

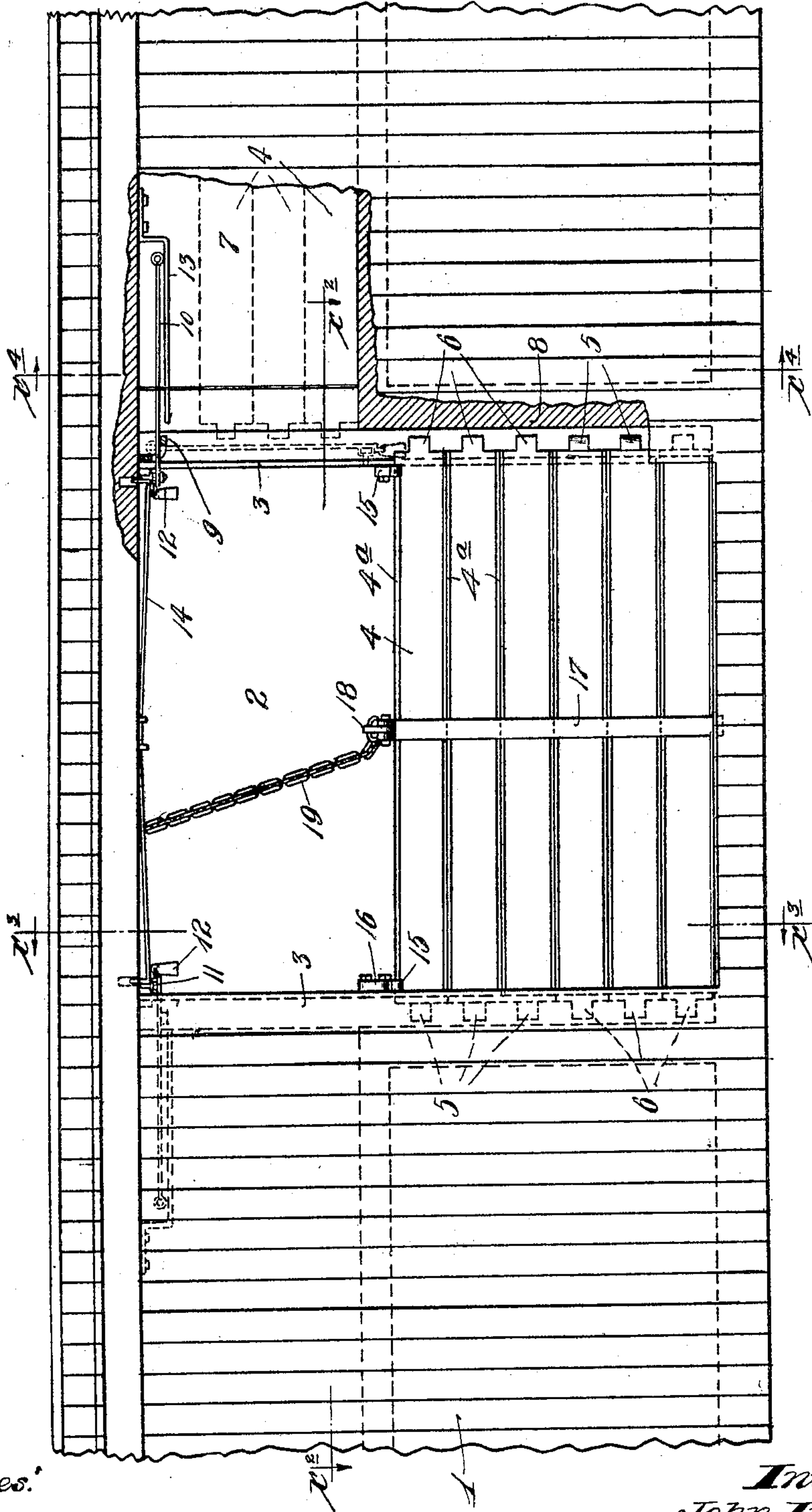
No. 797,894.

PATENTED AUG. 22, 1905.

J. IVERSON.
GRAIN DOOR FOR CARS.
APPLICATION FILED MAR. 6, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
G. W. Jeppesen
A. H. Opsahl

Inventor:
John Iverson.
By his Attorneys.

