

(No Model.)

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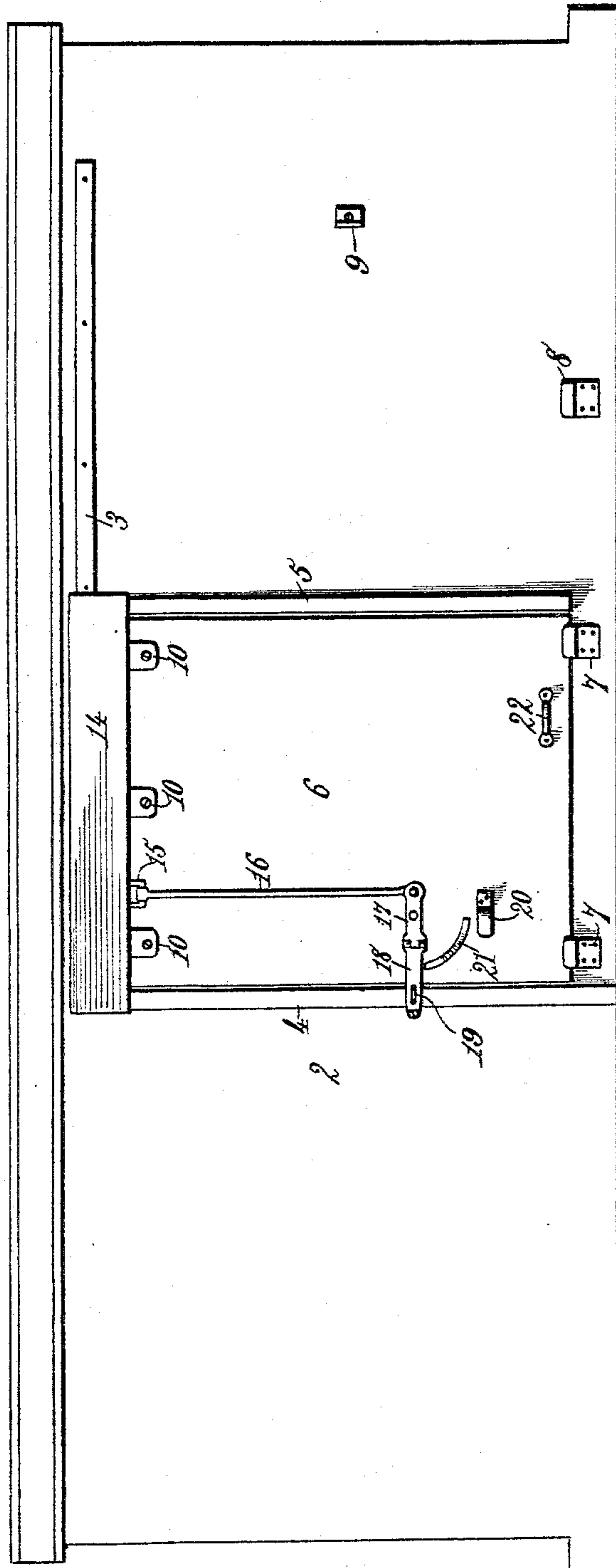
W. W. RHODES.

CAR DOOR OPERATING AND LOCKING MECHANISM.

No. 584,240.

Patented June 8, 1897.

*Fig. 1.*



*Witnesses:*  
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(No Model.)

