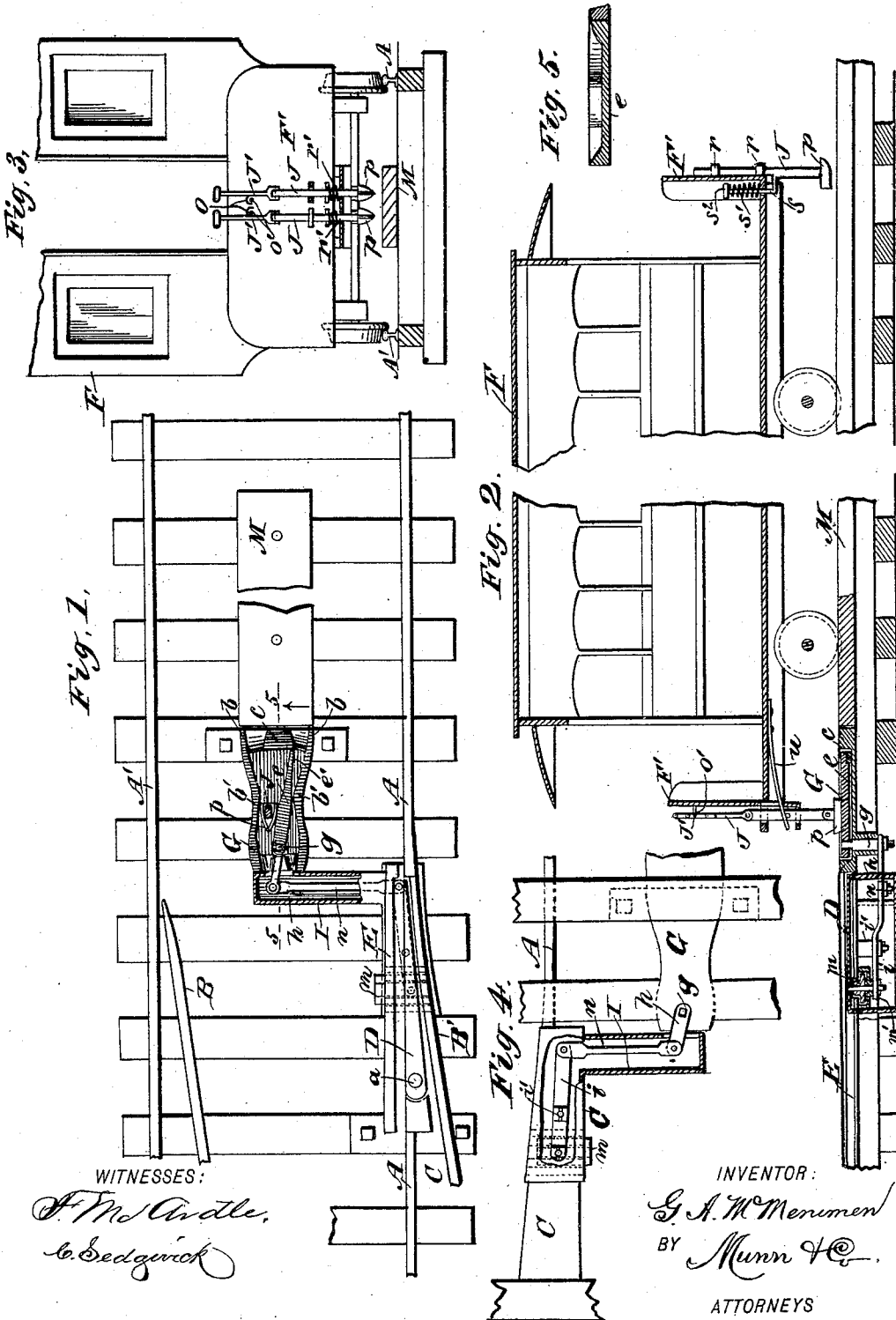


(No Model.)

G. A. McMENIMEN.
TRAMWAY SWITCH.

No. 472,381.

Patented Apr. 5, 1892.



UNITED STATES PATENT OFFICE.

GEORGE A. McMENIMEN, OF EAST CAMBRIDGE, MASSACHUSETTS.

TRAMWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 472,381, dated April 5, 1892.

