

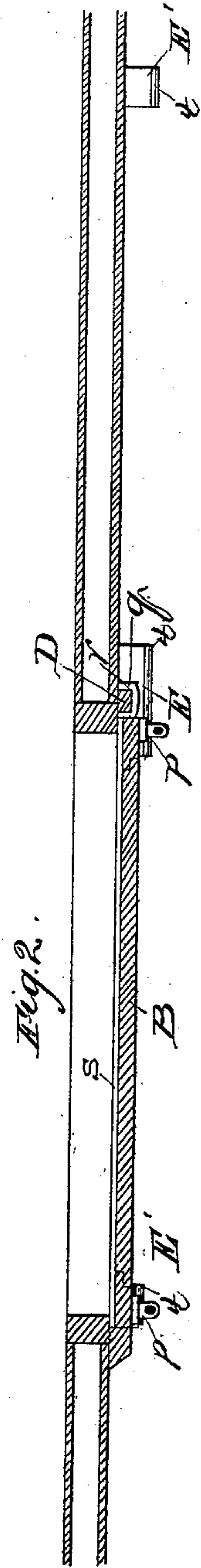
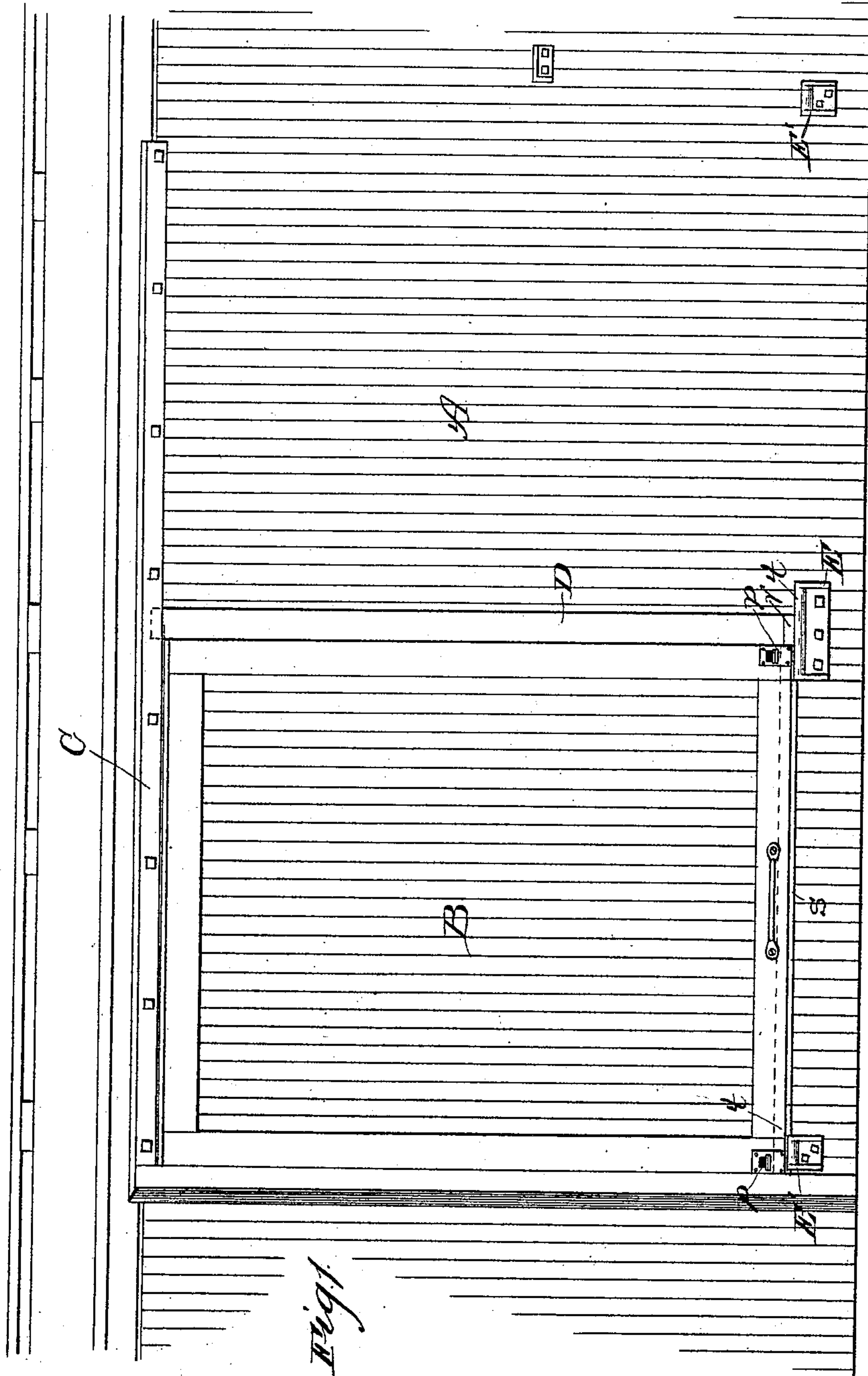
(No Model.)

