No. 718,248. PATENTED JAN. 13, 1903.

F. L. GREER.

CAR DOOR.

APPLICATION FILED MAR. 29, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

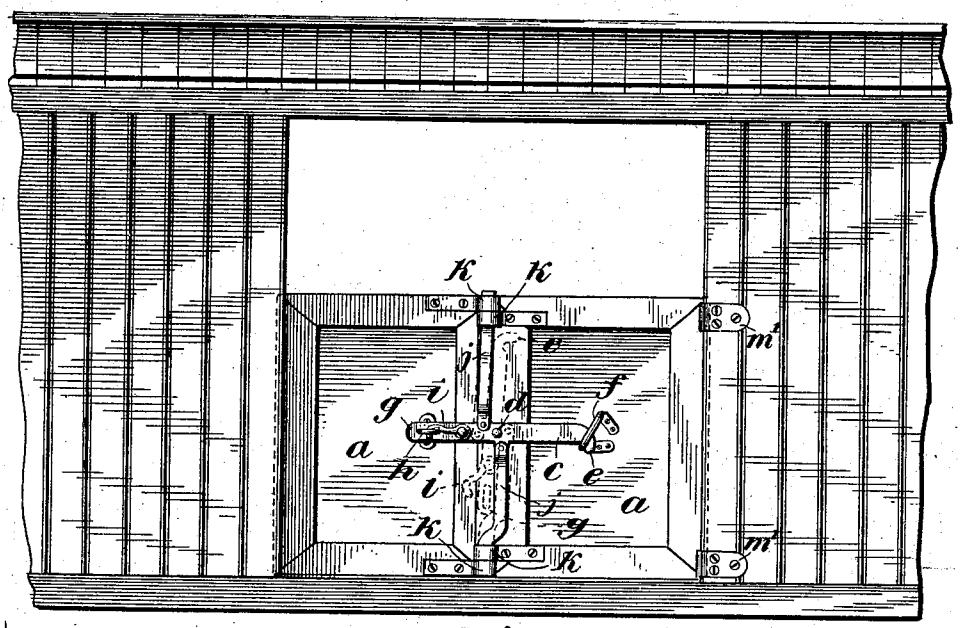
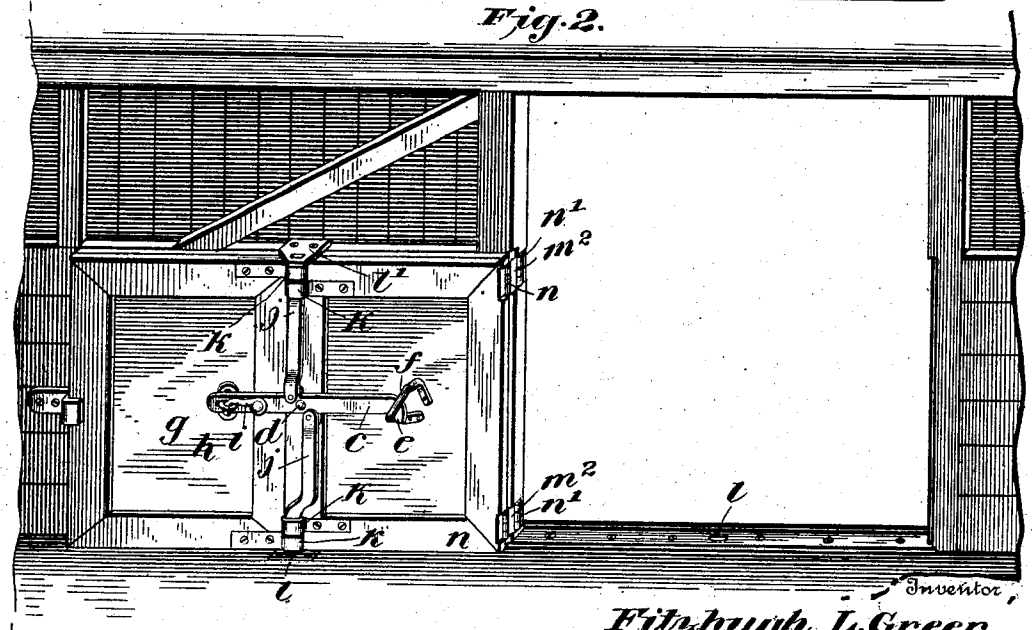


Fig. 2.



