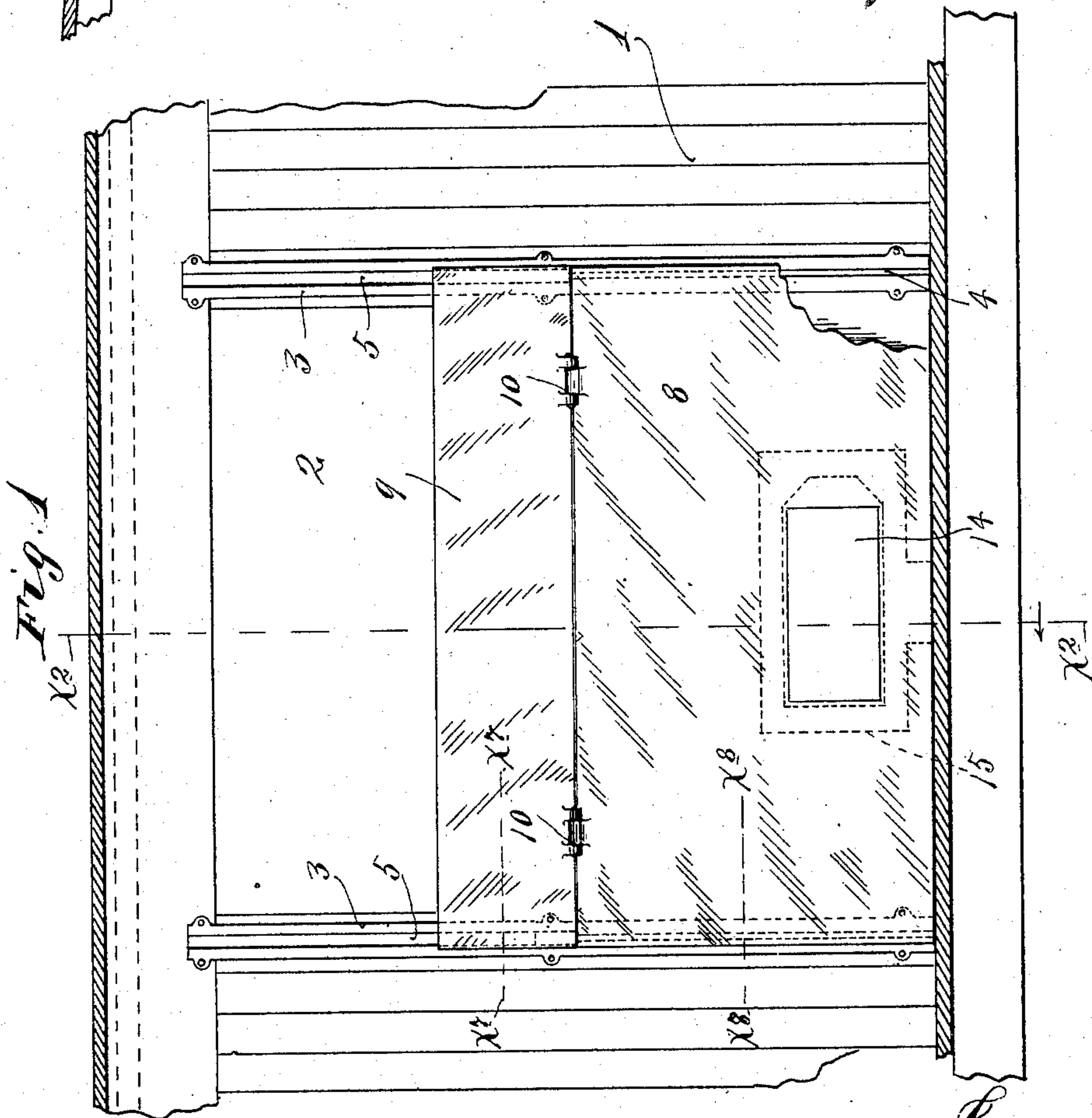