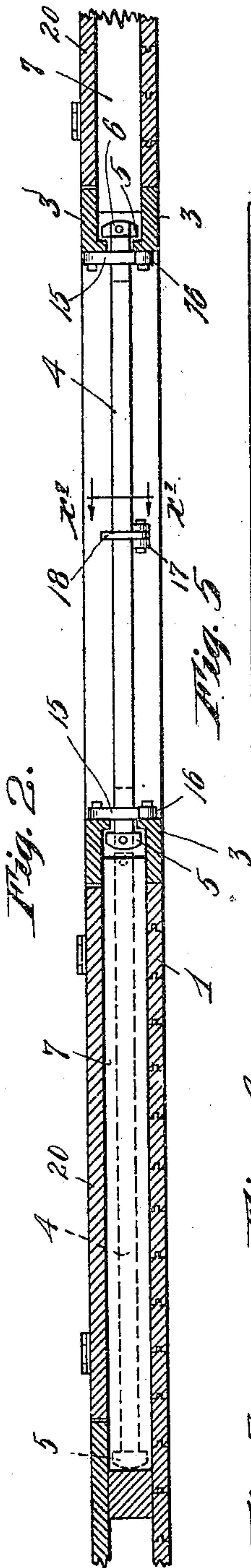
Williamson & McChesney

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2 SHEETS—SHEET 2.



Witnesses.
E. W. Jeppesen.
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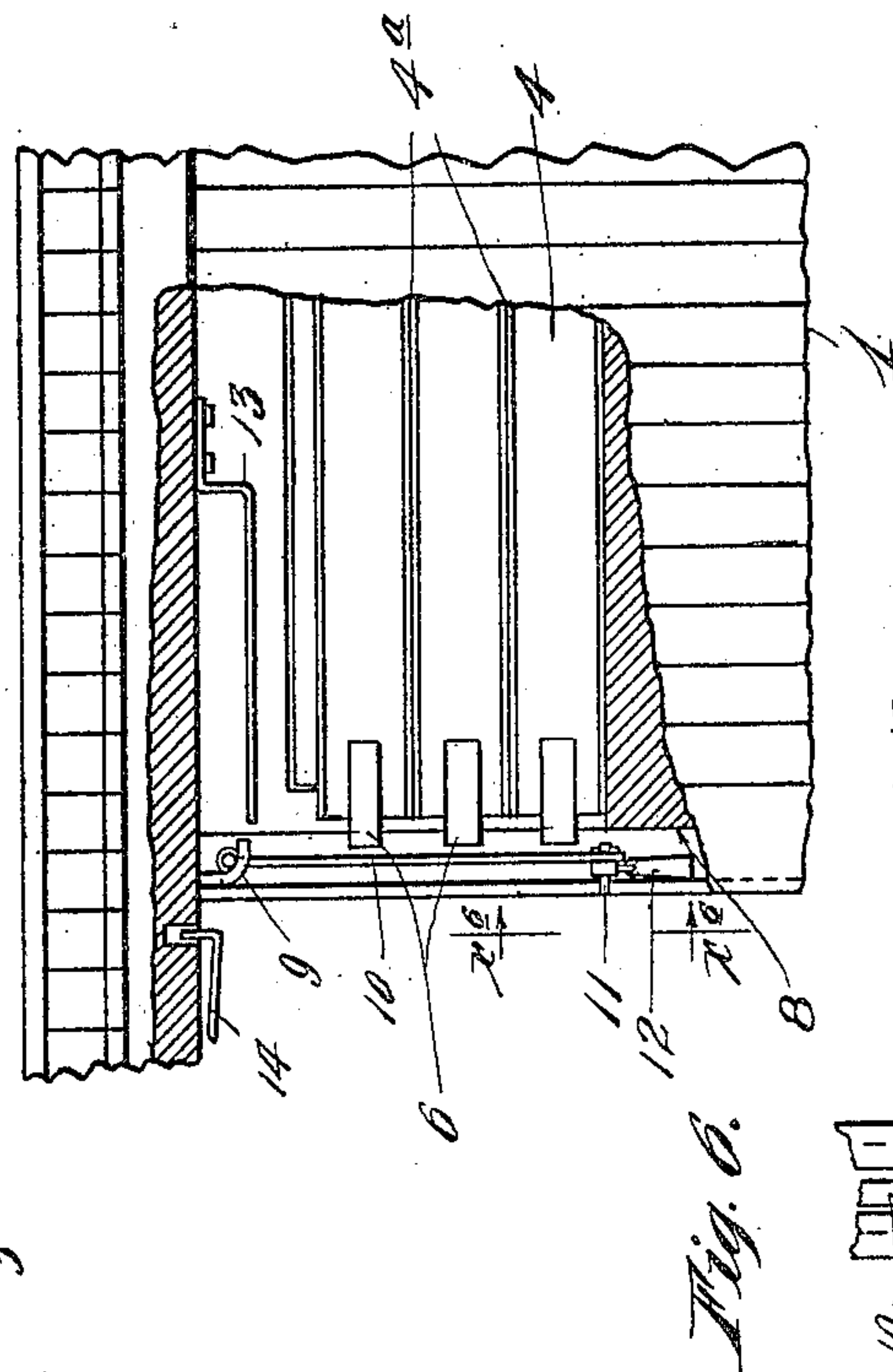


