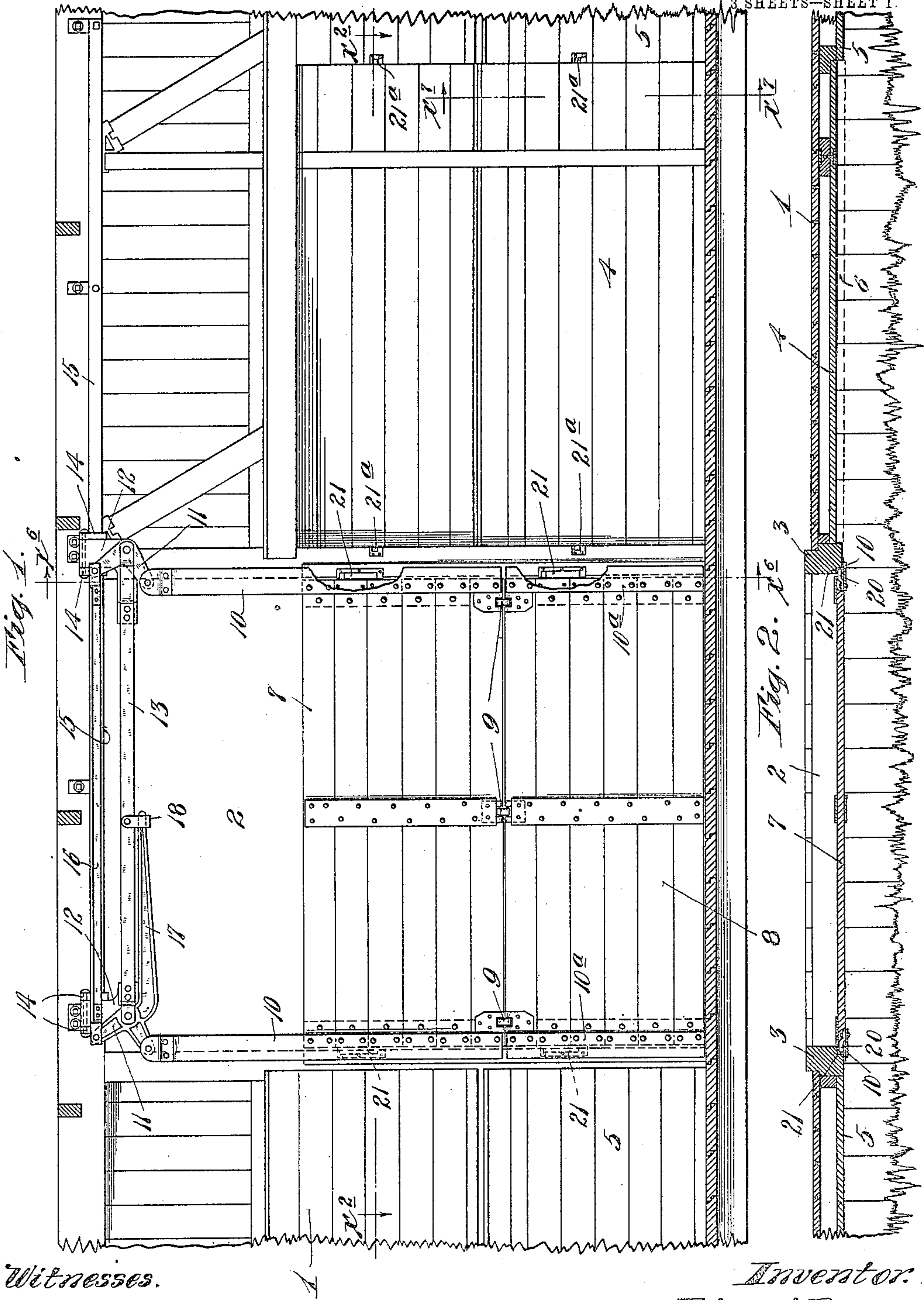


No. 822,630.

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E. POSSON.  
GRAIN DOOR FOR CARS.  
APPLICATION FILED JUNE 1, 1905.

