(No Model.)

C. F. SPENCER.

SWITCH FOR STREET RAILWAYS.

No. 382,275. Patented May 1, 1888.

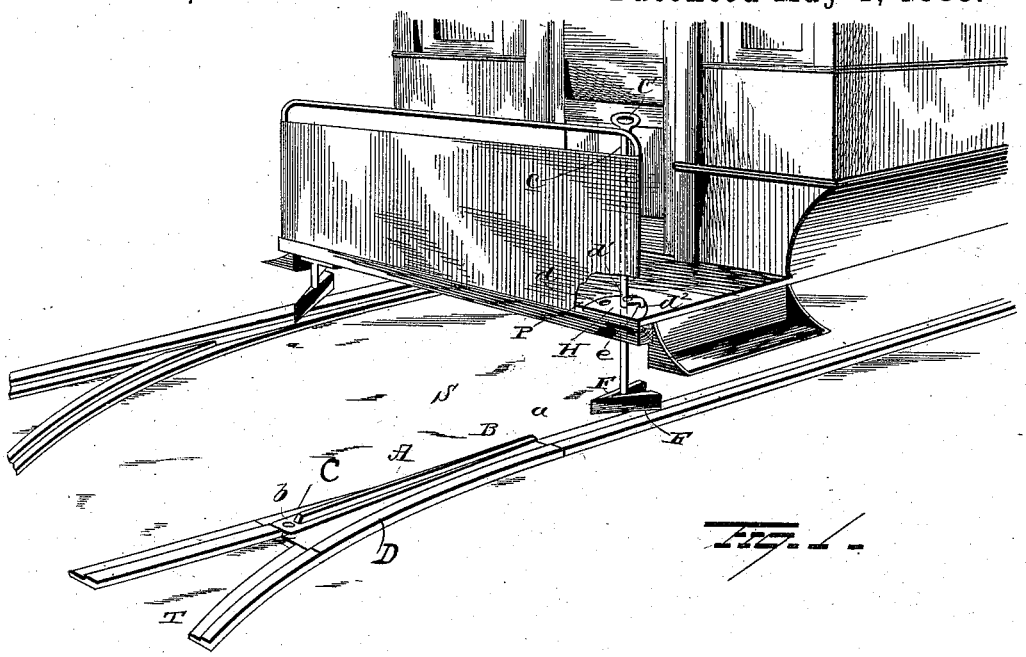

Fig. 1.

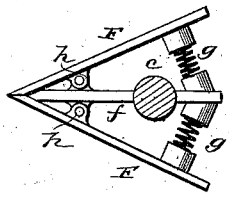

Fig. 2.

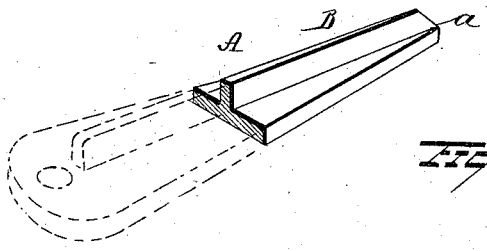

Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES F. SPENCER, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO HOBERT F. ATKINSON, OF SAME PLACE.

SWITCH FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 382,275, dated May 1, 1888.

Application filed July 1, 1887. Serial No. 243,110. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. SPENCER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Switches for Street-Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in switches for railroads, and more particularly to an improved switch for the shunting of cars on street passenger-railways from one track to another.

It has been customary to construct the switches for street-railways so that the frog which is employed at the track-intersection can be shifted at its point between the adjacent rails of the crossed tracks. The location of the tongue of the frog will cause the car passing the switch to take the direction or track to which the position of the swinging tongue will lead it.

In order to change the part of the tongue which is pivoted at or near the heel, it is usual to provide the driver of the car with an iron hook-bar that is utilized to change the direction of the car by slacking the motion of the car and reaching forward with the hook to change the point of the frog, and in this way change the switch to lead the car upon proper track. The method just described is both inconvenient and unreliable.

Other devices have been employed to change the direction of the car by having the point of the tongue of the frog pressed against the rail of one track by a spring, this being the normal position of the frog-tongue, to lead the car in the proper direction as it approaches the point of the frog. When the car is running toward the switch at opposite end of the frog, so that it is in contact with the heel of its tongue first, the flange of the forward wheel of the car pushes the tongue, so as to open a passage for the car on the track it is running upon, the car being held by a guard-rail located adjacent to the other or parallel rail of the track, the guard-rail holding the flange of the wheel that is on the other end of the axle, and in this manner a proper direction is secured to the car. It has been found in practice that this last device alluded to is defective, as the springs are likely to fail in a short time, and, further, that the car can only be made to follow its regular track in either direction.

The object of my present invention is to provide a simple reliable device, whereby the tongue of the frog of a street-railway switch is positively operated and made to swing its point to either adjacent track-rail that is necessary to lead the car in the proper direction; and it is also a part of my present invention to furnish a means of changing the point of the switch as may be desired, by setting a track-changer on the platform of the car, so that the point of the tongue will be unfailingly shifted to line with either track it may be desired to travel upon, the whole device operating together affording an adjustable as well as automatic switch-changer that will operate without failure in either direction of approach to the switch.

With these objects in view my invention consists in certain features of construction and combinations of parts that will be hereinafter described, and pointed out in the claims.

