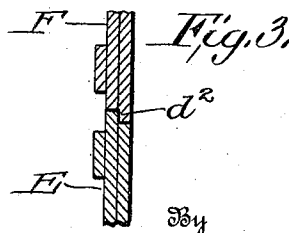
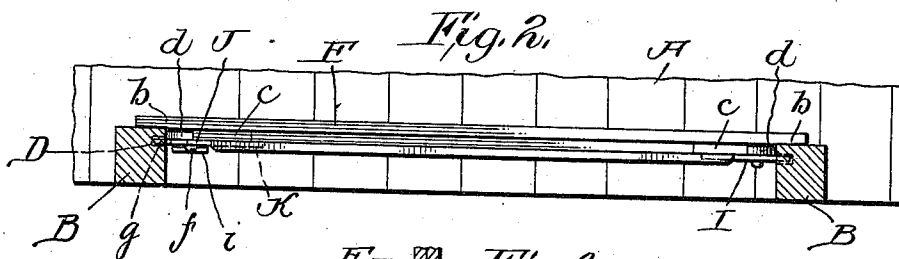
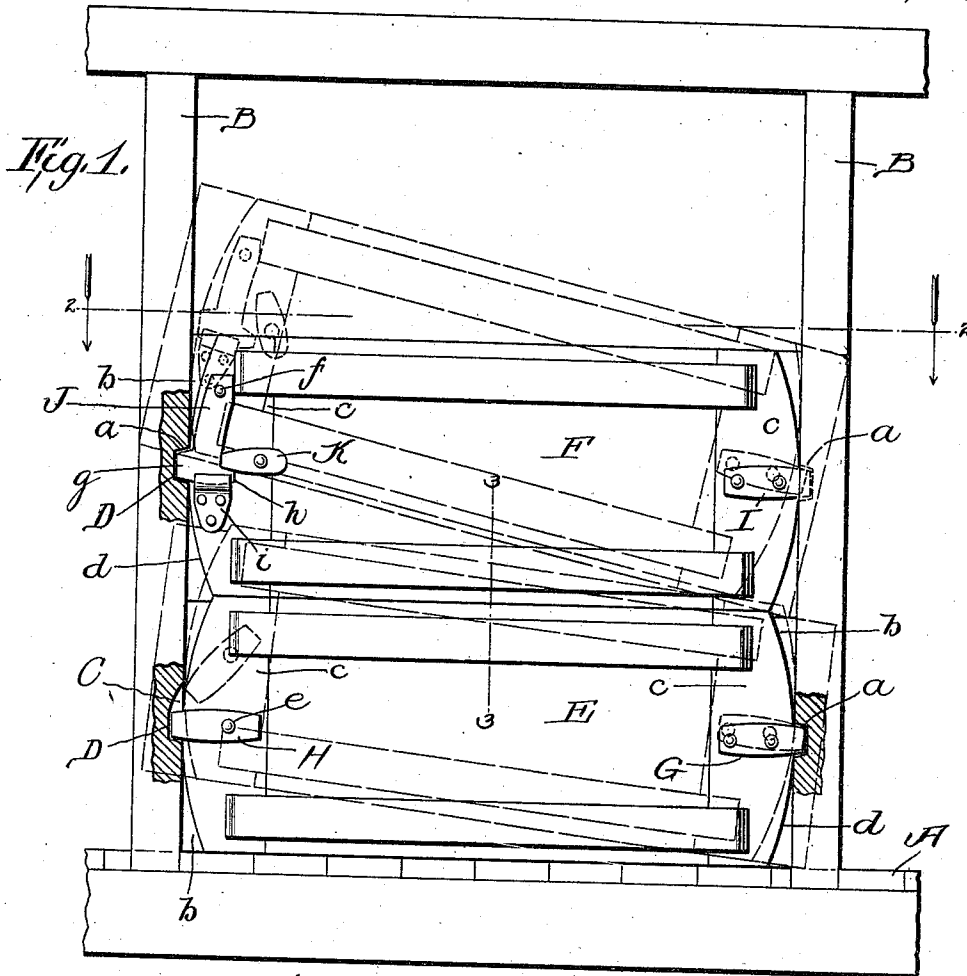


984,917.

Patented Feb. 21, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN HENRY, OF GRAND FORKS, NORTH DAKOTA.

GRAIN-DOOR.

984,917.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed April 1, 1910. Serial No. 552,831.

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, of which the following is a specification.

My present invention pertains to removable grain doors for cars; and it has for one of its objects to provide a grain door that is secured in position by fasteners disposed at its outer side and cooperating with sockets in door posts, and that bears and is capable of being swung in a vertical plane against the inner sides of the door posts, and when so swung is separated from the sockets in the posts and released.

Another object of the invention is the provision of a grain door possessed of the capacity of function stated and adapted to hold itself against casual upward movement.

With the foregoing in mind, the present invention will be best understood by reference to the following description when taken in connection with the accompanying illustration of one specific embodiment thereof, while its scope will be more particularly defined in the claims appended.

In the drawings: Figure 1 is a view partly in elevation and partly in section showing the outer sides of two doors or door sections constructed in accordance with my invention and fastened in proper working position to the door posts and against the inner sides thereof, and also showing by dotted lines the manner in which the doors are taken out. Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1, looking downward. Fig. 3 is a detail vertical section taken in the plane indicated by the line 3—3 of Fig. 1, and showing the manner in which the joint between the superposed doors or door sections is broken with a view of preventing the escape of grain or other substance carried in bulk.

