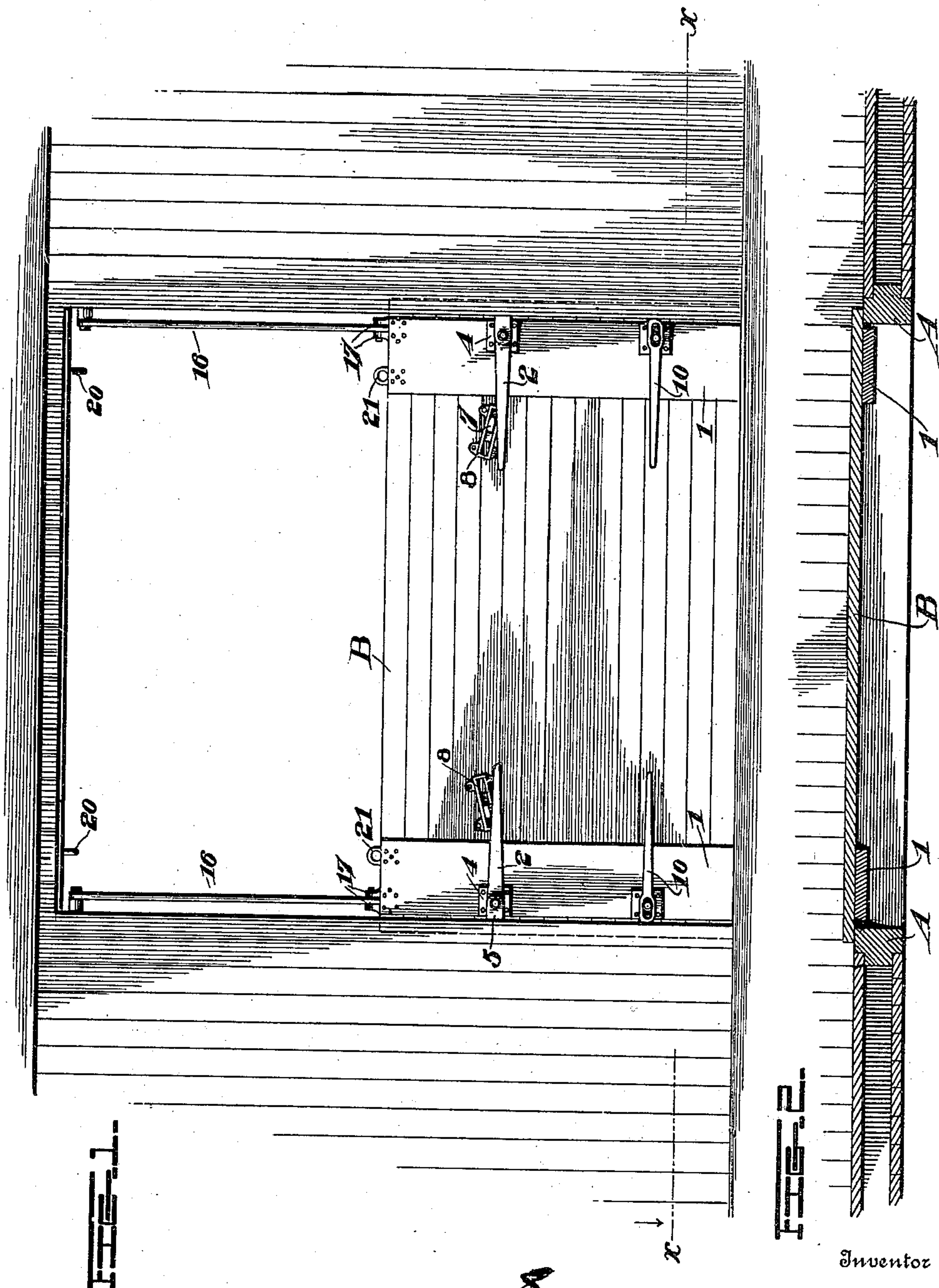


S. W. MURRAY.
GRAIN DOOR FOR BOX CARS.
APPLICATION FILED FEB. 21, 1908.

966,348.

