

(No Model.)

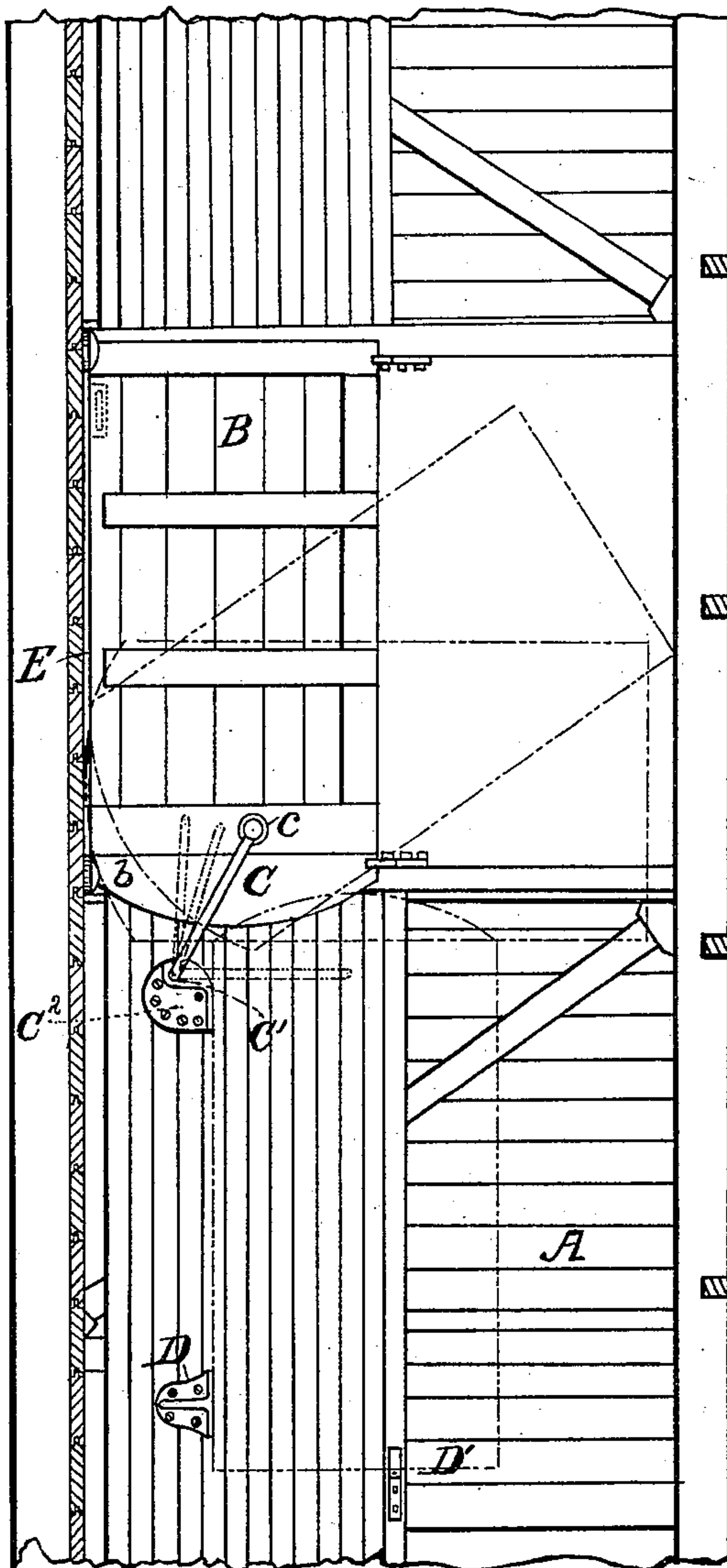
F. G. SUSEMIHL & H. H. HEWITT.

CAR DOOR.