2 Sheets—Sheet 1.

A. B. PULLMAN.
SLIDING DOOR FOR RAILWAY CARS.

No. 421,084.

Patented Feb. 11, 1890.



Witnesses:
Clifford N. White.
J. H. Dyrenforth

Inventor
Albert B. Pullman
By Dyrenforth & Dyrenforth
Attys.

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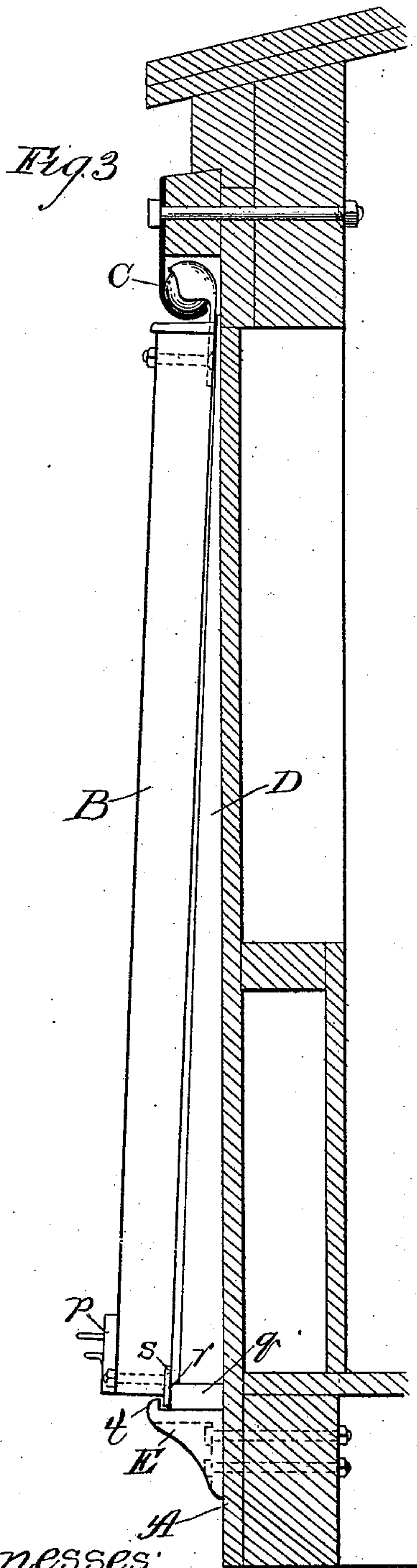


Fig. 3.

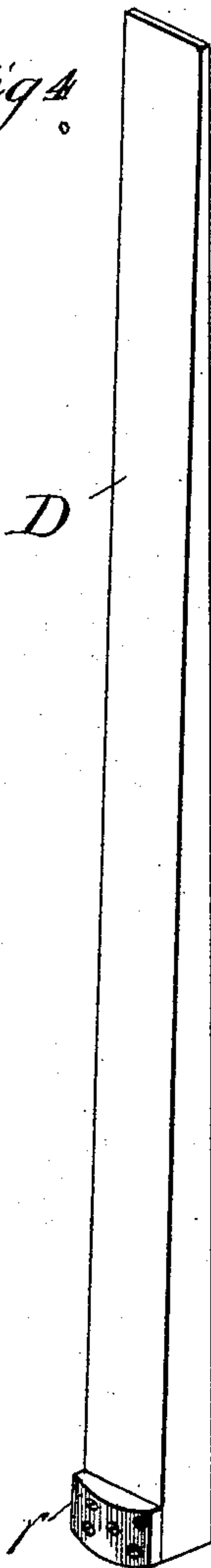


Fig. 4.

