

(No Model.)

A. LIPSCHUTZ.
GRAIN DOOR.

No. 582,865.

Patented May 18, 1897.

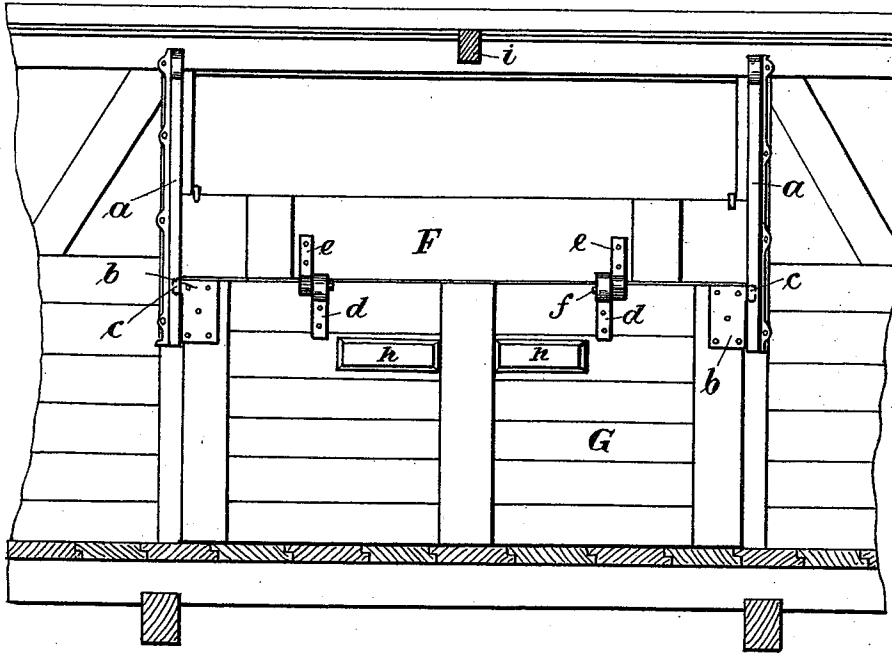


Fig. 1.

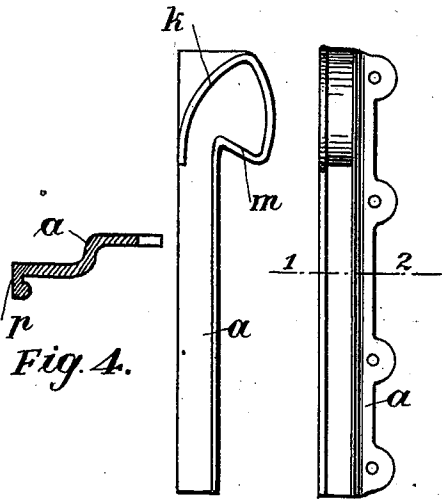


Fig. 2.

Fig. 3.

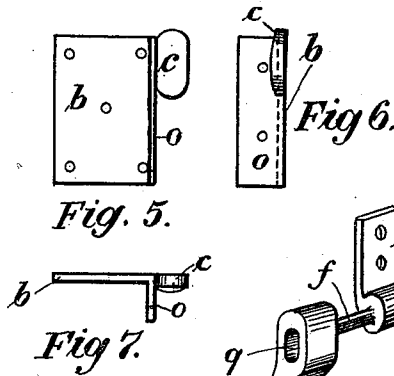


Fig. 5.

Fig 7.

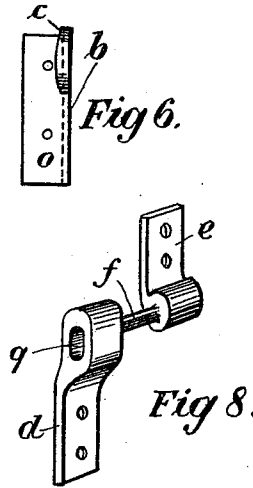


Fig 8.

Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

ARTHUR LIPSCHUTZ, OF CHICAGO, ILLINOIS.

GRAIN-DOOR.

SPECIFICATION forming part of Letters Patent No. 582,865, dated May 18, 1897.

Application filed July 8, 1896. Serial No. 598,472. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR LIPSCHUTZ, a native of Germany, (having made oath of my intention to become a citizen of the United States,) residing at No. 178 La Salle avenue, Chicago, in the county of Cook and State of Illinois, have invented a new and useful Grain-Door, of which the following is a specification.

