

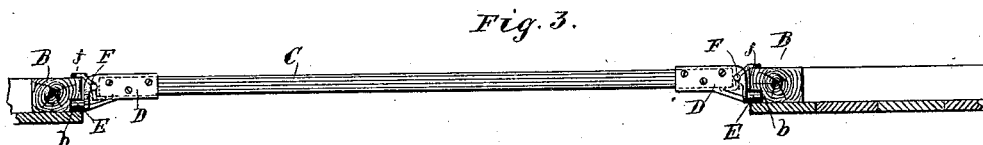
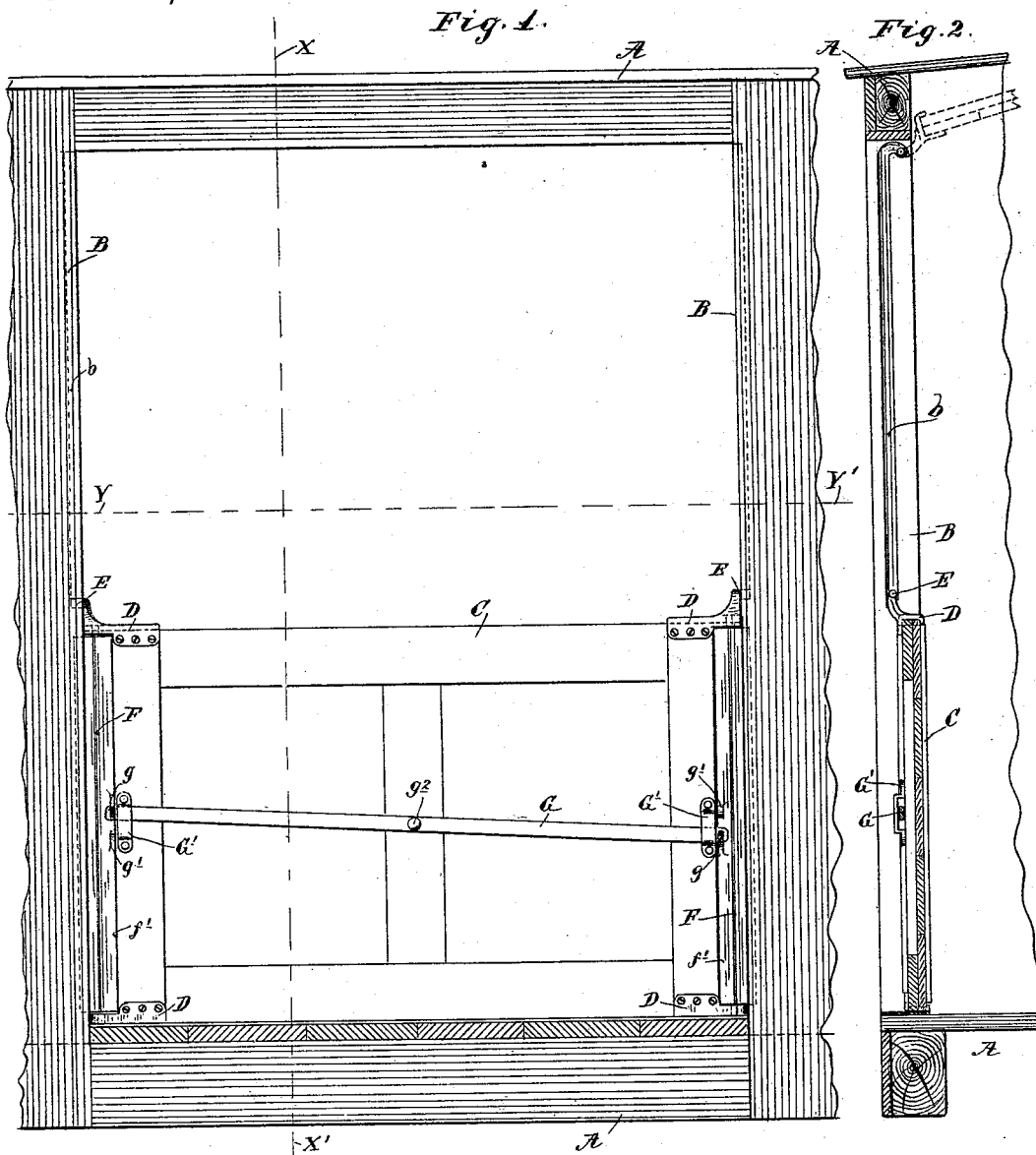
(No Model.)

