(No Model.)

A. J. GOLD.

GRAIN DOOR.

No. 582,197. Patented May 11, 1897.

Fig. 1

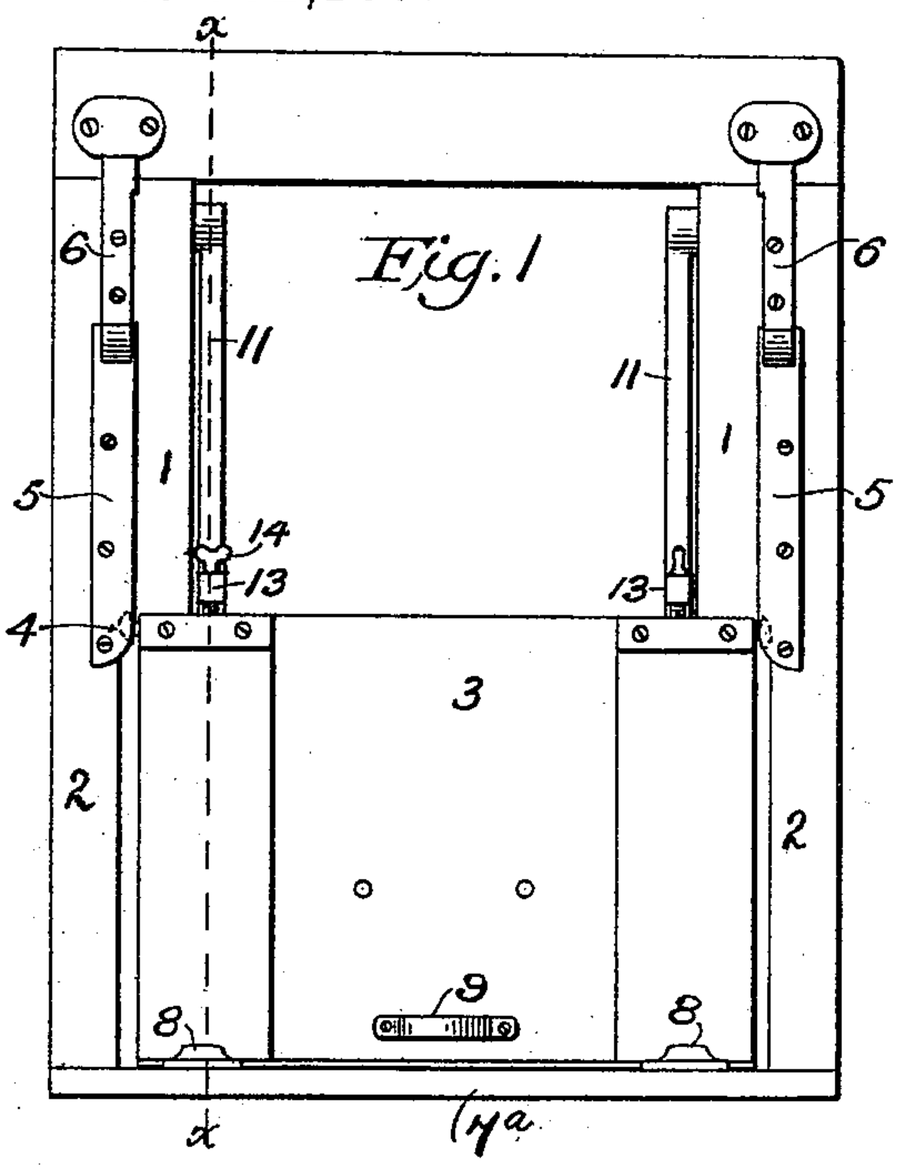


Fig. 2.

