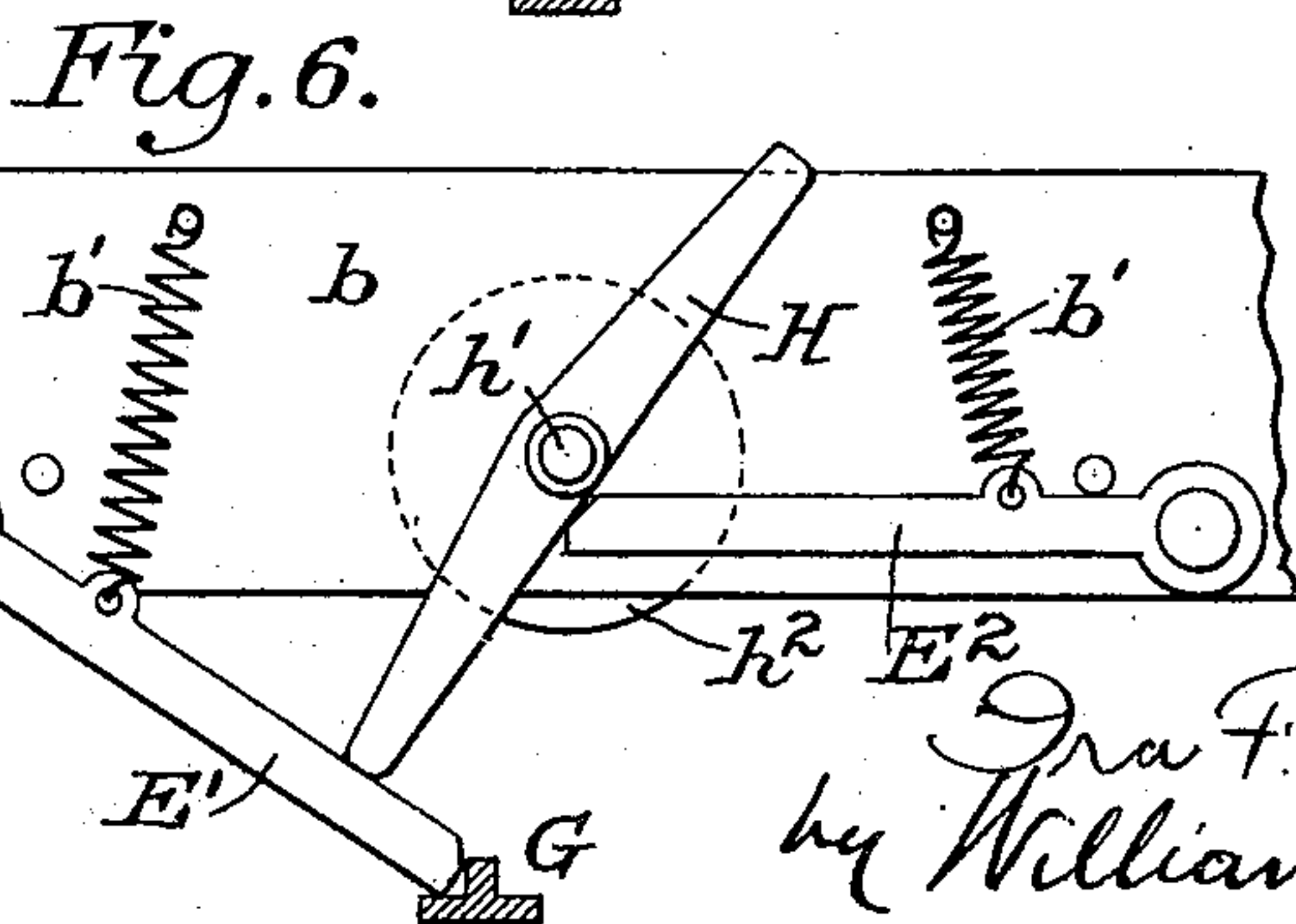
