

**No. 688,007.**

**Patented Dec. 3, 1901.**

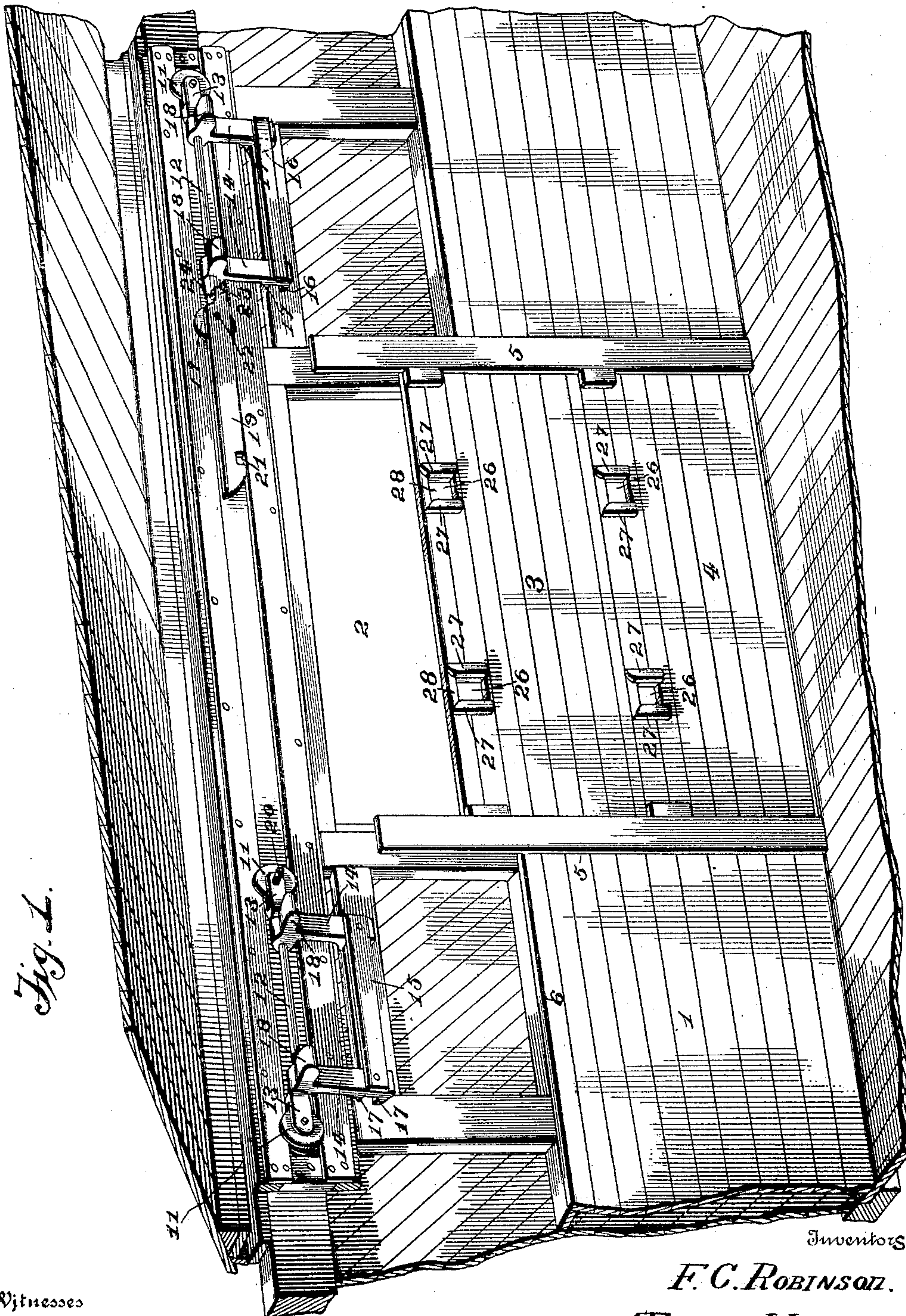
**F. C. ROBINSON & T. WILLIAMS.**

**CAR DOOR.