No. 736,124. PATENTED AUG. 11, 1903.

E. E. MANTER.

SLIDING DOOR.

APPLICATION FILED OCT. 17, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

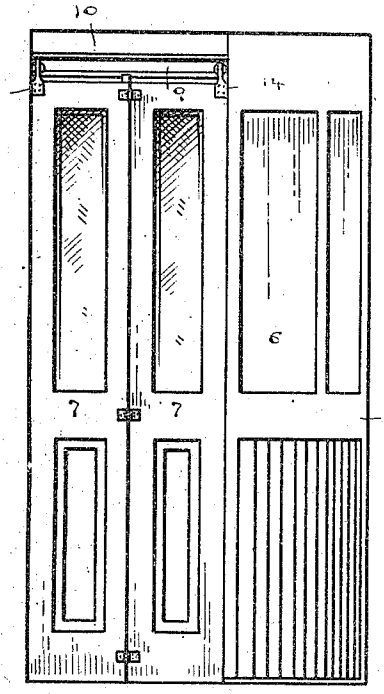
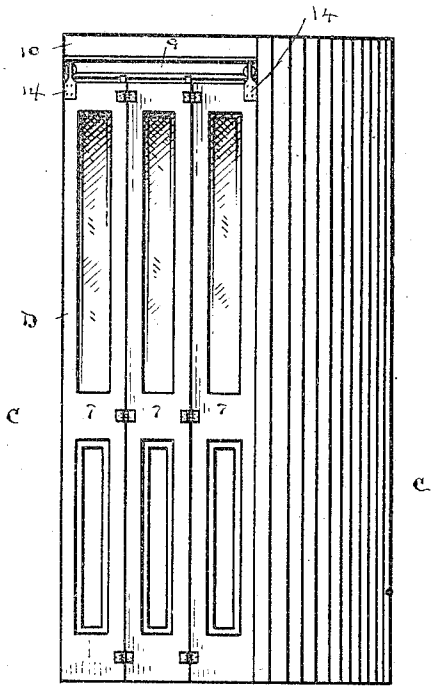


Fig. 2.



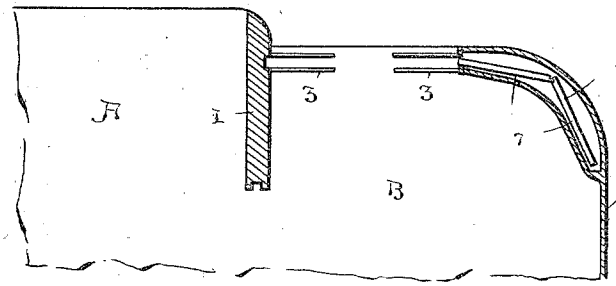


Fig. 3

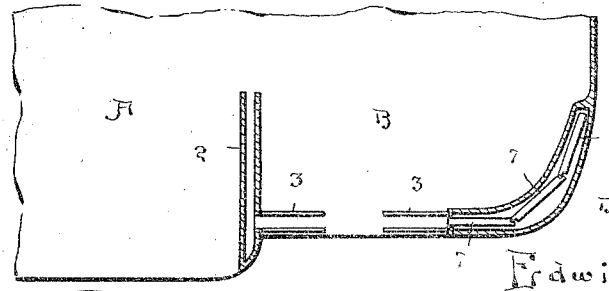


Fig. 4.

Witnesses

T. W. Riley.

A. G. Heylmun

Inventor

Edwin E. Manter.

By Victor J. Evans

Attorney

No. 736,124. PATENTED AUG. 11, 1903.

E. E. MANTER.

SLIDING DOOR.

APPLICATION FILED OCT. 17, 1902.

NO MODEL. 3 SHEETS—SHEET 2.

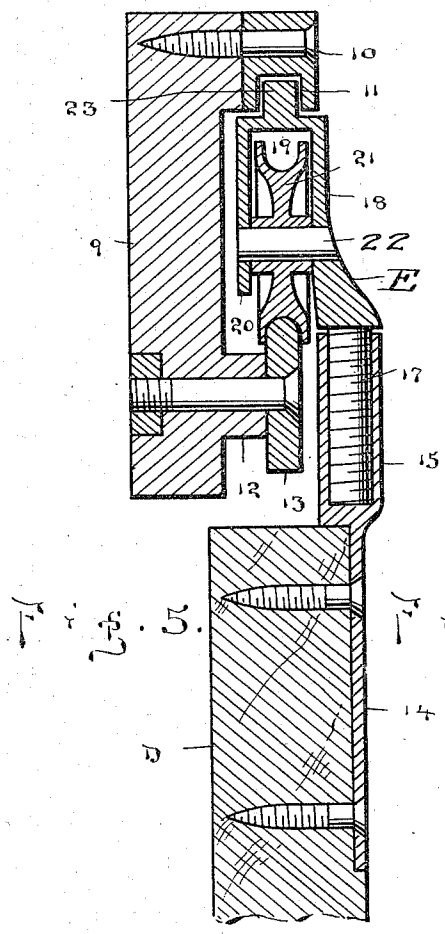


Fig. 5.

