No. 822,639. PATENTED JUNE 5, 1906.

H. F. VOGEL.

RAILWAY CAR.

APPLICATION FILED FEB. 8, 1905.

3 SHEETS—SHEET 1.

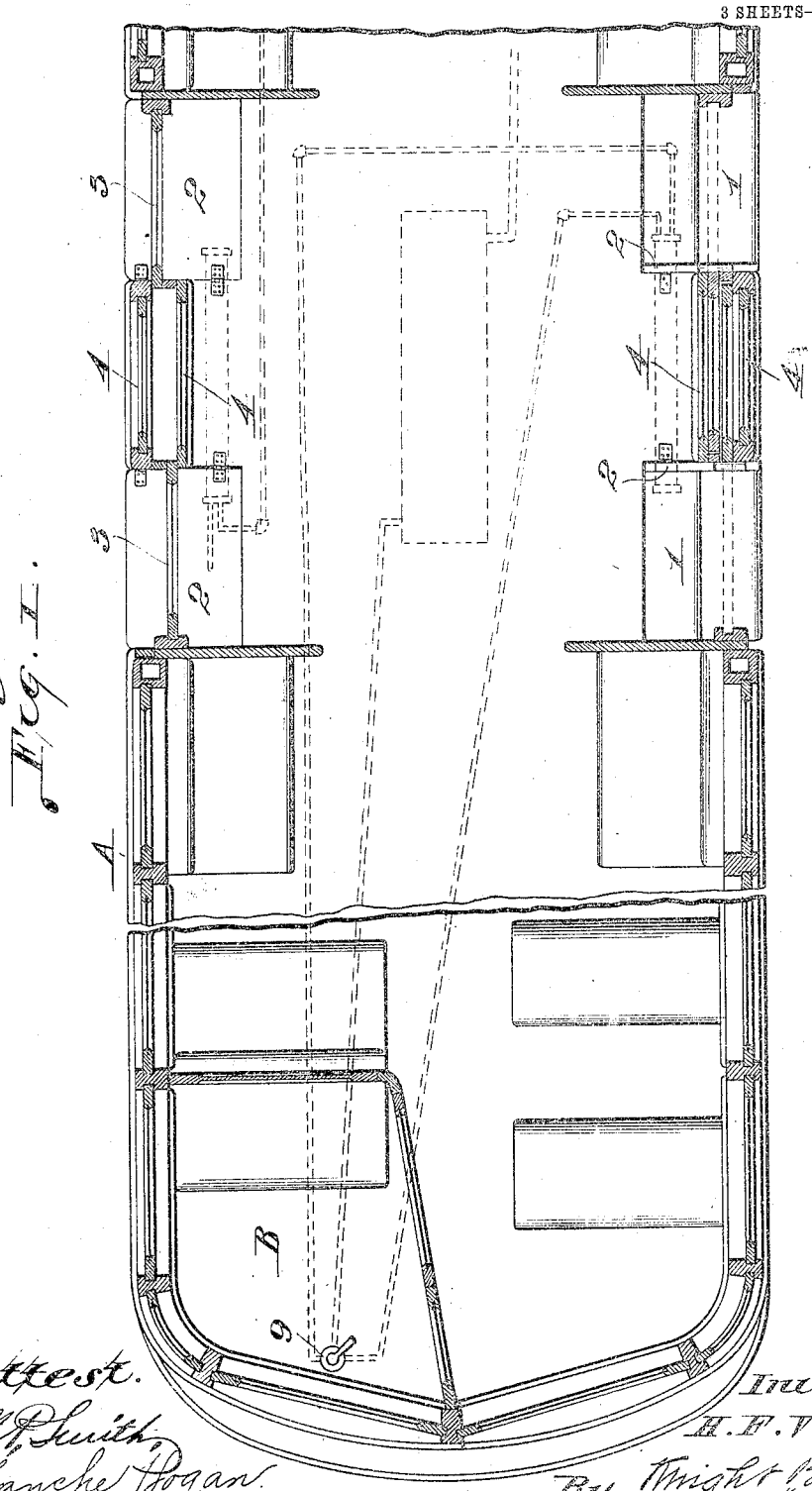


Fig. 1.

Attest.
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3 SHEETS—SHEET 2.

Fig. III.

