No. 888,228. PATENTED MAY 19, 1908.

W. S. DRISKELL.

GRAIN CAR DOOR.

APPLICATION FILED MAY 17, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

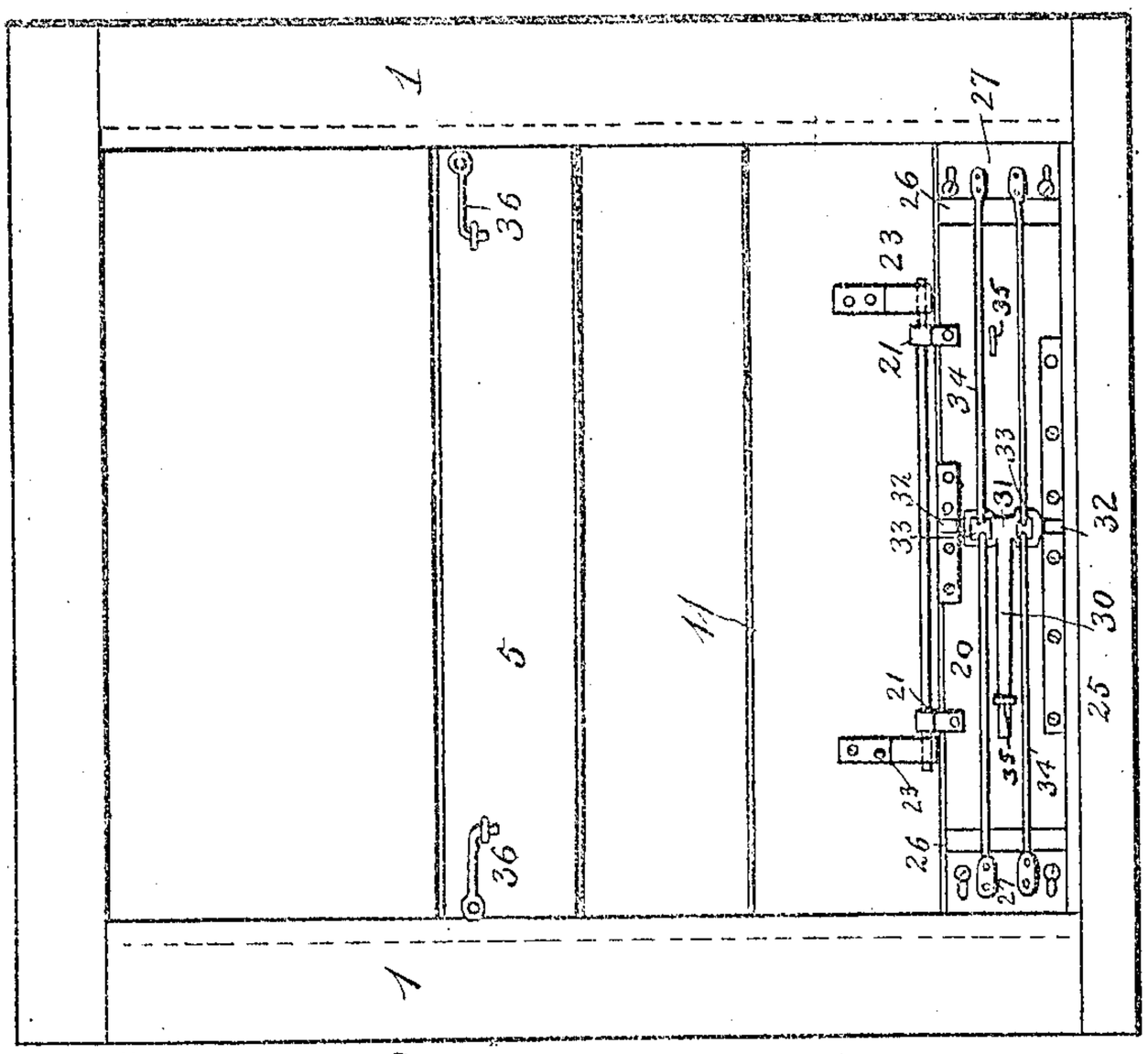
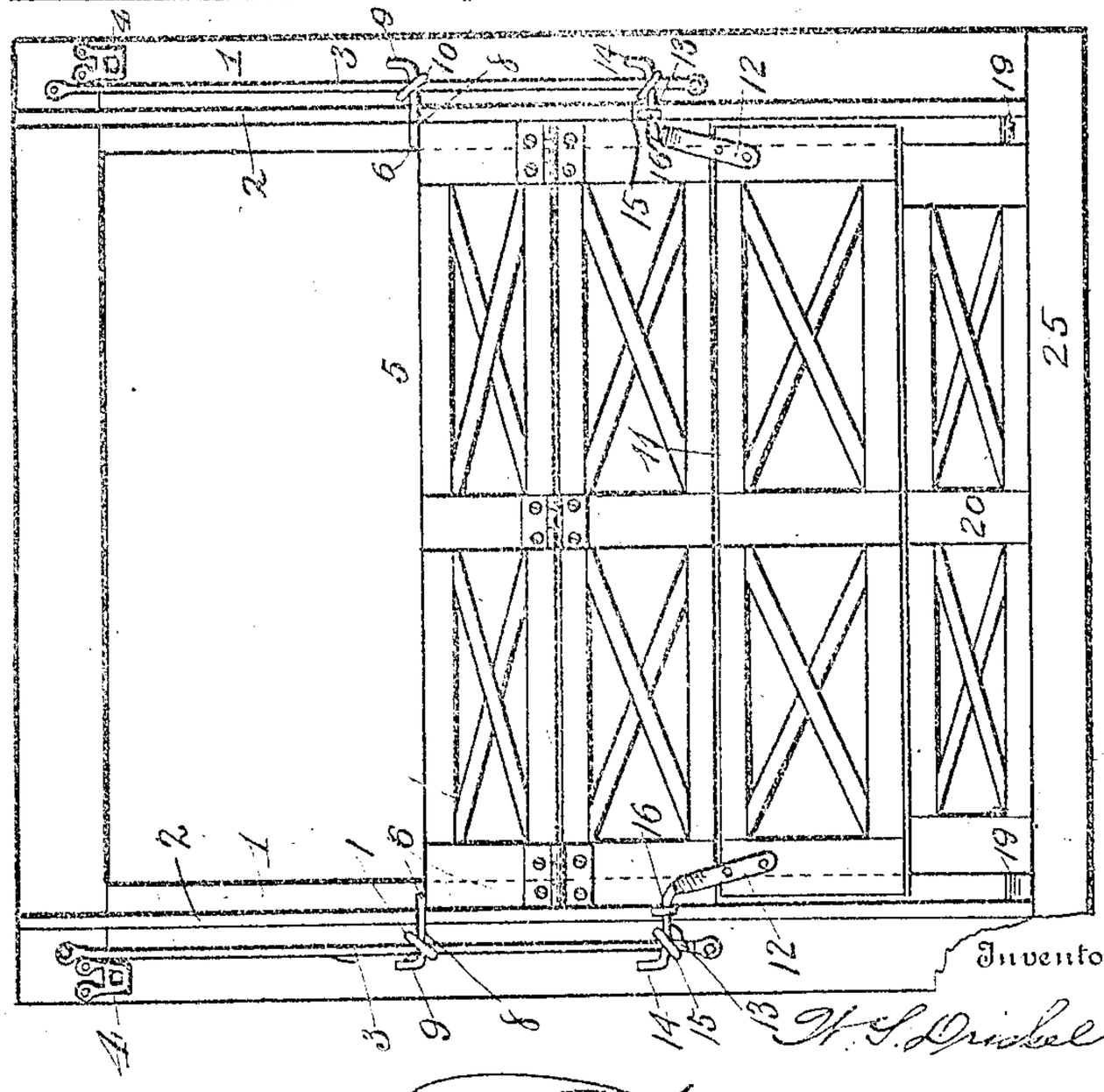


