

J. E. MEYERS, G. A. HEMPHILL & E. BOWMAN.
GRAIN CAR DOOR.

APPLICATION FILED MAY 25, 1909.

984,513.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

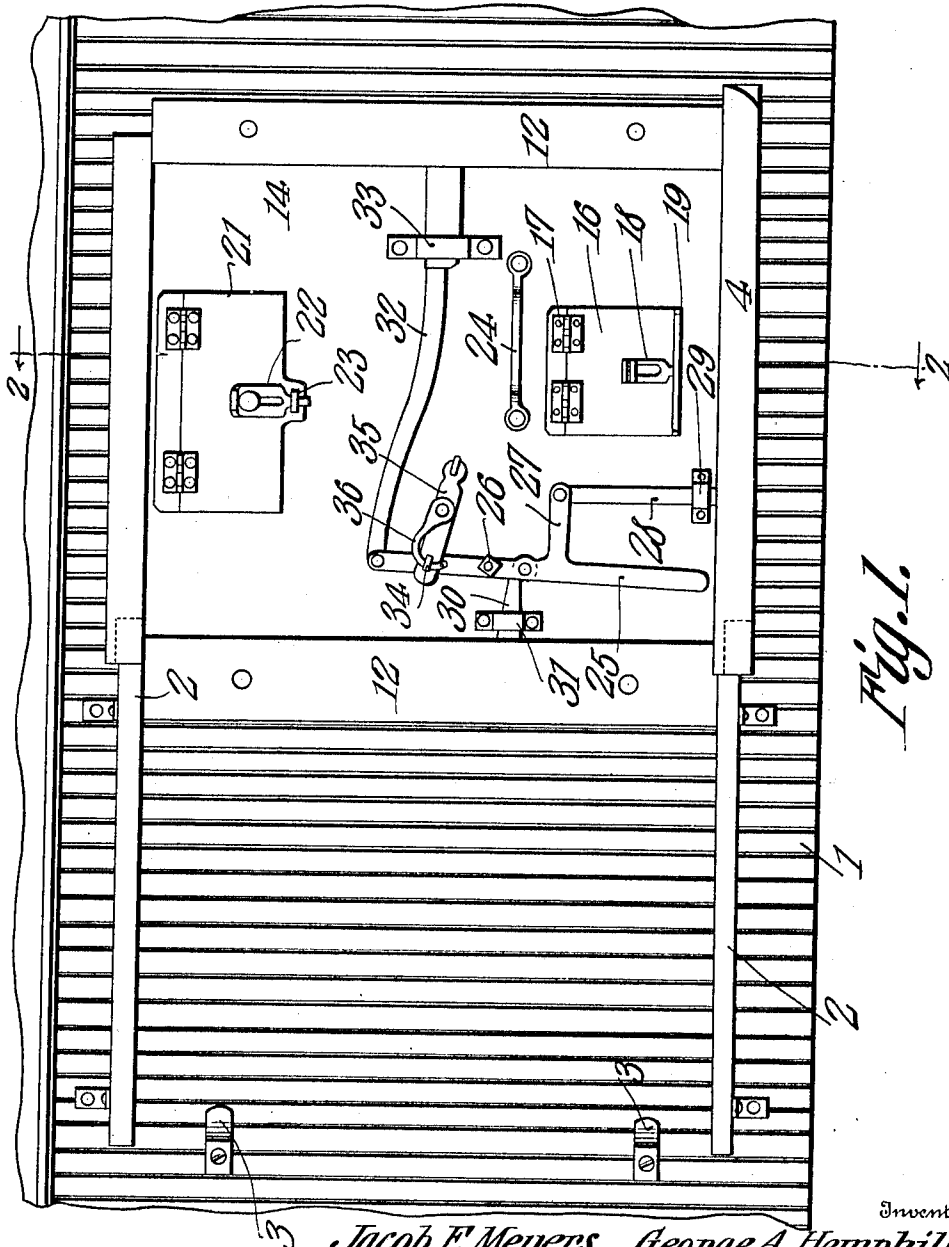


Fig. 1.

Witnesses

R. W. Bishop
R. W. Bishop

Jacob E. Meyers, George A. Hemphill, Ezra Bowman.

