(No Model.) 2 Sheets—Sheet 1.

J. STEPHENSON.

TRAM CAR DOOR.

No. 488,722. Patented Dec. 27, 1892.

Fig. 1.

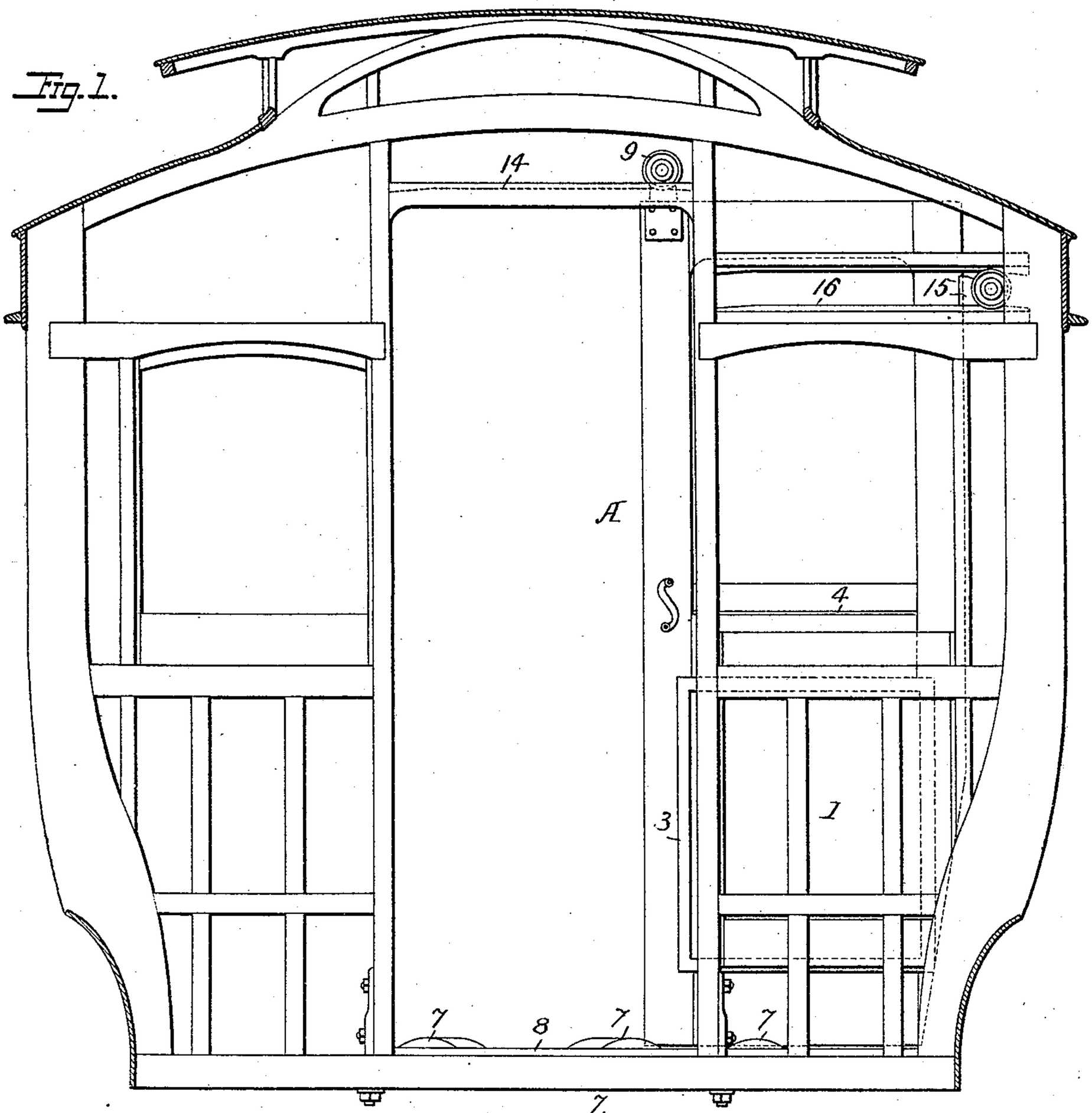

Fig. 15.

