

E. A. HILL.
 MEANS FOR GUIDING AND RETAINING THE LOWER EDGES OF FREIGHT CAR DOORS.
 APPLICATION FILED NOV. 9, 1910.

1,007,695.

Patented Nov. 7, 1911.

5 SHEETS—SHEET 1.

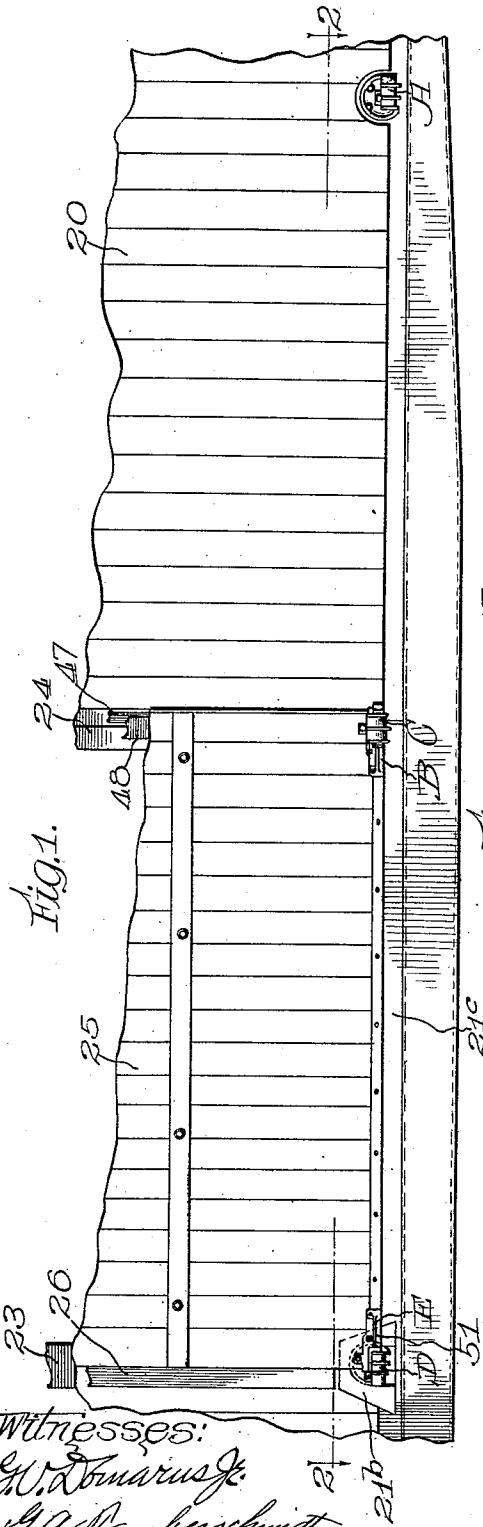


Fig. 1.

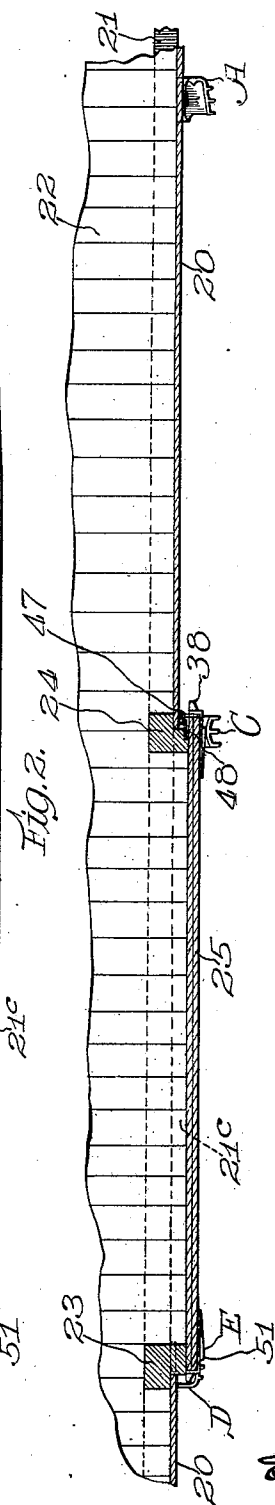


Fig. 2.

