J. MILLER & F. C. L. G. SUSEMIHL.

Grain-Car Door.

No. 221,591. Patented Nov. 11, 1879.

Fig. 2.

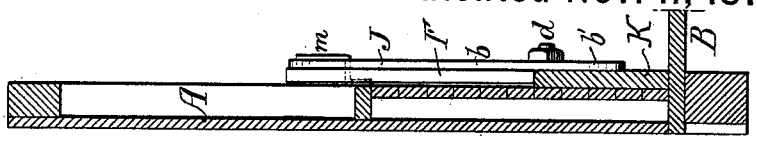
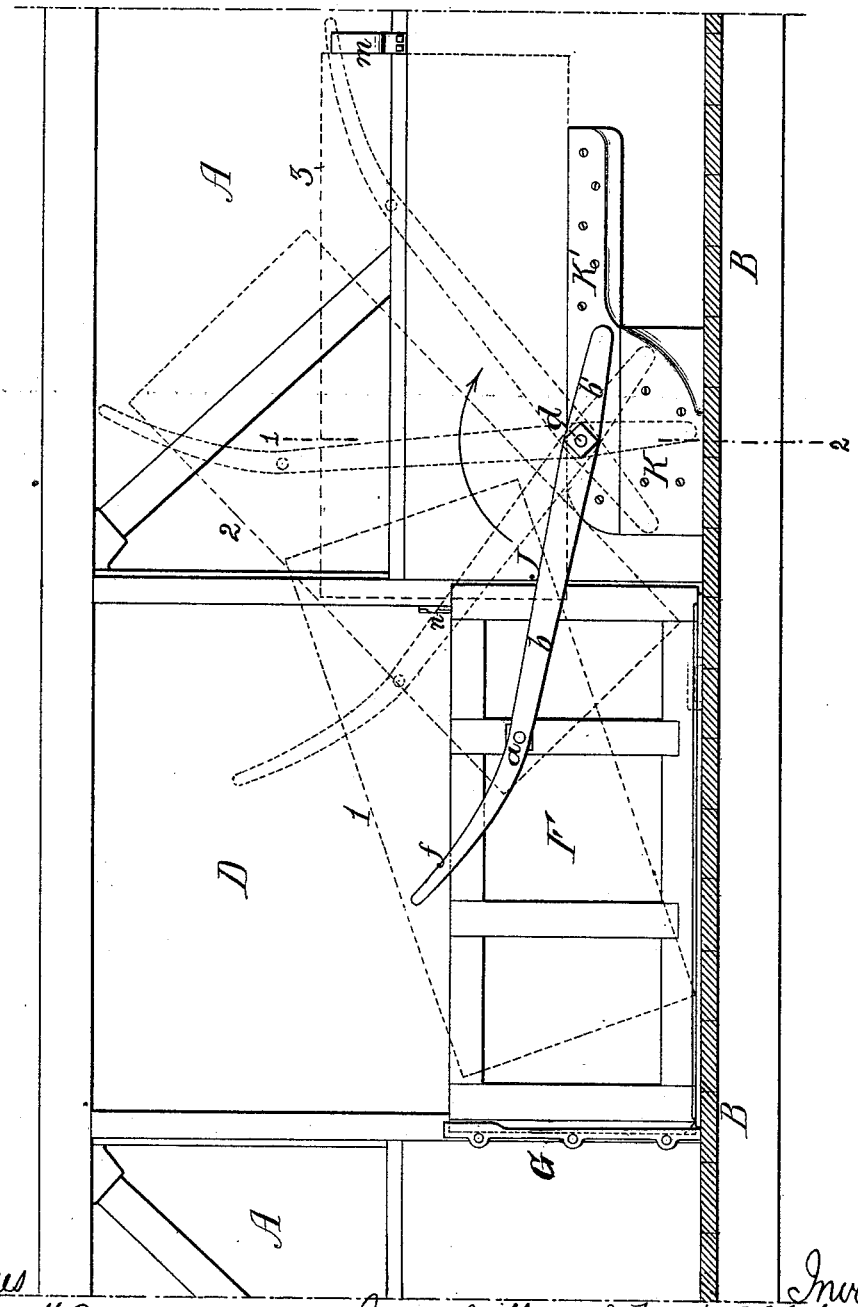


Fig. 1.



