No. 678,181. Patented July 9, 1901.

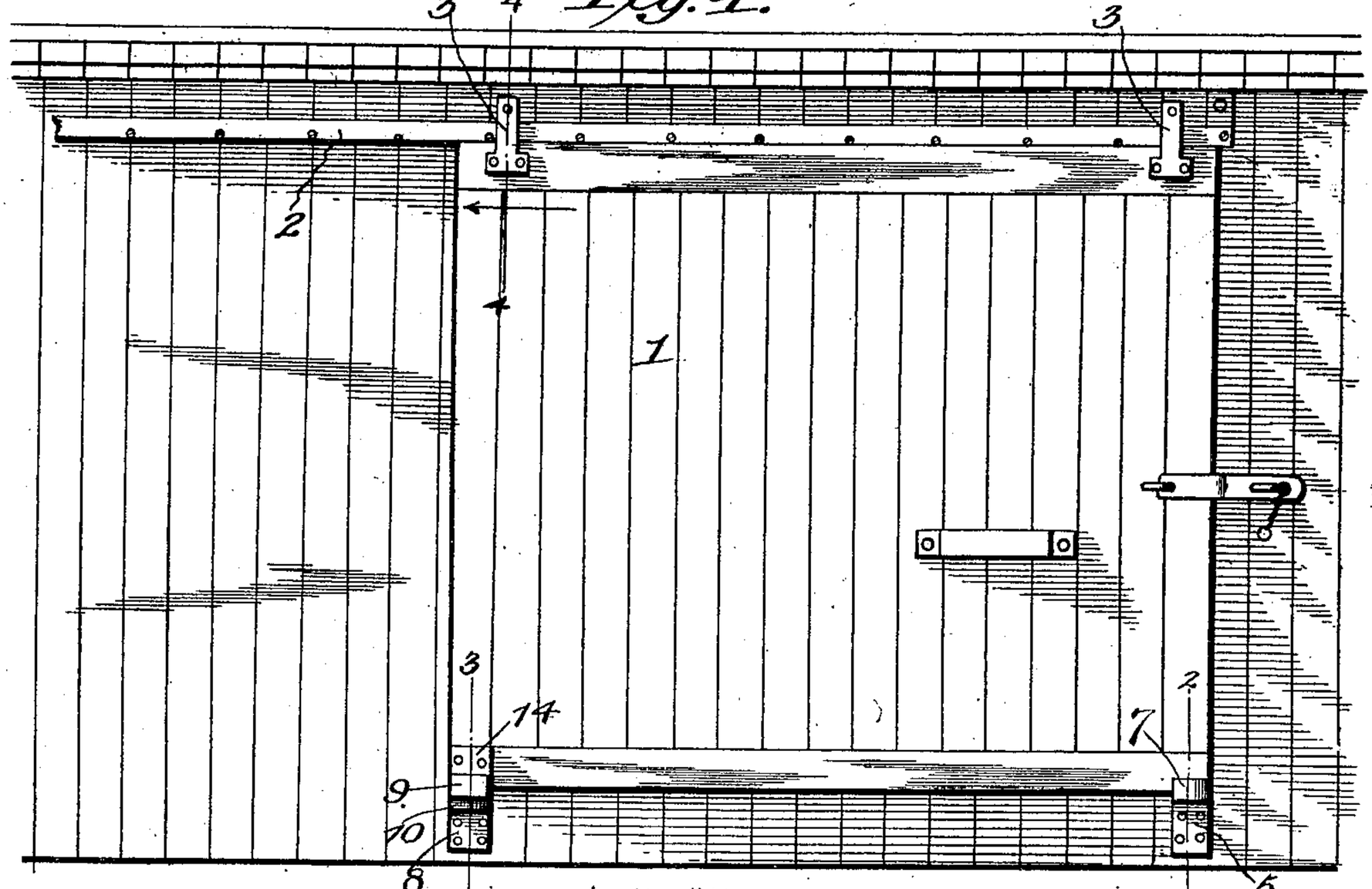
W. E. HOYT.

FREIGHT CAR DOOR.

(Application filed Sept. 22, 1898.)

(No Model.)

Fig. 1.



