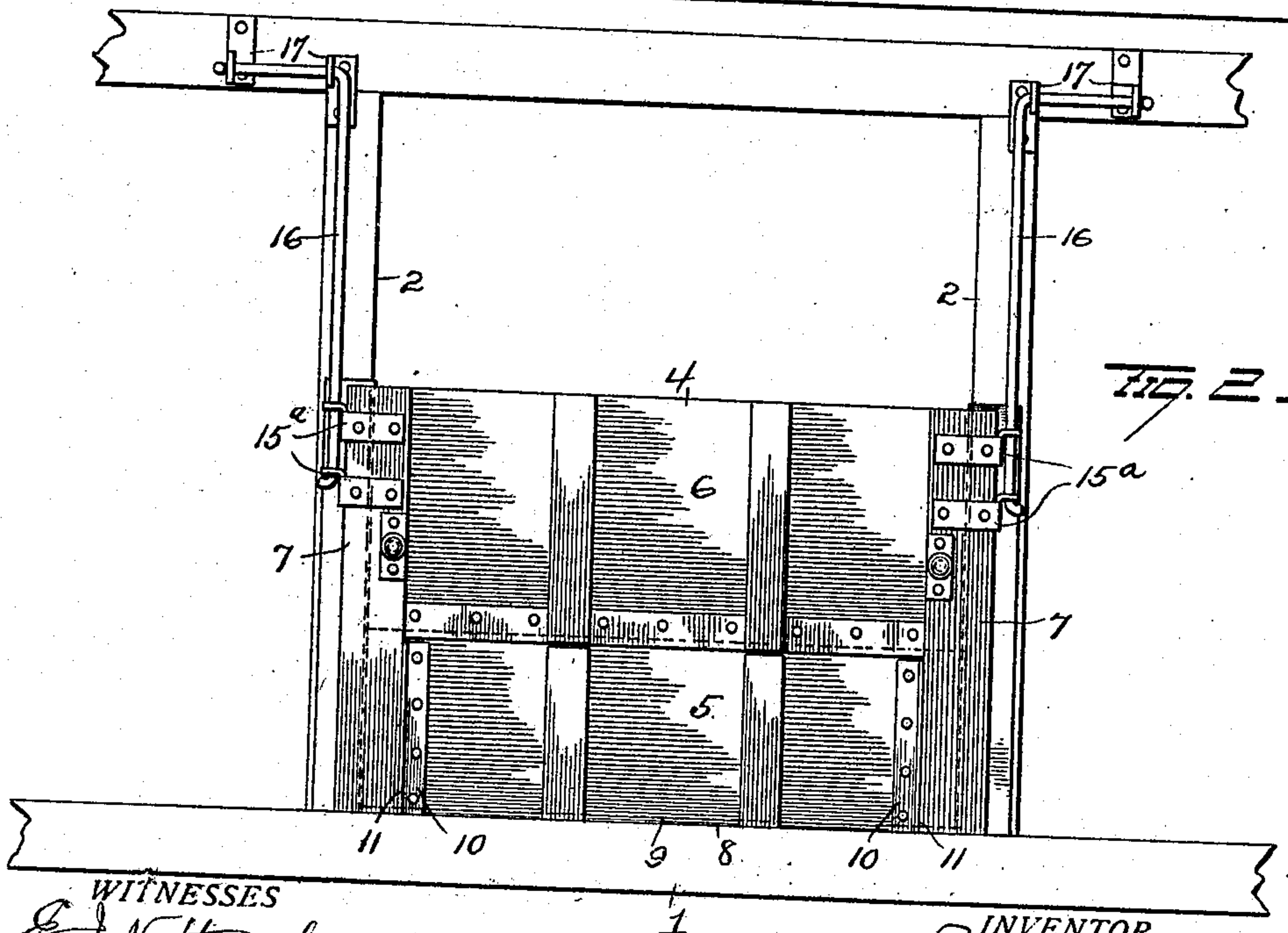