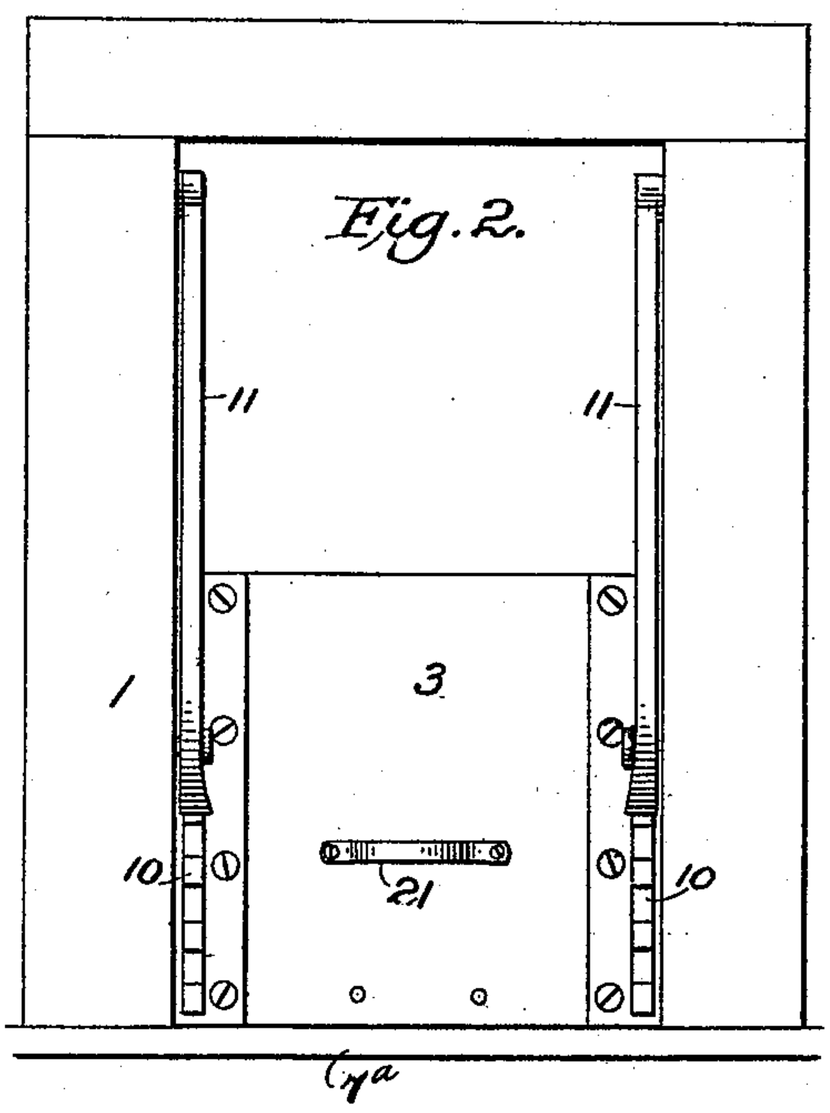


Fig. 3.

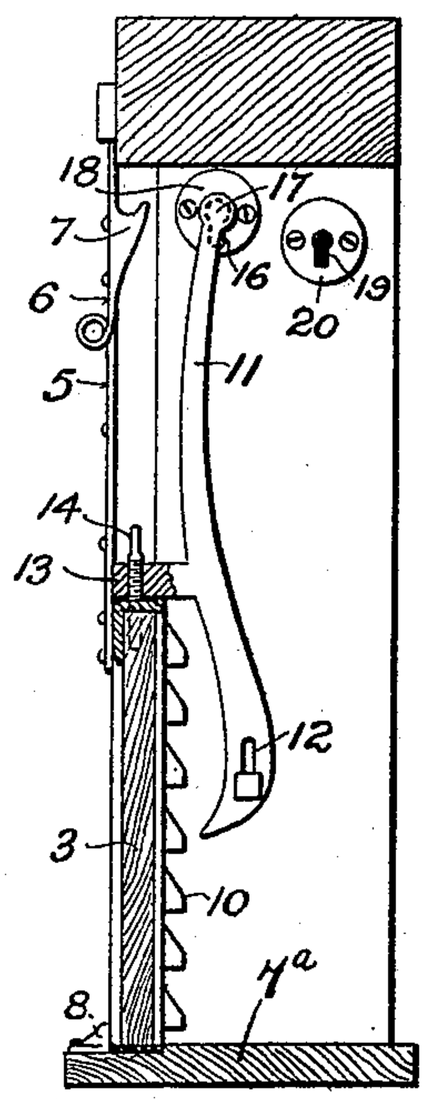


Fig. 4.

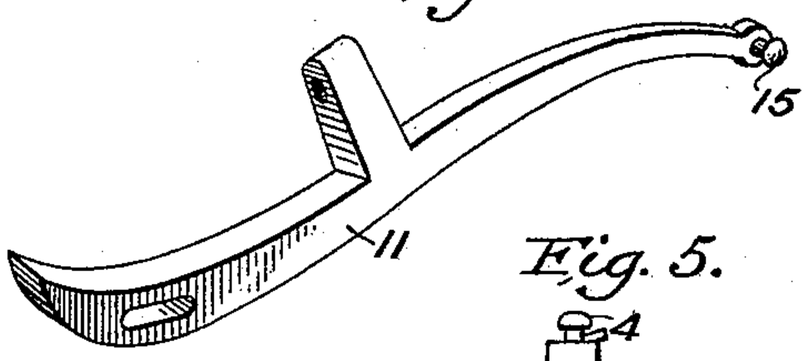


Fig. 5.

