

No. 648,636.

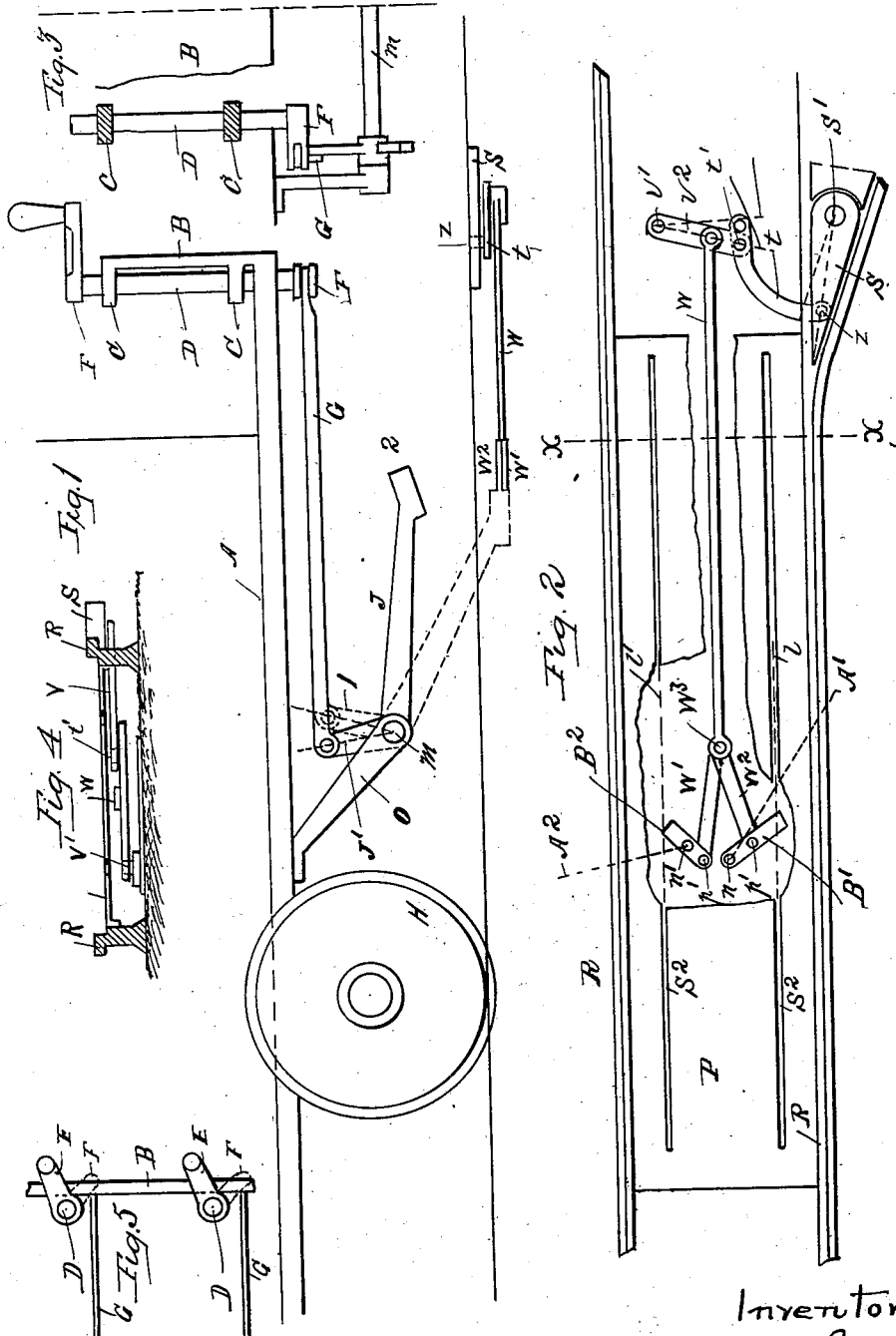
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A. G. SHARROW.

MEANS FOR OPERATING SWITCHES IN ELECTRIC TRAMWAYS.

(Application filed Oct. 26, 1899.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

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MEANS FOR OPERATING SWITCHES IN ELECTRIC TRAMWAYS.

SPECIFICATION forming part of Letters Patent No. 648,636, dated May 1, 1900.

Application filed October 26, 1899. Serial No. 734,824. (No model.)

To all whom it may concern:

Be it known that I, ANDREW GUYEN SHARROW, a citizen of the United States of America, and a resident of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Means for Operating Switches in Electric Tramways, of which the following is a specification.

My invention has reference to devices for automatically operating the switches of electric tramways; and it consists of features fully set forth in the following specification and accompanying drawings, forming part thereof.

The object of my invention is to relieve the motorman of the necessity of stopping his car at points along the line where switches are placed.

