

No. 679,633.

Patented July 30, 1901.

C. M. MENDENHALL.
CAR DOOR.

(Application filed Dec. 10, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

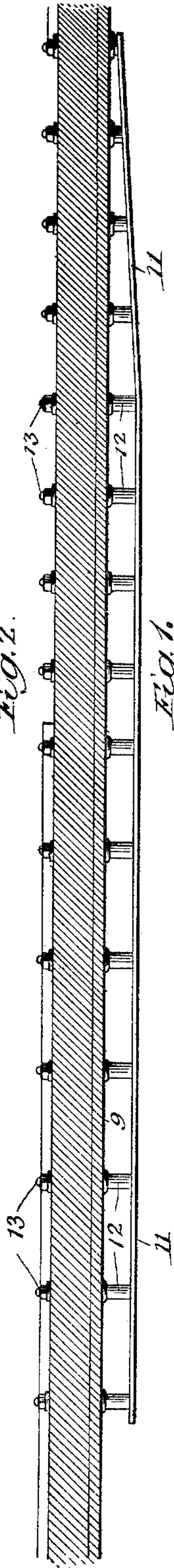
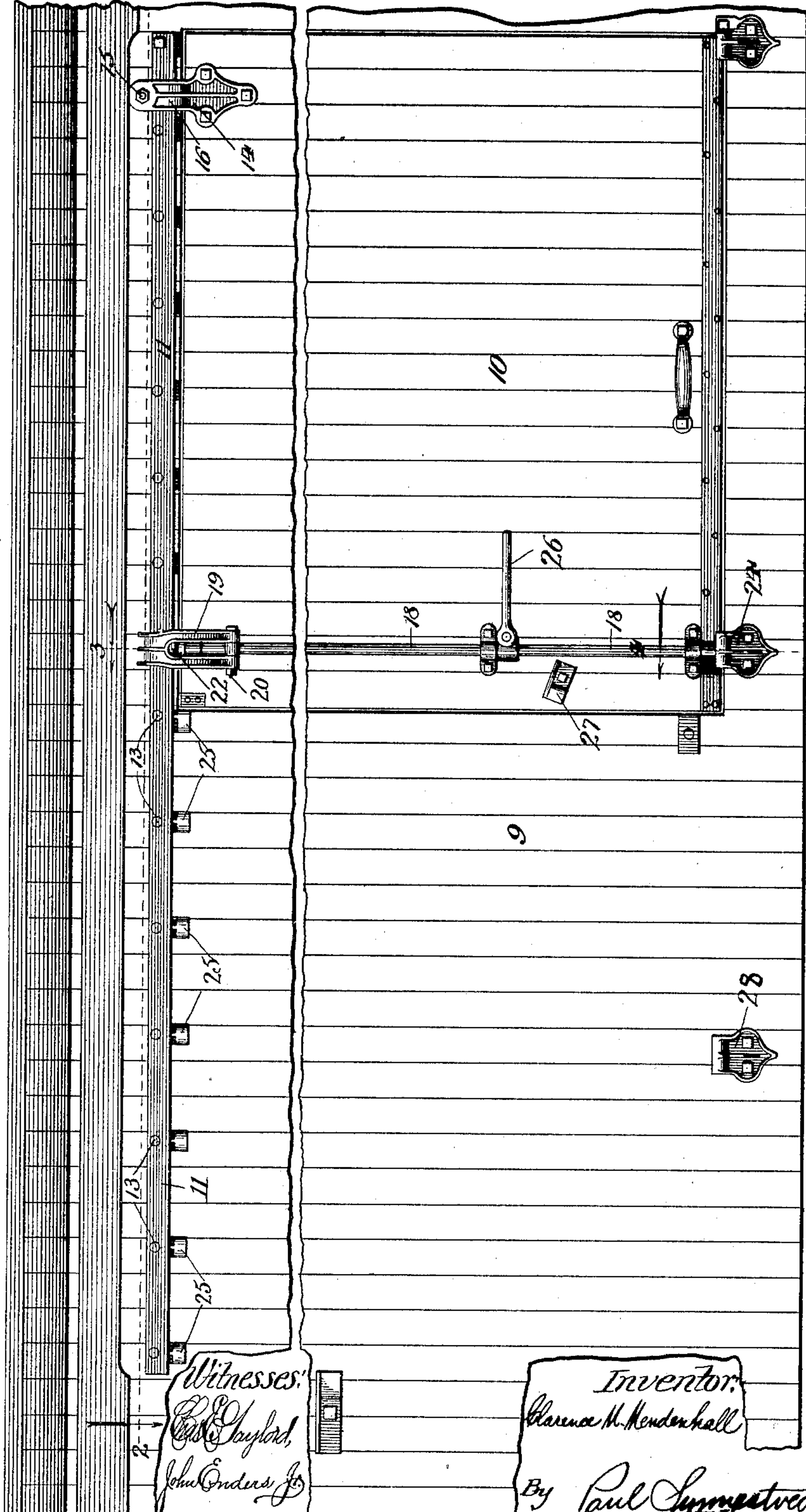


Fig. 1.



