

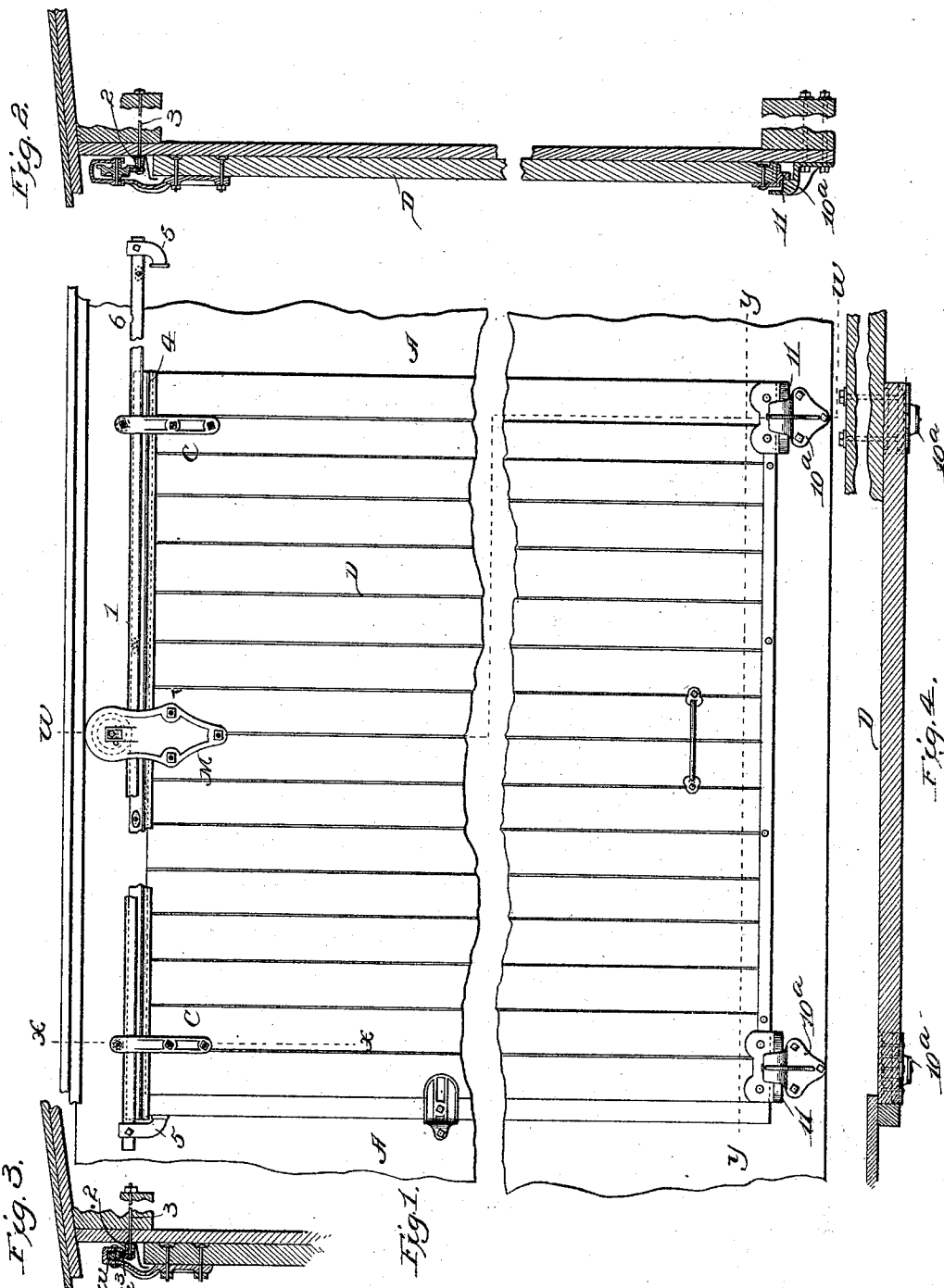
(No Model.)

2 Sheets—Sheet 1.

W. W. HOLMES.
SLIDING DOOR AND HANGER THEREFOR.

No. 541,971.

Patented July 2, 1895.



witnesses:

Harry D. Pomeroy.
Wm. Dwyer.

Inventor:
William W. Holmes
By F. W. Ritter
Atty.

