

(No Model.)

2 Sheets—Sheet 1.

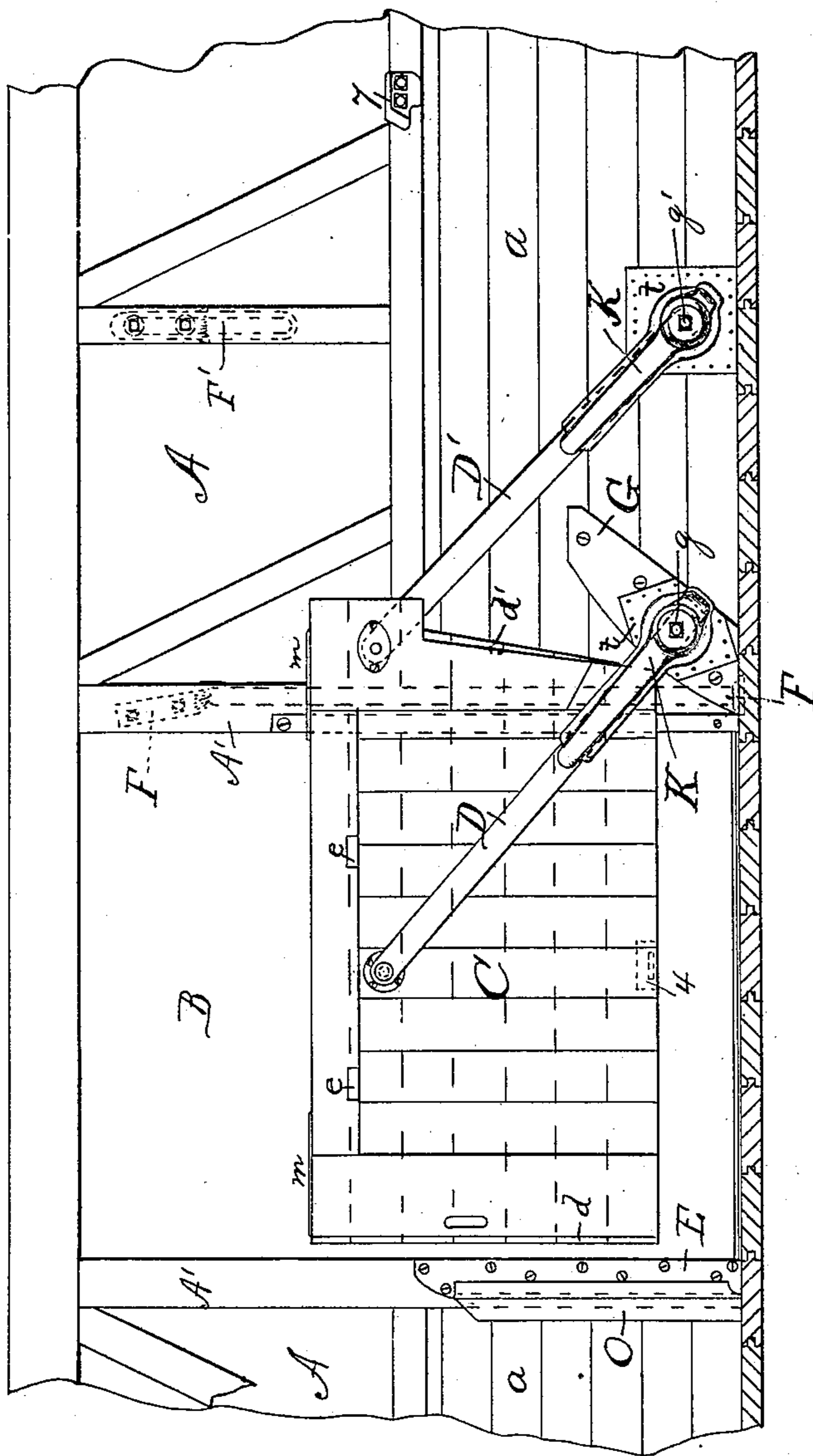
D. F. VAN LIEW.

GRAIN CAR DOOR.

No. 250,693.

Patented Dec. 18, 1881.

Fig. 1.



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(No Model.)

2 Sheets—Sheet 2.

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Fig 2.