Witnesses:
Edw. C. Bayard,
John Enders, Jr.

Inventor:
Clarence M. Mendenhall

By Paul Symmetredt

No. 679,633.

C. M. MENDENHALL.
CAR DOOR.

(Application filed Dec. 10, 1900.)

Patented July 30, 1901.

(No Model.)

2 Sheets—Sheet 2.

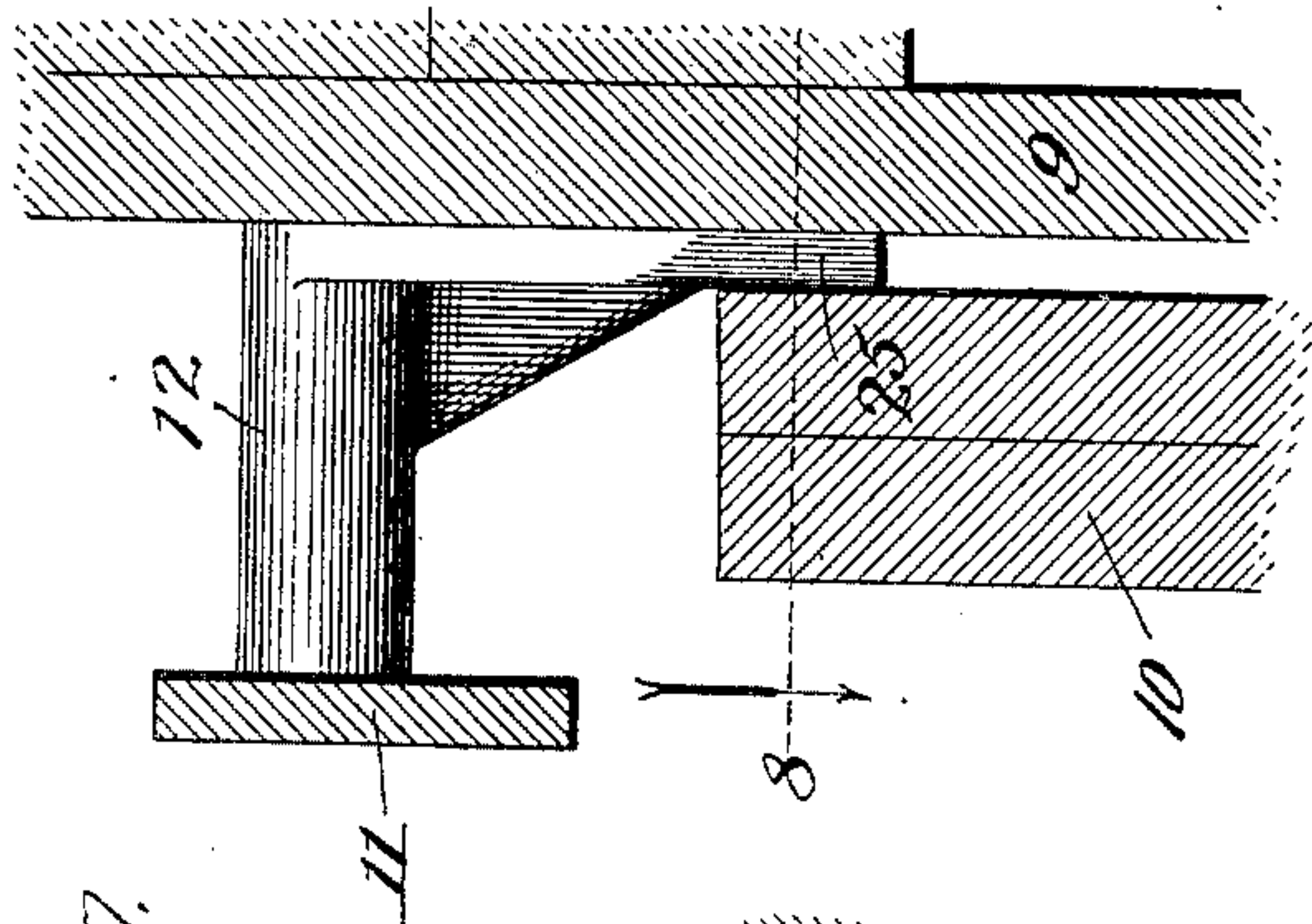


Fig. 7.

