(No Model.)

E. B. SEARLES.

GRAIN CAR DOOR.

No. 412,205. Patented Oct. 1, 1889.

Fig. 1.

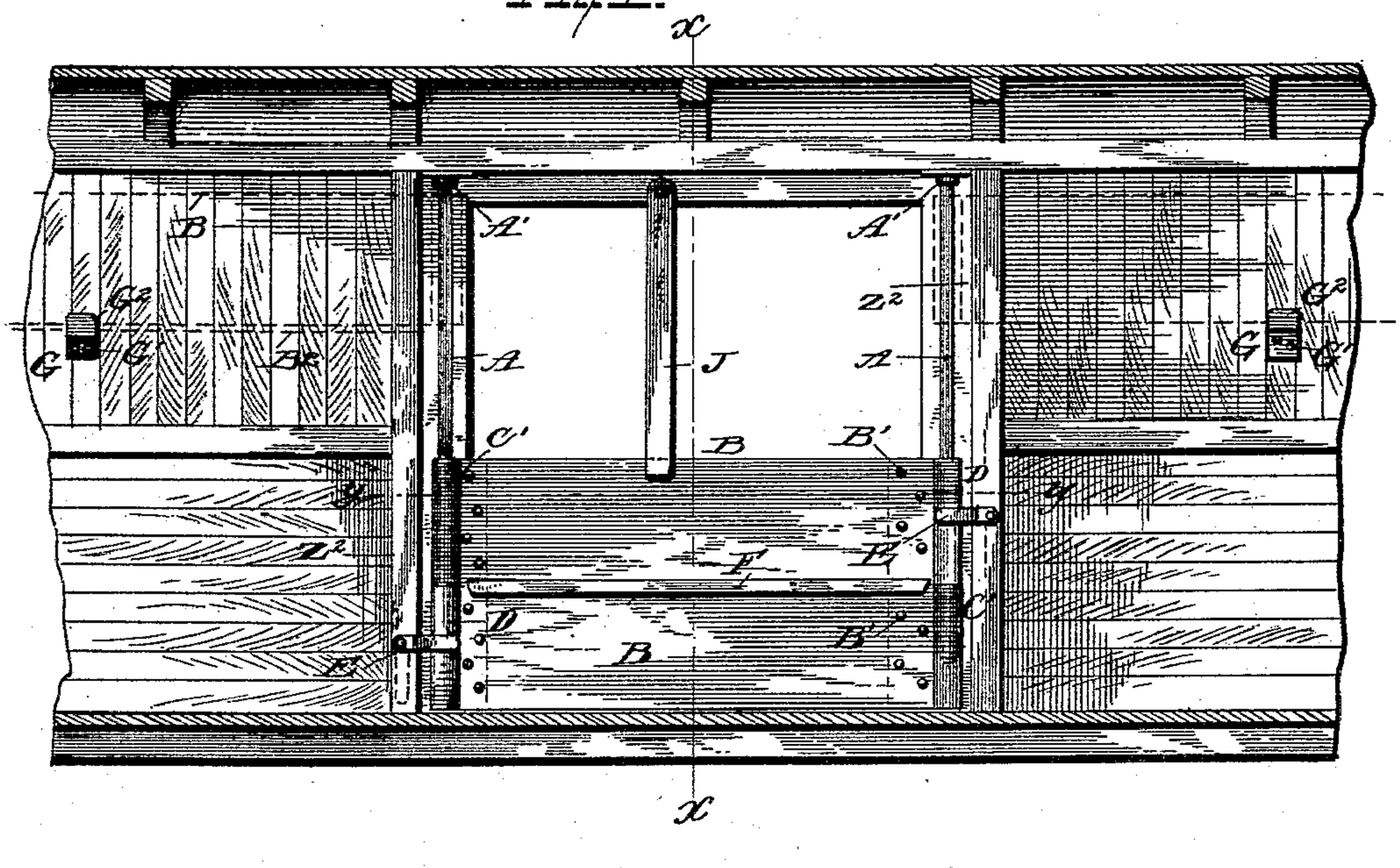

Fig. 2.

