No. 841,436. PATENTED JAN. 15, 1907.

D. M. PFAUTZ.

SWITCH FOR ELEVATED RAILWAY STRUCTURES WITH SUSPENDED CARS.

APPLICATION FILED JUNE 2, 1906.

2 SHEETS—SHEET 1.

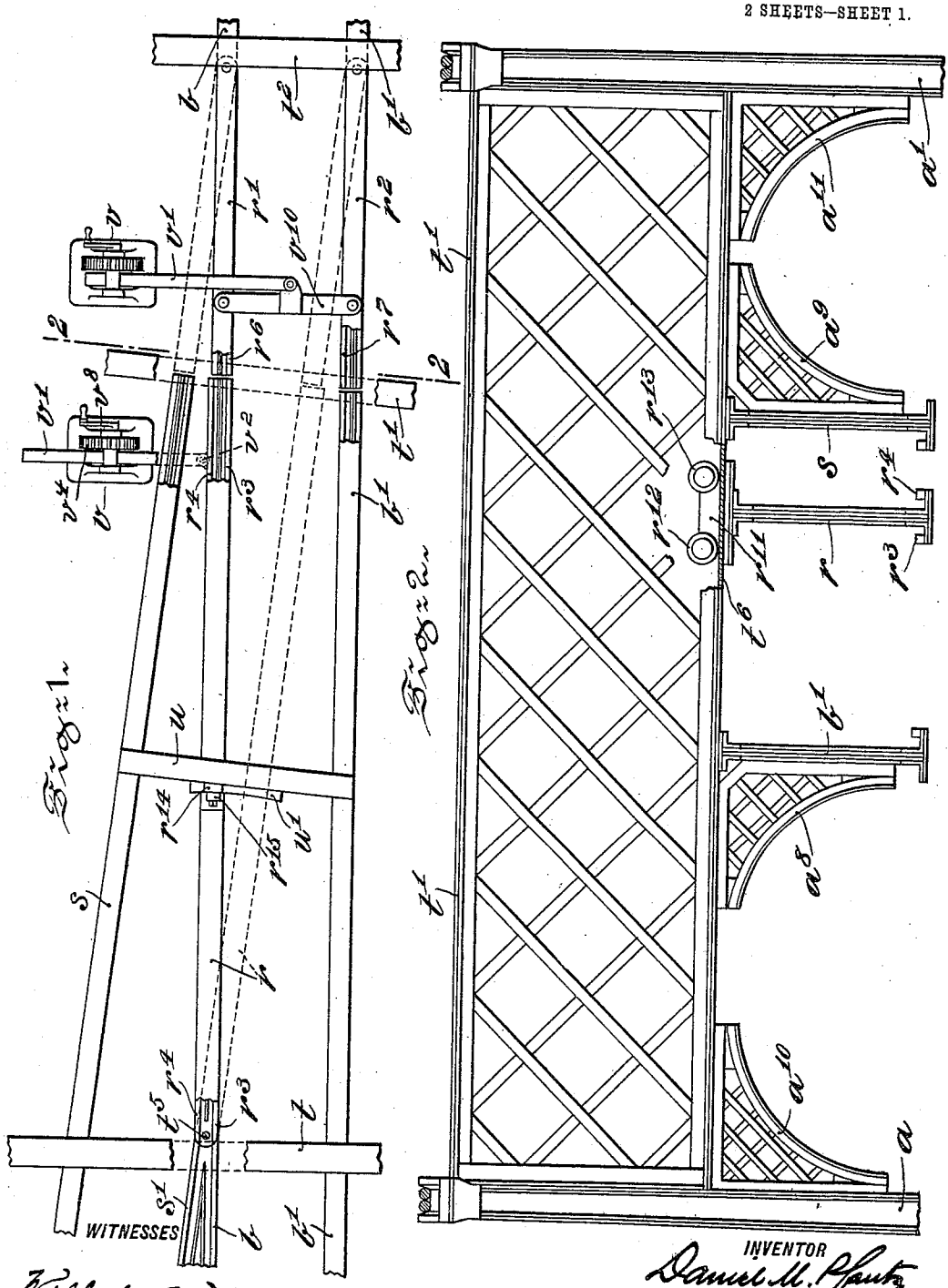

Fig. 1.