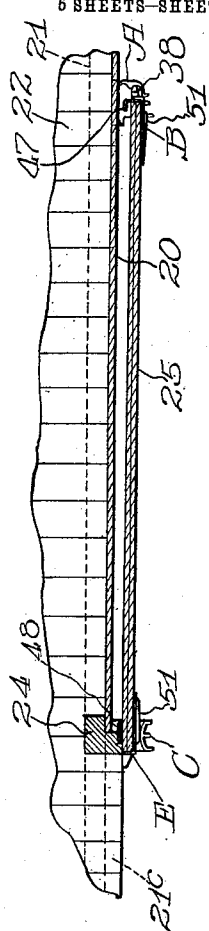


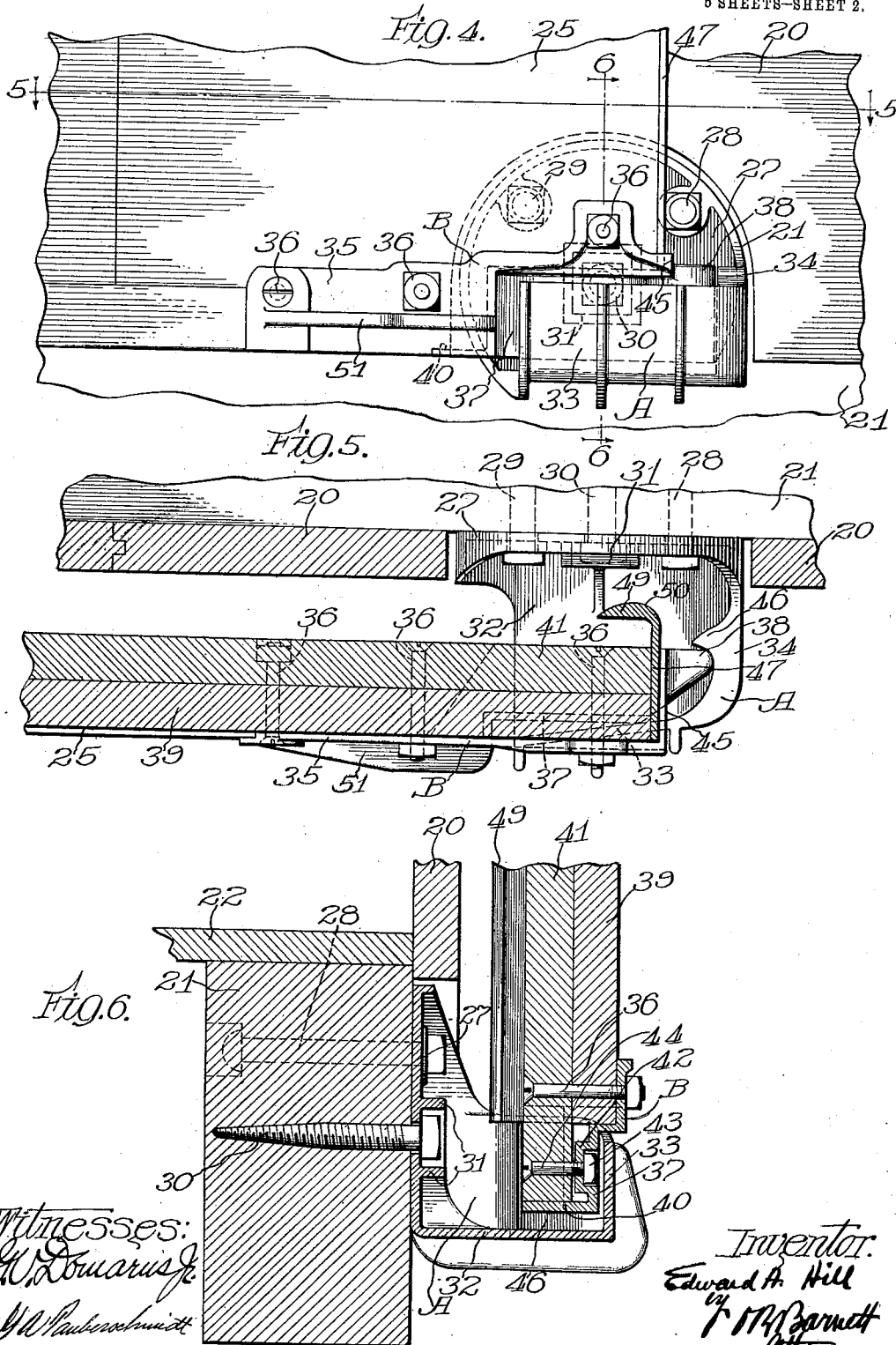
Fig. 3.