3 SHEETS—SHEET 1.



Witnesses.  
E. W. Jeppesen.  
A. H. Opsahl.

Inventor.  
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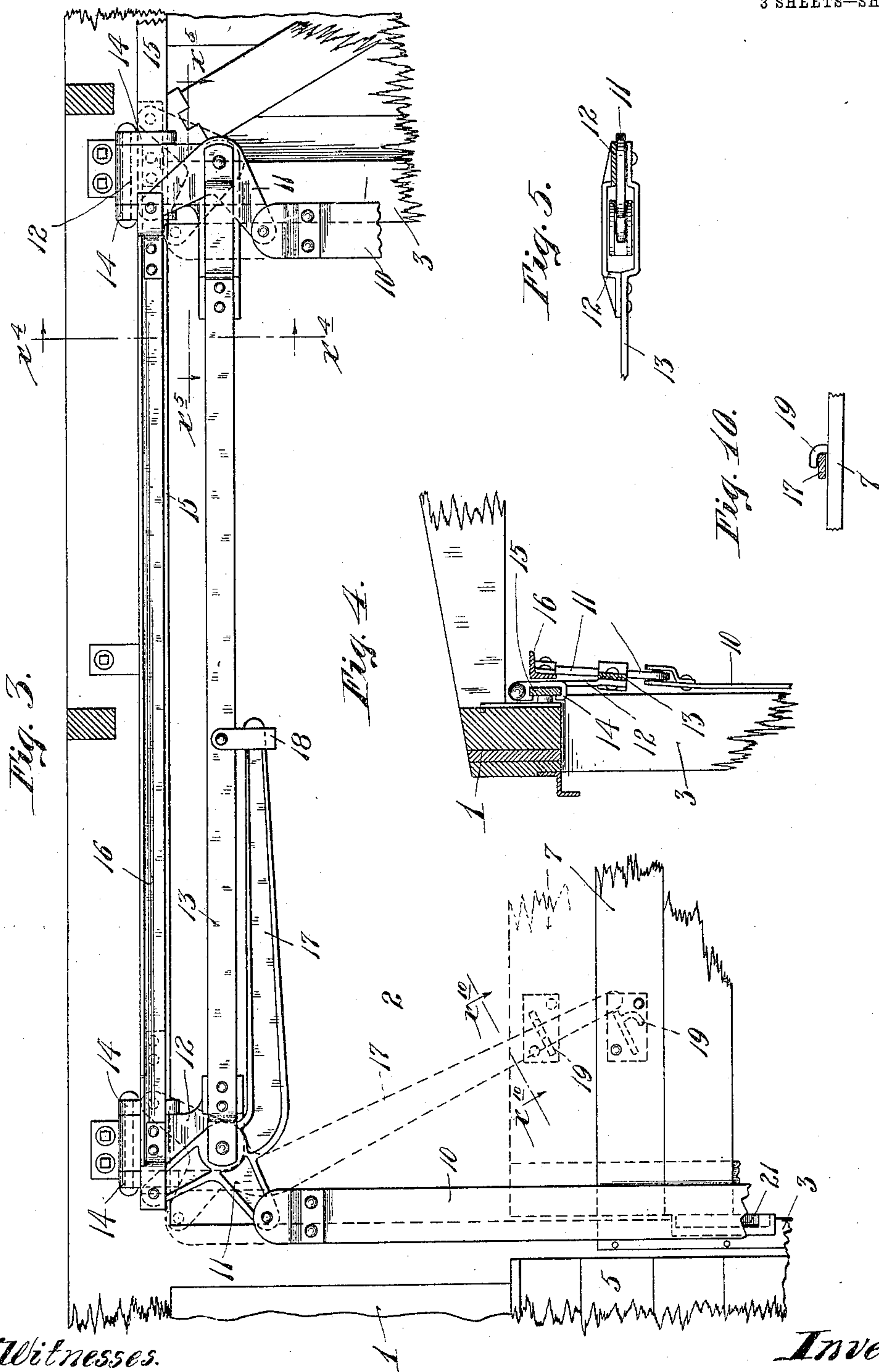
Williamson Muckert

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3 SHEETS—SHEET 2



Witnesses.