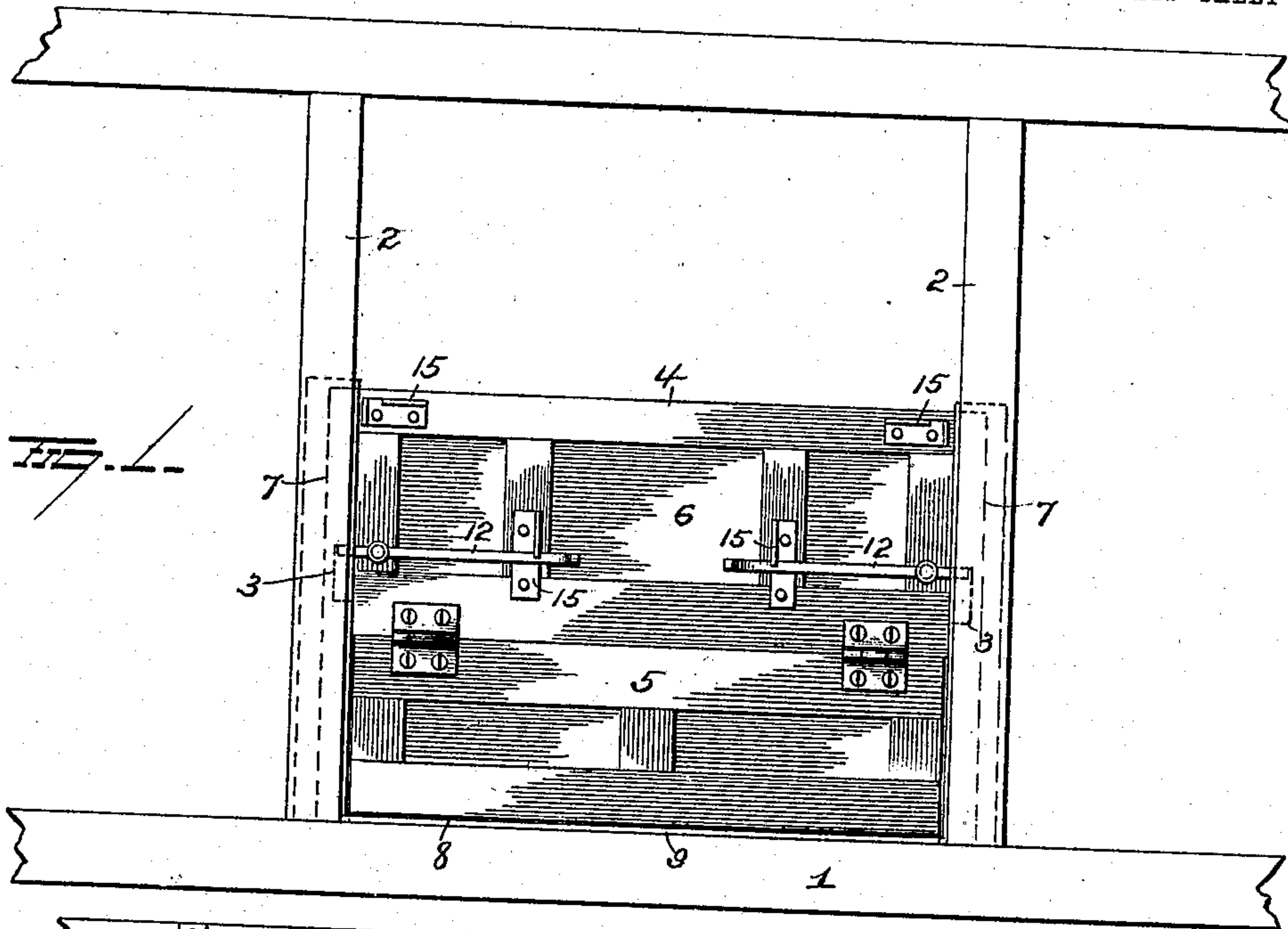