C. A. Snow & Co.
Attorneys

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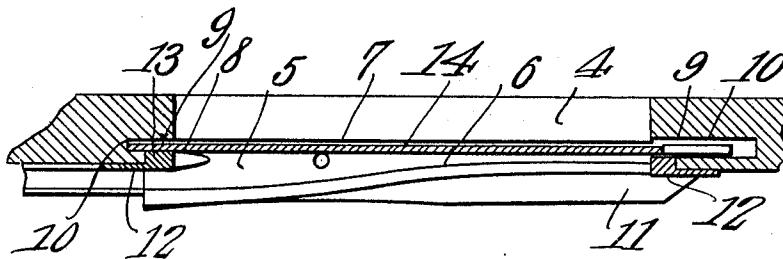
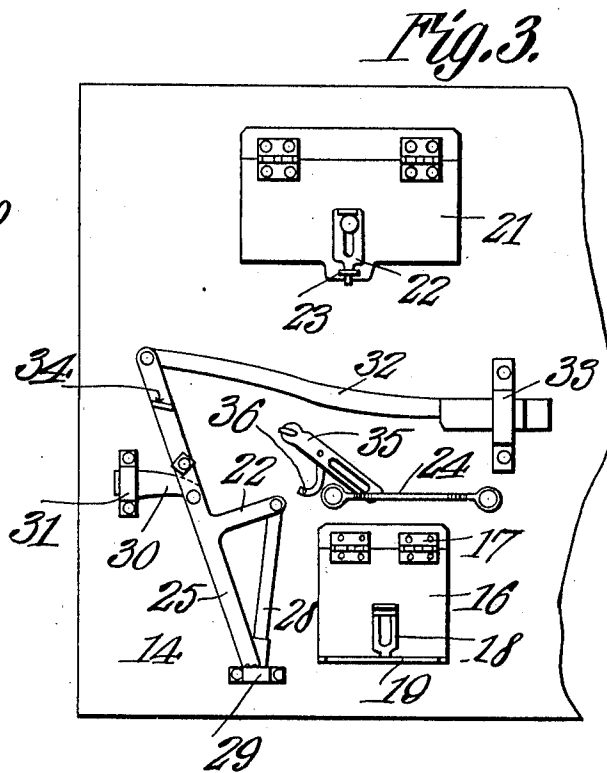
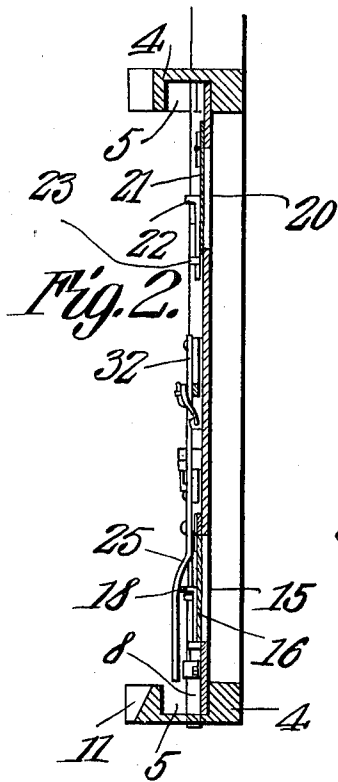


Fig. 4.

Inventors
Jacob E. Meyers, George A. Hemphill,
Ezra Bowman.
By *C. A. Snow & Co.*
Attorneys

Witnesses
E. J. Bishop
R. W. Bishop

UNITED STATES PATENT OFFICE.

JACOB E. MEYERS, GEORGE A. HEMPHILL, AND EZRA BOWMAN, OF REMINGTON,
INDIANA.

GRAIN-CAR DOOR.

984,513.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed May 25, 1909. Serial No. 498,145.

To all whom it may concern:

Be it known that we, JACOB E. MEYERS, GEORGE A. HEMPHILL, and EZRA BOWMAN, citizens of the United States, residing at Remington, in the county of Jasper, State of Indiana, have invented a new and useful Grain-Car Door, of which the following is a specification.

Our invention seeks to provide a door for grain cars which may be easily operated and which will furnish ample protection against fire and by which accidental discharge of the contents of the car during transit will be avoided.