It consists of a switch-operating series of levers preferably arranged below the line of the rails and adapted to be operated by the motorman through suitable hand-controlled connections carried by the car and normally out of the path of the switch-operating levers.

In the drawings like parts are referred to by letters and figures of a corresponding kind in the different views.

Figure 1 is a side elevation of my invention applied to the bottom of a car. Fig. 2 is a general plan of the road-bed portion of the invention, having, however, the road-bed plate broken away in part. Fig. 3 is a one-half end view; Fig. 4, a section on line $x x$ of Fig. 2. Fig. 5 is a plan of the two handles operated by the motorman.

A is the bottom of the car.

B is the forward dashboard.

D is a vertical rod carrying a handle F at its upper end and held by housings C C to the dashboard B. There are two of these rods and handles, as shown in Fig. 5. F is a crank-arm carrying a link G. There are two of these arms and links also, likewise as shown in Fig. 5.

I and I' is a bell-crank lever, of which there are also two. The arm I of this lever is fixed to the link G. m is a supporting-rod for this lever and permitting of lever oscillation. O is a support for this rod, holding same to the bottom of the car A. There are a series

of these supports O, as will be evident. The forward part of the aforementioned bell-crank lever carries an integral head 2, which head is adapted to contact with portions of the switch mechanism to be described.

R R are the rails or tracks.

P is a plate covering the switch mechanism proper.

S is the switch.

S' is a pivotal retainer for the switch.

t is an arc-shaped link connecting the lever v^2 with the switch, and z is the retaining-pin for uniting operatively the link t with the switch S.

t' are two holes in the link t , which permit of variable angular positions between the link t and the lever v , as is self-evident. The lever v is held to any convenient ground-plate (not shown) by the pivot v' .

W is a long-link connection fixed to the lever v at one end by the pin v^2 and at its other extremity carrying two actuating-links W^1 and W^2 , united by a common pin W^3 .

B' is a lever pivoted to a fixed plate (not shown) at n and held to the link W^1 by the pivot p' .

The dotted lines i and i' represent the path of the head 2 of the bell-crank arm J. It is hardly necessary to note that there are two bell-crank arms in practice—one to form the contact to open the switch and the other to form the contact to close the switch, as will be described.

In Fig. 2 it will be seen that the lever B' is pivoted differently from the lever B—that is, in the former the bell-crank contact end of the lever is on the one side of the pivot n' and the switch-actuating link W^1 is on the other side thereof, and in lever B' both the bell-crank contact end and the link-connecting pin p are on the same side of the pivotal pin n . This arrangement permits of the rod W being rectilinearly reciprocated by force in one direction.

We will now assume that the switch is open, as shown in Fig. 2. The motorman when he desires to switch the car will operate the handle E and drop the bell-crank arm J until the head 2 thereof enters the slot S' of the plate P. The car thereafter on moving forward will cause the head 2 of the arm J to contact

with the lever B' and oscillate this lever on the pivot *n* until the position shown in the dotted lines A' is obtained, after which, it being past the point of contact *i*, the motorman will raise the lever J and the car will pass on. Meanwhile the lever *n* will have been oscillated from the position shown in the solid drawing, Fig. 2, to that indicated by the dotted line *n'* and the switch will have been moved from the position shown in the solid drawing, same figure, to that indicated by the dotted line *n'*; also, by virtue of the pivotal position of the pivot *n'* of the lever B² the said lever will have been oscillated from the position shown in the solid drawing to that indicated by the dotted line A². On the operation of this latter lever the switch will be again opened.

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

1. The combination in a switch-actuating mechanism of a switch mounted in the line of a car-wheel, two actuating-levers therefor placed on the road-bed within the lateral limit of the rails, said levers connected by independent links and said links united by a common pivot to a common link, a mechanical connection between the switches and the said levers, said mechanical connection actuated by said common link, and means carried by the car and controlled from the car for actu-

ating said levers and therethrough the switch, as and for the purpose set forth.

2. The combination in a switch-actuating mechanism of a switch placed in the line of the car-wheels, a lever for operating or opening it, a lever for closing said switch, a common pivotal support for said two levers, a supplemental intermediate actuating-lever for said switch, a link connection between the two former levers and the said supplemental lever, said links carrying the said common pivotal support, and a link between the said supplemental lever and the switch, as and for the purpose set forth.

3. The combination in a switch-actuating mechanism of a switch placed in the line of the car-wheels, a lever for operating or opening said switch, a lever for closing said switch, a common pivoted support for said two levers, a supplemental intermediate actuating-lever for said switch, a link connection between the two former levers and the said supplemental lever, said link connection carrying the said common support, and a link between the said supplemental lever and the switch, as and for the purpose set forth.

Signed by me at Philadelphia, Pennsylvania, this 12th day of October, 1898.

A. GUYEN SHARROW.

Witnesses:

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