Patented Aug. 2, 1910.

4 SHEETS—SHEET 1.



Witnesses

Lloyd W. Patch
Mae E. Payne

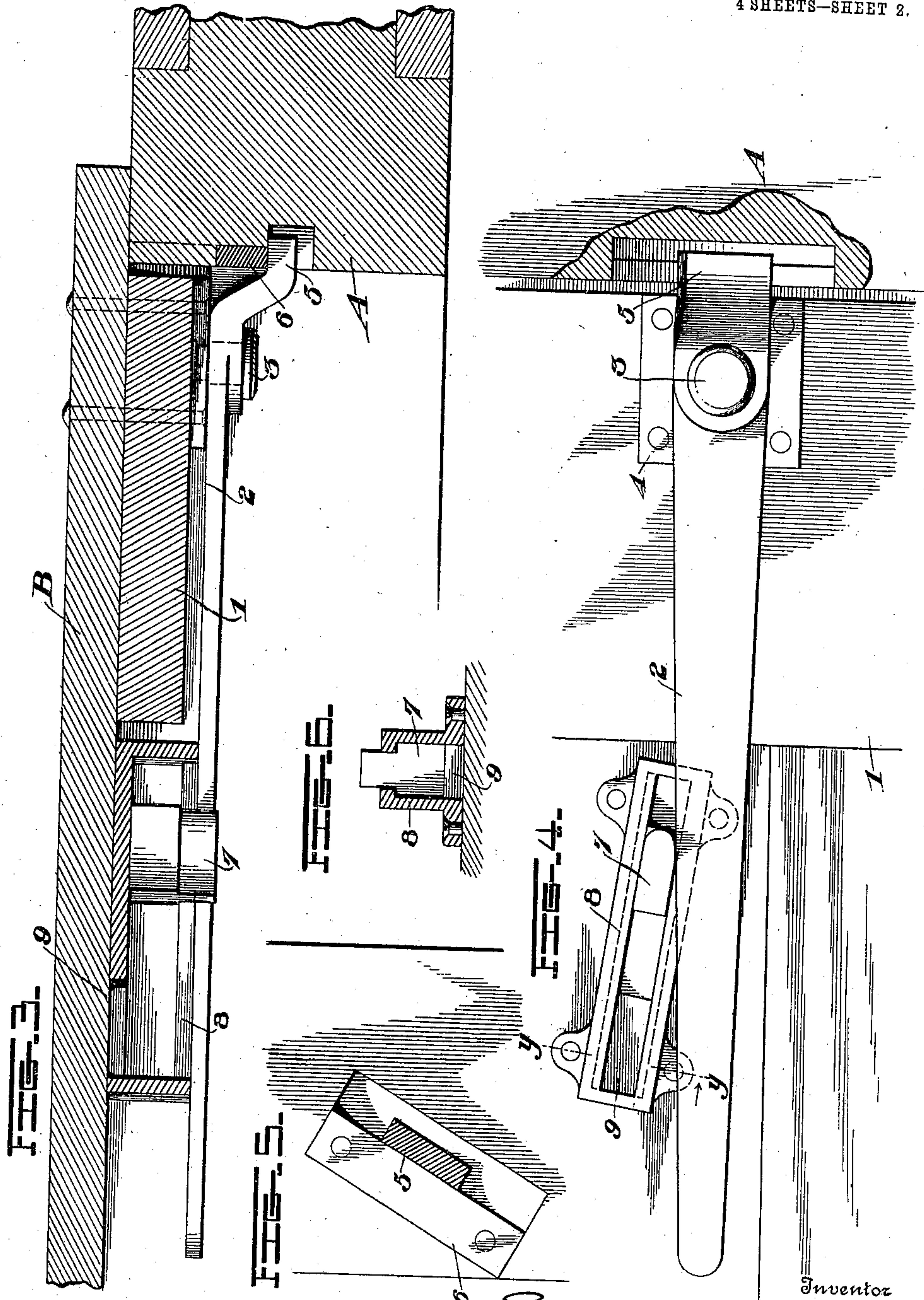
Inventor
Samuel Wilson Murray
By *Amos E. Dodge*
Attorney