2 Sheets—Sheet 1.

A. C. McCORD.  
GRAIN DOOR FOR CARS.

No. 494,220.

Patented Mar. 28, 1893.



Witnesses.

A. H. Opsahl.

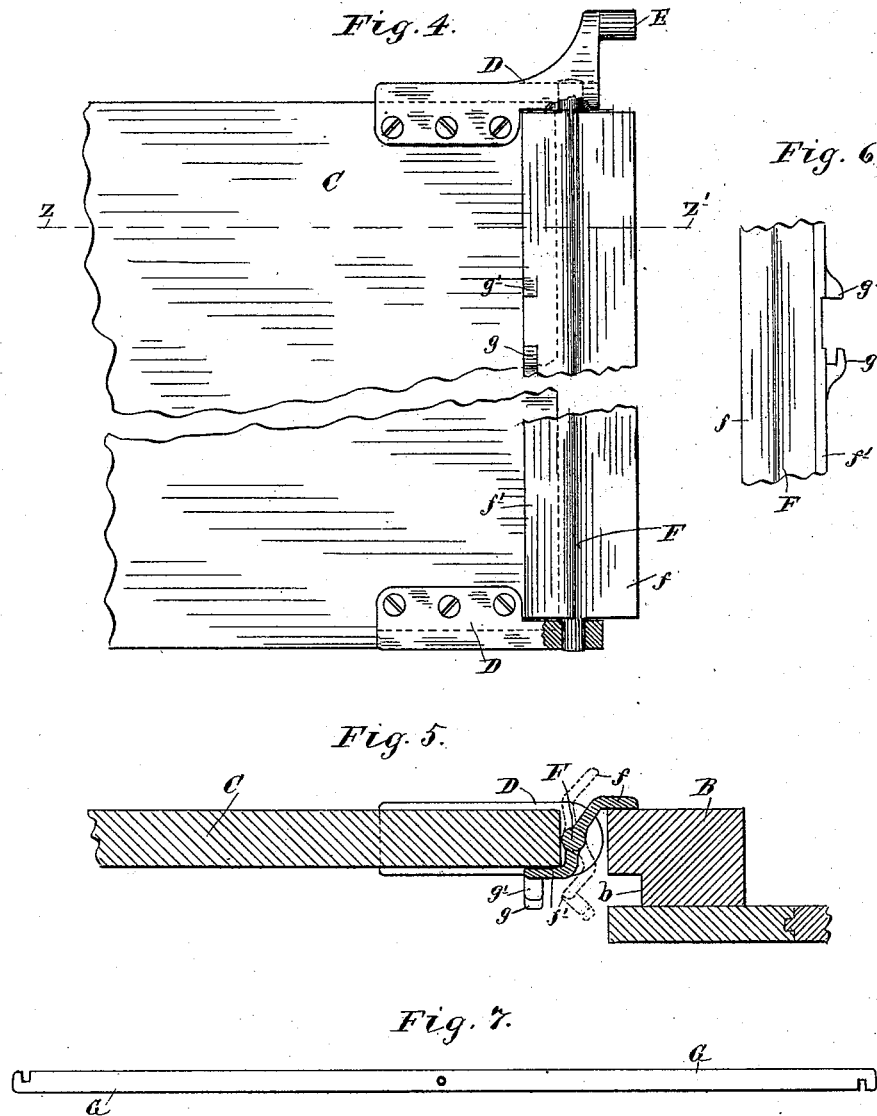
Geo. A. Goodson

Inventor.  
Alvin C. McCord  
By his Attorney.  
Jas. F. Williamson

A. C. McCORD.  
GRAIN DOOR FOR CARS.

No. 494,220.

Patented Mar. 28, 1893.



Witnesses.  
A. H. Opsahl.  
Geo. W. Gordon

Inventor.  
Alvin C. McCord  
By his Attorney.  
Jas. F. Williamson

# UNITED STATES PATENT OFFICE.

ALVIN CARR McCORD, OF CHICAGO, ILLINOIS.

## GRAIN-DOOR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 494,220, dated March 28, 1893.

Application filed July 5, 1892. Serial No. 438,949. (No model.)