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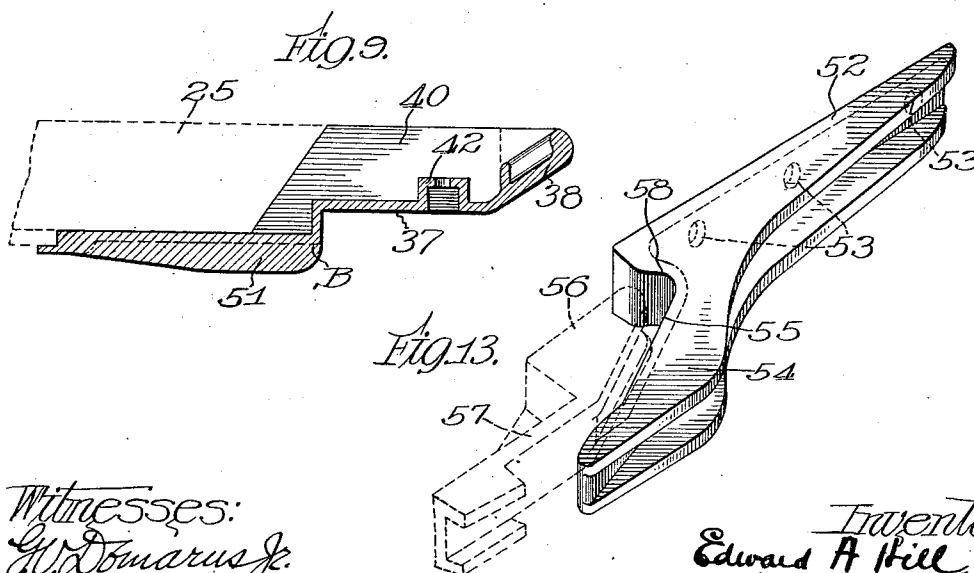
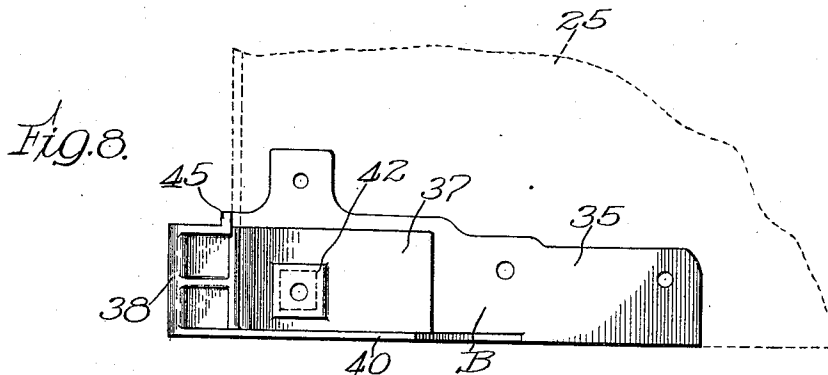
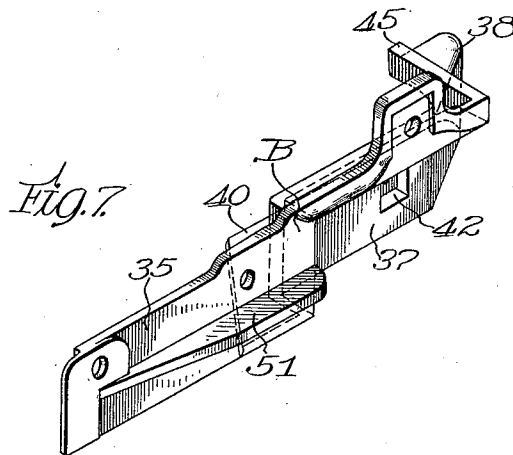