Fig. 3.

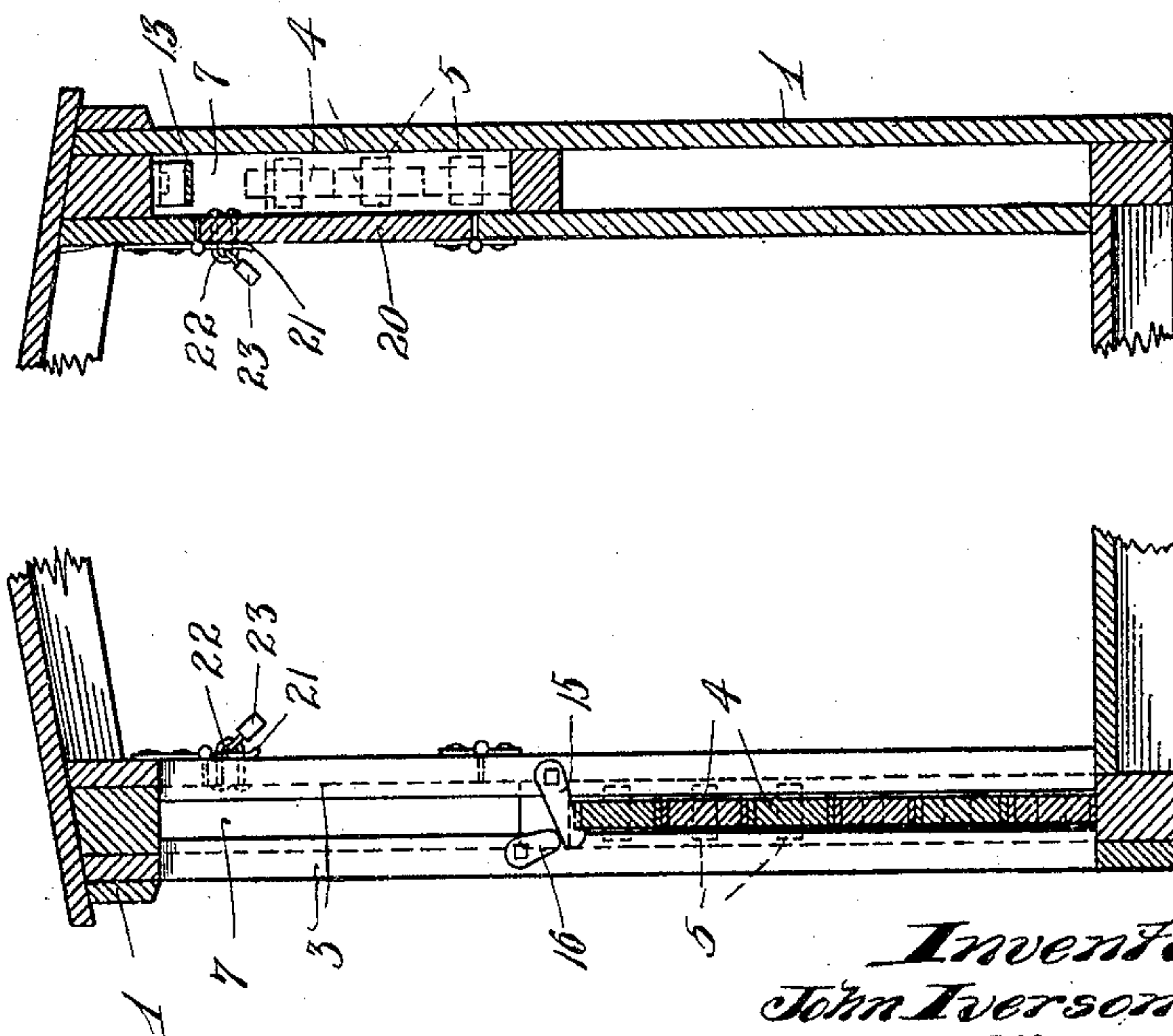


