(No Model.) 2 Sheets—Sheet 1.

J. CAULFIELD.

CAR DOOR.

No. 419,925. Patented Jan. 21, 1890.

Fig. 1.

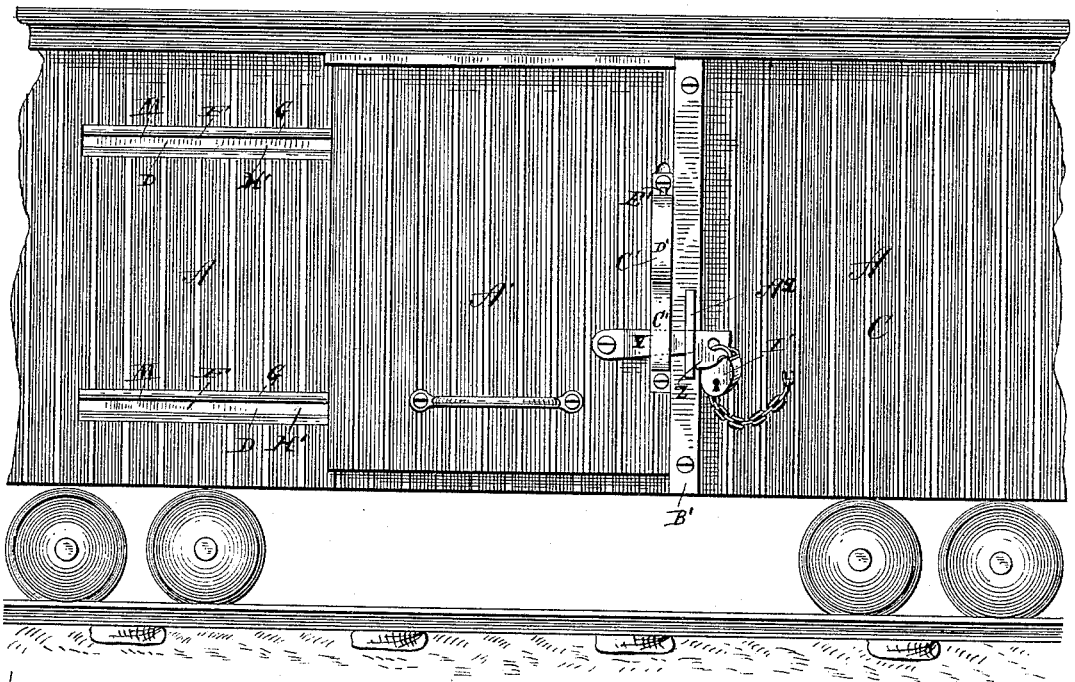


Fig. 2.

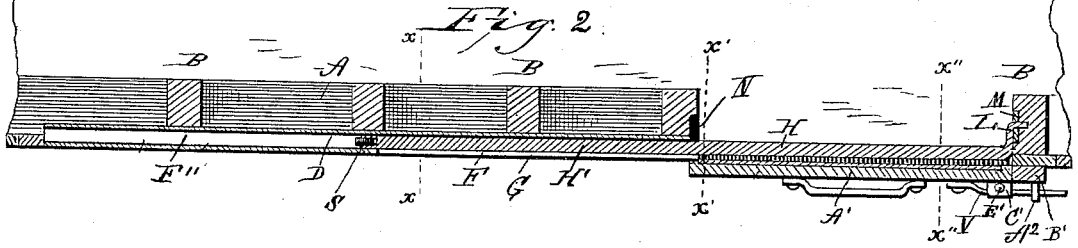
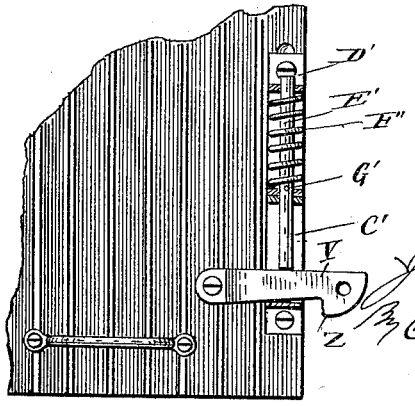


Fig. 3.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

J. CAULFIELD.

CAR DOOR.