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3 SHEETS—SHEET 3.

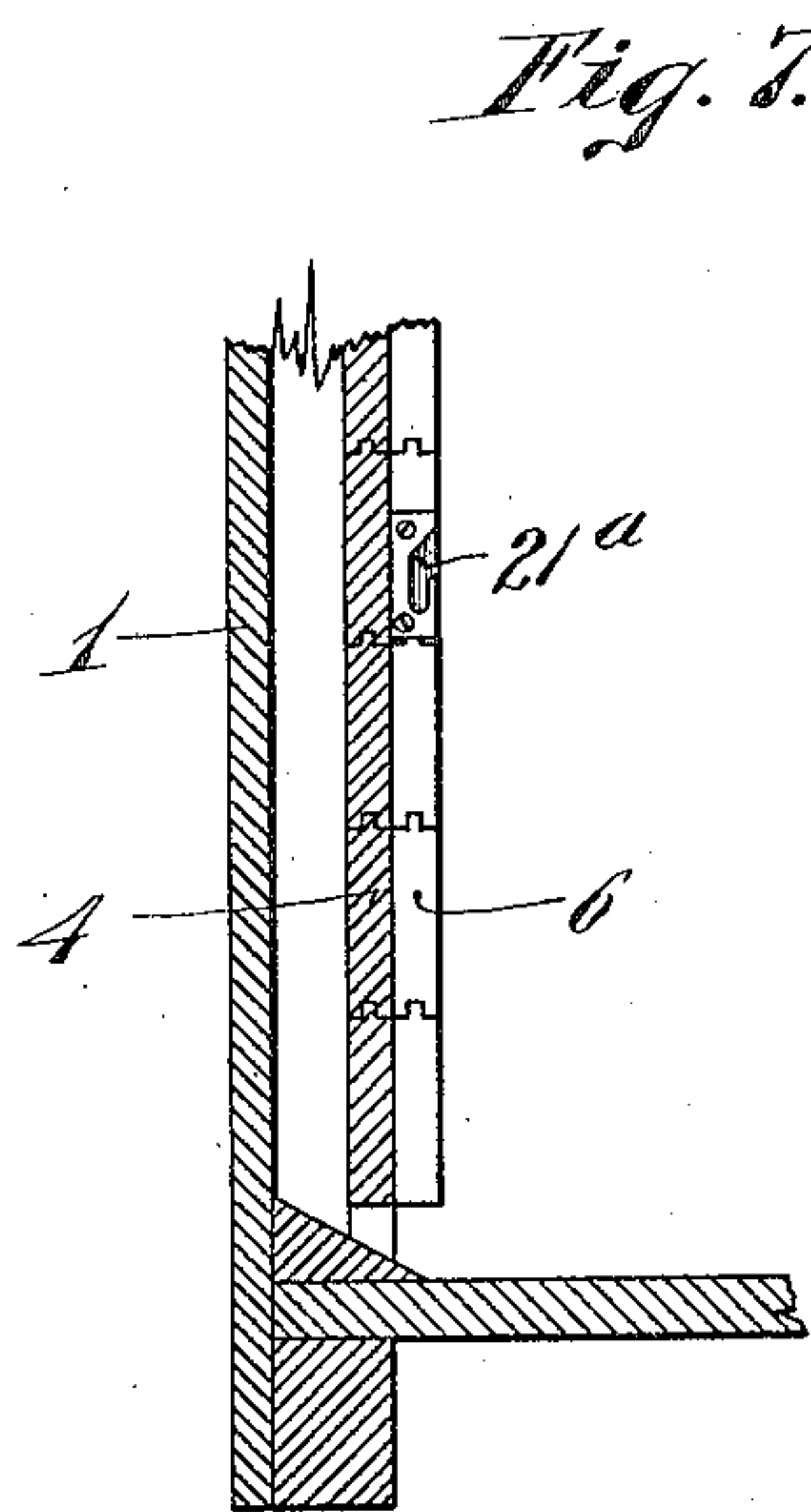
