

C. E. SALSBUURY & R. O. COUCH.

CAR DOOR.

APPLICATION FILED JAN. 25, 1910.

965,751.

Patented July 26, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

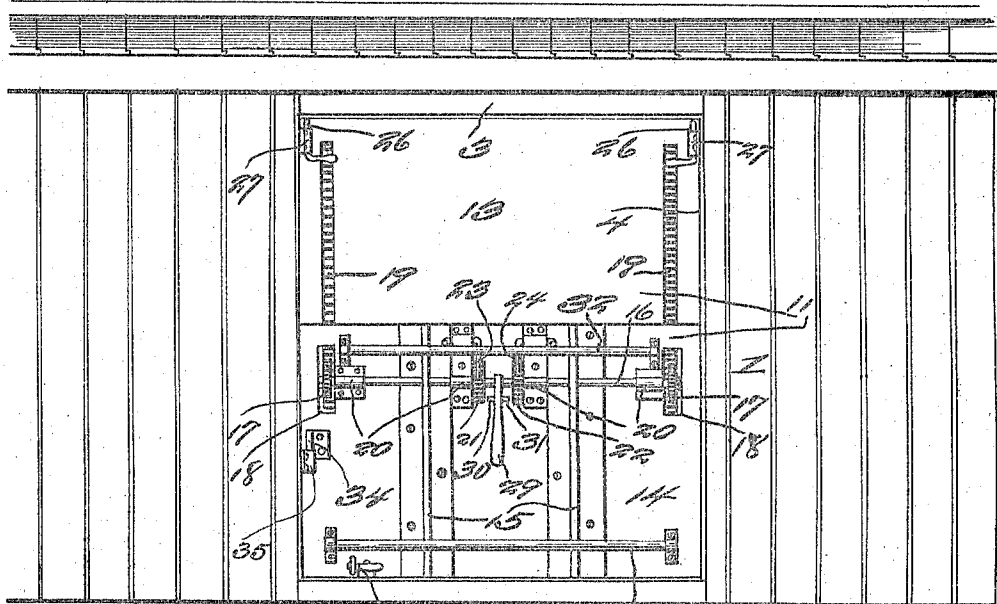
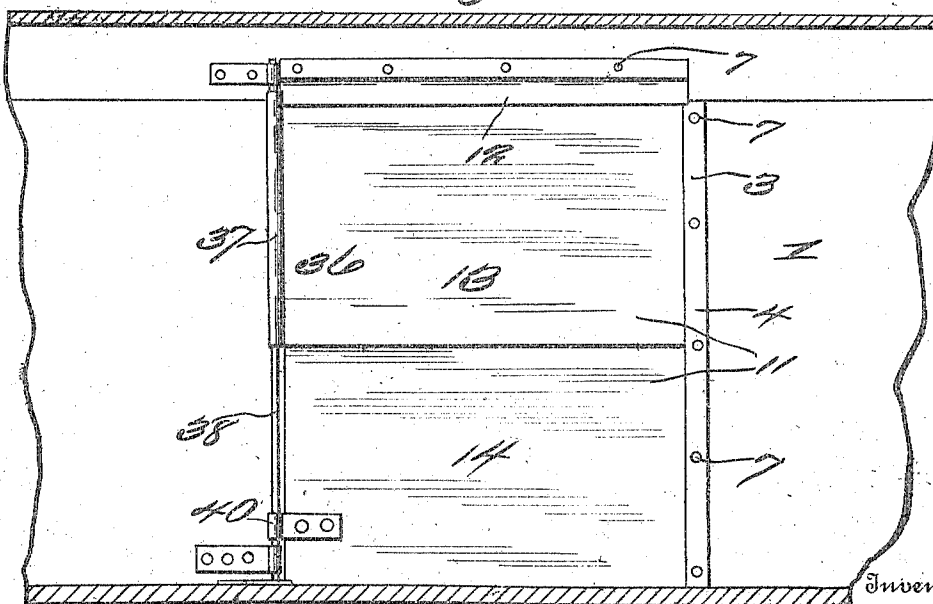


