(No Model.)

I. F. HARRIS.

STREET RAILWAY SWITCHING DEVICE.

No. 478,859. Patented July 12, 1892.

Fig. 1.

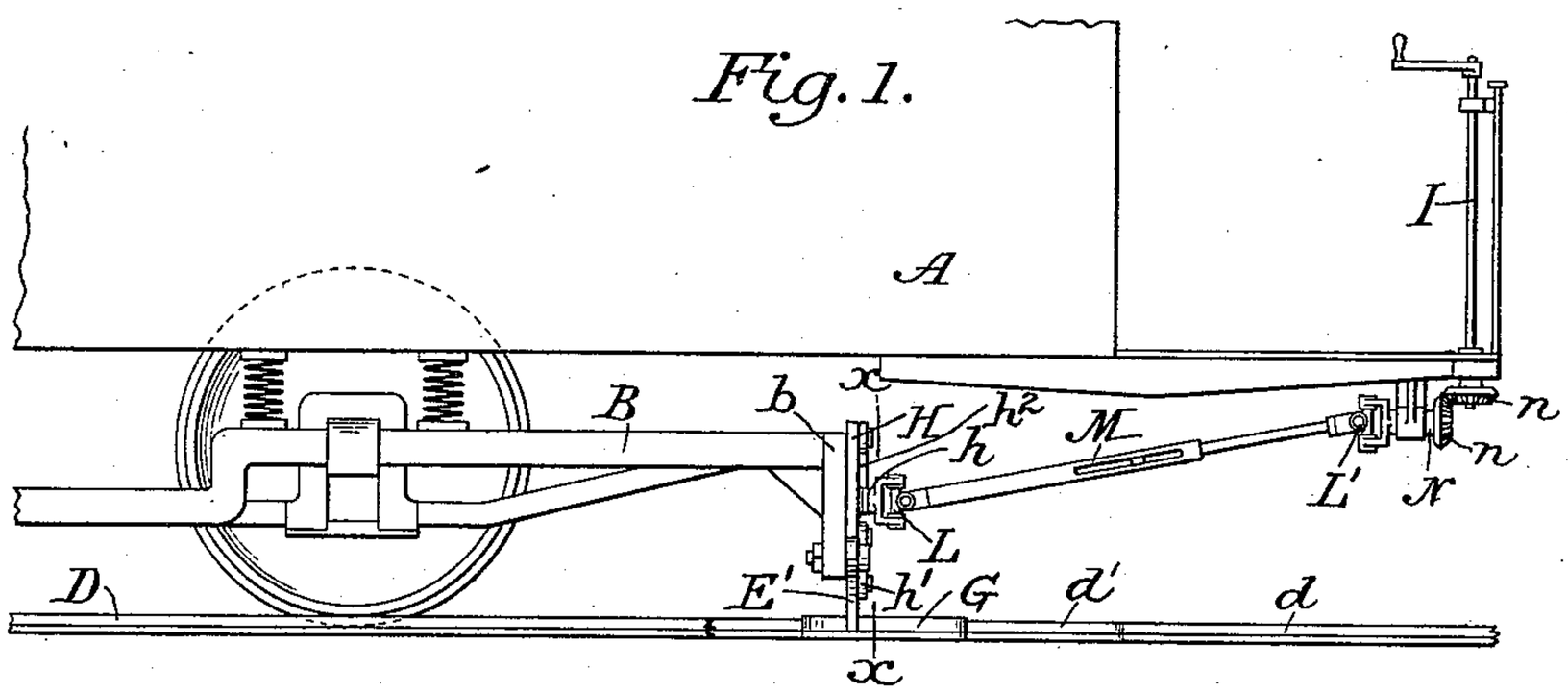


Fig. 2.