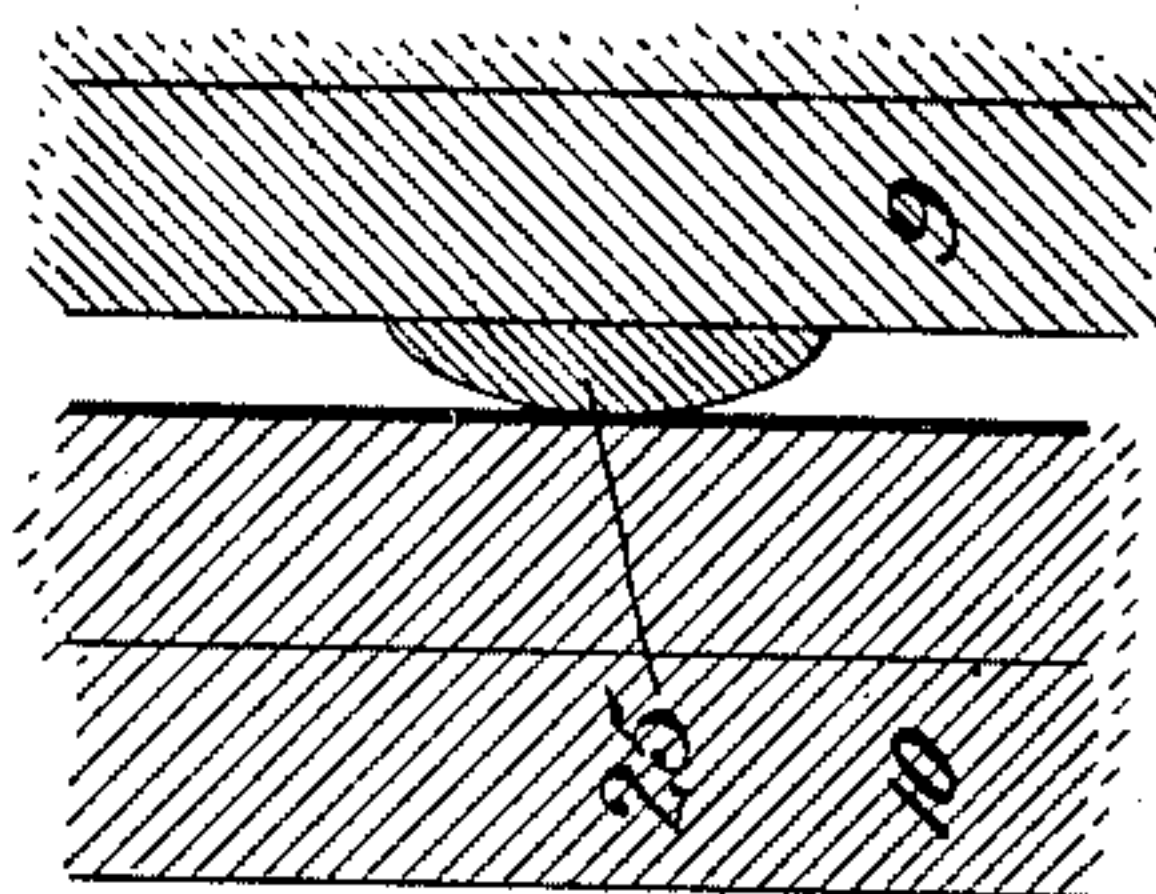


Fig. 8.