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

A is the floor of a car, and B B are door posts having at their inner faces or opposed sides walls C which constitute the inner walls of sockets D formed in the opposed sides of the posts and having beveled walls *a*.

E and F are lower and upper doors or door sections. The said doors or door sections each have inner, end portions *b* of re-

duced thickness, adapted to rest and to swing in a vertical plane against the inner sides of the posts B, and outer portions *c* which have edges *d* that describe parts of circles and are adapted when the doors are in working position to be opposed to the sides of the post B in which the sockets D are formed. It will also be seen by comparison of Figs. 1 and 3, that the meeting portions of the two doors are, by preference, arranged to break the joint as indicated by *d*², this in order to prevent the leakage of grain or other material carried in bulk between the doors.

Carried at the outer side of the door E and connected to and adapted to extend endwise outwardly beyond the edges of the portions *c* thereof are fasteners G and H, the outer portions of which are separated by intervening spaces from the outer sides of the end portions *b*. The fastener G is rigidly attached to the adjacent portion *c*, while the fastener H is pivoted at *e* to the other portion *c* and is adapted to swing vertically thereon in the manner and for the purpose hereinafter set forth.

Rigidly attached to one portion *c* of the door F and extending outwardly beyond the edge thereof is a fastener I, the outer portion of which is separated by an intervening space from the adjacent inner end portion *b*, and pivoted at *f* to the other portion *c* of door F, is a swinging fastener J having an outwardly extending projection *g* adapted to enter the adjacent socket D, and also having a stop portion *h*. The fastener J is adapted to swing at the inner side of the upper portion of a fixed plate *i*, and the stop portion *h* on the said fastener is provided to limit the downward movement of a turn-button K which has for its office to force the fastener into the said socket D and retain it in engagement therewith.

When my novel doors E and F are fastened in their working position, as shown in Fig. 1, it will be readily seen that material within the car will press the doors against the inner sides of the posts B, but will in no manner affect the fasteners or the sockets into which the fasteners extend and the walls C with which the fasteners cooperate. It will also be seen that the fastener J will hold the door F and consequently the door E against upward movement. When, however, the turn-button K is swung upward and toward the right to permit of swinging

movement of the fastener J, it will be seen that the left-hand end of the door F may be raised, the fastener J in that event swinging toward the right in Fig. 1 and in that way releasing itself from its complementary socket D. It will also be seen that as the left-hand end of the door F is raised, the edge of the portion *c* that bears the fastener I will rock against the opposed side of the adjacent post B, and in that way withdraw the fastener I from the adjacent socket D, whereupon the door will be entirely released and may be separated from the door posts B and the lower door E. After the door F is removed as stated, the door E may be unfastened and removed by swinging its left-hand end upward, since when that is done the fastener H will swing on the door portion *c* and release itself from the adjacent socket D, after which the other portion *c* of the door E will, by rocking against the opposed face of the post B, withdraw the fastener G from its complementary socket D, when the door E may be separated bodily from the posts B.

To close the doorway, the door E is first put in position by inserting its fastener G into the adjacent socket D, and then the fastener H is swung on its pivot *c* and into its respective socket D. The door F is then positioned above the door E, and its fastener I is inserted in the adjacent socket D of one of the posts, after which its fastener J is placed and secured in a socket of the other post.

When the doors are fastened as described, it will be manifest that their fasteners will, by coöperating with the inner walls C of the sockets D, hold the end portions *b* of the doors snug against the inner sides of the posts B.

While I prefer to employ the superposed doors illustrated, I do not desire to be understood as limiting myself to the same, inasmuch as when deemed expedient but one door embodying my invention may be employed without involving departure from the scope of my invention as defined in the claims appended. Moreover, I do not desire to be understood as limiting myself to the employment of means for holding either door against upward movement since when the door is of steel or is otherwise made

heavy its weight may be depended on to hold it against casual upward movement.

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

1. The combination of a car body having door posts in the opposed sides of which are sockets, a door arranged partly within the body and flat against the inner sides of the posts and also arranged partly between the opposed sides of the posts and having an edge spaced from the adjacent post and adapted to bear against said post when the door is canted, and fasteners attached to the door, at the outer side thereof, and having end portions extending outward beyond the door part between the opposed sides of the posts and into the sockets and lapped against the inner walls of said sockets; one of the said fasteners being pivoted to and adapted to swing vertically on the door.

2. The combination of a car body having door posts in the opposed sides of which are sockets, a door arranged partly within the body and flat against the inner sides of the posts and also arranged partly between the opposed sides of the posts and having edges that describe parts of circles, arranged against said opposed sides of the posts, a fastener attached to the door, at the outer side and adjacent one end thereof, and having an end portion extending outward beyond one circle-describing edge thereof and into one socket and lapped against the inner wall of said socket, a vertically swinging fastener attached to the door, at the outer side and adjacent the opposite end thereof, and having outwardly and inwardly extending projections; the outwardly extending projection extending into the other socket and being lapped against the inner wall of said socket, and a button pivoted to the outer side of the door and bearing against the vertically swinging fastener and resting on the inner projection thereof.

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

JOHN HENRY.

Witnesses:

P. J. HOLMBERG,
O. S. SIMONSON.