Fig. 5.

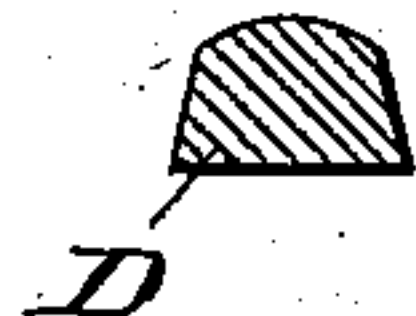


Fig. 6.



Witnesses:

Clifford N. White.
J. M. Dyrenforth.

Inventor:

Albert B. Pullman.
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Atty's

UNITED STATES PATENT OFFICE.

ALBERT B. PULLMAN, OF CHICAGO, ILLINOIS.

SLIDING DOOR FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 421,084, dated February 11, 1890.

Application filed November 14, 1889. Serial No. 330,325. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. PULLMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sliding Doors for Railway-Cars, of which the following is a specification.

My invention relates to the general class of so-called "sliding doors" for freight-cars, stock-cars, and the like wherein the door is hung from its upper end. The hangers employed with doors of this character are of great variety, some involving the use of sheaves, rollers, or balls, and others the use of various sliding devices; but whatever the particular class of hanger may be the doors hung in this manner, provided their lower ends are not restrained by a guide, have one characteristic in common, which is that of being pivotally fixed at the upper end to the wall of the car and capable of being swung freely to and from the wall of the car at all points below the line of suspension.

The object of my present invention is to combine with sliding doors for cars of the general character above defined a simple and thoroughly-effective cinder-guard or spark-guard, thus overcoming an important difficulty in railway-car construction; and to accomplish this object I avail myself of the pivotal characteristic mentioned above as being peculiar to sliding doors of the general class named.

My invention consists in providing the wall of the car at the rear side of the doorway (meaning thereby the side which is in the direction of movement of the door in opening) with a vertical tapering cleat, the thickest portion of which is toward its base, so that in order to be either opened or closed the door must be swung outward at its lower end sufficiently to permit it to clear the cleat; also, in combining with the sliding door and tapering cleat fastening agencies for permitting the door to be secured at will against outward movement; also, in combining with the construction last defined means for limiting the outward movement of the lower end of the door to the extent or a little more than the extent necessary to allow the door to clear the cleat, and, furthermore, in certain details of

construction and combinations of parts, all as hereinafter more fully set forth.

Referring to the drawings, Figure 1 is a side elevation of a car provided with my improvement; Fig. 2, a horizontal section of the same, taken on the line 2 2 of Fig. 1; Fig. 3, a vertical section of the same, taken on the line 3 3 of Fig. 1; Fig. 4, a perspective view of the tapering cleat detached; and Figs. 5 and 6, cross-sections of the tapering cleat, showing modifications in the form thereof.

A is the wall of the car, and B the sliding door, suspended at its upper end by means of a suitable hanger, represented by C.

D is the tapering cleat secured to the wall of the car in the position represented in the drawings with relation to the door—that is to say, at the rear side of the doorway. At its lower end the thickness of the cleat is preferably somewhat less than that of the door, and from this point or from a point a little above the lower end the thickness of the cleat gradually diminishes toward the upper end. The outer surface of the cleat may be either flat or rounded, and, if desired, the sides may be beveled, as shown in Fig. 5, in which case the edges of the door may also be beveled.

In the practical application of my improvement to cars it is advantageous to limit the outward movement of the door to an extent just about sufficient to permit it to clear the cleat when being opened or closed. In addition to this, it is desirable that means be provided for preventing wear of the parts by frictional contact in opening and closing the door, and it is of course also desirable that means be provided for securing the lower end of the door against the wall of the car either in its open or closed position; but as these provisions are not indispensable in all cases the particular mechanism for any one or more of them may be omitted, when desired, without affecting the remaining features of my invention.