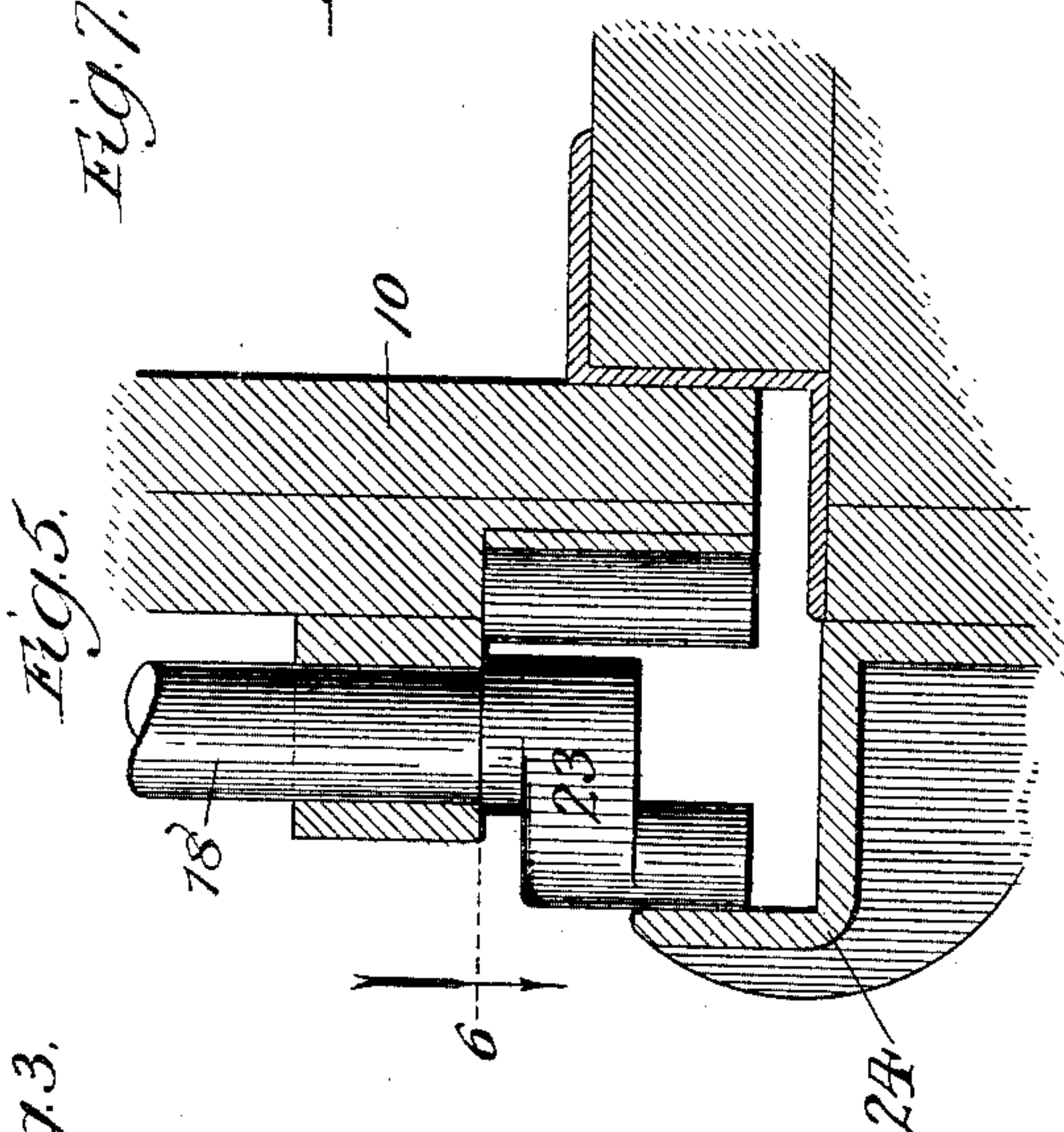


Fig. 5.

