

(No Model.)

2 Sheets—Sheet 1.

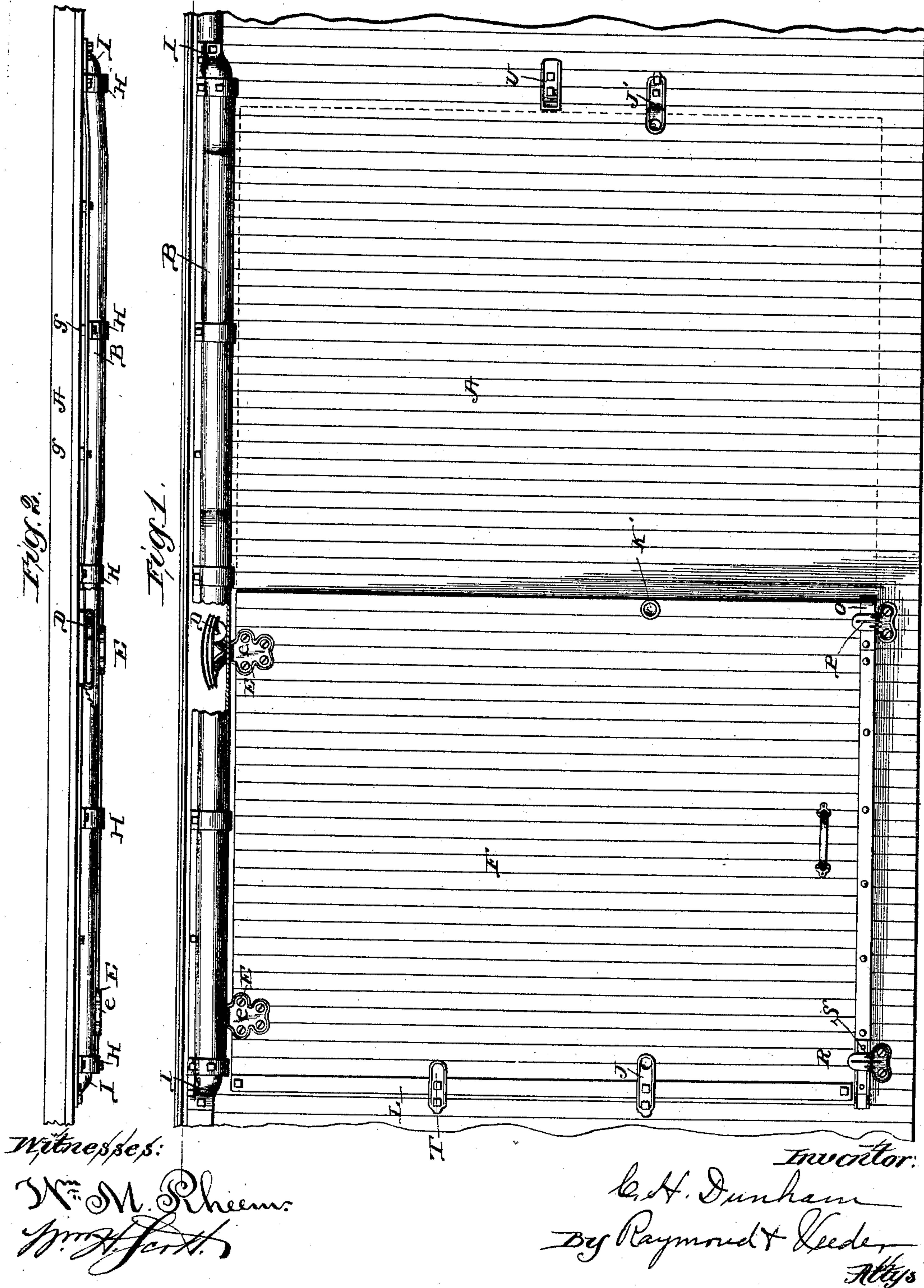
C. H. DUNHAM, Dec'd.

D. T. DUNHAM, Administratrix.

SLIDING CAR DOOR.

No. 475,680.

Patented May 24, 1892.

