F. JAGER.

CAR DOOR.

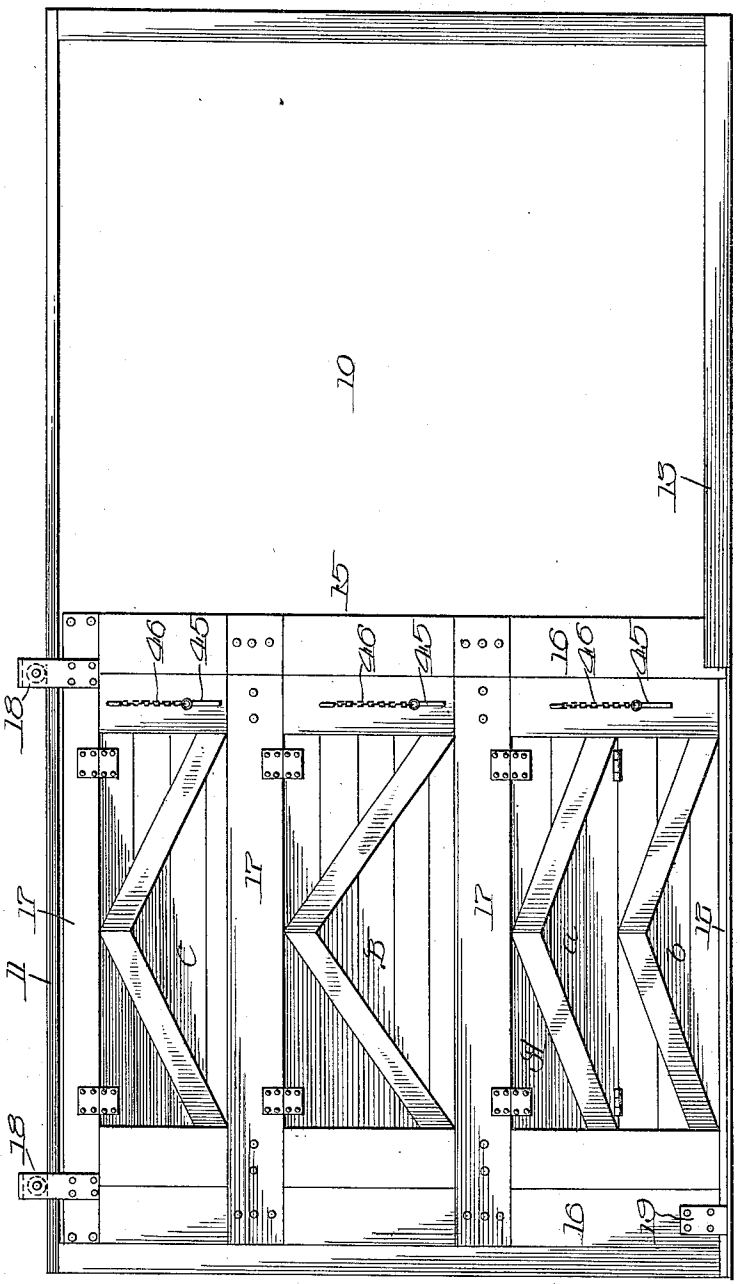
APPLICATION FILED AUG. 16, 1912.

1,143,121.

Patented June 15, 1915.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 3.

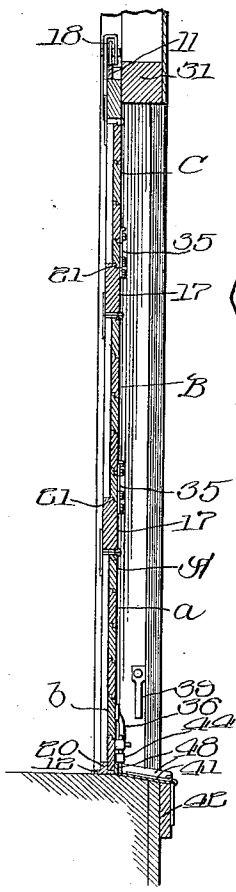


Fig. 2.