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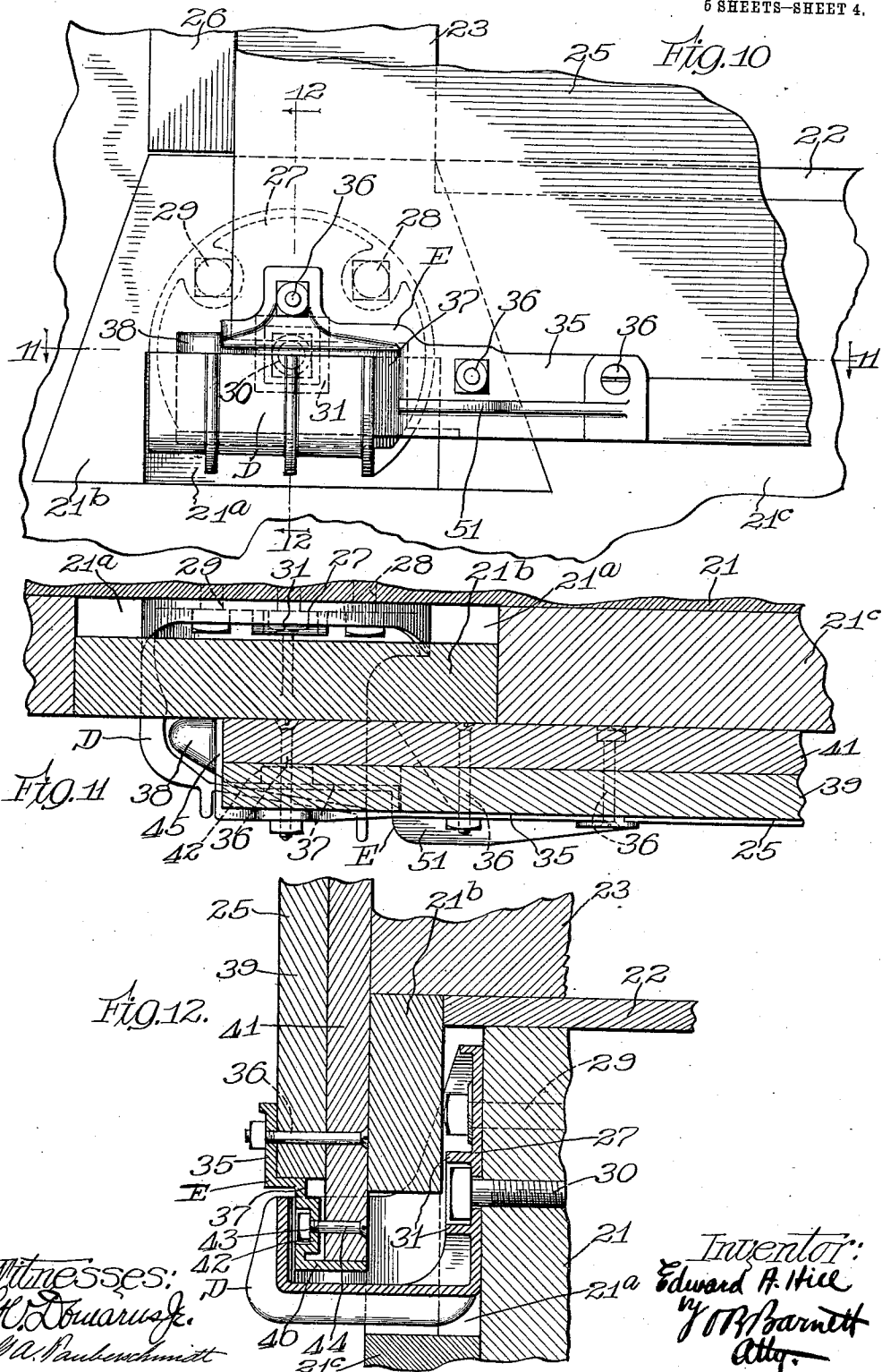
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