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

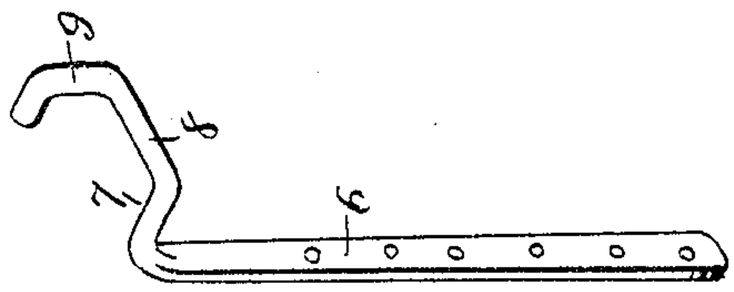


Fig. 4.

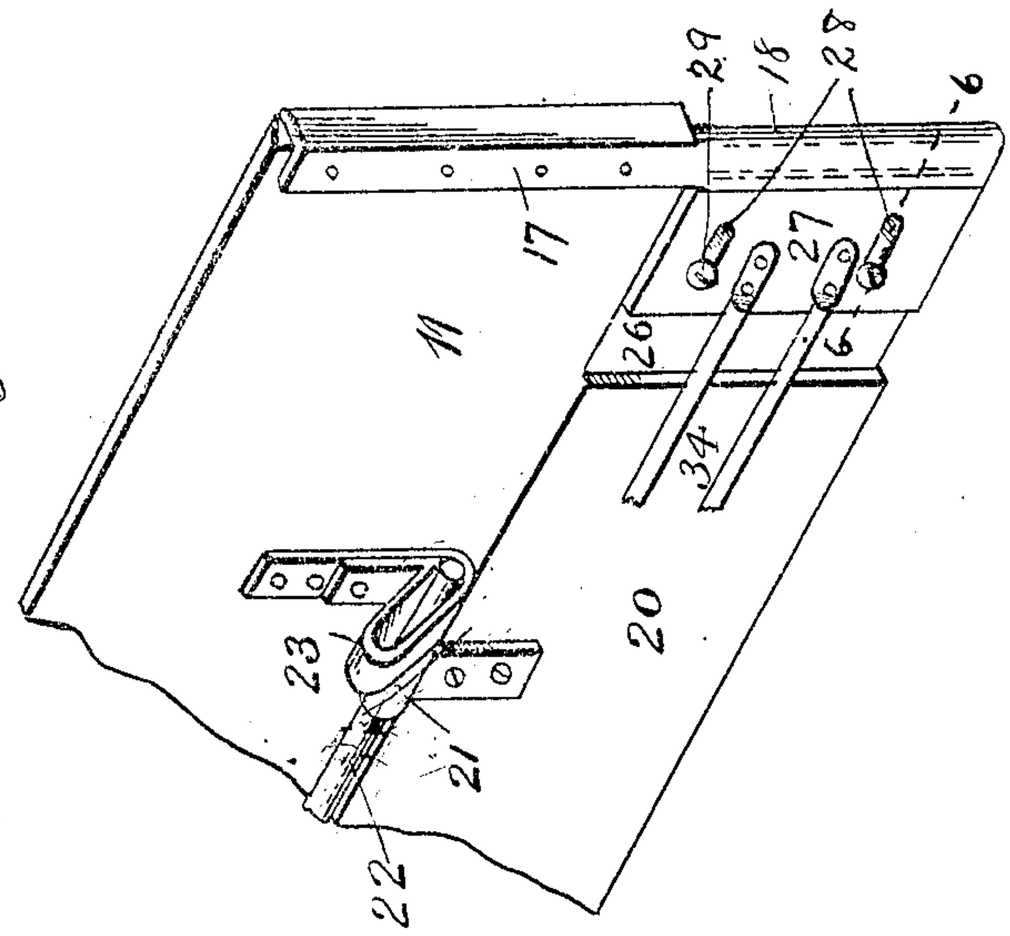


Fig. 6.