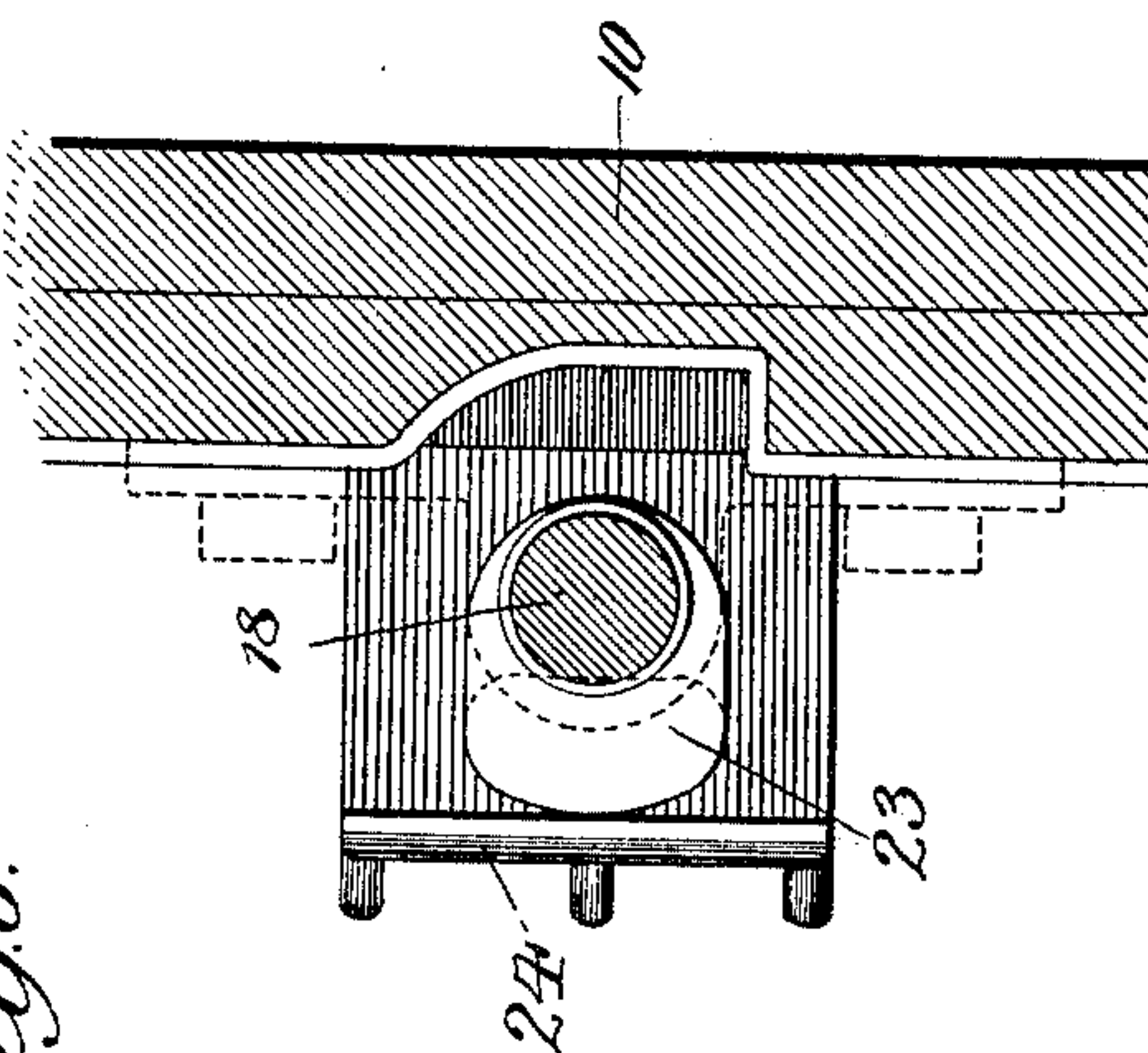


Fig. 6.