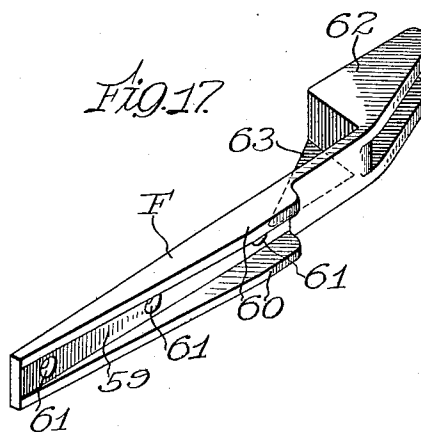
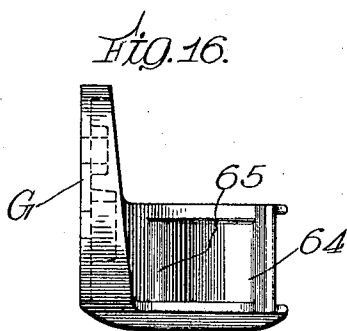
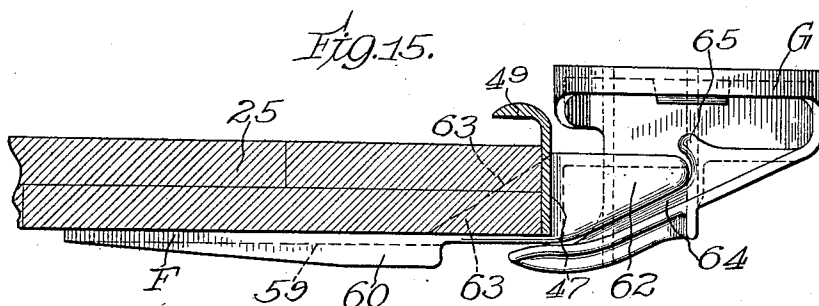
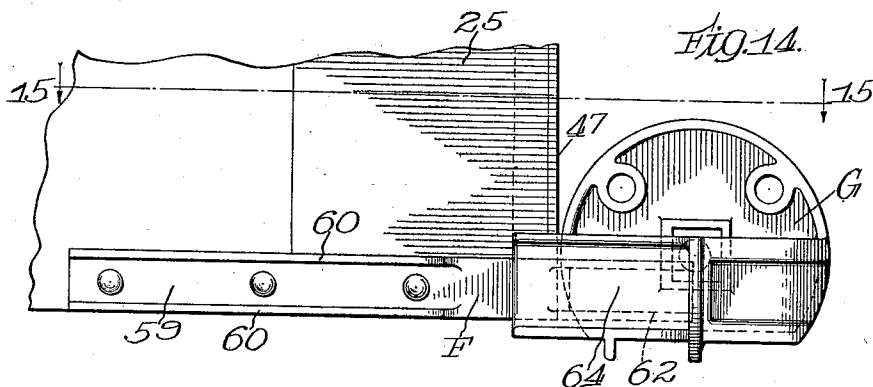