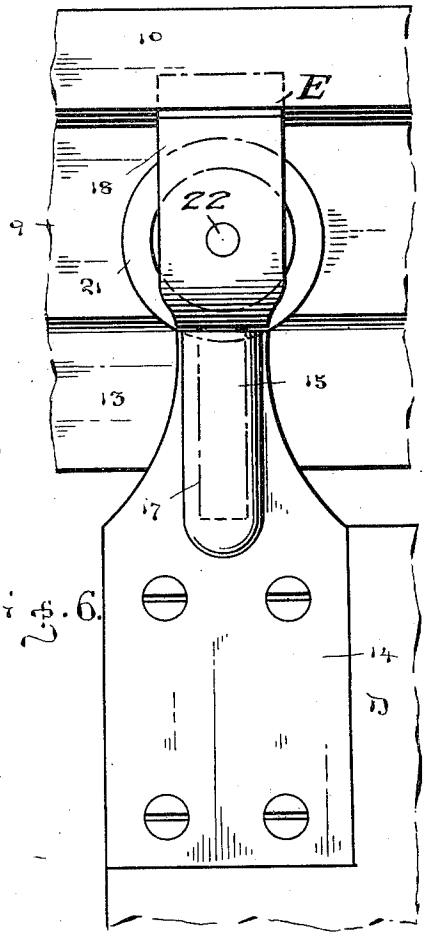
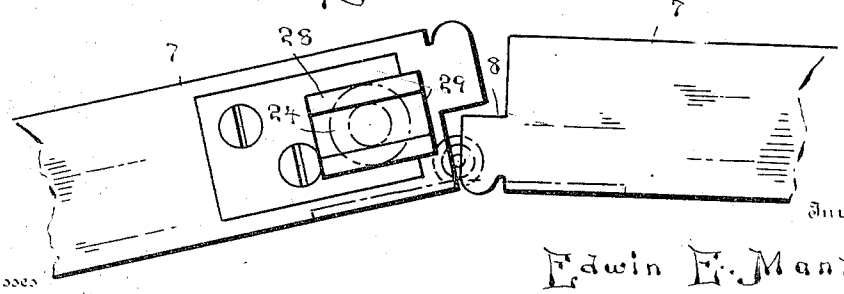


Fig. 6.

Fig. 7.



Witnesses

F. W. Riley.

A. G. Huffman.

Inventor

Edwin E. Manter.

By Victor J. Evans

Attorney

No. 736,124. PATENTED AUG. 11, 1903.

E. E. MANTER.

SLIDING DOOR.

APPLICATION FILED OCT. 17, 1902.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 8.

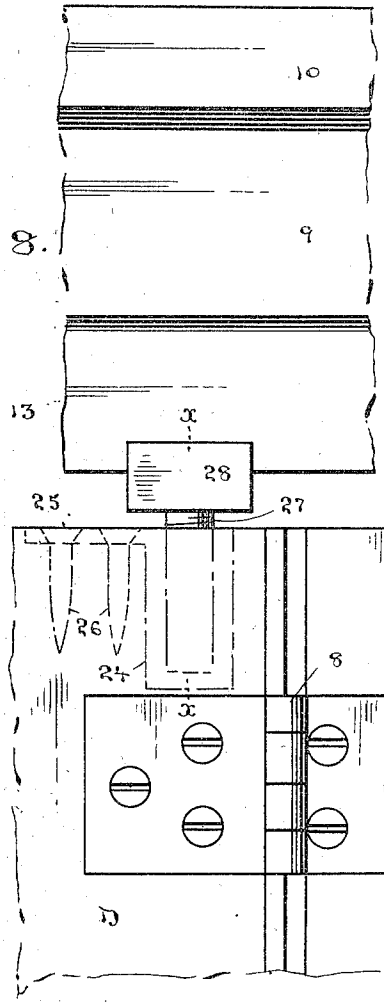


Fig. 10

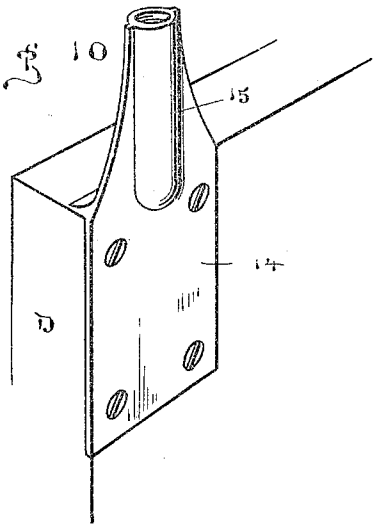


Fig. 9.