Witnesses:
Elmer Seavey
I. C. Gloriss

Inventor,
Fitzhugh L. Greer,
By Dames & Davis
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

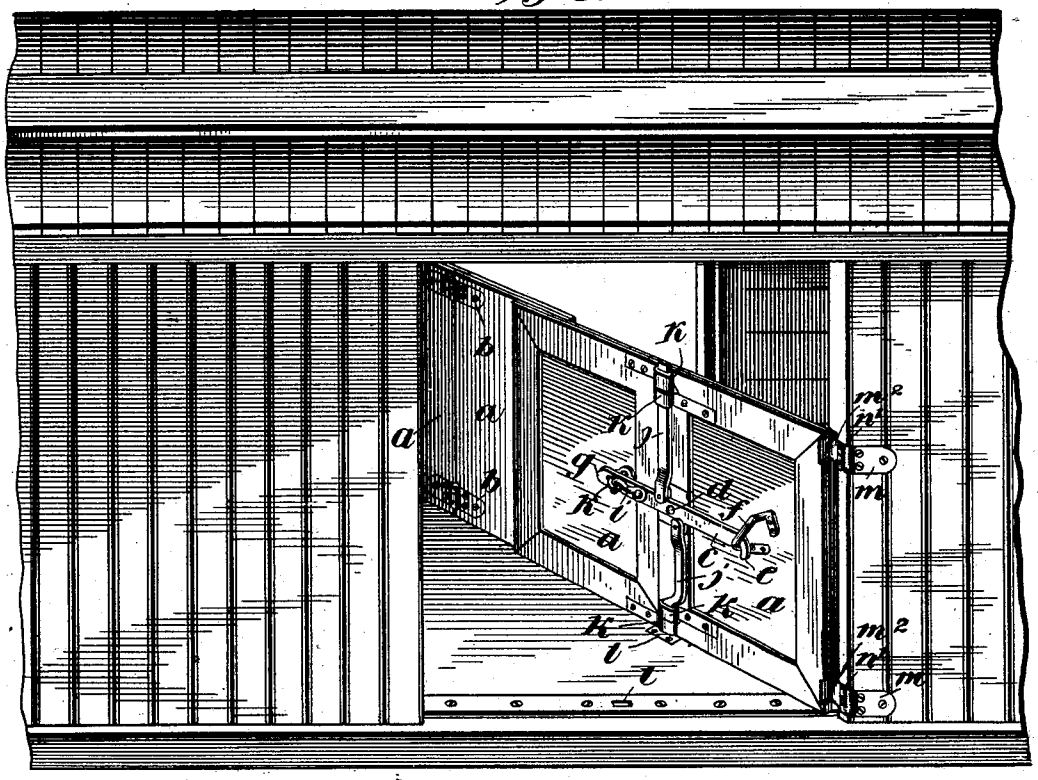


Fig. 4.

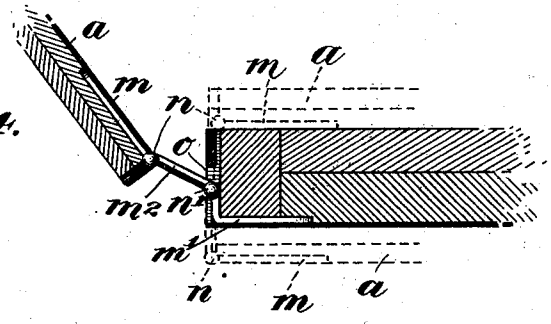
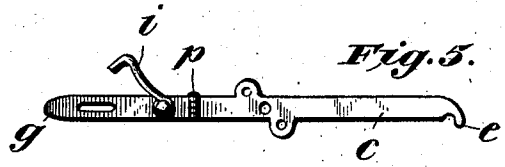


Fig. 5.



Witnesses:

Elmer Seavey

T. C. Glorius

Inventor,

Fitzhugh L. Greer,

By David Davis

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FITZHUGH L. GREER, OF NORFOLK, VIRGINIA.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 718,248, dated January 13, 1903.

Application filed March 29, 1902. Serial No. 100,542. (No model.)