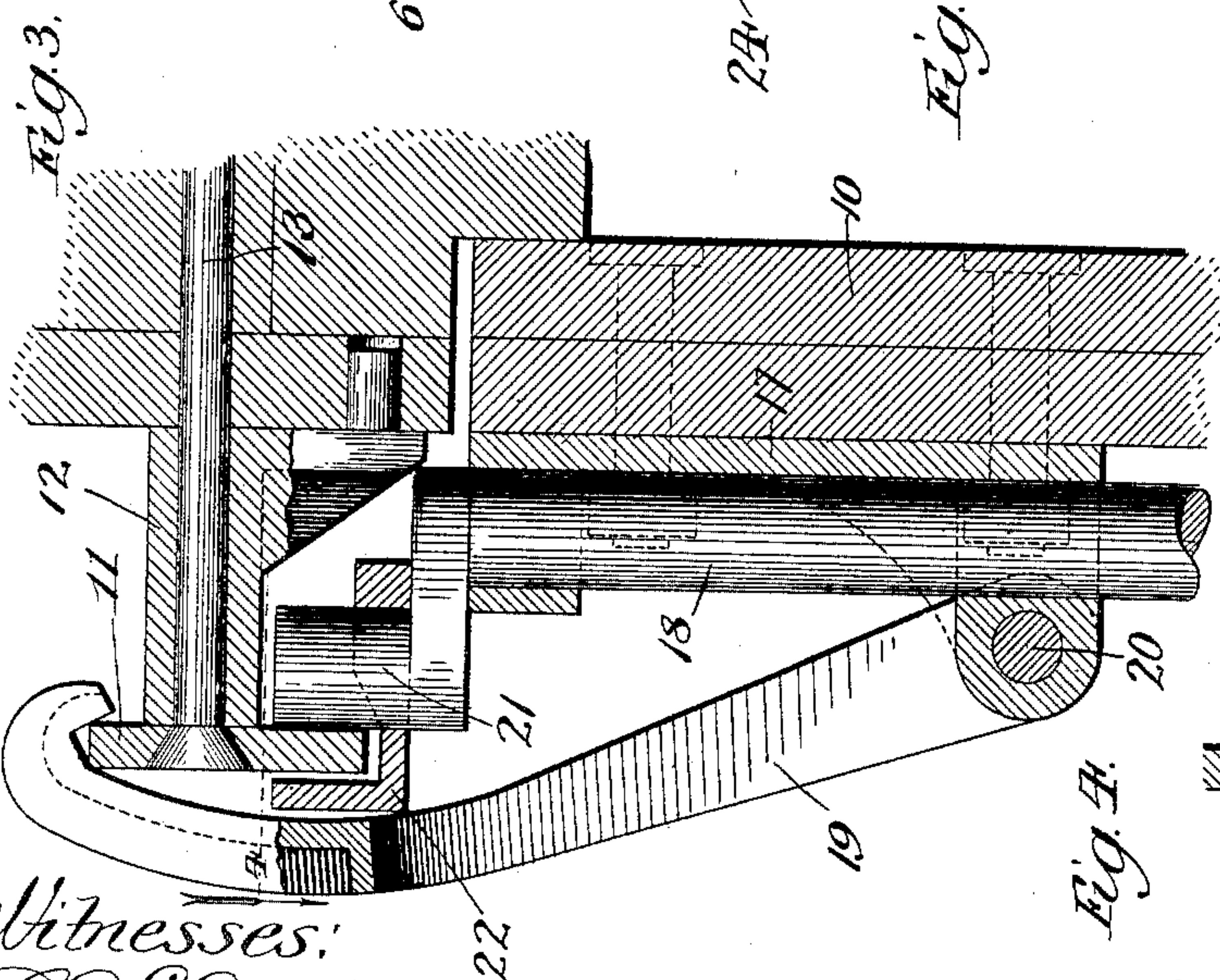


Fig. 3.

