

(No Model.)

G. H. KNAUB.

COMBINED DOOR AND FRAME FOR GRAIN CARS.

No. 531,952.

Patented Jan. 1, 1895.

Fig. 1.

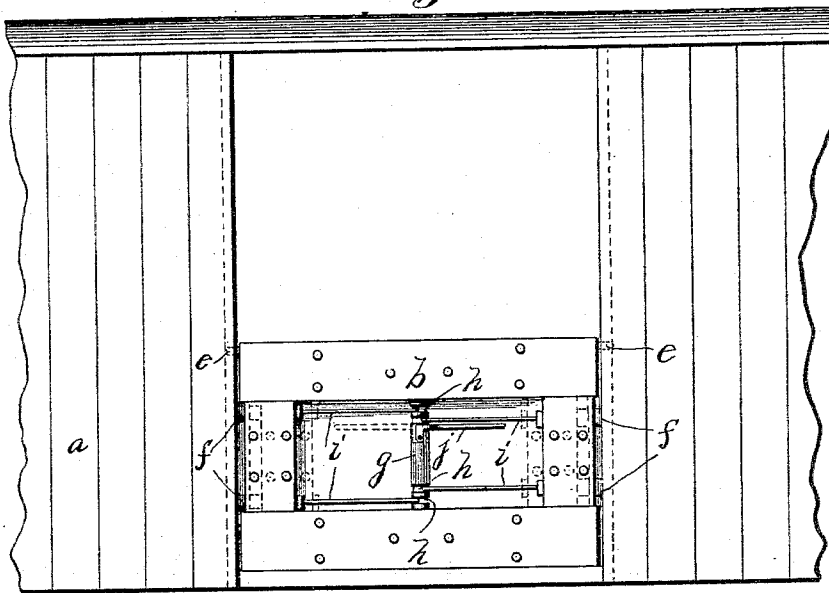


Fig. 2.

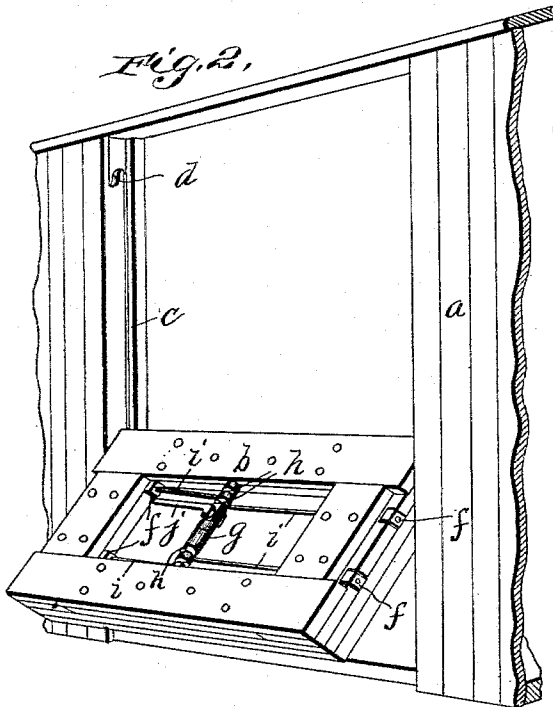
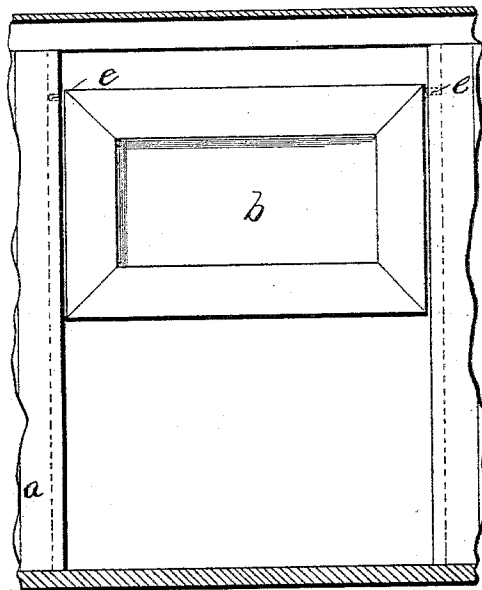


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE HARRISON KNAUB, OF VINCENNES, INDIANA.

