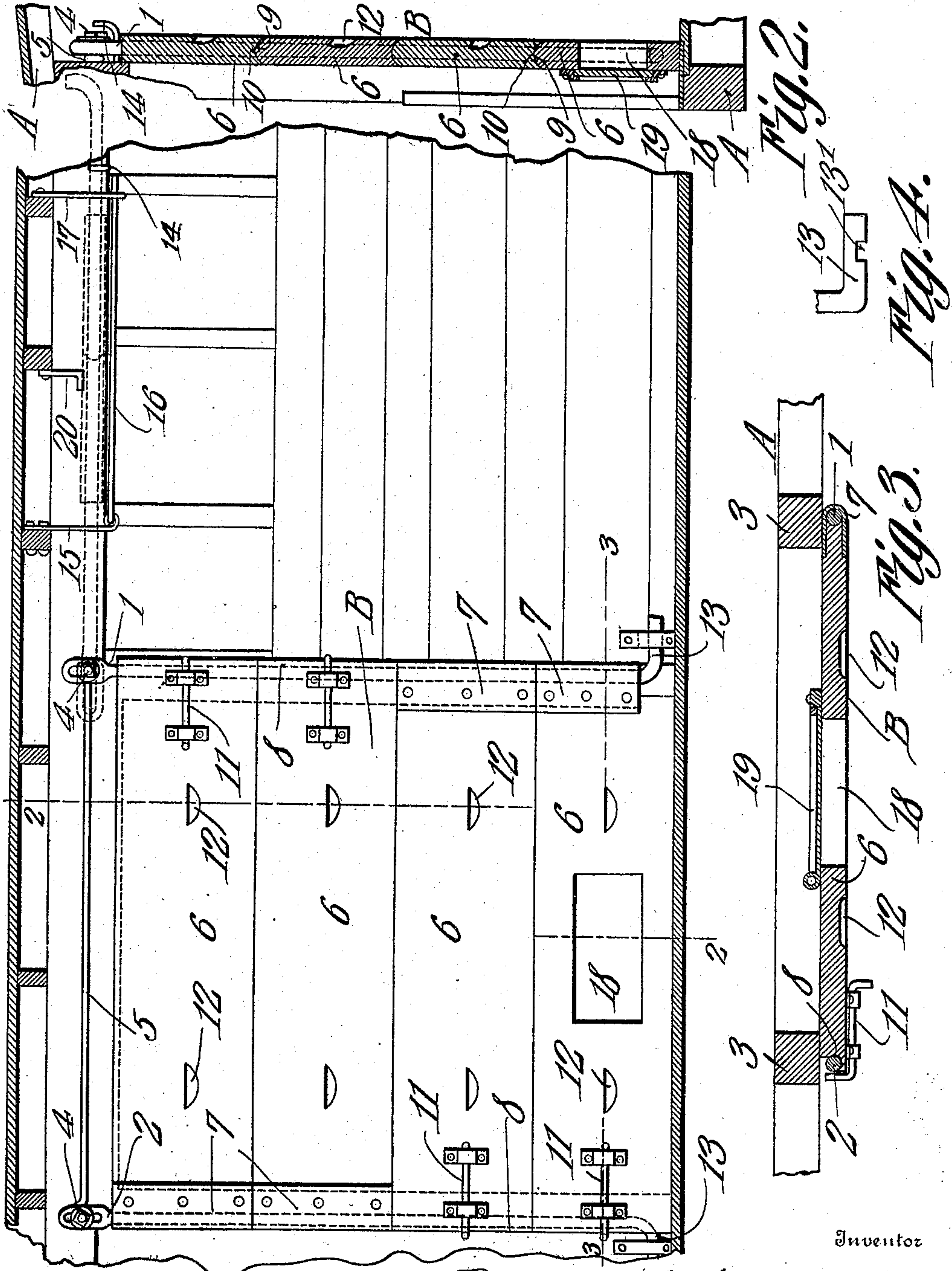


J. E. CHANTLER.
FOLDING GRAIN DOOR.
APPLICATION FILED JULY 21, 1908.

915,739.