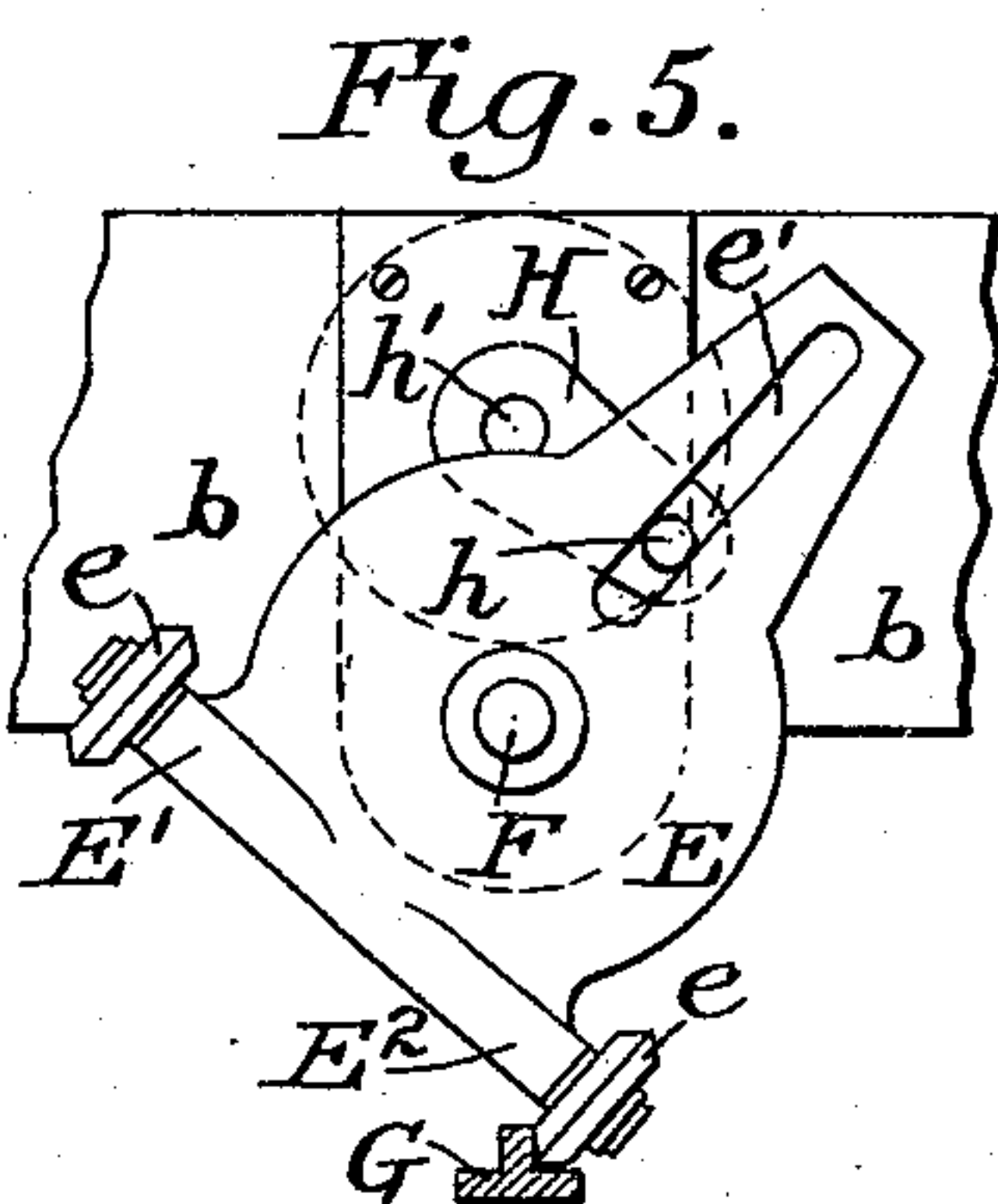