Fig. 2.

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Fig. 3.

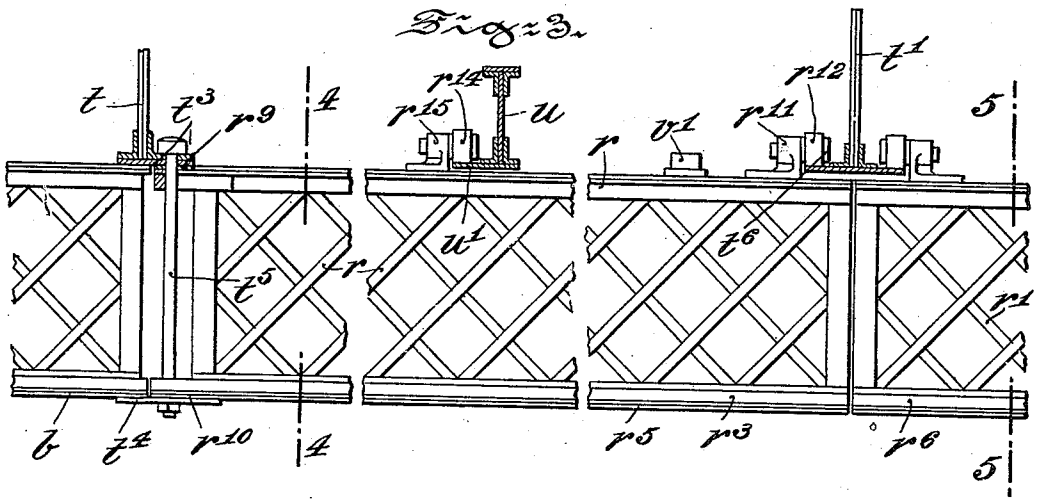


Fig. 4.

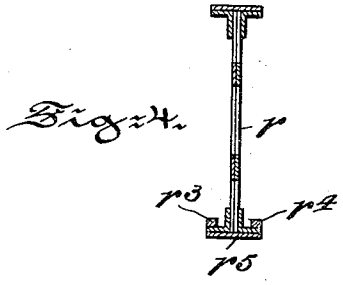


Fig. 5.

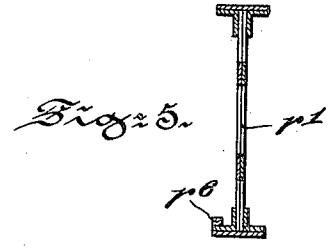


Fig. 6.

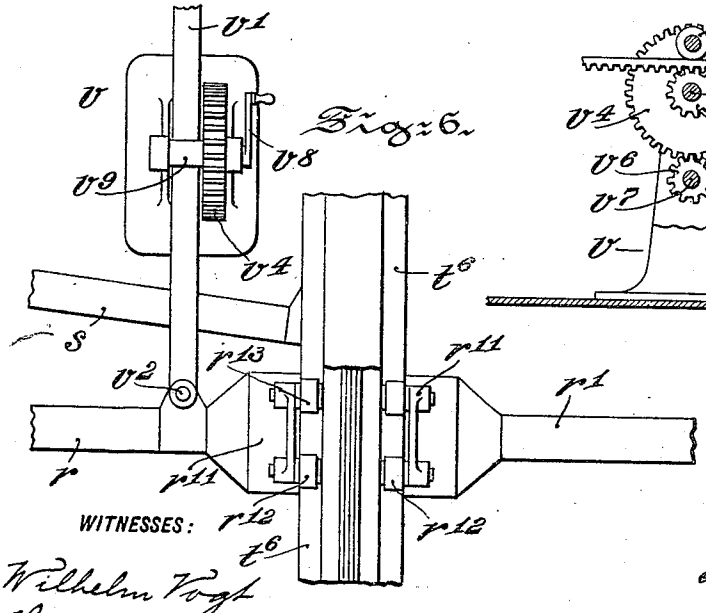
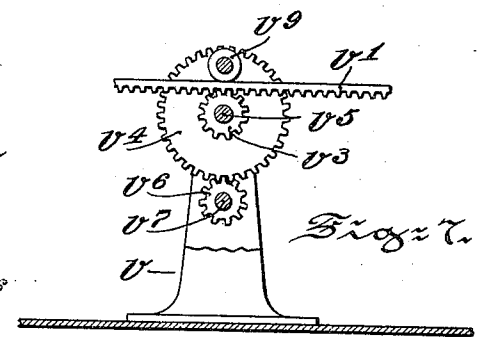


