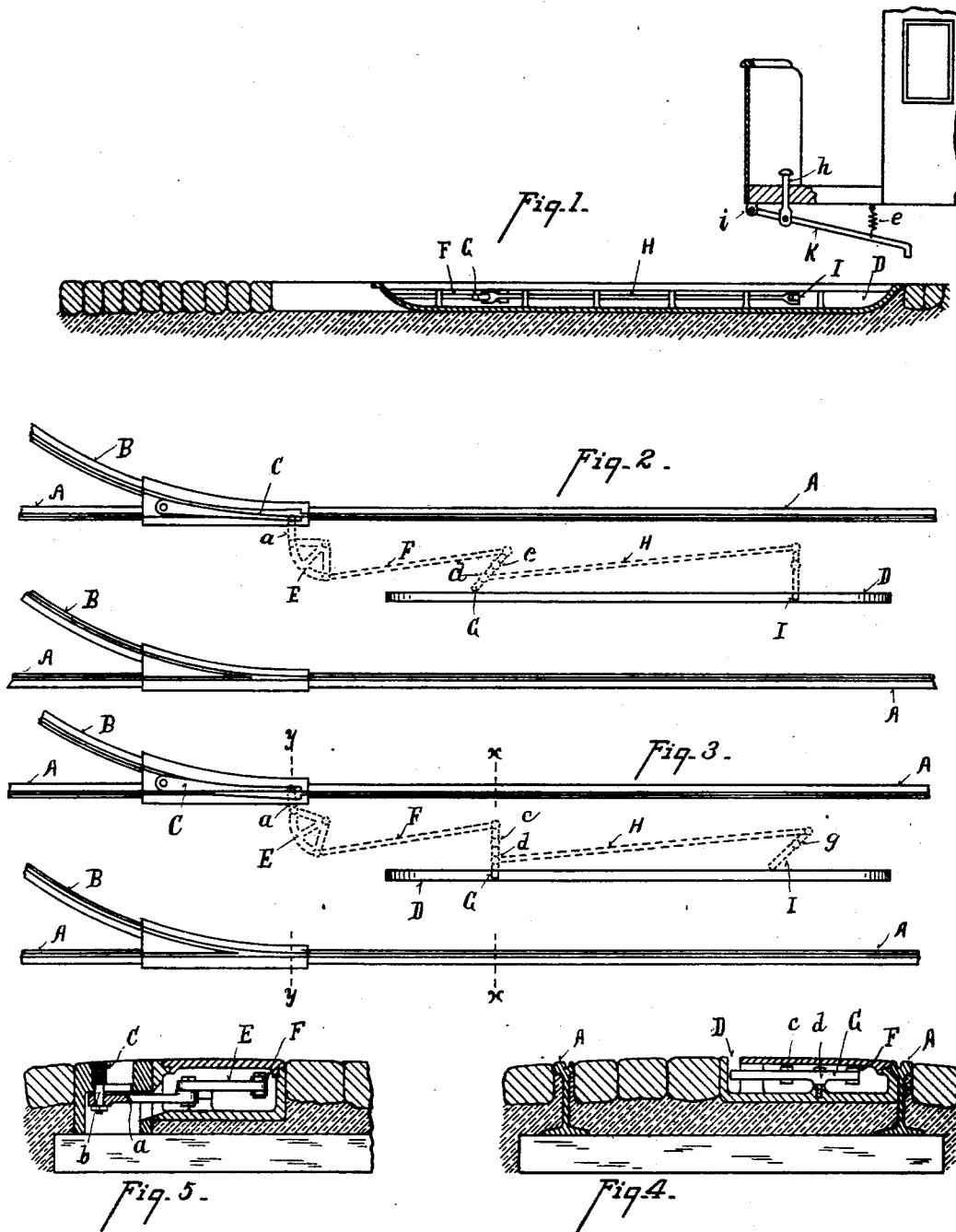


(No Model.)

H. M. DOAK, Jr.
SWITCH DEVICE.

No. 586,478.

Patented July 13, 1897.



Witnesses

W. R. Word.

Oliver B. Kaiser.

Inventor

Henry M. Doak Jr.

By Word & Bond.
Attorneys

UNITED STATES PATENT OFFICE.

HENRY MELVILLE DOAK, JR., OF NASHVILLE, TENNESSEE.

SWITCH DEVICE.