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6 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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MEANS FOR GUIDING AND RETAINING THE LOWER EDGES OF FREIGHT-CAR DOORS.

1,007,695.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed November 9, 1910. Serial No. 591,467.

To all whom it may concern:

Be it known that I, EDWARD A. HILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Means for Guiding and Retaining the Lower Edges of Freight-Car Doors, of which the following is a specification.

My invention relates to freight car doors and retaining means for the same, and particularly to doors of the sort adapted to be suspended at their upper margins so as to be slidable back and forth over the door opening; and the invention has for its object the provision of the lower edge of a door of this character, and the parts of the car body adjacent thereto, with certain co-operating devices of novel and improved construction, and arranged in a novel manner, adapted to guide the door in its movements back and forth, and to retain it in proper place with relation to the car when in its open and closed positions.

The invention has for a further object to provide a novel and improved form of apparatus of this character which shall be simple, strong, durable and cheap to manufacture, and which, in particular, shall be compact in respect to the arrangement of the retaining devices relative to the door and car body; it being undesirable to employ any devices for this purpose which project appreciably beyond the plane of the door because of the consequent effective widening of the car and because of the liability of such projecting parts to be knocked off or injured.

The invention has for further objects the several novel constructions, arrangements and devices in retaining and guiding means for doors which will be hereinafter described and claimed.

The invention is illustrated in a preferred form, and in certain modifications thereof, in the accompanying drawings, wherein—

Figure 1 is a fragmentary side elevation of a car; Fig. 2, a sectional plan taken on line 2—2 of Fig. 1; Fig. 3, a similar sectional plan showing the door in a different position from that of the preceding two figures; Fig. 4, a fragmentary elevation illustrating, on an enlarged scale, the devices shown at the right hand corner of Fig.

3; Fig. 5, a sectional plan taken on line 55—5 of Fig. 4; Fig. 6, a sectional view taken on line 6—6 of Fig. 4 looking in the direction of the arrows; Fig. 7, a perspective view of what I have termed the nose piece, in its preferred form; Fig. 8, a fragmentary elevation of the back side of the door showing this part attached to the door; Fig. 9, a longitudinal sectional view taken through the nose piece; Fig. 10, a fragmentary elevation of the parts at the forward side of the doorway; Fig. 11, a sectional plan taken on line 11—11 of Fig. 10; Fig. 12, a vertical section taken on line 12—12 of Fig. 10, looking in the direction of the arrows; Fig. 13, a fragmentary view in perspective showing particularly a modified form of retaining device; Fig. 14, a fragmentary elevation illustrating a modified form of nose piece, the retaining device being also somewhat different from those shown in Figs. 1 to 12 inclusive; Fig. 15, a sectional plan taken on line 15—15 of Fig. 14; Fig. 16, a side elevation of the retaining device of Figs. 14 and 15, looking toward the opening of the same, and Fig. 17, a view in perspective of the nose piece shown in Figs. 14 and 15.

Like characters of reference indicate like parts in the several figures of the drawings.

Referring to the drawings, 20 designates the side sheathing of the car, 21 the sill at this side, 22 the flooring, 23, 24 the door posts, 25 the door, and 26 the stop strip at the forward door post. It will be understood that the door is supported at the top by any suitable means permitting it to be slid back and forth across the door opening. This apparatus forms no part of my present invention and therefore is not shown nor described.

The means for guiding and retaining the lower edge of the door, which constitutes my present invention, consists of a set of brackets or retaining devices secured to the side of the car, one of these devices being located at the forward door post, another at the rear door post, and the third at a place on the side of the car back of the rear door post; and of suitable means on the forward and rear edges of the door adapted to co-operate with the retaining devices or brackets attached to the car body. It will be understood, however, that while the complete equipment includes all of the devices

above mentioned, it will be possible to utilize only some of these devices, that is to say, to employ certain features only of my invention without employing them all in combination, as is preferable.

The bracket at the forward door post is preferably quite similar in construction to the bracket which receives the back edge of the door when in its open position, though as shown it is not precisely identical. The device or nose piece on the forward edge of the door is, by preference, the same as that on the rear edge. Therefore I will first describe in detail one pair of these devices, namely, the pair which come into coöperation when the door is opened, and will afterward allude to the slightly different form of bracket at the forward door post; with the understanding, however, that identical brackets might be used at both places.

The bracket, in question, designated as a whole by letter A, consists, preferably, of an attaching plate 27 which is secured to the car sill by bolts 28, 29 and 30, the latter bolt being preferably protected, that is, prevented from being unscrewed, by the flanges or ribs 31 on plate 27; of a horizontal web 32 extending from said plate 27, an upwardly extending lip 33 at the front edge of web 32, the web or lip 34 being preferably a continuation of lip 33. Lip 33 stands preferably oblique to the plane of the door, as shown. The bracket is preferably secured direct to the sill, the sheathing being cut out at this point, as indicated in Figs. 1, 4 and 5.