Fig. 4.

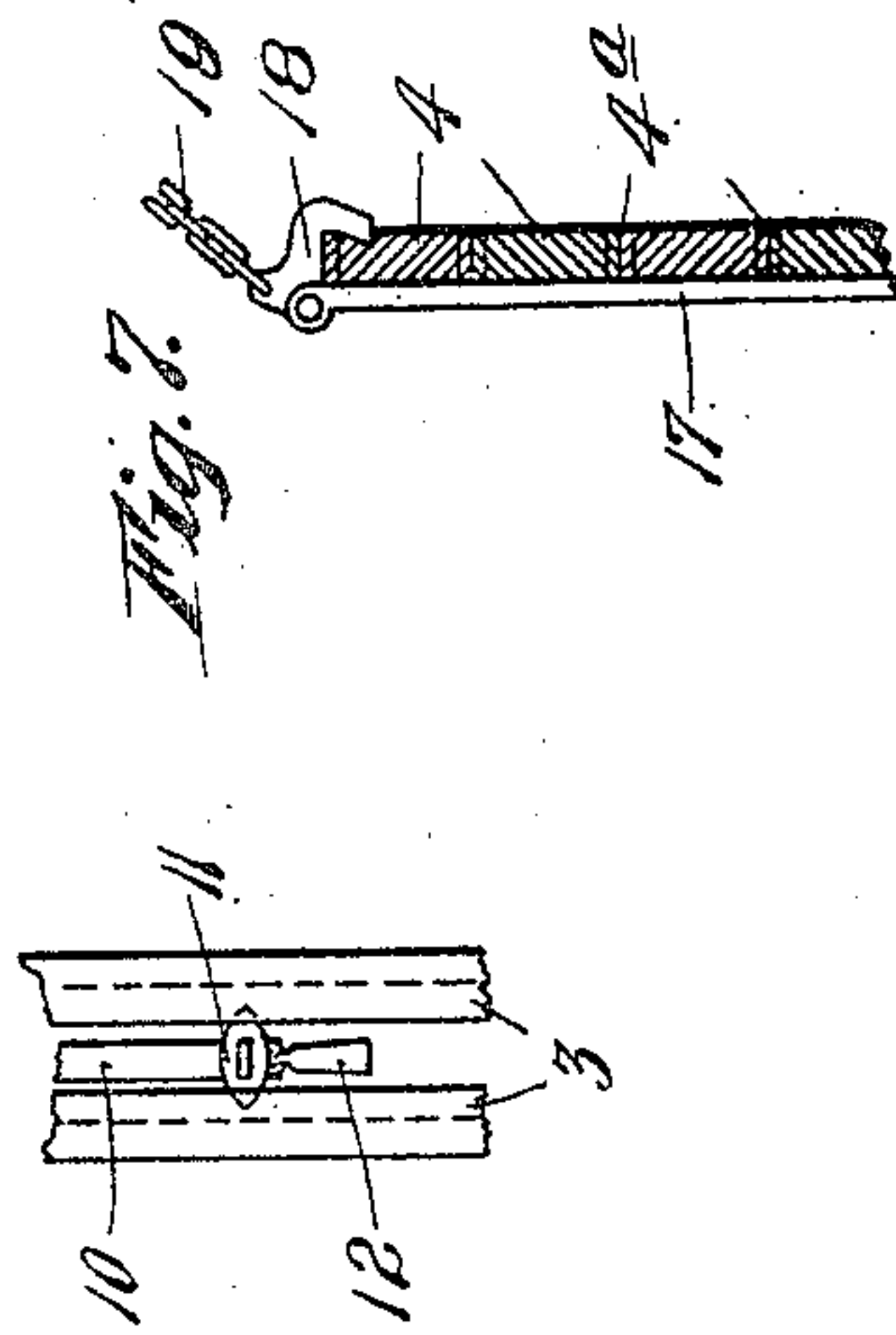


Fig. 5.

