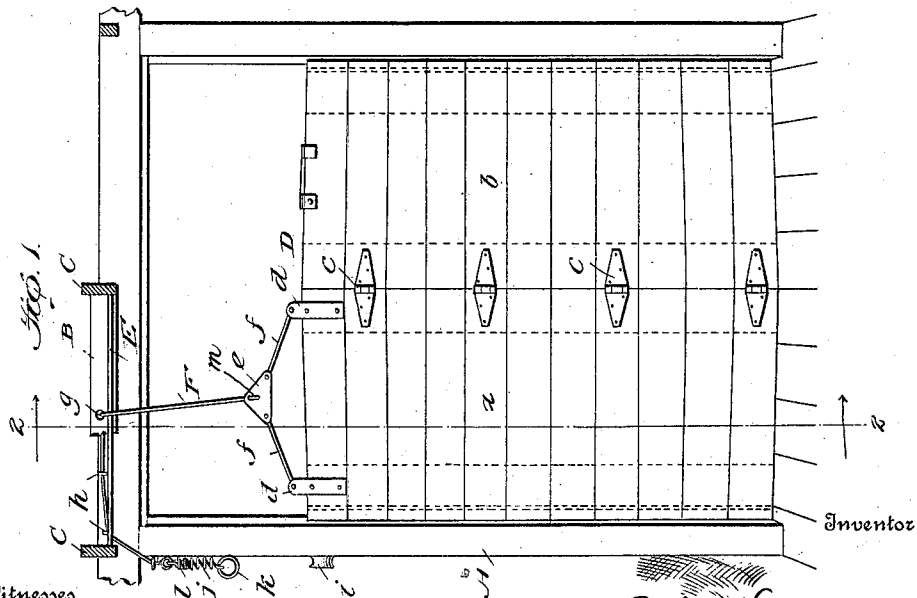
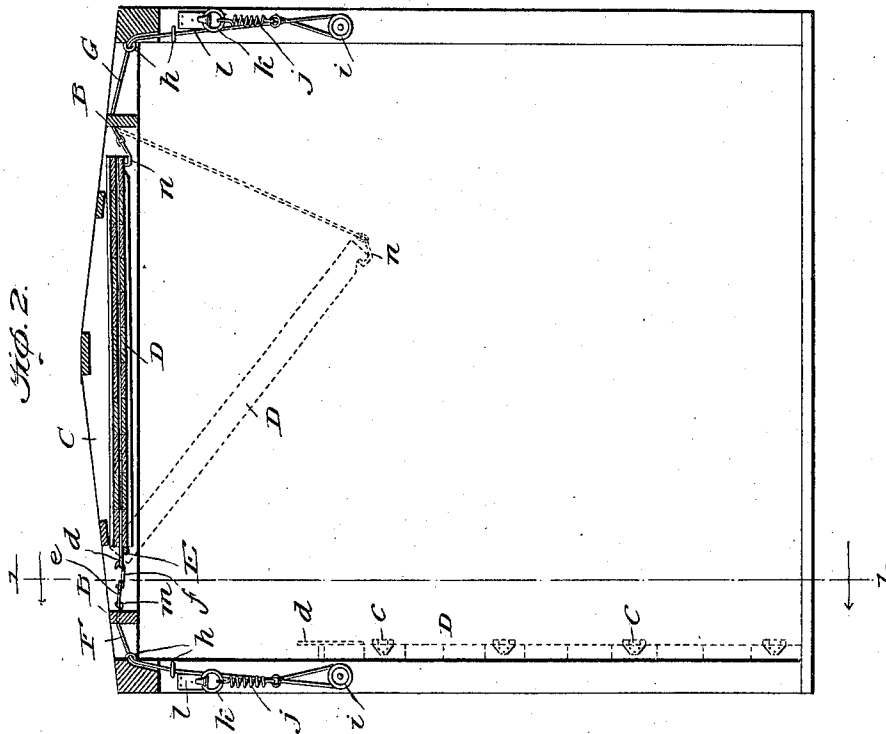


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GRAIN DOOR FOR CARS.
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963,290.

Patented July 5, 1910.



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GRAIN-DOOR FOR CARS.

963,290.

Specification of Letters Patent.

Patented July 5, 1910.

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To all whom it may concern:

Be it known that I, JOHN HENRY, a citizen of the United States, residing at Grand Forks, in the county of Grand Forks and State of North Dakota, have invented new and useful Improvements in Grain-Doors for Cars, of which the following is a specification:

My present invention has to do with the putting away of grain doors, preferably grain doors of the kind disclosed in my contemporary application filed Dec. 26, 1908, Serial Number 469,216, and the retention of such doors in such positions in cars that the same are out of the way.

My said present invention contemplates the retention of a grain door between timbers of a car, where the door will be entirely out of the way, will not be liable to be injured, and will detract in no measure from the carrying capacity of the car such as would be the case were the door disposed in a plane below the said timbers.

The present invention also contemplates the provision of improved means for facilitating raising of the door to the position stated and for retaining the door in said position until it is desired to again put the same into use.

With the foregoing in mind, my present invention will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a section on line 1—1 of Fig. 2 showing so much of a car as is necessary to illustrate the preferred embodiment of my invention, with the grain door in its working position. Fig. 2 is a view taken on the line 2—2 of Fig. 1 and showing the door in full lines as retained in the upper part of the car and out of the way, and also showing the door, by dotted lines, in its working position, and by dotted lines in the position it assumes incidental to its elevation to the horizontal position shown by full lines.

Similar letters designate corresponding parts in both views of the drawings, referring to which:

A is a door frame of a car.

B B are longitudinally disposed, bars.

