

No. 751,932.

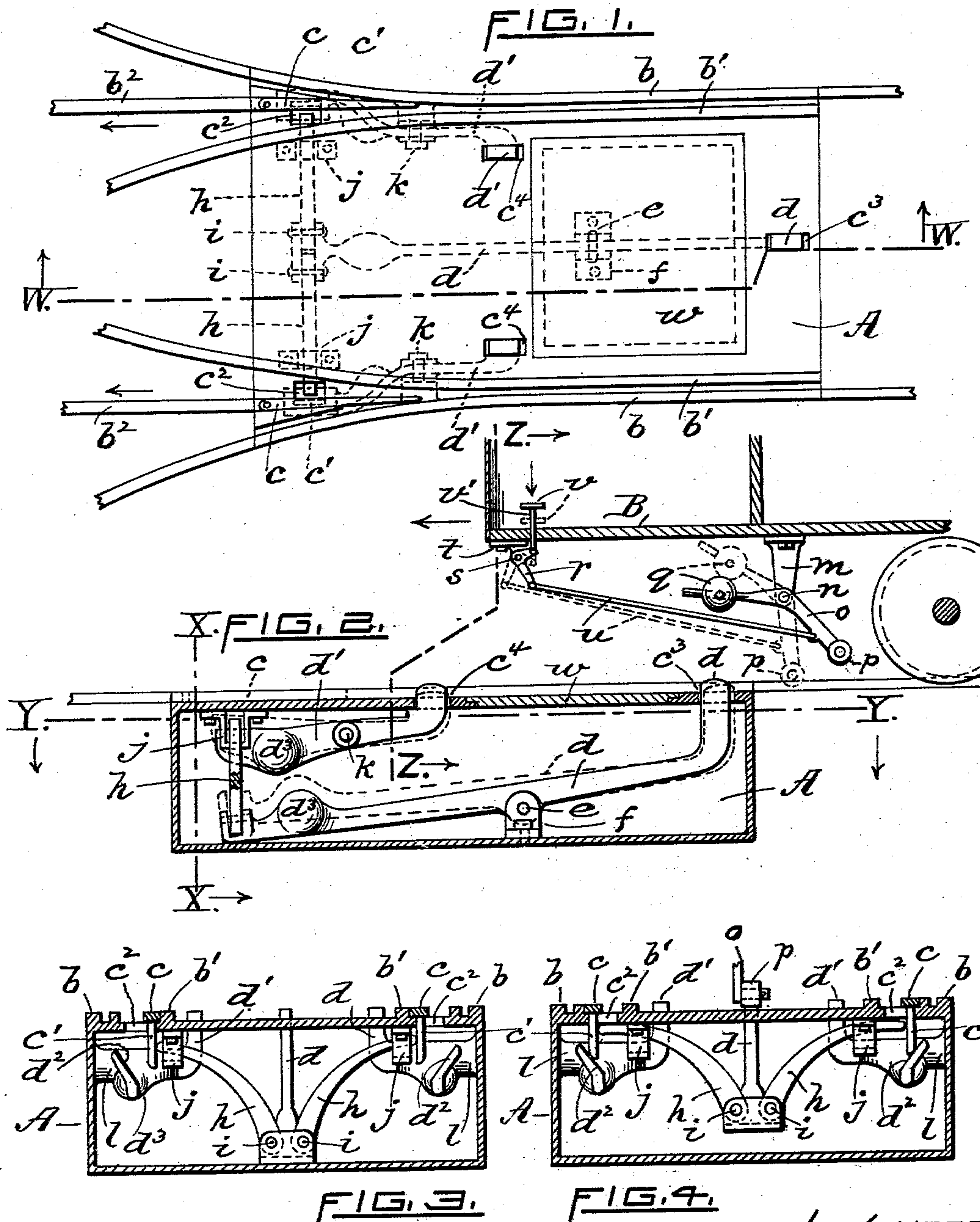
PATENTED FEB. 9, 1904.

G. A. MEIGHAN.  
AUTOMATIC SWITCH FOR TRAMWAYS.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES.

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INVENTOR.

