

No. 708,300.

Patented Sept. 2, 1902.

J. S. BENDER.

COMBINED GRAIN DOOR AND LOADING AND UNLOADING PLATFORM FOR BOX CARS.

(Application filed Jan. 8, 1902.)

(No Model.)

Fig. 1

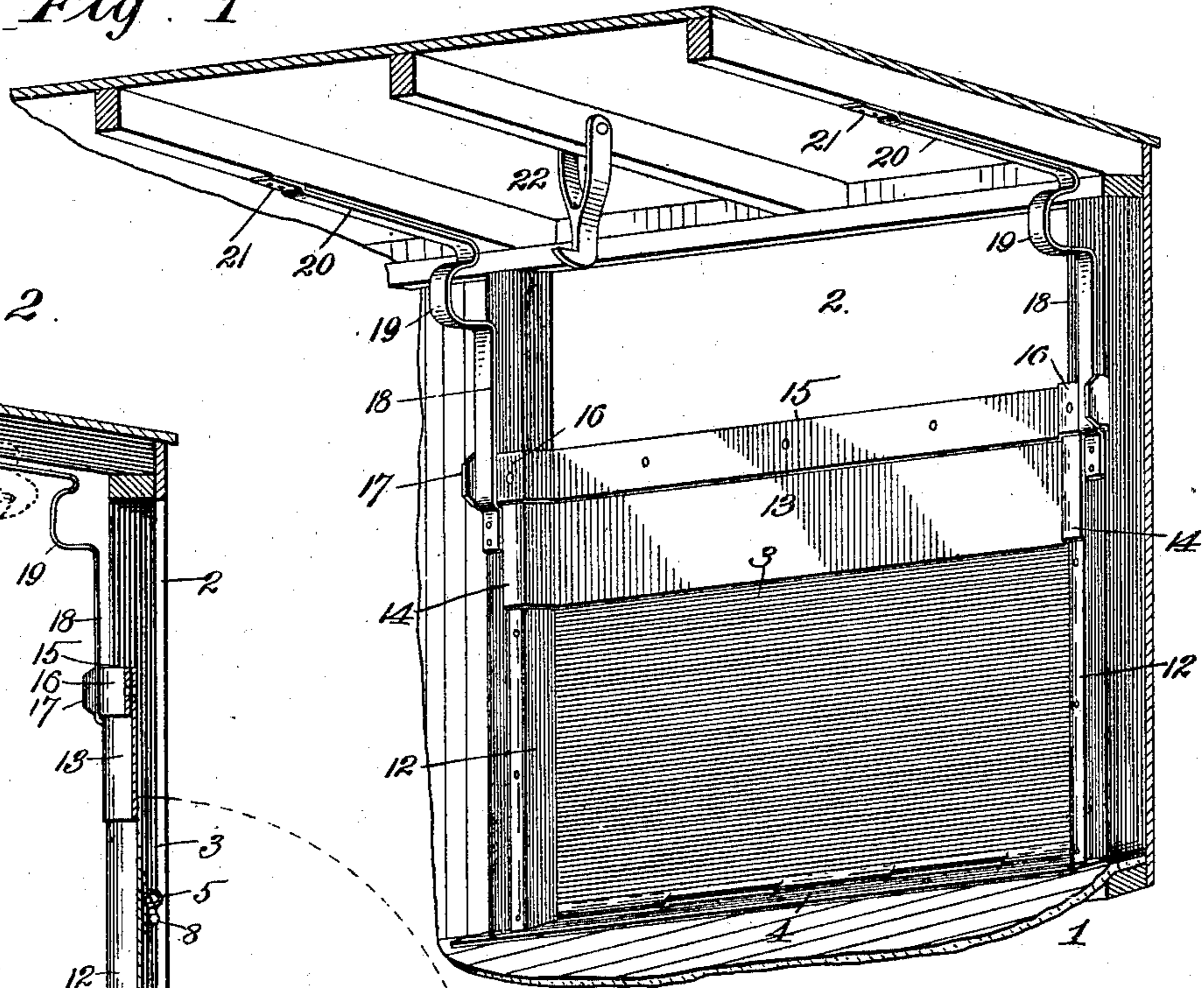