C C are transverse timbers—i. e., timbers disposed crosswise of the car body and at right angles to the timbers B, and D is the grain door as a whole. The said grain door

D, *per se*, may be of any construction consonant with the purpose of my present invention, without involving departure from the scope of the same as claimed, though I prefer to have it comprise two sections *a* and *b*, hinged together as indicated by *c*, so that the section *b* can be readily folded flat against the inner side of the section *a*, plates *d* fixed to and extending above the upper end of the section *a*, and an apertured plate *e* connected through wire cables *f* or other suitable means with the said plates *d*.

A rod E extends between and is supported by the transverse timbers C, for an important purpose hereinafter set forth, and in addition to the said rod two cables F and G are employed for facilitating the raising of the door D to the position shown by full lines in Fig. 2 and for retaining the door in said position. Each of the said cables is passed through a guide *g* in one of the bars B, and then through other guides *h*, Fig. 2, and then down and around a sheave *i*. It will also be noted that each of the cables is provided adjacent its outer end with a coiled spring *j*, and at said end with a ring *k*, the latter for engagement with a fixed hook *l*. At its inner end the cable F, which is preferably a wire cable, is provided with a hook *m*, adapted to be engaged with the before-mentioned apertured plate *e*, and at its inner end the cable G, which is also preferably a wire cable, is provided with a hook *n*, adapted to be embedded in or otherwise suitably connected with the door section *a*.

In the practical use of my improvements and the shifting of the door D from the position shown in Fig. 1 to the position shown by full lines in Fig. 2, the door section *b* is first folded against the inner side of the section *a* to put the door in approximately the same transverse plane as the space between the transverse timbers C. The hook *m* of the cable F being connected with the plate *e*, the folded door is hauled up until the upper end of its section *a* contacts with the rod E, whereupon the cable F is made fast by putting its ring *k* over the adjacent hook *l*. The lower end of the door is then swung upwardly toward the other side of the car and is connected with the hook *n* of the cable G, when the said end of the door is hauled up by manipulation of the cable G, and the latter cable is made fast by putting its ring *k* in engagement with the adjacent hook *l*.

With this done it will be manifest that the door will be retained between the transverse timbers C in a horizontal plane above the lower edges of the said timbers, and consequently the door will be entirely out of the way, and will not be liable to be injured by the placing of merchandise in the car. It will also be manifest that through the medium of the raising means described and because of the fulcruming of the upper end of the door against the rod E, the raising of the door may be expeditiously accomplished with but little effort, and it will further be manifest that there is no liability of the elevated door being casually released and permitted to drop, and when the springs are employed the same tend to take up shock and jar and to lessen the strain imposed on the two cables F and G.

In addition to the advantages hereinbefore ascribed to my improvements, it may properly be said that the improvements are simple and inexpensive, may be readily installed in a car, and are well adapted to withstand the rough usage to which the appurtenances of freight cars are ordinarily subjected.

The construction herein illustrated and described constitutes the best practical embodiment of my invention that I have as yet devised, but it is obvious that in the future practice of the invention such changes or modifications may be made as fairly fall within the scope of my invention as defined in my claims appended.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. A door, in combination with a freight car body having spaced timbers and also having between the timbers a rod against which the door may be fulcrumed and swung to a horizontal position between the timbers, means tending to raise and hold one end of the door against the rod, and means for retaining the door in said horizontal position.

2. A door, in combination with a freight car body having spaced timbers and also having between the timbers a rod against which the door may be fulcrumed and swung to a horizontal position between the timbers, means tending to raise and hold one end of the door against the rod, a suitably guided cable for raising the door to and maintaining the same in the said horizontal position, and means for holding the said cable.

3. A door, in combination with a freight car body having spaced timbers and also having between the timbers a rod against which the door may be fulcrumed and swung to a horizontal position between the timbers, a suitably guided cable attached to one end of the door for raising said end and maintaining the same in contact with said rod, means for holding the said cable, a suitably

guided cable for raising the door to and maintaining the same in the said horizontal position, and means for holding said cable.

4. A door, in combination with a freight car body having spaced timbers and also having between the timbers a rod against which the door may be fulcrumed and swung to a horizontal position between the timbers, a suitably guided cable provided with a coiled spring and attached to one end of the door for raising said end and maintaining the same in contact with said rod, means for holding the said cable, a suitably guided cable provided with a coiled spring, for raising the door to and maintaining the same in the said horizontal position, and means for holding said cable.

5. The combination of a freight-car body, a door adapted to be raised to a substantially horizontal position adjacent the roof of the car body, suitably guided cables, arranged at opposite sides of the car body and adapted to be attached to opposite ends of the door, for assisting in the raising of the door to said position, and means for holding the cables.

6. The combination of a freight-car body, a door adapted to be raised to a substantially horizontal position adjacent the roof of the car body, suitably guided cables, attached to opposite ends of the door, for assisting in the raising of the door to said position and for suspending the door bodily in the raised position; said cables comprising coiled springs, and means for holding the cables.

7. The combination of a freight-car body having separated or spaced timbers, a door adapted to be raised to a substantially horizontal position between said timbers and above the plane of the under sides thereof, suitably guided cables, attached to opposite ends of the door, for assisting in the raising of the door to said position and for suspending the door bodily in the raised position, and means for holding the cables.

8. The combination of a freight-car body having separated or spaced timbers and also having a rod E and keeper hooks, a door adapted to be raised to a substantially horizontal position between said timbers and having a plate on its upper end adapted to rest against the rod, and suitably guided cables for assisting in the raising of the door; one of said cables being adapted for connection with said plate and the other for connection with the opposite end of the door, and both cables adapted to be connected with the keeper hooks.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN HENRY.

Witnesses:

T. CARTER GRIFFITH,
M. A. WALKER.