

N. F. HAWKINS.  
RAILWAY SWITCH.

No. 104,305.

Patented June 14, 1870.

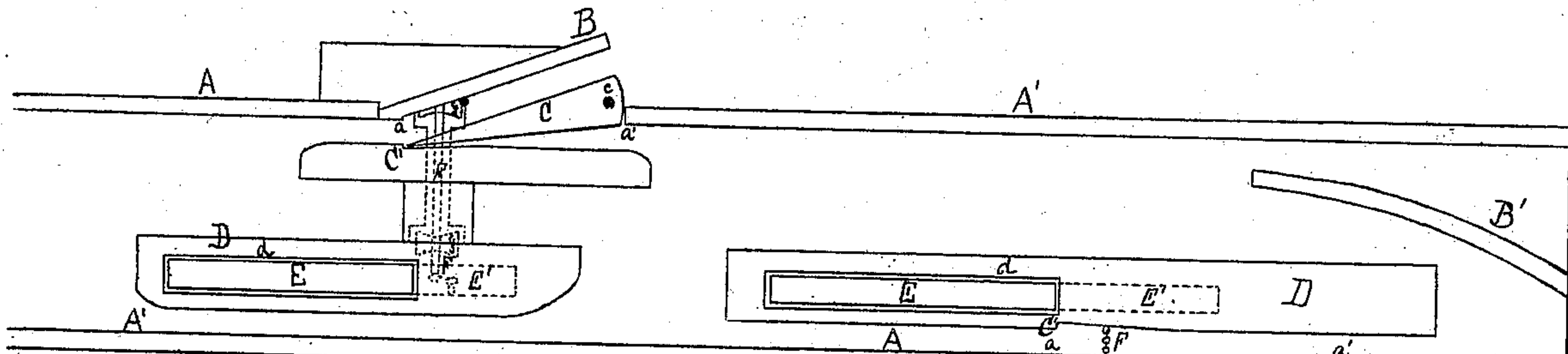


FIG: 1.

FIG: 2.