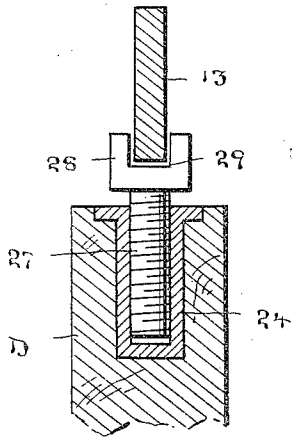
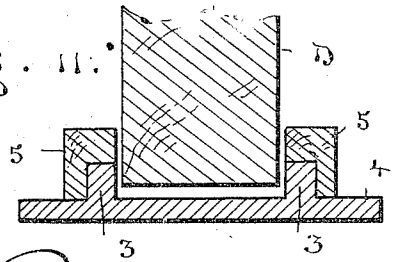


Fig. 11.



Witnesses

A. G. Heyburn.

Inventor

Edwin E. Manter.

By Victor J. Evans

Attorney

No. 736,124. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

EDWIN E. MANTER, OF AUBURNDALE, MASSACHUSETTS.

SLIDING DOOR.

SPECIFICATION forming part of Letters Patent No. 736,124, dated August 11, 1903.

Application filed October 17, 1902. Serial No. 127,659. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. MANTER, a citizen of the United States, residing at Auburndale, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Sliding Doors, of which the following is a specification.

My invention has relation to improvements in sliding doors of that kind or class wherein the door comprises vertical panels or sections hinged together and arranged to slide or traverse on curved or deflected tracks or guide-rails; and the object is to provide such a door with hangers and supports of simplified construction and which are efficient and certain in operation.

The invention embodies hanger-brackets, rollers journaled in the brackets, upper and lower curved guide-rails engaged by the brackets and rollers, and improved means for carrying and guiding the lower end of the door in alinement with the upper end, all as will be hereinafter fully described and the novelty thereof particularly pointed out and distinctly claimed.

The invention as illustrated is particularly designed for and adapted to car-doors arranged in vestibule constructions mounted on the platforms of cars; but it is apparent that it may be adapted to similar constructions wherever it is desirable to slide a door on curved or deflected tracks.

I have fully and clearly illustrated my invention in the annexed drawings, to be taken as a part of this specification, and wherein similar reference designations indicate the same parts appearing in the respective illustrations and reference being made to the drawings.

Figure 1 is a front view of a door constructed in accordance with my invention and a side end view in elevation of a vestibule into which the door slides. In this view the door is made up of two panels hinged together. Fig. 2 is a view identical to Fig. 1, except that the door is shown as consisting of three panels hinged together. Fig. 3 is a view in longitudinal section through the vestibule-walls and plan view of a portion of the platform, showing the door as consisting of two panels and moved into the vestibule. Fig. 4 is a view similar to Fig. 3, except that the door is made up of three panels. Fig. 5 is a vertical sectional view of one of the hangers and rollers, showing their arrangement in operative position relative to the guide-rails. Fig. 6 is a front view in elevation of the hangers as in operative position on the guide-rails or tracks. Fig. 7 is a fragmentary end view of two sections of the door, showing the hinge connection and the guide-block arranged adjacent to the hinge. Fig. 8 is a detail front elevation showing the hinge connection, the guide-rails, and the guide-block in engagement with the lower edge of the lower guide-rail. Fig. 9 is a detail vertical section of one of the guide-block socket-pieces with the stem of the guide-block in the socket and the rail in the head of the block. Fig. 10 is a perspective view of one of the supports of the hangers fixed to the upper end of the door. Fig. 11 is a detail transverse vertical view of the track in which the lower end of the door slides.

As mentioned, the invention is particularly illustrated as applied to a car, and reference being had to the drawings, A designates the end portion of the floor of a car having end walls 1 2, with a door-space between them, the wall 2 being shown as constructed to take in a sliding door in a well-known manner.

