D. W. THOMAS.

GRAIN CAR DOOR.

APPLICATION FILED NOV. 25, 1907.

914,994.

Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 3

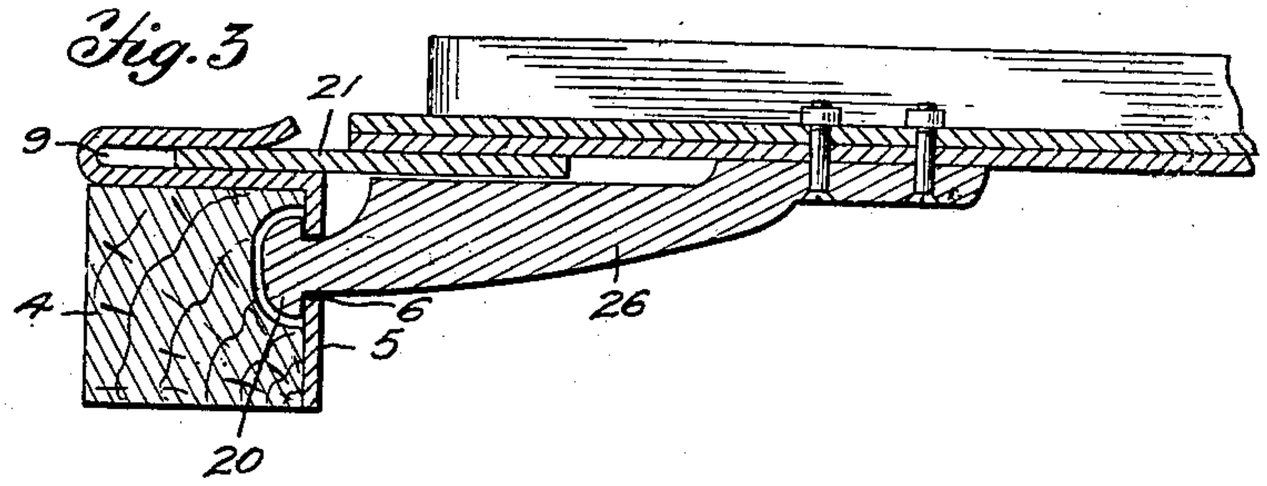


Fig. 2

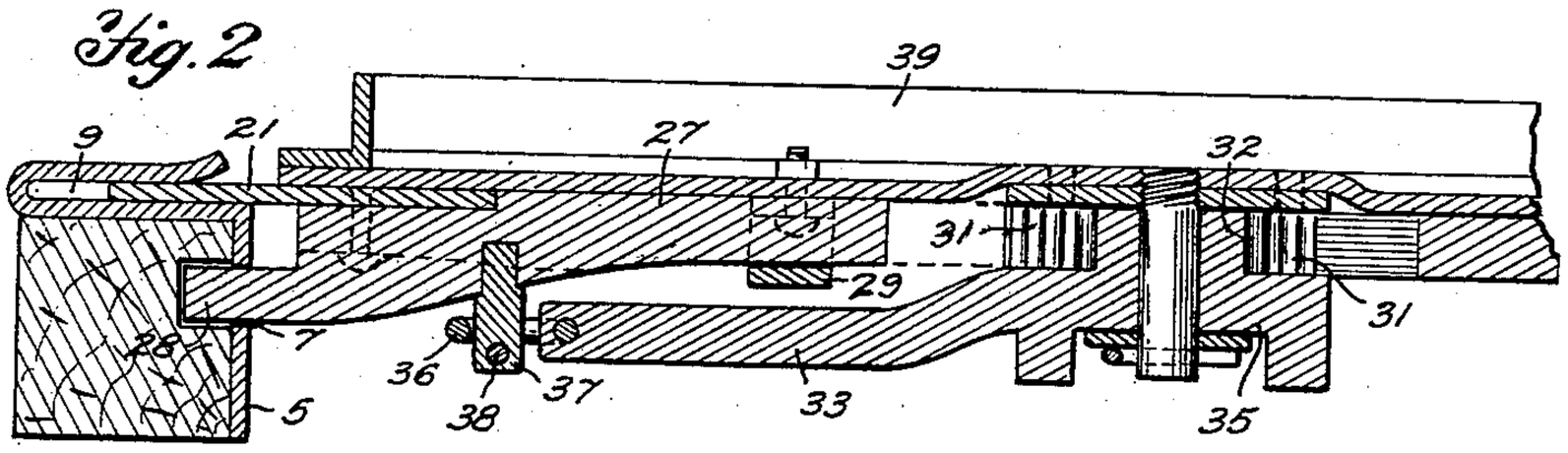
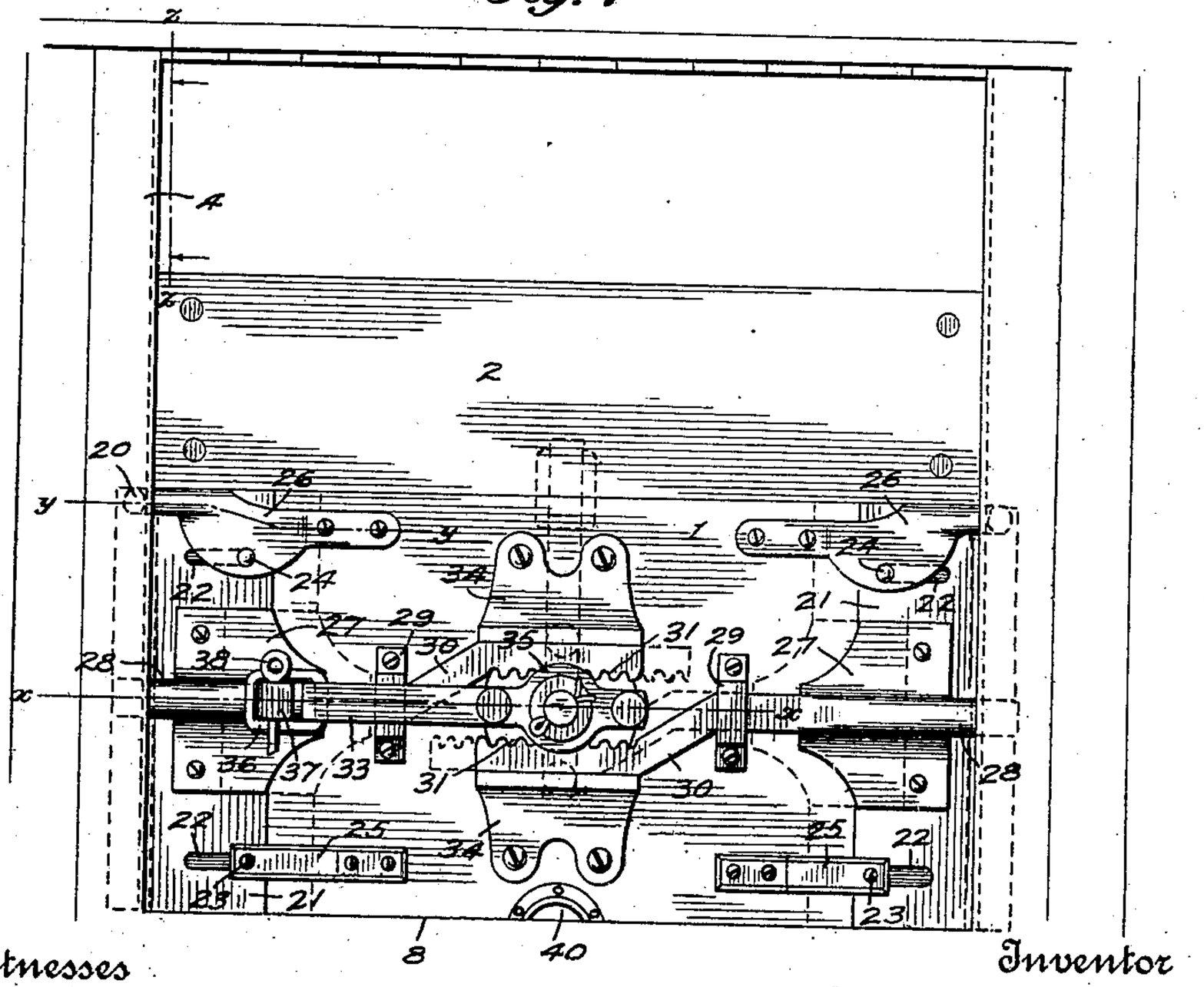