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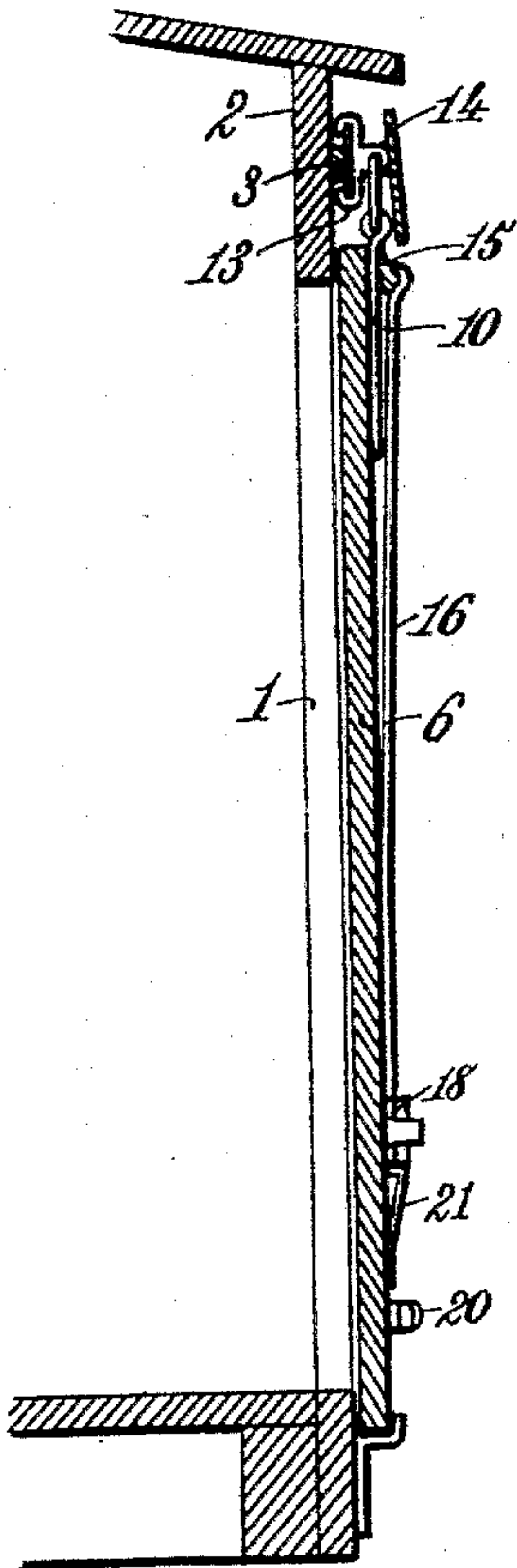
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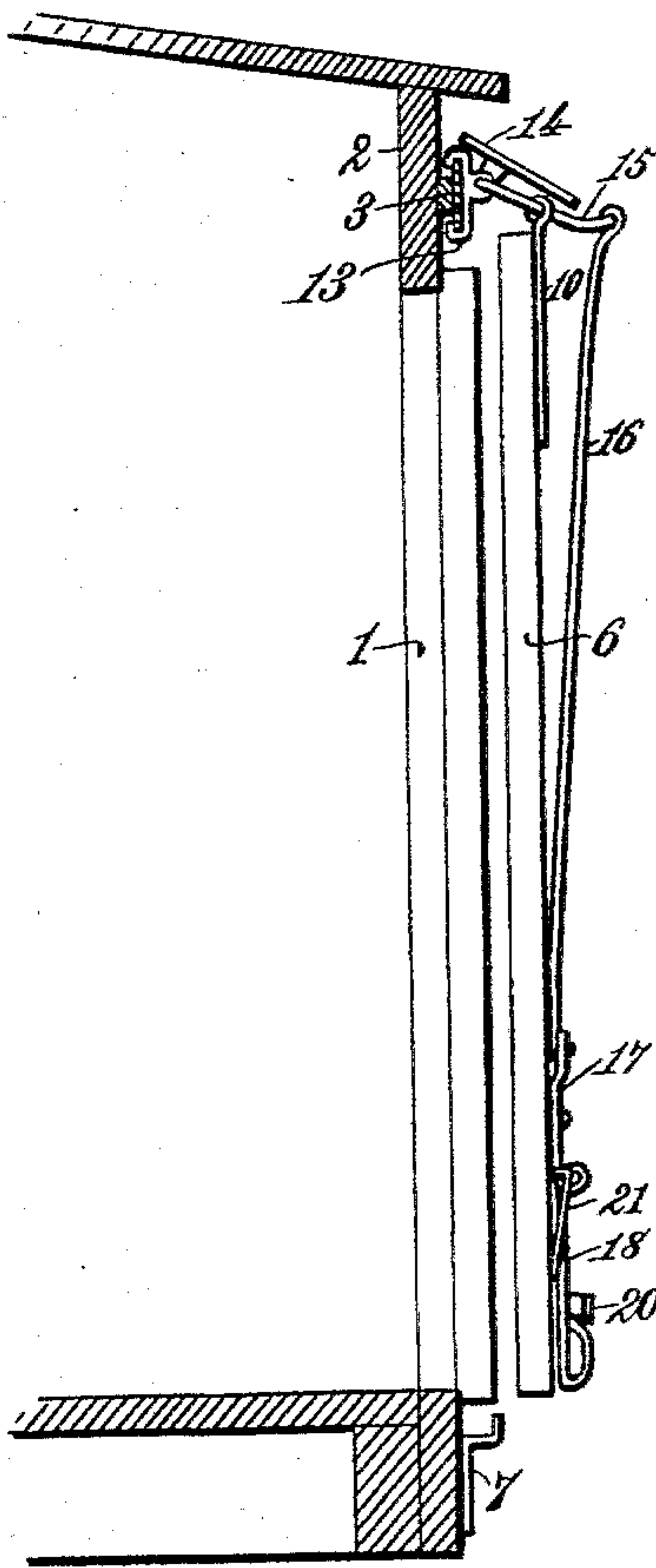