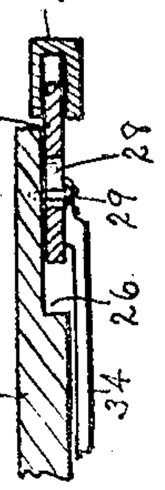
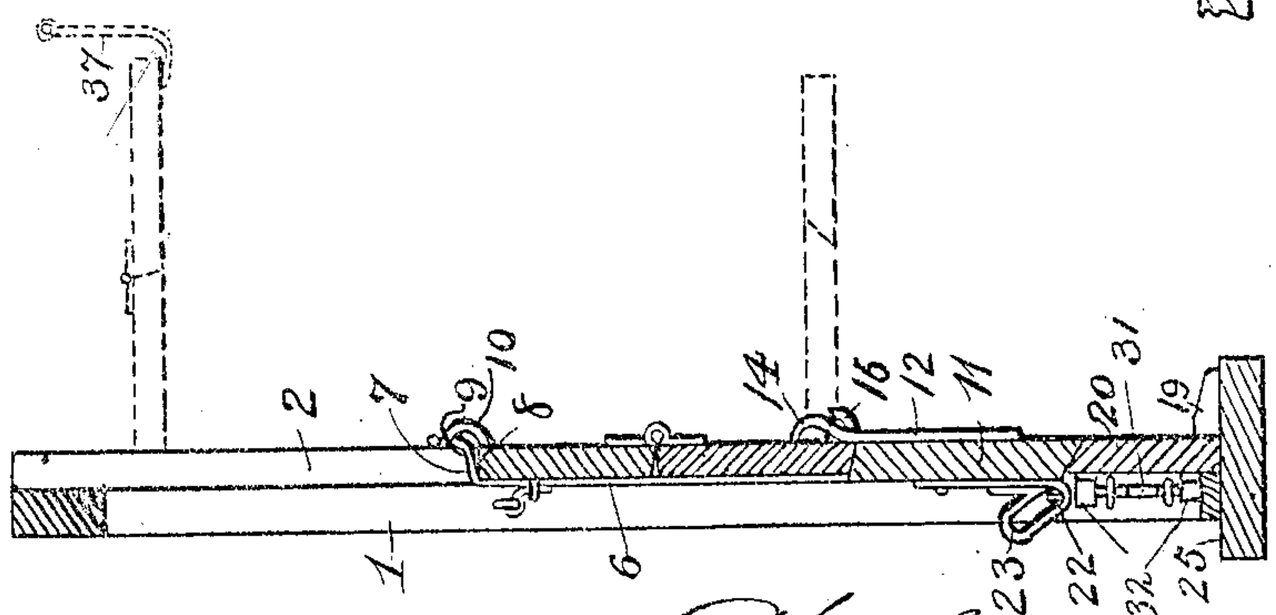


Fig. 3.



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UNITED STATES PATENT OFFICE.

WINFIELD S. DRISKELL, OF GRETNA, NEBRASKA, ASSIGNOR OF ONE-THIRD TO HANS PETERS, OF GRETNA, NEBRASKA.

GRAIN-CAR DOOR.

No. 888,228. Specification of Letters Patent. Patented May 19, 1908.

Application filed May 17, 1907. Serial No. 374,187.

To all whom it may concern:

Be it known that I, WINFIELD S. DRISKELL, a citizen of the United States, residing at Gretna, in the county of Sarpy and State of Nebraska, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification.

My invention relates to improvements in grain car doors, and has for its object the provision of a grain tight door which shall be simple, durable and practical, consisting of but few parts, and which may be readily operated to facilitate the loading or removal of the grain from the car either in bulk or in limited quantities.

Another object of my invention is to provide a door arranged in independent sections so that one or more of the door sections may be removed or replaced at will according to different requirements, and also to provide a hinged lower door section which may be operated from the outside and hinged upwardly out of the way, for removal of the grain in small quantities.