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Fig. 4.

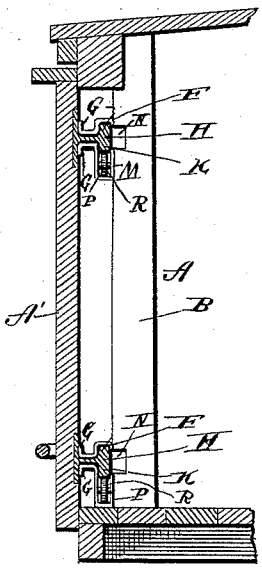


Fig. 5.

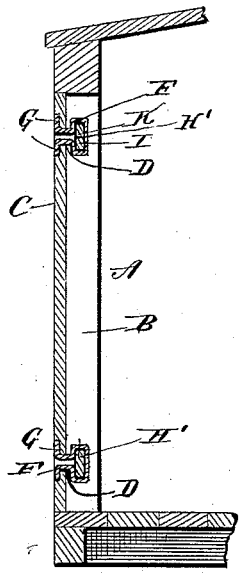


Fig. 6.

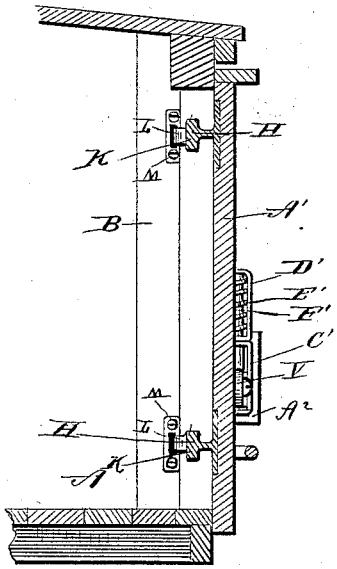


Fig. 7.

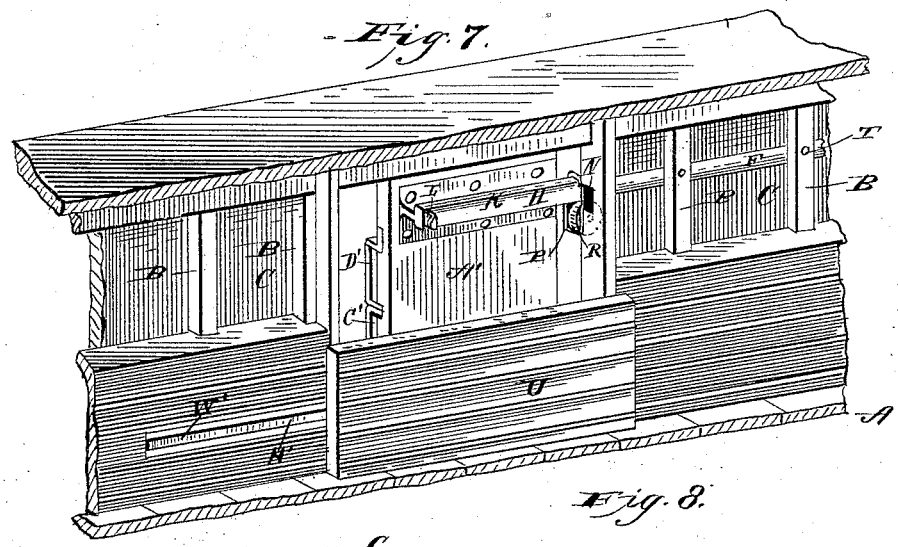
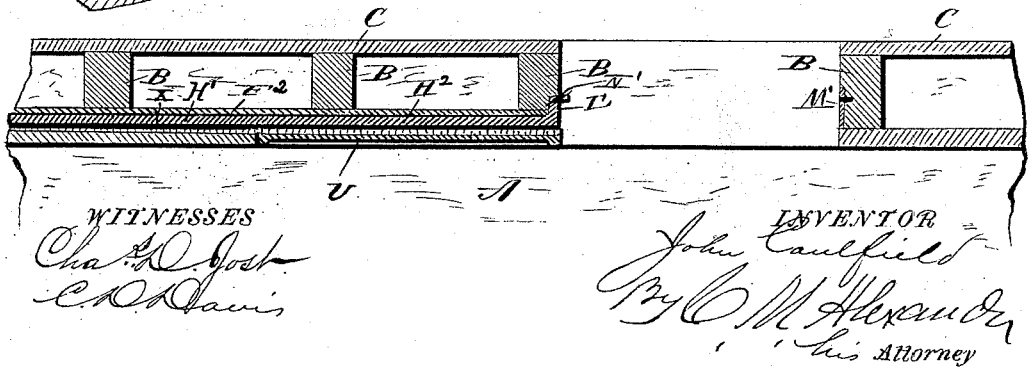