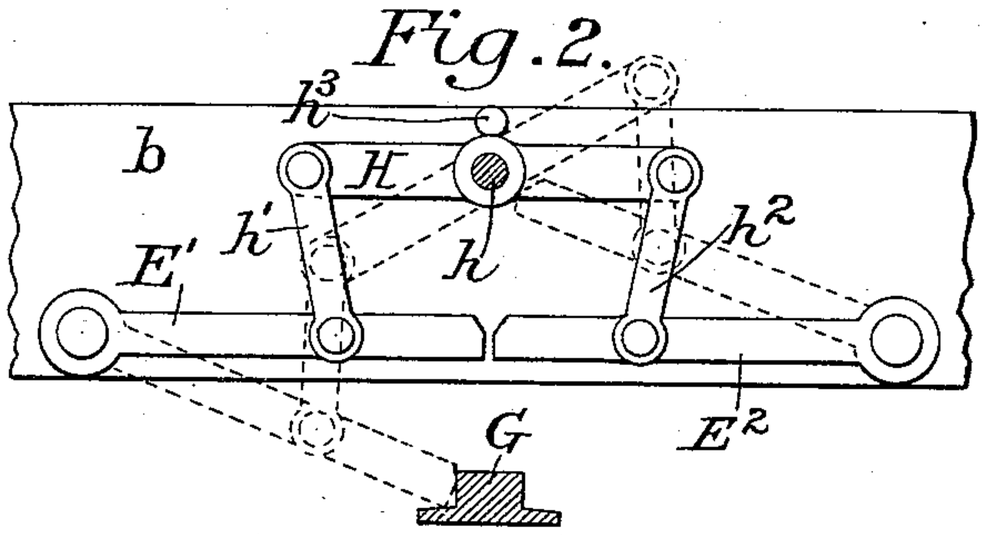


Fig. 5.

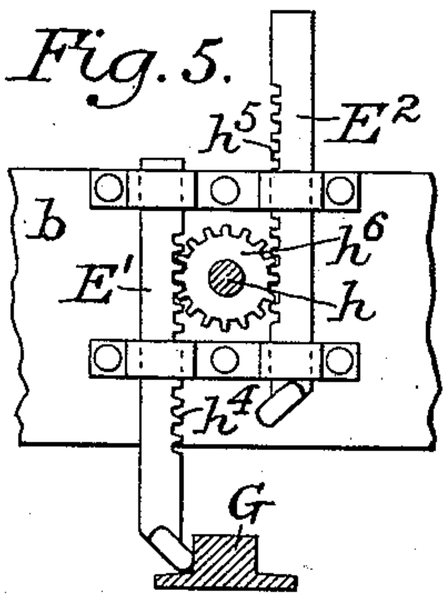
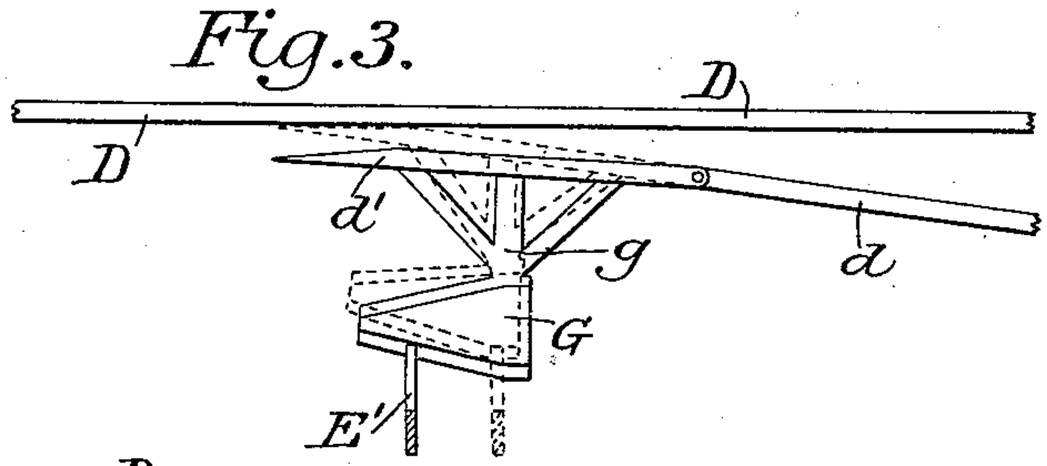


Fig. 3.



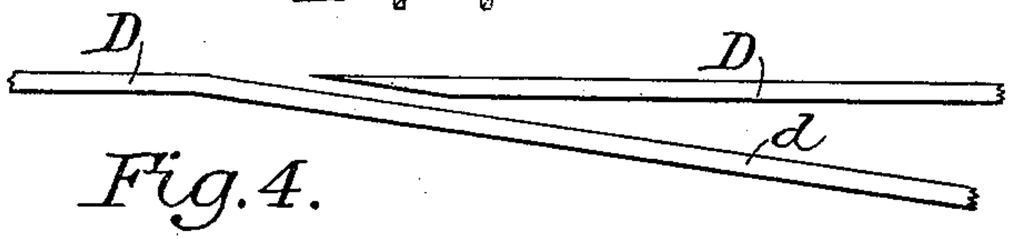
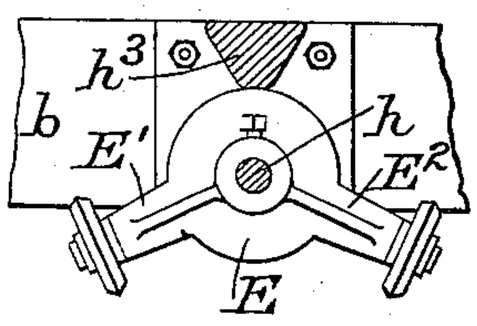


Fig. 4.



