

No. 740,407.

PATENTED OCT. 6, 1903.

J. E. DRAKE.
GRAIN DOOR.

APPLICATION FILED AUG. 16, 1902

2 SHEETS—SHEET 1.

NO MODEL.

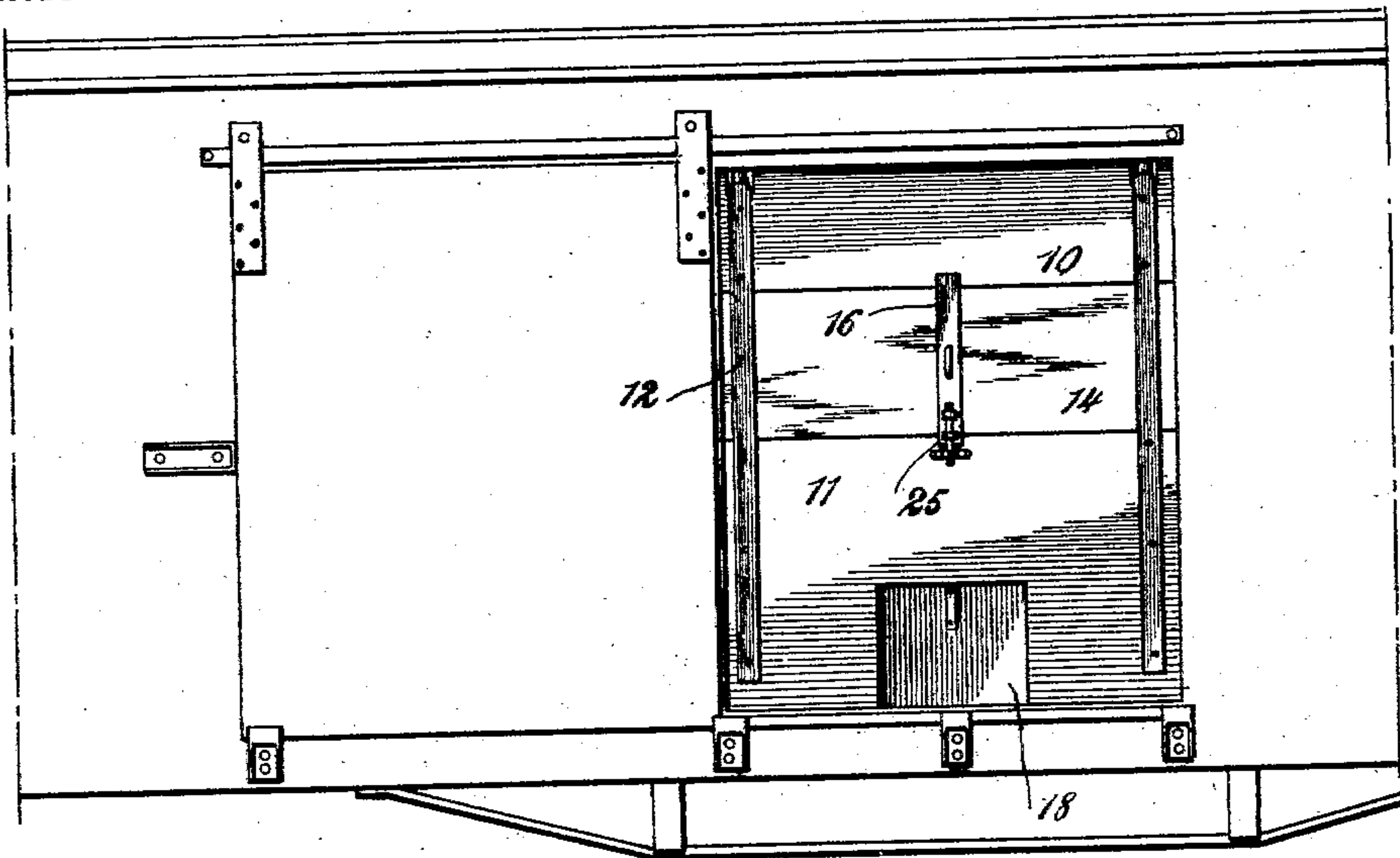


Fig 1