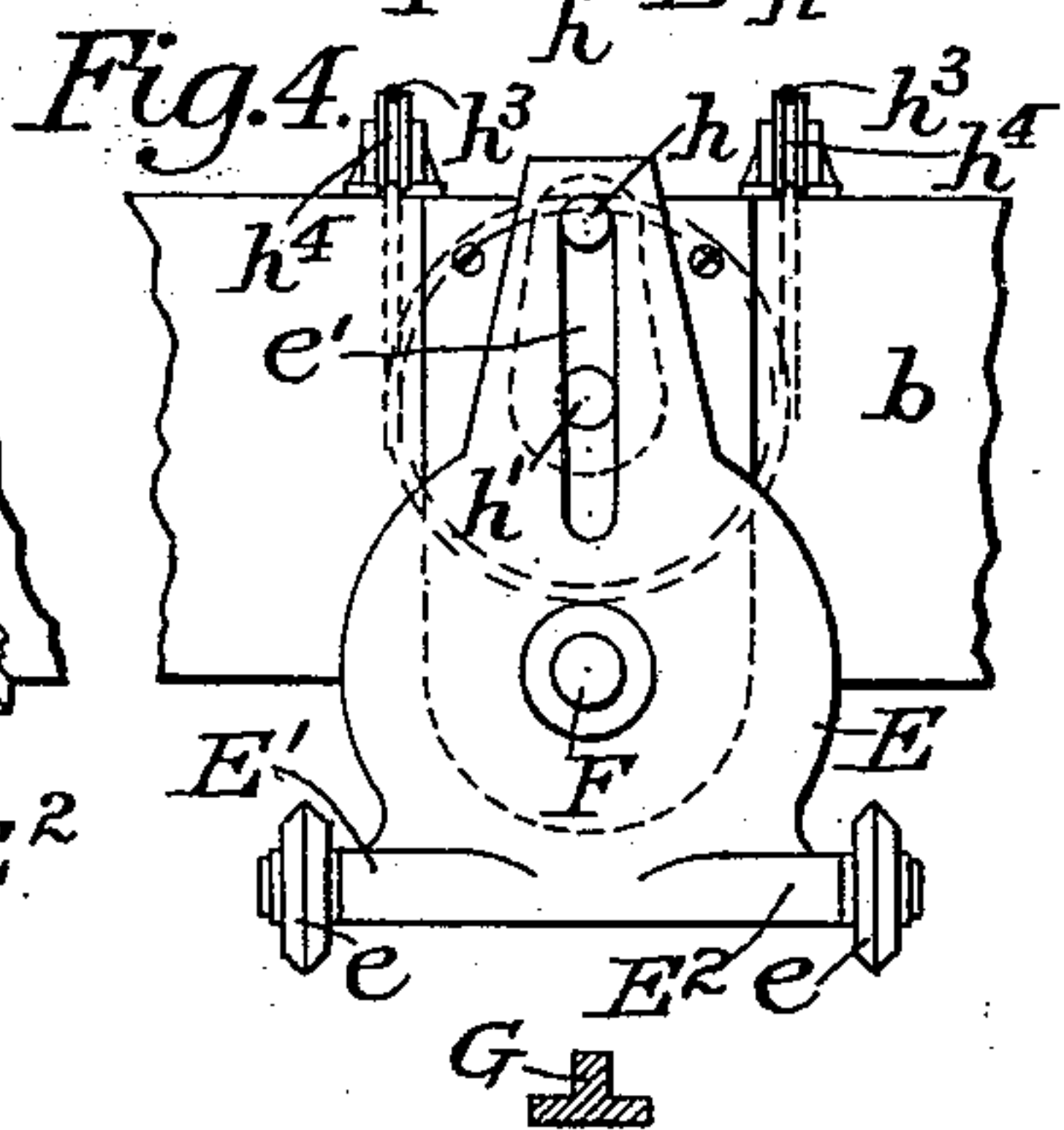
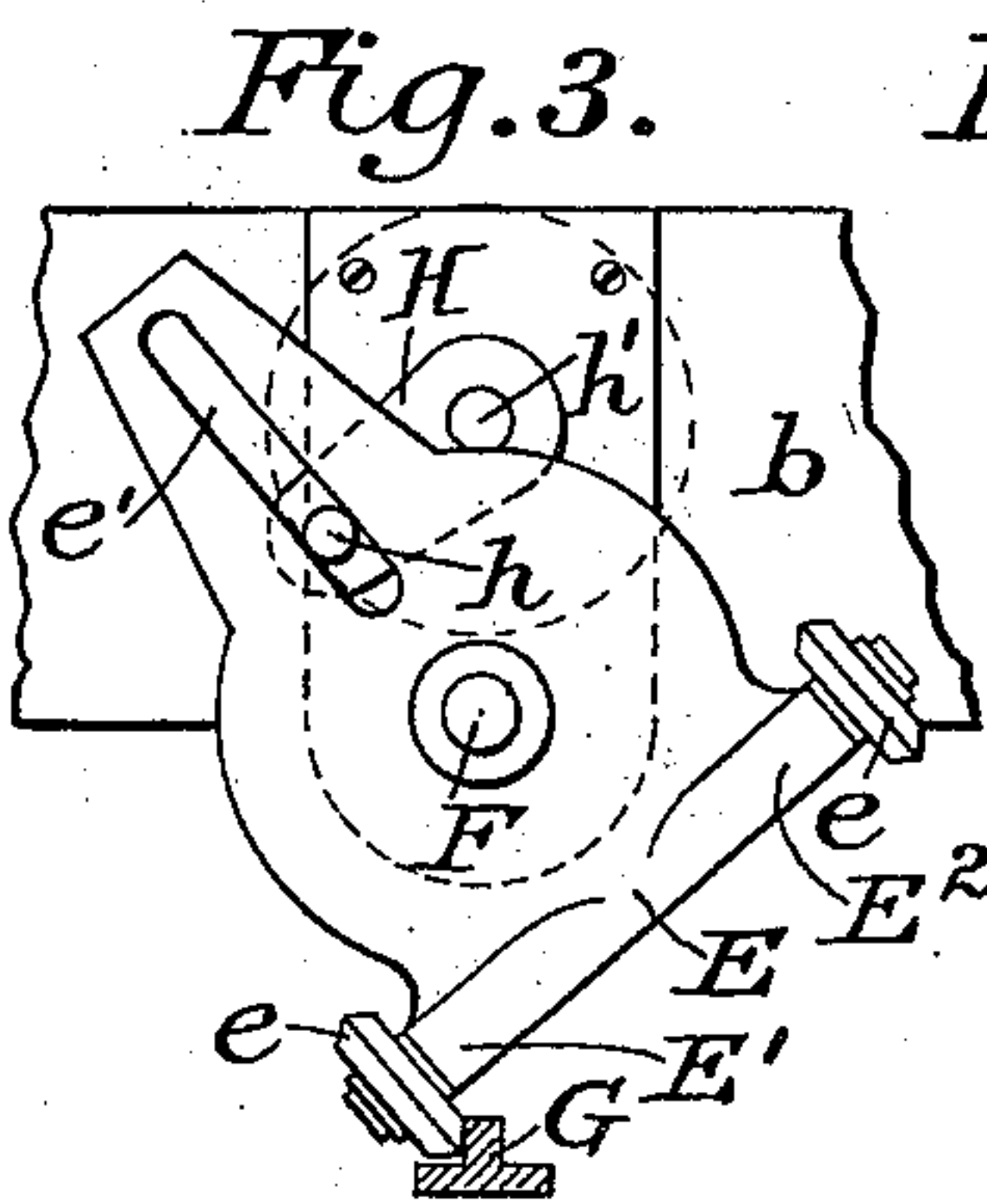