I aim to accomplish the above in a practical and efficient manner and to such ends, my invention consists of vertically movable and swinging independent door sections, and a lower door section having hinge connection with the next adjacent door section said lower door section of shorter length than the other door sections and having extensible ends operated from the outside of the door; and the invention further comprises a grain door possessing certain other novel features of construction, combination and arrangement of parts substantially as disclosed herein and as illustrated in the accompanying drawings, in which;

Figure 1, is a front elevation of my improved grain door taken from the outside of the car. Fig. 2, is a rear elevation taken from the inside of the car. Fig. 3, is a vertical sectional view of the door in closed position, the dotted lines indicating the different positions of the door sections. Fig. 4, is a broken sectional view of one end of the lower door section showing its connection with the next upper door section. Fig. 5, is a detached perspective view of one of the hook members which serve to support the upper door section. Fig. 6, is a broken sectional view on the line 6—6 of Fig. 4, showing the extension plate in engagement with the depending grooved guiding strip.

Referring to the drawings: The numeral 1, designates the door frame of an ordinary car, and to the inner face of the door frame or door posts proper, are secured the longitudinal guiding strips 2, disposed at right angles with respect to the face of the door posts. Offset guiding rods 3, are also secured to the inner face of each of the door posts parallel to the strips 2, and offset brackets 4, are secured to the door frame adjacent the upper terminal of the guide rods, these brackets being in the form of a double loop as shown in Fig. 2, to form hangers.

The door itself is preferably arranged in three sections, an upper, intermediate and lower section, the upper and intermediate door sections being of the proper length to properly fit between the guiding strips or cleats 2, the body of the lower door section being shorter, or only as long as the door frame is wide. The upper door section 5, is provided with strengthening or stiffening straps 6, at its ends, these straps being directed outwardly in an angular portion 7, at the upper edge of the door, thence directed laterally in a straight horizontal portion 8, and finally terminating in a hook 9. Rings 10, slidably confined upon the guide rods, are passed over the horizontal portions of the hook members, thereby serving to slidably secure the upper door section to the guide rods at the same time leaving it free for swinging movement.

The intermediate door section 11, is usually not quite as wide as the upper door section, and secured at the ends on the inner face of this door section, are the flattened bars 12, which extend up above the edge of the section, and are directed laterally in a horizontal portion 13, terminating in a hook 14, these hooks being of substantially the same shape as the suspending hooks on the upper door section. Rings 15, serve to hold the intermediate door section in position with respect to the guide rods in the same manner as the upper section is held, and it will be seen that by slipping the rings over the hooks, the section may be entirely removed from the door frame. Additional securing means for the intermediate section are provided in the form of stationary hooks 16, which are

mounted on the vertical guiding strips 2, so as to engage the lateral or horizontal portion of the supporting hooks on this section. Angular corner strips or binding strips 17, are applied to the inner corners of the intermediate section, these binding strips being extended downward in the form of grooved guiding extensions 18. These guiding extensions rest flat against the face of the door posts and form legs for the support of the intermediate door section. Stop blocks 19, on the floor of the car serve to hold these so-called legs in close engagement with the face of the door posts, so that in order to remove this door section, it is necessary to lift it until the legs clear these stop blocks and then free the hooks of the rings. The upper face of the stop blocks is preferably inclined as shown in order to facilitate replacing of the door.

As before explained, the lower door section 20, is only as long as the door frame is wide, as this section is adapted to be hinged up from the outside of the door frame. Secured to the upper edge of the lower door section by brackets 21, is a pivot rod 22, the rod being spaced above the edge of the section, the ends of the rod extending beyond the bracket and engaged in the slotted supporting brackets 23, thereby serving as pintles for the support of this lower section. The slotted hinge brackets 23, are secured near the lower edge of the intermediate section, the slotted portion of the brackets being inclined upwardly at an angle as at 24, so as to allow the lower section when being hinged upward, to clear the door sill 25.

