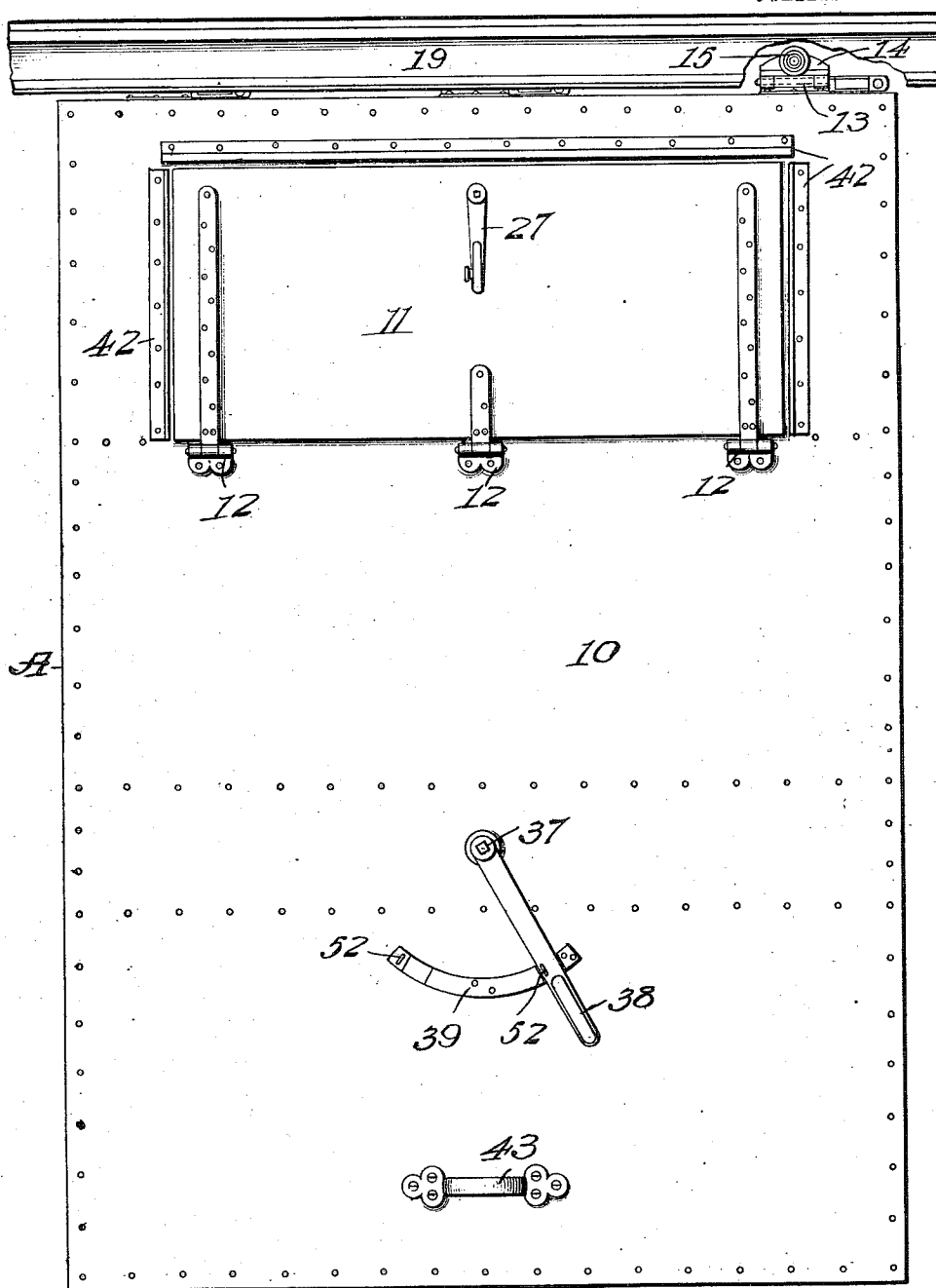


CAR DOOR.