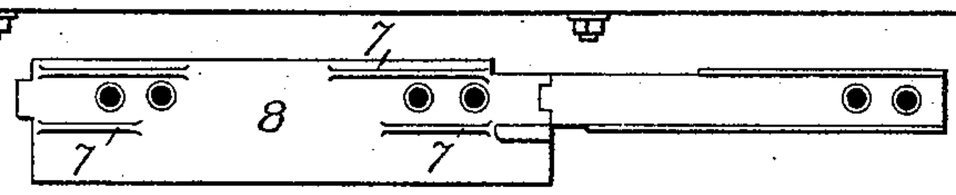

Fig. 3.

Fig. 7. Fig. 8.

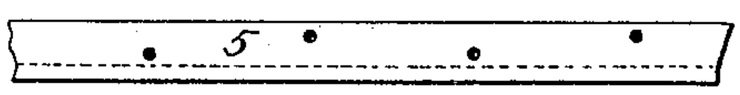

Fig. 9.

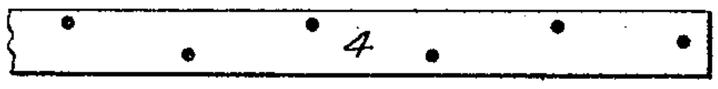

Fig. 10.

WITNESSES

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Fig. 12.

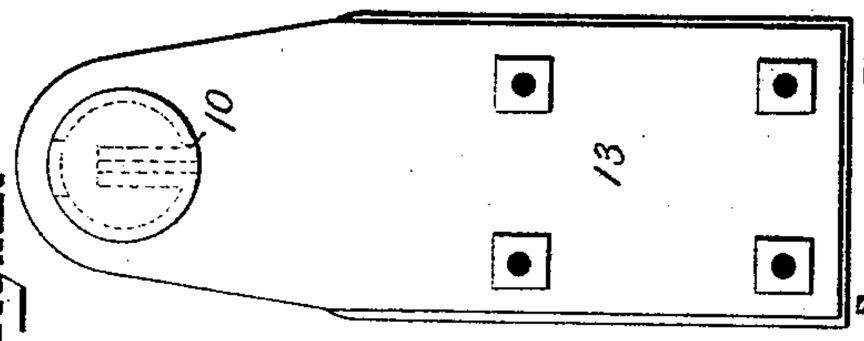


Fig. 13.

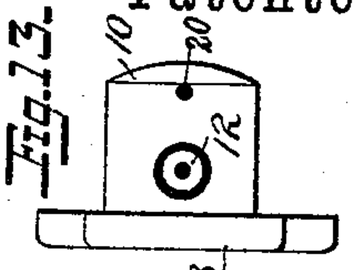


Fig. 14.

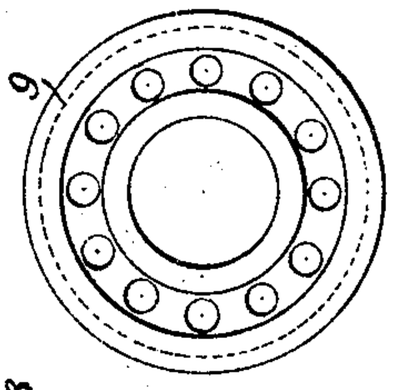


Fig. 11.

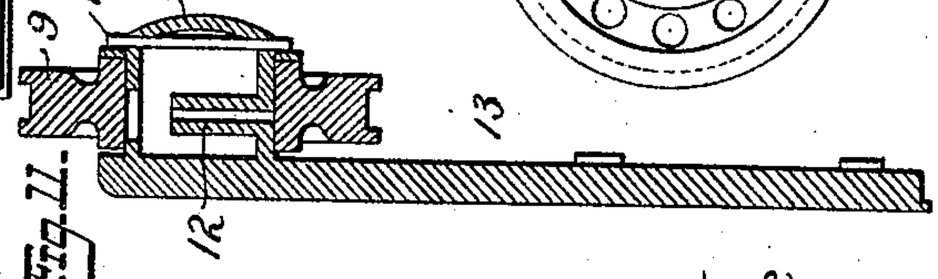


Fig. 2

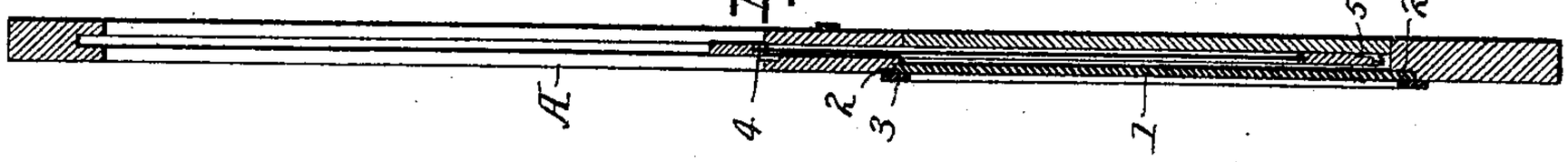


Fig. 5.