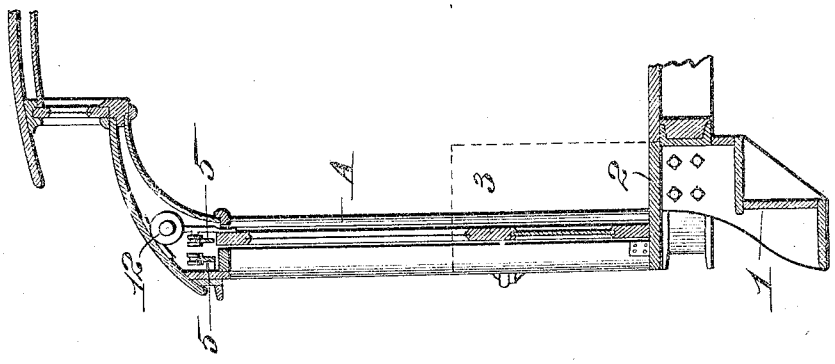
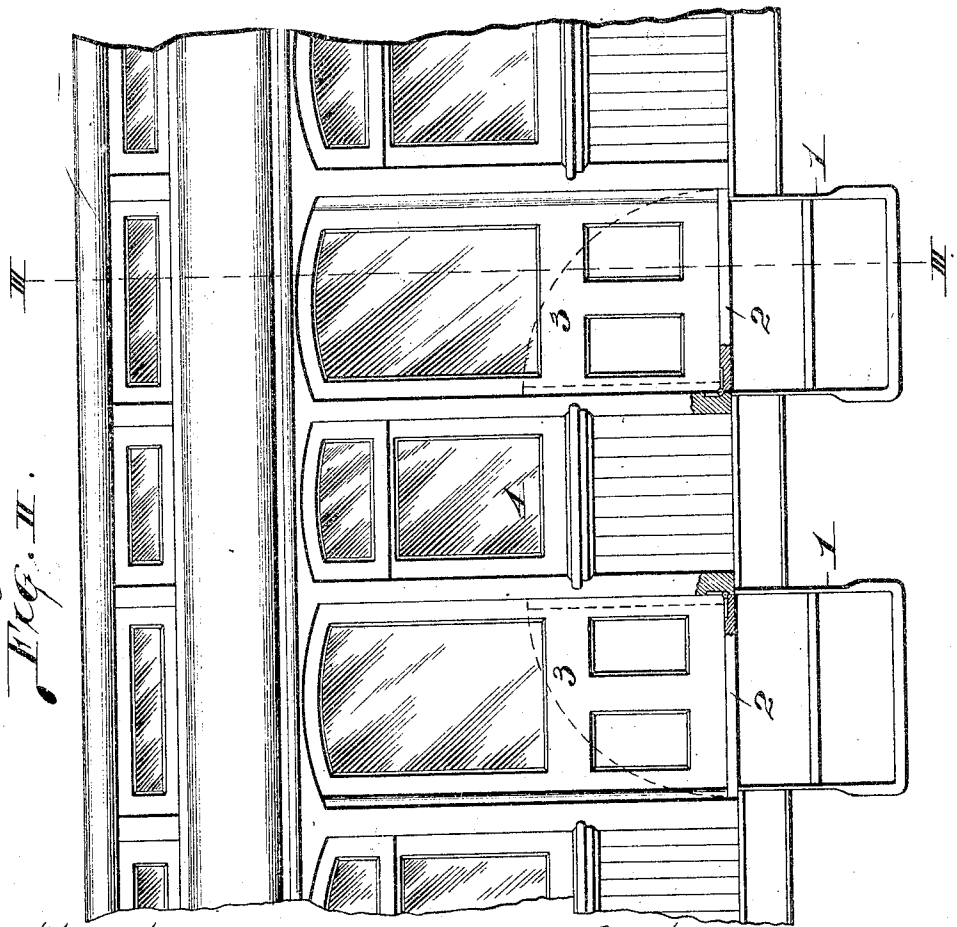


Fig. II.



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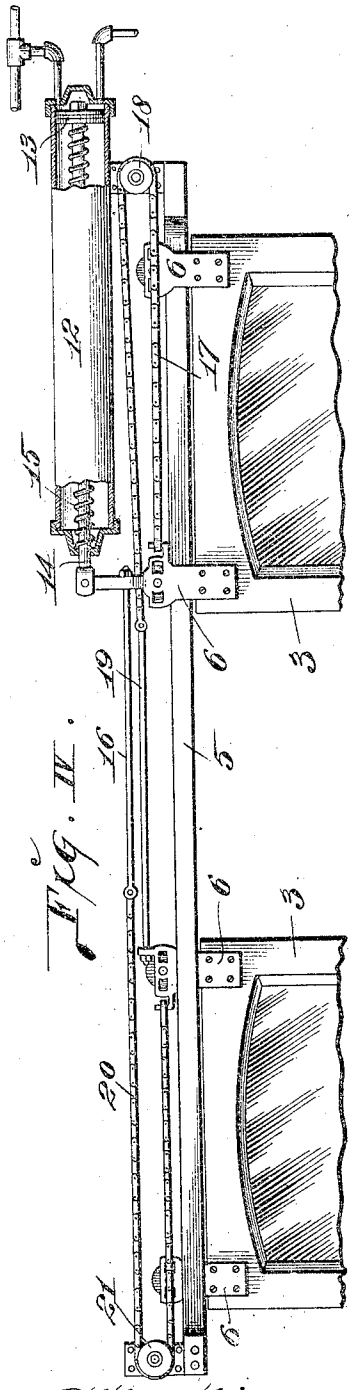