Patented Oct. 17, 1911.

3 SHEETS—SHEET 1.

1,005,825.



WITNESSES

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CAR DOOR.

APPLICATION FILED DEC. 23, 1910.

Patented Oct. 17, 1911.

3 SHEETS-SHEET 2.

1,005,825.

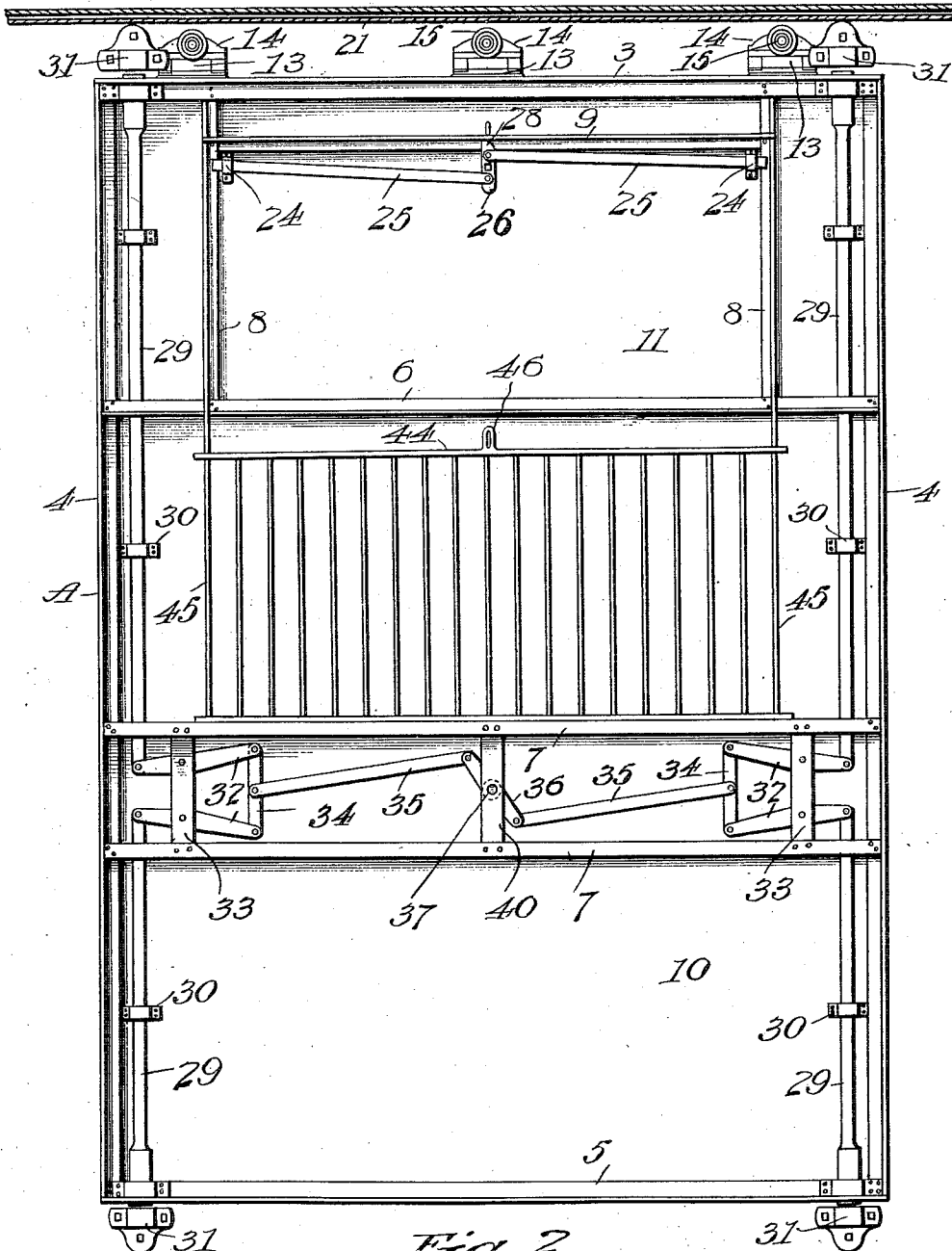


Fig. 2.