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By Charles I. Hannigan  
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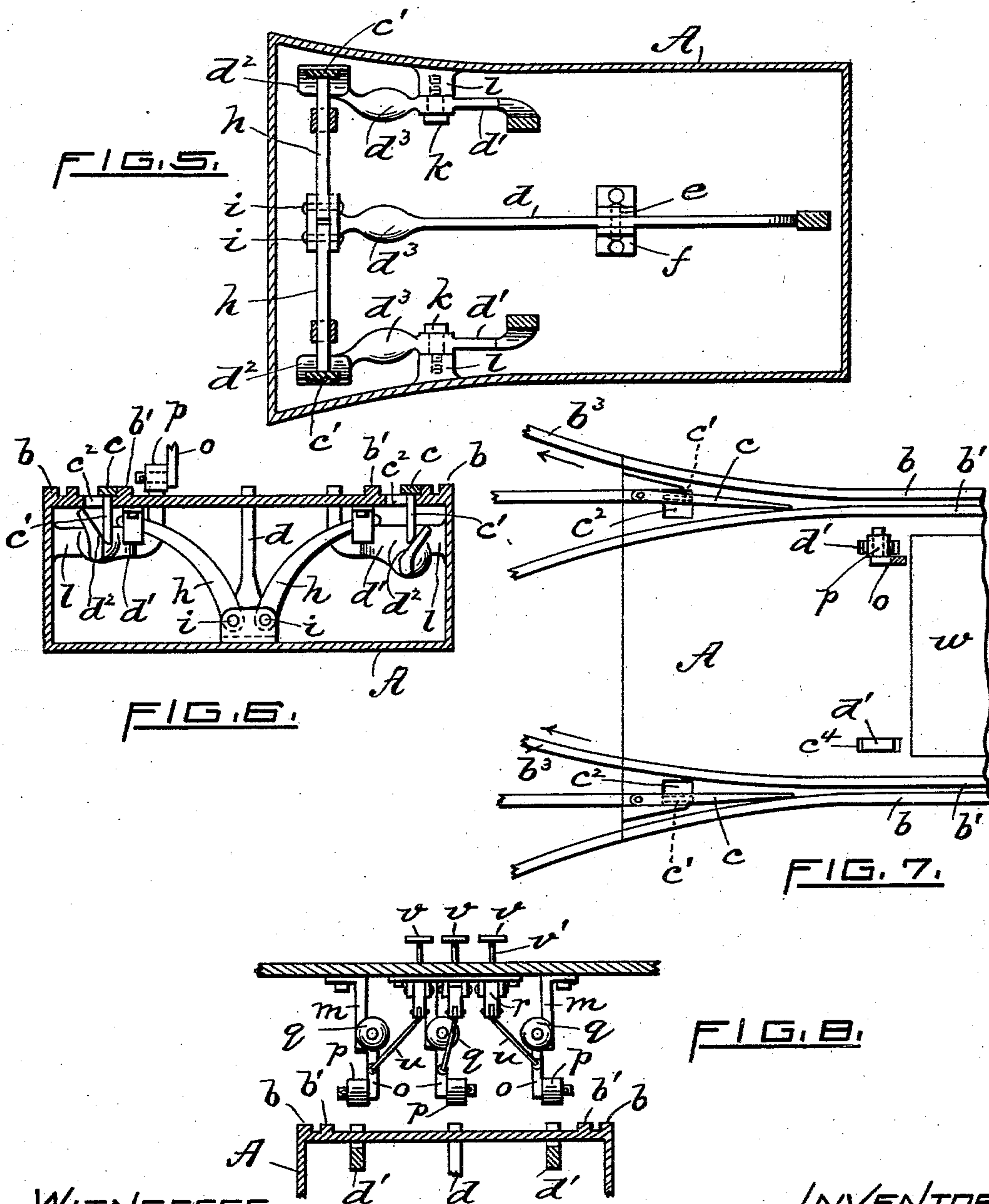
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# UNITED STATES PATENT OFFICE.

GEORGE A. MEIGHAN, OF PROVIDENCE, RHODE ISLAND.

## AUTOMATIC SWITCH FOR TRAMWAYS.

SPECIFICATION forming part of Letters Patent No. 751,932, dated February 9, 1904.

Application filed July 29, 1903. Serial No. 167,463. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. MEIGHAN, a citizen of the United States, residing at the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Automatic Switches for Tramways, of which the following is a specification.

This invention relates to a switch adapted for the rails upon which electric trolley-cars are run; and the object of my invention is to provide a mechanical means whereby the motor-man may operate from the platform of the car to automatically shift or throw the tongues of the track so that the car will be guided in the desired direction upon the rails.

The invention consists in a casing adapted to be embedded between the rails of a trolley-car road-bed, two tongues pivotally mounted on said casing, three levers pivotally mounted in said casing, each having one of their ends projecting from the upper surface of the same, and means mounted on the platform of the car for automatically contacting with the projecting ends of said levers in shifting the said tongues to the desired position upon the rails, of the novel construction and combination of parts, as hereinafter described, and specifically set forth in the claims.