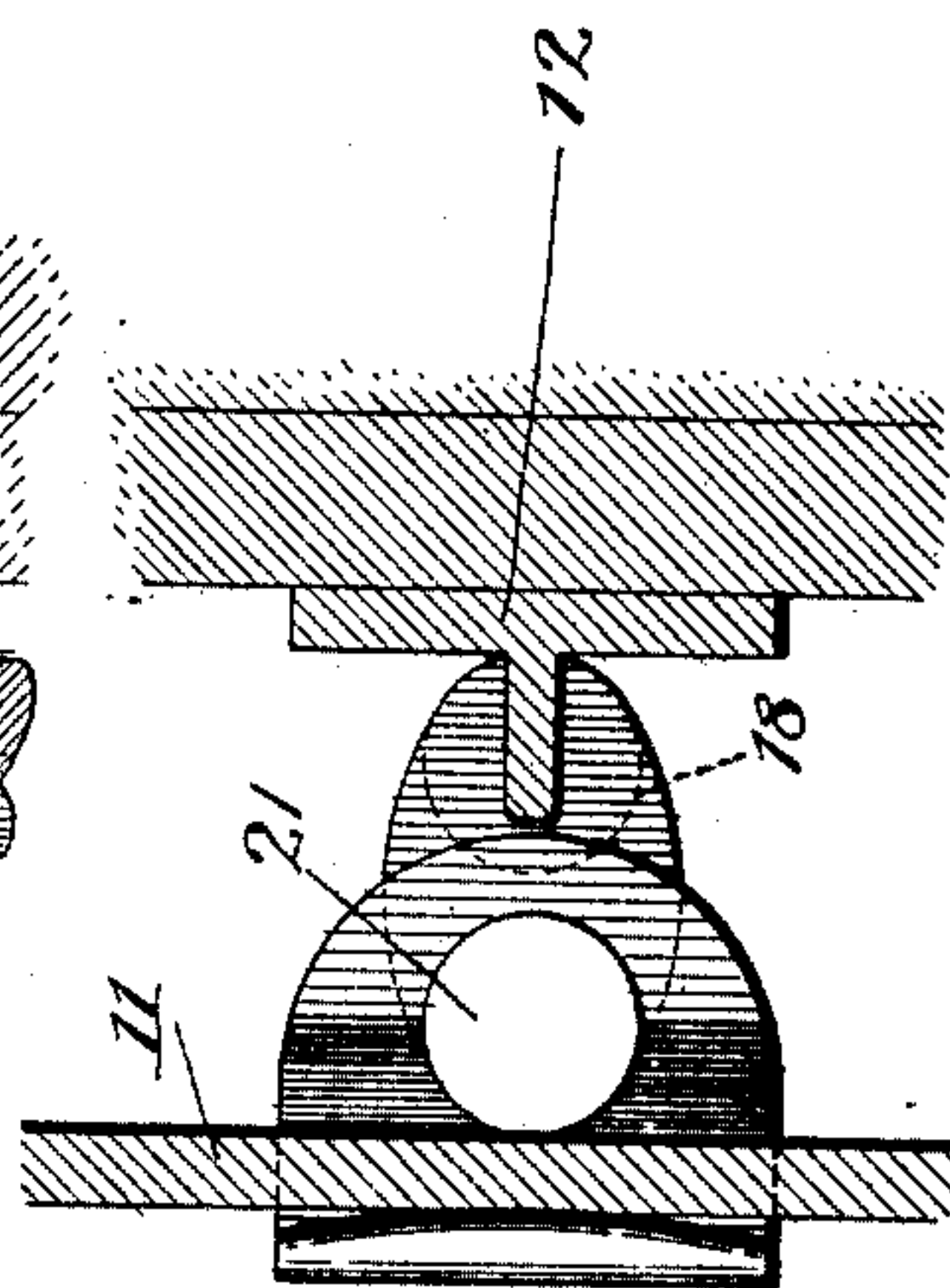


Fig. 4.

Witnesses:
Paul E. Gaylord,
John Enders Jr.

Inventor
Clarence H. Mendenhall.
By Paul Symmestvedt
Attorney

UNITED STATES PATENT OFFICE.

CLARENCE M. MENDENHALL, OF BLOOMINGTON, ILLINOIS.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 679,633, dated July 30, 1901.

Application filed December 10, 1900. Serial No. 39,450. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE M. MENDENHALL, a citizen of the United States, residing at Bloomington, Illinois, have invented certain new and useful Improvements in Car-Doors, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates particularly to that type of car-door which when closed is flush with the outside of the car, so that it will not be disturbed by striking or rubbing against obstructions along the side of the track.

The first of the objects of my invention is to reduce to a minimum the amount of projection of the devices which carry the door and which are most conveniently applied to the outside thereof and to at the same time provide a construction of door carrying, suspending, and securing devices which will be both simple and efficient in their operation and at the same time cheap to construct.

Another object of my invention is the provision of mechanism for carrying the rear end of the door so constructed that the same may be moved laterally with reference to the rail upon which the door is suspended, locked securely in position when the door is closed, and released and moved outwardly to be slid back to open position with a maximum degree of facility.

Another object of my invention is to provide a body-plate at the upper end of the rear of the door which shall act both as a socket and guide for the end of the vertical operating-rod and also as an anchorage-casting to which a hanger may be attached by means of a horizontal pivot.

Another object of my invention is the provision of a novel form of rail-supporting column or bracket provided at the lower end thereof with a downwardly-extending projection adapted to act as a guide for the door and prevent the same from coming in rubbing contact with the side of the car when the door is being opened.

The above, as well as such other objects as may hereinafter appear, I attain by means of a construction which I have illustrated in preferred form in the accompanying drawings, in which—

Figure 1 is a partial side elevation of a car to which my improved door is applied. Fig. 2 is a sectional view of the same. Fig. 3 is an enlarged sectional view showing in detail the arrangement of the hanger and upper end of the operating-rod. Fig. 4 is a plan section taken on the line 4 4 of Fig. 3. Fig. 5 is a partial section taken at the bottom of the door, showing the lower end of the operating-rod. Fig. 6 is a plan section showing the details of the lower end of the operating-rod and connected parts. Fig. 7 is a detail section showing the rail columns or brackets and downwardly-extending projections thereon; and Fig. 8 is a section of the detail shown in Fig. 7, taken on a horizontal plan on the line 8 8 of Fig. 7.

Referring now more particularly to Fig. 1, it will be seen that upon the car 9 there is a door 10, carried at its upper end by devices engaging the rail 11, which is secured to the side of the car by a plurality of columns or brackets 12 and bolts 13, (clearly shown in Fig. 2,) the forward end of the rail being bent inwardly in a manner common in doors of this class.