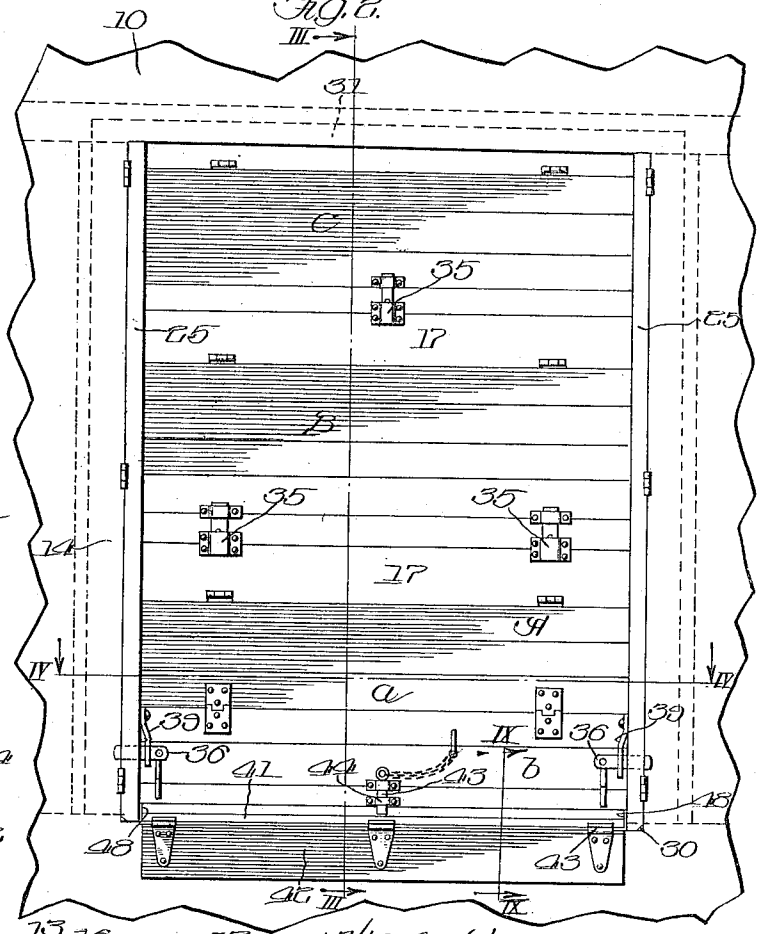


Fig. 4.

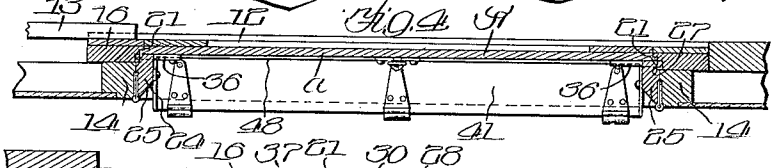
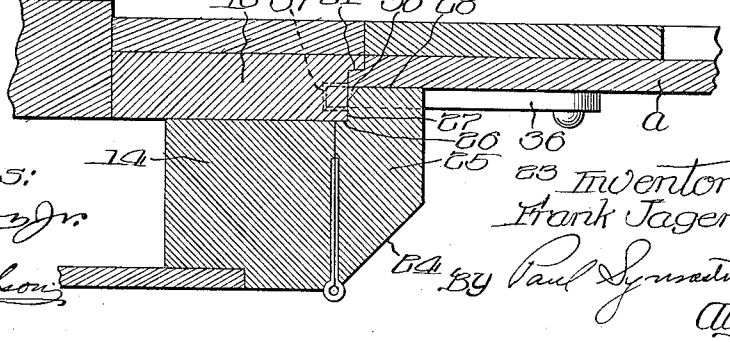


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 5.

