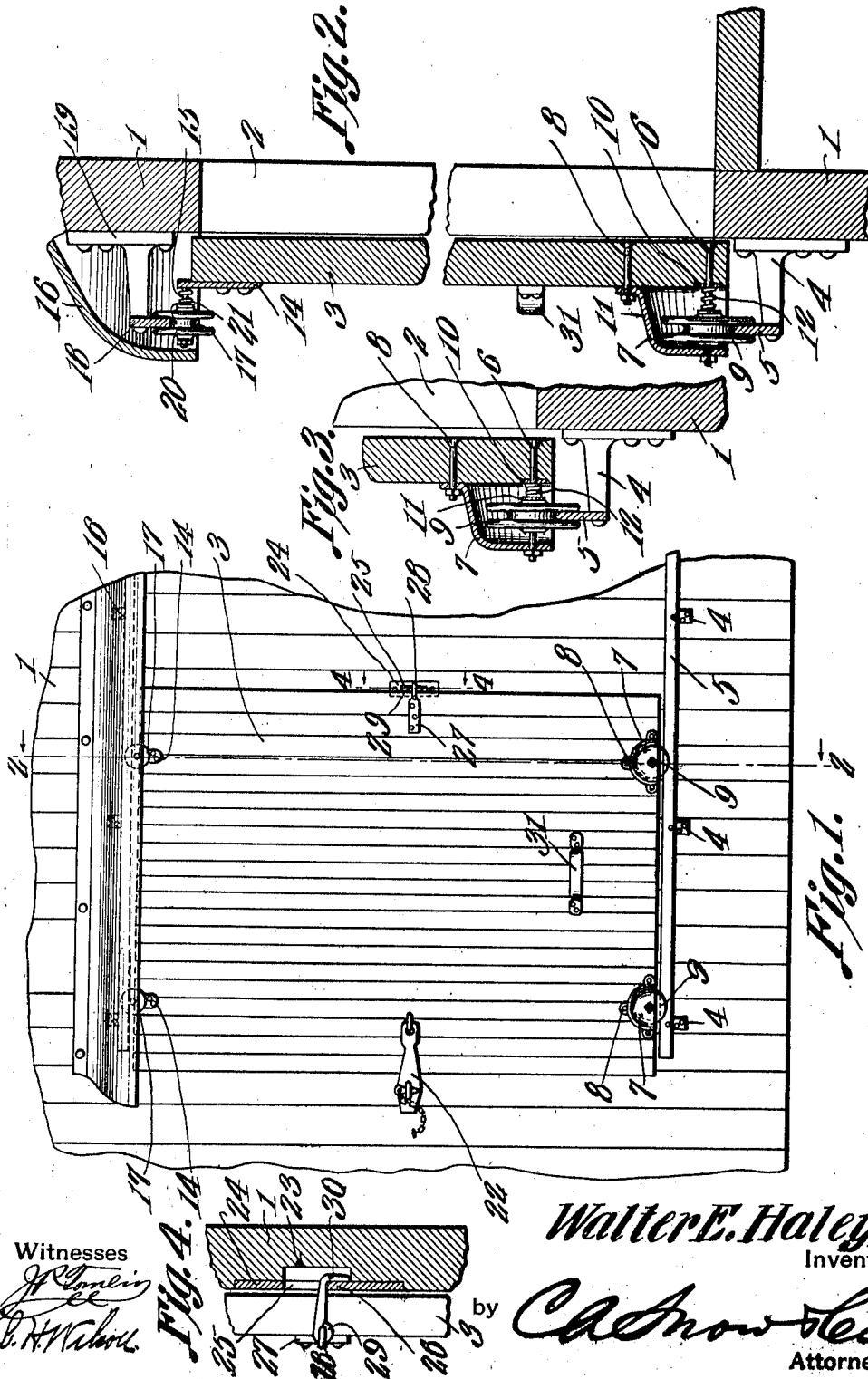


W. E. HALEY.
 DEVICE FOR CAR DOORS.
 APPLICATION FILED SEPT. 11, 1911.

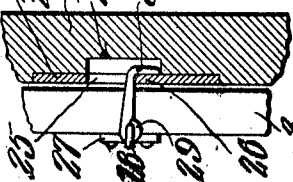
1,031,258.

Patented July 2, 1912.



Witnesses
J. P. Conlin
E. H. Wilson

Fig. 4. 14



by

Walter E. Haley,
 Inventor
C. A. Snow & Co.
 Attorneys

UNITED STATES PATENT OFFICE.

WALTER E. HALEY, OF ROANOKE, VIRGINIA.

DEVICE FOR CAR-DOORS.

1,031,258.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed September 11, 1911. Serial No. 648,726.

To all whom it may concern:

Be it known that I, WALTER E. HALEY, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented a new and useful Device for Car-Doors, of which the following is a specification.

It is the object of the present invention to provide a means for mounting a car door, whereby the car door may be slid readily, when an obstruction is encountered, within the car, such obstruction engaging the car door to press the same outwardly.

Specifically, it is the object of the invention to provide a series of novel, resiliently supported, anti-friction elements, adapted to uphold the door, and to move transversely of the door, under pressure against the inside of the door.

A further object of the invention is to provide novel means for holding the door in fixed relation with respect to the car.

In the drawings,—Figure 1 shows in side elevation, a car door equipped with the device constituting the subject-matter of the present invention; Fig. 2 is a vertical longitudinal section on the line 2—2 of Fig. 1; Fig. 3 is a detail enlarged from Fig. 2, and showing one of the door-controlling springs under compression; and Fig. 4 is a section on the line 4—4 of Fig. 1.