**

(Application filed Mar. 30, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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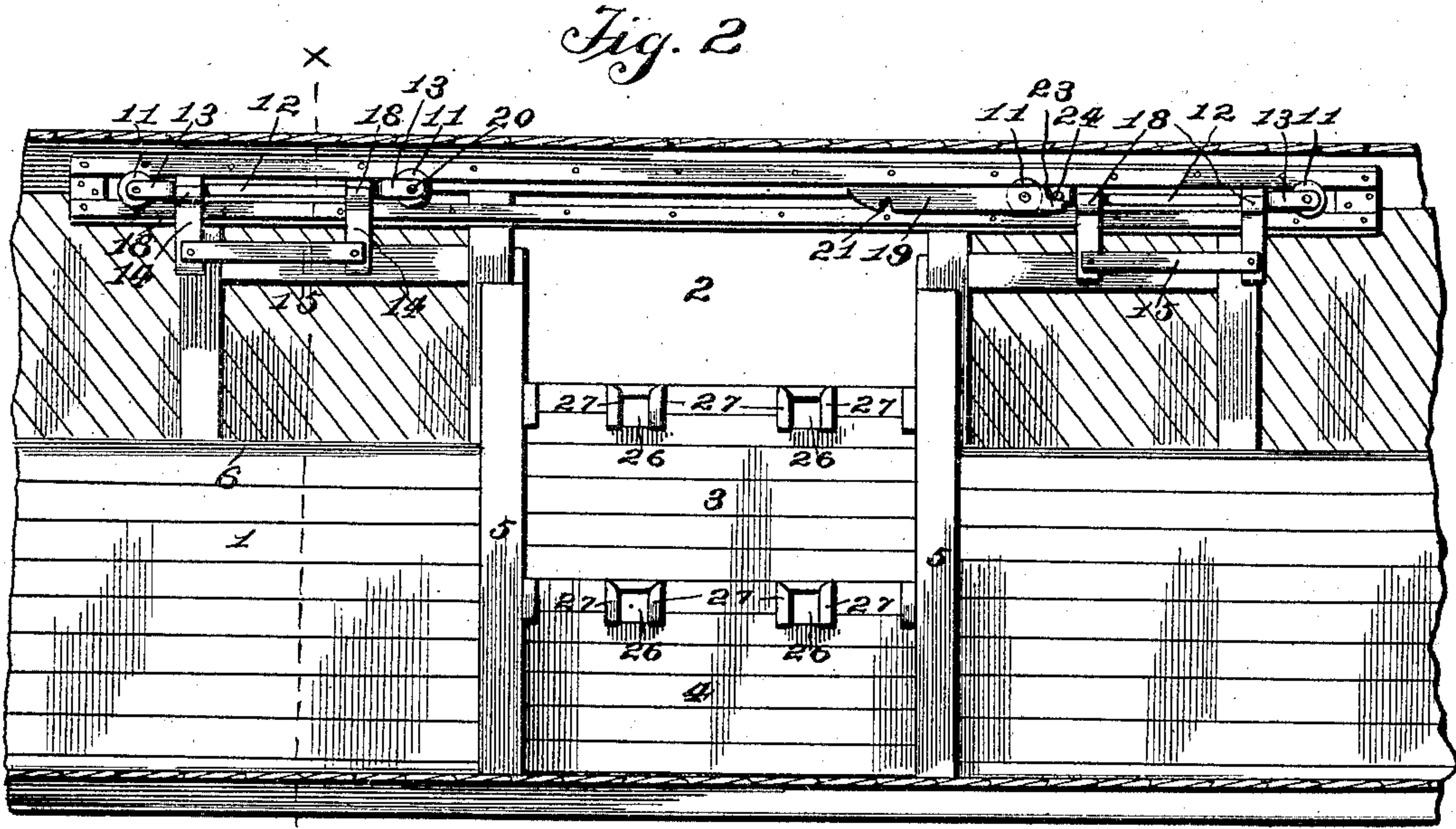