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Patented June 8, 1909.  
2 SHEETS—SHEET 1.



WITNESSES  
E. Nottingham  
G. J. Downing

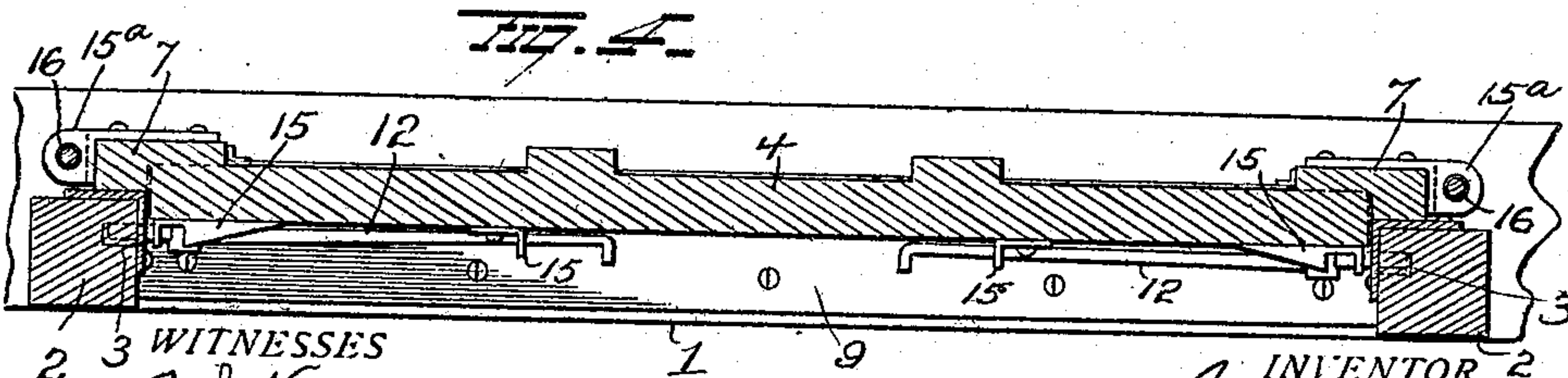
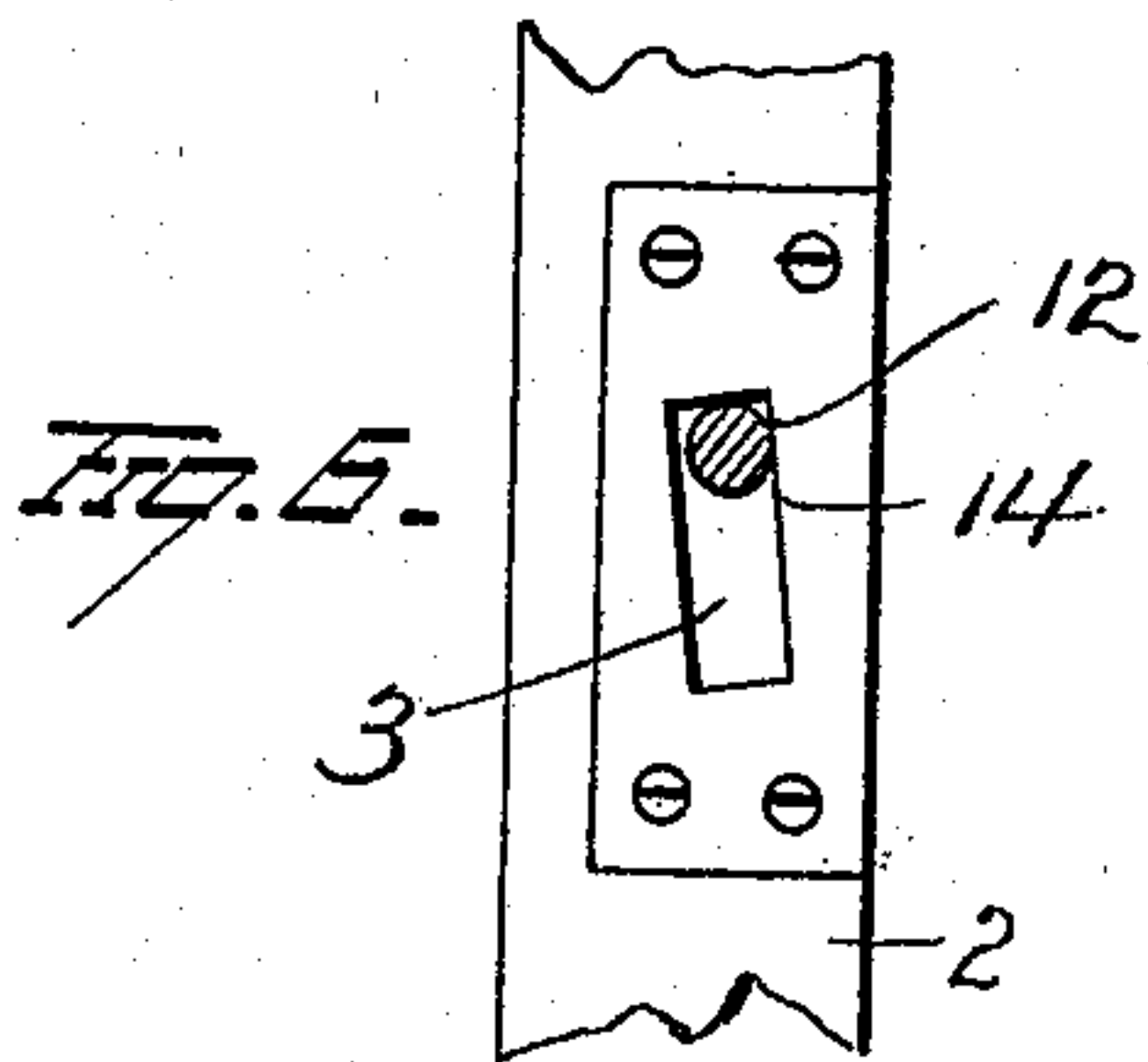
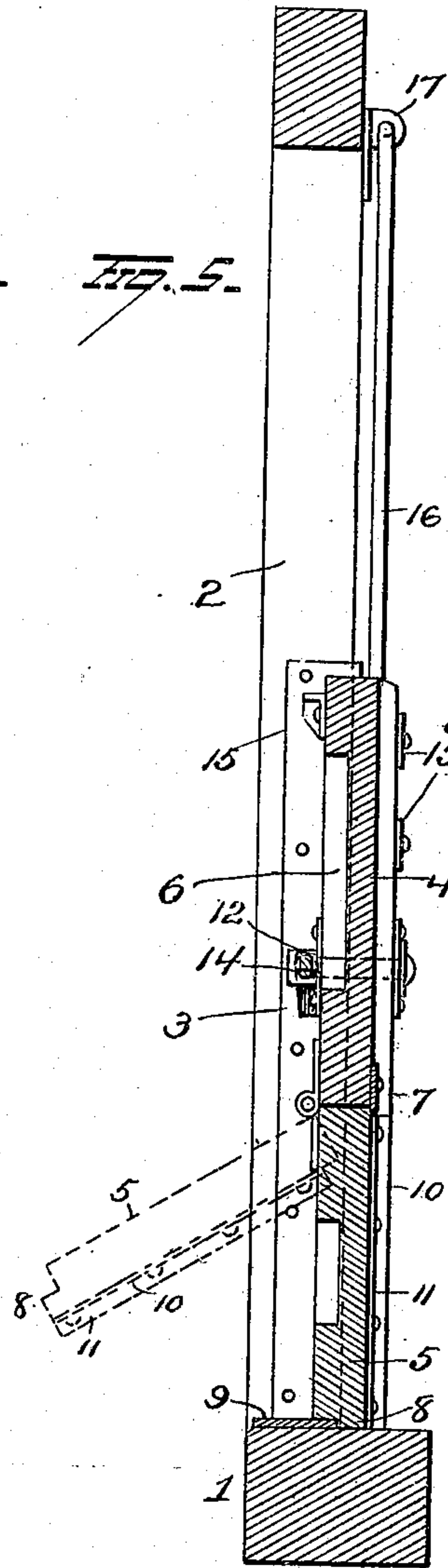