Fig. 7.



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SWITCH FOR ELEVATED-RAILWAY STRUCTURES WITH SUSPENDED CARS.

No. 841,436. Specification of Letters Patent. Patented Jan. 15, 1907.

Application filed June 2, 1906. Serial No. 319,810.

To all whom it may concern:

Be it known that I, DANIEL M. PFAUTZ, a citizen of the United States, residing at Germantown, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Switches for Elevated-Railway Structures with Suspended Cars, of which the following is a specification.

My invention has relation to that class of elevated-railway structures in which cars suspended from such structures are employed and in which two structures merge into one structure or one structure branches into two structures, and in such connection it relates to a switch adapted to transfer a car from one structure onto the other structure.

The principal objects of my present invention are, first, to provide a simple and efficient switch for elevated-railway structures; second, to provide a pair of girders and a single girder and both sets movable, so as to be adapted to form a switch connection between a main line and a converging main and branch line track structure, and, third, to provide a shifting device for actuating such switch-girders constituting the switch connection.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a view, partly in elevation and partly in section, illustrating in top plan view switches embodying the features of my invention in an elevated structure arranged to merge into each other. Fig. 2 is a cross-sectional view taken on the line 2 2 of Fig. 1 and illustrating in side elevation the upper portion of the elevated-railway structure. Fig. 3 is a side elevational view, enlarged and partly sectioned, of portions of the girder-switches and also illustrating the manner of hinging and supporting the same at their respective ends. Figs. 4 and 5 are cross-sectional views taken, respectively, on the lines 4 4 and 5 5 of Fig. 3. Fig. 6 is a detail view illustrating, partly in top plan view and partly in section, a portion of a cross-girder supporting the free ends of the girder-switches and means for actuating the same; and Fig. 7 is a view, enlarged, illustrating, partly in side elevation and partly in section, a shifting apparatus for actuating the switch.

Referring to the drawings, a and a' represent columns arranged back of the curb-line in a roadway or thoroughfare and adjacent to the sidewalk of such roadway or thoroughfare. (Not shown.) To the upper ends of said columns are secured a cross-girder t', spanning an entire street. Midway between the columns a and a' and a proper distance apart are arranged fixed longitudinal girders s and b', suitably secured to said cross-girder t', which supports the same. These girders s and b' of main and branch lines are furthermore rigidly connected with the cross-girder t' by brackets a^8 and a^9, and a similar pair of brackets a^{10} and a^{11} connect the cross-girder t' with the columns a and a'. A similar cross girder t supports two girders b and b' of the main line and s and s' of a line branching from the main line, while a girder t^2 supports the girders b and b' of the main line only, as illustrated in Fig. 1.

Between the longitudinal girders b and b' of the main line are interposed movable or switch girders r, r', and r^2, as shown in Fig. 1. The movable girder r of the longitudinal girder b of the main line is provided with two rails r^3 and r^4, carried by the lower flanges r^5, so that the movable girder r may either form the continuation of the longitudinal girder b of the main line or the continuation or switch for the longitudinal girder s' of the branch line. The movable girders r' and r^2 are provided with rails r^6 and r^7 at one side thereof, as the same are adapted to either form, in conjunction with the movable girder r, the continuation of the longitudinal girders b and b' of the main line, as shown in full lines in Fig. 1, or to form, with the movable girder r, the connection of the longitudinal girders s and s' of the branch line with the girders b and b' of the main line, as indicated in dotted lines in Fig. 1. The switch-girders r, r', and r^2 at their hinged and abutting ends are supported by the cross-girders t, t', and t^2.