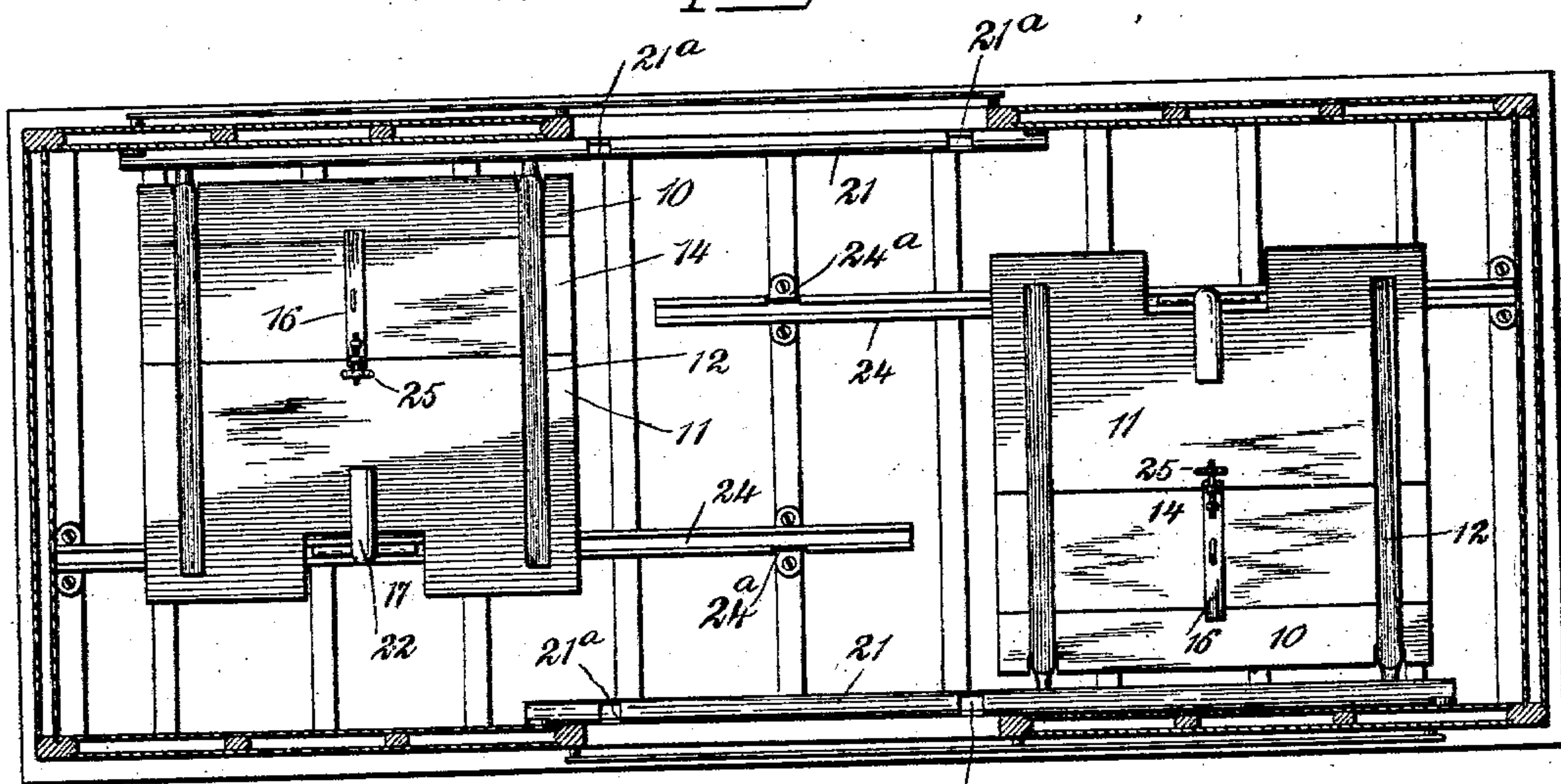


Fig 2

WITNESSES:

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INVENTOR

Joseph E. Drake

BY *Munn & Co.*

ATTORNEYS.

No. 740,407.