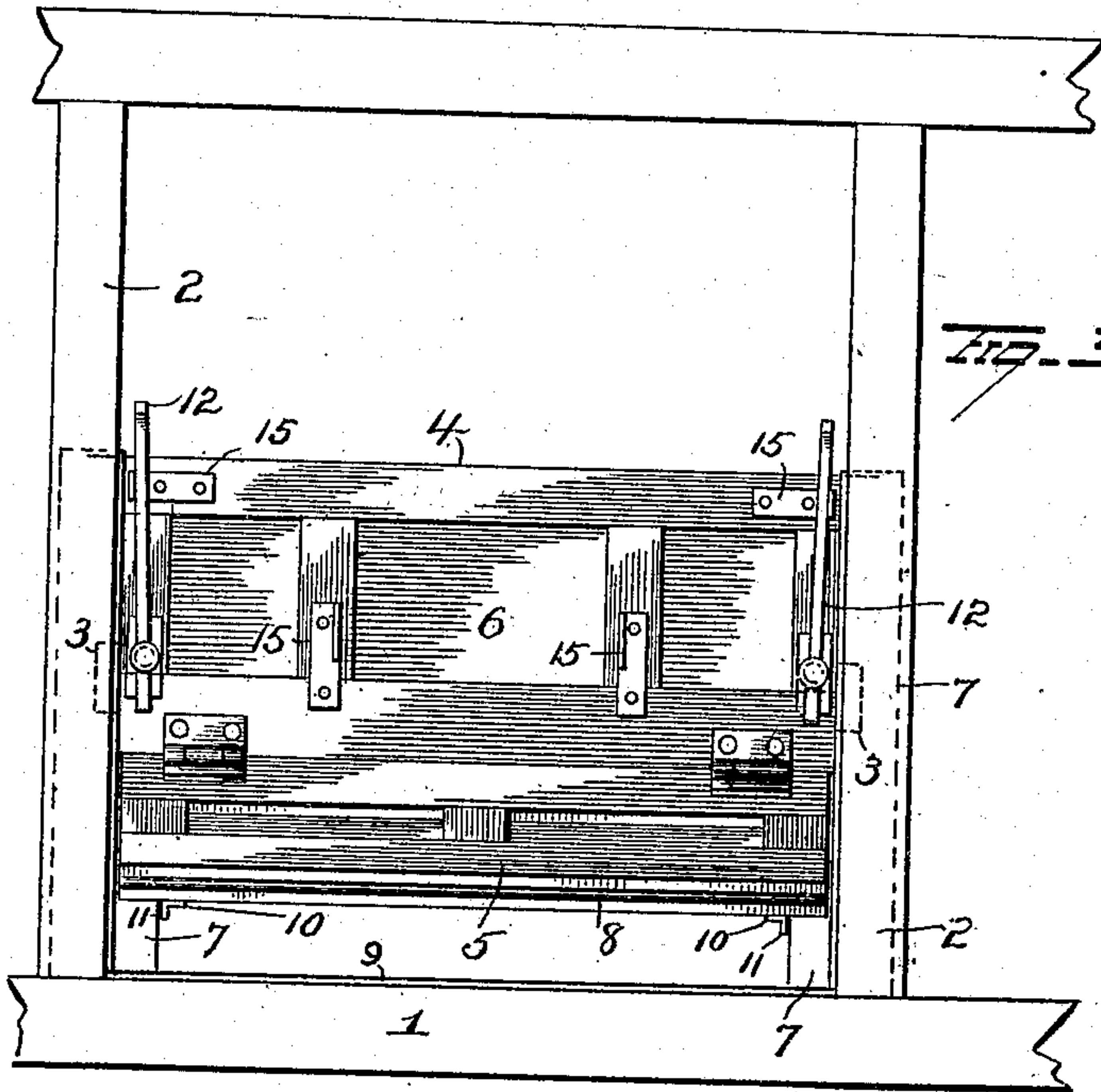
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JOHN HENRY, OF GRAND FORKS, NORTH DAKOTA.