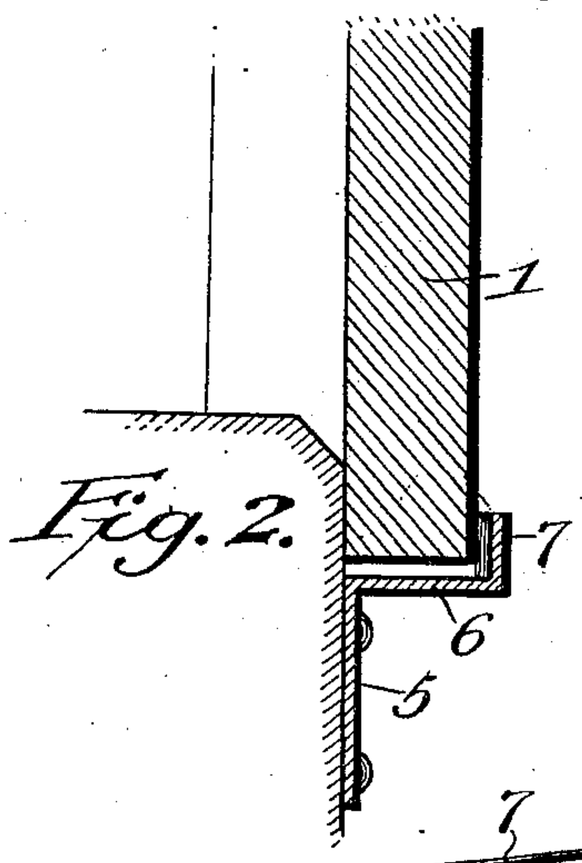


Fig. 2.

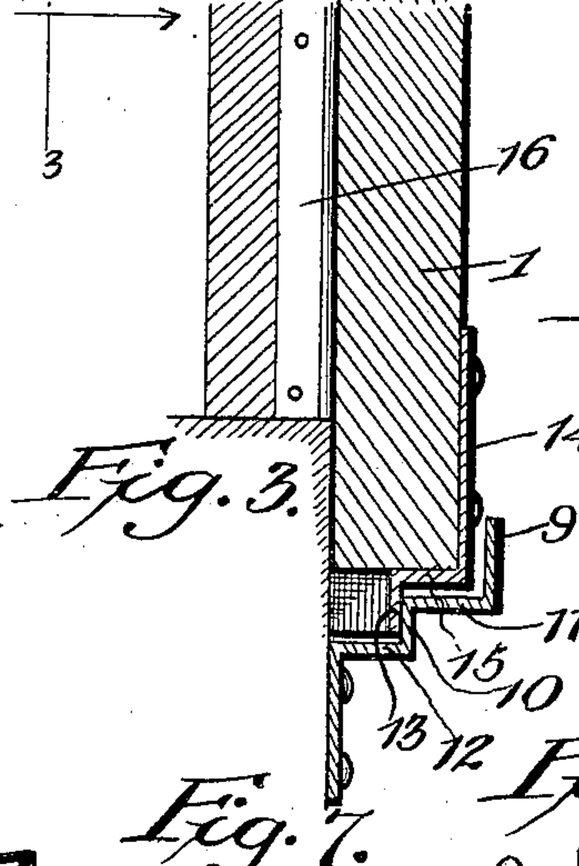


Fig. 3.

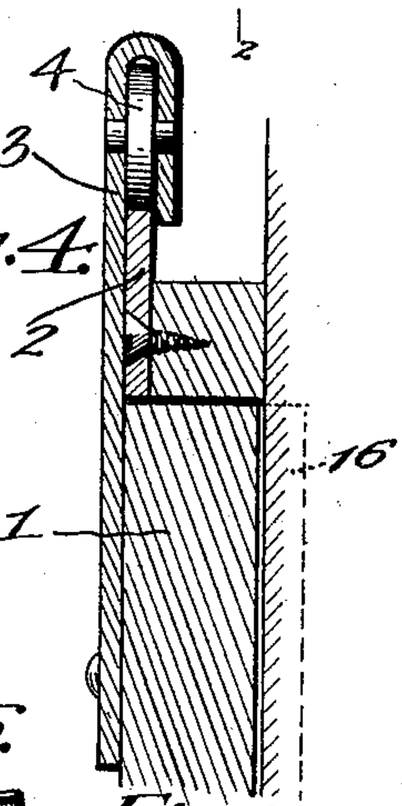


Fig. 4.