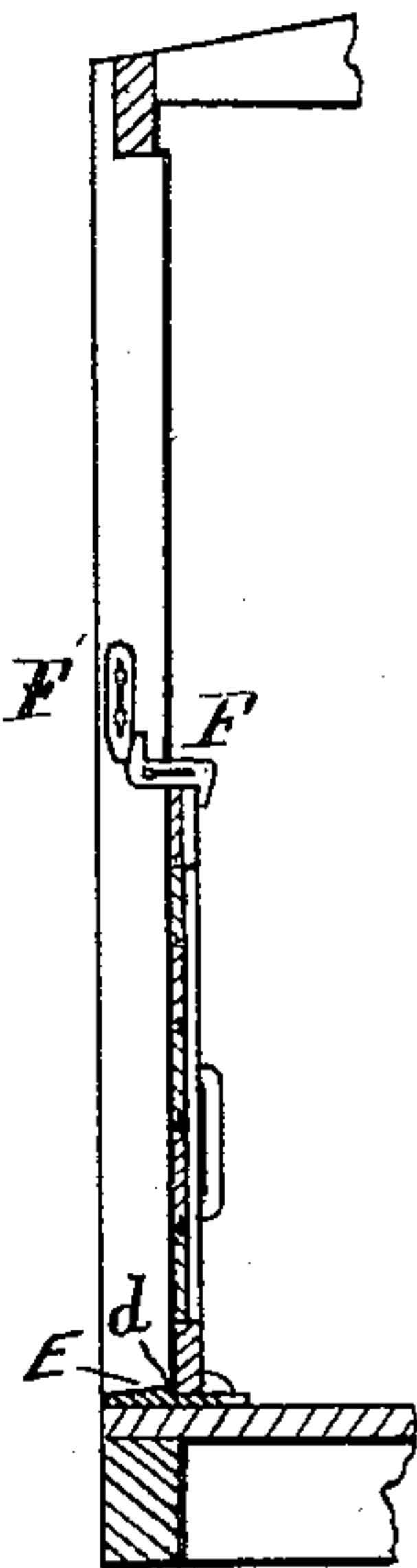
No. 246,920.

Patented Sept. 13, 1881.