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3 SHEETS-SHEET 3.

1,005,825.

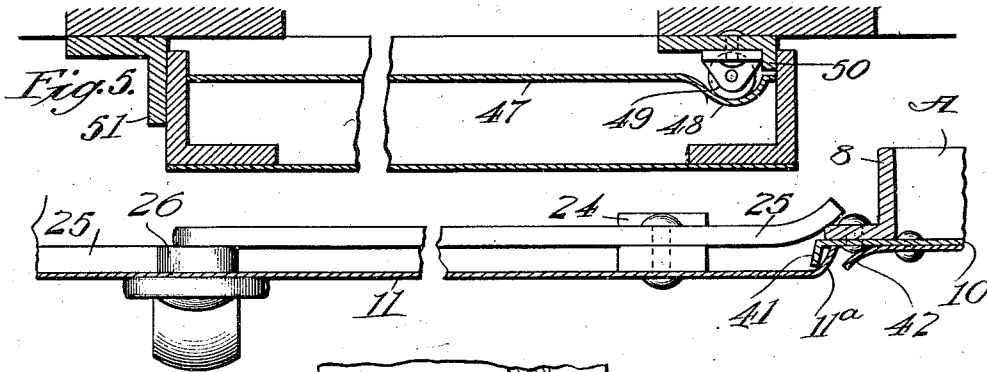


Fig. 4.

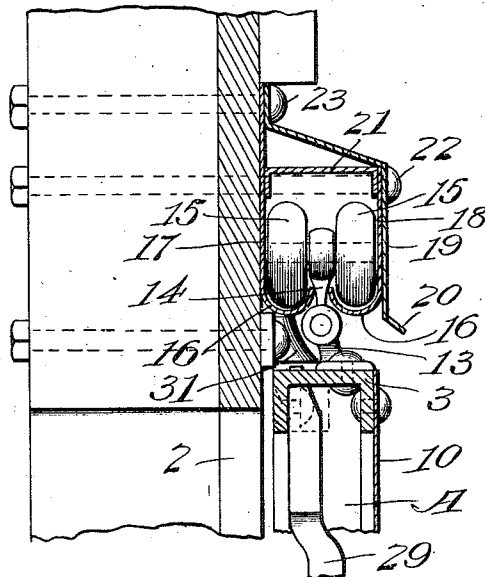
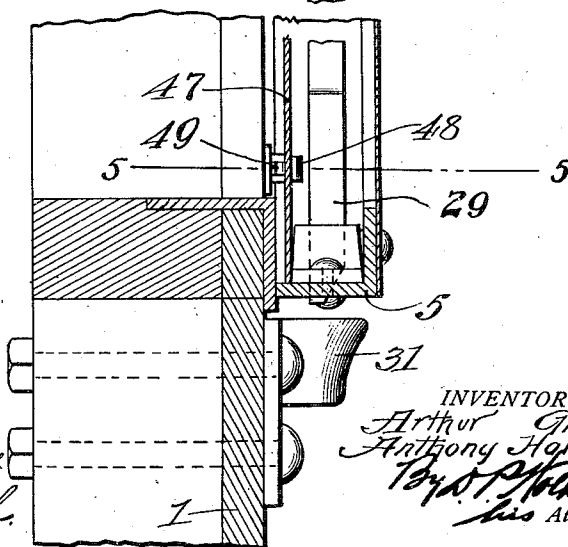


Fig. 3.



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UNITED STATES PATENT OFFICE.

ARTHUR GILLETT AND ANTHONY HARRITY, OF KANSAS CITY, MISSOURI.

CAR-DOOR.

1,005,825.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed December 23, 1910. Serial No. 599,045.