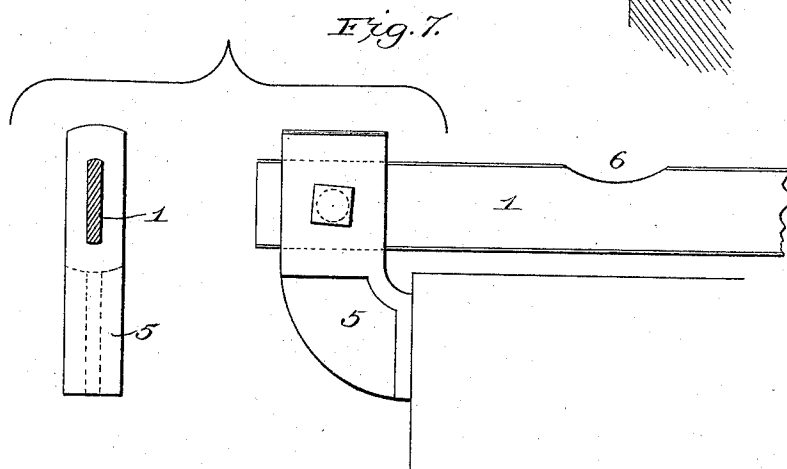
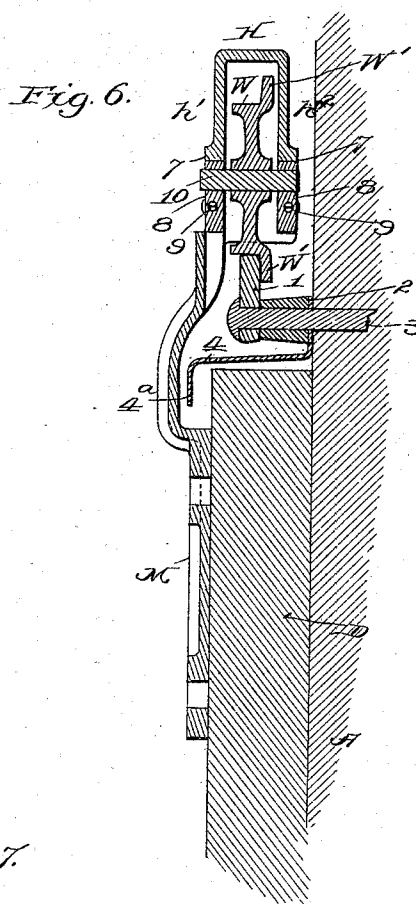
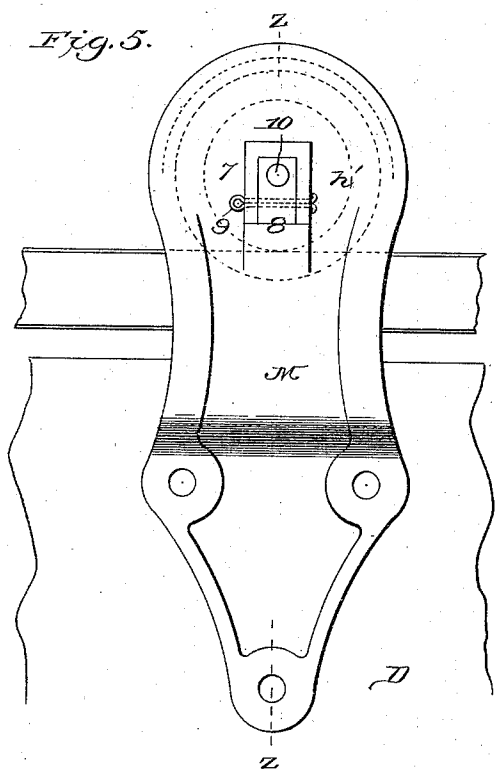
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witnesses:
Harry S. P. H. W.
M. O. Dye

Inventor:
William W. Holmes.
By F. N. Ritter, Jr.
Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM W. HOLMES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE Q AND C COMPANY, OF SAME PLACE.

SLIDING DOOR AND HANGER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 541,971, dated July 2, 1895.