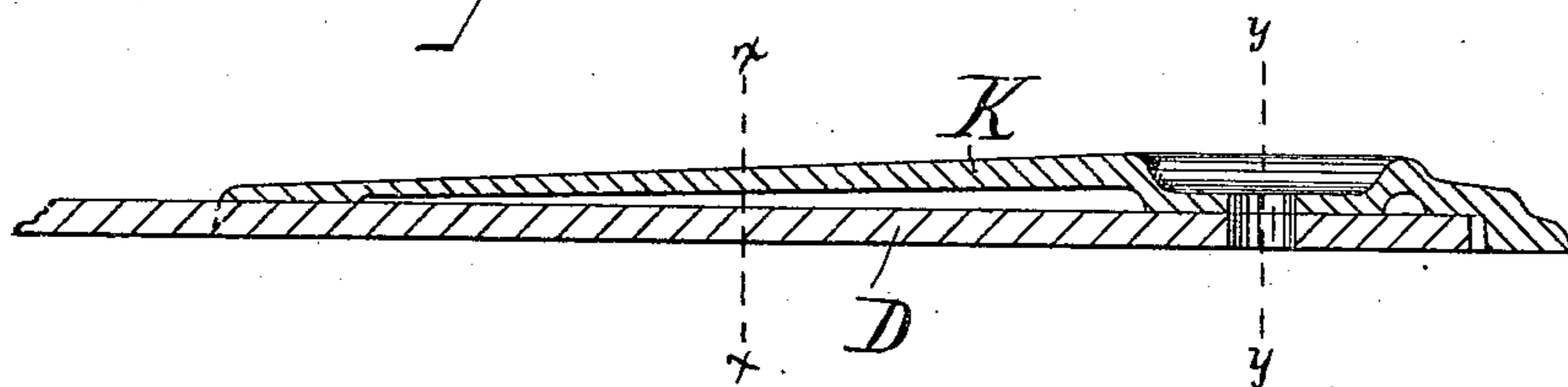


Fig 3.

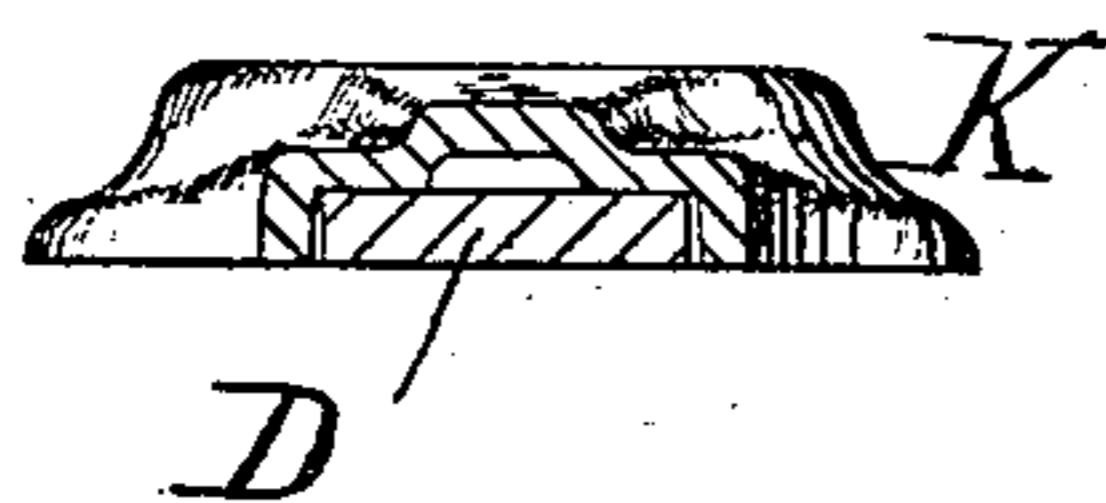
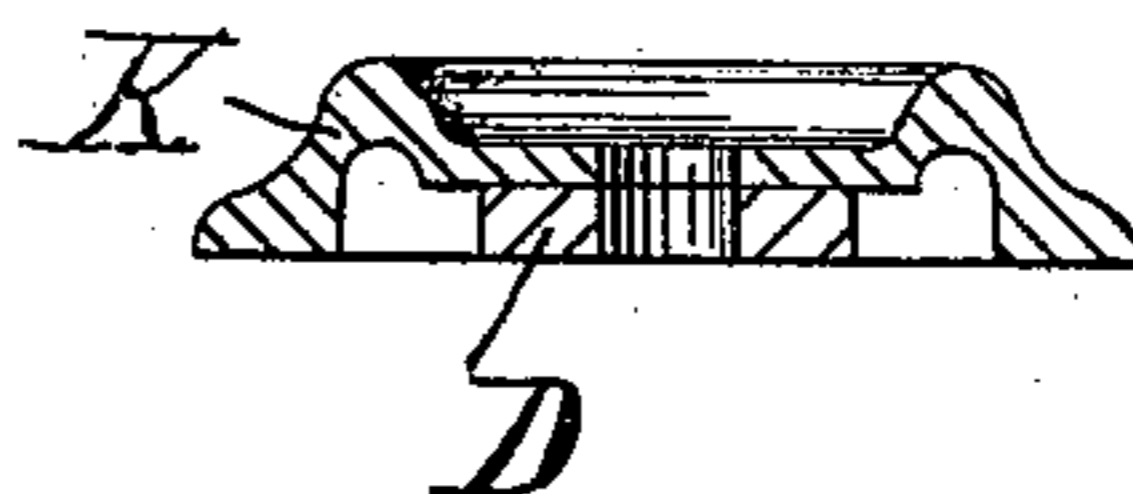


Fig 4.



