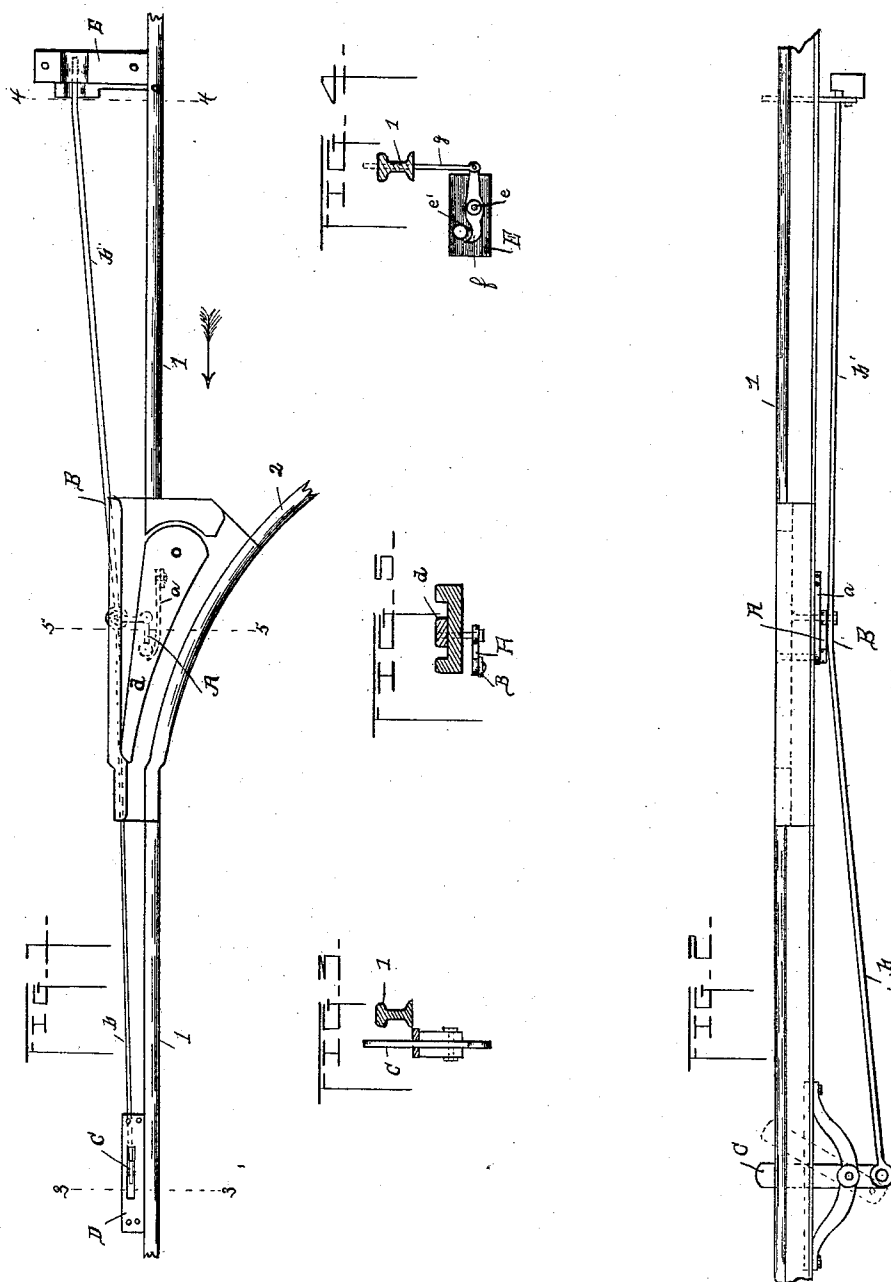


(No Model.)

J. H. GAGLE.
TRAMWAY SWITCH.

No. 484,706.

Patented Oct. 18, 1892.



WITNESSES:

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JOHN H. GAGLE, OF SEATTLE, WASHINGTON.

TRAMWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 484,706, dated October 18, 1892.

Application filed December 18, 1891. Serial No. 415,481. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GAGLE, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Switches for Street and other 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 switches for street and other railways; and the object of the invention is to provide a device of this character which is adapted to be actuated by the moving car for the purpose of side-tracking or shifting a car from one track onto another without stopping, the switch being self-closing and adapted to be automatically opened and retained in the desired position during the passage of the car and until released by the action of the car as it leaves the switch.

A further object is to provide an automatic switch of simple construction which may be manufactured at a small cost and which shall be safe and efficient in use, and not liable to get out of order.

The invention will first be described in connection with the accompanying drawings and then particularly pointed out in the claims at the end of this description.

Referring to the drawings, which form a part of this specification, Figure 1 represents a plan of a portion of a railway-track embodying my invention. Fig. 2 is a side elevation of the same; and Figs. 3, 4, and 5 are transverse sections taken on the lines 3 3, 4 4, and 5 5, respectively, of Fig. 1.