To coöperate with the bracket above described, the door is provided at its rear edge, preferably at the lower corner thereof, with a nose piece, designated generally by the letter B, consisting in its preferred form, of an attaching plate or member 35 perforated so as to be secured to the door by the bolts 36, and an inwardly off-set portion 37 terminating in a preferably wedge shaped or tapered nose 38. This device is secured to the door by cutting away a portion of the sheathing 39 of the door, the recess so formed making place for the off-set portion 37 of the nose piece. The nose piece, for purposes of reinforcement and secure attachment to the door, is preferably formed with a web or plate 40 which extends under the sheathing adjacent the recess and under the frame work 41 of the door. The off-set portion 37 of the nose piece is preferably formed with a square recess 42 adapted to receive the nut 43 (Fig. 6) on the attaching bolt 44. A web or strip 45 extends around the edge face of the door above the nose 38, which latter preferably projects beyond the vertical edge face of the door. Preferably the web 34 of the retaining bracket is formed with a projection 46 which keeps the door from being forced too close to the car. This is de-

sirable in any case, but particularly, when the door is provided at its rear edge, as shown, with the closing strip 47 intended to engage with a suitable strip 48 (Figs. 2 and 3), or other equivalent device, on the door post 24. When the door is provided with this strip 47, if it were not held from swinging inwardly, the strip 47 might be crushed or injured by contact with the side of the car. The purpose of strip 48 is primarily to close the crack between the rear edge of the door and the door post, when the door is in its closed position. It also, however, serves as means for guiding the door when being moved to and from its extreme open position, and, with this in view, the portion of the strip 49 which is in-turned back of the door, is formed with a curved or rounded surface 50 which allows the part to slide easily over the sheathing of the car without damage.

I do not claim herein the closing strip 47 nor specifically the form of bracket A by which a pocket is provided for the nose 38 so that the closing strip 47 is held away from the side of the car, as this combination is claimed in my pending application Serial No. 642,561, filed August 5, 1911.

On the rear door post 24 is a bracket C of familiar construction, through which the door is slid when being opened and closed. The nose piece above described is preferably formed with a wedge 51 which engages with the bracket C when the door is slid to its closed position so as to hold the rear corner of the door firmly in position with relation to the car.

The complete equipment of the door with guiding means, in accordance with my invention, contemplates also the use of a bracket D at the forward door post 23, which device may, however, be slightly different in form from the retaining device A; and the employment of a nose piece E, like the nose piece B, above described, on the forward lower corner of the door.

In Figs. 10 to 12 inclusive, I have illustrated the preferred construction of the bracket D at the forward side of the door way. As in the particular construction of car chosen for the purpose of illustrating the application of my invention, the door posts project beyond the side sheathing of the car, the forward bracket D is set into the recess 21^a in the filler strip 21^c on the sill 21. The forward edge of the door, when closed, comes against the door post 23. Therefore it is not necessary to form the bracket D with the web or lug 46 of the rear retaining device or bracket A. The bracket D is in other respects constructed exactly the same as bracket A, and is attached to the car in the same manner. The nose piece E may be identical in form with the nose piece B at the rear edge of the door. In order to