Fig. IV.

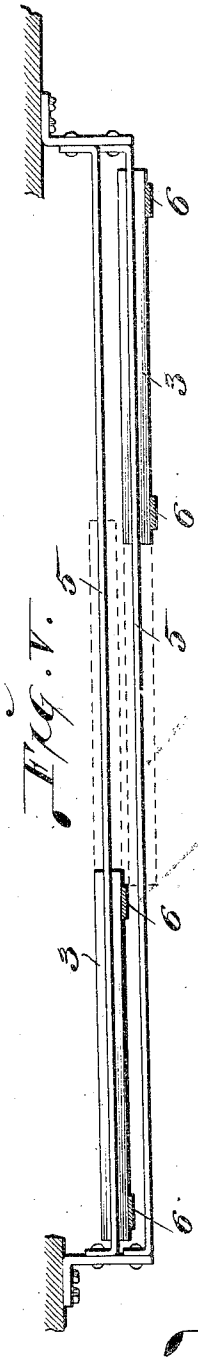


Fig. V.

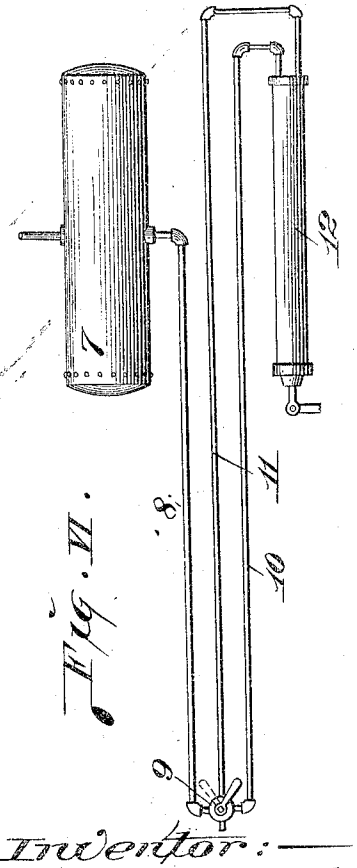


Fig. VI.

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UNITED STATES PATENT OFFICE.

HENRY F. VOGEL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ST. LOUIS CAR COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

RAILWAY-CAR.

No. 822,639. Specification of Letters Patent. Patented June 5, 1906.

Application filed February 8, 1905. Serial No. 244,742.

To all whom it may concern:

Be it known that I, HENRY F. VOGEL, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Railway-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of railway-cars having a plurality of side passage-ways located at intervals along the car sides and having doors for controlling said passage-ways.

My present improvement has for its object to provide a novel arrangement of said doors and novel means for actuating them in pairs or series.

Figure I is a horizontal section taken through one end of my car. Fig. II is a side elevation of a portion of the car. Fig. III is a vertical transverse section taken on line III III, Fig. II. Fig. IV is an elevation of a pair of the passage-way-controlling doors, their supporting means, and the means by which they are actuated. Fig. V is a top or plan view of the doors shown in Fig. IV and the track-rails on which the hangers of said doors ride. Fig. VI is a top or plan view of the fluid-pressure-receiving cylinder and conducting-pipes, through the medium of which the car-doors are operated.

A designates my car, at one end of which is the motorman's compartment B. At intervals along the sides of the car are passage-ways, through which the passengers may enter or leave the car. At each of such passage-ways are steps 1. (See Figs. II and III.) When entrance and exit to and from the car is obtained at one side, the doors at the other side remain in closed condition, and the spaces above the steps 1 in the car-floor are closed by trap-doors 2, that are hinged to the floor and are susceptible of being raised to permit access to the steps when said doors are in open condition.