The invention also seeks to provide a door which will facilitate the loading and unloading of the car, and which may be readily manipulated so as to expose the entire area of the door opening when such adjustment is desired for any purpose.

These objects and other minor objects, which will be appreciated as the invention is more clearly understood, are attained by the use of the construction hereinafter described and claimed and illustrated in the accompanying drawing.

In the drawings, Figure 1 is a side elevation of a portion of a freight car having our improved door applied thereto. Fig. 2 is a vertical section taken on the line 2-2 of Fig. 1. Fig. 3 is a detail elevation of the door removed from the car and showing the locking bolts in the opened position. Fig. 4 is a detail horizontal sectional view, showing the track or guide upon which the car door may slide.

The car 1 may be of any desired or convenient dimensions and construction, and forms no part of our present invention. To the side of the car we secure metallic tracks or guides 2 upon which the door may be moved backward until it impinges against the stops 3, so as to provide access to the interior of the car through the entire door opening. The tracks 2 are in the form of U-shaped guides as will be readily understood. In the upper and lower sides of the door opening we secure metallic sills 4, the horizontal opposed faces of which are shaped to provide a trough 5, the front wall of which is obliquely disposed with reference to the longitudinal line of the car, as shown at 6 in Fig. 4, and the rear wall of which, 7, is disposed parallel with the longitudinal

line of the car thereby forming a substantially V-shaped channel, in which the door may be given a sliding movement and also a slight swinging movement for a purpose which will be hereinafter more fully set forth. At the wider end of this trough or channel we provide a tongue or projection 8 which aids in guiding the door to one or the other side of the channel and the inner wall of the channel is disposed flush with the inner faces 9 of recesses 10 formed in the sides of the door jambs. The outer face of the lower sill 4 is beveled outwardly and downwardly, as shown at 11, so as to deflect water and also to facilitate the discharge of grain in the operation of unloading the car. The car is faced with metal, as indicated at 12, around the door opening and the outer door jambs are composed of metal bars, 13, all of which imparts great strength to the car and furnishes an effectual guard against fire. The door proper is indicated at 14 and is composed of a metal plate of dimensions which will fully close the door opening and is adapted to slide in the recess 10 in the car frame or the door jambs and also move in and along the guides or tracks 5 and 2. Near the bottom of the door 14 is an opening 15 which is normally closed by a small door 16, hung at its upper edge to the door 14 by means of hinges 17 whereby the said door may open outward to permit passage of the contents. This discharge door 16 is held normally in the closed position by means of a slidable latch 18, mounted on the said discharge door and having its lower end disposed to engage a suitable recess in a flange or lip 19 on the main door as will be readily understood. Near the upper end of the door 14 is provided a large opening 20 through which the grain or other commodity may be fed in loading the car, and this opening 20 may be covered by a door 21 hinged at its upper edge to the main door and adapted to be held in the closed position by means of a latch 22 mounted to slide vertically on the said door 21 and engage a keeper or hasp 23, as will be readily understood from the drawings. The door 14 is further provided with a suitable handle 24, by which it may be moved to one or the other side in opening or closing the same, as will be readily understood. Near one edge of the door 14 we mount a lever 25

which is pivoted at 26 to the said door and has a lateral arm 27 below the said pivot. From the end of the said arm 27 a bolt 28 depends to pass through a guide or keeper 5 29 on the door 14 and engage a suitable socket in the lower sill or track 4. Between the lateral arm 27 and the pivot pin of the lever 25 a second bolt 30 is pivoted to the said lever and projects through a keeper or 10 guide 31 to engage a suitable socket in the adjacent door jamb. To the upper end of the lever 25 we pivotally attach one end of a long bolt 32, which extends from the lever in the direction opposite that of the bolt 30, 15 and passes through a keeper or guide 33 to engage a socket in the opposite door jamb. Below the upper end of the lever 25 we provide on the said lever an eye 34 over which a hasp 35 may pass, the said hasp being 20 hung on the door 14 as clearly shown in Fig. 1. A hook 36 is pivotally secured on this hasp 35, and has its end adapted to pass through the eye 34 in front of the said hasp so as to lock the lever against move- 25 ment and in the end of the said hook an ordinary car seal may be applied as will be readily understood.