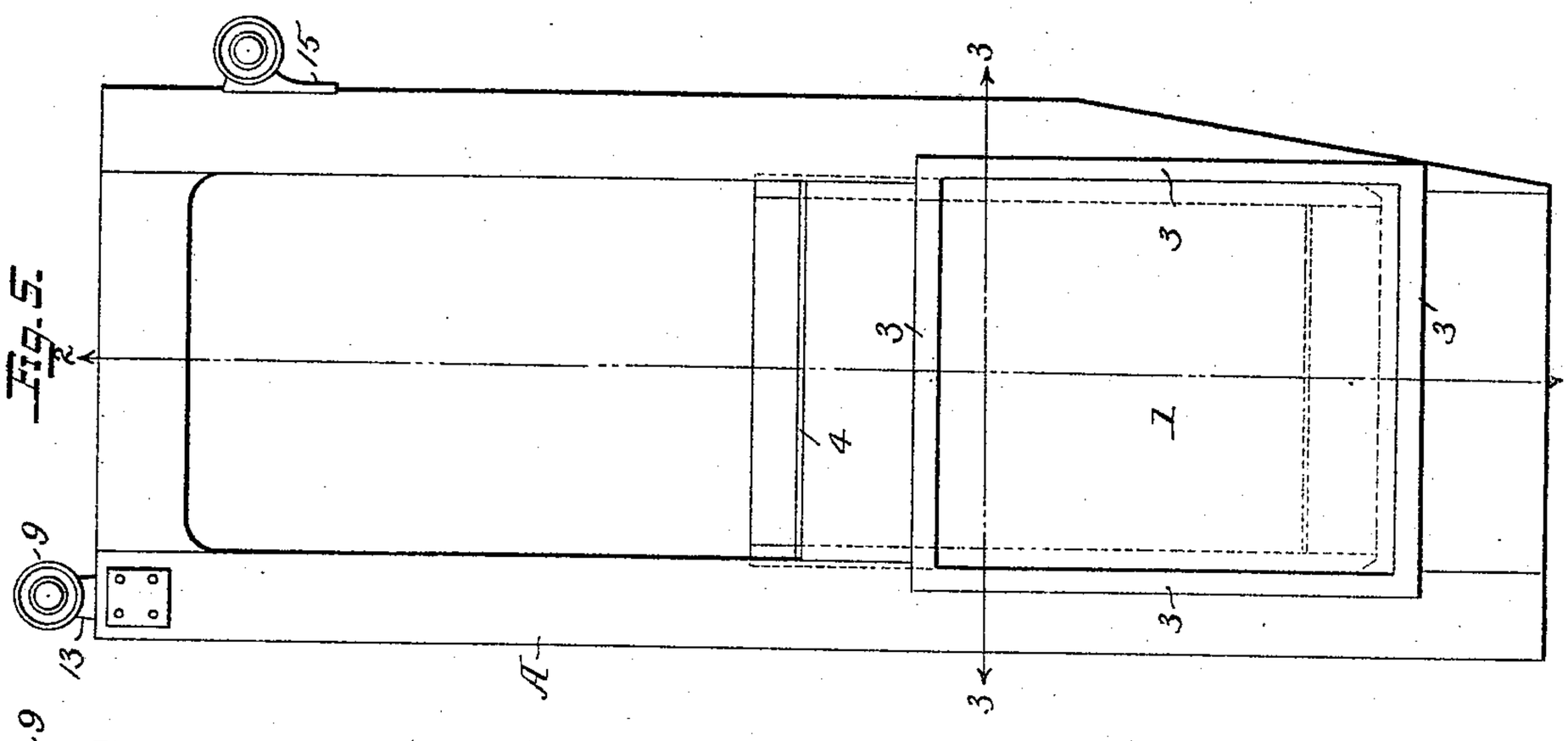


Fig. 4.