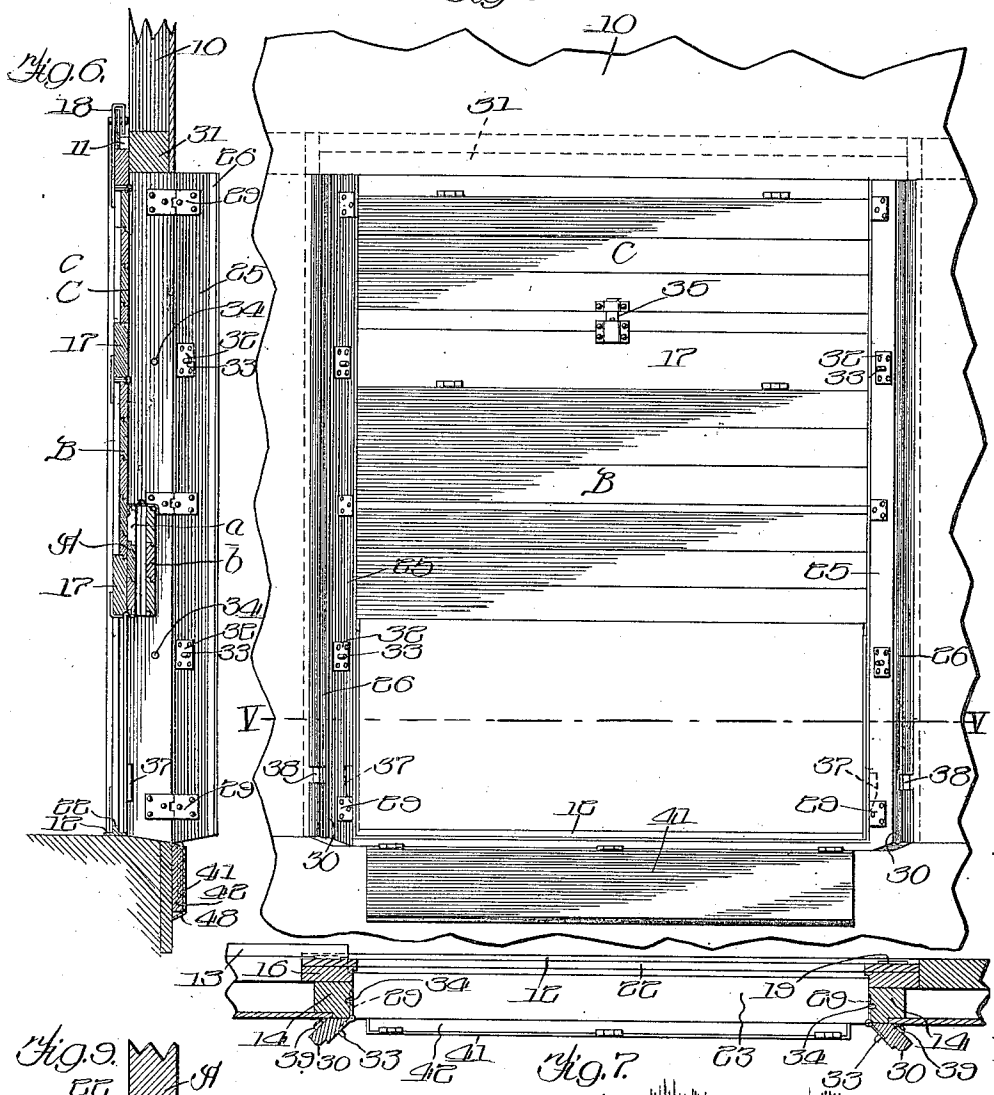

Fig. 6.

Fig. 9.

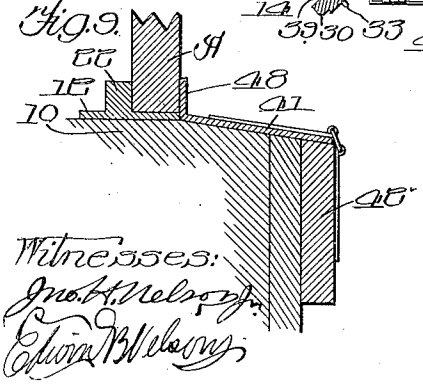

Fig. 7.