COMBINED DOOR AND FRAME FOR GRAIN-CARS.

SPECIFICATION forming part of Letters Patent No. 531,952, dated January 1, 1895.

Application filed July 28, 1892. Serial No. 441,544. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HARRISON KNAUB, a citizen of the United States, residing at Vincennes, in the county of Knox and State of Indiana, have invented a new and useful Combined Door and Frame to be Used on Grain-Cars, of which the following is a specification.

This invention relates to certain improvements in grain car doors.

The object of the invention is to provide an improved grain car door simple and effective in construction and composed of a minimum number of parts and so arranged that it can be easily and quickly, by improved means, locked in place, or can be swung out to permit outflow of grain, or can be raised and swung inwardly out of the way.

This invention consists in a grain car door having the edge pivots at its upper end in the grooves in the door frame, and the sliding bolts in the edge walls of its side depression, the vertical crank shaft centrally arranged in said depression and journaled in the top and bottom walls thereof and having the opposite cranks respectively connected by links with bolts at opposite sides of the door, and a swivel handle on said shaft so that when the bolts are thrown or are withdrawn the cranks will be at the dead centers and hence the shaft automatically locks itself in the position to which it is thrown.

Referring to the accompanying drawings: Figure 1 is an elevation of a portion of a car showing the grain door lowered and locked. Fig. 2 is a perspective of a portion of the car, the door being shown unlocked and swung out to permit grain to escape. Fig. 3 is an elevation of the interior of the car, showing the door raised.

In the drawings, *a*, is the car having the usual side openings. A frame is inserted in each opening having the vertical grooves *c*. The upper end of each groove at the top of the opening is enlarged laterally and formed with the retaining depression *d*, at the bottom of the enlargement.

b, is the grain door having the lateral lugs

or pintles *e e*, from the upper ends of its edges. These pintles are confined in the grooves *c c*, to move vertically therein. Also the door can swing on said pintles when in the position shown in Fig. 2.

When not in use the door is raised to the top of the car and is then pushed outwardly so that the pintles move into said enlargements of the grooves *c*, and drop into the depressions or seats *d*, thereby holding the door in the raised position shown in Fig. 3 and from which it can be easily released when desired. When in this position the door can be swung inwardly and secured in a horizontal position at the top of the car.

The door is provided with the central recess or depression in its outer side. A vertical shaft *g*, extends across the center of this recess and at its ends is journaled in the top and bottom walls of the recess. This shaft has the oppositely arranged cranks *h*, (preferably four in number,) arranged two at one end of the shaft and two at the opposite end. Two cranks extending in the same direction are loosely connected by links *i i*, in said recess in the door with two sliding bolts *f f* extending through one end wall of the recess, and the two opposite cranks are connected loosely by a similar pair of links *i i* with a similar set of bolts *f f*, extending through the opposite end wall of the recess in the door. These bolts are preferably arranged near the top and bottom of the door, and consist of freely slidable blocks or bars arranged to be projected into the groove *c*, as shown in Fig. 1, to hold the door locked or to be withdrawn from the grooves into the said walls of the door as shown in Fig. 2.

The shaft in the door recess can be provided with a pivoted handle *j*, between the opposite cranks. Hence a half turn of the shaft to the right will project the bolts into the grooves *c*, while a half turn in the opposite direction will withdraw the bolts.

The construction is exceedingly strong and durable, and is composed of a minimum number of parts not likely to get out of order.

The shaft, links and bolts are so arranged

in the door as to be protected. There is no necessity for the employment of springs or other complications.

5 The shaft locks the bolts in the various positions.

What I claim is—

10 The grain car door having the side depression, the vertical shaft *g*, extending across the depression and journaled in the top and bottom walls thereof, and provided with the oppo-

sitely arranged cranks *h*, the sliding bolts *f*, in the end walls of said depression, links loosely connecting bolts on the opposite sides with the opposite cranks, respectively, and the handle *j*, pivoted to the shaft, as described.

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Witnesses:

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