The front end of the door is carried by bracket 14, rigidly connected to the door and provided with a roller at 15, riding upon the upper edge of the rail 11, and also provided with a projection extending inside of the lower edge of the rail (indicated by the dotted line at 16) to hold the door at this point from falling away from the car in case the bracket 14 should become broken. The projection 16 also aids in holding the roller 15 in position upon the rail.

At the upper part of the rear end of the door is provided a body-plate 17, (see Figs. 3 and 4,) in which is journaled or held the upper end of the operating-rod 18, and to which also is attached a hooked hanger 19, the attachment being made by means of a horizontal pivot 20. The hanger or hook 19 engages the upper edge of the rail 11, as shown, and upon the inside of the lower edge of the rail 11 is arranged an eccentric or cam 21, about which is a hooked piece 22, which extends out and upward around the lower edge of the rail. The lower end of the rod 18 is also provided with a cam or eccentric 23, which when the

door is moved to closed position, as shown in Fig. 1, comes inside a bracket 24 in position to react against the said bracket in pushing the door into place, as shown in Figs. 5 and 6.

5 The rail 11 is carried by a plurality of columns or brackets 12, which, as shown in Figs. 7 and 8, are provided at their lower ends with downwardly-extending projections 25, the outer face whereof is made sloping or beveled, 10 as shown in Fig. 8, these projections 25 being arranged to extend down beyond the upper edge of the door and to form guides for the door to prevent the same from coming in contact with the side of the car when it is slid 15 back and forth.

The operation of my invention is as follows: The door being in closed position and it being desired to open the same, the hand-lever 26 is released from the catch 27 and swung 20 around on the opposite side of the operating-rod 18 to the position shown in Fig. 1. This moves the back edge of the door laterally with reference to the track upon which it is carried, the lateral movement being permitted 25 by the provision of the horizontal pivot 20 by which the hooked hanger 19 is secured to the body-plate 17. The rear end of the door having been moved outward a sufficient distance, it can now be slid backward and will be carried 30 by the hooked hanger 19 and the rigid hanger 14 upon the rail 11 free from obstruction at its lower end, save for the retaining effect of the bracket 28, and at its upper end guided by the projections 25 on the brackets 12. 35

By the construction shown it will be observed that by the provision now of my improved form of hanger 19, in connection with the operating-rod 18 and the body-plate 17, 40 arranged, as shown, I secure a device which when the door is in closed position—that is, with its outer edge flush with the side of the car—the suspension devices will project but a very small distance laterally, the hook 19 45 being just sufficiently bent outwardly, as shown in Fig. 3, to pass around the rail 11 and the small piece 22. The other operating parts of this portion of the door mechanism will when the door is in closed position then 50 be within the vertical plane of the outside of the rail 11 and to some extent protected by

the said rail against injury in rubbing against obstructions alongside the track.

Having thus described my invention, what I claim as new, and desire to secure by Letters 55 Patent, is—

1. The combination with a door, of hanging mechanism at the top thereof comprising a track, a pivoted hanger engaging said track, and devices engaging said track at the inside 60 thereof whereby to exert pressure inward upon the side of the door at the top thereof, and means whereby pressure is exerted inward upon the bottom of the door simultaneously with the application of pressure to the 65 top thereof, substantially as described.

2. The combination with a car, of a door, a track, a hanger pivotally secured to said door at the top thereof, whereby it is capable of lateral movement relative to said track, 70 operating mechanism located within the plane of the outside of the track comprising a horizontally-movable cam situated at the rear end of said door and acting upon said track to move said rear end laterally, and a vertically-rotative rod actuating said cam, sub- 75 stantially as described.

3. The combination with a door, of hanging mechanism at the top thereof comprising a track, a pivoted hanger engaging said track, 80 operating mechanism located within the plane of the outside of the track comprising a horizontally-movable cam or eccentric also engaging said track, a body-plate to which said hanger is pivotally attached and with which 85 said cam or eccentric coöperates, and a vertically-rotative rod for actuating said cam, substantially as described.

4. The combination with a car, of a door, a track comprising a rail the upper edge 90 thereof so disposed as to support the door, a plurality of brackets for supporting said rail arranged at intervals thereon, and projections extending downwardly from said brackets whereby the door at intervals throughout its 95 length is prevented from coming in contact with the side of the car, substantially as described.

CLARENCE M. MENDENHALL.

In presence of—

PAUL SYNNESTVEDT,
PAUL CARPENTER.