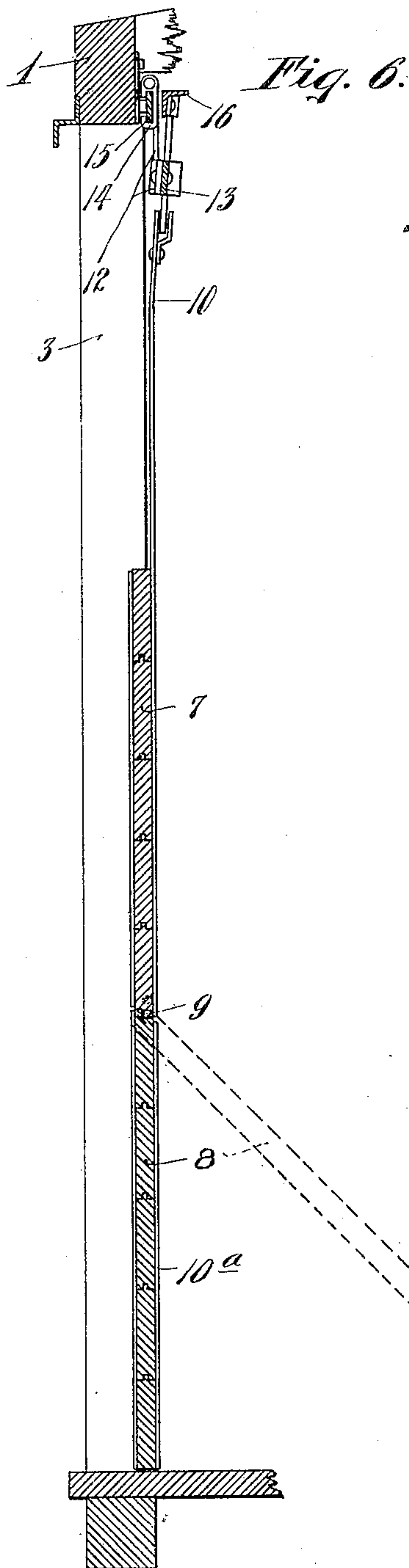
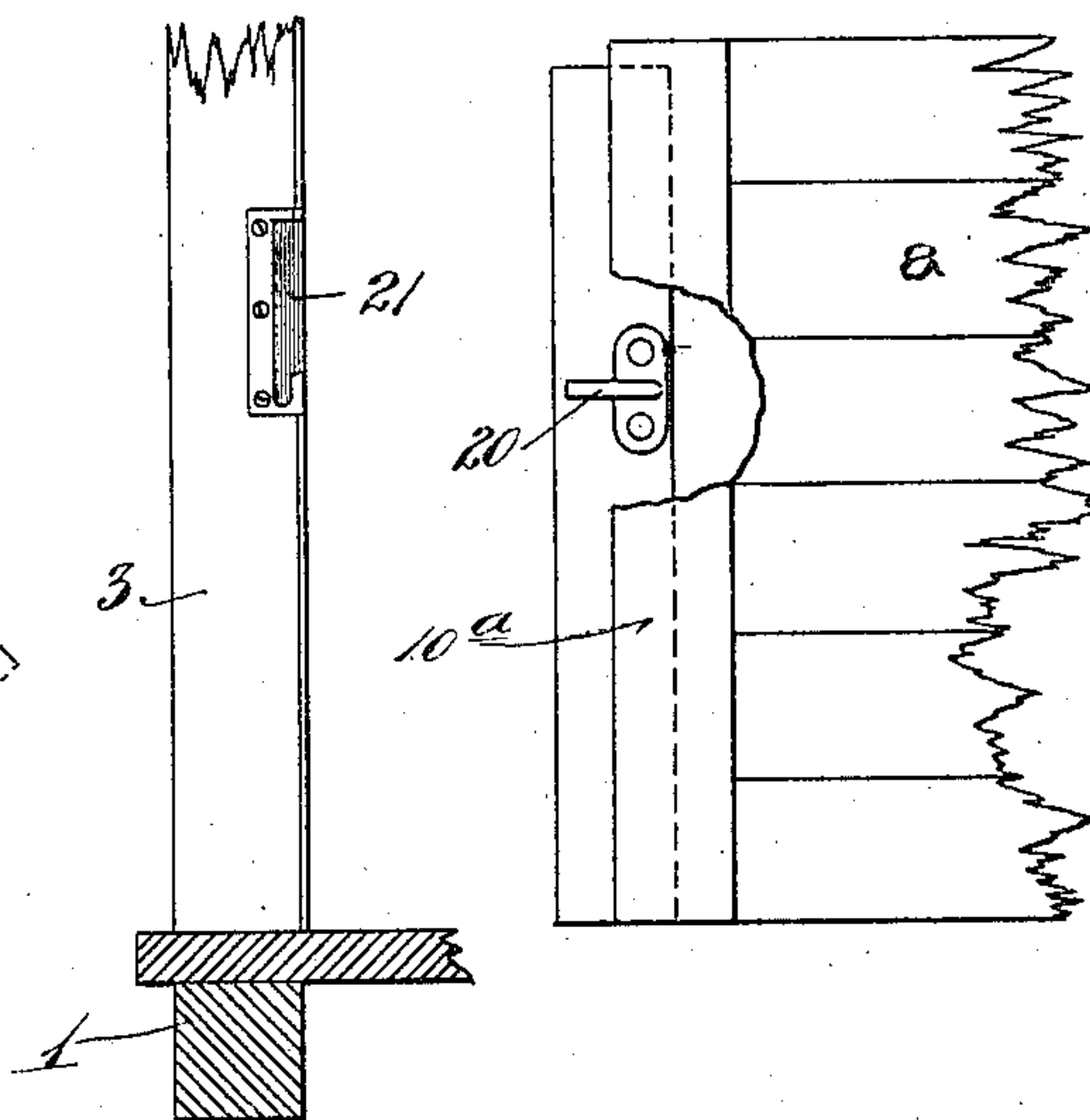