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

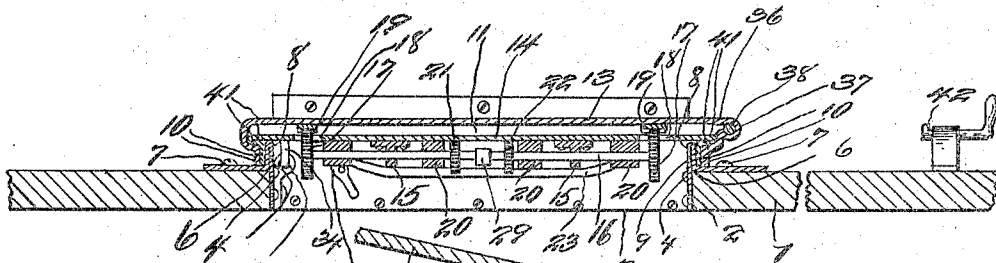
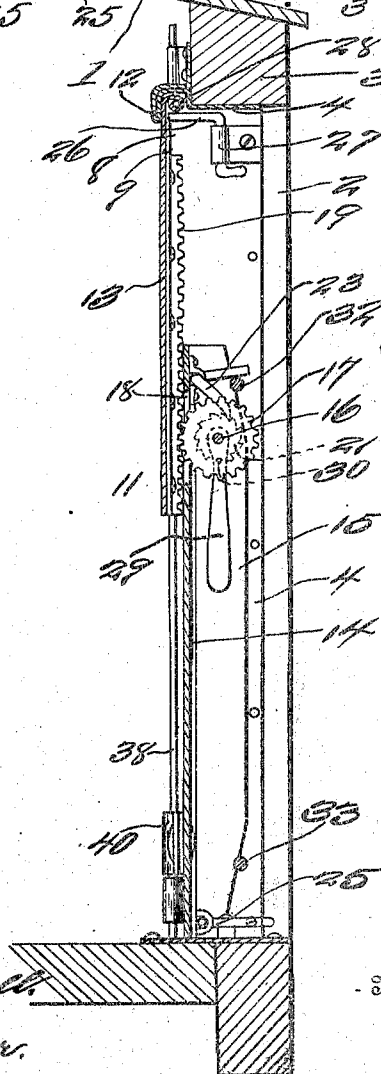


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

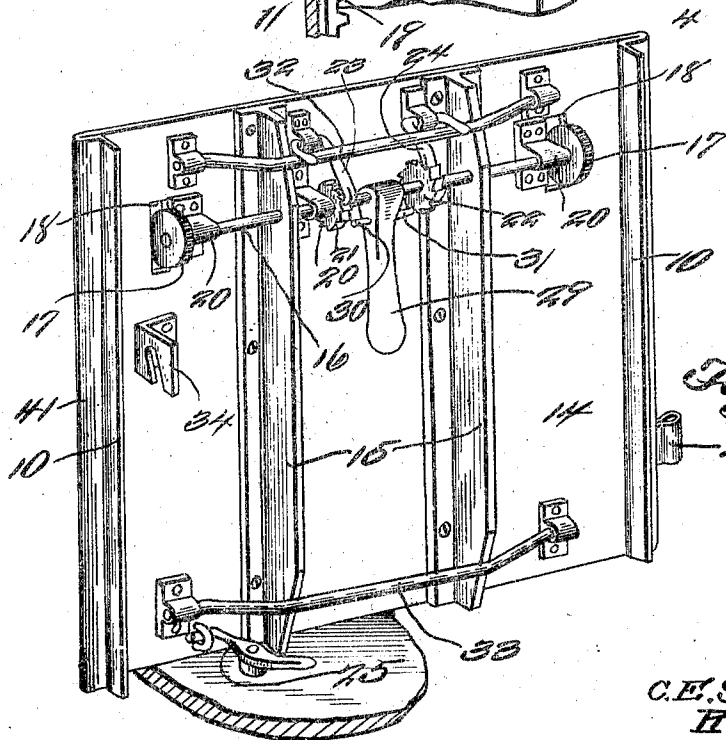
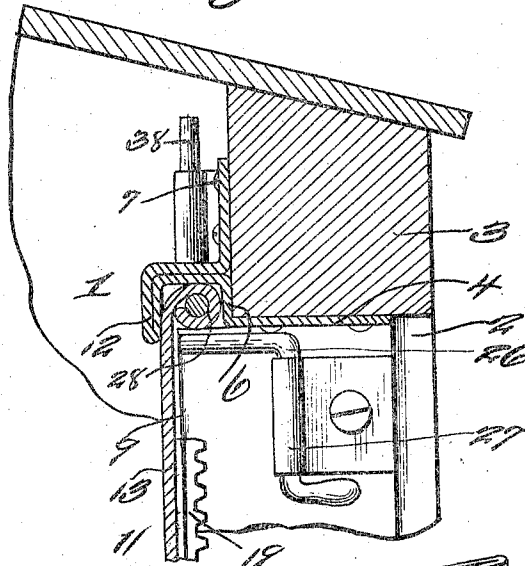


