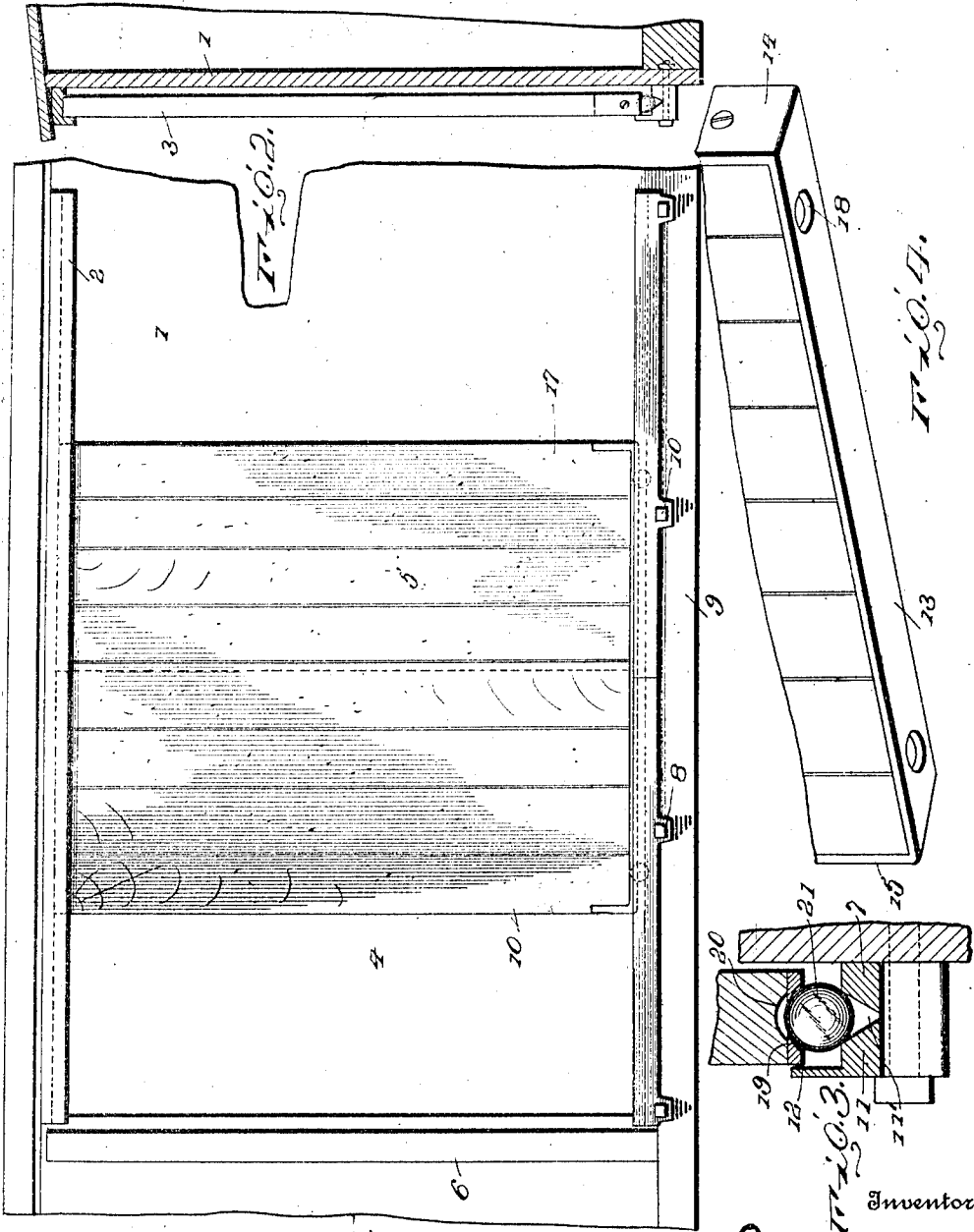


R. A. SHEPARD.
 DOOR SUPPORT.
 APPLICATION FILED SEPT. 26, 1910.

1,000,302.

Patented Aug. 8, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

RICHARD A. SHEPARD, OF BURLINGTON, VERMONT.

DOOR-SUPPORT.

1,000,302.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed September 26, 1910. Serial No. 583,961.

To all whom it may concern:

Be it known that I, RICHARD A. SHEPARD, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Door-Supports, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in door supports, and pertains more particularly to those used on car doors.

The object of my invention is to provide a support of this character in which the door can be more readily moved by pressure on any part of the door without causing the door to jam in the guide-ways.

Another object of my invention is to provide a more simple, cheap and effective support of this character having certain details hereinafter more fully described.