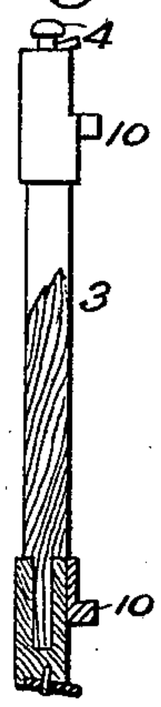
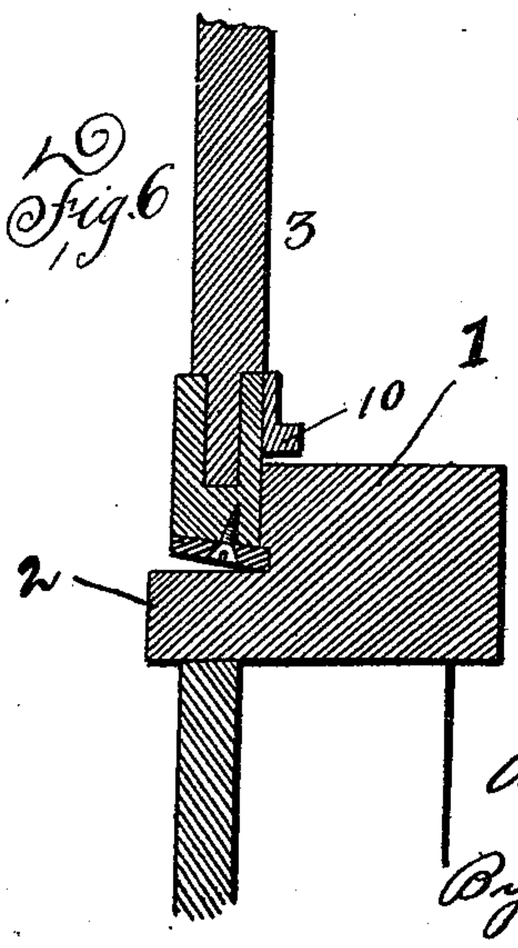


Fig. 6



Witnesses

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UNITED STATES PATENT OFFICE.

ANDREW J. GOLD, OF STAPLES, MINNESOTA.

GRAIN-DOOR.

SPECIFICATION forming part of Letters Patent No. 582,197, dated May 11, 1897.

Application filed June 1, 1896. Serial No. 593,820. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. GOLD, a citizen of the United States, residing at Staples, in the county of Todd and State of Minnesota, have invented certain new and useful Improvements in Grain-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 experience as a handler of freight-cars shows that it is the custom to rest the grain-doors of such cars against the inside jamb and that a violent switching or jarring of any kind will shake the door out of its place and waste much of the grain contained in the car. Furthermore, it is the custom in the grain districts that a car which takes grain therefrom is returned with a load of coal or other product. By reason of the fact that there is no proper means of securing the old form of grain-door in place it frequently happens that the grain-door of the car in which the coal is loaded is nailed up at the side, top, and bottom, making it extremely difficult to open this door when the side of the car in which this door is located is the nearest one to the dock. These and other disadvantages connected with the use of the old form of grain-door have led me to devise my present invention, which is designed to overcome all the defects in the old form of construction by providing a ready and convenient means for securing the grain-door firmly and positively in place to prevent the leakage of the grain therefrom and to provide simple and convenient means for raising the grain-door when it is desired to empty a car.

The invention consists of a door slidingly mounted in suitable guides in the door frame or jamb, the said door having beveled outer edges which are covered with strips of rubber or other packing material, a spring-latch for holding said door in its elevated position, a ratchet on the outside of said door, and a lever permanently fulcrumed in the inner edge of the door frame or jamb, which is adapted to engage the teeth on said ratchet to raise the door, has a laterally-extending arm fitting over the top of the grain-door when the latter is in its closed position, and is held in suitable supports on the side of the door-jamb, in which it is securely held and from which it may be readily removed.

The invention also consists in other details of construction and combinations of parts, which will be hereinafter more fully described and claimed.

In the drawings, Figure 1 represents a front elevation of my device, looking toward the grain-door of the car from the inside of the car. Fig. 2 is a similar view looking from the opposite direction. Fig. 3 is a vertical section on the line *x x*, Fig. 1, looking toward the left in said figure. Fig. 4 is a detail perspective view of one of the levers for raising the door and for securing the same in its closed position. Fig. 5 is plan view of the door, partly in section. Fig. 6 is a horizontal section of the door-post and part of the door.

Like reference-numerals indicate like parts in the different views.

The door frame or jamb 1 is recessed on its inner side, as shown, forming side ledges 2 2, between which the door 3 is adapted to slide, the said door being provided with outwardly-extending pins or projections 4 4, which move beneath the guide-plates 5 5, secured to the door-jamb and projecting inwardly from the ledges 2 2 thereon.