*To all whom it may concern:*

Be it known that I, ALVIN CARR McCORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Doors for Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to grain doors for cars; and has for its object to provide an improved construction for this purpose. To this end, I provide a door which is constructed to work with a grain-tight joint between the opposing faces of the door-posts, with freedom for both a vertical sliding movement and a swinging or pivotal movement between the said posts. The sliding and pivotal motion of the door between the posts is permitted by constructing the door with trunnions or pivotal bearings, which move on vertical ways, formed in or secured to the door-posts. The grain-tight joint is effected, by providing the door with movable filling or joint pieces at its sides, which in one position of the parts will form a close joint with the posts, and in another position, will permit the door to clear the posts and be swung outward or inward between the same. These filling or joint pieces are constructed to interlock with the posts, so that they not only form a grain-tight joint between the door and the posts, but when in their locked or closed position take the pressure of the grain or hold the door. These filling or joint pieces are secured in their closed position, by a suitable locking device.

In my preferred construction, the filling or joint pieces are pivoted in suitable bearings projecting from the upper and lower corners of the door, and are provided with angularly projecting reverse flanges adapted to overlap one flange with the inner face of the post, and the other with the outer face of the door, when the parts are in their closed position, and to clear the posts when the parts are in their open position.

For securing the filling pieces in their closed position, I employ as my preferred form of locking device, a latch-bar centrally pivoted to the outer face of the door, and having its

ends working through keepers near the sides of the door and engageable with catch-lugs formed on the outer flanges of the filling or joint pieces.

The preferred form of my invention is illustrated in the accompanying drawings.

Therein like letters referring to like parts throughout,—Figure 1 is a side elevation of a part of the car equipped with one of my grain doors, shown as in its closed position. Fig. 2 is a vertical section of the same on the line X X' of Fig. 1, looking toward the left. Fig. 3 is a horizontal section on the line Y Y' of Fig. 1. Fig. 4 is a side elevation of a part of the grain door detached. Fig. 5 is a horizontal section through one of the door-posts and a part of the grain door, on the line Z Z' of Fig. 4, and Fig. 6 is a detail, showing the outer flange of one of the filling or joint pieces, with the latch-lugs on the same. Fig. 7 is a plan view of the latch lever, some parts being broken away.

A represents the car-body, and B the door-posts. The posts are rabbeted or grooved on their opposing faces to form ways *b*. As shown, the way *b* is formed by rabbeting the outer corner of the post, so as to leave a groove between the shoulder of the post and the siding of the car, except at the upper end of the way, where the same is cut backward on a curve toward the inner face of the post, to permit an inward movement of the door at that point.

C is the grain-door proper, the body of which is of less width than the space between the posts of the door.

D are bearing brackets fixed to the corners of the door and projecting outward therefrom at the bottom and top of the door.

E are trunnions formed integral with the top bearing bracket D, but extending outward and upward therefrom, at an angle to the body of the bracket. These trunnions work in the ways *b* on the posts, whereby the door is free for both a vertical and swinging movement between the posts.

F are the filling or joint pieces, at the sides of the door pivoted at their upper and lower ends, in the bearing-brackets D, and having the inner angularly extended flange or wing *f*, and the outer angularly extended flange or

wing  $f'$  of reverse form to the flange  $f$ . Of these flanges or wings, the inner member  $f$  interlocks with the inner face of the door-posts, and the outer member  $f'$  with the outer face of the door, when the parts are in their closed position, as shown in full lines, in Figs. 1, 3 and 5. When these parts are in their open position, they stand as shown in dotted lines in Fig. 5, and will clear the door-posts, permitting the door to swing outward between the posts, to discharge the grain, or inward if for any purpose that movement should be desired. The outer wing or flange  $f'$  of the filling or locking pieces  $F$  are provided with latch-lugs  $g$  and stop-lugs  $g'$ , with which engage the ends of the latch-lever  $G$ , which is centrally pivoted, as shown at  $g^2$  to the face of the door, and works with its ends projecting through keepers  $G'$ , secured to the face of the door near the sides of the same. The latch and stop-lugs  $g$   $g'$  are reversely placed on the two filling pieces, so as to permit the latching and unlatching action at each end of the latch-lever, by a common pivotal movement. As shown in Fig. 1, the latch lever is in its locking position. By pulling up on the right end of the lever, or pushing down on the left end of the lever, both ends will be disengaged from the latch-lugs  $g$ , and will rest in the opening between the latch-lug and the stop-lug  $g'$ . It should be noted that the latch-lever  $G$  is notched at its extremities on reverse sides, for engaging over the latch-lugs  $g$ . Hence, when the lever is in its latched or locking position, the filling pieces  $F$  cannot swing on their pivots and the door will be locked to the posts. When the latch-lever is disengaged from the latch-lugs, the filling pieces  $F$  may be swung into the dotted line position, shown in Fig. 5, and permit the door to open.