To all whom it may concern:

Be it known that I, FITZHUGH L. GREER, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a box-car, showing my door applied thereto and closed; Fig. 2, a perspective view of a portion of the interior of the car, showing my improved door folded back against the inner wall of the car; Fig. 3, a perspective view of a portion of a car, showing the manner of arranging the door when it is adjusted for use as a partition for the car; Fig. 4, a detail horizontal section showing the peculiar form of hinge I prefer employing, and Fig. 5 a detail view of a slightly-modified form of the locking-bar.

The object of this invention is to meet all the actual requirements of a door for that class of freight-cars which are adapted for transporting grain, coal, coke, and other loose materials in bulk; and the invention consists of certain novel features of construction hereinafter described and claimed.

The door proper is made of two sections *a*, hinged together at their adjoining vertical edges about midway the length of the door, the hinges *b*, as seen in Fig. 3, being fastened on the inner side of the door, so that the door may break or open outward at its middle.

The two sections of the door are locked rigidly together in alinement by suitable devices on the outside of the door, said devices consisting in the instance shown in the annexed drawings of a bar *c*, pivoted about midway its length to the section near where said section is connected to the outer section by a pivot-pin *d*, the inner end of this bar being provided with a downward-turned hook *e*, adapted to engage into a loop *f*, fastened on the inner section of the door, when said bar is swung downward at its inner end, and its other end with a hasp *g*, adapted to engage over a staple *h*, fastened on the outer section of the door and to be fastened thereon by the pivoted hook *i* and also when the door is to be sealed by the usual sealing device, the wire of which may be passed through said staple. Connected to the bar *c* at opposite sides of the pivot *d* are two bolts *j*, which extend and work, respectively, upward and downward and through eyes or keepers *k*, secured, respectively, on the inner and the outer sections of the door, the upper keeper of the upper pair and the lower keeper of the lower pair being attached to the outer section and being arranged, respectively, above and below the other keepers, which latter are on the inner section of the door. With this construction when bar *c* is turned to a horizontal position, with its hook in engagement with loop *f* and its hasp in engagement with the staple, the bolts will be slid in opposite directions through the eyes or keepers *k*, thereby locking the two sections of the door rigidly in alinement. Then by swinging the bar *c* into a vertical position, as shown in dotted lines in Fig. 1, the bolts are withdrawn from the two keepers carried by the outer section of the door, thereby leaving said outer section free to be swung independently of the inner section.

The ends of the bolts *j* project beyond the eyes or keepers *k* when the door-sections are locked together, and said projecting ends serve to lock the door in its adjusted positions, suitable bolt-sockets *l* being secured in the floor of the car to receive the lower bolt and an additional bolt plate or socket *l'* being secured to the inner wall of the car, as shown in Fig. 2, to hold the door against said inner wall when adjusted to that position.

The hinges connecting the door to the door-post are peculiarly constructed. Each hinge consists of two leaves *m m'* and a connecting-link m^2, the leaf *m* being fastened to the inner side of the door, so as to position pintle *n* at the inner corner thereof, and the leaf *m'* being fastened to the outer side of the post and having its pintle end bent inward on the inner face of the post far enough to position pintle *n'* a distance from the inner wall of the car-body equal approximately to the length of link m^2. When the door is closed, link m^2 lies in a groove *o*, formed in the face of the door-post, and the inner edge of the door abuts directly against the face of the door-post. When the door is swung inward,

as shown in Fig. 2, against the inner wall of the car-body, the links m^2 still lie in their grooves o; but the hinge-leaves m lie against the inner side of the post, as shown in dotted lines in Fig. 4. When the door is swung back against the outer wall of the car, as shown in dotted lines in Fig. 4, the links m^2 project outward far enough to permit the outer face of the door to come close up against said outer wall.

With the solid bar c (shown in Figs. 1, 2, and 3) the bar must be mounted on its pivot somewhat loosely, in order to be sprung over the staple, as is obvious; but in case it is undesirable to thus loosely pivot the bar the hasp end thereof may be hinged at p, as shown in Fig. 5, without departing from this feature of the invention.

My improved door possesses a number of important advantages, the most important of which are as follows:

First. It may be readily adjusted and attached to any ordinary box-car for freight or cattle.

Secondly. It may be used for any kind of loose material transported in bulk and will permit of the immediate opening of the same by the pressure of the load from within.