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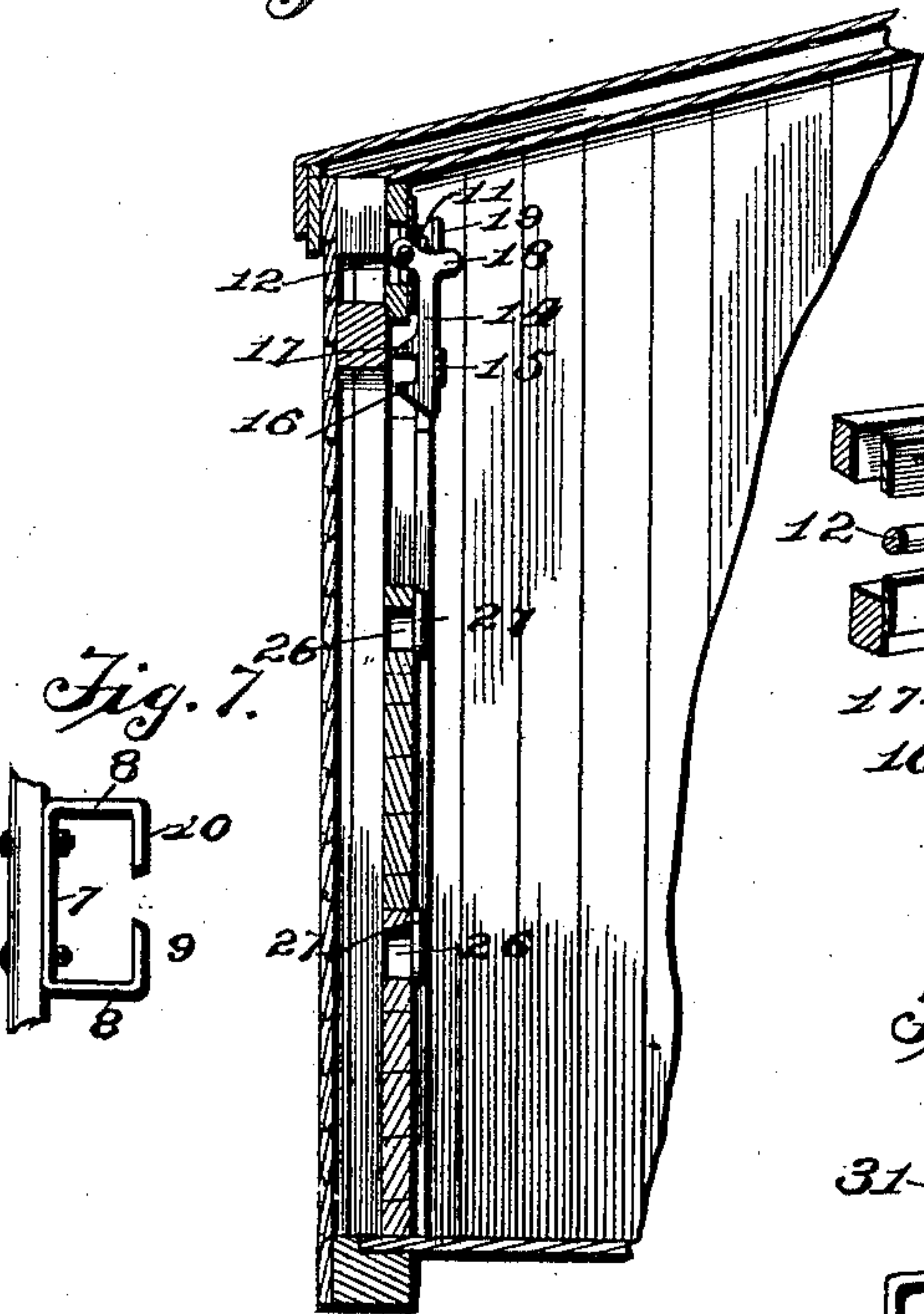
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