Referring to the drawings making a part of this specification, Figure 1 is a perspective view of the track-approaches of two crossing tracks and my improved switch in position, and car with a switch-changer mounted in place upon its platform. Fig. 2 is a plan view enlarged of the switch-changer blades, showing manner of construction of same. Fig. 3 is an enlarged transverse section of the tongue.

In Fig. 1, A represents the tongue of the switch located at the intersection of the two meeting tracks and pivoted at *b*, so that the point *a* may be shifted to the right or left. Upon the top surface of the tongue A a longitudinal rib or projecting ear, B, is made integral with the body of the tongue, with its ends beveled or inclined, as shown in Figs. 1 and 3, to allow a car to rise upon it gradually, and thus avoid jar when it crosses this point of the switch.

In Figs. 1 and 2 are shown the device I prefer to employ to change the switch by an engagement with the ear B. This consists of a vertical rod, *c*, that has a handle, *c'*, on its upper end, and two inclined shear-plates, F F,

affixed to the center plate, *f*, (see Fig. 2,) the connection being effected by hinge-joints *h h*, which permit the plates F F to have a lateral movement toward the center plate, *f*, which is limited by the spiral springs *g g*, that are seated in sockets formed on the shear-plates F and center plate, *f*, these springs affording a yielding action until they are wholly compressed.

The strength of the springs *g g* to resist compression should be sufficient to hold either of the plates F F that may be engaged by the ear B, and by a shear sliding action of its lower edge upon the side of the ear cause the tongue to move laterally till it strikes against the side surface of the rail toward which it is moved.

When the point of the tongue is in close contact with the rail, as stated, the spring that supports the plate to throw the point of the frog-tongue over will yield to prevent injury that would result from a continuation of lateral pressure after the point of the frog-tongue is in engagement with the rail, as stated. It will thus be seen that the device may be made to adjust itself to throw the point over properly and avoid injury to the rod *c* or shear-plates if there should be dirt or other impediment lodged between the point of the tongue and the rail that it is made to approach.

The vertical rod *c* is held in a supporting-box, which is located in the arch-plate H, the latter-named part being secured to the top surface of the platform P, (see Fig. 1,) and being provided with holes or notches *d d' d²*, that are located at equal radial distances from the rod *c*, and so spaced apart that the toe *e* of the rod *c* will enter either of the two outside holes, *d d²*, when the shear-blades F F are set to throw the point of the tongue A toward either the rail C or D, as may be desired.

When the tongue-shifting blades or plates F are not in use, they may be elevated and made to stay in such an elevated position by the insertion of the point of the offset toe *e* into the shallow center notch, *d'*, as this notch will be made just deep enough to hold the shear-plates F F above the tongue and escape contact with the ear B, made on the top surface of the same.

Upon some cars of a line it may be necessary to provide for shifting the switches in but one direction as these cars are kept on one track continuously. In such cases there need not be provision for changing the direction of the shear-plates F, and they may be secured by their standards to project from the lower side of the platform to engage the toe-tongue A.

This device for adjustment of the points of the tongues of switch-frogs is applicable to all the situations and changes of relative position incident to the operation of street-railway systems and the crossing of tracks at different angles. I have shown but one plan, as that is sufficient to indicate its method of operation.

Slight changes might be made in the constructive features of this device without a departure from the spirit of my invention; hence I do not restrict myself to the exact forms of the parts as is herein shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A pivoted switch-tongue having a projection rigidly secured on its upper face, said projection being beveled or inclined at its end.

2. A pivoted switch-tongue large at one end and gradually tapering toward the opposite end, said tongue having a rib or projection rigidly secured on its upper face and extending longitudinally thereon, substantially as set forth.

3. The combination, with a pivoted switch-tongue, said tongue having a projection rigidly secured thereon, of a device located on a car adapted to shift said tongue by its contact with the projection, substantially as set forth.

4. The combination, with a rod mounted in the platform of a car and shear-plates yieldingly secured to the rod, of a pivoted switch-tongue, said tongue having a projection thereon adapted to be engaged by the shear-plates in shifting the tongue laterally, substantially as set forth.

5. A rod or standard that is adapted to be raised and rotated, having a toe to limit its rotary movement, an arch-plate perforated to engage the toe of the standard, and two spring-actuated shear-plates hinged to the rod or standard, substantially as set forth.

6. The combination, with a rod or standard that may be raised and rotated, an arch-plate provided with notches or holes, and an integral toe of the standard adapted to enter the holes in the arch-plate, of two hinged shear-plates, springs to support the shear-plates, and a tongue of a switch that is adapted to be moved sidewise at its point by the bearing upon it of the shear-plates, substantially as set forth.

7. A switch shifting device consisting, essentially, of a rod or standard and a pointed shoe secured thereon, said rod or standard adapted to be turned to give the shoe a proper inclination.

8. A switch-shifting device consisting, essentially, of a rod or standard and shear-plates yieldingly secured thereto, substantially as set forth.

9. A switch-shifting device consisting, essentially, of a revoluble rod, a plate secured at one end thereof, and a pair of shear-plates pivoted to said plate, and springs located between the central plate and the free ends of the shear-plates and adapted to normally force the latter outward, substantially as set forth.

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

CHAS. F. SPENCER.

Witnesses:
GEO. A. MYLOCRAINE,
JAMES JOHNSTON.