The several requirements named are all fulfilled by the following construction, though any other auxiliary mechanisms which will perform like functions are intended to be included in my claims. Secured to the wall of the car just below the cleat D is a bracket E, provided with a flange *t*, projecting upward

from its outer edge. This bracket extends to both sides of the cleat, as shown, and its position is such that the lower edge of the door can swing in and out freely over the flange *t*.
 5 Set into the lower inner face of the door flush with the surface and projecting below the lower edge of the door to an extent sufficient to cause it to reach below the top of the flange *t* is a metal strip *s*, firmly secured in place to
 10 the door and extending the whole width thereof. This strip *s* where it projects below the door serves to limit the outward movement of the latter by bringing up against the flange *t*. In addition to this, it performs the func-
 15 tion of a chafing-strip, acting in conjunction with a metal plate *r* upon the outer face of the cleat *D* at its lower end, which, by extending beyond the surface of the cleat, maintains the door out of contact therewith when
 20 sliding, and thus operates as a chafing-plate, having contact only with the strip *s*. The plate *r* may be a simple rectangular piece of metal flat or rounded upon its outer face and fastened to the cleat, or it may form the front
 25 side of a socket *q*, cast upon the bracket *E*, to receive the lower end of the cleat, as represented in the drawings; or, in case the cleat is made of metal, as it may be, the plate *r* may take the form of a projection integral
 30 with the cleat.

For the purpose of either opening or closing the door it is necessary to swing it from the body of the car, so that it may pass by the cleat, and obviously after it has fully
 35 passed the cleat in either direction it will fall back, if unrestrained, to its position against the wall of the car. As the position of the cleat is such that the rear edge of the door will be in close contact with it when the door
 40 is closed, it is obvious that the cleat serves effectually to prevent the entrance of sparks and cinders into the interior of the car. Each way from the bracket *E*, which is preferably a double bracket, (though obviously two sin-
 45 gle brackets may be substituted for it,) and at a suitable distance therefrom, is a single bracket *E'*, similarly secured to the wall of the car, and likewise provided with a flange *t*, projecting upward from its outer edge, to
 50 limit the outward movement of the door by serving as a stop for the strip *s*. When the door is in contact with the wall of the car, either in its open or closed position, the inner surface of the flange *t* of the bracket will
 55 be a short distance outward from the plane of the door, and to retain the door against outward movement, when desired, bolts *p* are provided upon the door to enter the interven-
 60 ing space.

When required, the door may be locked or sealed in any suitable way.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a railway-car, the combination, with a sliding car-door pivotally hung at its upper
 65 end, whereby it may be swung to and from the wall of the car below the line of suspension, of a cleat *D*, tapering substantially throughout its whole extent and secured vertically against the wall of the car upon the
 70 rear side of the doorway, substantially as described, and for the purpose set forth.

2. In combination with the wall *A* of a railway-car and sliding door *B*, pivotally suspended thereon by means of a hanger, where-
 75 by it may be swung to and from the wall of the car below the line of suspension, the vertical cleat *D* at the rear side of the doorway extending from about the bottom to the top of the doorway and tapering substantially
 80 throughout its whole length, and a fastening device for securing the lower end of the door at will against the wall of the car, substantially as described.

3. The combination, with the wall *A* of a
 85 railway-car and sliding door *B*, pivotally suspended thereon by means of a hanger, whereby it may be swung to and from the wall of the car below the line of suspension, and provided along its inner lower edge with a metal
 90 chafing-strip *s*, of the vertical tapering cleat *D*, secured to the wall *A* upon the rear side of the doorway, and provided toward its lower end with the metal plate *r*, to come into contact with the chafing-strip *s*, substantially as
 95 described.

4. The combination, with the wall *A* of a railway-car and sliding door *B*, pivotally suspended thereon by means of a hanger, of the tapering cleat *D*, secured to the wall *A* upon
 100 the rear side of the doorway, and a stop for limiting the outward movement of the door to about the extent required to permit it to pass over the cleat, substantially as described.

5. In combination with the wall *A* of a rail-
 105 way-car, the sliding door *B*, pivotally suspended thereon by means of a hanger, and provided with a metal strip *s* along its inner lower edge, projecting below it, tapering cleat *D*, secured to the wall *A* upon the rear side
 110 of the doorway, and one or more brackets secured to the wall of the car below the level of the door, each having a flange *t* overlapping the projecting strip *s* and limiting the outward movement of the door to about the ex-
 115 tent required to permit it to pass over the cleat, substantially as described.

ALBERT B. PULLMAN.

In presence of—

J. W. DYRENFORTH,
 M. J. FROST.