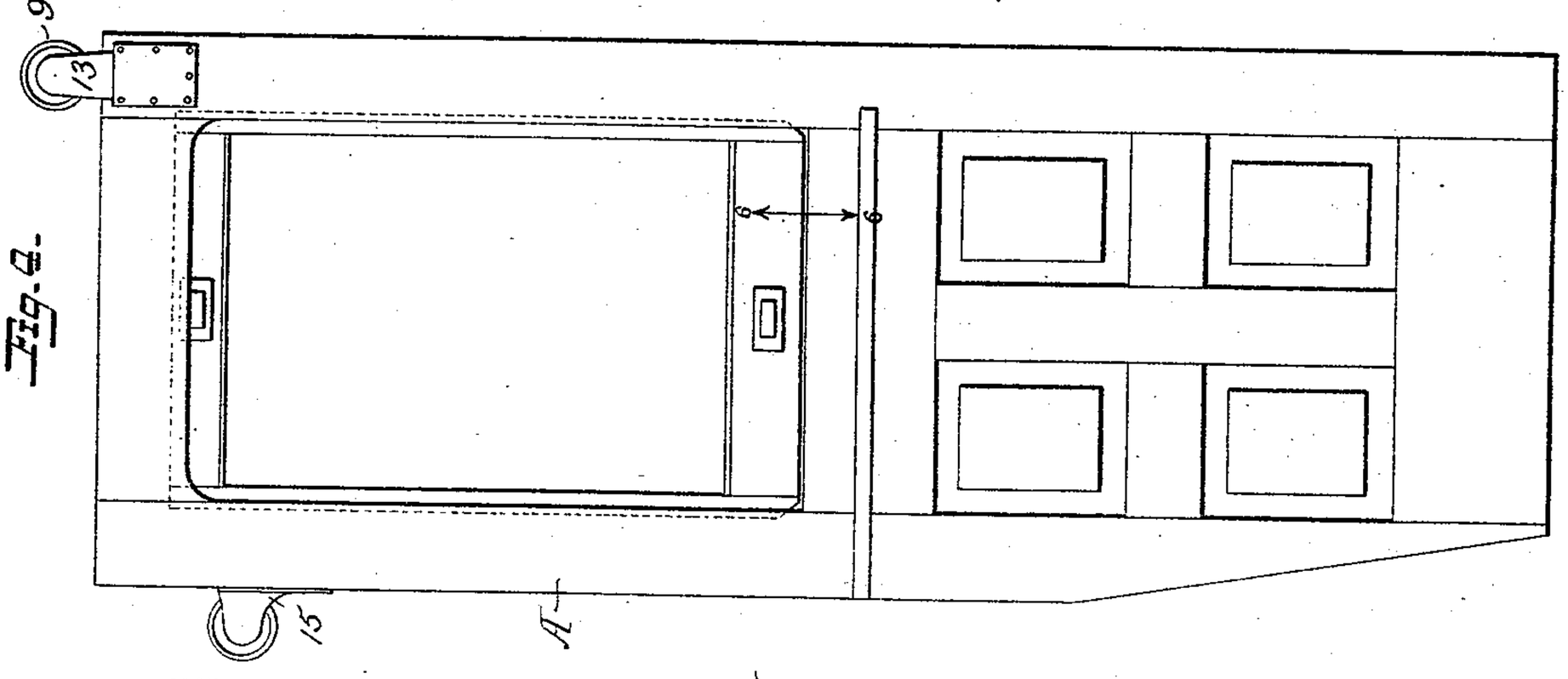
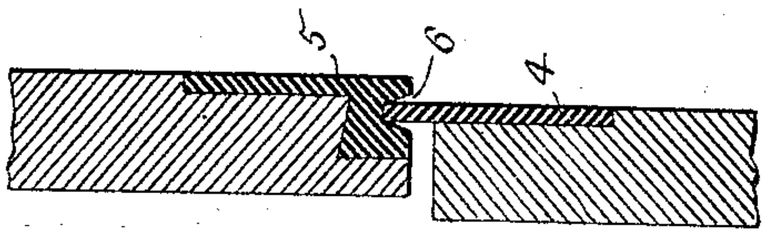


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN STEPHENSON, OF NEW YORK, N. Y.

TRAM-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 488,722, dated December 27, 1892.

Application filed November 8, 1890. Serial No. 370,776. (No model.)

To all whom it may concern:

Be it known that I, JOHN STEPHENSON, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Tram-Car Doors, of which the following is a specification.