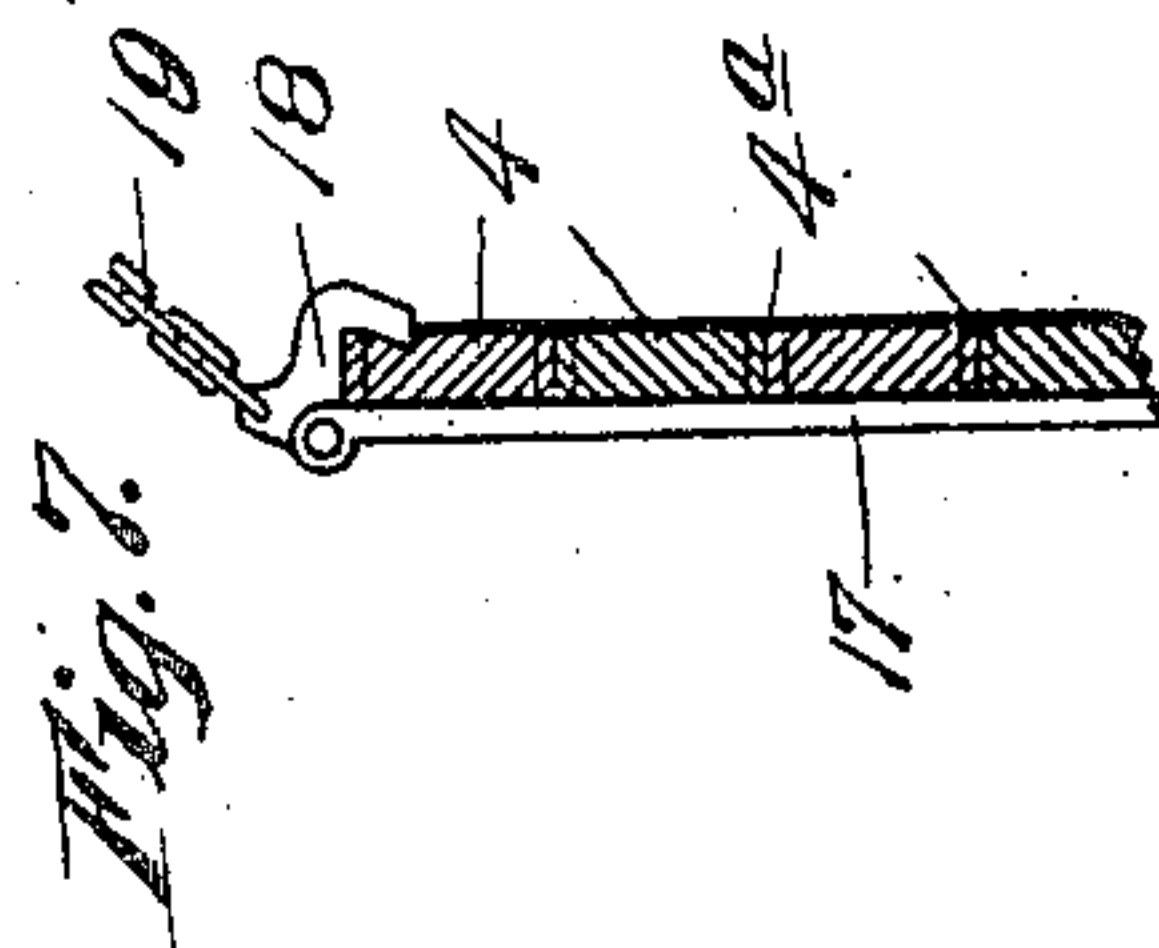


Fig. 6.