give a finished appearance to the car at the place where the bracket D is attached, the attaching plate 27 of the bracket may be covered by the wooden filler 21^b which is set into the filler strip 21^a so as to be flush with the outer surface thereof and with the surface of the door post 23. It will be understood that the above arrangements which are suitable particularly for the construction of car shown, might be varied with the application of the device of my invention to a car built on a different plan. With the car so equipped, it will be seen that when the door is opened the nose 38 on nose piece B, in coöperation with the oblique lip 33 of the bracket A, guides the rear edge of the door into and subsequently retains the same securely in proper position with respect to the car. At the same time, the wedge 51 (Figs. 1, 2 and 3) on the nose piece E, engages the bracket C so as to hold the forward edge of the door securely in position. When the door is closed the engagement of corresponding parts of the nose piece B and bracket C, and nose piece E and bracket D, effects the same guiding and subsequent secure positioning of the door. It will be observed that the brackets A and D project but very little, if any, beyond the front surface of the door. This makes the arrangement a very compact one. When the door is closed, the in-turned portion 49 of strip 47 extends around the strip 48 on door post 24 and prevents any rain, snow, dust, cinders, or sparks from entering the doorway at this place. The configuration of the in-turned portion 49 of strip 47 prevents this part of the structure from injuring the sheathing of the car when the door is pushed back and forth, and, in fact, serves as a guide to steady the movements of the door when near its extreme open position. It will be understood that doors of this sort are ordinarily hung somewhat loosely from the car.

In Fig. 13, I have shown a modified form of bracket consisting of an elongated plate or strip 52 perforated with the bolt holes 53, from which extends the lip 54 formed with the oblique surface 55 adapted to be engaged by the nose 56 of the nose piece 57, a portion of which only is shown. The bracket is preferably formed with the recess 58 to receive the end of nose 56.

In Figs. 14 to 17 inclusive, I have shown a modified arrangement of the bracket and nose piece which does not involve cutting out the corner of the door. The nose piece F in this case consists of a strip 59 formed with the wedges 60 and perforated with the bolt holes 61; and of a nose 62 which lies entirely beyond the edge face of the door. The device is reinforced by a triangular web or plate 63 which underlies the corner of the door. Nose 62 engages the oblique lip

64 of a retaining bracket G formed preferably with a stop web 65 for the end of the nose piece.

While I have shown a preferred embodiment of my invention, and have indicated certain possible modifications thereof, it will be understood that other changes in form, proportion, arrangement and construction of the devices constituting the apparatus might be made without departure from my invention. Therefore I do not limit myself to the particulars described and claimed except so far as certain of the same are made specifically limitations on certain of the claims herein.

It will be seen, in the preferred construction and arrangement shown, that the nose piece, in effect, constitutes a double wedge, one wedge surface being on the outer face of the door and adapted to engage with the bracket C through which the door slides, and the other wedge being at the edge of the door, although it may be set back more or less into the body of the door, and adapted to engage, with the door in another position, with a suitable bracket arranged substantially back of the plane of the outer surface of the door.

I claim:

1. The combination with a sliding door, of a nose piece at one vertical edge of the door provided with a projecting nose, and a bracket adapted to receive said nose.

2. The combination with a sliding door, of a nose piece at one vertical edge of the door provided with a projecting nose and with a wedge, a bracket adapted to receive said nose, at one position of the door, and a bracket adapted to be engaged by said wedge at another position of the door.

3. The combination with a sliding door, of a nose piece at one vertical edge of the door provided with a projecting nose and with a wedge, a bracket adapted to receive said nose, at one position of the door, a bracket adapted to be engaged by said wedge at another position of the door, and a web on said nose piece which underlies the lower edge face of the door.

4. The combination with a sliding door having a recess at one lower corner, a nose piece secured to the outer face of the door provided with an off-set part which lies in said recess, a bracket adapted to be engaged by the off-set portion of said nose piece, a wedge on said nose piece, and another bracket adapted, at another position of the door, to be engaged by said wedge.

5. The combination with a sliding door cut away at one corner, of a casting at said corner having a wedge-shaped part secured to the face of the door, an off-set portion entering said recess formed with a tapered nose, and brackets, one adapted to be engaged by said wedge, at one position of the

door, and the other adapted to be engaged by said tapered nose at another position of the door.

6. The combination with a sliding door
5 cut away at one corner, of a casting at said corner having a wedge-shaped part secured to the face of the door, an off-set portion entering said recess formed with a tapered nose, brackets, one adapted to be engaged by

said wedge, at one position of the door, and 10
the other adapted to be engaged by said tapered nose at another position of the door, and a web on said casting adapted to underlie the lower edge face of the door.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