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UNITED STATES PATENT OFFICE.

DENNIS F. VAN LIEW, OF AURORA, ILLINOIS.

GRAIN-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 250,693, dated December 13, 1881.

Application filed October 21, 1881. (No model.)

To all whom it may concern :

Be it known that I, DENNIS F. VAN LIEW, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful
5 Improvements in Grain-Car Doors, of which the following is a specification.

My invention relates to the devices by which the doors of railway grain-cars are operated in the manner set forth in a former patent granted to me on the 25th day of May, 1880, the same being a reissue of original Letters Patent dated June 23, 1874.

The invention provides for a cheaper and yet effectual mode of securing the door and
15 giving it both lateral and radial support.

The invention consists of a metal shoe applied to and clasp ing the lower end of one or both of the radius-bars shown in said prior patent, and reaching out laterally, upward and
20 downward, from the point of pivoting the bar to the car, the upward extension serving to stiffen the radius-bar, so it will not bend, either from exposure and abuse or under the weight of the door, while the lower and side extensions make a broad bearing-surface, which acts
25 to prevent any lateral departure by the door or bar from the vertical plane in which they should move and be retained.

For the better understanding of this and
30 other features of the invention, reference is hereby made to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is an elevation of the interior of a car-side, showing the door partly raised, with its carrying devices. Fig. 2 is a longitudinal
35 section of the radius-bar and shoe. Figs. 3 and 4 are cross-sections of Fig. 2 upon the lines *x x* and *y y*, respectively.

In said drawings, A represents the car-side; 40 A', the door-posts; *a*, the inside lining of the car; B, the doorway; C, the door itself; D, the front carrier or radius-bar; D', the back carrier or radius-bar; *d*, the rabbet at front end of the door, to enable it to fit the shoe
45 when closed; *d'*, the rabbet at back end of the door, to fit the bracket in and upon which it rests when open; E, the shoe to receive the front end of the door when closed; *e e*, lift-holes; F and F', (in broken lines,) the guide
50 bar and arm by which the door has heretofore been guided when raised; G, the usual oak

supporting-piece for the door when open, to which the front radius-bar is pivoted; *g g'*, the lower pivots of the bars; *m m*, half-oval edge castings secured to the top of the door, on
55 which castings the lock device rests when the door is closed; and O, a wood filling behind the shoe E. Of the figures, 4 is a flush lift (shown in broken lines) attached to the outside of the door, and 7 a support for the back end of the
60 door when open, secured on the girt of the car.

K is the metal shoe, already mentioned. That part of it surrounding the pivot is substantially round exteriorly, and considerably widened and extended beyond the extent nec-
65 essary to cover the bar. This gives it a broad bearing-surface, so that it will not be likely to injure the wood parts against which it operates, which, however, may be protected by a covering of sheet metal, *t*, as illustrated in
70 Fig. 1. The shoe extends up the bar a considerable portion of the latter's length, and incloses so much of the bar as lies within its own length by being recessed upon its inner side with a recess in which the bar may fit. This
75 is shown in Figs. 2, 3, and 4. It necessarily results from the application of a shoe thus constructed, with the pivot passing through both bar and shoe and clamping them together, that the bar will be materially stiffened, and
80 any tendency to lateral displacement by the door prevented, and its use enables me more safely to dispense with the guiding parts F and F', and with all substitutes for such guides. The shoe has additional advantages over the
85 guides F and F', in that it materially cheapens the structure, and its influence in steadying the door is carried nearer to the front end by the radius-bar, and the door is rendered more certain to strike squarely within the
90 holding-shoe E when closing, and the device is also lighter. The shoe K has another peculiarity. Around the pivot is an out-projecting circular rim or ledge, within the confines of which the pivot-head is protected from
95 abrasive or injurious contact with the load carried by the car, and which rim, being also continuous and concentric with the axis of oscillation of the bar, lessens the friction with any surface loaded against it, and enables the open-
100 ing of the door with comparative ease. The shoes may be applied to either of the bars or

to both, as thought best. Where but one bar is used it should be applied to that one. It can be readily adapted to bars of any size or form.

5 By employing the shoe described the "upsetting" the bar to strengthen it at the pivotal point and the tapering of heavy bars by forging are both avoided, and thus cast-iron can be substituted for wrought, much less weight of
10 metal be used, and the cost of the forging or upsetting be saved.

I claim—

1. In combination with the radius-bar of a grain-car door, the shoe K, consisting of the

upward extension and the widened and ex- 15
tended base recessed on the inner side to receive or clasp the bar, whereby the bar is stiffened and the door held in its proper vertical plane, substantially as set forth.

2. The combination, with the radius-bar and 20
its pivot, of the shoe K, having the projecting continuous concentric rim or flange surrounding the pivot, substantially as and for the purpose set forth.

DENNIS F. VAN LIEW.

Witnesses:

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