SPECIFICATION forming part of Letters Patent No. 586,478, dated July 13, 1897.

Application filed March 23, 1897. Serial No. 628,895. (No model.)

To all whom it may concern:

Be it known that I, HENRY MELVILLE DOAK, Jr., residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Switch Devices, of which the following is a specification.

The object of my invention is to provide means for throwing the tongue-switch of a street-railway in either direction by a device located on the car operated by the motorman, who is thus able to open or close the switch at will, so that the car will take the straight or curved track, as desired.

The features of my invention are more fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation, partly in section, of my improvement. Fig. 2 is a top plan view of the switching-levers in position for guiding the car on a curved track. Fig. 3 is a similar view showing the position of the levers when the straight track is open. Fig. 4 is a cross-section on line *x x*, Fig. 3. Fig. 5 is a cross-section on line *y y*, Fig. 3.

A represents the main rails.

B represents the curved or side rails.

C represents the tongue-switch.

D represents the grooved or channel way between the rails.

E represents a bell-crank lever which is shown of quadrant form.

a represents a connecting-rod hinged to the bell-crank or quadrant lever at one end and to the bolt *b*, projecting downward from the under side of the switch-tongue, as shown in Fig. 5.

F represents a connecting-rod hinged to the bell-crank lever at one end and to the trip-lever G at the opposite end. Said trip-lever is hinged to a center *d* and oscillates thereon. The free end of said lever G projects into the groove of the channel-way D, which is slotted to receive the same.

In Fig. 3 the end of lever G is shown athwart the channel-way *n*. In Fig. 2 it is shown as having been moved out of the same by the operation of the switch-hook.

H represents a connecting-rod pivoted to the lever G at *c*, and the opposite end is pivoted to trip-lever I, which journals on the

center *g*. The free end of this lever I is shown in Fig. 2 as projecting through a slot formed in the side of the channel-way. 55

K represents a switch-hook attached to the under side of the car by a hinge *i*. *e* represents a spring for holding the same normally upward out of the channel-way, over which this lever is suspended in a vertical plane. 60

h represents a push-rod projecting up through the platform of the car and within easy reach of the foot of the operator.

Mode of operation: Suppose the levers to be set in the position shown in Fig. 2. In this position the curve or side track B is open, the tongue C lying up against the main rail. If the operator wishes to close the siding and open the main rail, he depresses the push-rod. The switch-hook K will drop into the channel-way D and will engage with the tripping-lever I and move it around on its center *g*. Levers H G F E and tongue-switch C will be moved into the position shown in Fig. 3, which closes the siding and opens the main track. If the operator instantly releases the switch-hook as soon as this setting has occurred, it will rise up and not come in contact with lever G; but should he wish to reset the switch to its original position he will continue to depress the switch-hook K, when it will engage with the lever G and throw the tongue-switch into the position shown in Fig. 2. Thus either one or both of the levers I and G may be tripped to throw the switch, as 85 desired.

It will be observed that the trip-levers for each respective movement of the tongue-switch are in opposite positions—one in the channel-way and the other out of it—and that 90 the switch may be moved in either direction by the operator, and this is accomplished by means of two sets of trip-levers, one connected directly to and operating the other, and I believe I am the first to accomplish this 95 result.

Having described my invention, what I claim is—

1. The combination with the tongue-switch C of a railway, of a bell-crank lever E hinged thereto by a connecting-rod, a channeled way arranged midway between the rails, tripping-levers G and I arranged to alternately project at their free ends across said channeled

way, a connecting-rod H pivotally connected at its ends to opposite ends of the tripping-levers, and a connecting-rod F connecting the tripping-lever G to the bell-crank lever, substantially as described.

2. The combination with the tongue-switch C of a railway, of a bell-crank lever E hinged thereto by a connecting-rod, a channeled way D arranged midway between the rails and
10 provided with lateral slots to receive the ends of tripping-levers, tripping-levers I, G, pivoted midway between their ends in said way and arranged to alternately project at their

free ends across the channel of said way, a connecting-rod H pivotally connected at its
15 ends to opposite ends of the tripping-levers, and a connecting-rod F connecting the tripping-lever G to the bell-crank lever, substantially as described.

In testimony whereof I have hereunto set
20 my hand.

HENRY MELVILLE DOAK, JR.

Witnesses:

HAMILTON PARKS,
WM. S. GRANBURY.