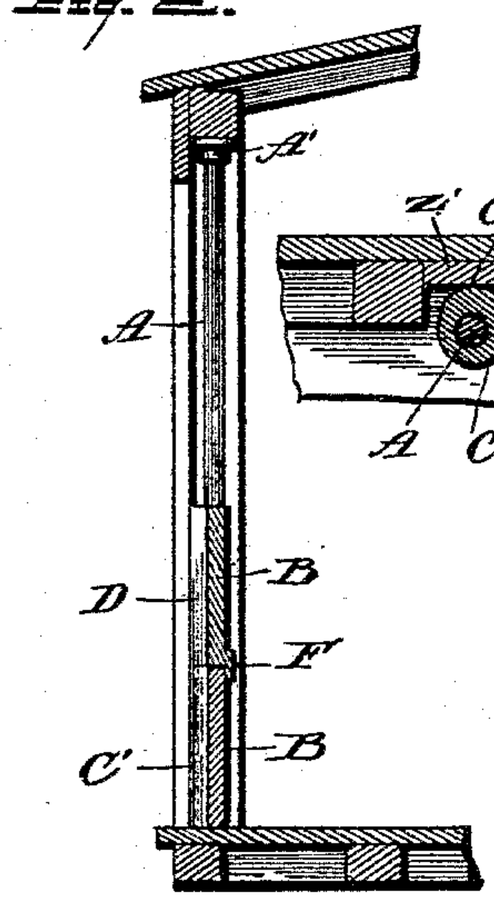

Fig. 3.

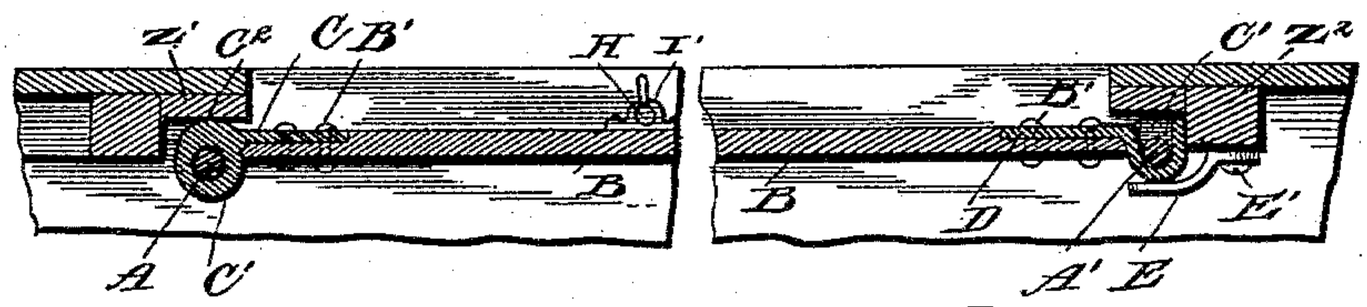

Fig. 4.

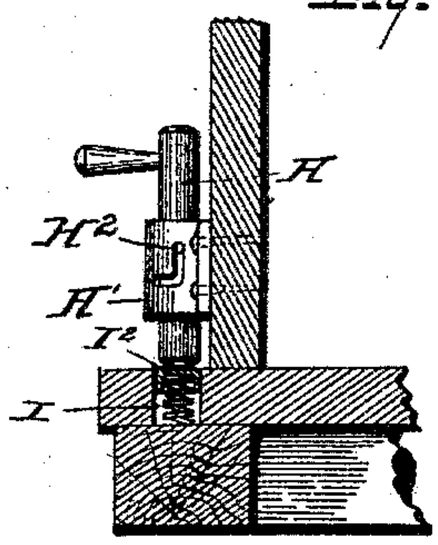

Fig. 5.

Witnesses
L. C. Hills.
Heath Sutherland.

By

Inventor
E. B. Searles.
E. B. Stocking
Attorney.

UNITED STATES PATENT OFFICE.

EDUARD B. SEARLES, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-FOURTH TO CHARLES C. CORBIN, OF SAME PLACE.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 412,205, dated October 1, 1889.

Application filed May 10, 1889. Serial No. 310,337. (No model.)

To all whom it may concern:

Be it known that I, EDUARD B. SEARLES, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to car-doors, and more particularly to that class which are made in sections, the main object of the invention being the provision of such a door as will prevent the possible exit of produce—such as grain—from the car.

Another object of the invention is to provide a door which can be easily handled without the exertion of more than the ordinary strength, the door at the same time being applicable to any car and capable of manufacture at a minimum cost.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a longitudinal section of a portion of a car of the ordinary construction provided with doors constructed in accordance with my invention. Fig. 2 is a vertical section on the line *x x* of Fig. 1, and Fig. 3 is a horizontal section on the line *y y* of said Fig. 1.

Like letters of reference refer to like parts in all the figures of the drawings.

The invention is specially applicable to grain-cars, being so arranged that it will prevent the escape of grain; and with this end in view I have secured within the car, a suitable distance apart, the rods or posts A, preferably of metal, provided with flanges or flattened on their ends, as at A′, so that they can be secured within the car.

B represents the doors, any number of which may be employed, constructed preferably of wood. To one end of the door is attached by suitable means—as rivets B′—the hinge-plate C, of metal, provided with an eye or loop in its head C′, which is adapted to slide on the rod or post A. The head C′ has formed on its outer periphery a lug or enlargement C^2, for a purpose hereinafter apparent.