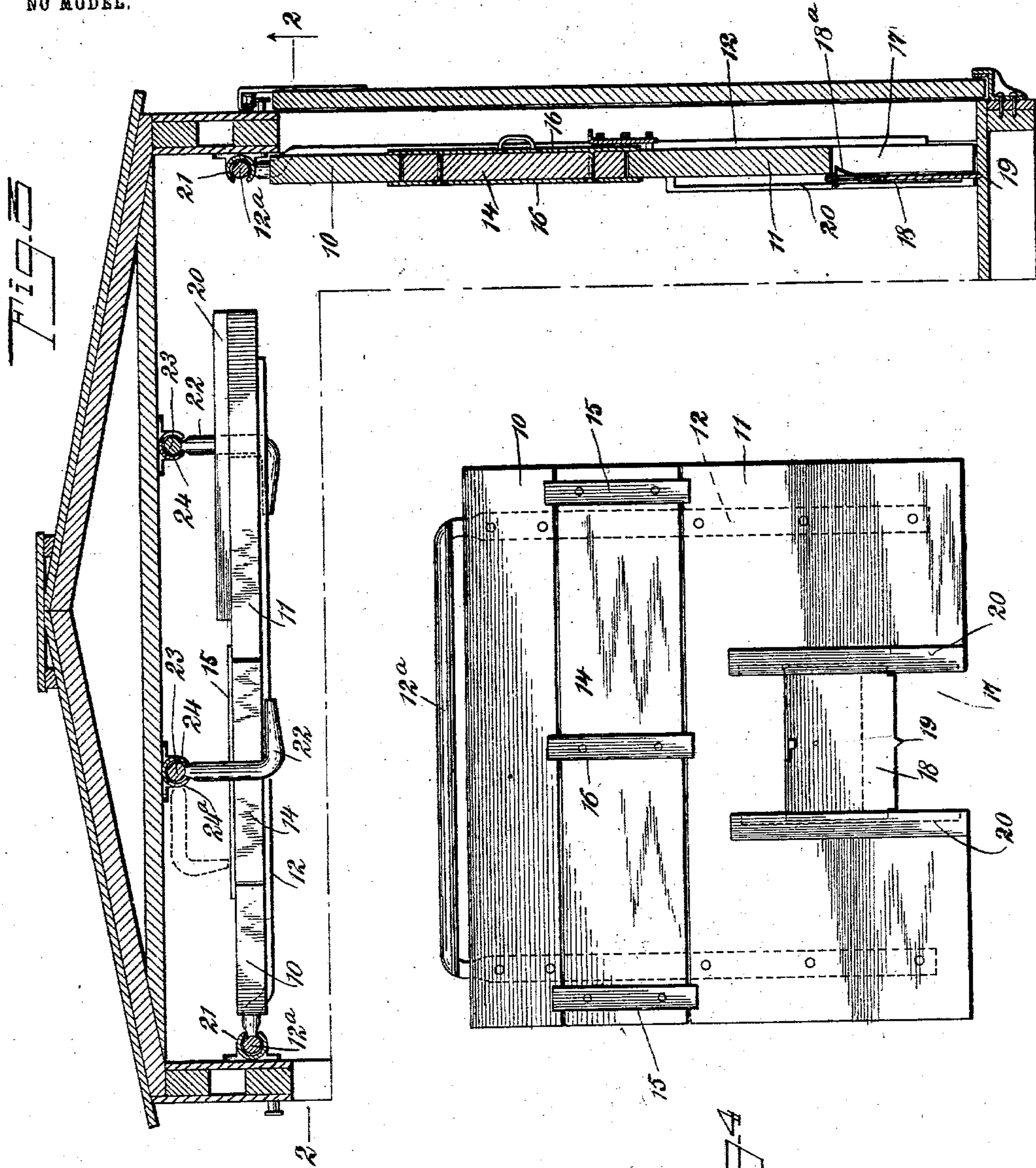
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WITNESSES:

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Fig. 5

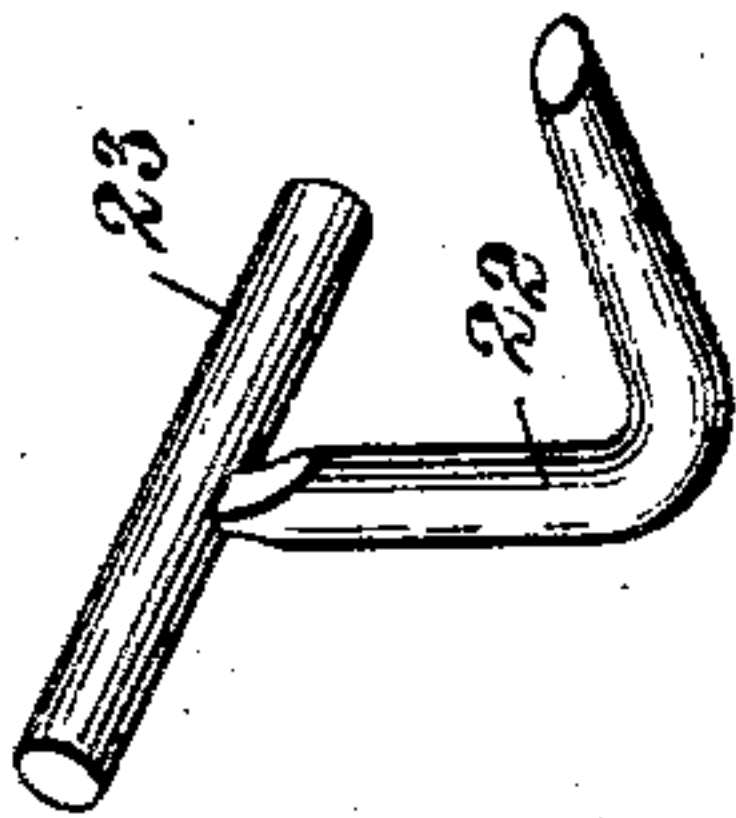


Fig. 4

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UNITED STATES PATENT OFFICE.

JOSEPH E. DRAKE, OF BLUE RAPIDS, KANSAS.

GRAIN-DOOR.

SPECIFICATION forming part of Letters Patent No. 740,407, dated October 6, 1903.

Application filed August 16, 1902. Serial No. 119,932. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. DRAKE, a citizen of the United States, and a resident of Blue Rapids, in the county of Marshall and State of Kansas, have invented a new and Improved Grain-Door, of which the following is a full, clear, and exact description.

The purpose of this invention is to construct a substantial grain-door for freight-cars, which door will involve few parts and none readily detachable; thus making it practically impossible for the parts to be stolen, as frequently happens at obscure railway-stations.

A further object is to construct the door so that when moved into inactive position it will not interfere in any way with the use of the car for ordinary purposes.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an exterior elevation showing the grain-door closed. Fig. 2 is a section on the line 2 2 of Fig. 3 looking upward into the roof of the car and showing the grain-doors folded. Fig. 3 is a fragmentary cross-section showing in section one grain-door closed and in elevation the other grain-door thrown upward. Fig. 4 is an enlarged elevation of the grain-door, and Fig. 5 is a detail of one of the latches for holding the grain-doors raised.

Two grain-doors and their appurtenant parts are provided for each car; but in this specification I will describe them in the singular. The grain-door, as best shown in Fig. 4, is made up of two rigid main sections 10 and 11, held securely by a U-shaped frame-bar 12. Intermediate the sections 10 and 11 a transversely-slidable loading-door section 14 is located. This section 14 has at each end and on its outer side battens 15, and at its middle two battens 16 are located, (see Fig. 3,) these battens being one at each side of the door-section 14 and serving to limit the sliding movement of said section, so as to prevent its complete detachment from the door, but enabling it to be moved toward either side, so as to leave an opening at one or the

other side of the door. The bottom portion of the largest door-section 11 is formed with an opening 17 therein, and this opening is adapted to be covered by a sliding door 18, having a point 19 on its lower edge, this point being adapted to engage the floor of the car and hold the grain-door against swinging inward, as will be more fully apparent hereinafter. The door is preferably constructed of stout sheet metal and is held to move vertically over and from the opening 18 by means of guides 20, as shown. The U-shaped frame-bar 12 is best constructed of metal and has its connecting or horizontal portion 12^a arranged above the upper edge of the grain-door and parallel therewith. 18^a represents a spring-catch for holding closed the door-section 18.

The grain-door is mounted by means of the portion 12^a of the frame-bar 12 in a split-tube guide 21, located inside of the car and extending horizontally along the vertical wall thereof just over the door-opening. This guide 21, as illustrated best in Fig. 2, extends for a distance equal to the width of the door-opening and thence continuously on past the door for an equal distance. Said guide is formed directly over the door with notches 21^a, these notches extending from the split inner side of the guide downward across the bottom thereof, so as to allow the grain-door to be dropped into vertical position. The split or open side of the guide 21 is located at the inner side of the guide as contradistinguished from the bottom thereof, and consequently the grain-door can only be dropped into the vertical position when the side portions of the U-shaped frame 12 lie directly opposite the notches or openings 21^a. The door is held raised directly under the roof of the car by means of an angular latch 22, which is carried on a rock-bar 23, and this bar is fitted to slide in a split-tube guide 24, similar to the guide 21 except that it is fastened to the roof inside of the car, and its split or open side is on the bottom of the guide, as contradistinguished from at the side thereof. The guide 24 extends approximately the same distance that the guide 21 extends, and at a point directly opposite the door the guide 24 is formed with a notch 24^a

in its side, so as to allow the latch 22 to be rocked laterally. At all other points the sides of the guides 24 hold the latch against rocking movement; but when the point of the notch 24^a is reached the latch may be swung back into said notch, thus clearing the grain-door and releasing it.