Fig. 2

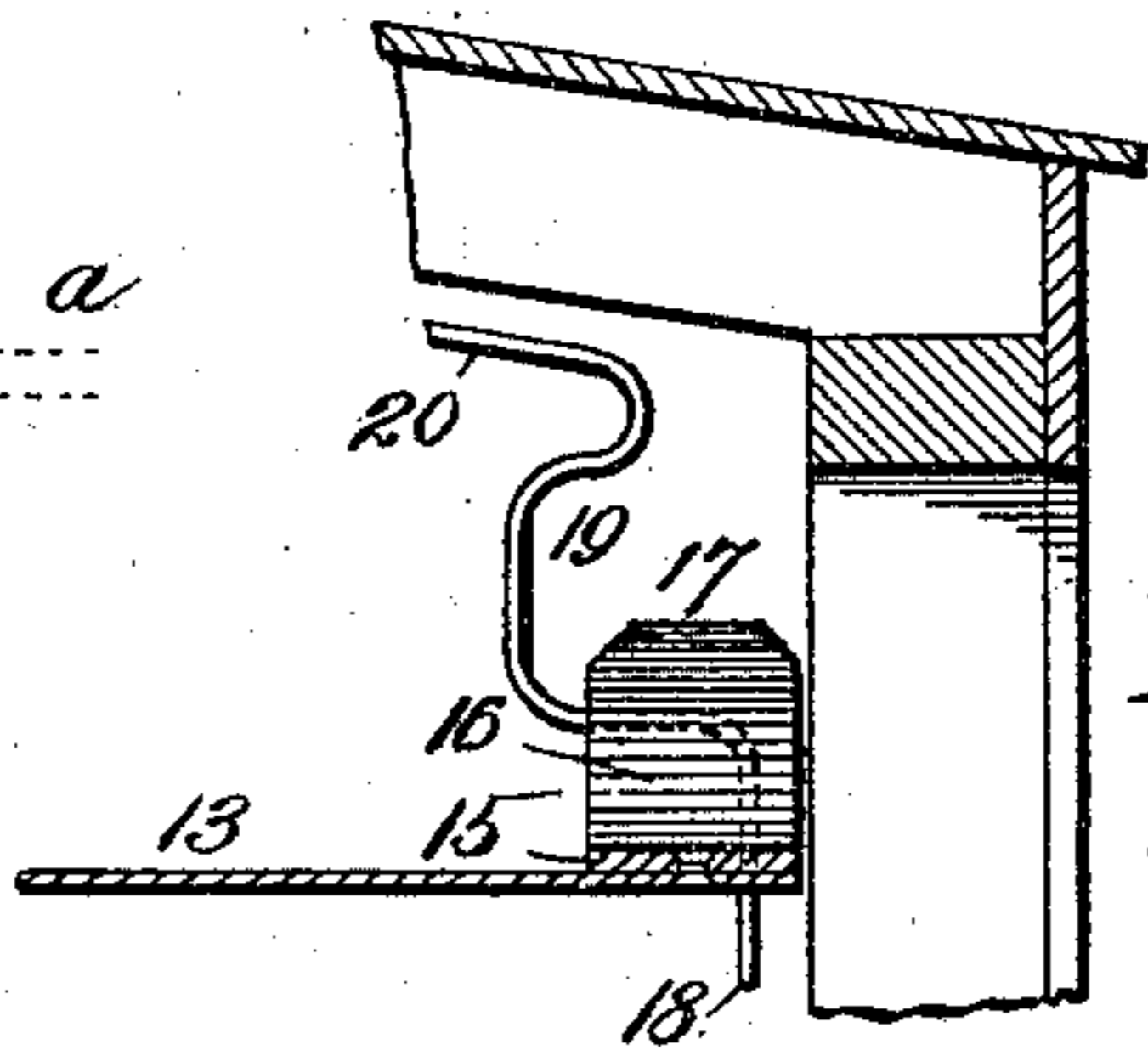
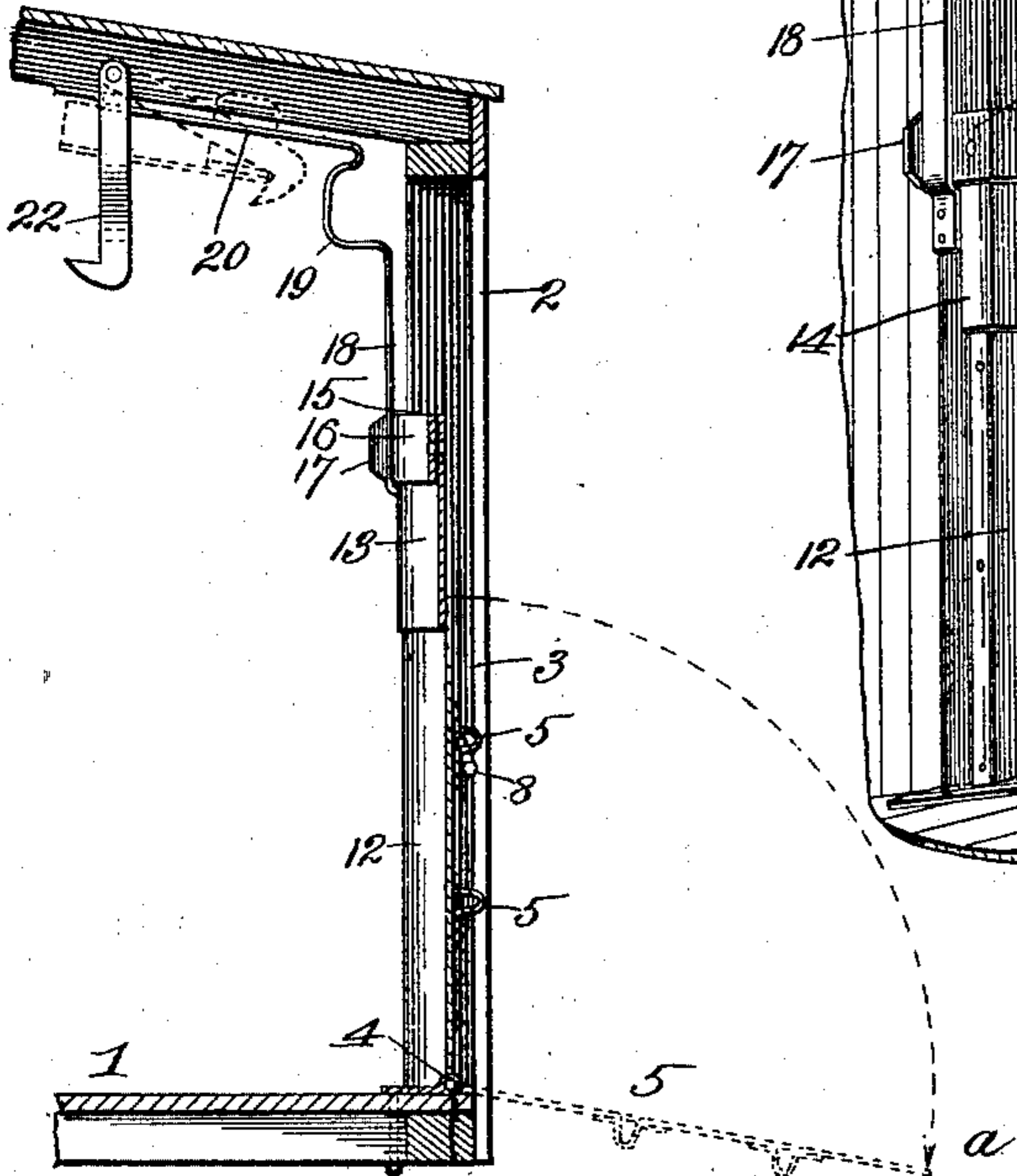