By way of explanation I will state that considerable difficulty has been encountered, heretofore, in opening a car door, for the reason that the doors, notably if engaged upon their inner sides by the cargo, invariably jam and resist effort to slide them. These undesirable features result, in no small measure, from the fact that car doors are ordinarily supported from their upper edges, upon relatively small pulleys, engaging a fixed track, the handle of the door being located adjacent the lower edge of the door. Under such circumstances, the pull, transversely of the door, is exerted against the lower edge of the door, whereas the door is supported adjacent its upper edge, the pull being therefore exerted a considerable distance from the point at which the door binds. Moreover, no means is ordinarily provided whereby the door, as an entity, may move laterally, to escape such portions of the load as may be engaging the inner surfaces of the doors.

In the accompanying drawings, the numeral 1 denotes a portion of the side of a

car, having a doorway 2, adapted to be closed by a vertically disposed, sliding door 3. Secured to the side 1 of the car, adjacent the lower edge of the doorway 2, are a series of brackets 4, supporting a track 5. Secured in the door 3, are bearing pins 6, which outstand beyond the outer face of the door, the outer ends of the bearing pins 6 being preferably, although not necessarily, engaged with a shield 7, retained upon the door 3 by securing elements 8. Mounted to rotate upon the bearing pins 6; and to slide upon the bearing pins, longitudinally of the same, are pulleys 9. These pulleys 9 which are located adjacent the lower edge of the doorway 2, are of relatively large diameter, compared with the pulleys (hereinafter described) and located at the upper edge of the door-way. The pulleys 9 are deeply grooved, to engage with the track 5.

Washers 10 surround the bearing pins 6, adjacent the door 3, these washers 10 being, if desired, countersunk into the door, as clearly shown in Figs. 2 and 3. Other washers 11 are slidable upon the bearing pins 6, these washers 11 being located adjacent the pulleys 9. Surrounding the bearing pins 6, and located between the washers 10 and 11, are compression springs 12. Attention is especially directed to the fact, at this point, that under normal circumstances, the springs 12 exert no pressure against the door 3, tending to thrust the door 3 inwardly, against the wall of the car.

Brackets 14 are secured to the door 3, adjacent the upper edge thereof, and from the brackets 14, bearing pins 15 outstand, the bearing pins being housed beneath the shields 16, secured to the side wall 1 of the car, above the door-way 2. Pulleys 17 are mounted upon the bearing pins 15, both for rotation upon the pins, and for sliding movement upon the pins, longitudinally of the same. These pulleys are grooved, to receive the track 18, carried by brackets 19, secured to the side wall of the car, above the door-way 2. The bearing pins 15 are surrounded by slidable washers 20, adapted to bear against the pulleys 17. Compression springs 21 are interposed between the upper ends of the brackets 14 and the washers 20. Again, it is to be noted that under normal conditions, the springs 21 exert no thrust against the door 3, tending to thrust the door against the side wall of the car.

The door 3 may be secured, adjacent one

of its vertical edges, to the side wall 1 of the car, by any common and well known locking means, indicated conventionally at 22. In the side wall 1 of the car there is formed a recess 23, over which is placed a plate or keeper 24, having an opening 25 therein. That portion of the plate 24 which forms the lower edge of the opening 25, upstands above the base of the recess 23, to form a lip 26. To the outer face of the car door 3, an anchor plate 27 is secured, the same having an eye 28, interengaged pivotally, with an eye 29, formed upon one end of a hook 30, the bill of which is adapted to enter the opening 25 in the plate 24 and to register in the recess 23 in the side wall of the car, behind the upstanding lip 26.

Owing to the fact that the door is supported upon the track 5, through the instrumentality of the pulleys 9 which are located adjacent the lower edge of the door, and owing to the fact that the door is equipped, adjacent its lower edge, with a handle 31, it will be seen that when it is desired to pull the car door outwardly, through the medium of the handle 31, the outward pull will be exerted relatively near to those elements upon which the door is supported, to-wit, the pulley 9 and the track 5.

The door 3 is held in proper relation with respect to the side wall of the car, through the engagement between the hook 30 and the plate 24. There will, therefore, be no gap between the door 3 of the car, and the side wall 1, even though the cargo be pressed against the inner face of the door 3. When, however, the hook 30 is released from engagement with the plate 24, the door 3 will be permitted to swing outwardly, to a slight extent, owing to the presence of the compression springs 12 and 21. Obviously, since the pulleys 9 and 17 are free to slide upon the bearing pins 6, and the pistons, respectively, the door 3 will be permitted to

have proper transverse movement with respect to the side wall 1 of the car. During the sliding of the door 3, the door is moved transversely, readily, to permit the same to clear any obstruction which may accidentally engage the inner face of the door.

Owing to the fact that the springs 12 and 21 exert no pressure against the door 3, under normal conditions, the springs will interfere in no wise, with the free sliding movement of the door.

Having thus described the invention, what is claimed is:—

1. The combination with a supporting structure and a door, of a track secured to the supporting structure; a wheel adapted to ride upon the track; a door-carried bearing upon which the wheel is mounted for rotation, and for sliding movement longitudinally of the bearing; and a compression spring surrounding the bearing and interposed between the wheel and the door; the spring being engageable by the door to move the door toward the supporting structure.

2. The combination with a supporting structure and a door, of a track secured to the supporting structure; a wheel adapted to ride upon the track; a door-carried bearing upon which the wheel is mounted to rotate, and to slide, longitudinally of the bearing; and a spring interposed between the wheel and the door, the spring being inactive when the door is relieved from outward pressure, and being adapted to be put under tension, when the door is subjected to outward pressure.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WALTER E. HALEY.

Witnesses:

W. H. H. RICHARDSON,
CHAS. W. COOK.