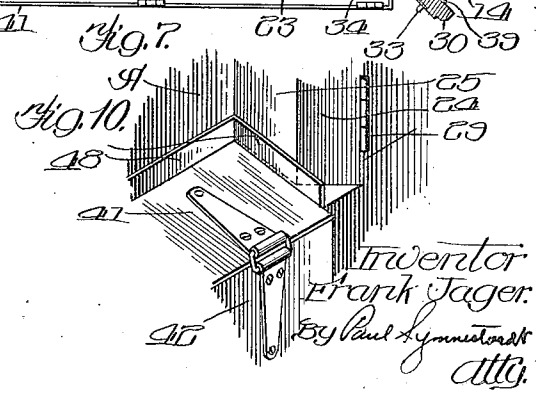

Fig. 10.

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FRANK JAGER, OF CHICAGO, ILLINOIS.

CAR-DOOR.

1,143,121. Specification of Letters Patent. Patented June 15, 1915.

Application filed August 16, 1912. Serial No. 715,344.

To all whom it may concern:

Be it known that I, FRANK JAGER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification, reference being had to the accompanying drawings.

My present invention relates generally to railway freight cars and more particularly to an improved side door adapted for use in a box car or other similar vehicle.

One of the primary objects of this invention is to provide a door in a box car positively designed to close a door opening and prevent any leakage of grain or other material when the door is in closed position, and adapted to combine the functions of both a side door and a grain door, such as are commonly used in a freight car in grain carrying service. Another object of this invention is the provision of an improved door construction by which the door is readily opened against the pressure of a load of grain or other material from within a car and at the same time to provide a door which is weather-tight and cinder-proof. A further object is the provision of closure means in an unitary door construction adapted to permit ready access to the interior of the car. A still further object is the provision in a car of novel means cooperating with the said unitary door structure and said closure means by which means the door is locked the car is rendered positively burglar-proof and tight against leakage of grain and the entry of water; and in general the provision of an improved weather-tight door in a railway freight car which is economical in construction and simple and effective in its operation.

These and such other objects as may hereinafter appear or are incident to my invention I attain by means of a construction illustrated in preferred form in the accompanying drawings, wherein:—

Figure 1 is an elevation of the inner face of a car door embodying my invention.

Figure 2 is an elevation of the outer face of the door in Figure 1, showing a portion of the car body broken away.

Figure 3 is a vertical section on the line III—III and Figure 4 is a horizontal section on the line IV—IV of Figure 2.

Figures 5 and 6 are views similar to those of Figures 2 and 3 except that they show the folding closure, movable posts and locking plate member in open position.

Figure 7 is a section on the line V—V of Figure 5.

Figures 8 and 9 are enlarged detail sectional views of the post and locking plate respectively.

Figure 10 is a perspective view of a portion of the locking plate, taken at the lower right hand side of Figure 2.

In freight car construction it is common to provide cars with outside doors, which doors have sliding movement longitudinally the car before access may be had to the interior of the car for whatever purpose in hand. This general type of door has many disadvantages, principally among them being the inability to prevent the entrance of water and their liability when the car is in motion to side-swipe external objects. It is a common practice when a car is loaded with certain commodities liable to water damage to supplement the ordinary side door with a more or less temporary grain door secured to the posts in a manner well known. Such a practice is inconvenient and certainly expensive, and my improved door is primarily designed with the elimination of these disadvantages in view, and also at the same time to provide a weather-tight door and a door which is burglar-proof, thereby lessening liability against claims on damaged or pilfered freight. To this end I have provided an unitary door structure suitably hung inside the car and covering the entire car door-way, which door is preferably provided with the three openings and closures as shown, together with guard means adapted to protect all vital door parts subject to weather, and certain novel locking means coöperating with the guard means in a manner more fully hereinafter described. These openings referred to above together with their respective closures are planned with special reference to expeditious loading and unloading of different classes of freight.

While I have shown my invention applied to a railway box car it is obvious it is applicable to other types of vehicle construction, and I do not therefore wish to be understood as limiting myself in this respect to the precise embodiment shown. Furthermore, although in the drawings I show a door made of wood, it is equally ob-

vious that it may be of some suitable metallic construction.

Referring now more particularly to the drawings embodying my preferred construction, I show a car body 10, carrying an upper door track 11, a lower track 12, a door guide 13, door posts 14, and door 15.