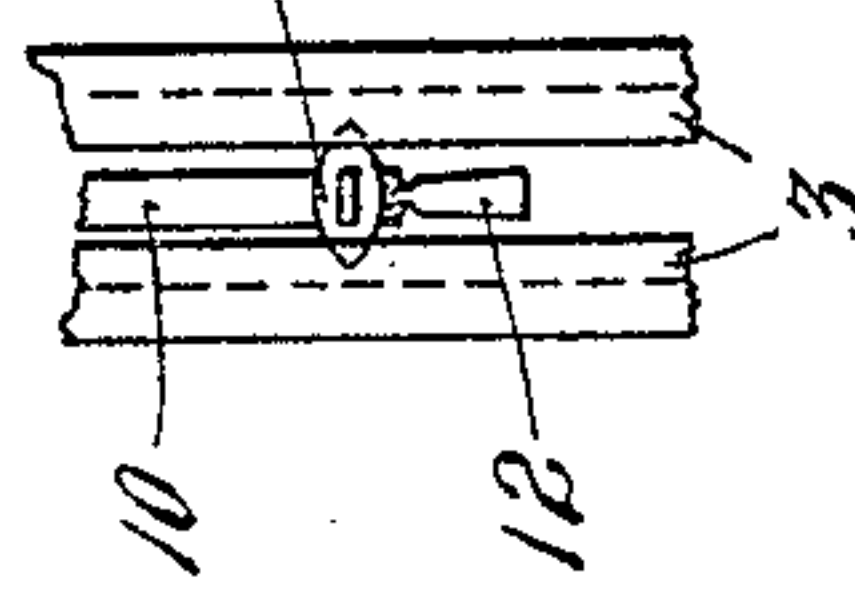


Fig. 7.

Inventor:
John Iverson.
By His Attorneys.

Williamson Muehler

UNITED STATES PATENT OFFICE.

JOHN IVERSON, OF MINNEAPOLIS, MINNESOTA.

GRAIN-DOOR FOR CARS.

No. 797,894.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed March 6, 1905. Serial No. 248,411.

To all whom it may concern:

Beitknown that I, JOHN IVERSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, 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 box-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.

Figure 1 is a view in side elevation with some parts broken away, showing my improved grain-door applied to a car. Fig. 2 is a horizontal section taken on the line $x^2 x^2$ of Fig. 1, some parts being broken away. Fig. 3 is a transverse vertical section taken on the line $x^3 x^3$ of Fig. 1, some parts being broken away. Fig. 4 is a transverse vertical section taken on the line $x^4 x^4$ of Fig. 1, some parts being broken away. Fig. 5 is a view corresponding to Fig. 1 with some parts removed and others broken away and illustrating different positions of the parts. Fig. 6 is a detail in elevation with parts broken away, looking at the inner face of one side of the door-frame; and Fig. 7 is a detail in section on the line $x^7 x^7$ of Fig. 2, some parts being broken away.

The numeral 1 indicates the body of an ordinary box-car having the usual door-openings 2, the side frames of the door-openings being formed by vertically-disposed laterally-spaced angle-bars 3, having their short flanges turned inward, as shown in Fig. 2.

The grain-door is made up of a plurality of bars or sections 4, which are of such length that they are adapted to span the openings 2 and project between the flanges of the angle-bars 3. As shown, the door is made up of six of these bars or sections. The three lower bars at their right-hand ends as viewed in Fig. 1 are provided with transversely-extended heads 5, that work in the vertical channel formed between the two ad-

jacent angle-bars 3 inward of the inturned flanges thereof, while the three upper bars 4 are provided with similar heads, that work in a similar way in the channel formed between the left-hand angle-bars 3. Again, the three lower bars are provided at their left-hand ends with narrow ends 6, that project between the flanges of the left-hand angle-bars 3, while the three upper bars are provided at their right-hand end with similar projections that work between the flanges of the right-hand angle-bars 3.

Above the topmost bar 4 on each side of the doorway are vertically and longitudinally extended pockets 7, that are adapted to receive the bars or door-sections when they are raised and forced endwise into the same. Vertical beams 8 extend along the inner edges of the angle-bars 3 downward from the pockets 7 and serve as stops for holding the door-sections against endwise movements when they are dropped into operative positions, as shown in Fig. 1.

The three upper bars or sections 4 when raised into line with the pockets 7 are adapted to be moved endwise into the left-hand pocket, while the three lower of said bars or sections when raised are adapted to be forced endwise into the right-hand pocket 7, as shown in Fig. 1.