Fig. 4.

Fig. 3.

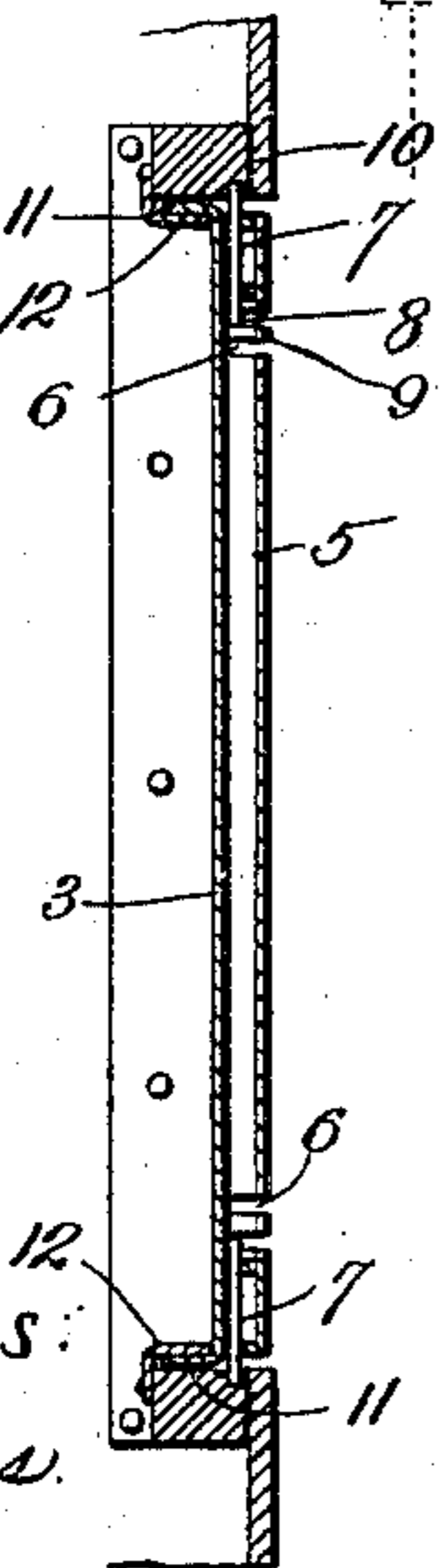
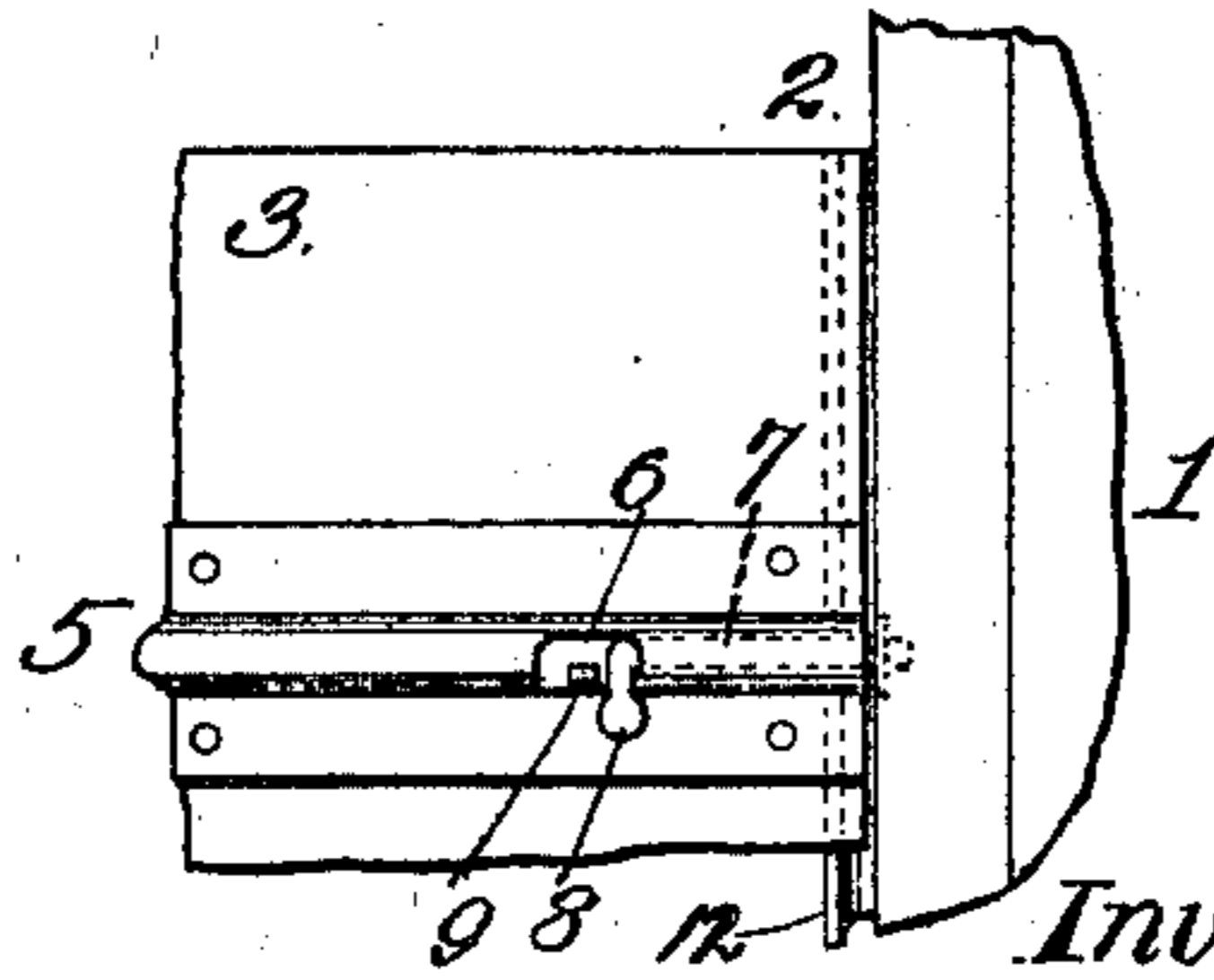


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

JACOB S. BENDER, OF KANSAS CITY, MISSOURI.

