D. F. VAN LIEW.

Grain Car Door.

No. 201,963. Patented April 2, 1878.

Fig. 1.

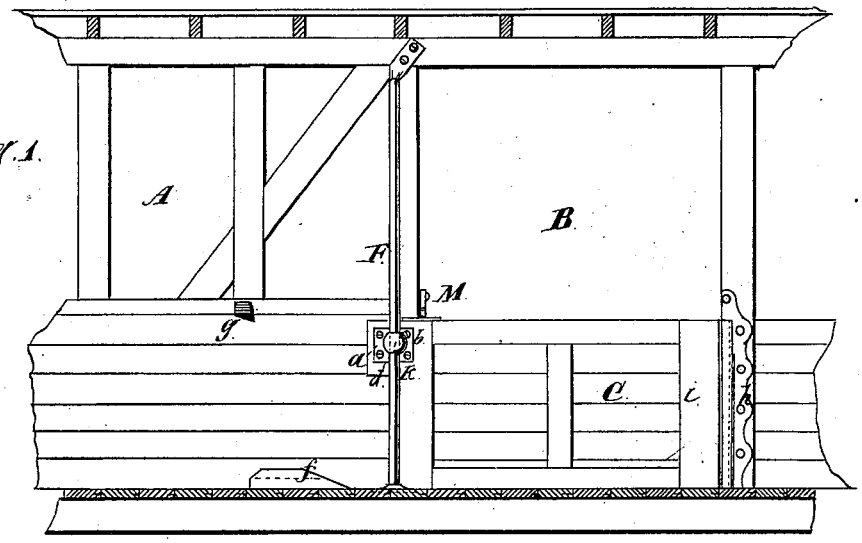


Fig. 2.

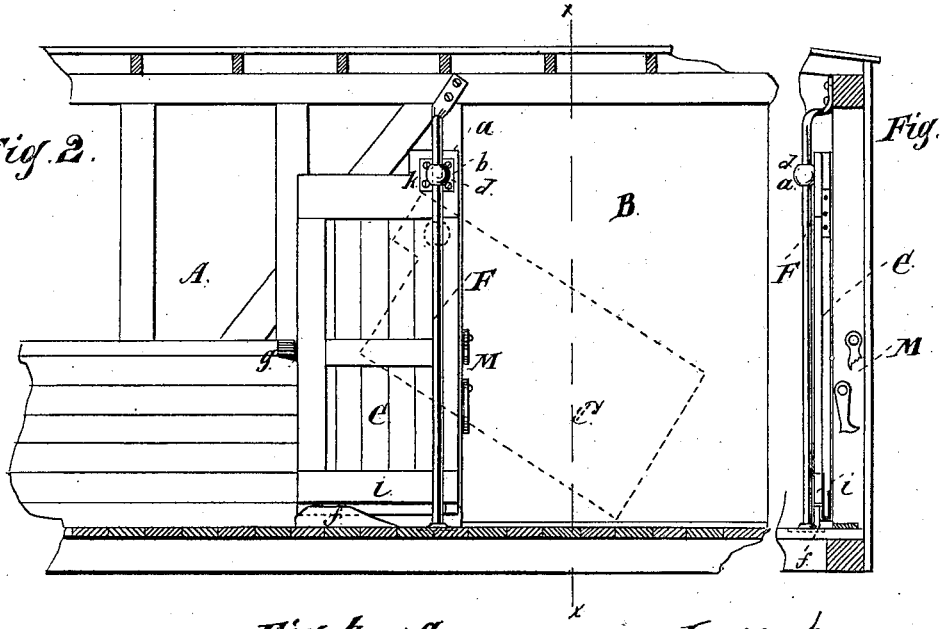


Fig. 3.