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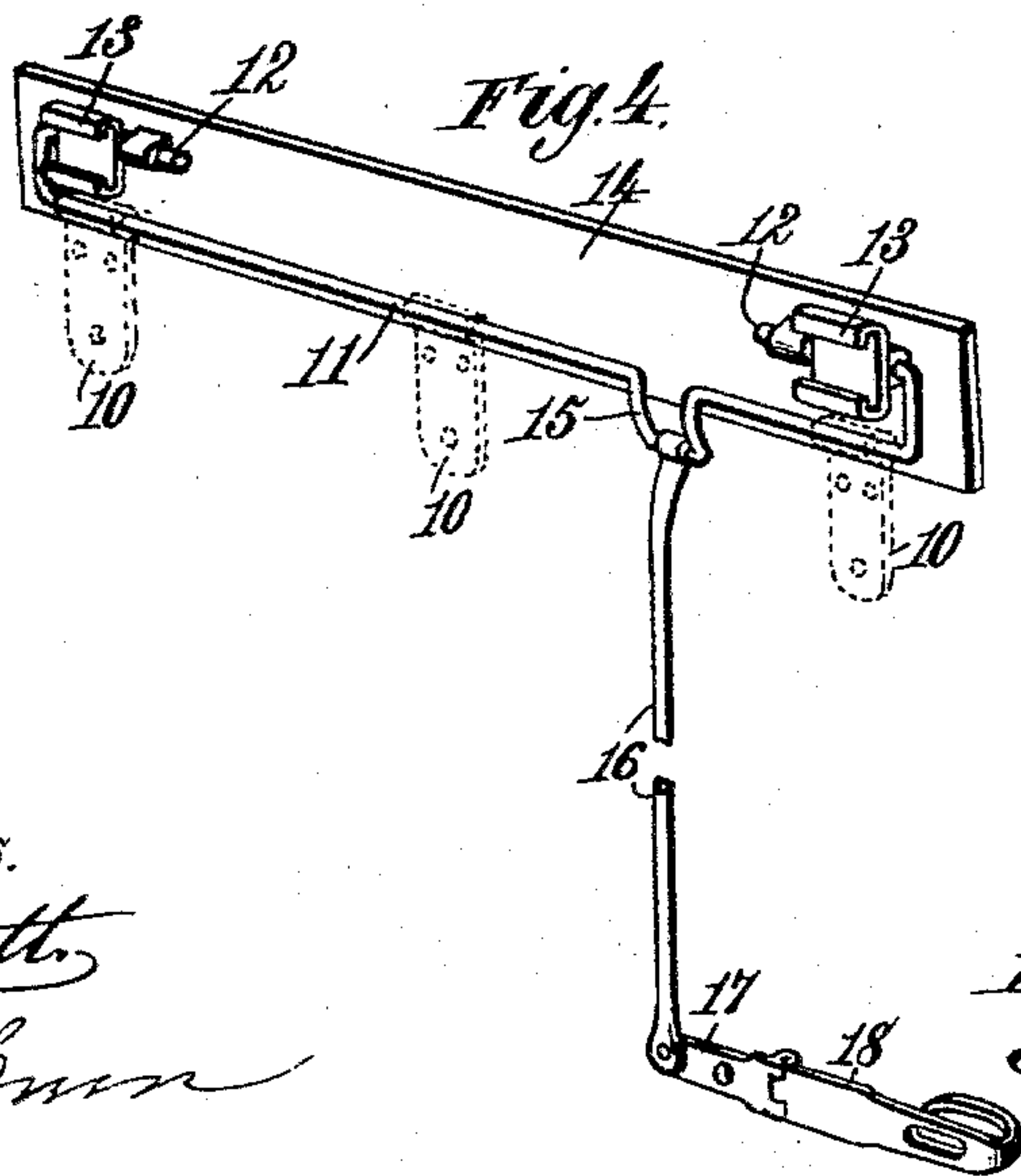
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM W. RHODES, OF OMAHA, NEBRASKA.