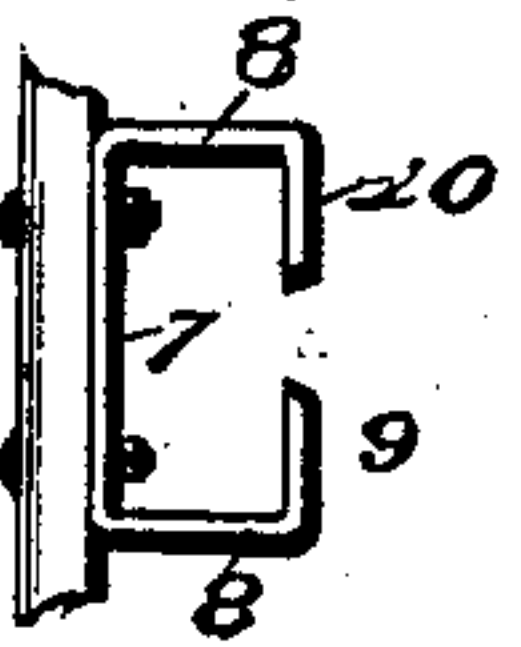
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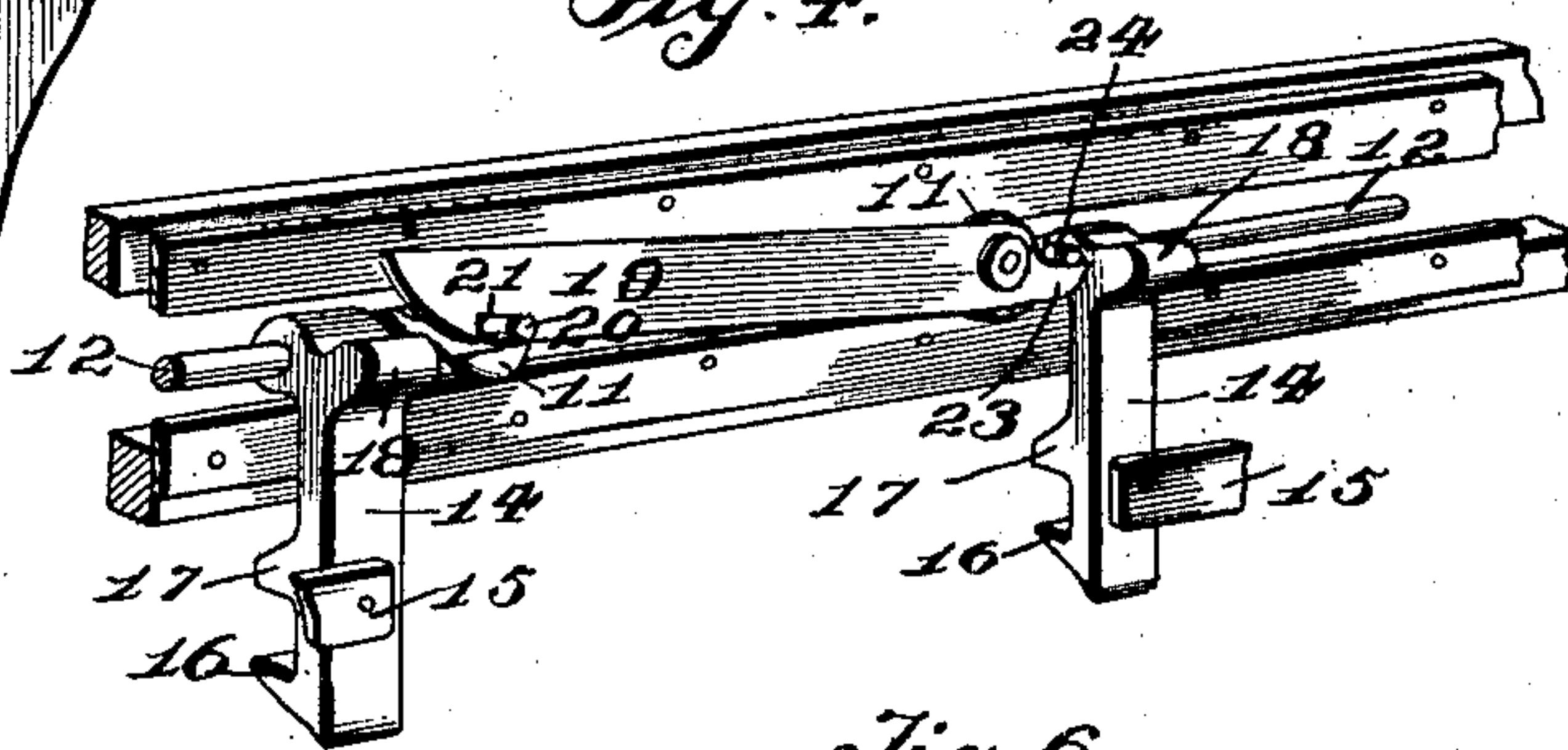
*Fig. 3.*