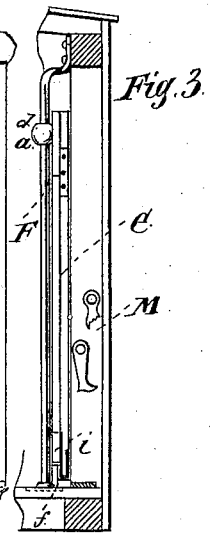
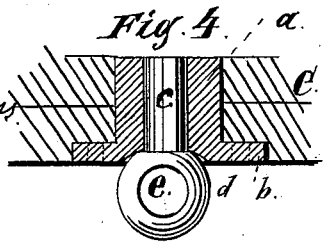


Fig. 4.



Witnesses:

Henry L. Burns

C. W. Bond

Inventor:

Dennis F. Van Liew

By Wm. H. Bond

Atty

UNITED STATES PATENT OFFICE.

DENNIS F. VAN LIEW, OF AURORA, ILLINOIS.

IMPROVEMENT IN GRAIN-CAR DOORS.

Specification forming part of Letters Patent No. **201,963,** dated April 2, 1878; application filed March 14, 1878.

To all whom it may concern:

Be it known that I, DENNIS F. VAN LIEW, of Aurora, Kane county, State of Illinois, have invented a new and useful Improvement in Grain-Doors for Freight-Cars, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is an elevation, showing the inside of one side of a car with my door closed. Fig. 2 is a like view with the door open. Fig. 3 is a vertical section at line *x x* of Fig. 2. Fig. 4 is an enlarged detail.

My invention is primarily designed to be used in cars used in the carriage of grain. Its object is to provide a simple, cheap, and efficient hinged door for such cars, which can be easily opened and closed; and it consists in a socket secured to one of the upper corners of the door, which socket receives a pin having a head on the outer end, provided with a hole, through which passes a rod, which is permanently secured at both ends to the car. The headed pin slides up and down on the rod, and the door is pivoted on said pin, as more fully hereinafter described.

In the drawings, A represents the side of a car; B, an opening or doorway, which may be closed in the usual manner by a sliding door on the outside; C, an inner grain-door; F, an iron rod about an inch and an eighth in diameter, secured at its ends to the top and bottom of the car inside of one of the door-posts, and far enough therefrom to permit the door C to pass between the rod and side of the car. *a* is a metal socket inserted in one corner of the door C. The socket has a flange, *b*, and is secured to C by screws, which pass through this flange. *c* is a pin, which is inserted in the socket *a*. This pin has a head on one end, provided with a hole, *e*, large enough to receive the rod F. *f* is a block of hard wood, secured to the car, so that the end of the door C can rest on it when open. Its ends are inclined, as shown. *g* is a stop, with which the edge of C may come in contact when opened. *h* is a metal shoe, which receives and holds the end *i* of the door C when closed, and is so constructed that this end of the door cannot be lifted up when closed. M is a lock or fastening, to hold the door in place when closed.

A flush lift of the usual construction is to be secured to the door C on the outside, near its hinged end.

The door C should not extend much, if any, at its hinged end (especially the lower part thereof) beyond the rod F; but to provide a suitable place for the stud *a* and its flange, the door has an extension, *k*, at the upper inner corner.

A convenient way to secure the rod F in place is to bolt its upper end to the car, the lower end entering a metal socket secured in the bottom of the car.

In use, the door, when closed, occupies the position shown in Fig. 1, and is held there by suitable fastenings, above referred to. It can be easily opened by releasing the fastening M, and then lifting the hinged end of the door, when the head *d* of the pin *c* will slide upward on the rod F, the door C at the same time turning on the pivot *c*, so that the head *d* will not bind on the rod F. When fully open the door C will occupy the position shown in Fig. 2.

In closing the door the head *d* will slide down on the rod.

The pin *c* need not be riveted or otherwise secured at its inner end, as it will be held in the socket by means of the head *d* and rod F, which passes through *d*.

This joint or hinge is simple, cheap, strong, and durable. The door can be attached to and used with any box-car without changing the same.

What I claim as new, and desire to secure by Letters Patent, is as follows:

In a railroad freight-car, the door C and rod F, in combination with the headed pin or pivot *c*, provided with a hole, *e*, and the socket *a*, substantially as and for the purposes set forth.

DENNIS F. VAN LIEW.

Witnesses:

E. A. WEST,

O. W. BOND.