Fig. 8.



WITNESSES

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UNITED STATES PATENT OFFICE.

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CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 419,925, dated January 21, 1890.

Application filed February 13, 1889. Serial No. 299,766. (No model.)

To all whom it may concern:

Be it known that I, JOHN CAULFIELD, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in cars, buildings, and other structures of any description in which a sliding door or gate is employed; and it has for its objects to simplify the construction of the door or gate, to provide for applying it to the structure without materially departing from the usual construction thereof, to dispense with the usual battens for strengthening the door, and provide a door which, when opened, will, with all of its parts, be entirely out of the way, so that the parts may not be injured in loading or unloading the car, or moving articles in or out of the structure, as will be more fully hereinafter set forth.

My invention further has for its objects to prevent the entrance of water or snow into the ways in which the sliding or telescoping rails of the door travel.

The above-mentioned objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a portion of a freight-car, showing my door applied thereto in a closed position. Fig. 2 represents a longitudinal horizontal sectional view of one side of a car, showing the door in position closed. Fig. 3 represents a partial side elevation and sectional view of the door and spring-latch or fastening device of the same. Fig. 4 represents a transverse vertical sectional view taken on the line x' x' of Fig. 2. Fig. 5 represents a similar view taken on the line x x of Fig. 2. Fig. 6 represents a similar view taken on the line x'' x'' of Fig. 2. Fig. 7 represents a perspective view of the interior of one side of a grain-car, showing my invention applied thereto; and Fig. 8, a longitudinal sectional view of one side of a grain-car, showing a modification of my invention.

Referring to the drawings, the letter A indicates the body of a freight or grain car of the ordinary construction, having the usual openings at the sides for loading and unloading the same.

The letter B indicates the vertical posts forming a portion of the frame-work of the car, and C the outer sheathing or siding thereof, which is built upon the frame-work of the car in the ordinary manner. In the said siding or sheathing, on the inside, near the top and bottom thereof, are formed longitudinal parallel slots or grooves D. In the grooves or recesses D are located longitudinal metallic casings F, which in the present instance are rectangular in cross-section, and which are provided with flanges or lips G, extending outwardly through the slots D, where they are bent at right angles into rabbets at the edges of the slots, so as to be flush with the outside of the car, forming a smooth and durable way through which the web of the sliding or telescoping rail may travel.

The letter H indicates the rails, which are similar in cross-section to the ordinary T-rail in use on railroads, and which are attached to the inner side of the door A′ at its flanges by means of screws or other fastening devices, the flanges setting in recesses in the said inner side of the door, so as to be flush therewith. The crowns K of the rails are arranged to slide back and forth in the casing F as the door is opened or closed, so as to support it and guide it in its travel. The outer end of the crown of each rail is provided with a right-angled extension L, which enters the socketed plates M, secured to one of the door-posts, when the door is closed, and holds the door at that side against lateral displacement from pressure on the inside of the car. The outer ends of the casings F are provided with recesses N, into which the extensions L become seated when the door is opened, so as to be flush with the post thereof and out of the way during the loading or unloading of the car.

The outer ends of the casings F are also provided with downwardly-extending lugs or ears P, between which are journaled the rollers R, upon which the lower edges of the crowns of the rails travel, and the rear ends of the rails are provided with rollers S, which travel in the casings, so as to permit the rails to move therein with the least possible amount of friction. The casings are secured to the upright studding of the frame by means of screws, bolts, or other similar fastening devices, as indicated by the letter T in Fig. 7, so as to be held securely in their seats.

