

(No Model.)

C. HAGER.  
FREIGHT CAR DOOR.

No. 382,154.

Patented May 1, 1888.

Fig. 1.

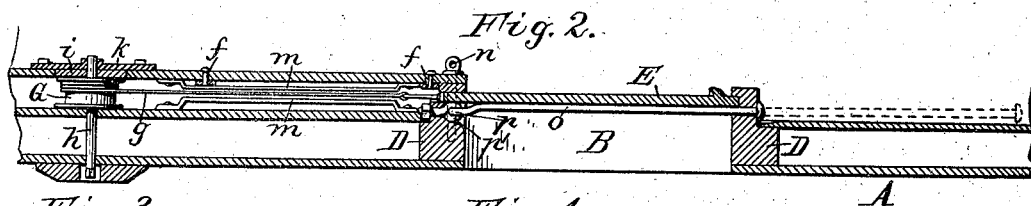
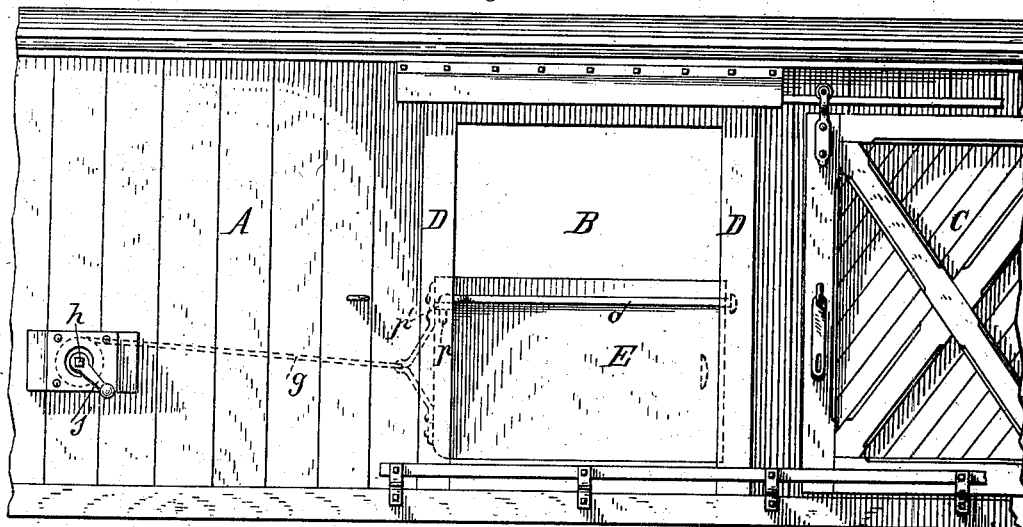


Fig. 3.

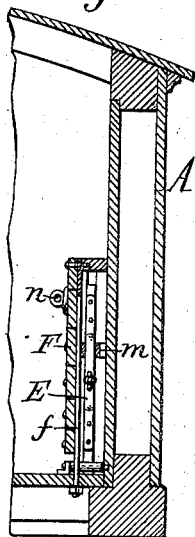
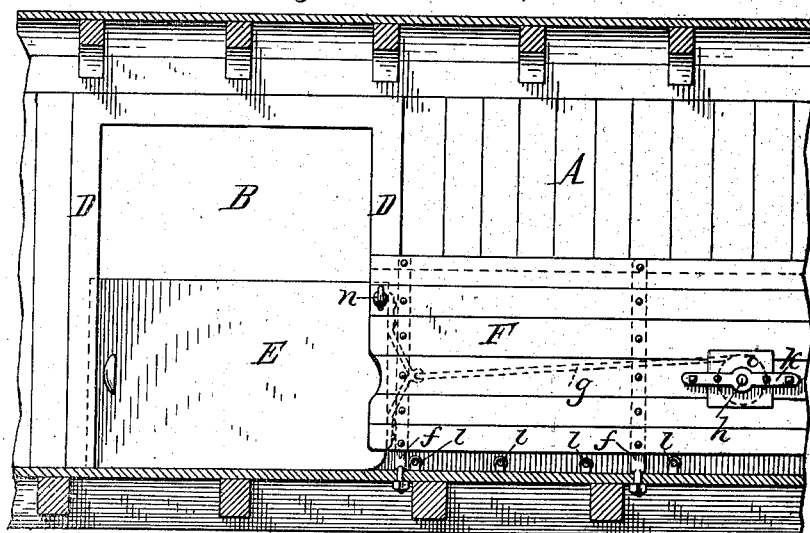


Fig. 4.



Witnesses:

Theo. S. Popp.  
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# UNITED STATES PATENT OFFICE.

CHARLES HAGER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO  
HENRY BAETHIG, OF SAME PLACE.

## FREIGHT-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 382,154, dated May 1, 1888.

Application filed December 19, 1887. Serial No. 258,300. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES HAGER, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful  
5 Improvements in Freight-Car Doors, of which the following is a specification.

This invention relates to improvements in that class of freight-car doors which are generally arranged within the car, and which are  
10 adapted to close the entrance in the side of the car and confine the grain or other material in bulk in the car independently of the outside sliding doors.

The invention has particular reference to doors of the kind which are arranged to slide  
15 into a recess or casing in the car-body when opened; and it has for its object to provide simple means whereby the sliding door can be easily opened to unload the car, and also to  
20 provide a simple device whereby the door is prevented from being forced outwardly by the pressure of the material when being opened or when partly opened.