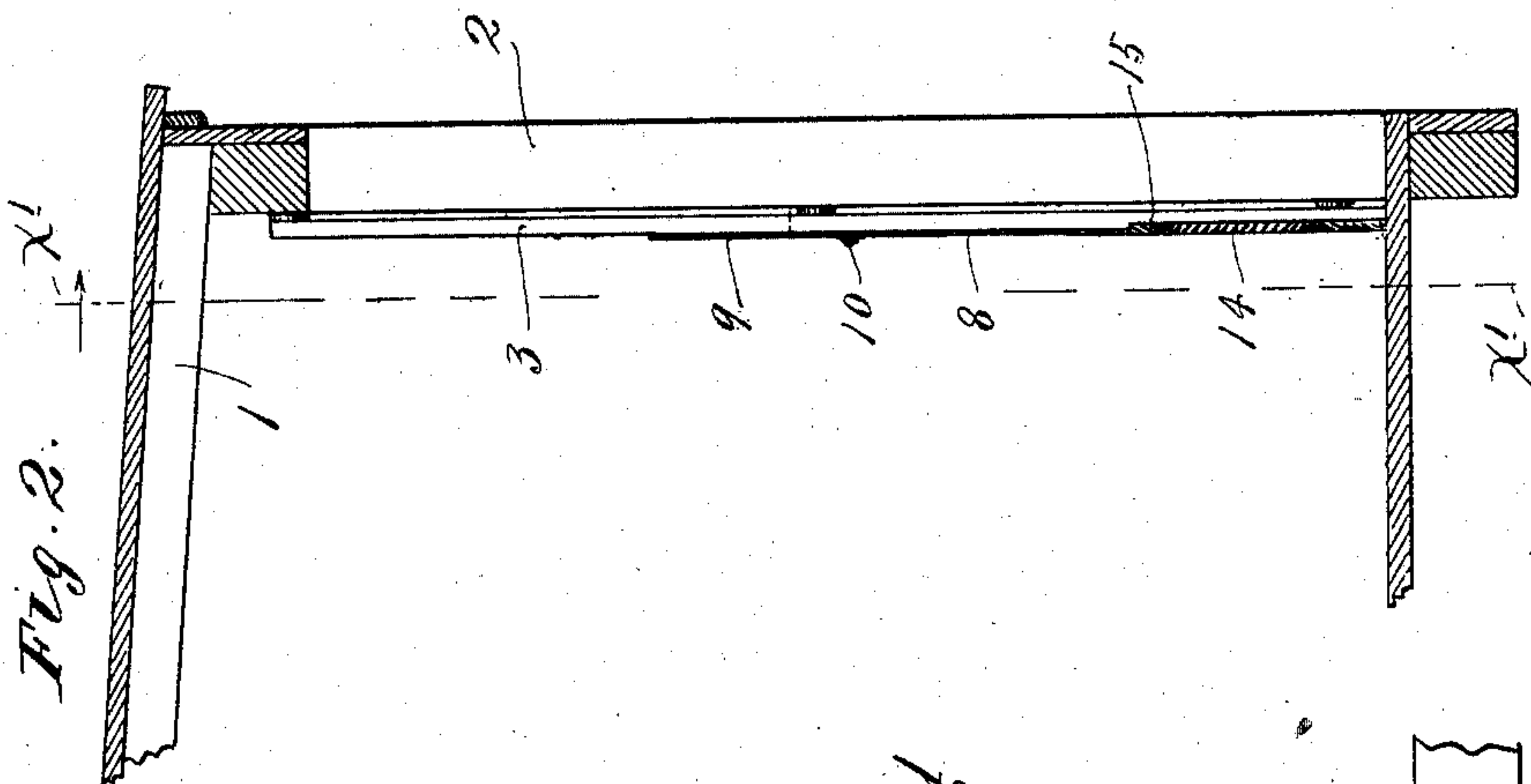