The door 15 is preferably composed of vertical frame members 16 and horizontal cross pieces 17, which are rigidly secured together. The door is suitably hung inside the car by means of hangers 18 which are secured to the upper horizontal cross piece 17 and which engages with and has easy and positive movement along the track 11 which is mounted on the inside of the car above the door opening.

Hingedly connected at their upper longitudinal edges to adjacent cross pieces 17 and adapted to swing outwardly are closures A, B, and C covering corresponding ports in the door 15. These closures extend horizontally substantially the width of the door 15 and are ship-lapped at their vertical edges with the upright members 16 and also lapping at their lower horizontal edges with the cross pieces 17 with the exception of the folding closure A.

The closure A comprises two sections *a* and *b* hingedly connected together at their inner horizontal edges, the sections folding against each other when in open position as shown in Figure 6. The lower edge of one of the members 16 carries a shoe 19 which engages the inner vertical side of the track 12. By using this folding door section A a greater opening in the door is thus obtained as the folding door has no greater movement on an arc than would the ordinary closure have when provided for an opening substantially at the sides. Owing to the restricted clearance between the car and existing facilities for unloading, the size of an ordinary door opening would be limited in view of this. This opening being thus greately enlarged permits the expeditious loading and unloading of ordinary way-freight such as bales, large boxes, etc. The closure C is particularly adapted for the reception and full manipulation of grain spouts for loading and unloading such commodities as grain, and the closure B is designed particularly for loading coal and the like, thereby eliminating unavailing expenditure of time and labor in these operations. These closures are ship-lapped at all points of contact with frame members as shown in the drawing at 21.

In order to prevent freight in the car from shifting and lodging against the car siding and in this way obstructing any sliding of the door longitudinally the car when desired the guard 13 has been provided with this object in view. The door has easy sliding movement upon the upper and lower tracks as already described, the lower edges of the two upright frame members 16 being beveled at 22 and slidably fitting over the shoulder 20 on the track member 12 so that when in closed position the entire door is flush with and against the door posts 14.

Hingedly connected to the inner sides of the two door posts 14 and adapted to swing outwardly are a pair of movable posts 25 which are preferably beveled at 24 so that they may swing to their fullest extent outwardly and clear the door opening. Each of the movable posts 25 is provided with a vertical recess 26 adapted to receive the projecting edge 27 of the upright 16, thus holding the door against relative movement when closed. When closed the vertical inner face 28 of each post fits snugly against the closures A, B and C covering the ship-lapped edges and holding them tight against their seats.

The movable posts swing on hinges 29 and when closed the posts are tight against the door posts 14, uprights 16 and vertical edges of the closures where they lap with the door frame members. Any moisture which may seep past the movable posts is caught and drained by the ducts 30 grooved in the posts 25. The movable posts are beveled at their lower ends to conform with the shaped threshhold or sill 23 and extend integrally upward to the track beam 31.

From the disclosure thus far made, it will readily be seen that all vital parts are protected and covered against the entrance of water or cinders between the door and the door posts, or through the edges of the closures where they lap with the door framework. In addition to the functions already set forth the posts effectually relieve the closures against pressure exerted against them from the load within the car, especially so is this true when the car is loaded with grain or coal. Secured to each movable post is one or more plates 32 provided with a projecting stud 33 adapted to register with and fit into a corresponding aperture 34 in the door post. By this means the hinges 29 are relieved of excessive pressure and the movable posts have easy swinging movement outwardly.

The arrangement of movable posts and a laterally sliding door having a smaller swinging door both of which are held closed by said posts, is more broadly claimed in my co-pending application Serial Number 730,632.

The fastening means 35 on the closures B and C are preferably arranged as shown. The closure A carries a lever 36 pivoted to the section *b* and adapted to operate within a slot 37 in the door posts 14. The movable posts 25 are recessed at 38 to accommodate the lever and at the same time when closed, effectually locks this lever in place. A short

arm 39 pivoted at 40 to the outer face of the posts 25 permits their ready opening.