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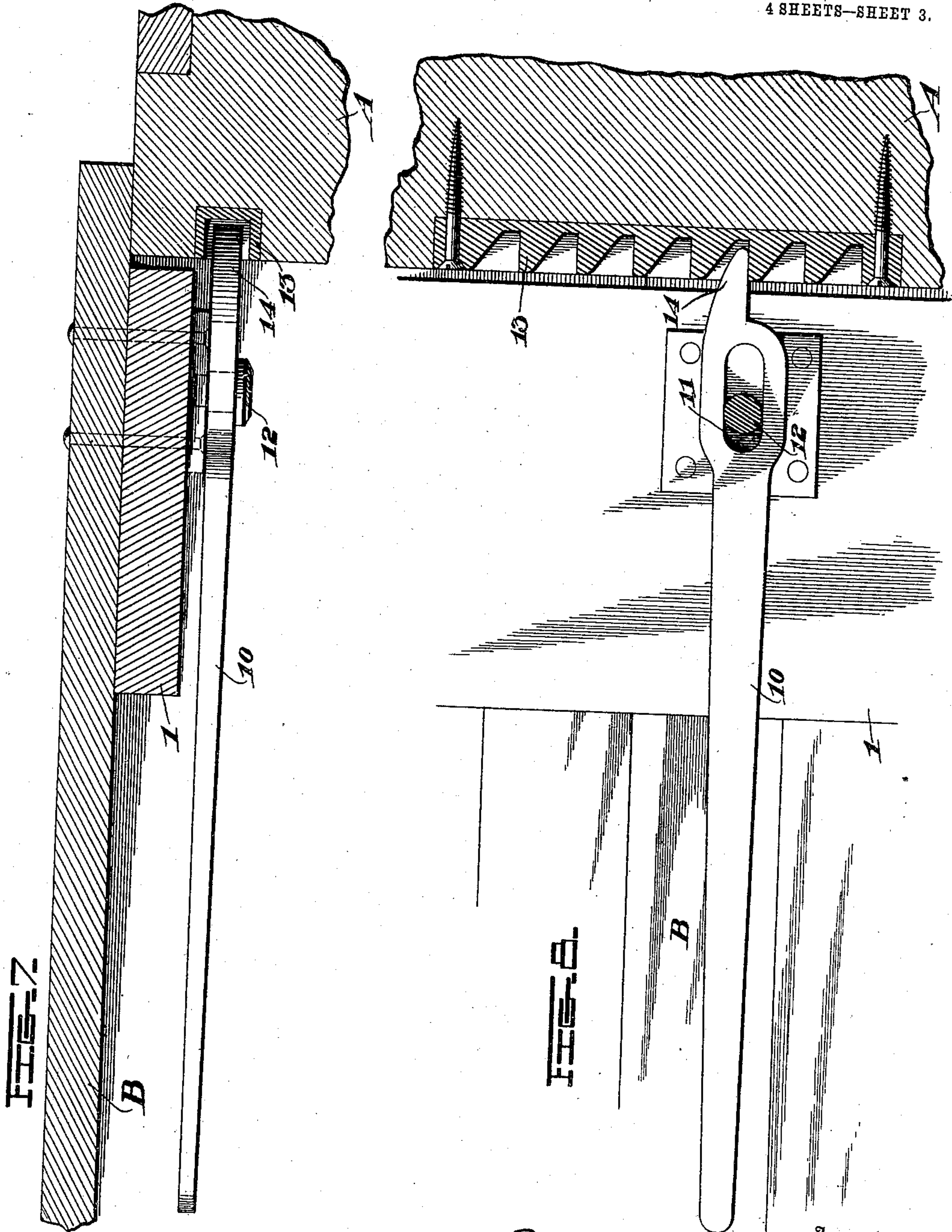
Inventor
Samuel Wilson Murray
By *Chas. E. Rogers*
his Attorney

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Witnesses
Lloyd W. Patch
Mae E. Payne

Inventor
Samuel Wilson Murray
By *Samuel E. Hodge*
His Attorney

UNITED STATES PATENT OFFICE.