Fig. 1



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5

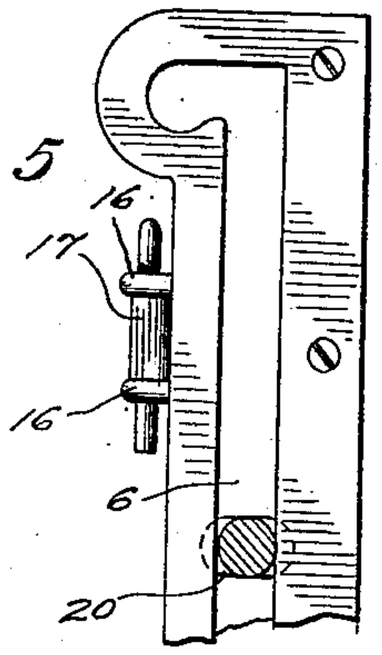
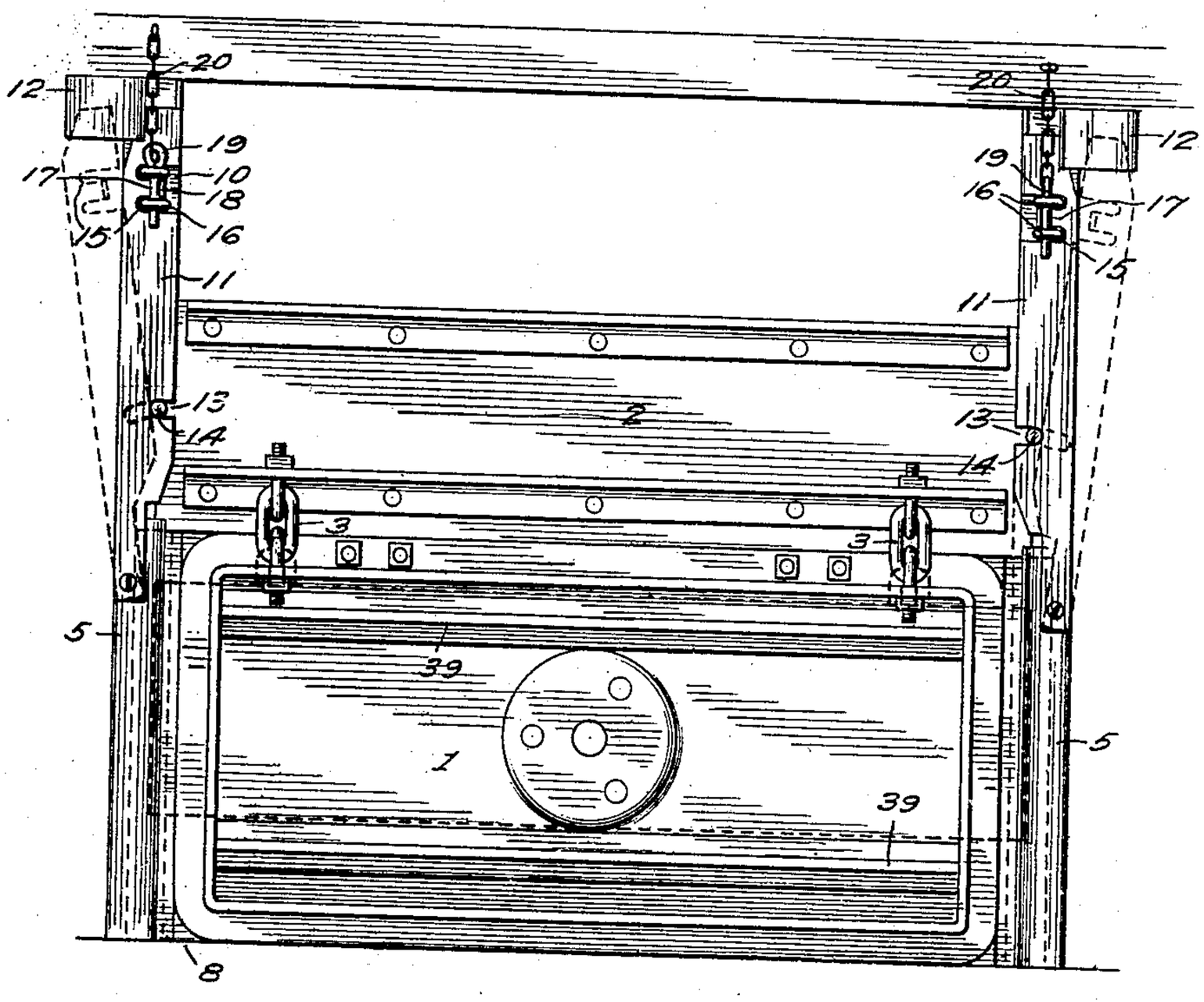