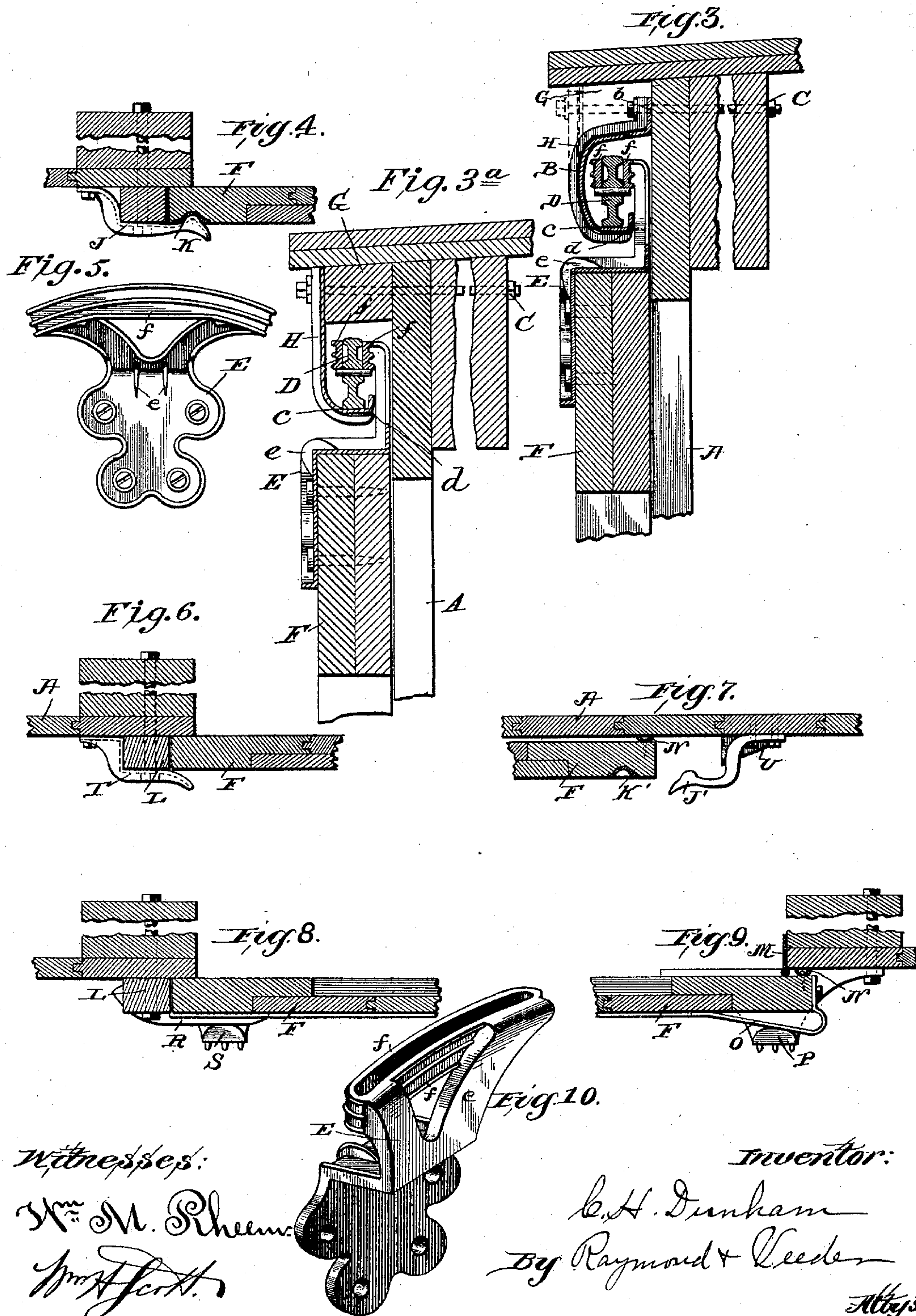


2 Sheets—Sheet 2.

D. T. DUNHAM, Administratrix.

No. 475,680.

Patented May 24, 1892.



UNITED STATES PATENT OFFICE.

CHARLES H. DUNHAM, OF CHICAGO, ILLINOIS; DOROTHY T. DUNHAM, ADMINISTRATRIX OF SAID CHARLES H. DUNHAM, DECEASED, ASSIGNOR TO IRWIN VEEDER, TRUSTEE, OF SAME PLACE.

SLIDING CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 475,680, dated May 24, 1892.

Application filed July 25, 1890. Serial No. 359,855. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DUNHAM, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sliding Car-Doors, of which the following is a specification.

My invention relates to sliding doors for freight and other cars, and in some of its features is applicable to sliding doors of barns, warehouses, and the like.

My invention has for its object the provision of a durable, easily-running, and tight car-door, which shall be easily handled and shall not be liable to derangement either by wear of the parts or by choking with snow or ice and which shall give protection to the contents of the car from sparks and dust.