3 designates the doors that control the side entrance-ways and which are adapted to slide from said entrance-ways into positions between the panels located intermediate of said entrance-ways. The doors 3 are arranged in pairs and are so mounted that one of each pair may move into the space between a pair of panels 4 in one direction and the other door into said space in the opposite direction. Suitably supported above each pair of doors 3 is a pair of track-rails 5, arranged in parallel. These track-rails receive the rollers or door-hangers 6, that are secured to the doors 3 and are adapted to ride on said track-rails, the hangers of one door operating on one rail and the hangers of the other door riding on the track-rail adjacent to the first named. By this arrangement the doors are so mounted that they may be brought side to side when they are moved in opposite directions and into position between the panels 4, whereas when they are moved in the reverse directions they are carried to the passage-ways in the side of the car.

For the purpose of operating the doors in pairs or series, so that the series may be opened or closed simultaneously, I utilize a mechanical opening and closing mechanism, which will next be described.

7 designates a fluid-pressure tank carried by the car and preferably located beneath the floor thereof, as seen in dotted lines, Fig. I. 8 is a fluid-conducting pipe leading from said tank to a controlling-valve 9, that is located in the motorman's compartment B, as seen in Fig. I.

10 is a delivery fluid-conducting pipe leading from the controlling-valve 9, and 11 is an exhaust or return pipe connected to said controlling-valve. One fluid-pressure tank is utilized for supplying pressure medium to several pairs of doors, as shown in dotted lines in Fig. I.

12 designates a fluid-receiving cylinder located adjacent to the track-rails 5, on which the door-hangers 6 operate. This cylinder has connected to it the fluid delivery and return pipes 10 and 11, and in the cylinder is a piston 13, that is carried by a piston-rod 14, which is connected to one of the hangers of one of the doors 3, as seen in Fig. IV. Provision is thereby made for the imparting of movement to the door by which said particular hanger is carried when reciprocation is imparted to said piston-rod.

15 is a spring surrounding the piston-rod 14 and bearing against the piston 13, by which said piston is normally pressed in a di-

rection toward the end of the cylinder 12 to which the fluid-conducting pipes 10 and 11 are connected.

16 designates a pull-rod fixed to the hanger 6 to which the piston-rod 14 is connected, and 17 is a pull-chain also connected to said hanger. This pull-chain passes from the hanger referred to to and around a sheave 18, journaled to one of the supports of the track-rails 5, and thence forwardly and has connected to it a pull-rod 19, that is in turn connected to the hanger 6 of the second door 3. To this last-named hanger is attached a pull-chain 20, that leads to and around a sheave 21, journaled to one of the track-rail supports, and thence forwardly, and which is united to the pull-rod 16.

In the practical use of my doors they are operated in the following manner: When fluid is permitted to flow from the tank 7 through the pipe 8 and into the delivery-pipe 10 upon manipulation of the controlling-valve 9 it enters the receiving-cylinder 12 and acts to press the piston 13 forwardly against the restraining action of the piston-retracting spring 15. The doors previously in closed condition and guarding the passage-ways into the car are then moved into open condition from the positions seen in full lines, Figs. IV and V, to the positions seen in dotted lines, Fig. V, this movement being accomplished by the forward reciprocation of the piston-rod 14, which acts upon the door-hanger to which it is connected. As this hanger travels forwardly it carries therewith the pull-chain 17, which acts to draw the hanger of the second door toward the hanger of the first door through the medium of the pull-rod 19, the movement being continued until the doors are side by side. When the fluid is exhausted from the receiving-cylinder 12 through the return-pipe 11 by manipulation of the controlling-valve 9, the retracting-spring 15 acts to return the piston 13 and its rod 14 to their normal positions, and as these parts are moved the hanger to which the piston-rod is connected is drawn with said piston-rod, and the pull-rod 16 and pull-chain 20 act to return the second door to closed position, while the first door is being returned to a closed position by the piston-rod.

I claim as my invention—

The combination with a railway-car having side passage-ways located at intervals, of a pair of sliding doors controlling adjacent passage-ways, a pair of parallel track-rails above said passage-ways, hangers connected to each of said doors and traveling on said track-rails, a support at the end of each track-rail, a sheave journaled in each support, a fluid-pressure-receiving cylinder, a piston in said cylinder, a piston-rod extending from said piston and connected to one of the hangers of one of said doors, a pull-rod connected to one of the hangers of each door, and a pair of pull-chains connecting one hanger with the pull-rod of the other hanger and passing over said sheaves, substantially as set forth.

HENRY F. VOGEL.

In presence of—
ARTHUR DIEKMANN
M. C. MURPHY.