In the accompanying drawings—Figure 1 is a side elevation of my improved door support as applied to a car. Fig. 2 is a vertical sectional view taken on the line 2—2 Fig. 1. Fig. 3 is an enlarged vertical sectional view showing the balls for supporting the door upon the track. Fig. 4 is an enlarged bottom perspective of the door showing the ball retaining plate secured thereto.

In doors of this character, and especially doors applied to cars, there has been considerable trouble in opening the door from the outside. A car door is usually several feet from the ground and any one attempting to open the door with the usual hanger, takes hold of the door at its lower end and thus causes the jamming of the door at the upper end. In my improved door a pushing or pulling action on the lower end thereof will cause the door to readily slide upon its track, and any similar action on any other part of the door will likewise cause a free movement of the door.

Referring now to the drawing, 1 represents the side of a car having adjacent the roof a guide 2, in which the upper end of the door 3 is free to move. The side of the car is provided with the usual door-opening 4, which is of a width approximately that of the door 5. The guide 2 extends some distance beyond the door opening 4, as will be understood by those skilled in the art. Adjacent one side of the door-opening, is a vertical strip, to form a stop to limit the movement of the door in closing the opening. A

stop at the opposite end prevents the door from leaving the track on which it slides.

At the lower end of the door opening 4, is the combined track and guide 7. This guide or track may be made in a single piece, or in several sections, as clearly shown in Fig. 1 of the drawings. The guide, as shown, is preferably made of metal, and having at its lower ends the downward projecting lugs 8, by means of which it is secured to the lower part of the car 9, by means of bolts 10. This guide is provided with a broad flat horizontal portion 11, having a V-shaped horizontal groove 11' in its upper face extending its entire length. The outer edge of the guide 7, is provided with a vertical longitudinally extending flange 12, which extends up along the side of the door and serves as an additional means for preventing any lateral movement of the door. This flange 12, as shown, does not fit close to the door, but is spaced slightly therefrom to allow a free movement of the door within the guide.

The door 5 may be made of any desired form and is provided at its lower end with a plate 13, which is of a width equal to the thickness of the door and extends the entire length thereof. The ends of said plate 13 are turned upwardly, as indicated at 14 and 15, and are mortised into the edges of the door so as to bring the outer faces of the ends 14 and 15 flush with the outer edges of the door. The said plate 13, adjacent each end of the door is provided with a circular opening 18, which has its walls 19 slightly concaved, as clearly shown in Fig. 3 of the drawings. The wood of the frame of the door 5, above said openings is cut away, as indicated at 20, to allow the balls to be inserted therein and prevent any frictional contact between the wood of the door and the ball. The balls 21, rest in the openings 18, and are free to rotate therein. The balls also travel in the V-shaped groove 11' and provide a very smooth running door. The door being held against vertical movement by the guide 2, it will be seen that the balls travel in the groove 11' and, carried by the openings 18, there will be little or no lateral movement of the door.

While I have shown but two balls supporting the door, it will be understood that any desired number may be used. Two balls are preferred, as they are sufficient to support the door and to allow of its free movement

and the least number of balls used the less will be the liability of injury thereto. The balls being spaced apart they cannot bind upon each other and groove 11 being considerably deeper than the periphery of the ball allows the balls to pass over any obstruction which might fall in the groove.

As heretofore stated, a car door is very often operated from the outside and the door shown in my invention can be operated from any point without any liability of the door becoming jammed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with a suitable frame, of a door, a slide for the upper end of the door, a track below the lower end of the door, a plate extending along the lower face of the door and having upwardly turned ends secured to the edge of the doors, said plate having ball retaining openings and balls within said openings and having greater diameter than that of the opening and adapted to travel on said track.

2. The combination with a suitable frame, of a door, a guide for the upper end of the door, a track below the door, said track having a longitudinal V-shaped groove in its upper face and an upwardly extending flange adapted to engage the side of the door, a plate secured to the lower edge of the door

and having upwardly turned ends mortised in the edges of the door, means for securing the upwardly turned ends of the plate to the door, said plate having ball retaining openings, and balls within said openings and adapted to travel in the V-shaped groove and of a diameter slightly greater than that of the openings.

3. The combination with a suitable frame, of a door, a guide for the upper end of the door, a track below the door having a longitudinal V-shaped groove in its upper face and an upwardly extending flange adapted to engage the side of the door, a plate secured to the lower edge of the door and having upwardly turned ends mortised in the edges of the door, means for securing the ends of the plate to the door, said plates having ball retaining openings having concaved walls, the door above the openings having recesses to prevent frictional contact between the balls and door and balls within said openings and adapted to travel in the V-shaped groove and of a diameter slightly greater than that of the openings.

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

RICHARD A. SHEPARD.

Witnesses:

MARTIN G. SILLIMAN,
CHARLES E. ALLEN.