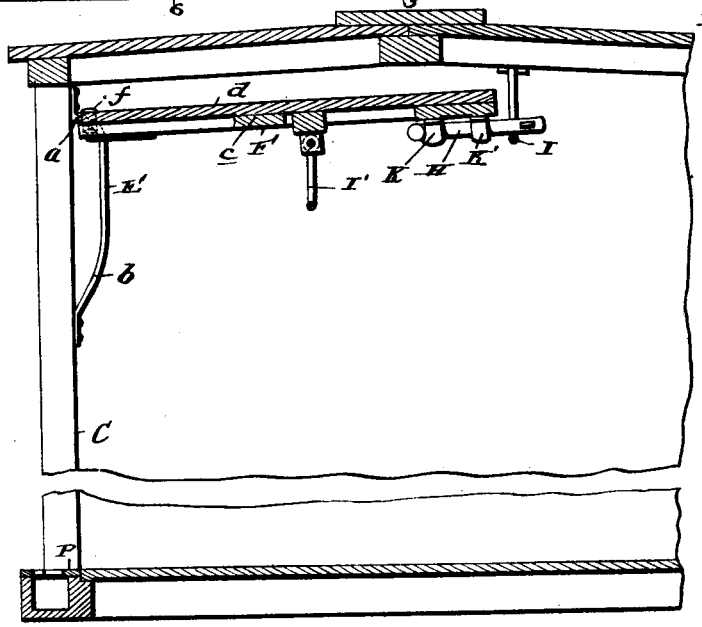

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Fig. 9.

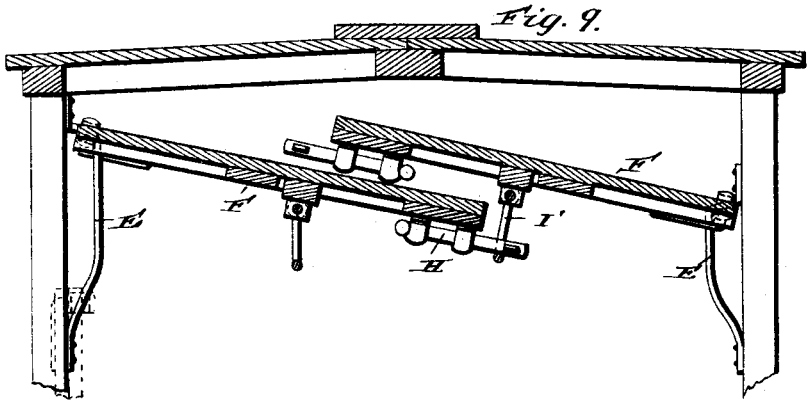


Fig. 7.

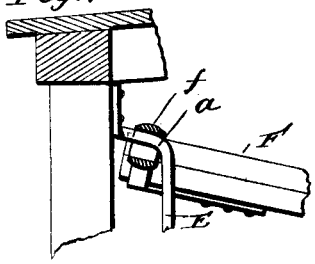
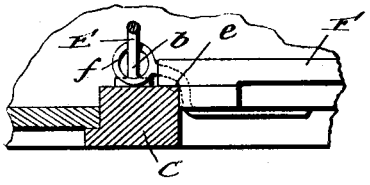


Fig. 5.



C Fig. 3.

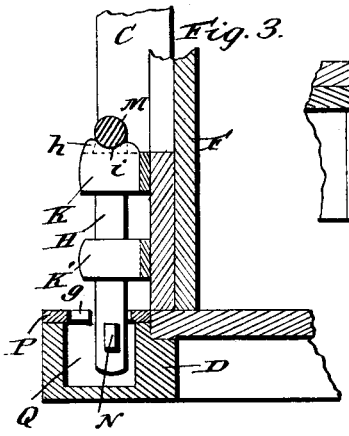


Fig. 4.

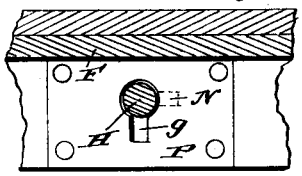


Fig. 8.

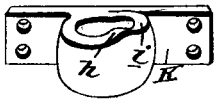
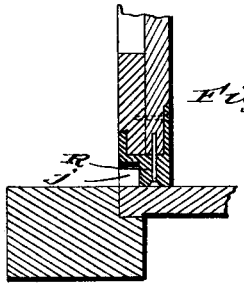


Fig. 6.



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Attorney

UNITED STATES PATENT OFFICE.

MARTIN SORLLE, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-HALF TO HENRY J. BAILEY, OF SAME PLACE.

GRAIN-CAR.