No. 864,230.

PATENTED AUG. 27, 1907.

W. W. DECKER.
GRAIN DOOR FOR CARS.
APPLICATION FILED AUG. 13, 1906.

2 SHEETS—SHEET 1.



Witnesses.
A. H. Opsahl.
H. D. Klyn

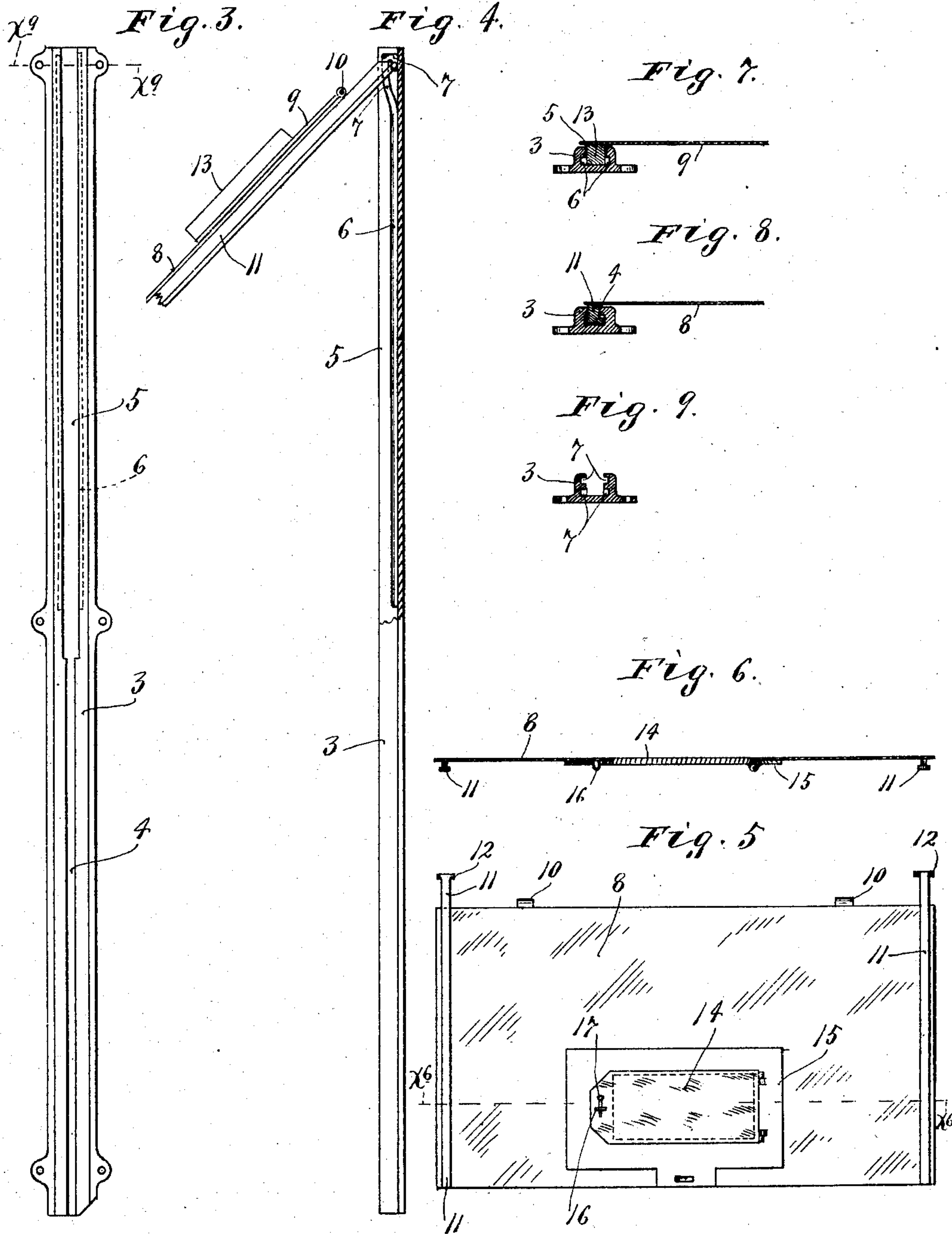
Inventor.
Walter W. Decker.
By his Attorneys.
Williamson, Mendenhall

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2 SHEETS—SHEET 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

WALTER W. DECKER, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO LOUIS P. SNOW, OF MINNEAPOLIS, MINNESOTA.

GRAIN-DOOR FOR CARS.

No. 864,230.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed August 13, 1906. Serial No. 330,281.

To all whom it may concern:

Be it known that I, WALTER W. DECKER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Grain-Doors for Cars; and I 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.

My invention has for its object to provide an improved grain door for cars, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a vertical section taken longitudinally through the central portion of the body of an ordinary box car on the line $x^1 x^1$ of Fig. 2, and showing my improved grain door applied thereto, some parts being broken away. Fig. 2 is a transverse vertical section taken on the line $x^2 x^2$ of Fig. 1, some parts being broken away. Fig. 3 is a view in elevation, showing one of the door guiding columns removed from the car. Fig. 4 is an edge elevation of one of the door guiding columns, some parts thereof being sectioned, and showing also the grain door in a partly folded position. Fig. 5 shows the main section of the grain door in elevation looking at the outer face thereof. Fig. 6 is a horizontal section taken on the line $x^6 x^6$ of Fig. 5. Fig. 7 is a horizontal section taken on the line $x^7 x^7$ of Fig. 1. Fig. 8 is a horizontal section taken on the line $x^8 x^8$ of Fig. 1; and Fig. 9 is a horizontal section taken on the line $x^9 x^9$ of Fig. 3.