The outside face of the lower door section is recessed at its ends at 26, and end extension plates 27, are adapted to be seated in said recessed ends flush with the face of the section. The extension plates are each provided with two or more transverse slots 28, through which are passed the headed fastening bolts or screws 29, which serve to slidably secure the extension plates in the recessed ends of the door section. These extension plates are adapted for engagement with the grooved guiding extensions depending from the intermediate door section and are operated in the following manner; an operating lever 30, is either formed integral with or is connected to a transverse bar or plate 31, which is pivoted transversely upon the lower section in journal brackets 32, the lever as a whole being of T-shape. The ends of the transverse portion of the lever are widened and slotted as at 33, and connecting links 34, secured to the extension plates are pivotally connected to the widened and slotted portions of the lever as shown in Fig. 1, so that by rocking the operating lever the slidable plates on the ends of the lower door section are either extended and caused to engage the grooved guiding extensions or are withdrawn from engagement therewith, at will. Turn buttons 35, serve to hold the operating lever flat against the lower section, thereby locking the extension plates either extended or withdrawn as desired. The meeting edges of the different door sections are preferably cut at an incline as shown in the sectional view so as to prevent leakage of any of the grain.

When the door is entirely closed, the upper edge of the upper door section is secured against movement by means of the latches 36, which are pivoted to the sides of the door frame and the lower corners of this upper section are engaged by the angular and horizontal portions of the supporting hooks on the middle door section as shown in Fig. 2, so that the upper door is locked against all movement. The inner faces of the door sections are preferably paneled or braced as shown, as this construction greatly strengthens the sections and prevents them from warping.

In unloading the grain, the lower door is opened from the outside by throwing the operating lever over, thereby releasing the extension plates from engagement with the guide plates or extensions, the door then being free so that it may be hinged up out of the way. The door may be folded up against the car roof entirely out of the way as shown in dotted lines in Fig. 3. In order to fold the door in this manner, the upper door section is first lifted until the supporting hooks thereon engage the upper loops in the looped supporting brackets or hangers 4, and this section is then hinged up against the car roof upon the hangers as a pivot and held in position against the car roof by a depending latch 37. The intermediate door section carrying the lower section is then lifted until the suspending hooks thereon engage the lower loops in the bracket hangers, when it is hinged upward in the same manner as the upper section, parallel to the upper section as will be readily understood and it is there held by means of a depending catch similar to the catch 37, (not shown).

From the foregoing description taken in connection with the drawings, it will be evident that I have provided a thoroughly practical and desirable grain car door which accomplishes all the results herein set forth as the objects of the invention in a satisfactory manner.

I claim:

1. A car door comprising upper, intermediate and lower door sections each capable of vertical sliding and swinging movement, the intermediate section having depending strips on its ends providing grooved guideways, the lower section having extensible end plates adapted to be projected for engagement with the guiding strips of the adjacent section, said lower section having loose hinge connection

with the adjacent section so as to allow of its being lifted and hinged upward.

2. A grain car door comprising upper, lower and intermediate door sections, vertical guide rods and rings engaged thereon, outstanding bracket hooks at the upper edges of the upper and intermediate door sections engaging the rings to allow vertical sliding movement of the sections, the brackets on the upper edge of the intermediate section being upwardly and outwardly inclined to embrace the lower corners of the intermediate door section, strips depending from the ends of the intermediate section having a grooveway therein, angularly disposed hinge loops on the lower edge of the intermediate section, a hinge rod carried by the lower door section having its ends engaged in the loops, extensible plates slidably secured to the ends of the lower section, a lever having an angular head pivoted transverselv to the lower section, said lever head having angular loops formed therein, links connected to said loops and the slidable plates to project said plates into engagement with the grooveways in the depending end strips, the intermediate and lower door sections having beveled meeting edges.

3. A car door comprising upper, lower and intermediate door sections, vertical guide rods and rings engaged thereon, outstanding brackets on the upper edges of the upper and intermediate door sections engaging the rings, corner strips depending from the ends of the intermediate door sections, the depending portions of such strips each having a longitudinal groove therein, upwardly inclined hinge loops on the lower edge of the intermediate section, a hinge rod carried by the lower section having its ends engaged in the hinge loops, the lower section being of a proper length to be received between the depending end strips of the intermediate section and the lower section having recessed end portions, extensible plates slidably held in the recessed end portions of the lower section to engage the grooveway in the depending strips, and link and lever connections for projecting or withdrawing the extensible plates from engagement with the grooved depending strips.

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

WINFIELD S. DRISKELL.

Witnesses:
J. W. MARTIN,
J. GEO. YOUNG.