No. 658,515. Patented Sept. 25, 1900.

P. L. SHERIDAN.

SLIDING DOOR.

(Application filed Mar. 17, 1900.)

(No Model.)

Fig. 1.

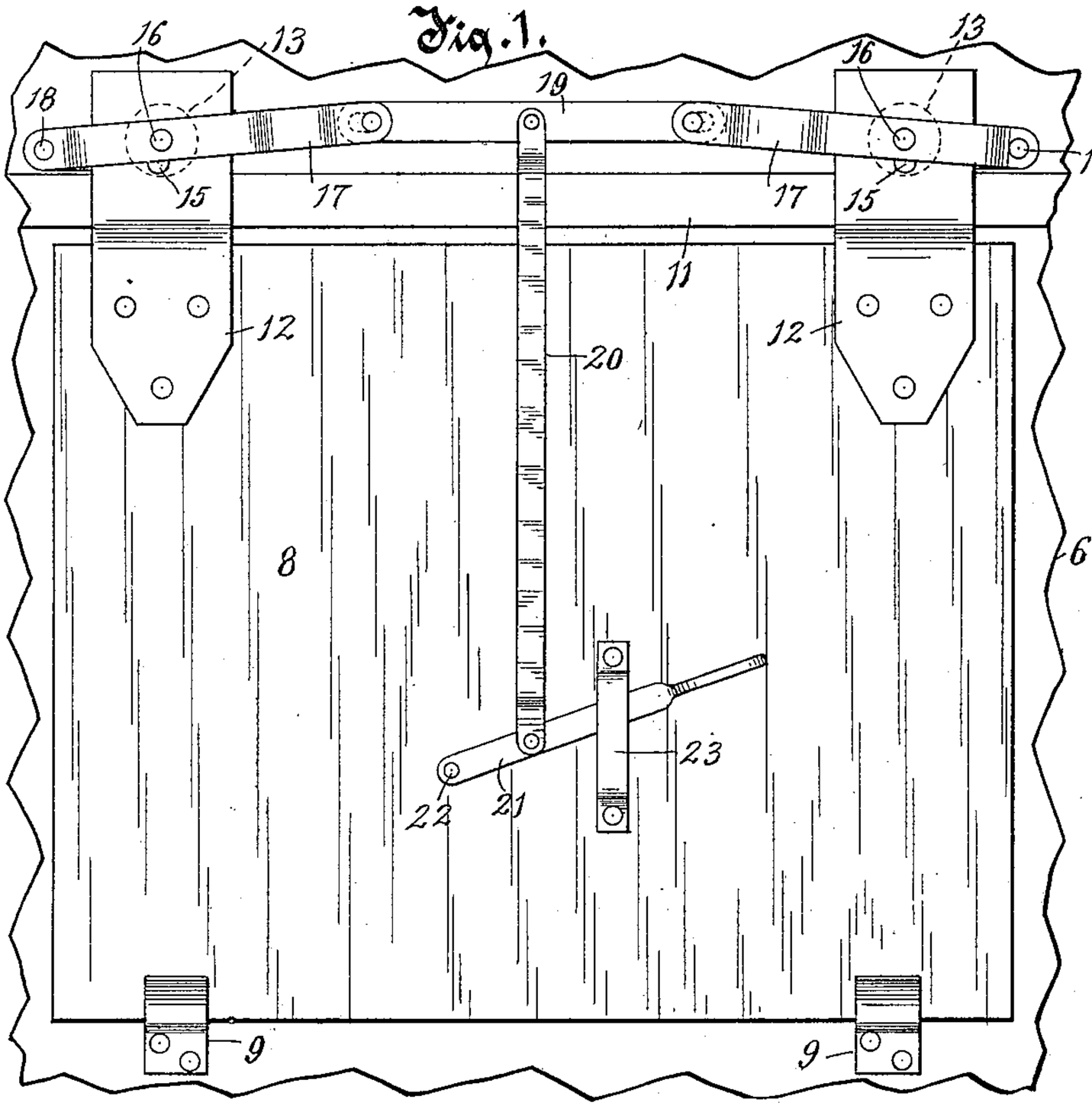


Fig. 2.

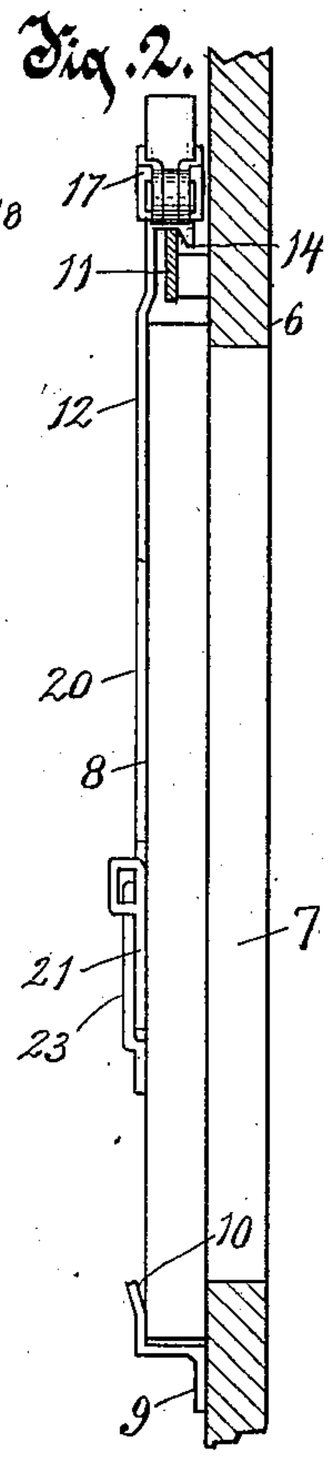


Fig. 3.