The numeral 1 indicates the body of an ordinary box car, the same having the usual door opening 2.

To the inner face of the vertical posts of the frame of the door-way 2, are bolted or otherwise rigidly secured channeled vertical guide columns 3. Approximately the lower halves of these guide columns 3 are formed with internal channels 4 that are T-shaped in cross section, and the upper sections of said columns are formed with channels 5, the outer portions of which are approximately the same width as the expanded inner portions of the channels 4. In the opposite sides of the channels 5 are vertical grooves 6 which, at their upper extremities, are curved outward and then inward and downward to form lock pockets 7 for a purpose which will presently appear.

The grain door is made up of two sections, to-wit, the main section 8 and the supplemental section 9, which sections are connected by hinges 10. The main section 8 is provided, near its ends, with vertical cleats 11 that are T-shaped in cross section and are adapted to slide in

but interlock with the T-shaped channels 4 in the lower portions of the uprights 3. The cleats 11 extend above the door section 8 and are provided with laterally extended trunnions 12 that work slidably and pivotally within the grooves 6—7. The supplemental door section 9 is provided with lugs or short heavy cleats 13 that fit loosely within the channels 5. When the grain door is in working position, as shown in Figs. 1 and 2, the angular cleats 11 are within the angular channels 4, and the said grain door section is then interlocked to the guide columns 3 in such manner that they can not be moved laterally or endwise from working position, and can, in fact, be only moved vertically. The lugs 13 of the supplemental door section 9 are also then pressed into the channels 5. The cleats 11 and lugs 13 are thus interlocked to the guide columns and thus prevent the grain door from being sprung laterally outward at its central portion under the pressure of the grain from within the car. By virtue of this construction, it is possible to make the grain door of comparatively light metal or other material.

When the supplemental door section 9 is turned downward against the main door section 8, and the said door sections are moved upward, the trunnions 12 of the cleats 11 may be engaged with the pockets or downturned upper extremities of the grooves 6, as shown in Fig. 4. The grain door is then supported at its upper edge so that it may be moved pivotally into a horizontal position and secured at the top of the car by any suitable means (not shown). It will, of course, be understood that when the trunnions 12 are thus engaged with the pockets 7, the lower end of the angular cleats 11 may be carried above the upper extremities of the angular channels 4, and that the upper channels 5 are of such width that the said cleats 11 may be moved laterally out of the same.

The main grain door section 8 is preferably provided, near its bottom, with a grain discharge opening that is normally closed by an outwardly movable hinged gate 14. This gate 14 is, as shown, directly hinged at one end to a frame 15 which, in turn, is rigidly secured to the said door section 8 and is provided with a staple 16 that works through a perforation in the free end of the said gate. A pin or bolt 17 passed through the eye in the outer end of the staple 16 normally holds the gate 14 in its closed position against the outward pressure of the grain thereon. When the car is loaded and the pin 17 is removed from the staple 16, the gate 14 will swing open and permit the discharge of sufficient grain from the car to relieve the grain door from internal pressure, thereby making it possible to easily raise the grain door.

What I claim is:

1. The combination with a car body, of channeled columns 3 secured to the sides of its door frame, said columns

having the lower and upper channels 4 and 5, the former of which are T-shaped in cross section, and having in the sides of their channels 5 vertical grooves 6 that terminate at their upper ends in pockets 7, and a grain door 8 having the T-shaped cleats 11 that interlock with said T-shaped channels 4 and are provided with trunnions 12 that slide in said grooves 6 and work pivotally in the pockets 7 thereof, substantially as described.

2. The combination with a car body having a door opening, of channeled guide columns 3 secured to the sides of its door frame, said columns having the lower and upper channels 4 and 5, which former are angular in cross section, and having in the sides of their channels 5 vertical grooves 6 that terminate at their upper extremities in

pockets 7, and a grain door made up of hinged sections 8 and 9, which section 8 has angular cleats 11 that interlock with said angular channels 4 and are provided with trunnions 12 that slide in said grooves 6 and work pivotally in the pocket 7 thereof, and which door section 9 is provided with lugs 13 that fit within said upper channels 5, substantially as described.

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

WALTER W. DECKER.

Witnesses:

MALIE HOEL,

F. D. MERCHANT.