Thirdly. It may be made any height desired, not to exceed the height of the door-opening, without in any way interfering with the working of the door.

Fourthly. It may be employed, in conjunction with a similar door secured to the diagonally opposite post of the door on the other side of the car, as a partition for dividing the car into two sections, the inner ends of the doors overlapping about in the center of the car, as shown in Fig. 3, and the bolt-plates l being in proper position in the floor of the car to lock the doors in this position.

Fifthly. It is so constructed that one set of fastenings lock it in position for retaining the load in the car in position for use as a partition and in its position against the inner wall of the car.

Sixthly. When it is applied to a grain-car and it is desired to use that car for other more bulky substances, such as coal, &c., additional planks can be attached to the car-body to raise the height of the door without interfering with its operation in the least.

Seventhly. It enables the door to be swung outward against the outer side of the car close up against the same, where it will be entirely out of the way of pulleys and other devices used for unloading the car.

Eighthly. Its construction overcomes the liability of the destruction of the door and its removal from the car and obviates the danger of injury to persons or property from the door.

Ninthly. The door may be folded back against the inner wall of the car, thereby occupying a minimum of space and being entirely out of the way.

Having thus fully described my invention, what I claim, and desire to obtain by Letters Patent, is—

1. A box or freight car provided with door-openings in its opposite sides, an inward-swinging door hinged to one of the posts of each door-opening, said doors being long enough to meet at their inner ends when they are swung inward, and means for locking the doors when thus adjusted.

2. A box or freight car provided with door-openings in its opposite sides, an inward-swinging door hinged to one of the posts of each door-opening, said doors being long enough to meet at their inner ends when they are swung inward, each of said doors consisting of two sections hinged together at the inner side of the door, and means for locking said sections together and at the same time locking the doors in their adjusted position.

3. In combination, a car provided with a door-opening, a door constructed of two sections hinged together, hinges connecting the door to one side of the door-opening and so constructed as to permit the door to swing outward and also inward, means carried wholly on the door for locking the sections in alinement so that they may swing together as one, and devices on the car-floor for coöperating with said means to lock the door in its adjusted positions.

4. In combination with a car having a door-opening, a door therefor constructed of two sections hinged together at the door about midway its length, hinges connecting the door to one of the door-posts and so constructed as to permit the door to be swung inward and also outward, means on the door for locking the sections thereof together, and devices in the floor of the car for coöperating with said means to lock the door in its adjusted positions, said locking means on the door operating to lock the door-sections independently of the devices in the floor.

5. In combination, a car, a door hinged in the door-opening thereof and adapted to swing inward, said door being constructed of two hinged sections adapted to break outward, means on the door for locking the sections together so that they will swing inward as one, said means involving the employment of a pair of eyes or keepers on each section, oppositely-moving bolts working through said keepers, one of the bolts being adapted to project below the lower edge of the door, and a device on the door for shifting said bolts, and a device in the car-floor for engaging the end of the bolt projecting below the lower edge of the door and thereby locking the door in its adjusted position.

6. In combination with a box-car having a door-opening in its side wall, a door hinged to one of the door-posts and adapted to swing inward, said door being constructed of two sections hinged together at their adjacent

edges and adapted to break outward, means on the door for locking the sections of the door together, said means involving the employment of a reciprocating bolt, and means on the car-floor for coöperating with the reciprocating bolt on the door to fasten the door in two of its adjusted positions, said locking means on the door operating to lock the door-sections independently of the means on the car-floor so that the door-sections may swing together when not locked to the floor.

7. A door for cars consisting of two sections hinged together at their vertical meeting edges, and means for locking said sections against hinge action, said means consisting essentially of a pair of eyes or keepers on each section, oppositely-moving bolts arranged to work through said keepers, and a movable device adapted to simultaneously move said bolts in opposite directions, and means for fastening this movable device in its locked position.

8. A door for cars, consisting of two sections hinged together at their vertical edges and means for locking said sections together, said means consisting of a bar pivoted on one of the sections, a pair of bolts pivoted to this bar respectively at opposite sides of its pivotal point, keepers on the respective sections through which said bolts work, and means for locking said bar in position when said bolts are adjusted into engagement with said keepers.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 27th day of March, 1902.

FITZHUGH L. GREER.

Witnesses:

J. P. TURNER,

ENNIS H. HAMERSLY.