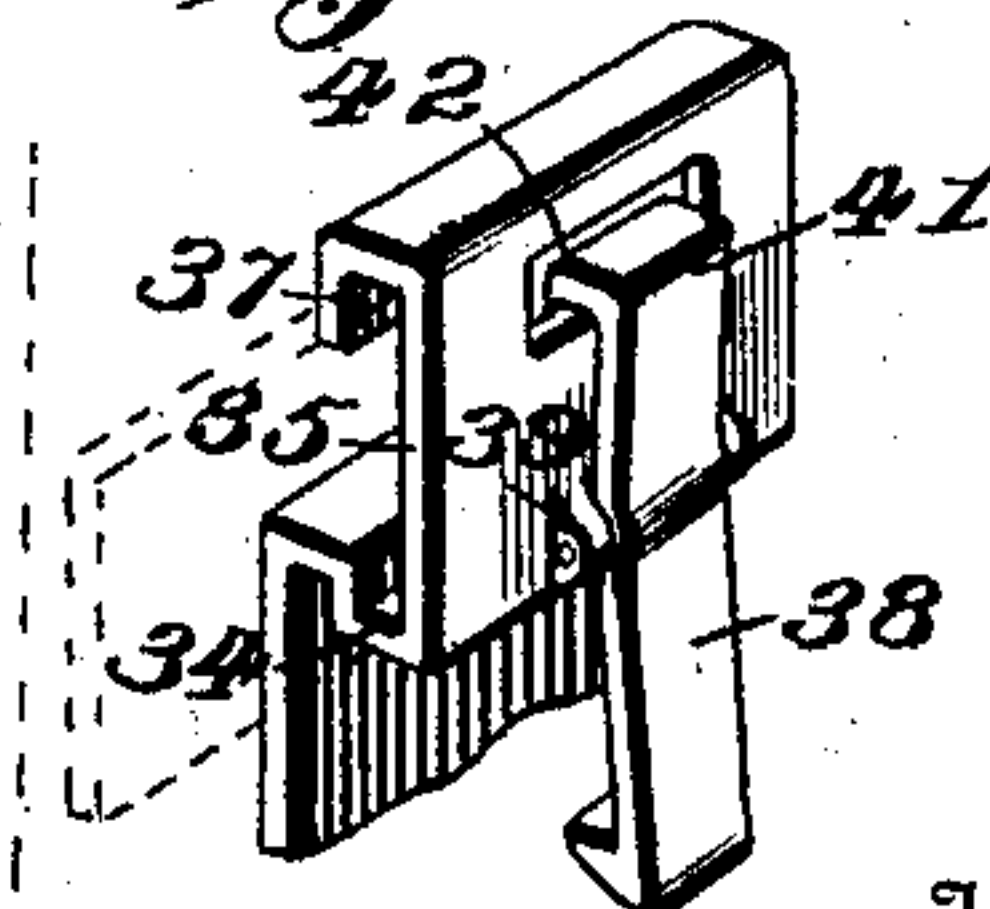
*Fig. 7.*



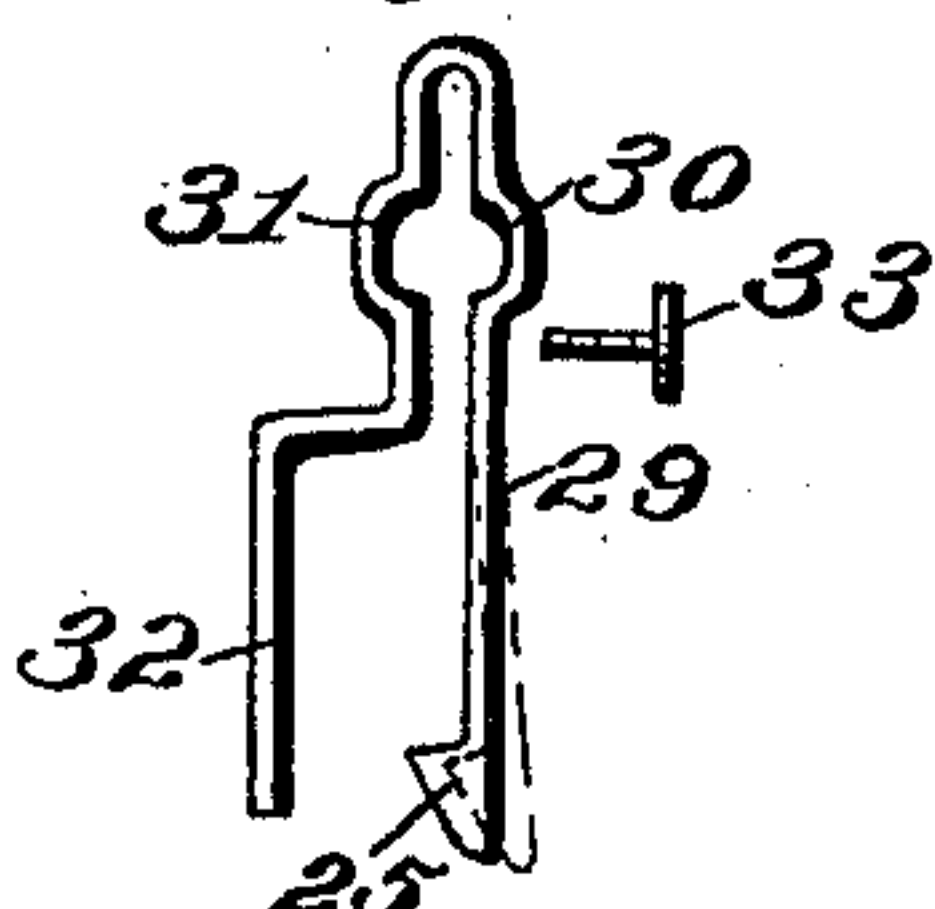
*Fig. 4.*



*Fig. 6.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

FREDERICK CLERK ROBINSON AND THOMAS WILLIAMS, OF WASHINGTON,  
INDIANA; SAID ROBINSON ASSIGNOR TO SAID WILLIAMS.

## CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 688,007, dated December 3, 1901.

Application filed March 30, 1901. Serial No. 53,703. (No model.)

*To all whom it may concern:*

Be it known that we, FREDERICK CLERK ROBINSON and THOMAS WILLIAMS, citizens of the United States, residing at Washington, in the county of Daviess and State of Indiana, have invented certain new and useful Improvements in Car-Doors; and we 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.

Our invention relates to sliding or swinging doors; and it consists of certain novel features of combination and construction of parts the preferred form or materialization whereof will be fully described in the following specification and illustrated in the accompanying drawings.

The object of our invention is to provide reliably efficient means designed, primarily, for use upon railway-cars, though it will be obvious that our invention, with but slight modification, may be utilized any and everywhere where it becomes desirable to reliably mount a heavy or other form of door and place the same completely under the control of the operator, who will thus be enabled to easily open and close the door. While, therefore, we shall confine our description and illustration principally to the mounting of a car-door, and more especially for handling and controlling the usual sliding doors employed upon grain-shipping cars, yet other applications and uses may be readily made of our invention, and we therefore deem it unnecessary to specifically illustrate and describe other possible uses thereof.