In the use of the invention when the door is to be folded it is raised so that the ends of the side portions of the frame 12 may move through the notches 21^a, and then the sliding plate 18 of the door is moved back and the latch 22 is thrown laterally, so that upon returning it may be moved into the opening 17 of the section 11 of the door, thus holding the door raised into horizontal position. When this has been done, the entire structure, including the grain-door and the latch 22, should be slid horizontally in the guides 21 and 24, so as to move the grain-door toward one end of the car. To move the door into active position, it should be slid back to a point opposite the door-opening, the latch 22 swung laterally to disengage the door, and the door dropped, the said parts of the frame 12 moving through the notches 21^a. The door may then be swung snugly against the frame of the door-opening, and by pushing down the plate 18 the spur 19 may be engaged with the floor of the car, thus holding the door in position, as Fig. 3 illustrates. This having been done, the car may be filled with grain by moving the section 14 from one side to another. To empty the car, the plate 18 should be moved up by the use of a pinch-bar or the like, thus uncovering the opening 17.

It will be observed that when the two grain-doors of the car are provided they will interfere with each other in folding unless provision is made for sliding them toward opposite ends of the car, and in Fig. 2 it will be observed that the two pairs of guides 21 and 24 extend oppositely toward the ends of the car. When, therefore, the doors are to be folded, one is moved up first and slid toward its proper end of the car, and then the other is moved up and slid toward the opposite end. This operation is reversed when the doors are to be moved down into position for use.

If desired, a suitable fastening 25 (see Fig. 1) may be provided to hold the door-section immovable relatively to the other parts of the door, and this fastening may have a lock applied thereto, if desired.

Various changes in the form and details of my invention may be resorted to at will without departing from the spirit of my invention. Hence I consider myself entitled to all forms of the invention as may lie within the intent of my claims.

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

1. The combination with a railway-car, of

a grain-door, and a guide in the form of a split tube having a notch extending laterally from the split side thereof, the grain-door including a part running in the split tube and capable of moving laterally through the notch, for the purpose specified.

2. The combination of a split tube forming a guide and having a lateral notch extending from the split portion thereof, and a member running in the split tube and having a transversely-extending portion capable of moving through the notch, for the purpose specified.

3. The combination with a railway-car, of two split tubes forming guides, said tubes each having a laterally-disposed notch extending from the split portion thereof, a grain-door having a part running in one split tube and capable of moving through the notch therein, and a latch for the grain-door, said latch having a part running in the other split tube and being capable of moving through the notch thereof.

4. The combination with a railway-car, of two split tubes forming guides, said tubes each having a laterally-disposed notch extending from the split portion thereof, a grain-door having a part running in one split tube and capable of moving through the notch therein, and a latch for the grain-door, said latch having a part running in the other split tube and being capable of moving through the notch thereof, said split tube being located directly under the roof of the car so as to hold the door folded in horizontal position adjacent to the roof.

5. The combination of a split tube forming a guide and having two laterally-disposed notches therein, a grain-door, and a U-shaped frame-bar, the middle portion of which runs in the split tube and the side portions of which are capable of moving through the notches in the tube, for the purpose specified.

6. The combination with a grain-door, of a split tube forming a guide and having a lateral notch therein, and a latch comprising a latch proper and a bar slidably fitted in the split tube and having the latch joined thereto, said latch extending transversely of the bar to permit the latch to move through the notch in the guide-tube.

7. A grain-door, comprising a relatively rigid main portion, and an intermediately-situated section mounted to slide transversely in the grain-door, for the purpose specified.

8. A grain-door, comprising a relatively rigid main portion, an intermediately-situated section mounted to slide transversely in the grain-door, for the purpose specified, and a means fastened to said sliding door-section intermediate the ends thereof, to limit the sliding movement.

9. The combination with a railway-car, of a guide near the roof thereof, said guide extending longitudinally of the car from adjacent to the door-opening toward the end of the car,

a grain-door mounted to slide and to swing on the guide, and a latch located in the upper part of the car and arranged to engage the grain-door, for the purpose specified, said
5 latch comprising a rockably-mounted bar and a latch proper fastened thereto.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

JOSEPH E. DRAKE.

Witnesses:

W. J. BURR,
F. E. WAYNANT.