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES E. SALSURY AND ROY O. COUCH, OF HAMPTON, IOWA.

CAR-DOOR.

965,751.

Specification of Letters Patent.

Patented July 26, 1910.

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To all whom it may concern:

Be it known that we, CHARLES E. SALSURY and ROY O. COUCH, citizens of the United States, residing at Hampton, in the county of Franklin and State of Iowa, have invented a new and useful Car-Door; and we 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.

The invention about to be set forth and claimed belongs to the art of cars and the like, but more particularly the invention pertains to grain car doors, adapted for application upon cars or the like, granaries or barns or similar structures, and the principal object of the invention is to provide a two-sectioned door, so constructed that either section may be raised or lowered, independent of the other section, or both the sections may be swung inwardly of the structure, to which the door is applied.

The invention involves a further object which resides in the provision of means, whereby either section may be manipulated independently, and if the lower section of the door is manipulated, the upper section is held against movement. If it is desired to manipulate the upper section of the door, the lower section may be secured against movement.

A further object of the invention is the provision of means to secure the two-sectioned door against swinging inwardly of the structure, when the lower section is raised, or when the upper section is lowered. The means for securing the two-sectioned door against swinging inwardly, for instance, when either one of the sections is raised or lowered, consists of two independent structures, one consisting of means carried by the lower section of the door, to engage a loop of the door frame, while the other embodies means secured to the inner face of the structure or car, adjacent the upper portion of the door frame, behind which means the upper section of the door is arranged, to prevent inward movement of the door when the lower section is raised.

Another object of the invention resides in the provision of means, whereby either one of the sections of the door may be guided, when raised or lowered.

This invention comprises further objects and combinations of elements, which will be

hereinafter more fully described, shown in the accompanying drawings, and the novel features thereof will be pointed out by the appended claim.

In this specification and the drawings annexed hereto, a particular design of device is adhered to, but the invention is not to be confined to this particular design. The device in its actual reduction to practice may require changes and variations; the right thereto belongs to the applicant, provided such changes and variations are comprehended by the appended claim.

Referring more especially to the drawings, Figure 1 represents a side elevation of a portion of a car, illustrating the two-sectioned door applied thereto. Fig. 2 is a partial sectional view of the car, looking upon the inner face of the door, showing the guiding means for the two sections of the door, and the means arranged above the upper section for preventing the inward movement of the door when the lower section is raised. Fig. 3 is a transverse sectional view taken through the portion 13 and the rack bars 19. Fig. 4 is a vertical sectional view, partially transversely through the car structure and the door, to illustrate clearly the disposition of the ratchets and pawls and their shaft, and the means for manipulating them. Fig. 5 is a vertical sectional view through the upper part of section 13, clearly disclosing the means whereby the upper section of the door is prevented from movement, for instance, when it is desired to raise the lower section. Fig. 6 is a perspective view of the lower section of the car door, removed from its position with relation to the upper section.