## GRAIN-DOOR FOR CARS.

No. 924,064.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed November 16, 1907. Serial No. 402,420.

*To all whom it may concern:*

Be it known that I, JOHN HENRY, of Grand Forks, in the county of Grand Forks and State of North Dakota, have invented certain new and useful Improvements in Grain-Doors for Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same.

My invention relates to an improvement in grain doors for cars, the object being to provide a door that can be readily applied to any ordinary box car now in common use.

A further object is to provide a door which can be readily opened for the automatic discharge of the grain adjacent thereto.

A further object is to provide a door which will not interfere with the use of the ordinary sliding door, and which when not in use may be turned up against the underside of the top of the car, thus permitting the car to be used for miscellaneous freight.

A further object is to provide fastening means carried by the door, and which operate to draw the door to the door jambs or posts, and to the floor thus forming a tight closure and preventing the loss of any grain.

With these and other objects in view, my invention consists in the parts and combination of parts as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of a section of a car showing my invention applied thereto. Fig. 2 is a similar view from the inside of the car. Fig. 3 is a view similar to Fig. 1 showing the lower hinged section of the door open for the automatic discharge of the grain. Fig. 4 is a view in horizontal section through the door and posts. Fig. 5 is a view in vertical section looking toward one of the posts, and Fig. 6 is a view of a section of one of the side posts showing the keeper with inclined side walls.

1 represents the side sill, and 2 the door posts of an ordinary box car, each post being provided with a recess or keeper 3, the inner wall of which is beveled inwardly from its top, for a purpose to be hereinafter explained.

The door is composed of an upper main section 4, and a lower section 5 hinged to the main section, and adapted to swing outwardly so as to permit of the free discharge

of all the grain adjacent to the doors. The upper section of the door comprises a top panel 6, extending from one door post 2 to the other, and having an easy fit between them, and the strips or battens 7 to which the panel is secured at its ends. These end strips or battens 7, overlap the inner faces of the posts 2, and absolutely prevent the door from being forced out by a pressure from within. The battens 7 project below the panel 6, and when in operative position, rest on the sill 1, as shown in Figs. 1 and 2.

The lower section 5 of the door, is hinged to panel 6, the hinges being on the outside so as to permit section 5, to swing outwardly when it is desired to discharge the grain from the car. This lower hinged section 5 of the door, is overlapped at its ends by the battens which prevent it from swinging, or being forced inwardly, and is provided on its lower end with a flange 8, which latter is adapted to rest against the inner edge of the door sill 9, which as shown, is secured to the side sills of the car between the posts 2.

Instead of providing the swinging section 5 of the door with a flange 8 as above described, this flange may be omitted, and the lower edge of the door proper may engage the inner face of the door sill.

With the door in place, with the flange 8, or lower edge of the door projecting below and engaging the inner edge of the sill, the lower or hinged section is held against any swinging movement, hence in order to release the lower section, so as to permit it to swing outwardly, the door fastening devices, to be hereinafter described, must first be released, and the door moved bodily upwardly, by means of a bar or stick inserted between the door sill and the lower edge of the door. As soon as the swinging section of the door is clear of the door sill, the pressure of the grain will force it outwardly, thus permitting the grain which will gravitate out, to be discharged.

The swinging section of the door is provided on its inner face with the flanged strips 10, the flanges 11 of which bear against the edges of the battens 7 and prevent the escape of any grain at these points.

Pivotaly secured to the outer face of the upper section 4 of the door, are the locking bars 12, the shorter ends of which, when the bars are turned to a horizontal position, enter the socketed keepers 3 in the posts 2, and lock the door in place. The inner walls



of the keepers are inclined upwardly and outwardly so that the bars 12, which enter the keepers from below, engage the inclined walls as shown at 14, and forcibly pull the gate into contact with the inner faces of the post, while the contact of the locking bars with the top walls of the keepers, force the gate solidly down onto the floor of the car.