To the upper end of the door-frame are secured, on each side thereof, springs 6 6, provided with hooks 7 7 on their inner surfaces, which are adapted to engage the projections 4 4 on the door 3 and support said door in its upper position. The lower sill 7ª of the frame 1, at points on a level with the floor of the car, has secured to it lugs or stops 8 8 for holding the door 3 in close contact with the frame or jamb 1 when said door is in its closed position. The said door is further provided, at a point near its lower inner end, with a loop or handle 9, by means of which it may be raised from the inside and supported by hook and staple from the rafter in the roof of the car. The said door has also secured to the outside thereof, at points near its outer edges, ratchet-plates 10 10, which are adapted to be engaged, for the purpose of raising the door, by levers 11 11, fulcrumed in elongated slots 12 12 to the inner edges of the door-frame 1. The said levers have extending outwardly therefrom arms or projections 13 13, which are adapted to fit over the top of the door to

hold said door in its closed position. Extending through the arms or projections 13 are screws 14 14 for forcing the said door downward and locking it. The extreme upper ends of the levers 11 11 have laterally-extending headed pins 15 15 thereon, which fit into recesses 16 16 in the inner edge of the frame 1, the same passing through a keyhole-slot 17 in a plate 18, fitting over said recesses 16. The said frame is provided with a second series of recesses 19, covered with plates 20, similar in all respects to the recesses 16 and plates 17, but located at points a little below and a little farther outward than the recesses 16, the same being provided for the purpose of supporting the upper ends of the levers 11 when the door 3 is in its upper position. The door 3 has further secured to its outer side a loop or bail 21, by means of which said door may be elevated by hand from the outside after the pressure of the grain from the inside has been relieved.

From what has been said it will be evident that the door 3 is held firmly in its closed position, when the car is filled with grain, by means of the engagement of the arms or projections 13 and the screws 14 therein with the upper edge of said door. Leakage of grain is also prevented from the car by reason of the close fit between the door 3 and the frame 1 made by the strips of rubber in the outer edges of said door. When it is desired to open the door 3, it may be readily done without the use of crowbars and other implements of a similar character which are now used by simply removing the pins 15 from the recesses 16 in the frame 1, loosening the screws 14 in the arms 13 and drawing down the upper ends of the levers 11, bringing their lower ends into engagement with the ratchets 10 on the outside of the door 3. The said door can by this means be readily elevated a sufficient distance to allow the grain to flow out from the under side of the door 3, relieving the pressure from the door, and then the door may be readily raised by hand to its extreme upper position, being held and supported in said upper position by the engagement of the hooks 7 with the projections 4 upon the outer edge of the door 3.

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

1. The combination with a door frame or jamb, of a door slidingly mounted therein, ratchets upon the outside of said door adjacent to its outer edges, levers fulcrumed in the inner edges of said frame whose lower ends are adapted to engage the teeth on said ratchets to raise said door and arms or projections on said levers adapted to engage the upper ends of said door for holding the latter securely in its closed position.

2. The combination with a door frame or jamb, of a door slidingly mounted therein, ratchets upon the outside of said door adjacent to its outer edges, levers fulcrumed in the inner edges of said frame whose lower ends are adapted to engage the teeth on said ratchets to raise said door, arms or projections on said levers and screws extending through said arms adapted to engage the upper end of said door to force said door downward and hold the same securely in its closed position.

3. The combination with a door-frame having recesses in its upper inner edges and plates having keyhole-slots therein covering said recesses, of a door slidingly mounted in said frame, ratchets upon the outside of said door adjacent to its outer edges, levers fulcrumed in elongated slots on the inner edges of said frame, whose lower ends are adapted to engage the teeth on said ratchets for raising the door, and headed pins projecting laterally from the upper ends of said levers, the said pins being adapted to be inserted through the keyhole-slots in the plates covering the recesses in the inner edges of said frame.

4. The combination with a door-frame having recesses in its upper inner edges and plates having keyhole-slots therein covering said recesses, of a door slidingly mounted in said frame, ratchets upon the outside of said door adjacent to its outer edges, levers fulcrumed in elongated slots in the inner edges of said frame, whose lower ends are adapted to engage the teeth on said ratchets for raising the door, arms or projections on said levers, screws extending through said arms, adapted to engage the upper end of said door to force the latter downward and hold it in closed position, and laterally-extending headed pins on the upper ends of said levers, the said pins being adapted to be inserted through the keyhole-slots in the plates covering the recesses in the inner edges of said frame, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ANDREW J. GOLD.

Witnesses:
ISAAC N. SMITH,
CHAS. C. LIGHTFOOT.