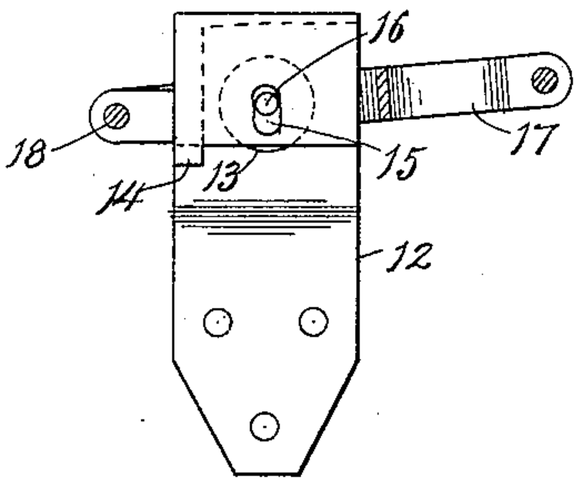


Fig. 4.

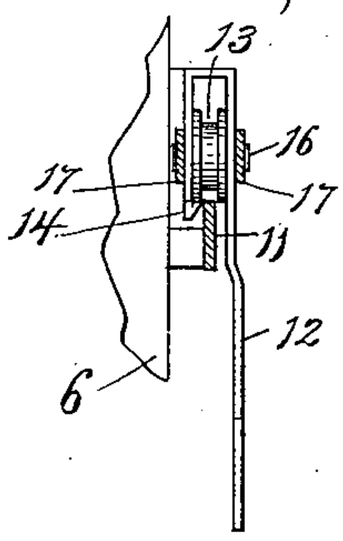
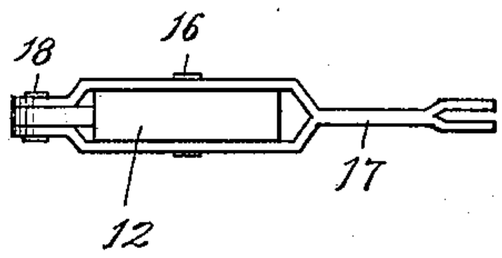


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

PHILIP L. SHERIDAN, OF CLEVELAND, OHIO.

SLIDING DOOR.

SPECIFICATION forming part of Letters Patent No. 658,515, dated September 25, 1900.

Application filed March 17, 1900. Serial No. 9,027. (No model.)

To all whom it may concern:

Be it known that I, PHILIP L. SHERIDAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Sliding Doors, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in sliding doors. It has especial reference to that class of sliding doors for freight-cars wherein provision is made for the lowering of the door to thereby support the same by the hangers, with the rollers out of contact with the rail, and to automatically clamp said door to the side of the car and for raising the door and thereby unclamping the same and bringing the rollers into contact with the rail in order to permit the door to travel freely along said rail.

The object of the invention is to provide an improved device for accomplishing the above functions which is simple in construction, easy of manipulation, and possesses a powerful leverage.

With the above primary object in view the invention consists of the device and parts or their equivalents, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of a fragment of a freight-car, showing my improvements applied thereto and showing the grooved wheels as raised above the rail and the door clamped against the coincident surface of the car. Fig. 2 is an edge view of Fig. 1. Fig. 3 is a detail view of one of the hangers and allied parts. Fig. 4 is an edge view of Fig. 3, and Fig. 5 is a plan view of Fig. 3.

Referring to the drawings, the numeral 6 indicates a fragment of a side of a freight-car provided with an opening 7, which is controlled by means of the sliding door 8. The door when lowered is supported at its lower edge by brackets 9 9, and these brackets are provided with inclined or cammed surfaces 10, which act against the door when lowered and cause said door to be wedged at its lower end against the side of the car. Above the door-opening the side of the car has secured thereto an outstanding rail 11. The door has secured to its outer face, near the upper portion thereof and at or near opposite ends, upwardly-extending hanger-straps 12 12. These straps are bent over rearwardly, as clearly shown, in order to form housings for the grooved wheels 13 13, the said wheels being disposed between the sides of the housings. The rear side of each hanger is also provided with a depending beveled lug 14, the beveled front face of each lug being adjacent to and adapted to bear against the rear side of the rail. The opposed sides of the housings are formed with vertically-elongated slots 15, and in these slots the ends of the axles 16 of the grooved rollers extend.