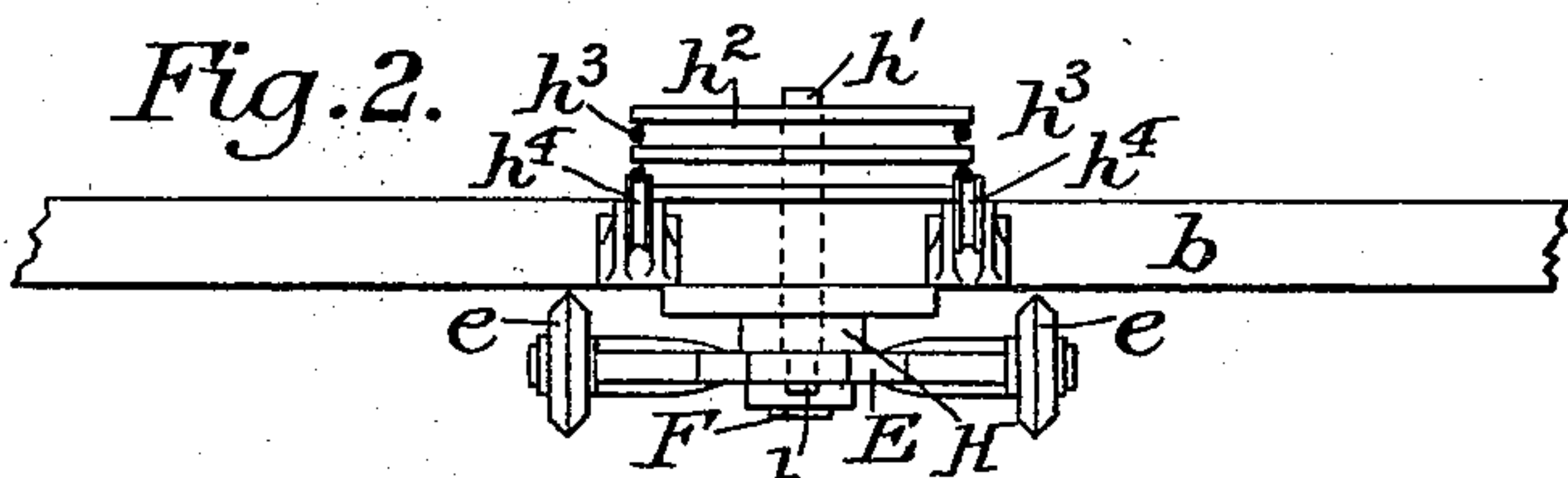