To the ends of the doors B opposite those provided with the hinge-plates C are suitably secured—as by rivets B′—the catch-plate D, which is bent in the shape of a U, said U, when the door is closed, engaging the rod A and fitting snugly in place and firmly against the studding Z^2 of the car, thus preventing the escape of grain or other produce, the lug or enlargement C^2 closing any opening which may be left on the opposite side of the door by resting against the studding Z^2.

As many of the doors B may be provided as desired; but I have only shown two, it being the custom when grain is packed into the car to only half fill the same, the level of the grain extending slightly below the top of the upper door. In Fig. 1 I have shown the doors swung out of place and resting on brackets G.

When the doors B are in a closed position, they may be held securely in place by means of the latch E, which is pivoted, as at E′, to the studding of the car.

F is a flange formed as a part of one of the doors, to close any opening there may be when said doors are together; or the flange F may be dispensed with and a strip of metal or wood used instead thereof, the same being fastened by suitable means to the door.

When the doors are swung up out of place, they are held there by means of the brackets G, on which they are adapted to rest, the brackets being secured to the car, as at G′, and provided with upwardly-turned flanges or shoulders G^2, to prevent the doors from swinging outwardly.

The hinges of the doors are preferably arranged on alternate sides of the opening, so that when the doors are opened or not used the top door is swung to the right or left, as the case may be, bringing the thinner side of the hinge-plate toward the studding Z′, whereby the door is more easily slid upwardly on its rod. The next succeeding door is then swung around and placed on the opposite bracket G, thus reducing to a minimum the space within the car to be occupied by the doors when the car is desired to be used for other purposes than the transportation of grain.

It is apparent that I may, without depart-

ing from the spirit of my invention, either stamp the doors in one piece of metal and then bend their ends to form hinges and catches, respectively, or they may be cast in a desired form.

The tendency of the grain within the car to force the lower door outward is very considerable, and is apt to cause the outward bending and consequent weakening of the same if some extraneous means of support is not provided. For this purpose I use a bolt H, sliding in a collar H′ on the outside of the lower door, as shown in Fig. 4, said bolt being provided with a projecting pin H^2, adapted to slide in a bayonet-slot, as shown, in the collar H′. The lower end of the bolt projects into a hole in the floor of the car outside of the door at I. Within this hole there is mounted a spring I′, at the top of which is a stop or sliding lid I^2, for the purpose of closing the top of the hole when the bolt is not therein, in order that when the door is opened the grain flowing out of the opening will not fall into and clog the hole I.

The jarring to which the doors of all cars are subjected would tend to cause the jumping of the top door of my couple, allowing the grain to drop out through the slit thus caused between the two doors and causing waste. In order to obviate this difficulty I provide a prop or locking-lever J, shown in position pivoted above the doors in Fig. 1 and shown in detail in Fig. 5. In this latter figure the lower end of this prop is seen to be slotted for the purpose of straddling and holding down the top of the top door, as shown by dotted lines in Fig. 1. When it is desired to open the doors and let out the grain, it is only necessary to swing this bar up and out of the way.

What I claim is—

1. The combination, with rods or posts arranged within a car, of doors provided with hinges and catches on their ends to slide on and engage with the rods, respectively, substantially as specified.

2. The combination, with rods arranged at each side of a car-door opening, of doors having hinges at their ends, said hinges sliding on opposite rods, said doors extending across the opening and hinged one above the other to opposite rods, substantially as shown and described.

3. The combination, with rods arranged at each side of a car-door opening, of doors the hinges of which slide on opposite rods, catches on said doors, and pivoted latches bearing on the hinges to hold the doors closed, substantially as specified.

4. The combination, with rods arranged at each side of a car-door opening, of doors extending across said opening and provided at one end with hinges and at the other end with catches, said hinges and catches being alternately arranged, one or more of said doors being provided with a strip or flange and brackets to hold said doors in place when swung out of their normal position, substantially as specified.

5. A grain-car door having a hinge thicker on one side than on the other, substantially as specified.

6. A grain-car door having a hinge thicker on one side than on the other, in combination with a rod serving as a pivot for said hinge, substantially as specified.

7. A grain-car door having a hinge thicker on one side than on the other, in combination with a rod serving as a pivot for said hinge and with the studding of a car-door opening, whereby when closed the thicker portion of the hinge serves to prevent the escape of grain, substantially as specified.

8. In combination with a car-door supported at its extremities, as described, a collar fastened to the outside of the same and provided with a bayonet-slot, a bolt sliding in said collar and provided with a pin sliding in said slot, and a spring surmounted by a cap set into the floor of the car directly under said bolt, substantially as specified.

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

EDUARD B. SEARLES.

Witnesses:

E. B. STOCKING,

HEATH SUTHERLAND.