Fig. 8.

Fig. 9.



Witnesses.

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William Muehler



# UNITED STATES PATENT OFFICE.

EDWARD POSSON, OF CHICAGO, ILLINOIS.

## GRAIN-DOOR FOR CARS.

No. 822,630.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed June 1, 1905. Serial No. 263,290.

*To all whom it may concern:*

Be it known that I, EDWARD POSSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, 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 will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to grain-doors for cars, and has for its object to improve the same in the several particulars hereinafter noted.

The invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

In the accompanying drawings, which illustrate my invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in vertical section, taken longitudinally through a car-body and illustrating my improved grain-door applied to one of the door-openings thereof, some parts being broken away and others being removed. Fig. 2 is a horizontal section taken on the line  $x^2 x^2$  of Fig. 1. Fig. 3 is a view corresponding to Fig. 1, but showing the parts on an enlarged scale and showing certain of the parts in dotted-line positions, certain other of the parts being removed. Fig. 4 is a vertical section on the line  $x^4 x^4$  of Fig. 3. Fig. 5 is a horizontal section on the line  $x^5 x^5$  of Fig. 3. Fig. 6 is a vertical section taken on the line  $x^6 x^6$  of Fig. 1. Fig. 7 is a vertical section on the line  $x^7 x^7$  of Fig. 1, some parts being broken away. Fig. 8 is a section on the same line as Fig. 6, but with the grain-door removed. Fig. 9 is a view in-elevation with some parts broken away, showing one end of one of the grain-door sections, and Fig. 10 is a detail in section on the line  $x^{10} x^{10}$  of Fig. 3.

The numeral 1 indicates as an entirety the body of an ordinary box-car, having the usual doorways 2 in its sides. Only one of these doorways is illustrated in the drawings, and the vertical door-posts thereof are indicated by the numeral 3. At one side of the doorway the side of the car is provided with a lining section 4, that is offset into the side of the car—that is, toward the exterior thereof, about one inch from the main lining 5, as best

shown in Figs. 1 and 2, thereby leaving a countersunk seat 6 for the grain-door, presently to be described.