The invention consists of the improvements  
25 which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a fragmentary side elevation of a freight-car provided with my improved door. Fig. 2 is a  
30 horizontal section thereof. Fig. 3 is a fragmentary vertical cross-section of the same. Fig. 4 is a fragmentary longitudinal section of the car.

Like letters of reference refer to like parts  
35 in the several figures.

A represents one of the side walls of the car; B, the entrance, and C the sliding door arranged on the outside of the car in the usual  
40 manner for closing the entrance B.

D represents the upright posts which form the sides of the entrance B, and E is the sliding door arranged on the inside of the car and  
45 adapted to close the lower portion of the entrance B. The door E is preferably constructed of sheet metal.

F represents a rectangular casing arranged on the inner side of the car on one side of the entrance B, and into which the door E is  
50 adapted to slide when in an open position. The upright portion of the casing F is preferably

composed of boards, which are secured to vertical rods *f*, secured with their lower ends to the floor of the car.

G is a horizontal drum arranged in the casing F, near the rear end thereof; and *g* is a rope, 55 cord, or chain secured with one end to the rear end of the sliding door E, and with its opposite end to the drum G, so that upon turning the drum in the proper direction the cord *g* will be wound upon the drum, and the sliding  
60 door E will be drawn into the casing F and thereby clear the entrance. The drum G is mounted upon a horizontal shaft, *h*, which is journaled in suitable bearings arranged, respectively, in the side of the car and in a re- 65 movable plate arranged in an opening in the outer wall of the casing F. The shaft *h* projects through the outer side of the car, and its outer end is made square.

*j* is a detachable hand crank, which is ap- 70 plied to the outer end of the shaft *h* for turning the same.

The opening in the casing F is of sufficient size to permit of the introduction or removal of the drum G. The removable plate *i* is se- 75 cured in this opening by a strap, *k*. By this construction the drum can be readily put in place in the casing or be removed therefrom for making repairs.

The lower end of the casing F is open and 80 terminates at a short distance above the floor of the car, so as to leave a free space below the casing, into which any grain or other material which may work in between the door and the casing may fall, and from which space the 85 grain is readily removed.

*l* represents anti-friction rollers arranged below the casing F, and upon which the sliding door E runs in drawing it into the casing F. 90 These rollers greatly reduce the friction and facilitate the opening of the door. The lower front end of the door is curved or chamfered, as shown in Fig. 4, to cause the door to ride upon the adjacent rollers *l*.

*m* represents horizontal guides or rods ar- 95 ranged within the casing F, and between which the door is held so as to prevent it from rattling. These guide-rods hold the door out of contact with the sides of the casing, thereby preventing the grain from lodging between the 100

casing and the door, and causing the latter to bind, which would be the case if the guides were omitted and the casing made narrower to closely fit the door.

5 The door is held in a closed position by means of a horizontal pin, *n*, which passes through an opening formed in the rear end of the door, and through the adjacent post D of the entrance. The front end of the door is  
10 confined in a vertical groove formed in the adjacent post D of the entrance, whereby the front end of the door is prevented from rising.

*o* represents a horizontal rod or brace extending across the entrance B on the outer side  
15 of the door E, whereby the latter is prevented from being pressed outwardly by the pressure of the grain when the front end of the door is out of its groove. The brace-rod *o* is arranged in a horizontal opening formed in one of the  
20 posts D, and is confined in said opening by an enlargement or head formed at its inner end, as shown in Fig. 2. At its opposite end the rod *o* is provided with a hook, *p*, as shown in Fig. 1, which engages in an eye, *p'*, secured to  
25 the adjacent post D. After the door has been opened, the rod *o* is disconnected from the eye *p'* and pushed laterally into the car, so as to leave the entrance unobstructed, as shown by dotted lines in Fig. 2.

30 My improved device for opening the car-door is very simple in construction, and enables the door to be opened with great ease.

I claim as my invention—

1. The combination, with a freight-car hav-  
35 ing an entrance-opening in its side, and a casing, F, arranged on the inside of the car on one side of the entrance, of a sliding door closing said entrance and adapted to enter said

casing, and a rod or brace extending across the entrance on the outside of the sliding door 40 and forming a support for the sliding door, substantially as set forth.

2. The combination, with a freight-car having an entrance-opening in its side, and a casing, F, arranged on one side of said entrance, 45 of a sliding door closing said entrance, a horizontal shaft, *h*, a drum, G, mounted on said shaft and arranged in the casing F, a cord or chain, *g*, connecting said drum with the sliding door, rollers *l*, arranged below the casing 50 F, a brace-rod, *o*, extending across the entrance for supporting the door, and a hand-crank, *j*, whereby the drum is rotated and the door drawn into the casing F, substantially as set forth.

3. The combination, with a freight-car having an entrance-opening and a sliding door closing said entrance, of a sliding brace rod extending across the entrance on the outer 60 side of the sliding door and arranged with one end in a horizontal opening formed in one side of the entrance, and provided at its opposite end with a hook which engages in an eye secured to the opposite side of the entrance, substantially as set forth. 65

4. The combination, with the sliding door E and the casing F, of horizontal guide-rods *m*, arranged in said casing, and between which the sliding door is held, substantially as set forth. 70

Witness my hand this 5th day of December, 1887.

CHARLES HAGER.

Witnesses:

CHESTER D. HOWE,  
FRED. C. GEYER.