Patented Mar. 23, 1909.



Witnesses
E. J. Stuart
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Fig. 1.

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UNITED STATES PATENT OFFICE.

JOSEPH E. CHANTLER, OF LAMAR, COLORADO, ASSIGNOR OF ONE-HALF TO COLEMAN B. BUTNER, OF LAMAR, COLORADO.

FOLDING GRAIN-DOOR.

No. 915,739.

Specification of Letters Patent.

Patented March 23, 1909.

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To all whom it may concern:

Be it known that I, JOSEPH E. CHANTLER, a citizen of the United States, residing at Lamar, in the county of Prowers and State of Colorado, have invented a new and useful Folding Grain-Door, of which the following is a specification.

This invention relates to grain doors; and has for its object to provide a door primarily for grain transporting cars but which may be used for other purposes where found convenient. To this end the door or closure is made of a series of superposed horizontal strips or boards, one half of which are hinged to a vertical rod, pivoted at its upper end, on one side of the door frame, and the other half of said boards being hinged to a similarly disposed rod on the other side of said door frame. The several strips or boards swing inwardly and when closed overlap the opposite vertical rod to prevent the door being forced outwardly or permitting the escape of grain from the car. When loading the lower board is first closed and the others in succession until the car is filled, but when unloading they are opened in reverse order. After a car has been finally emptied the vertical rods are swung laterally or in the direction of the ends of the car and there sustained each by a hook near the top of the car. The boards or strips are also swung upwardly toward the center of the car and held close against the roof by a pivoted bar upheld by a hook. The pivots of the vertical swinging bars are connected by a cross brace to hold them permanently in position.

With the above and other objects in view the invention consists of the novel construction, combination and arrangement of parts hereinafter described more in detail and illustrated in the accompanying drawing forming a part of this specification in which:—

Figure 1 is a view of the improved door as seen from the inside of a car, a portion of which is shown. Fig. 2 is a vertical section on the line 2—2 of Fig. 1, and Fig. 3 a horizontal section on the line 3—3 of the same figure. Fig. 4 is a detail view of one of the latches utilized for holding the door in closed position.

Like reference characters are used for the same parts in all the figures.

In the drawing, A indicates a car, the en-

trance to which is closed by a door B the subject of this invention.

Pivoted on each side of the car near the roof are two rods 1 and 2 which normally hang downward therefrom within the car and behind the door frame 3 as shown. The upper ends of said rods are slotted to move a short distance endwise on pivots 4 connected by a brace bar 5. The rods 1 are held in place on their pivots by nuts and washers as shown or by other convenient means. The lower ends of the rods 1 and 2 are bent sharply near the bottom of the car in a direction away from the ends of the lowest section 6 to prevent said sections from falling off or being unlawfully removed from the rods.

The door B in the present instance is composed of four boards or sections 6 two of which are hinged to the rod 1 and two to the rod 2 so that when swung open the hinged sections on rod 1 will be moved to the right and those on rod 2 to the left. The hinges here shown are made of metal plates doubled upon themselves to embrace the rods 1 and 2 and be riveted or bolted each to a section 6, their lengths being equal to the width of said sections. Other types of hinges may be used if desired, but the one shown and described is both strong and simple. The ends of the sections 6 on which the hinges are fastened are curved to fit the rods 1 and 2 and at their opposite ends the outer part 8 is cut away to overlap the rods against which they abut when closed. The top of each section 6 is curved or has a tongue 9 thereon to fit into a groove 10 in the under edge of the section immediately above, a construction which ties the several sections together as a solid door when the car is filled with grain and prevents the latter escaping in transit. The construction of the hinge joints and the overlapping of the vertical rods 1 and 2 by the outer ends 8 of the sections 6 also close any openings through which grain could pass.

Each door section 6 is provided with a fastening 11 for holding said section in closed position; hand holds 12 are also cut in the inner side of each section by means of which it may be raised sufficiently high to disengage the groove 10 in its lower edge from the tongue 9 on the upper edge of the section below, so that the raised section may be swung against the inside of the car, giving free ac-

cess thereto. After the car has been emptied and it is desired to dispense with the grain door, the rods 1 and 2 are swung toward the ends of the car, away from the door opening, until their lower ends 13 are near the roof of the car in which position they are held by a hook 14 projecting from the side of the car.