Straddling the sides of the housings of the hangers are the sides of the looped portions of levers 17 17, said levers being pivoted at their outer ends to lugs projecting from the hangers, as indicated by the numerals 18 18. The inner ends of the levers are connected by means of an intermediate link 19, the ends of the link being preferably provided with oblong or elongated openings through which the pivot-pins pass and enter openings in the ends of the levers. Pivotally connected to an intermediate portion of the link 19 is a vertical link 20, and the lower end of this link in turn is pivotally connected to an intermediate point of a hand-operated lever 21, which is pivoted at the point 22. The lever 21 passes through a guide-loop 23.

In the operation of my invention when there is no downward pressure on the hand-lever 21 the door, of course, by reason of its weight will automatically fall to its lower potion and the hanger-straps will be carried downwardly therewith. This will permit the links 17 to rise, and the grooved rollers will be thereby raised out of contact with the rail, the axles of said rollers riding upwardly in the elongated slots. The links 17 in turn will raise the connecting-link 19, and said link 19 will pull upwardly on the vertical link 20, which latter link will cause the hand-operated lever to be turned to the position shown in the drawings. When the door lowers, as described, its lower edge is brought against the cam-surfaces 10, and at the same time the beveled lugs 14, carried at the inner sides of the hanger-strap, act against the rail 11, and hence the door is firmly wedged against the opposed side of the car. It will therefore be seen that when the door is at rest it is sus-

pended by the hanger-straps, and it is also wedged against the side of the car, and the wheels are raised out of contact with the rail. From this construction it will be obvoius that the door is held fast at any position at which it may be left, the door being held with sufficient firmness to prevent it from sliding back and forth by reason of any jarring or sudden starting or stopping of the car.

Whenever it is desired to move the door, all that is necessary to be done is to press downwardly on the free end of the lever 21. This will cause a down pull on the link 20, and consequently through the link 19 and levers 17 17 the grooved wheels will be brought into contact with the rail 11, and at the same time the door will be raised, so as to release it from its wedging contact with the side of the car.

By employing the hangers with the elongated slots in which the axles of the grooved rollers work and employing in connection therewith the levers 17, pivoted to the hangers, I provide a very simple construction for raising and lowering the grooved wheels out of contact with the rail. Also by the employment of the levers 17, arranged, as described, in connection with the links 19 and 20 and the operating-lever 21, a most powerful and effective leverage is secured.

What I claim as my invention is—

1. In a sliding door, the combination of a door, a rail, hangers secured to the door and provided with upwardly-extending bent-over portions, the sides of said bent-over portions provided with vertically-elongated slots, levers pivoted to the hangers and straddling the same, rollers disposed between the sides of the bent-over portions of the hangers, and arranged to engage the rail, the axles of said rollers passing through the elongated slots in the sides of the bent-over portions of the hangers, and the ends of said axles journaled in the sides of the looped portions of the levers, and means engaging the ends of the levers and adapted to turn said levers on their pivots.

2. In a sliding door, the combination of a door, a rail, hangers secured to the door and provided with upwardly-extending bent-over portions, the sides of said bent-over portions provided with vertically-elongated slots, levers pivoted to the hangers and straddling the same, rollers disposed between the sides of the bent-over portions of the hangers and arranged to engage the rail, the axles of said rollers passing through the elongated slots in the sides of the bent-over portions of the hangers, and the ends of said axles journaled in the sides of the looped portions of the levers, means engaging the ends of the levers and adapted to turn said levers on their pivots, and mechanism between said means and the door, said mechanism adapted for elevating and lowering the door to and from its sliding position.

3. In a sliding door, the combination of a door, a rail, hangers secured to the door and having upwardly-extending bent-over portions, the sides of the bent-over portions provided with vertically-elongated slots, levers pivoted to the hangers and straddling the same, rollers disposed between the sides of the bent-over portions of the hangers and arranged to engage the rail, the axles of said rollers passing through the elongated slots in the sides of the bent-over portions of the hangers, and the ends of said axles journaled in the sides of the looped portions of the levers, a horizontal link pivotally connecting the inner ends of the levers, a vertical link pivotally connected to a medial point of the horizontal link, and an operating-lever pivotally connected to the vertical link.

4. In a sliding door, the combination of a door, a rail, hangers secured to the door and having upwardly-extending bent-over portions, the sides of the bent-over portions provided with vertically-elongated slots, levers pivoted to the hangers and straddling the same, rollers disposed between the sides of the bent-over portions of the hangers and arranged to engage the rail, the axles of said rollers passing through the elongated slots in the sides of the bent-over portions of the hangers, and the ends of said axles journaled in the sides of the looped portions of the levers, means engaging the ends of the levers and adapted to turn said levers on their pivots, and clamping devices whereby when the door is lowered and at rest, said door is automatically clamped and forced toward the coincident surface of the car and thereby rendered tight, and said clamping devices adapted when the door is raised to unclamp said door so as to provide for the free movement thereof.

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

PHILIP L. SHERIDAN.

Witnesses:

W. J. DAVIES,

D. T. DAVIES.