In the accompanying drawings, Figure 1 represents a top plan view of the casing, showing its location with that portion of the track whose rails lead in different directions. Fig. 2 is a longitudinal section of the casing, taken in line W W of Fig. 1, showing the position of the levers for shifting or moving the tongues of the rails and also showing a partial section of the platform of a trolley-car provided with means for tripping said levers. Fig. 3 is a transverse sectional view of the casing, taken in line X X of Fig. 2. Fig. 4 is a similar sectional view of the casing, showing the position its parts assume when the center lever has been acted upon from the car-platform to move or throw the tongues for a straight-away course for the car. Fig. 5 is a top plan sectional view of the casing, taken in line Y Y of Fig. 2. Fig. 6 is a transverse sectional view of the casing, showing the position its

parts assume when a side lever has been acted upon to move the tongue inwardly that the car may take a curve or turnaway course. Fig. 7 is a partial top plan view of the casing and showing the roller for tripping the side lever to move a tongue as when the car is to pass upon a curved track; and Fig. 8 is a transverse section taken in line Z Z of Fig. 2, showing the means mounted on the car-platform for tripping the respective levers of the casing.

Like letters indicate corresponding parts in the different figures of the drawings.

A represents a casing which is adapted to be embedded in the ground between the rails of a trolley-car track and with its upper surface flush with the road or street level. Track-rails *b b'* extend upon each upper edge longitudinally of the casing and have their ends meeting together with the ends of the rails of the road-bed. At one end of the casing the rails *b b'* are made to curve inwardly and outwardly to guide the car in a turnaway course, and two tongues *c c* are pivotally mounted on the casing and situated between each of the two curved portions of the rails *b b'*. These tongues *c c* have their pivotal centers near to this end of the casing and in alinement with the road-bed rails which permit of a straight-away course, as shown in Fig. 1. The tongues *c c* have integral extensions *c' c'*, which project through slotted openings *c<sup>2</sup> c<sup>2</sup>*, formed in the upper plate of the casing A.

*d* is a lever pivotally mounted on a stud *e* of a support *f*, which is fixedly secured to the bottom plate of the casing A. Said lever *d* extends longitudinally and centrally of the casing and has one end projecting vertically through a slotted opening *c<sup>3</sup>*, formed in the upper plate of the casing A. The opposite end of the lever *d* is bifurcated to receive the ends of two arms *h h*, which are connected to the bifurcated end of said lever by pins *i i*. These arms *h h* extend upwardly from and transverse of the lever *d*, and the upper extremity of each of said arms is movable in U-shaped supports *j j*, which are fixedly secured to the upper plate of the casing A. The supports *j j* are arranged to guide the arms *h h*,



so that their upper ends will bear against the extensions  $c' c'$  of the rail-tongues  $c c$  in the manner shown in Figs. 2 and 3.

$d' d'$  are two levers pivotally mounted on studs  $k k$ , secured in hubs  $l l$ , which are integral at each side of the casing A, as seen in Fig. 5. These two side levers  $d' d'$  have one of their ends projecting vertically through slotted openings  $c^4 c^4$ , formed in the upper plate of the casing, and the opposite ends of the said levers  $d' d'$  have wedge-shaped or outwardly-inclined surfaces  $d^2 d^2$ , arranged to engage with the extensions  $c' c'$  of the rail-tongues  $c c$ , as shown in Figs. 4 and 5.

Each of the levers  $d$  and  $d' d'$  has an enlargement or weighted portion, as at points  $d^3 d^3 d^3$ , to carry the upper projecting ends of said levers to their normal position above the surface of the casing.

Referring to Fig. 2, B represents a trolley-car platform, to the bottom of which is fixedly secured a standard  $m$ . Said standard  $m$  has a stud  $n$ , upon which is pivotally mounted a knee-lever  $o$ , and said knee-lever has one of its arms provided with a roller  $p$  and its opposite arm provided with a weight  $q$ .  $r$  is a bell-crank lever pivoted on a stud  $s$  of a bracket  $t$ , which is fixedly secured to the bottom of the platform B at its front portion thereof, and a rod  $u$  has one end connected with the long arm of said bell-crank lever  $r$  and its opposite end connected to the knee-lever  $o$  at a point above its roller  $p$ .  $v$  is a presser-foot or step projecting above the surface of the platform B and having a shank portion  $v'$ , the lower extremity of which is connected to the short arm of the bell-crank lever  $r$ . There are three independent presser-feet or steps mounted and movable in the platform of the car, and each presser-foot having a similar arrangement of parts, as above described, and each presser-foot to operate a roller  $p$ , which is situated in alinement and arranged to come in contact with the projecting portion of the levers  $d$  and  $d' d'$  of the casing A. The weighted end portion of each of the knee-levers  $o$  is to carry up each of the presser-feet  $v$  and rollers  $p$  to their normal position, as seen in Fig. 2, when not acted upon by the motorman.