The grain-door is preferably made up of two sections 7 and 8, which sections are connected by hinges 9. The door-sections are preferably made up of narrow strips that are rigidly connected by metallic bars vertically disposed on their inner and outer edges and riveted thereto. Of these metallic bars it is for the purpose of this case only necessary to note bars 10 and 10<sup>a</sup>, which are rigidly secured to the inner surfaces or ends of the door-sections 7 and 8, respectively. These bars 10 and 10<sup>a</sup> project beyond the ends of the door-sections and engage with the door-posts 3 to hold the door-sections against outward movements under the pressure of the grain. Said bars 10 also project vertically upward from the door-section 7, and they are pivotally attached to the lower arms of a pair of bell-cranks 11, which bell-cranks are pivoted to traveling carrier-brackets 12. These carrier-brackets 12 are rigidly connected by a tie-bar 13, and they are pivotally supported by laterally-spaced blocks 14, which blocks embrace and slide freely upon the rail 15, rigidly secured to the inner surface of the side of the car and extending over the doorway and over the seat 6. The upper arms of the bell crank 11 are connected for common movements by a long link 16, as shown in the form of an angle-bar. One of said bell-cranks, as shown in Fig. 1 the left-hand member, is provided with an operative lever 17, that is adapted to be locked to the tie-bar 13 by a yoke 18, pivoted to said bar, as best shown in Figs. 1 and 3.

By a downward movement of the lever 17 into the position indicated by dotted lines in Fig. 3, the grain-door is adapted to be raised bodily into a position in which its lower edge stands about six inches from the car-floor. To lock said lever in this position with the door raised, a pivot lock-hook 19 is applied to the outer surface of the upper door-section 7, as best shown in Figs. 3 and 10. In Fig. 10 said lock-hook is indicated by full lines, while in Fig. 3 it is shown in two different positions by dotted lines, the upper position thereof being its operative position and the lower position being its inoperative position.

The projecting bars 10 and 10<sup>a</sup> of the door-sections 7 and 8 are both provided with offset



lock-fingers 20, (see Figs. 2, 8, and 9,) that are adapted to be engaged with the the depressions of detent-plates 21, set into the sides of the door-posts 3. As is evident, said  
 5 fingers 20 are interlocked with the said detent-plates 21 by lateral and downward movements of the door-sections and may be released therefrom by upward and lateral movements. When the said fingers and de-  
 10 tent-plates are so engaged, the door-sections are securely held in working position and against lateral movements. When the lever 17 is moved upward and secured by the lock-yoke 18, as shown in Fig. 1, the door-sections  
 15 are pressed downward and are locked in their lowered positions.

Set into the side of the car at the ends of the countersunk seat 6 are detent-plates 21<sup>a</sup>, that are very similar to the detent-plates 21  
 20 and are adapted to receive the fingers 20 of the two door-sections when the said door-sections are drawn into the same vertical plane and are inserted into the said seat 6, at which time the said door will be locked in an  
 25 inoperative position with its inner surface flush or substantially flush with the inner surface of the side of the car. As is evident, the door when thus applied will be entirely out of the way.

30 It is of course well known that when a car is filled with grain the grain-door is pressed laterally outward under such strain that it is usually very difficult to move the door. By means of the operating-lever 17 and by draw-  
 35 ing downward on the free end thereof the grain-door as an entirety may be quite easily raised, as already indicated, so that its lower edge will stand about six inches from the bot-  
 40 tom of the car. This will permit a very considerable quantity of the grain in the vicinity of the grain-door to run out of the car, and thus not only relieve the grain-door pressure,  
 45 but affords such clearance that the lower section 8 thereof may be drawn upward against the section 7. This being done, the folded grain-door may be moved endwise to one side  
 50 of the doorway and into a position in line with the countersunk seat 6. This endwise or traveling movement of the grain-door is of  
 55 course permitted by sliding movements of the traveling blocks 14 on the overhead rail 15. After the car has been cleared of grain the section 8 of the grain-door may be drawn downward, and the grain-door may then be  
 set into the countersunk seat 6 and interlocked therewith in the manner already de-  
 scribed.