My invention relates to tram cars and consists in certain improvements in the doors and connected parts fully set forth hereinafter and illustrated in the accompanying drawings, in which—

Figure 1, is a transverse section of a tram car illustrating my improvements. Fig. 2, is a vertical section of the door on the line 2—2 Fig. 5. Fig. 3, is an enlarged transverse section of the door on the line 3—3, Fig. 5. Fig. 4, is a face view of the door. Fig. 5, is a face of the opposite side. Fig. 6, is an enlarged section on the line 6—6, Fig. 4. Figs. 7 and 8, are side and end views of the metal shoe detached. Figs. 9 and 10, are side and end views of the metal fence detached. Fig. 11, is a sectional view enlarged of one of the sheaves and its bracket. Fig. 12, is a face view of the bracket. Fig. 13, is an end view of the bracket. Fig. 14, is a side view of one of the wheels. Fig. 15, is a plan view of the door sill plate.

Tram cars have usually fixed glass in their entrance doors and also in the end walls at the sides wherein the doors slide, but the desire for better circulation of air has induced a different construction of the doors, and also of the end wall occupied by the door when open. Previously the doors were made of single thickness and light as possible, but latterly cars have been made with doors of double thickness for the sash to slide down in the door between its two faces, and each of these faces as thin as permissible, but at times of severe rains the water gets down into the door between the two faces wetting and swelling the panels, causing them to bulge, obstructing the operation of the door and marring its appearance. To prevent these effects the outer face of the door A, is a metal panel 1, inserted in a rabbet 2, of the door pillars, and rails, so that the face of the panel may be flush and the joints so covered with metal strips 3, preferably of bronze, forming a chafing surface to protect the face of the panel when the door is slid in or out of its pocket.

It is important that the door be as thin and light as possible. This is now promoted by a metal sash guard 4, on the door belt rail, and on the lower edge of the door sash a metal shoe 5, with a groove 6, adapted to rest on the sash guard.

I prefer the door to be suspended at its top, and at its bottom to run between rising flanges 7, 7, on the sill plate 8. This door being of more than ordinary weight needs stronger carrying sheaves 9, with better method of lubricating the sheave axles 10, which I make of larger diameter, and hollow for holding oil, which exits through a tube 12, discharging at the lower side of the axis, which axis forms part of a hanger 13, secured to the door, with the sheave wheel on a rail 14, above the door top, the wheel being secured on the axis by the pin 20. A second similar axis is part of a bracket 15, secured to the back edge of the door below its upper corner and with its wheel supported on a rail 16, at a lower level than the door top.

In the former construction of the car doors their panels were of wood with their edges in grooves, but I now insert the panels in the outer face of the door to be flush with the door stiles and cover the joints with metal plates 3, which protect the face of the door from being chafed when sliding in its pocket, and permits the panel to be taken out when damaged or to extract broken glass or other necessity.

To reduce the thickness of the door, instead of the usual fence or sash guard of the door belt rail behind which the sashes usually rest, I make a metal fence 4 of less thickness on the top edge of which fence I now rest the sash, and to secure permanency the under edge of the sash bottom rail is shod with metal 5, having its under face a groove 6, which fits on the metal fence of the door belt rail.

I claim—

1. A tram car with door double faced, adapted for its sash to slide between the faces, the panel forming one of the faces, being capable of insertion or removal while the door otherwise is intact, substantially as described.

2. A tram car with door double faced, a

sash between the faces accessible by removing one of the face panels in condition to be restored as before the removal, substantially as described.

3. A tram car with double faced door, and down between the faces a glass sash having on its lower edge a metal shoe with grooves and a metal sash guard on the door belt rail on which may rest the metal shoe when the sash is up, substantially as described.

4. A tram car with double faced door, and between the faces a glass sash accessible by removing one of the face panels secured in place partly by metal strips covering the margin of the panel, substantially as described.

5. A tram car with double faced door, and between the faces a glass sash accessible by removing one of the face panels secured in place partly by metal strips covering the margin of the panels, the strips, preferably of bronze, being adjusted to preserve the faces of the doors from being chafed when slid into the door pockets, substantially as described.

6. A car door double faced with space between the panels the sash sliding therein; the inner upper corner of the belt rail rabbeted in which rabbet is secured a metal sash guard, suitable for repose of the door sash frame, having a metal shoe with a rising flange secured in a rabbet of the sash face, and the shoe sole grooved befitting the metal sash guard on which the sash rests, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN STEPHENSON.

Witnesses:
S. A. STEPHENSON,
JOSEPH B. STEPHENSON.