Fig. 4



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UNITED STATES PATENT OFFICE.

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GRAIN-CAR DOOR.

No. 914,994. Specification of Letters Patent. Patented March 9, 1909.

Application filed November 25, 1907. Serial No. 403,743.

To all whom it may concern:

Be it known that I, DANIEL W. THOMAS, a citizen of the United States, residing at New Holland, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Grain-Car Doors; 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 relates to grain cars and particularly to the construction of grain doors for such cars.

It has for its object to provide a simple construction of grain tight door which may be easily operated, is automatically opened by the pressure of the grain when unlocked, is strong and durable and may be readily raised and secured overhead near the top of the car when not in use.

The invention consists in the features of construction and combinations of parts hereinafter described and specified in the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention: Figure 1 is a fragmentary elevation of the side of a car body showing my improved door closed and locked, the positions of the movable parts when the door is unlocked being shown in dotted lines. Fig. 2 is a cross-section on the line *x*—*x* of Fig. 1. Fig. 3 is a cross-section on the line *y*—*y* of Fig. 1. Fig. 4 is an elevation of the inside of the door and frame, showing the top door closed, the second position of the latches and position of the upper door when let down being shown in dotted lines. Fig. 5 is a vertical section on the line *z*—*z* of Fig. 1.

Referring more particularly to the drawings, I provide two panels or doors, a bottom door 1 and a top door 2 connected together by links 3. Said doors are arranged in the doorway or frame 4 to the inner lateral faces of which are secured jamb irons 5, each having a vertical slot 6 in its upper portion and a perforation 7 about midway between the lower end of said slot and the bottom of said doorway. A wear strip 8 is preferably secured to the base of said doorway. The lower parts of said jamb irons 5 have rear flanges which are bent to form grooves 9 on the interior face of said doorway. The outer edges of said bent portions are turned slightly outward, as shown clearly in Fig. 2, to provide easy access for the extensible strips on the lower door to said grooves. The upper portions of said jamb irons are simply bent around on the interior of the doorway as at 10 without being formed into grooves. Pivoted latches 11 having their free ends arranged to work in keepers 12 serve to retain the top door in place between them and said portions 10. Said latches are provided with notches 13 which engage pins or lugs 14 on the rear face of said upper door when said latches are moved inward. The top door is thus locked against vertical movement. Each of said latches is also provided with two slots 15 near its upper end which fit around staples 16 on the rear face of the door frame. The portion 17 left between said slots is bent at its end forming an abutment 18 adapted to be engaged by a locking pin 19 passed through said staples to lock said latch in its forward position where it will retain the top door in a closed position. The locking pin 19 may be attached to the door frame by chains 20 to prevent them from being mislaid. Said latches, with the door jamb, form continuations of the grooves made by the bent portions of the jamb irons. As shown in Fig. 4, the lower corners of the side edges of the upper door, when closed, rest in said grooves while the rest of said edges are retained between said latches and door jamb.