In loading grain into a car equipped with our door, the door 14 is caused to close the 30 door opening as shown in Fig. 1, and the loading door 21 is then raised so as to permit the introduction of a grain spout through the opening 20 into the car. The grain is then fed into the car in the usual 35 manner. When the car has been filled, the door 21 is closed and the seal is applied so as to denote that the car has been loaded and inspected, and the grain is then ready for transportation. When the destination 40 has been reached, the discharge door 16 is raised and the grain will then flow out through the discharge opening 15 so as to unload the car. When it is desired to clean the car or to inspect the same, the seal is 45 broken, the hook 36 and the hasp 35 disengaged from the eye 34, after which the lever 25 is swung to the position shown in Fig. 3 thereby withdrawing the several locking bolts from engagement with their re- 50 spective sockets and permitting the door 14 to be moved to the open position. To accomplish this opening of the door, the door is first moved to the right of Figs. 1 and 4 of the drawings so that the left hand edge 55 of the door will clear the projections 8 at the ends of the channels or guides 5 and the said left hand end of the door is then swung forward through the said channels or guides so as to assume a position in front 60 of the said projections, as will be readily understood, after which the door is moved to the left so as to enter upon and be held by the guides or tracks 2 on the side of the car with the door opening entirely exposed. 65 The car may then be cleaned or repaired,

and boxed or crated freight may be loaded in the same as will be readily understood.

Our improved door being constructed of metal throughout will be found possessed of great strength and will prove especially 70 desirable for the loading and transportation of commodities transported in bulk, such as grain. It will also be found desirable for the transportation of gunpowder and explosive materials, by reason of the use of 75 metal in the door as well as in the door jambs and the sills. Furthermore, as we provide three locking points and operate the locking bolts from a single lever, a very strong locking mechanism is provided and 80 at the same time delay in either locking or unlocking the door is overcome.

From the foregoing description of the invention and from an inspection of Figs. 1 and 4 of the drawings, it will be readily un- 85 derstood that when the door is to be completely closed, it is slid to the right so that its right hand vertical edge will project into the corresponding recess 10 to such degree that its left hand edge (see Fig. 4) will 90 clear the left hand side of the door frame. The lever 25 is then swung to the left in Fig. 1 of the drawing. This movement of the lever and the fact that the bolt 32 is 95 pivoted to the lever at a point at a greater distance from the pivot for the lever itself than the point of pivotal connection between the lever and the bolt 30 from the said lever pivot, the bolt 32 will be caused to seat completely in the socket provided 100 for its reception in the right hand side of the door frame, and further movement of the lever will result in the door being moved bodily to the left in Figs. 1 and 4 of the 105 drawings until the bolt 30 is completely seated in the seat provided for its reception. When the two bolts have been thus properly seated at their outer ends in their respective seats, the vertical edges of the door will 110 project into their respective recesses in the door frame and the door will be held firmly against displacement in an edgewise direction. Thus, the bolts serve not only as a means for holding the door firmly against 115 displacement edgewise in the door opening, but serve further, in their movement to locking position, to center the door in the frame.

Having thus described our invention, what we claim is:—

In a grain car door, a frame having its 120 jambs provided with vertical recesses and bolt sockets, a door arranged to slidably enter the frame, the vertical recess in one jamb being deeper than that in the other jamb whereby the door may be slid into the 125 recess in the first mentioned jamb to such degree as to permit it to clear the second mentioned jamb, bolts slidably mounted upon the door, a lever pivoted upon the door and having pivotal connection with said 130

bolts, the point of pivotal connection of one
bolt with the lever being located a greater
distance from the pivot for the lever than
the point of pivotal connection of the other
5 bolt therewith, the first mentioned bolt hav-
ing its free end projecting toward that jamb
of the door frame which is formed with the
deeper recess, the lever being adapted to be
swung to cause the first mentioned bolt to
10 engage in its socket prior to the engagement
of the second mentioned bolt in its socket,
the engagement of the first mentioned bolt in

its socket and subsequent movement of the
lever serving to shift the door.

In testimony that we claim the foregoing 15
as our own, we have hereto affixed our signa-
tures in the presence of two witnesses.

JACOB E. MEYERS.
GEORGE A. HEMPHILL.
EZRA BOWMAN.

Witnesses:

IRA J. GRANT,
JOHN W. HARRIS.