The main or straight track rail 1 at the intersection of the curved or side track rail 2 is provided with a bed casting or "frog" of ordinary construction, having the pivoted tongue *d* fitted in the recessed portion of the frog, so as to swing laterally from side to side to permit the flange of the wheel to run in the groove formed between the adjacent walls of the frog-recess and the tongue at either side of the tongue, accordingly as the latter is shifted from right to left. The tongue *d* of the switch is held normally open with respect to the curved-track rail and closed with respect to the straight-track rail by means of a

suitable spring *a*. When the tongue is in the position shown in Fig. 1, a car may pass in either direction over the curved track without changing the position of the tongue, while a car upon the straight track, moving in the direction indicated by the arrow at the right of said figure, may pass the switch without actuating the mechanism which shifts the tongue, the flange of the car-wheel being adapted to shift the tongue, the latter being returned to its normal position by the action of the spring *a*; but in order to permit a car moving in the opposite direction to pass over the straight track the tongue must first be opened. To accomplish this result without rendering it necessary to stop the car, I provide a rocking bell-crank lever *A*, one arm of which is pivoted to the tongue *d* at a suitable distance from the pivot thereof, while the other arm is pivoted to a longitudinally-reciprocating rod *B*. The end *b* of the rod *B* is pivoted to the depending arm of an oscillating lever *C*, which lever may be pivoted to a bracket arranged below the plane of the track-rail and projects up through a slotted casting *D* in close proximity to the rail 1 in position to be struck by a depending foot-piece carried by the car. The rear end *b'* of the rod *B* rests upon and may slide in a recess or groove formed in a block or casting *E*, located below the plane of the track-rails and having a lug or ear *e* formed thereon, to which is pivoted a tilting lever or pawl *f*, one arm of which has a hooked or grooved portion *e'* to receive the end of the rod *B* when the latter drops from the groove in the block *E*, as hereinafter described. The outer arm of the tilting lever *f* is pivoted to a vertically-sliding rod or plunger *g*, whose upper end protrudes through a hole or slot in the rail 1 when the hooked end of the lever *f* is depressed by the weight of the rod *B*. By this construction, when the switch is in the position shown in Fig. 1, the rear end of the rod *B* will simply rest in the groove or recess of the block *E* over the hooked end of the lever *f*; but when said rod is drawn away from the block it will drop into the hook or groove at the end of the lever *f* and tilt said lever, thereby raising the plunger *g*. The rod *B* is withdrawn from the block *E* by the action of the oscillating lever *C*, which is thrown back, as

indicated in dotted lines in Fig. 2, by a foot-piece or tappet on the moving car. In the last-mentioned position of the parts the rear end *b'* of the rod B will bear against the adjacent face of the block E and hold the switch-tongue open against the pressure of the spring *a*; but the wheel of the car in passing the block will depress the plunger *g*, and through the lever *f* raise the end of the rod B, whereupon the pressure of the spring *a* will force said rod back into the groove of the block E and restore the oscillating lever C and switch-tongue *d* to their normal positions. It will thus be seen that when the lever C is thrown back upon its pivot the tongue *d* will be opened by the action of the rod B and bell-crank A and locked in the desired position by the rod B and block E until the plunger *g* is depressed by the car-wheel, whereupon the lever *f* will release the rod B and permit the tongue to close under the pressure of the spring exerted against the tongue; but the tongue will be kept from closing until the rear wheels of the car have passed through the switch, and thereupon the tongue will be automatically restored to its normal position by the spring.

It will be understood, of course, that the construction and arrangement of parts hereinbefore described may be varied in a number of ways without departing from the spirit of my invention, and hence I do not desire to be limited to the exact construction described and shown.

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

1. A switch for street or other railways, comprising a suitable frog having a pivoted tongue and a spring to retain the tongue in its normal position, mechanism, substantially as described, for automatically opening the tongue, comprising an oscillating lever adapted to be actuated by a foot-piece or tappet on the moving car, a reciprocating rod pivoted at one end to said lever, a bell-crank lever pivotally connecting said rod and tongue, and a locking device whereby the tongue will be held open during the passage of the car and

automatically released by the action of the car as the latter leaves the switch, substantially as described.

2. In a switch for street or other railways, the combination, with the pivoted tongue, of the spring bearing thereon, the oscillating lever adapted to be actuated by a tappet on the moving car, the reciprocating rod having one end connected to said lever, the bell-crank lever connecting said rod and tongue, the stop-block adapted to engage one end of said rod, so as to lock the tongue when thrown open, the tilting lever, and the plunger-rod pivoted to said tilting lever and adapted to be depressed by the car-wheel, so as to unlock the tongue as the car leaves the switch, substantially as described.

3. In a switch for street or other railways, the combination, with the pivoted tongue, of the bell-crank lever having one arm pivoted to said tongue, the longitudinally-reciprocating rod pivoted intermediate its ends to another arm of said lever, the oscillating lever connected to one end of said rod, the stop-block for engaging the free end of said rod when the tongue is thrown open, the tilting lever or pawl, the vertically-sliding plunger pivoted to said pawl, and the spring which tends to restore said tongue and rod to their normal positions, substantially as described.

4. In combination with the pivoted spring-pressed tongue, the bell-crank lever, the longitudinally-sliding rod pivoted intermediate its ends to one arm of said bell-crank lever, the oscillating lever pivoted to one end of said sliding rod, the grooved stop-block adapted to receive the free end of said rod, and the tilting lever having one end arranged beneath the free end of the sliding rod and provided with a vertically-sliding plunger-rod at its opposite end, adapted to be depressed by the car-wheel, for the purpose set forth.

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

JOHN H. GAGLE.

Witnesses:

JOHN H. KOONS,
JOHN G. BARNES.