The objects and advantages of our invention will be made fully apparent by reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing a portion of the interior of an ordinary freight-car designed for shipping grain having the usual sliding doors disposed in guideways. Fig. 2 is a view of similar parts, in side elevation, upon a reduced scale. Fig. 3 is a vertical section of Fig. 2 on line *xx*. Fig. 4 is a perspective detail view of a portion of the door-carrying devices, illustrating the preferred means of connecting said carrying devices together and for readily disengaging

them. Fig. 5 shows an edge view of a piece of strap-iron or other suitable material properly shaped to form one of the hanger-arms and cooperating part. Fig. 6 is a perspective detail view illustrating another form of carrying-arm designed to cooperate with one of the sliding doors. Fig. 7 is a transverse section of the preferred form of track which we employ for our door-carrying apparatus and illustrating how the same may be secured in position.

In order to conveniently refer to the several features of our invention and the cooperating accessories, numerals will be employed, of which 1 designates the side of a grain-car which may be constructed substantially in the usual or any preferred manner, which is provided upon each side with an opening or door 2, which opening is usually closed by the vertically-sliding doors 3 and 4, received by the guideways 5, whereby each door may be bodily raised on a line with the ledge 6, and thus moved longitudinally to one side of the opening 2 when not required for closing said opening. It is common, therefore, to provide the foregoing construction, and it is for the purpose of avoiding the necessity of lifting the doors 3 and 4 and moving them bodily to one side of the opening that we have provided our invention, which, briefly stated, consists in means for grasping the doors when raised vertically to the desired height and carrying them laterally with respect to the opening and holding them until again required for use.