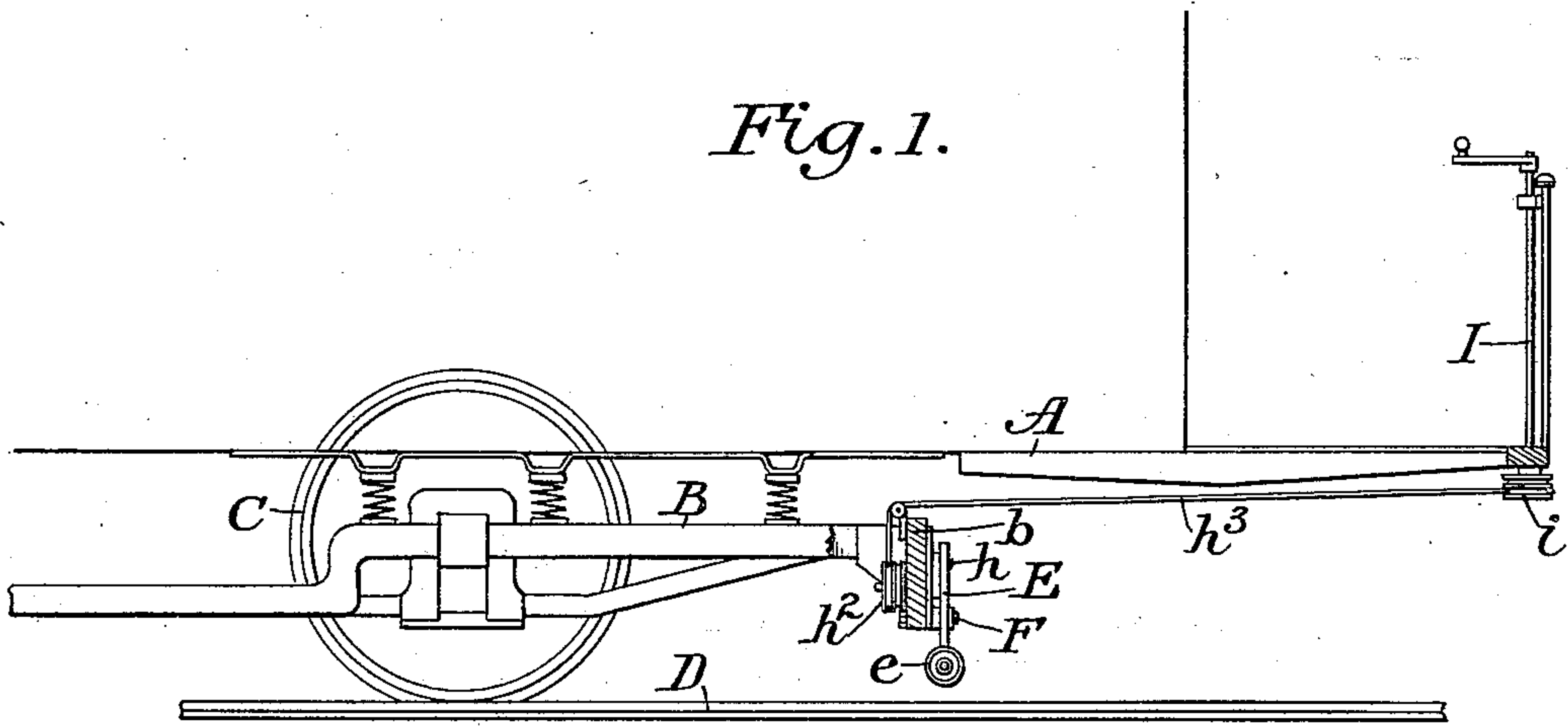