Referring to the drawing, 1 denotes the structure or frame of the car, which is provided with an opening 2, while 3 represents the frame of said opening. The periphery of the opening is provided with a metallic lining 4, which extends around the corners of the said opening, as shown at 6, and is secured to the inner face of the structure, as shown at 7. The sides of this metallic lining which are secured to the inner face of the structure, are bent upon themselves, as indicated at 8, in order to form flanges or guides 9, with which the flanges 10 of the two sections of the door 11 cooperate. The upper portion of the metallic lining of the opening is extended inwardly of the car structure, and so formed as to provide a horizontal

flange 12, with which the upper section 13 of the door coöperates, to prevent inward movement of the door, when the lower section is raised.

14 represents the lower section of the car door, from the outer face of which elongated flanges 15 project, and journaled in the upper portions of them is a horizontally disposed shaft 16, upon each end of which a pinion 17 is journaled. These pinions operate through openings 18 of the lower section of the car door, and engage rack bars 19, carried by the upper section thereof. The shaft 16 is also mounted in additional bearings 20 of the lower section of the door. Carried centrally of the said shaft, and movable therewith, are ratchet wheels 21 and 22, the teeth of which are arranged in opposite directions, in order that the pawls 23 and 24 may slip by the ratchets, when either one of the ratchets is operated in one direction or the other. When it is desired to raise the lower section of the door, or lower the upper section, the ratchet wheel 21 is operated, but when being operated to accomplish this feat, the pawl of the ratchet 22 is raised from engagement with its ratchet. If the upper section of the door is being lowered, while the pawl of the ratchet 22 is out of engagement with its ratchet, the lower section of the door is secured against movement by the device 25.

If it is desired to close either section of the door independently, for instance, the lower section, the upper section is secured against downward movement, by the pivoted members 26 (which are mounted in bearings 27 of the door opening), and are adapted to engage beneath the flange 28 of the upper portion of the upper section of the door. When it is desired to close the upper section of the door, the ratchet 22 is operated, while the pawl of the ratchet 21 is raised out of engagement, and when the ratchet 22 is thus manipulated, a downward pressure upon the lower section of the door is enacted, which will cause the lower section of the door to engage the bottom of the car structure. These ratchets are operated by a lever 29 (which is loosely journaled or mounted upon the said shaft 16), and is provided with lateral projections 30 and 31, which are designed to engage behind the teeth of the ratchets, as the lever is oscillated vertically.

The lower section of the door is provided with transversely disposed handles 32 and 33, whereby the said section may be raised or lowered, or swung inwardly of the structure, when it is not desired to utilize the ratchet mechanism, and especially to swing the door inwardly, when the upper or lower

section is released in order that such may be accomplished.

To prevent the door from moving inwardly when the upper section is lowered, the lower section is provided with a hook 34, which is designed to be received by a loop 35 of the door. This hook 34 is caused to engage said loop by forcing the lower section of the door downward.

The upper section of the door, at the side designated by the character 36, is formed into a hollow roll 37, which receives a vertically disposed rod 38, which roll and rod act as guiding means for the door. The lower section of the door has provided upon one side thereof, and on the inner face adjacent the bottom, a loop 40, which also receives the said vertically disposed rod, and which is designed to assist in guiding the door when raised or lowered or act as a pivotal connection for the door.

Upon the sides of both sections of the door are flanges 41, which interengage with one another, in order to guide the two sections of the door with regard to each other, for example when it is desired to raise or lower one or the other of the sections. Secured to the inner face of the car structure is a sliding bolt or member 42, behind which the door when swung completely back adjacent to the said inner face of the car structure is disposed, in order to hold the door in such position.

From the foregoing, the essential features, elements and the operation of the device, together with the simplicity thereof, will be clearly apparent.

Having thus fully set forth the invention, what is claimed as new and useful is:—

A two-sectioned pivoted car door, one of the sections having racks, while the other section is provided with a horizontally disposed rotating shaft having pinions to engage said racks, whereby either section of the door may be raised or lowered, a ratchet and pawl mechanism for operating the shaft, means for operating the ratchets, said upper section having a flange upon its upper portion, said car having pivoted members to engage below said flange to prevent downward vertical movement of the upper section when the lower section is raised or lowered.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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Witnesses:

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