In carrying out our invention we mount at the desired point, preferably at the upper edge of each of the side walls of the car, the form of track illustrated in Fig. 7, though that form of track shown in Fig. 4 may be used if deemed preferable. The form of track illustrated in Fig. 7 consists of a single piece of suitable heavy sheet metal bent to present in cross-section the outline of the letter C, which, as will be observed, comprises the vertical or main body portion 7, the parallel horizontally-disposed portions 8, and the inwardly-directed lips 9 and 10, the former or lower lip constituting the track upon which the curved carrying-wheels 11 are mounted, while the downwardly-disposed flange or lip 10 also cooperates with the wheels 11 by tak-



ing into the groove thereon, and thereby hold said wheel against outward movement, though permit said wheel to travel freely upon the lip 9. For each of the doors 3 and 4 I provide a pair of carrying-wheels, as indicated by the numeral 11, said wheels being properly connected together by the coupling-rod 12, each end of said rod being bifurcated, as indicated by the numeral 13, a branch of said bifurcation resting upon either side of the wheel and receiving a suitable axle or journal, which extends through the wheel, and thus affords a desirable bearing therefor. Mounted upon the coupling-rod 12 are the hanger-arms 14, which extend downward to a proper point to engage the upper edge of one of the doors 3 and 4 and sustain said door above or out of contact with the ledge 6, whereby the door may be freely moved longitudinally away from the opening 2 when it is desired to open or close the car. The hanger-arms are preferably connected together, as by the link-section 15, secured in position in any preferred way, the lower ends of the arms upon their inner sides being provided with the hook members 16 and also with the cooperating lip 17, disposed immediately above the hook-section 16, the office of said lip being to more securely hold the door in place and prevent undue upward movement thereof. The arms 14 may also be provided with the preferably integral members 18, designed to serve as stops which will limit or circumscribe the outward movement of the lower or free ends of said arms, inasmuch as the members 18 will be in position to engage a contiguous part of the car or the upper lip 10, as will be obvious by reference to the drawings. The carrier-wheels thus mounted and equipped with necessary accessories may be easily coupled together by the latch 19, pivotally connected to one of said carriers and extending into engagement with a suitable lug 20 upon the other carrier, said lug being designed to be received by a notch or recess 21 upon the latch 19. The latch is pivotally connected, as indicated by the numeral 22, either directly to the journal of one of the carriers or to a suitable and contiguous part of the frame, and the free end of said latch is held against moving downward out of the horizontal position by the extended end 23 engaging the lug 24, as will be clearly apparent by reference to Fig. 1 of the drawings.

It will be obvious that the arms 14 may be variously constructed without impairing the efficiency thereof—as, for instance, in Figs. 5 and 6 we have illustrated other constructions which may be adopted.

In Fig. 5 a single piece of suitable strap-iron is properly bent, as indicated by the numeral 25, to form a hook member designed to serve the same purpose as the hook 16, just described, and take into the opening 26 provided in the upper edge of one of the doors 3 or 4, suitable guiding-flanges 27 being pro-

vided for the purpose of directing the hook into said opening, so that it will engage the bar or flange 28, and thus enable the door to be readily lifted into the desired position. After the hook 25 is formed the vertical member 29 is provided, which member is bent outward, as indicated by the numeral 30, to enable the same to be extended around the coupling-rod 12, a complementing bend 31 being also formed in said material, whereby the rod may be completely encircled, the lower end of the strap-iron being shaped to form the member 32, lying substantially parallel with the member 29 and designed to prevent the door from casually dropping off the hook 25, it being understood that the entire hanger-arm thus provided may be readily secured upon the coupling-rod 12, as by the bolt 33.

In Fig. 6 we have illustrated another construction for the door-carrying arm, wherein it will be observed that a body portion or main section is formed of sheet metal properly bent to form the member 34, corresponding in function to the member 32, the upper end of which is bent into connection with the main or body portion 35, two recesses, as indicated by the numerals 36 and 37, being formed to respectively engage the lower and upper edges of a fixed guideway or track, the entire device being designed to slide upon said track, entirely dispensing with carrying-wheels, as is obvious. The carrying-arm proper, 38, designed to engage one of the doors 3 or 4, is pivotally connected to the body portion 35 by means of the ears 39, the lower end of said arm being provided with the hook 40, while the upper end of the arm is bent inward, as indicated by the numeral 41, said inwardly-directed extension being designed to take into an aperture 42, formed in the body member 35 at a contiguous point. The object in providing the aperture 42 is to enable the upper end of the arm to be directed inward when it becomes desirable to unhook the arm from engagement with the door, this play of the arm being requisite to insure that said portion may be facilitated.