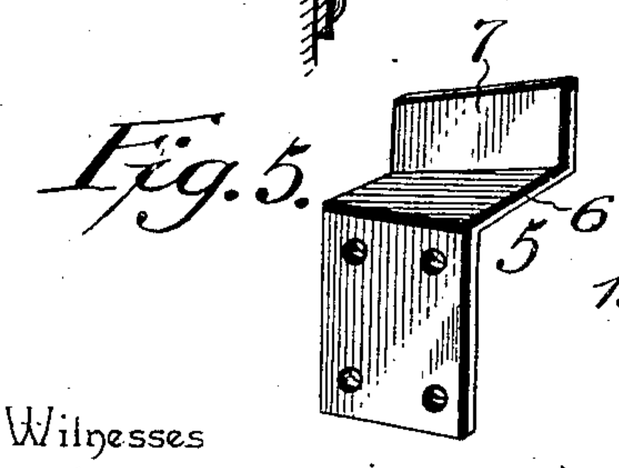


Fig. 5.

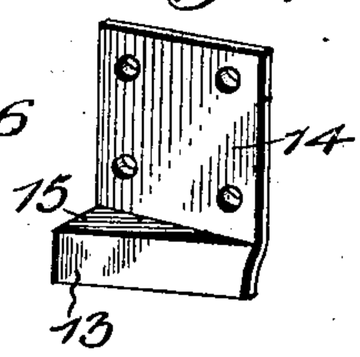


Fig. 7.

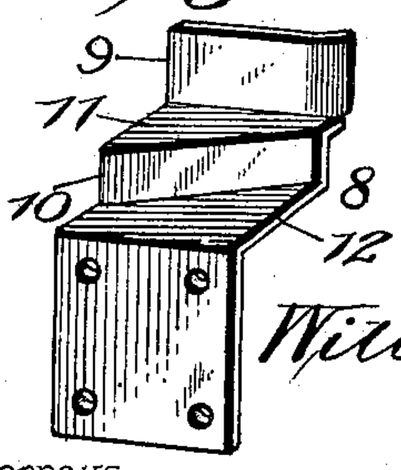


Fig. 6.

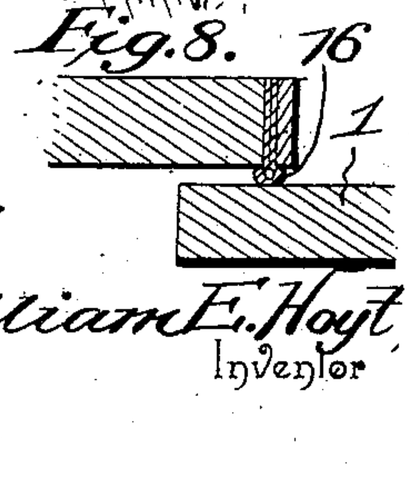


Fig. 8.

Witnesses
A. Roy Appleman Jr.
T. J. Riley

By his Attorneys.
Cashow & Co.

William E. Hoyt
Inventor

UNITED STATES PATENT OFFICE.

WILLIAM E. HOYT, OF RAVENSWOOD, WEST VIRGINIA.

FREIGHT-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 678,181, dated July 9, 1901.

Application filed September 22, 1898. Serial No. 691,616. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HOYT, a citizen of the United States, residing at Ravenswood, in the county of Jackson and State of West Virginia, have invented a new and useful Freight-Car Door, of which the following is a specification.

The invention relates to improvements in freight-car doors.

The object of the present invention is to provide improved means for guiding the car-door in its movements, so as to effect a tight joint in closing and exclude cinders, dust, and water from the interior of the car.

The invention consists in the construction and novel combination and arrangement of parts, as hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is an elevation of a portion of a car provided with a door constructed in accordance with this invention. Fig. 2 is a vertical sectional view on line 2 2 of Fig. 1. Figs. 3 and 4 are similar views on lines 3 3 and 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the keeper for engaging the front edge of the door, at the bottom thereof. Fig. 6 is a detail perspective view of the lower guide. Fig. 7 is a similar view of the lower guide-flange of the door. Fig. 8 is a detail sectional view illustrating the arrangement of the weather-strip.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a sliding car-door suspended from a track 2 by means of hangers 3 of the ordinary construction, provided with rollers 4 to enable the door in opening and closing to slide freely on the track-bar. The sliding freight-car door, which has its backward movement limited by a suitable stop, is provided with a handle and is designed to have a seal or other lock of any desired construction.