In the accompanying drawings, Figure 1 is a side elevation of the door and a part of the sheathing of the car, the track from which the door is suspended being broken away partially to show the construction of the hanger. Fig. 2 is a view showing the track and hanger as seen from above, and also a portion of the car-side. Fig. 3 is a cross-section, on a larger scale, of the upper portion of the door, the track and hanger, and a portion of the car-body. Fig. 3^a is a cross-section of a modification of the track and hanger. Figs. 4 to 10, inclusive, are detail views of various parts, which will be described hereinafter.

A, Figs. 1 and 2, designates the side of the car, to which is attached the track B. The track B consists of a curved trough of sheet or cast metal—preferably sheet metal—a section of which is shown in Fig. 3. In its preferred shape, as shown in full lines, it has a flange *b* along its upper edge by which it is attached to the side of the car, bolts C being used for that purpose. It curves outward, downward, and inward, so that its bottom portion forms a trackway *c*, and its lower edge is bent upward to form a flange *d* for the purpose of guiding the roller D of the hanger E, the latter being attached to the car-door F. The proportion of the track B is such as to leave a space between the side of the car and lower part of the track sufficient to permit the hanger to pass between the lower edge of the track and the side of the car. The shape of

the trackway is that of a trough or semi-tube, the only opening through which dirt can have access being the slot or space between the inner edge of the trackway and the car-side, and said space being as sheltered as possible.

The shape of the bracket *e* of the hanger E is apparent from the section in Fig. 3 and from Figs. 5 and 10, Fig. 5 being a side elevation and Fig. 10 a perspective view of the bracket. The lower part of the bracket is secured to the outer side of the door. The middle portion extends across the top edge of the door and the upper portion extends above, flush with the inner face of the door. The bearing edges *f f* of the bracket, which rests upon the ends of the axle of the roller D, are straight and the tread of the roller D is broad and flat, therein differing from those shown in the patent previously granted to me February 28, 1888, No. 378,579. Instead of bringing the upper edge of the track inward to the sheathing of the car-body, as shown in Fig. 3, I contemplate also putting a timber or other filling-piece G beneath the eaves of the roof and making the upper edge of the trackway straight, as shown in Fig. 3^a, securing it to the outer face of the timber G.

To stiffen the sheet or plate metal of the trackway, I place at intervals stirrups H, which are curved to conform to the outer side of the trackway.

The trackway is of substantially the same section throughout, but is offset in the direction of its length, as seen in Fig. 2, the outer portion of the track, or that away from the doorway, being set farther from the car-body than that immediately over the doorway. The offset may be made in the track in the course of manufacture, or it may be sufficiently sprung when it is attached to the car by placing filling pieces or washers *g* between the side of the car and the trackway, where the bolts pass through the track and the side of the car. It is of course to be understood that the space between the trackway and the side of the car made by the insertion of the washers *g* may and should be filled up by strips of wood or other suitable pieces, so as to prevent the entrance of dirt or anything liable to clog the track. It is further to be

understood that washers and filling-strips could be dispensed with by forming the offset in the trackway in the process of its manufacture, forming at the same time the upper edge in a straight line; but such a process is not preferable, as it would be more expensive. The purpose of offsetting the track in this manner is to make the door a tight fit against the side of the car when shut and to carry it away from the side of the car when opening it, so as to secure greater freedom of motion and prevent wear of the door and car sheathing, and especially to preserve the rubber battens, hereinafter described.

To more thoroughly prevent the accumulation of snow or ice within the trackway or the admission of sparks, I employ at each end of the trackway a cap I, Figs. 1 and 2, formed, preferably, of steel, one end of which is shaped to conform to the curvature of the trackway and the body of which tapers toward the other end, the latter being flattened and bolted to the car-side.

To hold the door shut, in addition to the ordinary locking devices, any of which may be employed, but which are not herein shown, I employ a spring-catch J, Fig. 4, the end of which engages in a socket K, and a similar spring-catch J' is also secured to the car-body for holding the door when opened, (*vide* Fig. 1,) a socket K' being provided on the other edge of the door. The spring-catches J J' automatically engage with the door when the same is fully opened or shut and keep it from moving back and forth when the car is suddenly started or stopped, thereby preventing much wear and possible breakage. I thus remove a serious objection to the hanging of car-doors upon anti-friction hangers, for, as ordinarily constructed, unless special care is exercised in securing the door its sliding back and forth when the car is subjected to shocks entails more wear than the legitimate use of the door.