The upper section of the gate is provided on its outer face with the shouldered plates 15, two of which are for holding the locking bars 12 horizontally or in their locking positions, and two for holding the bars in vertical position. The shoulders on these plates have inclined surfaces over which the yielding or spring shanks of the bars ride, when moving to their two positions, the shoulders operating to hold the bars in these positions against the possibility of accidental displacement. To move the bars from one position to another, it is simply necessary to flex or bend the bar outwardly until it is clear of the shoulder holding it in place, and then to turn it on its axis until it is in its other position.

The door thus constructed, is provided at its side edges, near its upper end with eyes 15<sup>a</sup> through which the swinging rods 16 pass. These rods 16 are bent at right angles at their upper ends, and the ends so bent, are pivotally mounted in the brackets 17 secured to the car near the top thereof, and are free to swing inwardly within the car.

When the door is not in use, it can be slid up on rods 16 and then turned up against the roof of the car and secured in this position out of the way, by hooks or any suitable fastening devices.

When it is desired to convert the box car into a grain car, the door is lowered, and is secured in place by turning the locking bars from their vertical position to horizontal positions, the handles or shanks of the locking bars, being readily accessible from the inside of the car.

To discharge the grain from the car, the locking bars are turned to disengage the keepers, and the door bodily raised by a bar or stick inserted between the door sill and lower edge of door, or between the sill and a shoulder on the door. As soon as the swinging section of the door clears the door sill, the pressure of the grain forces said swinging section outwardly thus permitting the grain to flow from the car. All the grain bearing against the door, will gravitate out, and as soon as all that will naturally flow from the car has passed out, the door will then be free to be raised out of the way, thus permitting the remaining grain to be shoveled out.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my

invention hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but,

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

1. In a grain door for cars, the combination with door posts, of a door bearing at its ends against the inner faces of the posts, keepers in the posts, and locking bars on the outer side of the door cooperating with said keepers in the door posts by wedging engagement to force the door toward the posts and by direct contact to force the door downwardly toward the floor, the said bars being resilient in a vertical plane to compensate for varying conditions, such as shrinking or swelling of the door.

2. In a grain door for cars, the combination with an upper panel having end battens projecting below the panel and a section hinged to the upper panel and, when the door is in fully closed position, engaging the doorway to prevent the lower section from swinging from the battens, said lower section having end bearings against said battens, of a single set of locking means cooperating with the door posts to secure the upper panel and therefore the hinged section against movement in any direction.

3. In a grain door for cars, the combination with door posts provided with keepers, of a door bearing at its ends against the inner faces of the posts, pivoted locking bars on the outer side of the door and each of said bars having a resilient portion, said locking bars cooperating with the keepers by wedging engagement to force the door toward the posts and by direct contact to force the door downwardly toward the floor, and means on the door to be engaged by the resilient portions of said pivoted locking bars to hold the latter in position.

4. In a grain door for cars, the combination with a sill and door posts, the latter provided with keepers, of a door comprising a main section and a hinged section, the hinged section engaging the sill, and pivoted locking bars carried by the main section of the door and engaging the keepers in the posts and locking both sections of the door.

5. In a grain door for cars, the combination with a vertically movable main section having end battens projecting below said section and a hinged section pivoted to the main section and bearing at its ends against said battens, said hinged section adapted at its lower end to abut against the sill of the door opening, of locking bars pivoted to the main section of the door and adapted to engage the keepers in the door posts to force the upper section against the door posts and the lower section against the sill, the said bars having spring handles or



shanks, and shoulders or stops for locking the bars in their two positions.

5 6. The combination of a grain door and locking bars carried by the door and engaging keepers in the door posts and adapted to draw the door outwardly to the posts and force it downwardly to the floor, said locking bars having self-adjusting spring movement whereby one part of the locking means thus formed will adjust itself to another part.

10 7. The combination of a grain door, locking bars carried by the door and engaging

keepers in the door post, and means on the door for locking the outer ends of the locking bars, said locking bars having self-adjusting spring movement, whereby one part of the locking means thus formed will adjust itself to another part. 15

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses. 20

JOHN HENRY.

Witnesses:

A. N. MITCHELL,  
GEORGE F. DOWNING.