The slots 6 in the jamb irons are hook-shaped at their upper extremities whereby they are adapted to be engaged by the headed pins or lugs 20 secured to the lower door to support said door overhead in the doorway of the car where it will be out of the way when not in use. It will be understood, of course, that the top door must be unlocked and let down before the bottom door can be raised in this way, and that said top door being connected to the bottom door by the links 3, both doors will be supported together.

At each side of the bottom door is mounted a laterally sliding plate or strip 21 guided by slots 22 therein fitting around pins 23, 24 carried by lower and upper straps 25, 26, respectively. The headed lugs 20 are preferably a part of the upper straps 26. Castings 27 are secured to said sliding or extensible strips 21 and are provided with lugs 28 adapted to enter the perforations 7 when said strips are extended to engage the grooves 9. Said castings are guided in

brackets 29 and their inner ends are offset, one upward and the other downward, as at 30, and overlap one another. The inner adjacent edges of said offset portions are provided with teeth 31 meshing with a pinion 32 secured to and adapted to be rotated by a hand lever 33. The outer edges of said offset portions bear against ledges 34 on the face of the door. Said hand lever has a disk-shaped portion 35 extending beyond the pinion 32 and over those of the teeth 31 which are engaged with said pinion whereby said offset portions are held back against the face of the door. By turning said hand lever from a horizontal to a vertical position the laterally sliding strips 21 are withdrawn from the grooves 9 and the lower door will swing open upon the lugs 20 which rest in the bottom of the slots 6, by the weight of the grain pressing against it thus preventing the destruction of the door. Said hand lever may be locked in its horizontal or closed position by means of a link 36 on its end which is adapted to pass over a perforated lug 37 projecting from one of the castings 27 and through which lug a locking pin 38 or suitable seal may be passed. The ribs 39 are placed across the inner face of the bottom door to strengthen it. A finger piece 40 is secured to the lower edge of the outer face of said door to assist in opening and for closing the same. Both doors are preferably made of malleable casting and should last as long as the car. The laterally sliding strips or blades which engage the grooves in the jamb irons make the door perfectly grain tight.

I claim:

1. The combination, with jamb irons having grooves therein, of a door having laterally extensible strips adapted to enter said grooves, said strips having slots fitting around pins carried by upper and lower guide straps, said upper guide straps provided with pivot lugs engaging said jamb irons.

2. The combination, with jamb irons, of a lower door, means to secure it in place, an upper door, vertically arranged latches pivoted on said jamb irons and adapted to engage the inner faces of said upper door and secure said door between said jamb irons and said latches with the outer faces of its lateral edges in contact with said jamb irons, means to lock said latches in engagement with said upper door and lugs on the inner face of said upper door adapted to engage slots in said latches when the latter are closed whereby said upper door is locked against vertical movement.

3. The combination, with jamb irons bent upon themselves to form grooves, of pivoted latches arranged above and in line with the bent portions of said irons whereby they with the door jamb form continuations of said grooves, a lower door having laterally extensible strips adapted to enter said grooves, and an upper door the side edges of which are adapted to be retained by said latches.

4. The combination, with jamb irons bent upon themselves to form grooves, of pivoted latches arranged above and in line with the bent portions of said irons whereby they with the door jamb form continuations of said grooves, a lower door having laterally extensible strips adapted to enter said grooves, and an upper door arranged, when closed, with the lower corners of its side edges in said grooves and the rest of said edges retained by said latches.

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

DANIEL W. THOMAS.

Witnesses:

JACOB BOLINGER,

DAVID BELL.