To prevent the bars placed in the pockets, as above described, from being shaken or rattled out therefrom, suitable detaining devices are provided. These detaining devices, as shown, are constructed as follows: The numeral 9 indicates a perforated bracket secured to the upper portion of the adjacent angle-bars 3. Working with freedom for sliding and pivotal movements through this bracket is a headed rod 10, provided at its outer end with an elongated pivoted button 11, to which is attached a weight 12. Normally the rod 10 is pushed into the adjacent pocket 7, and its inner end is supported by a light shelf 13, and its outer end is engaged by a spring-latch 14, applied to the top of the door-frame and serving to hold said rod 10 in its inoperative position. (Shown in Fig. 1.) One of these detaining devices is of course applied at each side of the doorway.

When the bars 4 are inserted into the pockets 7, the detaining device is set in an operative position by first pressing up the latch 14 to release the rod 10, then dropping the said rod into the position indicated by

dotted lines in Fig. 1 and by full lines in Fig. 5. When the button 11 is turned into a vertical position, it is adapted to be passed between the flanges of the angle-bars 3, and when it is released its weight 12 will turn it into a horizontal position, as shown in Fig. 6, thereby locking the rod 10 in its operative position.

As shown, the ends 6 of the bars 4 are perforated, so that by applying a hook or other tool thereto said bars may be drawn out of the pockets 7 and dropped into operative positions. The numeral 15 indicates hooks pivoted to the innermost angle-bars 3 and engageable with the upper edge of the uppermost bar 4, and the numeral 16 indicates pivoted lock-lugs applied to the outermost angle-bars 3 and engageable with the hooks 15 to hold the latter down in engagement with the said bars 4.

The numeral 17 indicates a stiffening-bar the lower end of which is engageable with the seat in the bottom of the door-frame and to the upper end of which is pivoted a hook 18, that is engageable with the central portion of the upper bar 4, as best shown in Fig. 7. Said bar 17 and the hook 18 serve to tie together the bars or door-sections 4 at the central portion of the door. The numeral 19 indicates a chain which, as shown, connects the hook 18 to the top of the car.

At the inner sides of the pockets 7 are hinged doors 20, which when open afford access to the bars or door-sections 4 contained in the said pockets and permit the removal of the said bars or door-sections. These doors 20 are normally held in closed positions by hinged hasps 21, staples 22, and padlocks 23, preferably applied as shown in Figs. 3 and 4. The bars or door-sections 4 at their upper and lower edges are preferably faced and reinforced by metallic strips 4^a, while the body portions 4 are preferably constructed of wood.

It is a well-known fact that grain-doors as usually constructed are very heavy and when hung overhead are dangerous to persons working in the car. Furthermore, on account of their weight they are very difficult to move to and from operative positions.

My invention provides a grain-door which while very strong and durable may be easily moved to and from operative position and

when placed in an inoperative position is entirely out of the way.

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

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

1. The combination with a car-body having vertical guides in the sides of its door-frame and having a pocket in its side wall adjacent to the doorway, of a grain-door made up of sections, which sections at their ends work in the vertical guides of said door-frame and at one end have heads interlocking with the vertical guide adjacent to said pocket and which sections are adapted to be moved endwise into and out of said pocket, substantially as described.

2. The combination with a car-body having vertical guides in the sides of its door-frame and having pockets in its side wall adjacent to the doorway, of a grain-door made up of sections, which sections at their ends, work in the vertical guides of said door-frame, certain of said sections having heads at one end and certain of said sections having heads at the other end, such heads interlocking with said vertical guides, and such sections being adapted to be moved into and out of the pockets adjacent to their headed ends, substantially as described.

3. The combination with a car-body having the sides of its door-frame formed by angle-bars 3 and having the pockets 7 in its side walls, of a grain-door made up of bar-like sections 4 having the laterally-extended heads 5, certain of said heads interlocking for vertical sliding movements with one pair of angle-bars 3 and other of said heads interlocking for vertical sliding movements with the other pair of said angle-bars, the said door-section being movable endwise into the pockets 7, which are adjacent to their heads 5, substantially as described.

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

JOHN IVERSON.

Witnesses:

H. D. KILGORE,
F. D. MERCHANT.