(No Model.)

I. F. HARRIS.
STREET RAILWAY SWITCH.

No. 478,858.

Patented July 12, 1892.



Witnesses:

A. N. Jesbera.

S. Petri-Palmeo.

Inventor:

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UNITED STATES PATENT OFFICE.

IRA FRANCIS HARRIS, OF NASHUA, NEW HAMPSHIRE.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 478,858, dated July 12, 1892.

Application filed January 27, 1892. Serial No. 419,403. (No model.)

To all whom it may concern:

Be it known that I, IRA FRANCIS 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.

My invention relates to switching devices of the general character of those shown in Letters Patent of the United States, Nos. 433,547 and 433,548, granted August 5, 1890.

My present object is to improve the construction of such devices, and particularly to make it possible to switch the car either to the right or to the left at the will of the driver or motor-man.

In the accompanying drawings, Figure 1 represents, in side elevation and partly in section, one form of my improved device applied to a street-railway car. Fig. 2 is a plan view of the device shown in Fig. 1. Figs. 3, 4, and 5 are end views of the same, showing it in different positions. Fig. 6 is an end view of a modified form of the device.

The car-body A, truck-frame B, running-gear C, and track D may be of any usual or preferred construction, and the switching device may be adapted to engage with an independent guide-rail fixed between the rails upon which the car moves, or with the usual switching-rail, which may be either fixed or movable.

The switching device consists, essentially, of two opposing arms rotatably supported to swing in a plane transverse to the direction of movement of the car, and adapted to engage with the guide or switch rails on opposite sides and of means for shifting said arms from the platform of the car.

In the construction shown in Figs. 1 to 5, inclusive, the two arms E' and E^2 are fixed to a plate E, which is pivoted upon a short stud F, preferably supported by a cross-bar b of the truck-frame B, and is suitably formed at its lower extremities $e e$ to engage either side of a guide-rail G, placed in the middle of the

track, preferably being provided with shoes or small anti-friction wheels or rollers for this purpose, as indicated. The plate is slotted, as at e' , to receive a pin h , projecting from an arm H, which may be moved to shift the plate through the medium of shaft h' , drum h^2 , and cords h^3 , connected to a drum i , carried by a hand-shaft I, the cords being led over suitable guide-rollers h^4 .

In Fig. 4 the plate is represented in its normal position, and in Figs. 3 and 5 in position to turn the car to the right and left, respectively. It will be observed that the relation of the arm H and pin h to the plate is such that the arm and pin receive all the pressure of the plate when its extremity is in engagement with the guide-rail and that no power on the shaft I is required to hold the plate in position.

In the construction shown in Fig. 6 the two arms E' and E^2 are pivoted separately upon the cross-bar b and are normally held up by springs b' , secured to said arms and to the cross-bar b . The arm H is secured at its middle to the shaft h' and its two ends are adapted to press upon the respective arms E' and E^2 when the shaft is rocked to cause one or the other to be swung downward, so that its extremity may be in position to engage with the switch-rail G. In this form, as in that described above, it requires very little force to rock the shaft h' and to hold the arm E' or E^2 in engagement with the guide-rail.

The operation of the device in either form is obvious. The rotation of the hand-shaft I in one direction or the other causes the corresponding arm E' or E^2 to be depressed into position to engage the switch or guide rail and to turn the car to the right or left, as the case may be.

The switching devices may be supported by any convenient part of the car, but by preference are supported by the truck-frame for the reason that they maintain thereby a fixed relation to the track.

The operation of the shaft h' by flexible cords from the shaft I permits the free oscillation of the car-body with respect to the truck without affecting the switching devices.

It is obvious that the devices herein de-

scribed are adapted to operate a horizontally movable switch-block as well as to shift the car bodily by engagement with a fixed guide-rail.

5 I claim as my invention—

1. In a switching device for railway-cars, the combination of two opposing arms pivotally supported upon a cross-bar of the truck-frame to swing in a plane transverse to the line of
10 the track, means to maintain said arms normally in an elevated position, a shaft supported by the truck-frame, an arm carried by said shaft and adapted to depress one or the other of said first-named arms to cause it to
15 engage with a switch-rail, an operating device mounted on the platform of the car, and yielding transmitting means between said operating device and said shaft, substantially as shown and described.

20 2. In a switching device for railway-cars, the combination of two opposing arms supported upon the truck-frame to swing in a plane transverse to the line of the track, means to

maintain said arms normally in elevated position, a shaft, an arm carried by said shaft 25 and adapted to depress one or the other of said first-named arms to cause it to engage with a switch-rail or guide-rail, a drum on said shaft, a hand-shaft, and a flexible connection between said drum and hand-shaft, 30 substantially as shown and described.

3. In a switching device for railway-cars, the combination of a plate pivoted upon the truck-frame, opposing arms carried by said plate, a shaft, an arm carried by said shaft 35 and having a pin to engage a slot in said plate, and means to rotate said shaft, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of 40 two subscribing witnesses.

IRA FRANCIS HARRIS.

Witnesses:

F. A. MCKEAN,
F. E. PECKHAM.