COMBINED GRAIN-DOOR AND LOADING AND UNLOADING PLATFORM FOR BOX-CARS.

SPECIFICATION forming part of Letters Patent No. 708,300, dated September 2, 1902.

Application filed January 3, 1902. Serial No. 88,298. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. BENDER, a citizen of the United States, residing at Kansas City, Jackson county, Missouri, have invented a new and useful Combined Grain-Door and Loading and Unloading Platform for Box-Cars, of which the following is a specification.

My invention relates to combined grain-doors and loading or unloading platforms for box-cars; and my object is to produce a structure of this character which prevents leakage of grain in transit, does not take up any of the space which should be occupied by the contents of the car, which facilitates the loading or unloading of the latter and the loading or unloading of the wagon or of goods onto or removal from the platform, and which is of two sections, the upper one of which when not in use may be caused to assume and maintain a position completely out of the way.

A further object is to produce a structure possessing the characteristics above enumerated, which can be manipulated easily and quickly and with the utmost convenience, and which may be built on the car during the construction of the latter or attached thereto at any time desired.

With these general objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a sectional perspective view of the inner side of a portion of a car and showing the same provided with a structure embodying my invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a horizontal section of the same, taken below the upper section of the door. Fig. 4 is an enlarged vertical section showing the temporary position which the upper section may occupy. Fig. 5 is an outer face view showing the lock or one of the locks for securing the door in its closed or operative position.

1 designates a box-car of the usual or any preferred type, and 2 the door-opening thereof.

3 designates the lower or platform section of the door, the same being of suitable height and hinged at its lower end to a strip 4, se-

cured to the floor or sill of the car, the hinge extending, preferably, the full width of the door in order to obviate any chance of grain-leakage at that point.

The door is provided at its outer side with one or more cross-ribs 5 to stiffen it, said rib, or one of the ribs, at least, being preferably of tubular construction and provided near its opposite ends with the inverted-U-shaped slot 6, and fitting in each end of the tubular rib is a slide-bolt 7, provided with a handle 8, adapted to depend through one arm or the other of the U-shaped slot, accordingly as the bolt is locked or unlocked. When in the outer arm of the slot, the portion 9 of the rib prevents the bolt from being withdrawn from the socket 10 in the adjacent side of the casing.

To break the joints between the lower or platform section 3 and the sides of the casing, so as to prevent leakage of grain thereat, the former is provided with inwardly-projecting flanges 11, arranged to fit snugly between the casing and the vertical angle-plates 12, secured to the casing. These plates not only serve to prevent leakage of grain at the sides, but also relieve the bolt largely of any inward pressure which might be applied on the door, and by reason of the flanges of the latter fitting snugly between the casing and said plates practically no lateral creepage of the door is permitted.

13 designates the upper or sliding section of the door, said section being adapted to overlap the upper edge and inner side of the hinged section 3 of the door and is formed with right-angle flanges 14 at its ends, which snugly embrace angle-plates 12 when in operative position. The upper edge of said section is reinforced by a plate 15 of practically the same cross-sectional form as the door-section 13—that is, is provided with angle-arms 16, embracing the angle-flanges 14 of the section, which angle-arms 16 are provided with the rearwardly-projecting terminals 17, arranged to fit snugly against the outer edges of guide-brackets 18, secured to the rear faces of the side standards of the casing, preferably, and forming a guide wherein the angle-arms 16 are adapted to play. Opposite the upper end of the door-opening said brackets are formed with the inwardly-projecting loops 19, from the upper ends of which the brackets