To all whom it may concern:

Be it known that we, ARTHUR GILLETT and ANTHONY HARRITY, citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification.

The present invention relates to an improvement in car doors, and particularly to a novel and practical form of outside car door, that combines and possesses all of the functions of both a freight and a grain door.

One of the objects of the invention is the provision of a combined freight and grain door for cars which may be formed entirely of metal and which embodies novel features of construction whereby a very strong and rigid door is provided.

A further object of the invention is the provision of a main door for closing the opening in the side of the car, the said main door being constructed with an auxiliary loading door, and novel means being provided for locking the doors in a closed position and causing the same to form tight joints so as to prevent the escape of any grain.

The invention also has for its object to provide a novel water shed whereby rain or sleet is effectively prevented from beating into the car around the edges of the grain door.

With these and other objects in view, the invention consists in certain combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a side elevation of a grain car door constructed in accordance with the invention, a portion of the housing for the track being broken away. Fig. 2 is a rear view of the door. Fig. 3 is a transverse vertical sectional view through the door, portions being broken away, and Fig. 4 is a horizontal sectional view showing more plainly the locking device for the loading door and the manner of providing a weather-tight joint at the lateral edges of such door, the section being on approximately the line

4—4 of Fig. 2. Fig. 5 is a sectional view on the line 5—5 of Fig. 3, the view omitting the locking mechanism behind the back cover plate.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the side of a car which is provided with the usual door opening 2. A sliding door A is mounted upon the exterior of the car so as to be moved over the door opening 2 for the purpose of closing the same, and this door may be constructed entirely of metal. The door frame comprises a top member 3 of channel iron, side members 4 of angle iron, and a bottom member 5 which is also formed of angle iron. The side members 4 are connected toward the top of the door by a horizontal brace 6 of angle iron, and toward the lower portion of the door by a pair of spaced and horizontal brace members 7 of channel iron, the flanged sides of the said channel iron braces facing each other. A pair of substantially vertical angle iron braces 8 extend from the brace 6 to the top member 3 and are connected toward their upper ends by a horizontal angle iron 9, the said angle iron 9 and vertical angle irons 8 cooperating with the angle iron 6 to define a loading door opening. Suitable sheathing 10 is riveted upon or otherwise rigidly applied to the exterior of the door frame, and the loading door 11 has the lower edge thereof connected to the main door by means of the hinges 12 so as to swing outwardly.

Projecting upwardly from the channel iron 3 at the top of the door are the brackets 13 to which the hangers 14 are hinged, each of the said hangers being pendent from a pair of wheels 15 which are journaled upon opposite sides thereof. These wheels are designed to travel upon the curved tracks 16, the inner curved track being formed in connection with a plate 17 which fits against the side of the car and is secured thereto, while the outer curved track is formed in connection with a plate 18 which is secured to the inner face of a plate 19, the upper edge of the plate 19 being deflected inwardly so as to bear against the plate 17, while the lower edge of the said plate 19 is inclined outwardly at 20 so as to act as a water shed for the purpose of deflecting rain

away from the door. A channel shaped spacing member 21 is interposed between the top of the plate 18 and the plate 17 and serves to hold the said plates in a properly spaced relation. A bolt or fastening member 22 extends through the two flanges of this channel shaped spacing member 21 and also extends through the plates 17, 18 and 19 so as to serve as a means for holding the said members together and securing them to the car. It will also be observed that the upper edge of the plate 19 is engaged by the same bolts 23 which are employed for securing the plate 17 to the car. A housing is thereby provided which prevents accumulations of snow, cinders, or the like upon the curved tracks, and the door can slide freely back and forth in the usual manner. It will also be obvious that owing to the hinged connection between the brackets 13 and the hangers 14, the door can be swung outwardly away from the car.