SAMUEL WILSON MURRAY, OF MILTON, PENNSYLVANIA.

GRAIN-DOOR FOR BOX-CARS.

966,348.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed February 21, 1908. Serial No. 417,118.

To all whom it may concern:

Be it known that I, SAMUEL WILSON MURRAY, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Grain-Doors for Box-Cars, of which the following is a specification.

My invention relates to improvements in grain doors for box cars, and the object primarily is to provide a grain door which will tightly close the door opening both at the sides and bottom, thus preventing the grain from sifting out.

Another object is to provide means for applying leverage to the door when it is desired to raise it to allow the grain to flow out underneath the door until a sufficient quantity has thus passed out to permit the door to be removed altogether. And a further object is to provide convenient and effectual means for disposing of the door when the car is not required for the shipping of loose grain or grain in bulk.

With these objects in view, my invention consists in a door equipped with two different sets of levers, one for locking it securely in place and the other for raising it to remove the grain.

My invention further consists in certain novel features of construction and combinations of parts which will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 shows a view in side elevation of my improved grain door in position; Fig. 2 is a horizontal section taken on line X, X of Fig. 1 and looking downward; Fig. 3 is an enlarged horizontal section taken just above one of the locking levers; Fig. 4 is a view in side elevation of this portion of the door and showing the lever in locked position; Fig. 5 shows the plate set diagonally in the door post on which the head of the lever shown in Fig. 3 engages to force the door tightly against the door post and also the floor; Fig. 6 is a sectional view looking into the keeper and showing the end of the locking device drawn in transverse section on the line Y, Y of Fig. 4; Fig. 7 is a plan view of the door lifting lever; Fig. 8 is a view in side elevation of the door lifting lever and a portion of the door post being shown in vertical section; Fig. 9 is a view in vertical transverse section through the

grain door showing its position when the door opening is closed, and the dotted horizontal lines show the position of the door when folded on the bars and suspended from the roof so as to be out of the way when not in use; and Fig. 10 shows the method of connecting the bars to the door; and Fig. 11 shows a section of the slotted bar. This slot is long enough to permit the door to be raised sufficiently for the discharge of the grain until the door can be removed entirely.

A, A represent the door posts forming the sides of the door opening, and B is the grain door. The door itself may be made in any improved manner, the horizontal boards composing it being connected together at the ends by the vertical battens 1, 1.

Two sets of levers are provided for each grain door, one set for wedging and locking the door securely in place at its vertical as well as lower edges and another set for lifting or prying the door upward. The locking device is shown in detail in Figs. 3 and 4. The levers 2, 2 are pivoted by means of the studs 3, 3 to the plates 4, 4 secured to the battens 1, 1. The heads 5, 5 of the levers 2, 2 are off-set in goose-neck fashion as shown in Fig. 3, and are adapted to engage the keepers 6, 6, one of which is shown in detail in Fig. 5. These keepers are set diagonally so that as the free or handle end of the levers 2, 2 are lowered or depressed the diagonal end 5 of the levers 2, 2 by reason of being forced or wedged upwardly against the inclining inner edge of the keepers 6, 6 have the combined effect of forcing the grain door downwardly tight against the car floor, and also of drawing the door outwardly at the edges of the door opening so that the grain door is effectually closed at its side and lower edges, thus precluding the possibility of any grain sifting out around the edges of the door. As a simple means of locking the levers 2, 2 after they are thus positioned, an adjustable bolt 7 is provided as shown in Figs. 4 and 6. This bolt slides in a plate 8 secured with a slight inclination upon the door as shown in Fig. 1, also in Figs. 3 and 4. When the lever 2 is forced down as far as it will go the bolt 7 is slid over it as shown in Fig. 4, thus locking the lever in position where it is impossible for it to jar out of place, the tendency of the bolt being to gravitate toward the lower end of the plate 8 and lock the lever tighter and tighter rather