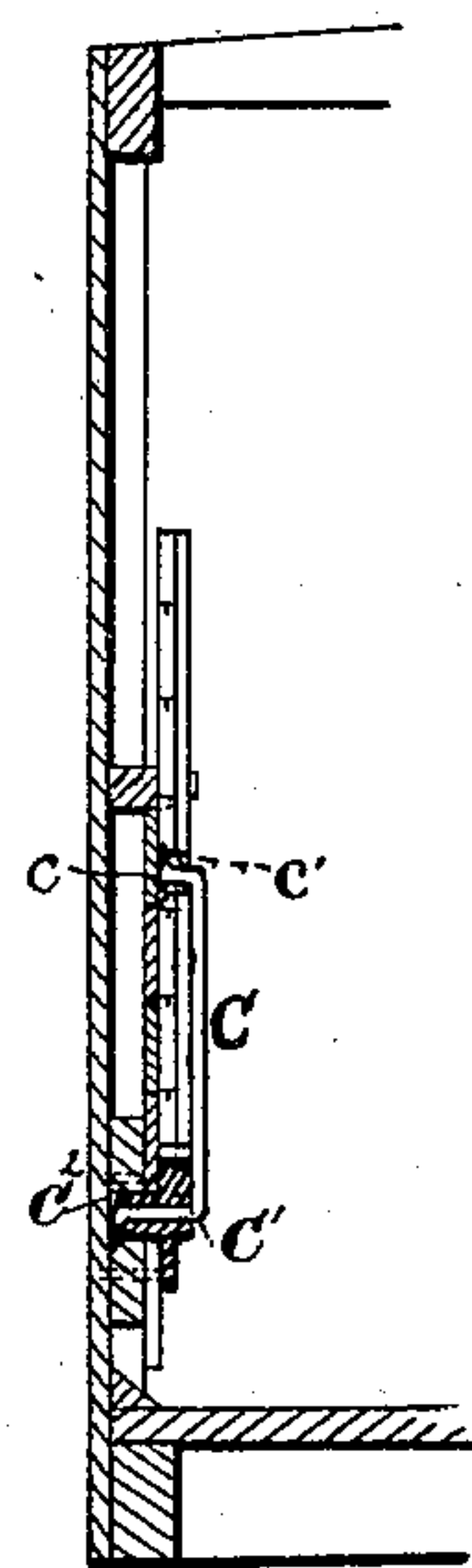
*Fig. 1.*



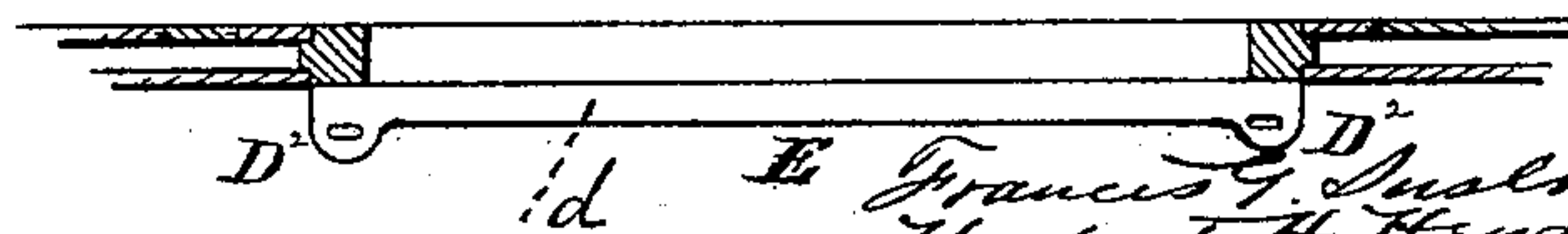
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES

*S. C. Thomas*  
*Henry A. Duclak*

*Francis G. Susmihl*  
*Herbert H. Hewitt* INVENTOR

*By W. W. Leggett*  
*Their*

ATTORNEY

# UNITED STATES PATENT OFFICE.

FRANCIS G. SUSEMIHL AND HERBERT H. HEWITT, OF DETROIT, MICHIGAN,  
ASSIGNORS OF NINE-TWENTIETHS TO JAMES MILLER, OF SAME PLACE.

## CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 246,920, dated September 13, 1881.

Application filed July 12, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, FRANCIS G. SUSEMIHL and HERBERT H. HEWITT, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Grain-Car Doors; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

Our invention consists in providing the door with a guide-bar or carrying-bar pivoted thereto, the other end of the guide-bar turned at right angles and passed through a bed-plate or through the frame-work of the car, thereby forming a strong leverage, whereby the door is held snugly to its place when the door is shut, and is held against the side of the car when the door is open.

Our invention consists, also, of other novel features of construction, all of which will be hereinafter more particularly described, and pointed out in the claims.

In the drawings, Figure 1 represents an interior side view of a car and our improved grain-door mechanism. Fig. 2 is a separate view, illustrating the grain-door lock. Fig. 3 is a sectional view, illustrating more particularly the guide-bar or carrying-bar, the said sectional view representing a section by a vertical plane passed through the said bar when the grain-door is open. Fig. 4 is a separate view, representing, in plan, the door-sill into which the grain-door closes when it is shut.

Heretofore, in the construction of grain-doors in which the door is pivoted to a guide or carrying bar, the construction has required that the carrying-bar, in opening the door, should have a continuous motion in one direction, and the door itself be lifted bodily from the beginning of its movement, or else the near end has been lifted and the remote end dragged across the doorway.

It is the object of this invention to produce a door which shall have the advantage of the guide-bar or carrying-bar for retaining it always in its proper place, yet which shall permit the door to be lifted from its farther end

and thence up to a vertical position without lifting the near end from the floor at all, but on the contrary the weight of the door during the entire operation is sustained directly by the end which rests upon the floor. Thus, when in vertical position, it can be tilted back out of the way and to a position above the bottom of the car. These objects we accomplish by the employment of a guide-bar or lifting-bar, pivoted at one end to the door, the said pivotal point being permitted to fall and rise freely during the operation of lifting the door, as above described, and as indicated by dotted lines in Fig. 1, the said bar itself being of such a character as to thoroughly brace the door and hold it snugly to its place.

To this end A represents the ordinary grain-car.

B is a grain-door. It is made preferably curved at one end, as shown at *b*. The curved end adjacent to the carrying-bar, for convenience, we have termed the "near end," and the end farthest away from the bar the "remote end."

C is a guide or carrying bar. One end of this bar is pivoted to the door at *c* in any convenient manner. The method, however, shown in Fig. 3 we have found to be convenient, and consists simply of turning the end of the bar at right angles and passing it through the door-frame or through a suitable plane or block, *c'*, fastened to the door. At the other end of this bar is a right-angular projection, *C'*, which is in like manner passed through the frame-work of the car or through a suitable wooden or metallic bed-plate, *C<sup>2</sup>*. This right-angular projection is one of the important features of our invention. It constitutes a rigid brace, which holds the main bar C in place, and consequently prevents the door from sagging away from the side of the car either when shut or when open. The same effect has heretofore been accomplished by projecting a short arm beyond the pivotal point *C'*, which short arm, by impinging the bed-plate *C<sup>2</sup>* beneath it, would force the bar C always against the door and hold the latter to its place. The said short arm was open to objection for the reason that when the car was



being loaded with solid freights other than grain it would be frequently started in such a way as to prevent the said short arm from swinging around, and thus would frequently require that the freight be moved before the door could be opened. By this bar, which we here employ, we secure an equally effective brace without the objectionable arm, which heretofore extended beyond the pivotal point of the bar to the car.