## CAR-DOOR OPERATING AND LOCKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 584,240, dated June 8, 1897.

Application filed May 26, 1896. Serial No. 593,154. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. RHODES, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented new and useful Improvements in Car-Door Operating and Locking Mechanism, of which the following is a specification.

It is the object of my invention to provide an improved and simple construction of car-door operating and locking mechanism adapted for application to the usual sliding doors of freight-cars and stock-cars and which shall be capable of securing a car-door whether in its closed or open position and permit a ready closing or opening of the door, as required.

The invention consists in features of construction and novel combinations of the parts of a car-door and its operating and locking mechanism, as hereinafter described and claimed.

In the annexed drawings, illustrating the invention, Figure 1 is a side elevation of a portion of a car, showing the sliding door closed. Fig. 2 is a vertical transverse section through the closed door. Fig. 3 is a vertical transverse section of the door as about to be opened or closed. Fig. 4 is a perspective of the door operating and locking mechanism separate from the car-door.

Referring to the drawings, the numeral 1 designates the usual door-opening in the side 2 of a railway freight or stock car. To the upper portion of the car is secured a track-rail 3, of any suitable form or construction, which is extended horizontally above the door-opening and to a suitable distance beyond the same. Near the front and rear edges of the door-opening 1 there are secured to the side of the car the two vertical strips 4 and 5, that are adapted to serve as stops for the door 6 in its closed position. Below the door-opening 1 there are secured to the car side the brackets 7, the upper ends of which are flanged outward and upward to engage the lower edge of the closed door and retain it in place. A similar bracket 8 is secured to the outside of the car at a convenient distance from the door-opening to engage the lower edge of the door when opened, and in this opened position of the car-door it is prevented from sliding back and forth with the motion

of the car by means of a back-stop 9, fastened to the car-body.

To the top of the car-door 6, on its outer side, are secured hangers 10, in the eyes of which is journaled a cranked rock-shaft 11, that has its ends turned upward and then inward toward each other to provide arms 12, that are located above and parallel with the main portion of said rock-shaft. These arms 12 are pivotally connected with slides 13, that are adapted to engage with and move on the track-rail 3 for the purpose of supporting the sliding door 6 from its top and to permit its necessary movements in opening and closing. A guard or hood-plate 14 is also pivotally mounted on the arms 12 at points between and adjacent to the slides 13 in such manner as to retain the said arms 12 and slides 13 in pivotal engagement with each other.

At its ends the hood-plate 14 is extended beyond the side edges of the door 6, and it occupies normally a vertical position outside or in front of the rock-shaft 11, arms 12, and slides 13 to shield the same from the weather. It will be seen, too, that in connection with the overhanging eave of the car-top this hood-plate will serve to exclude rain and snow from access to the top of the car-door. Being mounted on the arms 12 of the rock-shaft 11, it is obvious that the hood-plate 14 will always move with the car-door, and being thus always in front of the rock-shaft and slides it serves to conceal them from view and imparts a neat and finished appearance to the door. Besides, by carrying this hood-plate on the door it is always in position to protect the slides and rock-shaft, whether the car-door is open or closed.

The rock-shaft 11 is provided at a suitable point, preferably toward one end, with a normally-depending crank-arm 15, to which is pivotally attached the upper end of a vertically-arranged connecting-rod 16, that has its lower end pivotally connected with one end of a two-armed lever 17, which is centrally fulcrumed at a convenient point on the car-door and in such position as to operate in a plane parallel with the door. To the other end of the two-armed lever 17 is hinged a hasp 18, that is adapted and arranged to engage a staple 19 on the strip 4 when the door



is closed and said lever 17 is in a horizontal position. Below the fulcrum of the lever 17 is a keeper 20 to engage and retain the hasp 18 when it is disengaged from the staple 19 and turned downward. An inclined and segmental guide 21 may be placed on the door 6, between the staple 19 and keeper 20, to direct the hasp 18 in its movements. A handhold 22 may be attached to the lower part of the car-door to assist in moving it to and from its opened and closed positions.