SPECIFICATION forming part of Letters Patent No. 676,052, dated June 11, 1901.

Application filed July 10, 1899. Serial No. 723,359. (No model.)

To all whom it may concern:

Be it known that I, MARTIN SORLLE, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Grain-Cars, of which the following is a specification.

My invention relates to grain-cars, and more particularly to the inner or grain doors thereof.

It has for one of its objects to provide a grain-door calculated to effectually close the lower portion of the door-opening in a car, so as to preclude the leakage of grain, and one which is so equipped that when locked in its closed position there is no liability of it being casually unlocked by the jolting, shaking, and bumping of the car.

Another object is to provide a grain-door which when unlocked is susceptible of being expeditiously opened and secured in an open position with but a minimum amount of effort on the part of the operator.

Other advantageous features of the invention will be fully understood from the following description and claims, when taken in conjunction with the annexed drawings, in which—

Figure 1 is a side elevation of a portion of a car equipped with my improved door, the same being shown with a part of one of the door-posts broken away and a part of the sill in section. Fig. 2 is a transverse section illustrating the door as secured in its raised position. Figs. 3, 4, 5, and 6 are enlarged detail sections taken in the planes indicated by the broken lines 3 3, 4 4, 5 5, and 6 6, respectively, of Fig. 1. Fig. 7 is an enlarged detail section illustrating the door in a partly-raised position. Fig. 8 is an enlarged perspective view of the uppermost of the guides or guide-eyes in which the door-locking bolt is arranged. Fig. 9 is a transverse section illustrating two doors and the manner in which they are simultaneously secured in a raised position.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 8 thereof, A is a grain-car having a door-opening B with posts C at opposite sides and a sill D at the bottom of the same.

E represents vertical slide-rods which are connected at their ends to the inner sides of the posts C and are preferably of the shape shown—that is to say, have shoulders *a* adjacent to their upper ends and inclined portions *b* adjacent to their lower ends.

F is my improved door, which is preferably composed of battens *c*, of oak, and planks *d*, of light wood, connected to the inner sides of the battens, the planks being extended beyond the side battens, as best shown in Fig. 5, so as to form rabbets *e*, which receive the inner corners of the door-posts C when the door is closed, and thereby preclude leakage of the grain past the door.

G G are spurs fixedly connected to the door F and provided with eyes *f*, which loosely receive the slide-rods E.

By virtue of the construction described it is simply necessary in order to open the door to raise the same perpendicular to the floor of the car until the eyes of the spurs G reach the shoulders *a* of the slide-rods E and then swing the door upwardly and inwardly and at the same time push the spurs well back on the shoulders *a*. The door may be and preferably is secured in its raised and open position by passing a bolt H thereon through a shackle I, depending from the roof of the car, after the manner shown in Fig. 2.

In its outer side adjacent to its lower edge the door F is provided with two vertically-disposed and coincident guides or guide-eyes K K′. These guides or guide-eyes K K′ are designed for the reception of the bolt H, which is provided at its upper end with an angular handle M and at a point adjacent to its lower end with a lateral lug N.

P is a keeper-plate, which is provided with a keyhole-slot *g* and is connected to the door-sill D and arranged over a recess Q therein.

When the door F is closed, it is secured in such position by passing the lower end of the bolt H through the slot *g* in plate P and then turning said bolt so as to carry the lug N thereof into a position at right angles to the keyhole-slot, as shown in Fig. 3.

As best shown in Figs. 1, 3, and 8 of the drawings, the upper edge of the upper guide K is provided with an inclined plane *h* and

a slight depression or shallow seat *i* at the upper end of said inclined plane. By virtue of this when the bolt H is turned to move the lug N into the position shown in Fig. 3 and lock the door F the handle M of said bolt will travel up the inclined plane *h*, and thereby draw the door down tight against the door-sill and preclude leakage of grain between the two. After being moved up the inclined plane *h* the handle M of the bolt is placed in the seat or depression *i* of the guide K. This is highly advantageous, since it prevents the jolting, shaking, and bumping of the car from casually turning the bolt H, and thereby unlocking the door.

R R are iron shoes which are connected to the door F so as to rest flush with the lower edge thereof and are provided with recesses *j* in their outer sides, as best shown in Fig. 6. These shoes R are designed for the engagement of the bars usually employed in the initial opening of grain-doors.