D is a rest, and D' is a cleat upon the interior of the car, which serves as a rest and fastening for the door when the latter is opened.

E is the sill. We prefer generally to form it with a groove or channel, *d*, for the reception of the lower edge of the door, and which also serves to retain the near end as the door is being opened.

D<sup>2</sup> are lugs adjacent to the end of the sill, which add security to the door when closed. Any suitable latch may be employed in locking this door shut. We have found, however, that the device shown in Fig. 2 is very effective and simple in construction. It consists of a slotted latch, F, and a sliding lock-plate, F'. The operation of this part of the device is apparent from the drawings. It needs only that the locking-plate F' be lifted to release the slotted latch F. This may be then lifted up and the door is released. If the locking-plate is now dropped down, the latch is prevented from accidentally swinging in toward the interior of the car and being broken as the door is closed.

Our improved grain-car door is operated as follows, which will be apparent upon reference to Fig. 1: The latch having been released, the remote end is lifted, and as it is lifted the door turns freely about the point C; but during all the period of lifting the door up to its vertical position the door rests upon the near or curved end *b*, which sustains the entire weight of the door, and the pivotal point *c*, with the bar C, drops down freely, so as to conform to the movement of the door. When the door is in its vertical position it is tilted back into a horizontal position, and then rests upon the support D and within the plate D'. For so in dropping over we prefer that it shall bear upon the bed-plate C<sup>2</sup>, as shown in Fig. 1.

It will be observed that, inasmuch as the near end *b* of the door rests upon the floor until after the door has passed its vertical position, we are enabled to tilt the door over endwise without the remote end striking the top of the car.

A door of this character is much more easily manipulated than the old style of doors, and the labor required to open a door is very much reduced. It is, moreover, at all times thoroughly and effectually braced by the bar C.

The bar C we prefer to be in a single piece,

as shown in Fig. 3; but, if desired, it may be formed of two or more pieces jointed at the angles by suitable joints—as, for instance, by pipe-joints. We would therefore have it understood that we do not limit ourselves to any particular conformation of the bar, except that it shall have a right-angular portion, C', which shall serve to brace the portion C and the door.

This door is not limited to a grain-car door, but is equally applicable for all kinds of freight-car doors of this character.

We are aware that in a grain-car the door has had pivoted to it by means of a separate pin one end of a bar, the other end of which is pivoted in the same manner to a rigid support, and we do not claim such construction.

What we claim is—

1. The combination, with a car-door, of a bar pivoted to the door and to the body of the car, the construction being such that as the door is opened by lifting its remote end while the near end remains upon the floor the bar will fall and rise and conform to the different positions of the door, substantially as described.

2. The combination, with a car-door, of a bar pivoted at one end to the door, and at the other end turned at right angles and passed through a rigid support, the latter portion constituting a brace to the main body of the bar, substantially as described.

3. The combination, with a car-door, of a bar one end of which is provided with a right-angular portion passed through a rigid support on the car, and the other end provided with a right-angular portion passed through a similar support upon the door, substantially as described.

4. A car-door having its near end *b* curved, and in connection therewith a bar pivoted at one end to the door and at the other end having a right-angular portion projecting through a rigid support upon the car, substantially as described.

5. The combination, with a car-door, of a bar pivoted at one end to the car-door, and at the other end provided with a right-angular portion passed through a metallic bed-plate, C', substantially as described.

6. The combination, with a car-door and the bar C, of the rest D and plate D', substantially as described.

7. The locking device consisting of a slotted latch, F, and locking-plate F', substantially as described.

In testimony whereof we sign this specification in the presence of two witnesses.

FRANCIS G. SUSEMIHL.  
HERBERT H. HEWITT.

Witnesses:

ALBERT M. HENRY,  
HENRY F. QUELCH.