When the suspended and sliding door 6 is closed and the lever 17 is in a horizontal position, the door will rest securely in its bed between the stops 4 and 5 and upon the flanged sill-brackets 7, that engage its lower edge. The hasp 18 may now be engaged with the staple 19, and any suitable lock may then be applied. If desired, a seal-lock of any proper construction can be employed. The closed and fastened door rests closely against the side of the car, between the stops or strips 4 and 5, which will serve to exclude dirt, and the door will be held in such manner that it cannot be jolted out of place or become jammed in its bed by movement of the car or by pressure of the load. Even should the floor of the car sag under an excessive load the car-door will not be affected, as its supports and fastenings are wholly on the car side and so arranged that there can be no liability to jamming or binding of the door. Any pressure of freight against the inner side of the door will only serve to hold it more secure.

In order to open the car-door after removal or unfastening of the lock, the hasp 18 will be disengaged from the staple 19 and then turned down along the guide 21 and into engagement with the keeper 20, by which movement the two-armed lever 17 is turned on its fulcrum in such manner as to lift the rod 16 and crank-arm 15, thereby rocking the shaft 11 and consequently inclining the upper portion of the door 6 outward and lifting its lower edge from engagement with the flanged sill-brackets. By now grasping the handhold 22 the car-door may be swung outward sufficiently to clear the door stop or strip 5, the pivotal connection of the shaft-arms 12 and slides 13 readily permitting this movement, and being now entirely clear the door can be pushed to one side along the track-rail 3, with which the slides 13 are engaged. As soon as the door has passed the stop or strip 5 the hasp 18 should be swung upward onto the top of the guide 21, which movement will draw down the rod 16 and crank-arm 15, so as to turn the rock-shaft 11 backward and thereby permit the lower edge of the door to drop into engagement with the flanged bracket 8, while the side edges of the door come between the stops 5 and 9, that hold the opened door so that it cannot slide forward or back should

the car be now moved. The door-operating mechanism thus provides for locking the door in an open position as well as closed, so that the opened doors are prevented from jolting or sliding when moving empty cars.

To close the door 6, it is only necessary to draw down the hasp 18, thereby operating the rod 16 and cranked rock-shaft 11 in such direction as to slightly lift the door and incline its upper end outward, after which, by means of the handhold 22, the door can be returned to its former position and be secured, as hereinbefore described.

It is obvious that the crank 15 and its lever connections can be located nearer to the center line of the door if circumstances should render such location desirable. The door and operating devices are readily adapted to all the conditions of car service when in transit, either loaded or empty, and the arrangement of operating parts is so simple that they are not likely to become ineffective.

A door of this construction, with its operating devices as described, affords all the advantages of a flushly-closing car-door without the liability to jamming or binding and other annoyances incident to the use of flush doors.

What I claim as my invention is—

1. The combination with a sliding car-door, a track-rail from which the door is slidably suspended, door-stops, and flanged brackets to receive the lower door edge, of the slides engaged with and adapted to be moved along the said track-rail, a rock-shaft mounted on the upper part of the door and provided with a crank-arm and with upward-turned ends having horizontal arms in pivotal engagement with said slides, a hood-plate or shield mounted on said horizontal arms and carried with the door to cover and conceal the rock-shaft and slides, a lever fulcrumed on the car-door to operate in a plane parallel with the door-front, a rod connecting said lever with the crank-arm of the said rock-shaft, and means for locking said lever, substantially as described.

2. The combination with a sliding car-door, a track-rail from which the door is suspended, slides engaged with said track-rail, and a rock-shaft mounted on the door and having arms pivotally engaged with said slides, of a hood-plate carried with the door to cover and conceal said slides and rock-shaft, and lever mechanism mounted on the door to operate said rock-shaft, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM W. RHODES.

Witnesses:

E. E. MUFFITT,  
W. I. SEYMOUR.