When my improved door is locked and it is desired to open the same, the operator grasps the handle M of bolt H and turns and lifts said bolt out of engagement with the keeper-plate P. He then applies a pinch-bar to the shoes R, and thereby lifts the door a slight distance, so as to permit a portion of the grain to flow out and relieve the pressure against the door. When the pressure is relieved sufficiently, the operator grasps and raises the door in a direction perpendicular to the floor of the car until the spurs G reach the shoulders *a* of slide-rods E and then swings the lower edge of the door upwardly and inwardly and secures said door in its raised position by placing the bolt H in engagement with the shackle I in the manner before described. This operation may be carried out very expeditiously and easily, as may also the operation of closing and locking the door, which is the reverse of that described. At the completion of the downward perpendicular movement necessary to close the door the inclined portions *b* of the slide-rods E, acting against the spurs G, press the door snugly against the door-posts C and assist materially in rendering the closure tight.

When grain-doors F are employed in conjunction with both door-openings of a car, they may be simultaneously secured in a closed position after the manner shown in Fig. 9—that is to say, by swinging one door up below the other and passing its bolt H through a shackle I′ on such other.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in my improvements in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to the specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention.

Having thus described my invention, what I claim is—

1. In a car, a door comprising exterior battens, and planks connected to the inner sides of the battens and extended beyond the same at opposite ends of the door so as to form rabbets *e* at the ends and outer side of the door, and spurs connected to the door and having eyes; in combination with slide-rods connected to the inner side of a wall of the car at opposite sides of a door-opening therein and resting in the eyes of the spurs on the door, said slide-rods having vertical intermediate portions, shoulders at their upper ends, and inclined portions *b* at their lower ends arranged so as to be engaged by the spurs when the door is in its closed position, substantially as and for the purpose specified.

2. In a car, the combination with vertical slide-rods connected to the inner side of a wall of the car at opposite sides of a door-opening therein; of a door comprising exterior battens, and planks connected to the inner sides of the battens and extended beyond the same at opposite ends of the door so as to form rabbets *e* at the ends and outer side of the door, and spurs connected to the door and having eyes loosely mounted on the slide-rods, substantially as specified.

3. In a car, the combination of vertical slide-rods connected to the inner side of a wall of the car at opposite sides of a door-opening therein, a keeper connected to the floor of the car, a door, spurs connected to the door and having eyes receiving the slide-rods, a bolt connected to the door and adapted, when the same is closed, to engage the keeper, and a shackle for engaging the bolt and thereby securing the door in its open position, substantially as specified.

4. In a car, a vertically-movable door, connections between the door and a wall of the car at opposite sides of a door-opening in the latter, a keeper connected to the floor of the car, a guide connected to the door and having an inclined plane at its upper edge and a seat or depression at the upper end of said inclined plane, and a bolt arranged in said guide and having a lateral portion to engage the inclined plane and seat of the guide and a second lateral portion to engage the keeper, substantially as specified.

5. In a car, a vertically-movable door, connections between the door and a wall of the car at opposite sides of a door-opening in the latter, a keeper-plate arranged over a recess in the floor of the car and having an elongated slot, a guide connected to the door and having an inclined plane at its upper edge and a seat at the upper end of said inclined plane, and a bolt arranged in said guide and having a lateral portion to engage the keeper-plate, and a second lateral portion to engage the inclined plane and seat of the guide, substantially as specified.

6. In a car, the combination of vertical

slide-rods connected to the inner sides of opposite walls of the car at opposite sides of door-openings therein, keepers connected to the floor of the car, doors, spurs connected to the doors and having eyes receiving the slide-rods, bolts connected to the doors and adapted when the same are closed to engage the keepers, and a shackle on one door for receiving the bolt on the other when the doors are raised into an open position, substantially as specified.

7. In combination with a car-body, of a vertical moving car-door, a bolt secured to the outer lower surface of the latter, a lug forming a part of the lower end of the said bolt, a plate secured to the sill of the door-frame, and provided with an opening which is adapted to receive the bolt, together with its lug, and a hanger carried by the roof of the car, and provided with an opening with which the said bolt is adapted to coöperate for holding the said door in an open position, substantially as specified.

8. In combination with a car-body, of a vertical and swinging door, a bolt secured to the outer medial portion of the same, a lug forming a part of the lower end of the said bolt, a plate secured to the sill of the door-frame, and provided with an opening, having an extension, which is adapted to receive the lower end of said bolt, together with its lug, a locking device for said bolt, and a hanger, carried by the roof of the car, and provided with an opening with which the said bolt is also adapted to coöperate, as and for the purpose described.

9. In a car, the combination of vertically-movable and swinging doors connected to opposite walls of the car, keepers connected to the floor of the car, bolts connected to the doors and adapted when the same are closed to engage the keepers, and a hanger on one door for suspending the other when the doors are raised into an open position, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MARTIN SORLLE.

Witnesses:
JOHN ALONZO WOODVILL,
JAMES J. FAZENDE.