When the filling pieces  $F$  are in their closed and locked position, a grain tight joint will be formed between the door-post and the door, by the flanges or wings  $f$  and  $f'$ ; and the pressure of the grain from within the car against the door, will be taken by the said flanges in uniform distribution from the top to the bottom of the door. When it is desired to unload the grain, it is only necessary to unlatch the lever  $G$  from the filling pieces, when the latter will swing into the dotted line position, shown in Fig 5, and the door itself will swing outward at its lower end between the posts on its trunnions or pivotal bearings  $E$ , thus allowing the grain to run outward into a suitable chute or other receptacle. The ways  $b$  in the door post, of course, terminate at such a point as to limit the downward sliding movement of the door, and form a bearing for the trunnions  $E$  in the outward or swinging movement of the door.

It should be noted that this grain-door is so constructed that it works entirely between the opposing faces of the door-post and opens by an outward swinging movement between the door-post to permit the discharge of the

grain. At the same time, when the door is closed a grain tight joint is formed between the posts and the door, and the door is locked to the post in a strong and reliable manner. To open the door and discharge the grain, it is only necessary to operate the latch-bar and the pressure of the grain will do the rest. It is not necessary to shovel back the grain from the inside of the door or pinch up the door with a crow-bar, as is the case with most other forms of grain-doors.

If for any reason, it should be desirable to have the door out of the way, it may be raised to the uppermost limit of the way  $b$ , and then swung inward, as shown, in Fig. 2 and be held up by a suitable catch or retaining device of any kind (not shown).

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A grain-door for cars, constructed to work between the opposing faces of the door-posts, provided with pivoted filling or joint pieces at its sides, having angularly extended flanges or wings of reverse form, adapted one to interlock with the door-post and the other with the door to form a grain-tight joint, and a locking device for holding said filling pieces in their interlocked positions, whereby the door is held in position against the pressure of the grain in the car, substantially as described.

2. The combination with the door-posts provided with vertical ways, of a grain door having trunnions or bearing pivots at its upper corners, working in the said ways, and provided at its sides with pivoted filling or joint pieces having angularly extended flanges or wings of reverse form, adapted to interlock one flange with the inner faces of the door-posts and the other with the outer face of the door, for holding the door against the pressure of the grain when the parts are in their closed position, and for clearing the posts when the parts are in their open position, permitting the door to swing outward on its trunnions for the discharge of the grain.

3. The combination with the door posts having vertical ways, of the grain-door having trunnions at its upper corners working in the said ways, the pivoted filling or joint pieces at the sides of the door provided with the angularly extended flanges or wings for interlocking with the door posts, and the pivoted latch-bar carried on the outer face of the door and engageable at its ends with latch lugs on said filling pieces for holding the same in their closed or locked position, substantially as described.

4. The combination with the posts having vertical ways, of the grain-door having trunnions working in the said ways the pivoted filling or joint pieces carried by the door at its sides, having the angularly extended flanges or wings interlocking with the posts and the door, when closed, and having on their outwardly extended flanges or wings

latch-lugs and latch-stops spaced apart from each other and arranged in reverse order on the opposite pieces, and the latch lever centrally pivoted to the outer face of the door having its ends working through keepers fixed to the door and engageable or disengageable with said latch-lugs, by a pivotal movement, substantially as and for the purpose set forth.

5. The combination with the door-post B, having the ways *b*, of the grain-door C, having the bearings D and the trunnions E working in the said ways, the filling or joint pieces

F pivoted in the bearings D, and having the flanges or wings *f* and *f'*, and the latch-lugs and stops *g* and *g'*, the latch-lever G pivoted to the face of the door working through the keepers G' and engageable with the said latch-lugs and stops, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALVIN CARR McCORD.

Witnesses:

WM. MORRISON,  
D. W. McCORD.