than to ever release it. When it is desired to unlock the door the bolt 7 is slid upwardly to the recess 9 in the plate 8 which permits the bolt to drop backwardly until
 5 its outer end is either flush or under-flush with the outer surface of the plate 8 and out of the path of the lever 2, thus allowing the lever to pass it in moving upwardly in unlocking the door.

10 As the weight of the grain and its wedging tendency is to crowd against the door and to make it difficult to raise the door when the car is fully loaded without first removing the grain, I have provided simple
 15 means for effectually accomplishing this, which consists in a pair of door lifting levers 10, 10 shown in Fig. 1 below the levers 2, 2, and in Figs. 7 and 8. These levers are provided with elongated slots 11, 11 which
 20 receive studs 12, 12 upon which the levers are fulcrumed, the slots providing for moving the levers end-wise to take a new hold in the racks 13, 13 in the posts. To raise the door, therefore, the levers are slid out-
 25 wardly with their noses 14 in the racks 13, 13 as shown in Figs. 7 and 8, whereupon the free or inner ends of the levers are raised. In this way a powerful leverage is provided for sliding the door upwardly
 30 notwithstanding the great weight and pressure of grain back of it. To take a new hold higher up on the racks the levers 10, 10 are simply slid inwardly toward each other, whereupon the levers are slid outwardly
 35 again into a higher notch in the rack and the operation of raising the levers and the door is repeated.

To dispose of the door when not in use it is simply turned over and folded on the
 40 supporting bars 16, 16, the brackets 17, 17 on the upper corners of the door being provided with lugs 18, 18 which extend into the slots 15, 15 of the bars 16, 16. The door is then swung into a horizontal posi-
 45 tion beneath the roof of the car as illustrated in dotted lines in Fig. 9, where it is held suspended on hook 20, hooking into eyelet or staple 21.

In this way it will be seen that I have
 50 provided a door which is easily controlled for tightly locking it against the wasting of grain around its edges; for lifting or sliding the door upwardly, and for fasten-
 55 ing it at a point beneath the roof of the car when not in use.

I claim as new the application of mechanism and methods for the accomplishment of the objects set forth in the foregoing specification.

It is evident that more or less slight
 60 changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact con-
 65 struction herein set forth, but:—

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

1. The combination with a car having a
 70 door opening and diagonally disposed keepers located adjacent to the opening, of a grain door, and levers pivotally connected to the grain door in position to engage said diagonally disposed keepers, whereby to
 75 force the door downwardly and outwardly, and adjustable means for locking said levers, in any position.

2. The combination with a car having a
 80 door opening and diagonally disposed keepers located adjacent to the opening, of a grain door, and levers pivotally connected to the grain door in position to engage said diagonally disposed keepers, whereby to force
 85 the door downwardly and outwardly, and adjustable means for locking said levers, said locking means comprising diagonally placed plates, and a bolt slidably secured in each of said plates in position to be placed
 90 against the levers.

3. The combination with a grain door, of locking levers pivotally connected therewith, plates, bolts slidably connected with the plates for locking the levers, said plates hav-
 95 ing a slot or recess therein into which the bolts are capable of being dropped when it is desired to swing the levers past said bolts.

4. The combination with a car having a
 100 door opening, of a grain door, levers pivotally connected to the grain door, and means for locking said levers in any position, said means tending to gravitate and wedge the levers continuously tighter.

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

SAMUEL WILSON MURRAY.

Witnesses:

C. E. THACKER,
 W. S. BRICKER.