B designates the platform of a car, on the floor of which along the edge are secured ribs or cleats 3, in which the lower end of the door moves. I prefer to make these ribs integral with a base-plate 4, with flanges through which fastening-screws may be projected to secure it in position. Wooden angle-strips 5 may be laid and secured beside the ribs to prevent them from undue wear and to present a more agreeable tread-surface.

C designates the vestibule-wall, reaching across the front of the platform and provided with panes of glass 6, as usual, as seen at Fig. 1 of the drawings, or if the vestibule is erected in other structures it may be solid throughout its height, as shown in Fig. 2 of the drawings. The corners of the vestibule are made rounded, as shown, and the walls at this part made double, with a space between them sufficient in capacity and transverse depth to take and contain the door, as indicated in Figs. 2 and 3. The inner curved wall at its inner edge is connected and se-

cured to the main wall, and at the outer end the walls are so spaced as to permit the door to be pushed through and into the curved pocket between the curved walls of the vestibule.

D designates the door, which may be made up of two or more panels 7, suitably hinged together, so as to break their joints in the direction of the curved walls, as shown, and to stand smooth and straight when the panels are in superficial alinement. To effect this condition, I rabbet the hinge edges of the panel coincidently, as at 8, and set the hinges so the knuckles do not project beyond the face of the panels of the door, thus providing a plain and straight surface to the door.

Above the door and extending in curved direction within the door-space in the rounded ends of the vestibule is secured a rail 9, to the upper inner face of which is suitably secured a metal bar 10, formed with a longitudinal groove 11 in its under side and extending the length thereof. The rail 9 is provided with a rib 12, to the face of which is secured the rail 13, disposed in vertical alinement with the guide-groove 11 and preferably having a rounded tread-surface and reaching vertically a suitable distance below the rib 12 to be engaged by the guide-blocks on the end of the door, as shown in the drawings.

To the inner face of the door, at the upper end and preferably at or adjacent to the corners, are secured brackets, consisting of plates 14, formed at their upper ends with a hollow vertical extension 15, having interior screw-threads, the extension constituting a socket-piece for the purpose hereinafter specified.

E designates brackets constituting the hangers which sustain the door. These brackets consist of a vertical threaded stem 17, engaging in the socket 15, a vertical arm 18, an overhanging or bridge piece 19, and a depending arm 20, between which and the arm 18 is journaled the grooved pulley, sheave, or roller 21, mounted on the arbor 22. The grooved pulley 21 is seated on and rides upon the rail 13, as indicated in the drawings. The overhanging bridge-piece is formed with a vertically-extending pin or lug 23, which engages in the groove 11 in the strip 10. It will be seen that the hangers are held in vertical position by the engagement of the pulley with the rail and the engagement of the lug 23 in the groove 11. It will also be perceived that the threaded connection of the stem 17 in the socket-piece 15 permits the hangers to have the requisite rotary movement on the axis of the stem 17 to accommodate them to the curvature of the track or rail on which the rollers run; also, this threaded connection permits the adjustment of the door to be made relatively to the hangers and their supports.

In the upper ends of the panels of the door are posited one or more socket-brackets 24, having interior screw-threads and provided with a lateral extension-plate 25, having holding-screws 26 projected through it into the door. In the threaded socket is fitted a threaded stem 27, formed with a head-piece 28, having a groove 29 in it, which engages over the lower edge of the rail 13, as shown in the drawings, and assists in guiding the door on its track. The threaded connection of the stem 27 and the socket permits the stem to turn on its axis and the head to move therewith sufficient to allow the head to traverse the rail without cramping.

What I claim is—

1. The combination with a sliding door composed of vertical panels hinged together, of a hanger comprising a plate secured to the upper end of the door and formed with a vertical socket-piece having interior screw-threads, a hanger-bracket formed with a threaded stem to engage the threaded socket, a vertical arm having an overhanging part formed with a vertical guide-lug, and a depending arm, a grooved pulley journaled between the said arms, a track-rail on which the pulley travels, and a guide-strip formed with a groove in its under side in which the guide-lug on the hanger engages.

2. The combination with a sliding door composed of vertical panels hinged together, of hangers each comprising a plate secured to the upper end of the door and formed with a vertical socket-piece having interior screw-threads, a hanger-bracket formed with a threaded stem to engage in the threaded socket, a vertical arm having an overhanging part formed with a vertical guide-lug and a depending arm, a grooved pulley journaled between said arms, a curved track-rail on which the pulley travels, a curved strip formed with a guide-groove in its under side, and a guide-block secured to the door and formed with a groove in its upper face to engage the lower edge of the track-rail.

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

EDWIN E. MANTER.

Witnesses:
JOHN H. MANTER,
D. EDITH MANTER.