My invention relates to improvements in grain-doors for freight-cars; and the objects of my improvement are, first, to provide for the sure guidance of the grain-door without sticking; second, to afford means for absolutely holding the grain-door in its place when hanging from the top of the guides, and, third, to provide a construction that will consist of the fewest pieces possible and will do away with separate wedges, rings, chains, &c., I attain these objects by constructing the grain-door as illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the grain-door in position for use in the inside of a car; Fig. 2, an enlarged side elevation of the side guide; Fig. 3, an enlarged front elevation of the same; Fig. 4, an enlarged cross-section of the same on the line 1 2; Figs. 5, 6, and 7, an enlarged front elevation, side elevation, and top view, of the grain-door guide-plate; and Fig. 8, a perspective view of the grain-door flap-hinges shown pulled apart some distance so as to afford a clearer view.

Similar letters refer to similar parts throughout the several views.

The grain-door has at its upper corners guide-plates *b b*, Fig. 1, (shown in detail in Figs. 5, 6, and 7,) which are provided with guide-lugs *c*. These lugs *c* engage in the side guides *a*, fastened to the door-posts and shown in detail in Figs. 2, 3, and 4. The grain-door is guided by the guide-lugs *c* and also by the sides *o* of the guide-plates *b*, which bear against the guide-ribs *p* of side guides *a*, (shown in Fig. 4,) and therefore prevent edging of the grain-door.

When the grain-door is lifted up, the guide-lugs *c* will travel up in a vertical direction until they reach in the head of the side guide *a* the curve *k*, Fig. 2, which forces the lug *c* out and above the inclined plane *m*, and lug *c* will by the weight of the grain-door slide down the inclined plane *m* and rest firmly at

the lowest point of the inclined plane. The grain-door may now be swung onto the roof and hooked fast to the earline *i*, Fig. 1, in the usual way, while guide-lug *c* lies with its flat side on the inclined plane.

When now wishing to place again the grain-door in position for use, it is unhooked from the roof and assumes by its weight a vertical position, swinging on its guide-lugs *c* as pivots, while these lugs *c* again take up their position in the lowest part of the inclined plane *m*, and the grain-door is held there securely until by pushing the door at the hand-blocks *h h*, Fig. 1, provided for this purpose, the guide-lugs *c* are forced up and over the inclined plane *m* into the slides, thereby allowing the grain-door to drop down while being guided by the lugs *c* in the side guides *a* and by the sides *o* of the guide-plates *b* against the guide-ribs *p* of the side guides *a*.

It will therefore be observed that this improved construction provides means whereby it becomes unnecessary to bodily raise the door in order to position the same so that it shall move downward within the guides. The hinges or pivots of the door simply move upward along the inclined planes under the manual direct inward pressure upon the door until said hinges or pivots coincide with the guides, when the door is lowered into position.

It is found in practice that to raise the heavy door bodily from its position assumed when held within the head of the slide, as has heretofore been necessary, requires the exercise of great manual power, which is avoided with my construction, as it is simply necessary to press inwardly upon the door.

As the hinges or pivots of the door move inwardly and upwardly upon the inclined planes the surfaces of said planes must be approximately straight as contradistinguished from curved, circular, or convex surfaces, which would prevent the accomplishment of the desired result. It is also essential to accomplish the desired result that the forcing-curve should be located at the side of the doorway and the inclined plane located away from said side.

The side guides *a* are shown to be screwed right on the door-posts, and as they only project three-fourths of an inch from the door-posts they will form no obstruction in the car,

while avoiding the weakening of the door-posts by rabbeting.

The half *d* of the flap-hinge *d e* is fastened to the grain-door and has an elongated hole *g*, in which hinge-pin *f* of the other half *e* of the flap-hinge *d e* works, *e* being fastened to the flap *F*, and although the grain-door and flap may shrink yet the flap by the elongated hole *g* is always allowed to settle down on grain-door *G* and forms a tight joint. Both halves of the hinge *d* and *e* are curved away from their seats, so that flap *F*, when folded over the grain-door *G*, will clear the battens and the bolt-heads projecting from the grain-door *G*.

I am aware that prior to my invention grain-doors have been made with forcing-curves and also with cast slides. I therefore do not claim such a combination, broadly; but

What I claim, and desire to secure by Letters Patent, is—

A grain-door having side guides in combination with pivots or hinges on the door-body

adapted to travel within the side guides and heads for said side guides consisting of an outwardly-extended forcing-curve and an outwardly and downwardly extending approximately straight-surfaced inclined plane, whereby the door-body is forced outwardly from the side guides as it encounters the forcing-curve and the door-body raised into coincidence with the side guides by being raised in traveling along inclined planes under a direct inward pressure of the door-body, said pivots or hinges consisting of elongated or flat-sided ears on the door-body which engage over and upon the inclined plane whereby when the door is hung to the roof the flat sides of the ears rest upon said inclined plane to prevent the ears from falling into the side guides.

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Witnesses:

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