Depending from the roof beams of the car A on each side of the door opening and near the center of the car is a hinge member 15 to which a supporting rod 16 is hinged and held out of the way by a hook 17. After the rods 1 and 2 have been raised and placed on the hooks 14 the door sections on each rod are swung upward with their respective rods as pivots and are supported in horizontal position by the rod 16 the latter being first disengaged from the hook 17 in order to permit this operation.

The lower door section 6 is provided at its center with a small opening 18 closed preferably by a slide 19 having a finger piece for moving it. This small opening will be used at mills, elevators etc., for starting the grain from the bottom of the car when it is full, and thus takes the strain off the high door of the car. When the car is not filled so high as to cover or partly cover the uppermost door section, the opening 18 and the slide 19 can be dispensed with.

As shown in Fig. 1, the rods 1 and 2 may be provided with an extension at 13, provided with a notch 13'. This extension is designed to fit within and to engage a keeper, but can be released from the keeper by raising the extension or sliding the rods 1 and 2 longitudinally. This keeper and extension are particularly useful, in that they will prevent the door from becoming displaced if the same be left loose. A hanger 20, can be connected to one of the roof beams of the car for the purpose of holding the door-panels against upward movement when the door is open.

What is claimed is:—

1. A grain door formed of a series of independent horizontal sections, and a rod pivoted at its upper end near the roof of a car on each side of the door opening, a part of said door sections having hinged connection with one of said rods and the remaining sections hinged on the other rod.

2. A grain door formed of a series of independent horizontal sections, and a rod on each side of the door opening pivoted at its upper end near the roof of a car and adapted to swing toward the ends of the car, a part of said door sections having hinged connection on one of said rods and the remaining sections with the other rod said sections adapted to swing in either direction.

3. A grain door formed of a series of independent horizontal sections a rod on each side of the door opening pivoted at its upper end near the roof of a car, and adapted to

swing toward the ends of the car, a part of said door sections having hinged connection on one of said rods, and the remaining sections with the other rod, and means on the lower ends of said rods to prevent the removal of said door sections.

4. A grain door formed of a series of independent horizontal sections, a rod on each side of the door opening pivoted at its upper end near the roof of the car and adapted to swing toward the ends thereof to a horizontal position, means for holding said rods elevated, a part of said door sections hinged to one of said rods and movable with it, and the remaining sections similarly attached to the other rod.

5. A grain door formed of a series of independent horizontal sections, and a rod on each side of the door opening pivoted at its upper end to the side of a car near the roof thereof adapted to swing toward the ends of said car, a part of said door sections having hinged connection with one of said rods and the remaining sections with the other rod, said sections adapted to swing independently of one another and when closed each of said sections overlaps the rod on the opposite side.

6. A grain door formed of a series of independent horizontal sections, a rod on each side of the door opening having a slotted end pivoted to the side of a car near its roof a connecting brace extending between said pivots, said rods adapted to swing toward the ends of the car to a horizontal position and means for holding them elevated, a part of said sections hinged to one of said rods and the remaining sections on the other rod.

7. A grain door formed of a series of independent horizontal sections, a vertical rod pivoted on each side of the door opening near the roof of said car, a portion of said sections hinged to one of said rods and the remaining portion on the other rod, said rods adapted to swing to a horizontal position near the roof of the car, and a pivoted supporting rod for holding each portion of said sections near the roof of the car.

8. A grain door formed of a number of independent horizontal sections, a pivoted rod on each side of the door opening a part of said door sections hinged to one of said rods and the remaining sections similarly secured on the other rod, a hook on each side of said car door opening to hold said rods in horizontal position and a hinged supporting rod opposite each hook to retain said sections elevated against the roof of the car.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH E. CHANTLER.

Witnesses:

S. D. CHURCH,
CHAS. E. GAMBLE.