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To all whom it may concern:

Be it known that I, GEORGE A. McMENIMEN, of East Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Tramway-Switch, of which the following is a full, clear, and exact description.

This invention relates to an improved switch for street-railways, and has for its objects to provide a simple practical device which will afford means to direct a moving car from a main track to a side track by manipulation from the car, and, furthermore, to enable an operator on a moving car to throw the switch and align it with the main track if said switch has been left in alignment with a side track.

To these ends my invention consists in the peculiar construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a portion of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the device, partly in section, in place on a railroad-track shown in part. Fig. 2 is a sectional side elevation of a street-railway car broken away in the center, in place on a section of track, and showing switch-operating devices on each end of a car, one adapted to be operated by hand and the other by the foot of a switchman on the car. Fig. 3 is an end elevation of a car on a track, shown in section, showing the switch-operating device preferably employed that is operated by hand, in position on the car. Fig. 4 is a reverse plan view of the switch device, partly broken away, in place on track-ties shown in part; and Fig. 5 is a longitudinal section of the switch-bed plate taken on the line 5 5 in Fig. 1.

A A' are main-track rails, and B a side-track rail, of a street-railroad.

C is a bed-plate whereon a side-track rail B' is extended and laterally bent to lie parallel with the rail B, the rail A resting upon the end portion of the bed-plate near the pointed end of a tongue D. A sufficient length is afforded the bed-plate C to permit the swinging tongue D to be pivotally secured upon it,

said pivot *a* being inserted near the heel of the tongue, and rearward of the latter the end of another main-track rail A is seated and secured by any proper means. There is a guard-rail E affixed upon the bed-plate C at such a distance from the tongue D as will allow the latter to swing and strike against the guard-rail when the side-track rails B B' are to be traversed, the normal position of the tongue being indicated in Fig. 1 by full lines that show said tongue aligned with the main-track rails A, and laterally in contact with the side-track rail B', which adjustment causes the tongue to fill the gap between the two aligning main-track rails and render them continuous.

A novel construction of mechanism is provided to afford means for the swinging adjustment of the tongue D, a part of which is located on the ground between the track-rails and another portion on the car F, that on the car being adapted for engagement with the stationary device, so as to swing the tongue as the car approaches the intersection of the track.

The portion of the switch device that is located on the ground and is connected with the tongue D consists of a bed-plate G, having side flanges *b* that are bent toward each other, so that the nearest point *b'* between them will be about at the center of length of the bed-plate, and at the end of said bed-plate which is farthest removed from the bed-plate C the side flanges *b* are widest apart, a guide-block *c* being located midway between them, as indicated in Fig. 1.

At the end of the bed-plate G that is nearest to the bed-plate C these parts are connected, preferably, by a box I, of metal, which extends between them and retains their connected end portions properly spaced apart.

Between the flanges of the bed-plate G, near the transverse center of the latter, a shifting rail *e* is pivoted at one end, which is near to the box I. The free end of said rail extending forwardly or toward the guide-block *c* is allowed to vibrate laterally, and when in contact with either of the flanges *b* at *b'* the point of the rail should align with the side

edge of the block that the rail is moved toward, the tops of the rail and block lying in about the same plane.

The shaft *g*, that affords a revoluble connection between the rail *e* and the bed-plate *G*, is downwardly extended therethrough and secured at its lower end to the end of a crank-arm *h*, that projects oppositely from the shifting-rail *e*, and in a plane parallel with it.

On the lower side of the bed-plate *C* a vibrating lever *i* is pivoted thereto near the longitudinal center of the latter-named piece, which is sufficiently removed from the bed-plate by a spacing-block *i'*, to allow the end *m'* of the lever to be pivoted to a slide-block *m*, which is loosely supported to reciprocate transversely of the bed-plate by suitable guides that engage the side edges of the block. The pivot-bolt that is engaged with the end *m'* of the lever *i* also penetrates the tongue *D* and is secured to it. The opposite end of the lever *i* is pivoted to a connecting-rod *n*, which extends within the incasing box *I* and is loosely attached at its other end to the outer end of the crank-arm *h*, whereby the vibratory movement of the rail *e* will be transmitted to the tongue *D*, so as to move its point laterally, as may be required.