The operation of my device is as follows: Assuming that the car is to take a straight-away course upon the rails  $b^2 b^2$  of the road-bed in the arrow direction indicated in Fig. 1, before the car will have reached the switch-casing A the motorman will force down by his foot the center step  $v$ , and this movement will carry down the roller  $p$  to the dotted position of parts shown in Fig. 2, and said roller  $p$  being in alinement with the projecting portion of the center lever  $d$  of the casing (see Fig. 8) will strike against this end of said lever and cause the same to tilt up its arms  $h h$  and bring the latter to bear against

the extensions  $c' c'$  of the tongues  $c c$ , and thus the said tongues are moved outwardly until they strike against the inner sides of the rails  $b b$ , when the straightaway course is given for the car, as shown in Fig. 1. When the tongues  $c c$  are moved to their outward position for a straightaway course, as described, the lower ends of the extensions  $c' c'$  of the said tongues are in contact upon the upper portion of the wedge-shaped or inclined sides of the levers  $d' d'$  to the position of parts as shown in Fig. 4. Now in this position of the switch-tongues last aforesaid if perchance the car following is to take a curve or turnaway course, say, upon the rails  $b^3 b^3$  in the arrow direction indicated in Fig. 7 the motorman will simply press upon the right-hand step to bring the roller in contact with the side lever  $d'$ , and which movement will throw the right-hand tongue  $c$  inwardly to the side of the inner rail  $b'$  to the position as shown in said figure. If it should happen that the switch-tongues  $c c$  have been moved so that they each bear against the inner rails  $b' b'$  and a car is to take a turnaway course, the motorman will first press against the center step and throw both tongues against the outer rails  $b b$ , after which he will move his foot from the center step and press against one of the side steps to throw either tongue for the car to pass on the curve he desires.

I show a car-switch arranged for as straight-away course and right and left turnaway courses; but it will be readily understood by my construction and arrangement of parts of the switch-casing that in certain points of the track having a straightaway course and but one curve one tongue will suffice to switch the car in either of these two directions, so that an arm  $h$  of the center lever, together with a side lever  $d'$ , may be dispensed with in the switch-casing at such points of the track.

In Figs. 1 and 2 I show the casing provided with a cover  $w$  to allow of getting at the interior parts or for the convenience of placing an electric heater within the casing for use in the winter season to keep the operating parts free of ice and in working order.

By my construction and arrangement of parts much time and labor are saved, inasmuch as the motorman does not have to bring the car to a stop and use a bar, as is common for prying the tongue when reaching a switch.

I claim as a novel and useful invention and desire to secure by Letters Patent—

1. In a tramway-switch for trolley-cars, the combination, of a casing having rails upon its upper surface arranged to meet the ends of the rails of the road-bed, which lead in different directions; two tongues pivotally mounted on said casing, and said tongues having integral extensions projecting through slotted openings formed in the same; a lever pivotally mounted centrally of the casing, and hav-



ing one end projecting through a slotted opening formed in the same and a bifurcation at its opposite end; two arms having one of their ends connected to the bifurcation of the  
5 said lever and having their opposite ends arranged to bear against the extensions of said tongues; two levers pivotally mounted in the casing, on each side thereof and having one of their ends projecting through slotted openings formed in the casing and their opposite  
10 ends exposing inclined surfaces to engage the extensions of said tongues; and means mounted on the car-platform for forcing down either projecting end of the aforesaid levers to throw  
15 either of said tongues to the position desired upon the rails, substantially as set forth.

2. In a tramway-switch for trolley-cars, the combination, of a casing adapted to be embedded between the rails of a road-bed, at a  
20 point where the tracks lead in a straightaway course and right and left turnaway courses; two tongues pivotally mounted on said casing and having their pivotal centers in a plane with the rails of a straightaway course and  
25 said tongues having integral extensions movable in slotted openings formed in said casing; a lever pivotally mounted and extending longitudinally in the casing, and said lever having one end projecting through a slotted  
30 opening in the same; two arms connected to

the opposite end of said lever, extending transverse of the same and adapted to engage with the inner faces of the extensions of said tongues; two side levers pivotally mounted and extending longitudinally in the casing, 35 and said arms having one of their ends projecting through slotted openings in the same and their opposite end portions inclined to the outer faces of the extensions of said tongues; three presser-feet mounted and movable in the platform of the car, and each of  
40 said presser-feet adapted to operate a roller, and so arranged that a downward movement upon the center the presser-foot will carry its roller in contact with the projecting end 45 of the aforesaid center lever whereby its arms force the said tongues outwardly for a straightaway course, and a downward movement upon either of the other presser-feet will carry their roller in contact with either 50 projecting end of the aforesaid side levers whereby their inclined surfaces force inwardly either of the said tongues for a turnaway course, substantially as set forth.

In testimony whereof I affix my signature in 55 the presence of two witnesses.

GEORGE A. MEIGHAN.

Witnesses:

EDWARD W. O'BRIEN, Jr.,

WILLIAM H. PECK.