It will be understood that our invention may be used either for inside or outside doors upon railway-cars and upon all varieties of buildings and also for the support of gates, &c., and while we have described the preferred construction and combination of parts which may be adopted it will be understood that the substantial equivalent thereof is comprehended by us in this application, and we do not wish to be confined strictly to the exact showing herein presented.

The manner of using our invention as illustrated in Fig. 1 may be stated to be as follows: When it is desired to move, for instance, the door 3 longitudinally out of the way, one of the carriers is drawn so as to be directly over the opening 2 and in such position as the arms of said carrier will be directly over or in registration with the openings 26, when the door may be manually ele-



vated until the cross-bar or flange 28 is engaged by the hook 16, the simple operation of elevating the door being all that is required to effect such coöperation. The weight  
 5 of the door is now disposed upon said hooks, and the carrier may very readily be moved to one side, carrying with it said door and disposing it entirely away from the opening 2, when the other carrier may be brought  
 10 over said opening and the lower door raised into engagement with the hooks upon the depending arms of the carrier and the door in like manner moved to the other side of the opening from that occupied by the door 3.  
 15 When it is desired to again place the doors in a closed position or drop them in the guideways 5, either door, as preferred, may be brought in such position as to be received by the guideways, when an outward pull upon  
 20 the link 15 will disengage the hook 16 and permit the door to drop downward in position, the other door being similarly disengaged when in a proper position.

It will be understood that a proper checking-block or other device may be disposed at  
 25 each end of the tracks, and also any suitable securing device, as a hook, may be provided, which will hold the carrier in place at the end of the track when not required for use. The  
 30 latch 19 is disposed in a horizontal plane, and as it is provided with a curved end it will readily ride over the lug or extended journal 20, causing said lug to be received by the recesses 21, and thus enable the two carriers to  
 35 be easily coupled together by simply moving one toward the other, as is obvious.

The carrier-arms may be readily modified in construction, so as to be suitable for use  
 upon the outside doors of a car, by dispensing  
 40 with the hooks and lips 16 and 17, respectively, and bolting the arms directly to the doors. Other slight modifications will readily adapt our invention for use in almost any  
 situation, and we therefore deem it unnecessary to specifically set forth such modifica-  
 45 tions.

Having thus described the construction and manner of using our improved door-carrying apparatus, further reference to the details is deemed unnecessary.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a carrier for car-doors or the like, a suitable track-section; carrying-wheels coöperating with said track; a coupling-shaft hav- 55  
 ing bifurcated ends to receive said wheels; arms depending from said shaft and provided with the hook members 16 and lips 17, in combination with the doors 3 and 4, having open-  
 60 ings and guideways to respectively receive and direct said hooks, all substantially as specified and for the purpose set forth.

2. In carriers for car-doors or the like, a track-section formed of heavy sheet metal bent to form the members 7, 8, 9 and 10; suit- 65  
 able means to secure said track-section in place, in combination with carrying-wheels having grooves to receive the members 9 and 10 whereby said wheels will be held against  
 70 casual displacement; a coupling-rod operatively connecting the carrying-wheels; a pair of arms depending from said rod each being provided with a hook member; a door having  
 75 an opening 26 designed to coöperate with said hook member and means to prevent the door from casually slipping off of said hook, all  
 substantially as specified and for the purpose set forth.

3. The herein-described carrier for doors comprising a track-section; carrying-wheels 80  
 coöperating with said track-section; means to operatively connect said carrying-wheels; depending arms; hook members formed on the free ends of said arms; doors having  
 85 openings 26 and the flange 28 adapted to coöperate with said hooks; and additional means to prevent the doors from casually slipping off of the hooks, all substantially as specified and for the purpose set forth.

4. In a carrier for doors, the combination 90  
 with the door having apertures near its upper edge of a carrier proper having suitable traction-wheels; means to operatively connect said wheels and a pair of swinging depending  
 95 arms designed to engage the apertures in said doors, all substantially as specified and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK CLERK ROBINSON.  
 THOMAS WILLIAMS.

Witnesses:

GEORGE W. GOWAN,  
 JOHN B. HART.