Application filed May 24, 1894. Serial No. 512,372. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. HOLMES, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Sliding Doors and Hangers Therefor; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of a portion of the side of a car and of a sliding door embodying my invention applied thereto. Fig. 2 is a vertical section of the same taken on the line *ww*, Fig. 1, through the main hanger and one of the wedges and bracket for securing the bottom of the door. Fig. 3 is a similar section of the same taken on the line *xx*, Fig. 1, through one of the guide or supplemental hangers. Fig. 4 is a horizontal section of the bottom of the door with its wedges and brackets, taken on the line *yy*, Fig. 1. Fig. 5 is an enlarged face view of the main hanger and portions of the door and track-rail. Fig. 6 is a vertical transverse section of the main hanger, track-rail, &c., on the line *zz*, Fig. 5, and Fig. 7 is an enlarged detail view of a portion of the track-rail and the sliding-door stop.

Like symbols refer to like parts wherever they occur.

My present invention relates to the construction of sliding doors and attachments pertaining thereto, and while of general application wherever sliding doors are required or used, has been devised with special reference to use on cars or like moving structures, where provision to prevent the entrance of dust, dirt, sparks, snow, or rain is required, and where the wear and tear incident to constant jars, shocks, and vibration of the parts have to be anticipated and counteracted.

The main object, therefore, of the present invention, is the production of a simple, durable and efficient storm proof sliding door.

To this end it consists, generally stated, in the particular features of construction, and in the combinations thereof as will be hereinafter pointed out, and finally embraced in the claims.

I will now proceed to describe my invention

more fully so that others skilled in the art to which it appertains may apply the same.

In the drawings A indicates a portion of the side of a freight car in which is formed the usual door-way. Directly over said door-way or opening and extending the necessary distance beyond the same, and in such relation thereto as is required by the door to be employed—is the track 1 which is preferably a flat steel bar supported from the car by a series of brackets 2 and through bolts 3—the brackets by choice being arranged at such intervals as will bring two of them opposite the small, supplemental or corner hangers (see Fig. 3) when the door is closed, which will materially strengthen the structure and reduce the wear. Beneath said track rail 1 and suitably secured to the side of the car (or to an equivalent support) and preferably by means of the brackets 2 and through bolts 3 is a cap strip 4 sufficiently long to extend the width of the door opening and sufficiently wide to project over the edge of the door D and which terminate in a downwardly projecting lip or flange 4^a, said dependent flange of a length to extend for a short distance down the outside of the door (see Fig. 6) so as to conceal the crevice between the door and car and effectually house and guard the top of the door against the entrance of dust, dirt, sparks, &c. Secured to the track rail 1 at a point sufficiently far from the rail support to secure spring or resiliency and projecting therefrom in line with the edge of the door and at the extreme normal travel of the door in either direction is a stop (or stops) 5, which from its location acts effectually to arrest the door without encountering the severe shock it would sustain if placed nearer the center of the door where the leverage on it would be greater, and just within said stop a distance equal to that of the corner hanger from the edge of the door (more or less) is a catch notch 6, into which the wheel of the guide hanger C will drop and thus restrict the movement of the door when running free. A like notch is provided in the track rail above the opposite side of the door-way to restrict the movement of the door when open.

The stop 5 is preferably of a curved form,

or are shaped, and owing to said form and its arrangement or attachment to the bracket supported track rail 1 it acquires a resiliency which neutralizes shocks and adds materially to the durability of the structure.

The door D is suspended from the track rail by a center or main fixed hanger M and two supplemental corner or guide hangers C, C, the whole so arranged that the center hanger carries the weight of the door while one or the other of the supplemental or corner hangers assists it according to the direction in which the door is being moved—to effect which operation it is necessary that the plane of the tread of the wheels of the supplemental or corner hangers C C should be slightly above the plane of the tread of the wheel of the central or main hanger M, so as to permit the door to rock on the main hanger M. So far as the other features of my invention are concerned, if desired the corner hangers C C may be used without the main hanger M and will then carry the whole weight of the door, or the main hanger M may be used without the supplemental or corner hangers C C under like conditions—though neither of the last recited constructions are recommended.

The several hangers M and C C are off-set from the door (see Figs. 3 and 6) and so attached thereto as to permit of the upper edge of the door being closely housed by the descending flange or lip 4^a, which flange or lip is within the hangers and guarded thereby.

The detail construction preferred for the main or center hanger M, especially when it is to carry the whole weight of the door D is shown more clearly in Figs. 5 and 6 of the drawings—that is to say, the hanger proper is extended inward and downward so as to form a complete housing H with its front and rear walls h^1 h^2 each of which is provided with a rectangular opening or box 7 for the reception of the hardened steel bearings 8, secured to the housing by a cotter pin 9.