Keepers 24 are applied to the swinging edge of the loading door 11 toward the ends thereof and loosely receive the outer ends of locking bolts 25, the inner ends of the said locking bolts being pivotally connected to a short lever 26 on opposite sides of the pivot point thereof. This short lever is rigid with a handle 27 on the exterior of the loading door and also has one end thereof provided with a nose 28 adapted to engage the horizontal frame member 9 at the top of the loading door opening. With the above construction, it will be apparent that when the handle 27 is turned in one direction, the two locking bolts 25 will be forced outwardly and the ends thereof caused to engage the sides of the loading door opening, while the nose 28 of the lever 26 will at the same time be thrown into engagement with the top of the loading door opening. A very effective lock is thereby obtained, since a positive engagement with the door frame is obtained both at the sides and the top thereof.

Each side of the main door A is provided both at the top and bottom thereof with a vertically disposed and slidably mounted locking bolt 29, the said locking bolts on opposite sides of the door being disposed in alinement with each other. These locking bolts are slidable within the keepers 30 and have the outer extremities thereof enlarged for engagement with the sockets 31 secured to the sides of the car both above and below the door opening therein. As shown in Fig. 3 of the drawings the keepers or keeper sockets 31 are of a tapering form to provide for drawing the main door inwardly tight against the door frame when the bolts 29 are thrust into said sockets. The inner ends of the locking bolts 29 project within the space between the spaced and horizontally disposed channel members

7 of the door and are pivotally connected to levers 32 which are arranged in the plane of the door and extend toward each other from opposite sides of the door. These levers 32 are pivotally mounted at points between their ends upon upright bars 33 connecting the outer flanges of the channel irons 7, the inner ends of each pair of the said levers being connected by toggle levers 34 to the outer end of a link 35, and the inner ends of the two links being pivotally connected to the extremities of a short lever 36. This lever 36 is rigid with a pin 37 which extends through the door to the outer face thereof and is provided with a handle 38, the said handle being adapted to be held in an adjusted position by means of the rack 39. The pivot pin 37 of the short lever 36 also engages the upright bar 40 which connects the outer flanges of the channel irons 7 at the middle of the door. By turning the handle 38 the link members 35 can either be forced outwardly or drawn inwardly for the purpose of coöperation with the toggle levers 34 to swing the levers 32 and either throw the bolts 29 into operative position or retract the same into an inoperative position. In connection with this locking mechanism for the main door, it will be observed from Fig. 2 of the drawings that the locking of the main door occurs at the four corners thereof, and the locking action and means are of such a character as to provide for tightly drawing all four corners of the door against the door frame, so that in combination with the weather-strip flanges and abutments hereinafter referred to, perfectly tight joints are provided entirely about the door so that it may effectually perform its functions as a grain door.

By reference to Fig. 4, it will be observed that the edges of the loading door 11 are extended inwardly at 11^a and fit over an outwardly extending flange 41 projecting from the edges of the loading door opening. As an additional precaution, weather strips 42 are applied to the exterior of the car adjacent the top and sides of the loading door opening, the inner edge of the said weather strips being bent outwardly so as to deflect rain or the like away from the joint between the grain door and the main loading door. A handle 43 of the conventional form may also be applied to the bottom of the main door for the convenience of the operator when opening and closing the same. Under some conditions it may also be found desirable to provide a grating such as indicated at 44, the said grating being mounted upon the inner face of the car door A so as to slide upon the vertical rods 45 applied thereto. When this grating is raised, it fits over the loading door opening so that the loading door can be opened for the purpose of ventilation without danger of