The letter U indicates a sliding door, which is used in connection with the door A′ when the car is to be employed for carrying grain in bulk, the said door having a rail H^2 attached to its outer face, which slides in a casing F^2, having its right-angled extensions passing through a slot W′ in the inner wall or sheathing of the car, the casing being seated in a recess X in the back wall of said sheathing, similar to the recesses D, before mentioned. The crown of the rail of the door U is provided with a right-angled extension L′, in the same manner as the rails of the door A′, which enters a socket-plate M′ in the doorpost when the said door is closed. The casing in which the rail of the door U slides has at its outer end a recess N′, in which the right-angled extension L′ sets when the door is drawn back, so as to be out of the way.

The heads of the rails H each extend back of the rear edge of the door a sufficient distance to cover the slots from the inside, as shown at H′, to prevent the entrance of water or snow to the casings where the outside doors are used, or the entrance of grain into the same in the case of the inside grain-confining doors. The casings F are also extended, as shown at F″, to receive the extensions H′ when the door is open, this extension of the casing being also embedded in grooves in the car-body.

The letter V indicates a latch which is pivoted to the outside of the outer door near one edge thereof. The said latch projects beyond said edge and has a hooked end Z, which is adapted to pass through a staple A^2, secured to the stop B′, attached to the outside of the car.

The latch V is arranged to work within a guide-plate C′ upon the outside of the door to which said guide-plate is secured. Above the guide-plate is secured a similar plate D′, which is provided with a sliding bolt E′, working through openings in the upper and lower parts of the upper plate and the upper part of the lower plate, the lower end of said bolt bearing against the upper edge of the latch. The bolt is surrounded by a spiral spring F′, which bears against a pin G′ (passing through said bolt near its lower end) and against the upper end of the plate D′, so as to keep the latch pressed normally down to cause the latch to automatically engage the staple when the door is closed. The free edge of the latch is beveled or curved, so as to automatically enter the staple, and is provided with an aperture for the reception of a hasp-lock I′, by means of which the door may be securely fastened when closed.

As shown in the modification illustrated in Fig. 8 of the drawings, the door U is constructed of sheet metal, and is arranged to slide in a recess in the inner face of the sheathing, so as to be flush with said face and out of the way when loading the car.

The operation of my invention will be readily understood from the above without further description.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the sliding door of a car or other structure, of the casings having longitudinal slots at one side and located in recesses in the walls of said structure, which have corresponding openings, and the T-rails secured to the doors, the webs of said rails extending through and traveling in the slots, and the crowns of said rails traveling in the casings, substantially as specified.

2. The combination, with the wall of a car or structure and the door and rails, of the casings located in longitudinal recesses therein and provided with flanges or lips extending through slots in the said walls, the lips being bent at right angles into rabbets in the outer face of the wall, the casing and its flanges or lips forming ways for the crown and web of the rails of the sliding door, substantially as specified.

3. The combination, with the rails of the sliding door, of the right-angled extensions at the outer ends of said rails, and the socketed plates secured to the posts of the door, into which the extensions enter when the door is closed, substantially as specified.

4. The combination, with the casings secured in the walls of a structure and having recesses at their outer ends, of the right-angled extensions on the rails of the door, which set in said recesses when the door is opened, so as to be out of the way, and the socketed plates M, for the reception of the said extensions when the door is closed, substantially as set forth.

5. The combination, with the casings located in the walls of a structure, of the rollers located at the outer ends thereof, and the T-rails arranged to travel in said recesses and having rollers at their rear ends, substantially as specified.

6. The combination, with the casings having openings at one side, of the T-rails working therein and secured to the sliding door, the heads of the said rails being extended rearwardly beyond the rear end of the door, so as to close the openings when the door is

closed, substantially as and for the purposes specified.

7. The combination, with a car having an outer sliding door, of the inner sliding door, the T-rail secured thereto, and the casing having an inward opening, the rail being arranged to slide in said casing, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN CAULFIELD.

Witnesses:
A. M. GIBSON,
WILLIAM WRIGHT.