W indicates the hanger wheel inclosed within the housing H with its journals 10 in the hardened steel bearings 8 8, said wheel having a flange W', which serves to confine the tread of the wheel to the track rail 1 and to draw the door D close to the side of the car beneath the cap strip 4.

The supplemental or corner hangers C C, when used, in conjunction with the main hanger M, are of a somewhat simpler and slighter form, as they then carry but little of the weight of the door, and may be termed guide hangers. As indicated in the drawings (Fig. 3) the top of the hanger is extended inward and downward to form a housing for the roller or wheel w which may be journaled directly in the hanger in the usual manner, and as the wheel or roller w is preferably one having a plain tread (or without flanges) the inner descending portion or lip of the housing is curved or bent as at h^3 to bear against the

inner side of track rail 1, which will not only insure the tread of the roller w on the track, but will serve to draw or force the door D against the side of the car and assist in forming a storm proof adjustment of the parts. The bottom of the door D may be held by the usual or any approved form of brackets 10^a and caused to clamp or bind against the car A by the usual wedges 11.

The construction, combination and arrangement of the track-rail, hangers, and cap-strip, being of the general character hereinbefore set forth, it will be noted that each hanger carries or forms the housing for its own wheel, and provides a means for forcing the top of the door in contact with the side of the car (the wheel flange W' and the hanger flange h^3) while the cap-strip 4 affords a close and snug housing for the top of the door—the bottom of the door being held by wedges and brackets of any approved form. The door is balanced and its weight (in the preferred construction shown) is carried on the main hanger so that both of the small hangers do not bear on the track at the same time, which prevents the door from sagging at the center and also allows the door to be opened or closed freely, and in case the door is not locked one of the wheels of the small hangers (accordingly as the door is open or closed) engages in the wheel notch 6 and restricts the movement of the door. As the door is balanced on the center hanger M it requires but slight exertion to lift the wheel from the wheel notch to the track when the door is to be moved.

The door stop from its proximity to the track-rail, and its connection therewith, is subjected to less leverage and is better located to resist the sudden shock or a violent blow from the door, and the wheel notch, when used, is an effective adjunct to the door stop whether the stop be located as herein shown or otherwise. The flat bar steel track will reduce the cost of repairs, and under ordinary circumstances last the life of the car, while the hardened steel bearings for the main hanger will not only increase the durability of the hanger, but will counteract the irregular wear of journal and bearings incident to the use of hangers on cars where the shocks, jars, and constant vibrations tend to destroy the form of the journals and thus add materially to the difficulty of opening and closing heavy car-doors.

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

1. The combination with a sliding door, of a hanger therefor said hanger off-set from the upper edge of the door to accommodate the downwardly projecting flange of the cap-strip, a track-rail, and a cap strip for the door interposed between the track rail and the top of the door, and having a downwardly pro-

jecting lip or flange arranged to house the top of the door, substantially as and for the purposes specified.

2. The combination with a sliding door, of
5 a hanger having a housing for its wheel said hanger off-set from the upper edge of the door to accommodate the downwardly projecting flange of the cap-strip, a track rail, and a cap strip interposed between the track rail and
10 top of the door and having a downwardly projecting flange which houses the top of the door; substantially as and for the purposes specified.

3. The combination with a sliding door and
15 a track rail, of corner or supplemental hangers, and an intermediate fixed hanger having a main bearing or carrying wheel whose tread is in a lower plane than the wheels of the supplemental hangers, substantially as and for
20 the purposes specified.

4. The combination with a sliding door and its flat steel track rail, of a curved stop secured to the free end of the track rail, and projecting therefrom in the plane of and op-

posite to the edge of said sliding door; substantially as and for the purposes specified. 25

5. The combination with a sliding door, and a bracket supported track rail therefor, of an arc shaped or curved stop secured to the bracket supported track rail at a point distant from the supporting bracket; substantially as and for the purposes specified. 30

6. The combination with a sliding door and its suspension hanger, of a bracket supported track rail having a wheel notch for the wheel
35 of the suspension hanger, and a curved door-stop secured to the free end of the bracket supported track-rail adjacent to the wheel notch; substantially as and for the purposes specified. 40

In testimony whereof I affix my signature, in presence of two witnesses, this 2d day of May, 1894.

WILLIAM W. HOLMES.

Witnesses:

GEO. A. POWELL,
S. F. JOHNSON.