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UNITED STATES PATENT OFFICE.

IRA F. HARRIS, OF NASHUA, NEW HAMPSHIRE.

STREET-RAILWAY SWITCHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 478,859, dated July 12, 1892.

Application filed January 27, 1892. Serial No. 419,404. (No model.)

To all whom it may concern:

Be it known that I, IRA F. HARRIS, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Street-Railway Switching Devices; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

In another application, Serial No. 419,403, filed January 27, 1892, I have shown a device for switching street-railway cars either to the right or to the left at the will of the driver, the switching device, which is carried by the car, being adapted to act upon either a fixed or a movable guide or switch-rail. In some cases it may be desired to retain the movable switch-tongue now in common use; and it is the object of my present invention to provide for the operation of such movable tongue by the driver from the platform of the car; and to this end the invention consists in the construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a car standing upon its track, one of the rails being broken away to show the devices beyond it. Fig. 2 is a section on the line $x\,x$ of Fig. 1, looking toward the left. Fig. 3 is a plan view of the track and switch, showing, also, a portion of one of the switch-operating arms. Fig. 4 is a view similar to Fig. 2, but showing a modified form of the device. Fig. 5 illustrates another modification.

The car-body A may be supported, as usual, through springs upon a truck B of any desired construction. The rails D D of the main track and the rails $d\,d$ of the turn-out are also arranged as usual, the direction of the car being determined by a movable switch-tongue d', pivotally connected to one of the rails.

Suitably supported at a convenient point near the switch is a guide-block G, which is connected in any convenient manner, as by an arm g, to the movable tongue d', so that the position of the tongue shall be determined by the movement of the block. The block is preferably formed with inclined sides and is placed with the apex of the triangle toward the car as it approaches the switch. The block G is adapted to be moved in one direction or the other by an arm E′ or E^2, carried by the truck B and under the control of the driver on the platform of the car. Said arms are pivotally secured and oppositely placed upon a cross-bar b of the truck-frame. An arm H is mounted to turn on a stud or short shaft h, fixed to the cross-bar b, and its ends are connected by links h' and h^2 with the arms E′ and E^2. An extensible shaft M is connected at one end by a universal joint L to said arm to turn the same on its axis and at the other end is connected through a universal joint L′, short shaft N, and intermediate gears $n\,n$ with a vertical hand-shaft I, conveniently placed for operation by the driver. A stop h^3 may be fixed to the bar b to limit the movement of the arm H.

The operation of the device is readily understood. The rotation of the shaft I in one direction or the other causes a corresponding movement of the arm H on its axis and a depression of one or the other of the arms E′ E^2 to engage the block G as the car moves forward and through the connection of the block with the tongue d' to open or close the switch. The connection of the arms E′ and E^2 to the arm H by links renders unnecessary the use of springs to hold the arms in normal position, and, furthermore, causes one arm to balance the other, and thus facilitate the operation of the device. As the shaft M is extensible and connected by universal joints with the arm H and with the shaft N, the oscillation of the car-body with respect to its truck cannot in any way injure or affect the switching devices. The whole apparatus is simple and inexpensive and can be applied readily to cars and switches already constructed.

In Fig. 4 I have shown the arms E′ and E^2 as connected rigidly to a plate E, which is to this extent the equivalent of the arm H, and which is mounted, like the arm H, upon a stud or short shaft h and is likewise adapted to be operated by the extensible shaft.

In Fig. 5 I have shown the arms E′ and E^2 as mounted to slide vertically in ways on opposite sides of the shaft h and as fitted with

racks h^4 and h^5, which are engaged by a gear h^6, fixed on the shaft h. The rotation of the shaft and gear, as before described, causes one or the other of the arms to engage the block G to shift the switch.

Other modifications will suggest themselves within the scope of my invention.

I claim as my invention—

1. The combination, with a car, of two oppositely-placed arms carried by the truck-frame and adapted to be swung to engage a horizontally-moving switch-block, an arm pivotally mounted upon the frame, links connecting the ends of said last-named arm, respectively, with the first-named arms, and means to swing said first-named arms, substantially as shown and described.

2. The combination, with a car, of two oppositely-placed arms carried by the truck-frame and adapted to be swung to engage a horizontally-moving switch-block, an arm pivotally mounted upon the frame and adapted to depress one or the other of said first-named arms, a hand-shaft supported upon the car-body, and connections between said shaft and said arm, comprising an extensible shaft and universal joint, substantially as shown and described.

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

IRA F. HARRIS.

Witnesses:
FRED E. PECKHAM,
A. N. JESBERA.