The portion of the tongue-moving device that is located upon a car is shown in two forms upon the opposite ends of the car *F* in Fig. 2. The one on the left-hand end in Fig. 2 (shown also in Fig. 3) will first be described, and consists of two similar standards *J*, which are loosely supported to slide vertically on the front wall *F'* of the car-platform. On the upper ends of the standards *J* there is a handle-bar *J'*, pivoted on each, which latter have handles on their upper ends and a hook *o* laterally projected from the side of each bar, said hooks being made to engage locking-pins *o'* when in elevated adjustment. On the lower end of each standard *J* a foot-block *p* is secured. Said blocks of similar form are tapered forwardly, as shown in Fig. 1, and are thereby adapted to slide freely in the spaces intervening between the sides of the flanges *b* and central guide-block *c*. The shifting-rail *e* is sloped from its center of length on each side to its free end *e'*, so as to produce a converging channel from said point to the point *b'*, where the rail and either flange *b* meet when the shifting-rail is vibrated.

In order to afford means for the support of the standards *J* should either be depressed before the switch-throat is reached by the standard-foot, a guard-plate *M* is placed between the tracks, with one end in contact with the forward end of the bed-plate *G* of the switch, said guard-plate being extended for a suitable length to be effective, and in service, when a standard is lowered in advance of the switch, its foot will rest and slide upon the guard-plate, and thus be prevented from striking upon obstructions.

In operation, a car running on the main

track toward the switch is diverted therefrom onto a side track by lowering the proper standard *J*, so that its foot *p* will enter between the free end *e'* of the shifting-rail *e* and the adjacent flange *b* on the bed-plate *G*, which foot, when the center *b'* of the flange is reached, will by its impingement on the rail *e* vibrate it, so as to swing the tongue *D* away from the rail *B'* and allow the flanges of the car-wheels to pass between it and the side-track rail, thereby causing the car to pass from the main track onto the side track. Should the next car moving on the main track be required to continue on it, the appropriate standard *J* is depressed, so that its foot *p* will vibrate the shifting-rail *e* in a proper direction and thus move the tongue *D* into alignment with the main track, as is represented in Fig. 1.

The device preferably used to move the shifting-rail *e* by foot-pressure (shown at the right side of Fig. 2) consists of the standards *J* and feet *p*, similar to those already described, said standards being guided by staple-loops *r* on the outer side of the upright wall of the car-platform, these standards being each provided with a laterally and vertically extended pusher-bar *s*, that projects up through the platform of the car and is encircled by a spiral spring *s'*, which engages with the platform and also with a foot-plate *s''*, that is affixed to the upper end of said pusher-bar, thus holding the foot-piece *p* of the standard in elevated adjustment until either standard is depressed by the foot of the operator.

Either the plate-spring *u* or spiral springs *r'* (shown in Figs. 2 and 3) may be employed to control the movement of the standards, and it will be apparent that when the latter are to be moved by hand the plate-springs *u* and spiral springs *r'* will act to depress the standards instead of elevating them, as is effected by the springs *s'*.

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

1. In a tramway-switch, the vertically-sliding standard having an operating-shoe on its lower end, a handle-bar *J'* pivoted to the upper end of the standard and provided with a laterally-projecting hook adapted to engage a pin and hold the standard elevated, substantially as set forth.

2. In a tramway-switch, the combination of the bed-plate *C*, formed with guard-rail *E*, and rail-section *B'*, the tongue *D*, pivoted at its wider end, the sliding block *m*, mounted transversely on the bed-plate below the tongue, a longitudinal lever *i*, pivoted between its ends below the bed-plate, and a pivot extending from one end of the said lever up through the sliding block into the tongue between the ends thereof, with mechanism operated from the car and connected with the outer end of the lever *i*, substantially as set forth.

3. A switch and operating mechanism, comprising the bed-plate having the swinging tongue pivoted at its wide end thereon, a transverse sliding block under the bed-plate and connected to the tongue, a lever *i*, pivoted between its ends and at one end pivoted to said block, the bed-plate *G*, having a contracted throat, the swinging rail *e*, the vertical crank-shaft *g*, forming the axis of the rail *e*, and the link *n*, connected to the crank-arm of shaft *g* and to the adjacent end of the lever *i*, substantially as set forth.

GEORGE A. McMENIMEN.

Witnesses:

FRANK J. MURPHY,
JAMES O'CONNER.