When the car-door is closed, its front end is supported at the bottom by a keeper 5, consisting of a bracket and comprising a vertical attachment portion, an outwardly-extending horizontal portion 6, and an inwardly-disposed inclined flange 7, arranged at an angle to the length of the car and adapted as the door is closed to wedge the same tightly against the car, whereby a perfectly tight joint is effected. The horizontal portion 6 of the keeper extends from the upper portion of the attachment-plate, which is perforated for the reception of a suitable fastening device, and the flange 7 is located at the outer edge of the horizontal portion 6.

The lower edge of the door is guided in its backward-and-forward movement solely by a guide 8, located at the back of the door-opening of the car and adapted to serve also as a keeper for holding the rear end of the door tightly against the car when the said door is closed. In this way I obviate the use of a lower rail as commonly employed on freight-car doors. This combined guide and keeper consists of a bracket having an attachment portion and provided with two distinct angular bends or offsets, forming upper and lower shoulders or flanges 9 and 10, connected with each other and with the attachment-plate by horizontal portions 11 and 12. The upper shoulder or flange 9, which is disposed parallel with the adjacent face of the car, forms a guide for the car-door and is located a sufficient distance from the car-body to enable the door to slide freely without binding. The performance of this guiding function by the flange 9 is facilitated by the rearward extension and outward deflection of its rear end, as shown more clearly in Fig. 6, which feature is highly desirable, as the door is supported solely from above and is therefore capable of considerable lateral movement. If in closing the door it should swing outwardly to a slight extent, the lower front corner of the door will strike the deflected or outwardly-curved end of the guide-flange 9 and will be thrown back toward the car for guidance between the flange 9 and the car-body to insure the proper coöperation of the inclined guide-faces, which serve to insure a close fit of the door. The fact that the deflected end of the flange 9 is extended slightly beyond the rear edge of the face 11 facilitates the operation just described, for the reason that said end will thus be rendered more or less resilient and will have a reactive tendency to jar the door back into position under the conditions just described. The lower shoulder 10 is arranged at an angle to the adjacent face of the car-

body similar to the shoulder or flange 7 of the keeper 5 and is adapted to be engaged by a diagonally-disposed guide flange or projection 13, depending from the bottom of the car-door, at the rear end thereof, and connected with the same by a plate 14. The plate 14, which is secured to the car-door by suitable fastening devices, is provided with a horizontal portion 15, arranged on the lower edge of the door and connecting the plate with the depending flange or projection 13. The diagonally-disposed flange or projection 13 engages the wall or shoulder 10 of the combined guide and keeper 8 just before the door reaches the limit of its closing movement, so that as such closing movement is completed the rear edge of the door will be forced tightly against the car-body to provide a joint that will effectually exclude dust, cinders, and water from the interior of the car and prevent the contents of the latter from being injured.

The car-body is provided in rear of the door-opening with a vertical weather-strip 16, constructed of flexible material and adapted when the car-door is forced against it through the action of the angularly-disposed shoulder 10 and the diagonally-arranged projection or flange to yield and conform to the configuration of the adjacent face of the car-door and fill any irregularities or depressions in the surface of the same. By this construction the crack at the back of a car-door is effectually closed and there is no liability of cinders, dust, or water entering a car at that point and damaging the contents.

The keepers which engage the opposite lower corners of the door are stamped up or otherwise formed from sheet metal, and by reason of the presence of the horizontally-extending portions of said keepers the inclined or obliquely-set flanges 7 and 10 are adapted to yield and engage the door and wedge thereon to force the door with a yielding pressure toward the car-body. By the same means the guiding-flange 9 is adapted to yield and guide the door as it is slid lengthwise. By arranging a resilient weather-strip adjacent to the edge of the door-opening it will be seen that the rear edge of the door when closed is yieldingly held between the weather-strip and the adjacent keeper, thus preventing the door from rattling. It will further be seen that the wedge formed by the flange 13 is located below the bottom edge of the sliding car-door and arranged between the planes of the front and rear surfaces of the door, so that it affords no projection beyond the outer surface of the door.

What is claimed is—

The combination with a sliding car-door suspended at its upper edge, and a wedge secured to the rear lower corner of the door and located below the door and between the planes of the front and rear surfaces thereof, of yielding sheet-metal keepers secured to the car at the opposite lower corners of the door-opening and having inclined flanges adapted to yieldingly engage the car-door and cam respectively, the cam-engaging keeper being extended to form a door-guiding flange which yieldingly engages the door, and a resilient weather-strip on the car between which and the adjacent keeper, the rear edge of the door when closed is yieldingly held, 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.

WILLIAM E. HOYT.

Witnesses:
H. E. HARPOLD,
S. BROWN.