the car being entered, thereby enabling the car to be employed for the transportation of poultry, live stock, vegetables, or the like. It will thus be obvious that the door can be mounted upon all freight cars and used as an ordinary car door, doing away with the loose doors now in use. Any suitable means such as the hasp 46 may be utilized for locking the grating in an elevated position, and when released, the grating will drop by its own weight into an inoperative position. A plate 47 is preferably arranged to cover that part of the mechanism confined between the braces 7, 7, so as to prevent clogging thereof by grain, it being unnecessary to cover the remaining parts of the mechanism with such a plate. This plate 47 is provided near one edge of the door with a depression 48 which receives a fixed roller 49 when the door is in a closed position, the said roller being mounted upon the car at one side of the door opening. This depression 48 is formed with curved or inclined sides and when the door is opened the roller rides upon the plate 47 and forces the door outwardly away from the side of the car, thereby eliminating much of the friction and keeping any articles on the inside of the car from preventing the opening thereof. It will also be observed that a vertical angle iron 50 is applied to the car on the same side of the door opening as the roller 49 and forms a weather strip which prevents rain or snow from beating into the car around the side of the door. In a somewhat analogous manner, a second angle iron 51 is applied to the side of the car on the opposite side of the door opening and serves both as a stop to limit the sliding movement of the door and as a weather strip.

It will be understood, of course, that the levers 27 and 38 which control the locking mechanisms for the grain door and main car door respectively will be provided with suitable eyes for receiving the usual seal. This door is intended as an all around car door, and is peculiarly designed so as to be absolutely water tight. The fact that the door is swung outwardly away from the side of the car by the action of the roller 49 when being opened prevents any freight which may have shifted against the side of the door while the car was in transit from binding the door, and the grating for covering the grain door opening does away with the ventilating doors now in use at the ends of the cars.

In the use of the door it will be understood from the foregoing that as a grain door the loading operation is effected through the loading opening covered by the loading door 11, while to provide for unloading the grain through the car door opening the main door is simply unlocked and allowed to swing outwardly at its bottom edge, thus

opening up the entire door opening for the discharge of grain at the time the main door is released from its locking means and swung outwardly so as to be free to be slid along out of the way.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In an outside combined freight and grain door, the combination with the door frame and its opening, of the main door body having in the upper part thereof a door-inclosed loading opening, traveling hangers suspending the door body from its upper edge and constructed to permit the door body to have a sliding movement and to swing bodily outward, means for providing tight joints about the edges of the main door body and about the door-inclosed loading opening, and locking mechanism coöperating with the said means for maintaining said joints when the main door body and the loading opening door are locked.

2. In an outside combined freight and grain door, the combination with the door frame and its opening, of the main door body having in the upper part thereof a door-inclosed loading opening, means for suspending the main door body from its upper edge to permit it to have a sliding movement and to swing bodily outward, means for providing tight joints about the edges of the door body, and about the door-inclosed loading opening, and locking mechanism carried by the door body and coöperating with locking points on the door frame at the four corners of the door body.

3. In an outside combined freight and grain door, the combination with the door frame and its opening, of a laterally sliding and outwardly swinging main door body having in its upper part a loading opening, a loading door having a hinged connection at its lower edge with the main door body, locking mechanism carried by the free edge portion of the loading door and coöperating with the main door body to rigidly fasten and brace the loading door, and joint elements at the edges of the loading door to provide weather-tight joints therefor.

4. In an outside combined freight and grain door, the combination with the door frame and its opening, of a laterally sliding and outwardly swinging main door body having in its upper part a loading opening, and out-turned flanges at the edges of said opening, a loading door having a hinge connection at its lower edge with the main door body, and provided at its lateral edges with inturned flanges overlapping those on the main door body, and a locking mechanism carried by the free edge portion of the loading door and coöperating with the main door body at the inside of

the latter to draw the loading door into weather-tight engagement with the main door body.

- 5 In an outside combined freight and grain door, the combination with the door frame and its opening, of a laterally sliding and outwardly swinging main door body having in its upper part a door-inclosed loading opening, means for providing
10 tight joints about the edges of the door body and about the door-inclosed loading opening, a roller arranged to swing the door body outwardly when released from

its locking means, and a locking mechanism carried by the door body and arranged to hold the same to the door frame at a plurality of points.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

ARTHUR GILLET.
ANTHONY HARRITY.

Witnesses:

THOS. HOPKINS,
C. W. FIRESTONE.