The grain-door described is strong and durable, is capable of being easily moved to and  
 60 from its operative position and when placed in its inoperative position is entirely out of the way. Furthermore, by the use thereof time is saved in unloading cars, and there is  
 nothing dangerous in connection with the  
 65 operation of the grain-door, as is the case

with many grain-doors required to be suspended overhead when moved into inoperative position.

From what has been said it will be understood that the grain-door described is capable of modification within the scope of my invention, as herein set forth and claimed. 70

What I claim, and desire to secure by Letters Patent of the United States, is as follows: 75

1. The combination with a car-body and a grain-door, of a pair of bell-cranks pivotally supported above said grain-door, a link connecting the upper arms of said bell-cranks for common movements, connections be- 80  
 tween the lower arms of said bell-cranks and said grain-door for raising and lowering the said grain-door, and an operative lever connected to one of said bell-cranks, substantially as described. 85

2. The combination with a car-body having a rail secured over a doorway, of a pair of brackets mounted to slide on said rail, and means for connecting said brackets for com- 90  
 mon sliding movements, a pair of bell-crank levers pivoted on said brackets, a link connecting the upper arms of said bell-crank levers for common movements, a grain-door 95  
 connected to the lower arms of said bell-crank levers and adapted to be raised and lowered thereby, and an operating-lever connected to one of said bell-crank levers, sub-  
 stantially as described.

3. The combination with a car-body having a rail extending over its doorway and to 100  
 one side thereof, of hanger-brackets mounted to travel on said rail, a pair of bell-crank levers, pivoted to said hanger-brackets, one thereof, having an operative lever, a link con- 105  
 necting said bell-cranks for common movements, a bar connecting said hanger-brackets for common sliding movements, means for locking said lever to said bar and a grain-  
 door connected to and adapted to be raised and lowered by said bell-cranks, substantially 110  
 as described.

4. The combination with a car-body having a rail extending above its doorway and to 115  
 one side thereof, of a pair of hanger-brackets mounted to slide on and to move pivotally with respect to said rail, a bar rigidly con-  
 necting said hanger-brackets, a pair of bell-cranks having an operating-lever, a link con- 120  
 necting said bell-cranks, a grain-door connected to and adapted to be raised and lowered by said bell-cranks, and interlocking  
 devices on said grain-door and on the door-frame, arranged to be engaged by lateral and downward movement and to be disengaged 125  
 by an upward and lateral movement, substantially as described.

5. The combination with a car-body having a countersunk grain-door seat at one side 130  
 of its door-opening and having a rail extending over said doorway and said door-seat, of



hanger-brackets mounted to travel upon and to move pivotally with respect to said rail, said hanger-brackets being connected for common sliding movements, a grain-door, a raising and lowering device connecting said grain-door to said hanger-brackets, and interlocking devices on said grain-door and on the door-frame and at the ends of said grain-door seat, substantially as described.

6. The combination with a car-body having a doorway 2 and a grain-door seat 6, said seat 6 being countersunk into the side of the car at one side of said doorway, of a rail 15 secured to the car-body above said doorway and grain-door seat, blocks 14 interlocked with and mounted to slide on said rail, hanger-brackets 12 pivotally supported by said blocks 14, a tie-bar 13 rigidly connecting

said hanger-brackets, bell-cranks 11 pivoted to said hanger-brackets, one thereof, having an operating-lever 17, a lock 18 for securing said lever to said bar 13, a link 16 connecting said bell cranks for common movements, a two-part grain-door 7 8 and bars 10 and 10<sup>a</sup> secured respectively to the sections 7 8 of said door, said bars 10 being extended upward and pivotally connected to said bell-cranks, and which grain-door, when moved from operative position, is adapted to enter said door-seat 6, substantially as described.

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

EDWARD POSSON.

Witnesses:

DENNIS MURTAUGH,  
E. J. SUTHERLIN.