As illustrated in Fig. 3, the switch-girder r is supported at its hinged end and at the upper portion preferably by the extended flange t^3 of the cross-girder t and at its lower end by a plate t^4, secured to the longitudinal girder b. A bolt t^5 passes through the flange t^3 and

plate t^4 and the projecting ends of the plates r^9 and r^{10} of the switch-girder r, connecting the girder r with the girder b and also serving as a fulcral point for the switch-girder r. To the free end of the switch-girder r is secured a bracket r^{11}, provided with rollers r^{12} and r^{13}, which rollers by engaging a plate t^6, secured to the under side of the girder t, support the free end of the girder r. Intermediate of the ends of the girder r and resting upon the longitudinal girders b' and s is arranged a cross-beam u, provided with an extended plate u', engaged by a roller r^{14} of a bracket r^{15}, secured to the switch-girder r, as shown in Figs. 1 and 3. This cross-beam u assists in the support of the switch-girder r, and a number of the same may be employed for this purpose, if required. The switch-girders r' and r^2 at their hinged and free ends are supported in precisely the same manner as described in connection with the switch-girder r, and for this reason a further description of this support is not deemed necessary.

In order to shift the switch-girder r into its different positions, (indicated by full and dotted lines in Fig. 1,) the same is provided with a rack v', pivotally secured in the point v^2 to the same. The rack v' meshes with the pinion v^3 of the shifting device v, preferably carried by a platform. (Not shown.) The pinion v^3 is secured to a gear-wheel v^4, fixed to the shaft v^5, which gear-wheel meshes with a pinion v^6, secured to the shaft v^7. By rotating the shaft v^7 by means of a crank-arm v^8 the motion, by means of the pinion v^6, gear-wheel v^4, and pinion v^3, is transmitted to the rack v', which shifts the switch-girder r. To insure the proper engagement of the pinion v^3, with the rack v' the same is guided by a roller v^9, as shown in Figs. 1 and 7. A shifting device v of exactly the same construction is used to shift the switch-girders r' and r^2, with the exception that the rack v' thereof is pivotally secured to a cross-bar v^{10}, which in turn at its end is pivotally secured to the switch-girders r' and r^2, as shown in Fig. 1 of the drawings.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an elevated-railway system, a switch connection between a main line and converging main and branch line track structures, two parallel girders connected with each other and swinging at one end upon girders of the main-line structure, a single swinging girder pivoted at one end at a point where adjacent main and branch line girders meet and extending therefrom to the free ends of the parallel swinging girders, the remaining girders of the main and branch line structures projecting beyond said point to the free end of the swinging parallel girders, substantially as and for the purposes described.

2. In an elevated-railway system, a switch connection between a main line and converging main and branch line track structures, two parallel girders connected with each other and swinging at one end upon girders of the main-line structure, a single swinging girder pivoted at one end at a point where adjacent main and branch line girders meet and extending therefrom to the free ends of the parallel swinging girders, the remaining girders of the main and branch line structures projecting beyond said point to the free end of the swinging parallel girders, and means for operating said girders, substantially as and for the purposes described.

3. In an elevated-railway system, a switch connection between a main line and converging main and branch line track structures, two parallel girders connected with each other and swinging at one end upon girders of the main-line structure, a single swinging girder pivoted at one end at a point where adjacent main and branch line girders meet and extending therefrom to the free ends of the parallel swinging girders, the remaining girders of the main and branch line structures projecting beyond said point to the free end of the swinging parallel girders, means for supporting said girders at both ends and intermediate thereof, and means for operating the same, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature, in the presence of two subscribing witnesses, this 1st day of June, A. D. 1906.

DANIEL M. PFAUTZ.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.