To positively lock the movable posts and the door when closed I show a locking plate member 41 which is hingedly connected to a block 42 bolted to the car sill by means of a link hinge 43. This locking plate member 41 is preferably of metallic construction and flares or is flanged upwardly at its free edges as at 48 and conforms with the threshold of the car, so that when the door closures and movable posts are closed and it is swung upwardly the flanged edges 42 fit tightly against the said members, locking them against any movement whatsoever. The plate being positioned to lie between the posts 25 prevents them being opened, and the projecting face 27 of the upright 16 resting within the recess 26 of the now immovable posts 25 effectually hinders any relative movement of the door longitudinally of the car.

Furthermore, neither water nor cinders can possibly enter into the car at the threshold owing to the flanged edges of the locking plate being flush with the door and posts protecting and covering the threshold and as the plate is inclined it affords excellent drainage facilities. The plate itself is held in closed position by means of a seal pin 43 operating in a slotted member 44 secured to the section *b* of the closure A. The pin projects over the flanged edge and a seal is then attached in the usual manner.

When it is desired to retain any of the closures A, B, and C in their open position, a pin 45 carried by a chain or other flexible member 46 attached to the inner face of the closure is placed in a corresponding aperture 47 located in the door post.

The operation of the device is fully disclosed in the illustrations. Figures 2, 3, and 4 and Figures 5, 6, and 7 showing the door in closed and open position respectively. To open the door break the seal on the seal pin 43, remove the latter and swing the locking plate 41 clear of the threshold. The filler block 42 accommodates the flanges 48 and permits the plate to drop into a vertical position out of the way. The movable posts are then easily turned on their axes by means of the pivoted arm 39 and swing clear of the doorway. Any or all of the closures may then be opened by manipulating their respective fastenings, or if desired the door itself may be moved to clear the entire door opening. No freight in shifting can obstruct this movement owing to the guard 13 which prevents any such lodgment.

The entire constuction is simple and economical, operates easily, takes up little space, and the cost of maintenance is reduced to a minimum. There is an entire absence of involved parts or mechanism. I do not restrict myself to the exact embodiment as disclosed of the locking plate in combination with a movable post or its equivalent, as certain structural variations may be made. It is shown preferably made of metal but it is obvious that it may be constructed of wood and beveled from the free edge to the hinge and still be within the scope of my invention.

Having thus described my invention and illustrated its use what I claim as new and desire to secure by Letters Patent is the following:—

1. In a freight car having a doorway, of a car door within the car and adapted to close the entire doorway, a pair of movable posts on each side of the doorway pivotally mounted on a suitable support adjacent the door, and a locking device removably positioned in the doorway and extending between the said movable posts to engage with them when closed against the door.

2. In a railway car having a doorway opening and a door post at either side of the opening, the combination of a door for the opening comprising a slidable frame and an outwardly swinging door of a lesser width than the said opening, said slidable frame including a projecting side member adapted to rest up against the door post when the door is in closed position, a lever carried by said swinging door and adapted to operatively engage the said projecting side frame member of the door, and a movable closure member hingedly mounted on the door post to have inward movement to engage the door and lock the lever in its operative position.

3. In a railway freight car having a pair of door posts on each side of the door-opening, the combination of an inside door having its side uprights relatively thicker than its cross-pieces, said door being slidably mounted within the car to move across the said opening to close it and provided with a door-inclosed port therein, and locking means for both doors comprising a pair of movable posts hingedly connected to the said door post and adapted to swing inwardly into the doorway to take against the uprights of the first mentioned door, and a plate extending between the posts to lock them when in this position, its intermediate portion being in locking engagement with the second mentioned door.

4. In a railway freight car having a door opening and door posts at each side of the opening, the combination of a relief door having a side frame member up against the door posts and projecting outwardly to a plane beyond the outside of the door body, and means to prevent leakage of water or grain past meeting faces of the door and door post comprising a post of substantial cross section pivotally mounted exteriorly of the door to vertically aline with the outer angle at either side of the doorway when

moved inwardly to bear with its inner faces against the doorbody and door post, said post having an intermediate cut-away portion to receive a projecting edge of the side frame member, all so arranged to present a series of broken joints as and for the purpose set forth.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

FRANK JAGER.

Witnesses:
W. HERBERT FOWKES,
M. H. ERICKSON.