A stop L is secured to the car-side for making a tight joint against the forward edge of the door in the usual manner. For making a tight joint at the rear edge of the door I employ the devices shown in Fig. 9, in which M represents a piece of rubber or other flexible material, secured to the edge of the doorway so as to project slightly beyond the side of the car. N is a piece of rubber secured to the inner face of the door, and O is a spring attached to the lower rear corner of the door, one end being attached to the outer face and the other to the rear edge thereof and having a wedged or inclined face, which co-operates with the guide P, secured to the car, in forcing the door against the car-side, thereby compressing the rubbers M and N and making a tight spark and dust proof joint. The use of a spring O instead of a wedge produces a yielding pressure, which compensates for inaccuracies of workmanship and of wear, so as to maintain the tightness of the joint.

Instead of a wedge at the lower front corner of the door I employ a straight-faced casting or forging R, which coacts with the guide S, the latter being similar to the guide P. The object of making the guide R straight-faced is to allow the door to be opened a few inches, if desirable, without allowing it to hang loose, it being necessary to have the door opened slightly in some cases in order to ventilate the contents of the car. In addition to the spring-catches J J', before described, I contemplate the using of the ordinary stops and wedges T U. (*Vide* Figs. 1 and 6.)

The trackway, as above described, forms a close housing for the hangers. The slot or opening for the passage of the hangers is in the most sheltered position possible and no part of the suspending devices need project beyond the thickness of the door itself, as would be the case if the hanger extended up from the outside of the door and the slot were correspondingly above the outer face of the door instead of the inner face. The latter is an advantageous feature, in that the trackway and hanger is less liable to damage if it does not project beyond the door of the roof, and this is especially true in the case of extra-sized cars for carrying bulky objects—such as furniture—the cars being often of the extreme dimensions, which, by reason of tunnels, bridges, or other limited passages, is permissible.

The construction of hanger herein described, having a bracket which is secured to the outer side of the door and which extends upward flush with the inner side, secures the advantage of a sheltered position for the slot between the track and the car through which the hanger plays, at the same time that the easy removal of the hanger in case repairs are needed is permitted by reason of the fastening of the hanger being on the outside of the door.

I am aware that a trackway formed of an angle-iron, one flange of which projects horizontally inward and forms the bearing-surface for the balls upon which the door is supported, has been devised, such a trackway being shown in the patent to Cloes, No. 285,575, dated September 25, 1883. I do not claim such as my invention.

By the use of rollers having a broad and unbroken face provided with an axle upon which the hanger-bracket rests I secure the well-known advantage of a diminished travel of the roller relative to the door as compared with the use of balls, and by the use of a flat-faced roller in contradistinction to the common grooved roller running on a track-rail I diminish the evil experienced with both balls and grooved rollers—namely, the flattening of the periphery by sliding, which interferes with the proper working of the hanger. The chipping of the flanges, often experienced with grooved rollers, is likewise prevented. These difficulties are specially met with in car-doors,

where the total width of the roller and hanger is limited by the space over the edge of the door and under the narrow eaves of the roof, such width being, therefore, necessarily small.

5 What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a sliding door, of suspending-hangers the brackets of which are secured at their lower ends to the outside of the door, extending across its top and upward flush with the inner face of said door, and a semi-tubular trackway attached at its upper edge to the car and extending outside and beneath the rollers of said hangers and leaving a slot or space between the lower edge of said trackway and the side of the car for the passage of the hanger-bracket, substantially as described.

2. The combination, with a car-door and its supporting-hangers, said hangers being secured at their lower ends to the outside of the door, extending across its top and upward flush with the inner face of said door, of a semi-tubular trackway attached at its upper edge to the car-body and extending outside of and beneath the rollers of said hangers and offset in the direction of its length, so that its rear or outer end is farther removed from the car-body than the front end or portion over

the doorway, substantially as and for the purpose set forth. 30

3. The combination, with a sliding door and its suspending-hangers, of a supporting structure comprising, in combination, a semi-tubular trackway B, made of plate metal, stirrups or braces H, conforming to the exterior thereof, and sheet-metal cap-pieces at the end of said semi-tubular trackway formed at one end to the trackway and tapered toward the other end to meet the side of the car, substantially as shown and described. 35 40

4. The combination, with a sliding door, of battens M N, formed of rubber or other flexible material and attached, respectively, to the inner edge of the door-opening and to the inner face of the door at its rear edge, in combination with devices adapted to wedge the door against the car-side, substantially as described. 45

5. The combination, with a sliding door, of a spring-wedge, as O, attached to the outer face and rear edge thereof, and a guide P, co-acting with said wedge, as and for the purpose set forth. 50

CHARLES H. DUNHAM.

Witnesses:

IRWIN VEEDER,
TODD MASON.