Witnesses

John M. Reemer.

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by their Attorneys

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UNITED STATES PATENT OFFICE.

JAMES MILLER AND FRANCIS C. L. G. SUSEMIHL, OF DETROIT, MICHIGAN.

IMPROVEMENT IN GRAIN-CAR DOORS.

Specification forming part of Letters Patent No. **221,591**, dated November 11, 1879; application filed October 10, 1879.

To all whom it may concern:

Be it known that we, JAMES MILLER and FRANCIS C. L. G. SUSEMIHL, of Detroit, Michigan, have invented a new and useful Improvement in Grain-Car Doors, of which the following is a specification.

Our invention relates to a certain improvement in the grain-car door for which Letters Patent No. 213,004 were granted to us, as assignees of F. C. L. G. Susemihl, on the 4th day of March, 1879, the object of our present improvement being to steady the door laterally while it is being opened or closed, and to retain it in its proper lateral position when open without the necessity of employing the segmental guiding-plate shown and described in said patent.

This object we attain in the manner which we will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is an interior view of one side of a grain-car provided with our improved door, and Fig. 2 a transverse section on the line 1 2 with the door opened.

A represents part of the side of the car; B, part of the flooring, and D the usual doorway, which extends from the floor nearly to the roof.

F is the usual grain-door, the front end of which, when the door is closed, fits in a pocket, G, secured to one of the side posts of the doorway.

The door is hung at the point *a* to the long arm, *b*, of a lever, J, the latter being pivoted at *d* to a block, K, secured to the side of the car in the position shown in respect to the doorway. This block has an extension, K′, with flat top, which serves as a support for the door F when the latter has been opened.

The long arm, *b*, of the lever J extends beyond the pin *a*, and is formed into a handle, *f*, so as to facilitate the opening of the door by increasing the leverage and providing for an effective grasp of the lever.

In opening the door the lever is moved in the direction of the arrow, Fig. 1, the first effect of the movement being to elevate the rear end of the door and cause the rearward movement of said door, the front lower corner of which slides in and is guided by the grooved threshold, as shown by the dotted lines 1, Fig. 1. This movement continues until the lower edge of the door strikes the rounded corner of the block K, when the further movement of the lever will cause the depression of the rear end of the door, which now swings and slides on said rounded corner of the block, as shown by dotted lines 2, until the door finally reaches the fully-opened position shown by the dotted lines 3, the door being supported in this position by the block K and its extension K′.

While the door is being opened the short arm, *b′*, of the lever J bears against the face of the block K, as shown in Fig. 2, and effectually prevents the lateral swaying of the door, and when the latter is fully opened it is retained in position laterally not only by the bearing of the short arm, *b′*, of the lever against the face of the block K, but also by the engagement of the portion *f* of the long arm, *b*, with a catch, *m*, on the side of the car. (See dotted lines 3, Fig. 1.)

The block K need not be used in all cases. For instance, the lever J might be hung to a lug on the side A of the car, and the short arm, *b′*, of said lever might have a projection, or might be so bent as to bear directly against the said side A, or against a plate or strip of metal secured thereto. The use of the block K is preferred, however, on account of its cheapness and simplicity.

When the door is closed the accidental opening of the same may be prevented by means of a turn-buckle, *n*, or other suitable device carried by one of the side posts of the doorway and bearing on the upper edge of the door, the device being such that it can be moved out of the way when it is desired to open the door.

By the arrangement above described, we are enabled to retain the lever J and the door F in their proper lateral positions without the necessity of using the segmental guide-plate and the lug on the operating-arm, as described in our before-mentioned patent.

We claim as our invention—

1. The combination of the door F with the

lever J, the long arm, b, of which carries the door, and the short arm, b', of which is constructed, as described, so as to bear against the side of the car or against a block or plate secured thereto, and thereby prevent lateral displacement of the lever or door, all substantially as set forth.

2. The combination of the door F, the lever J, having a projecting end, f, a support for the door, and the catch m, to which the said projecting end of the lever is adapted when the door is open, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES MILLER.
FRANCIS C. L. G. SUSEMIHL.

Witnesses:
HENRY GIBB,
L. M. CURTIS.