extend parallel with the adjacent roof-carlines, as at 20, and are secured to said carlines, as at 21, at a suitable point inward of the door-opening. When the upper section 13 occupies its operative position, as shown in Figs. 1 and 2, it is interposed snugly between the lower section and the vertical portions of brackets 18, so that the car may be loaded above the upper edge of the hinged door-section, if desired. If it be desired to move the upper section out of the way temporarily—as, for instance, where it is desired to load over the hinged door-section when closed—the attendant grasps the upper section and slides it upward until the angle-arms of plate 15 come opposite loops 19. He then forces said arms rearward in said loops and swings the section inward to a horizontal position, so that the flat sides of the angle-arms resting upon the lower and substantially flat portions of the ribs may sustain the section in a horizontal position, substantially as shown in Fig. 4, from which position it is obvious it may be easily and quickly lowered by reversing the manipulation described. When it is desired to move the upper section completely out of the way, it is grasped while in the horizontal position described and raised bodily to the upper portion of the loop, at which point the under portion of the section is preferably swung upward toward the roof, so that the angle-arms of the plate may pass into the space between the upper portions 20 of the brackets and the carlines to which they are attached. This being accomplished, the section is slid inward to substantially the position shown in dotted lines, Fig. 2, when it is engaged by a gravity-dog 22 and held reliably in such position against its tendency to creep downward and outward under the constant vibration of the car while in motion, it being understood, of course, that the dog is thrown upward to approximately the position shown in dotted lines, so as to dispose it in a position ready for automatic engagement with the section when finally located at the proper point. The reverse of the manipulation described is followed in lowering the door-section to operative position.

From the above description it will be noticed that the door forms practically a permanent part of the car, and therefore cannot be misplaced either through carelessness or accident, and it will also be understood that because it occupies the door-opening it permits the car to be loaded to its full capacity without increasing the depth of load beyond what it should be. It also, by reason of its adjustable construction, saves time and lightens labor at elevators that is now consumed in prying and splitting open the usual wooden doors preliminary to removal of the contents of the car and facilitates the loading of or unloading from platforms and wagons. When used for grain, coal, or bulk vegetables, the lower section can be lowered, as shown in

Fig. 2, and becomes a practical shoveling-platform, so as to eliminate all hand-picking necessary with the type of doors in general use.

Because the door structure is entirely of sheet metal it embodies the desirable features of simplicity, strength, durability, and cheapness of construction, and it is to be understood that while I have illustrated and described the preferred embodiment of the invention it is susceptible of changes in its form, proportion, detail, construction, and arrangement of the parts without departing from its spirit and scope.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, a door-section hinged at the lower end of the car-door opening, so as to perform the function of a door and of a loading or unloading platform or shoveling-board, brackets secured to the car, and consisting of lower upright portions, and upper portions extending substantially parallel with the carlines of the car, and an upper section provided with arms fitting and adapted to be adjusted between said brackets and the car-frame, substantially as described.

2. In a device of the character described, a door-section hinged at the lower end of the car-door opening, so as to perform the function of a door and of a loading or unloading platform or shoveling-board, brackets secured to the car, and consisting of lower upright portions, and upper portions extending substantially parallel with the carlines of the car, an upper section provided with arms fitting and adapted to be adjusted between said brackets and the car-frame, and a gravity-dog to engage said section when the latter is supported by the upper portions of the brackets, substantially as described.

3. In a device of the character described, a door-section hinged to the lower end of the car-door opening, so as to perform the function of a door and of a loading or unloading platform or shoveling-board, brackets secured to the car, and consisting of lower upright portions and upper portions extending substantially parallel with the carlines of the car, embodying inwardly-projecting loops at or near the junction-point of the upper and lower portions of the brackets, and an upper section, provided with angle-arms adapted to fit between the brackets and the car-frame, and adapted to be supported in said loops, substantially as described.

4. In a device of the character described, a door-section having its lower edge hinged at the bottom of the door-opening and adapted to swing outward, and provided with inwardly-projecting flanges at its sides, and angle-plates secured to the sides of the door-casing to provide space wherein said flanges fit when the door-section is closed, substantially as described.

5. In a device of the character described, a door-section having its lower edge hinged at the bottom of the door-opening and adapted to swing outward, and provided with inwardly-projecting flanges at its sides, angle-plates secured to the side of the door-casing to provide space wherein said flanges fit when the door-section is closed, and means for securing said section in its closed position, substantially as described.

6. In a device of the character described, a door-section having its lower edge hinged at the bottom of the door-opening and adapted to swing outward, and provided with inwardly-projecting flanges at its sides, angle-plates secured to the side of the door-casing

to provide space wherein said flanges fit when the door-section is closed, a tubular rib secured to the outer side of the door and provided with an inverted-U-shaped slot, a bolt fitting in the tubular rib to engage a cavity in the door-casing, and provided with an arm adapted to depend through one arm or the other of said U-shaped slot, and thereby hold the bolt in its locked or unlocked position, substantially as described.

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

JACOB S. BENDER.

Witnesses:

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G. Y. THORPE.