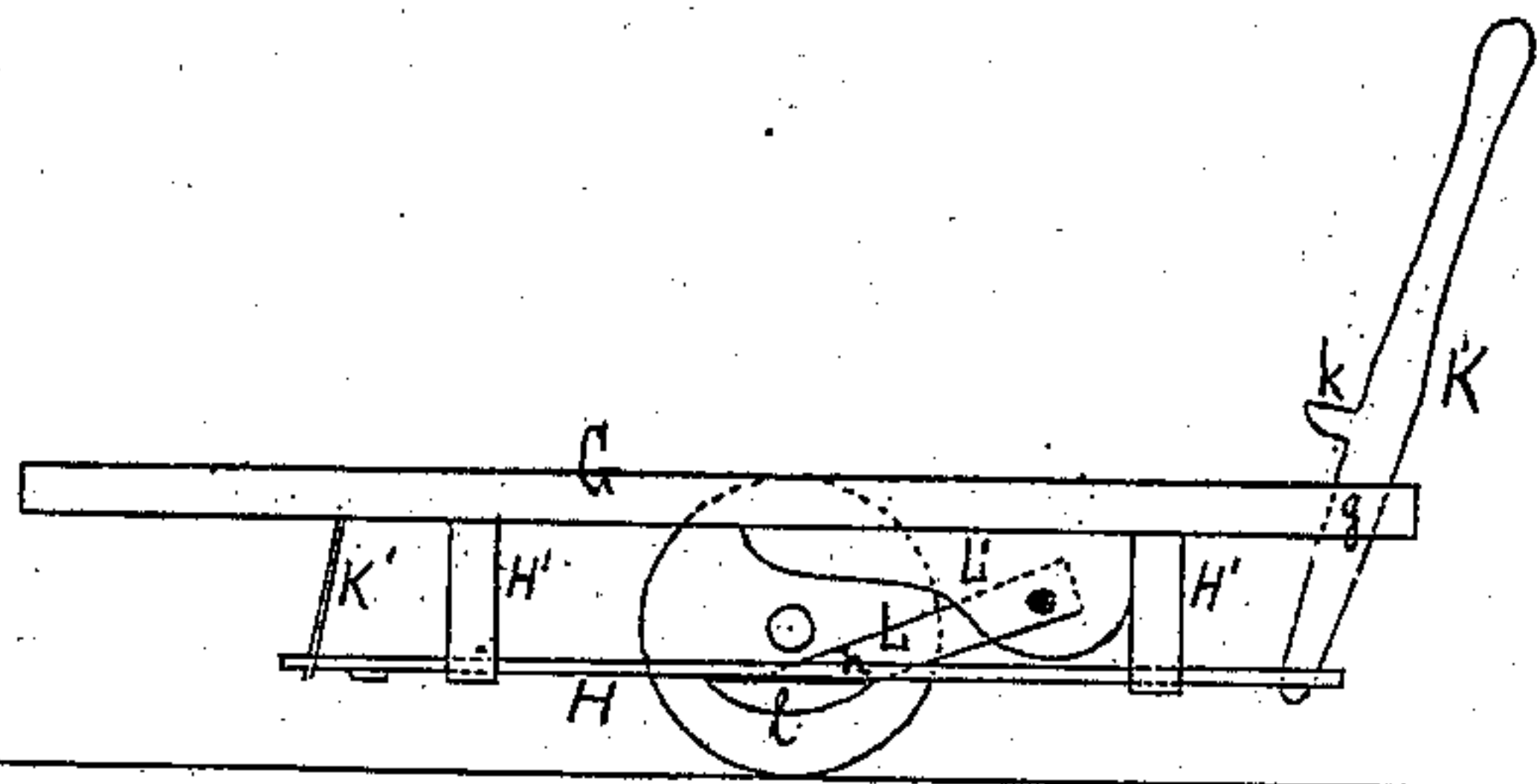


FIG: 3.

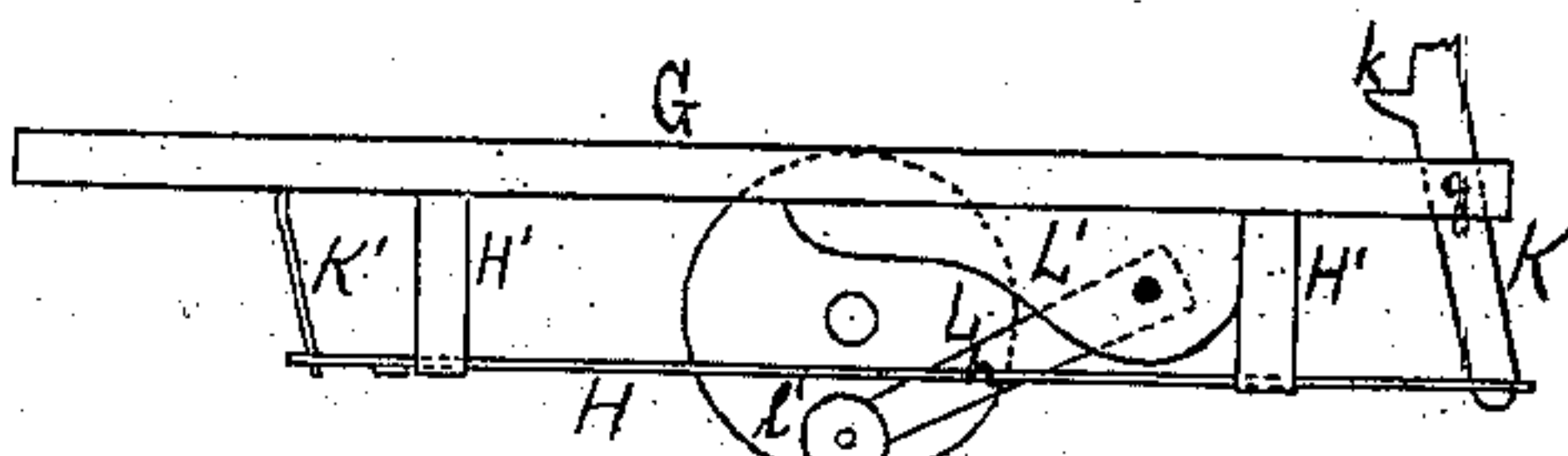


FIG: 4.

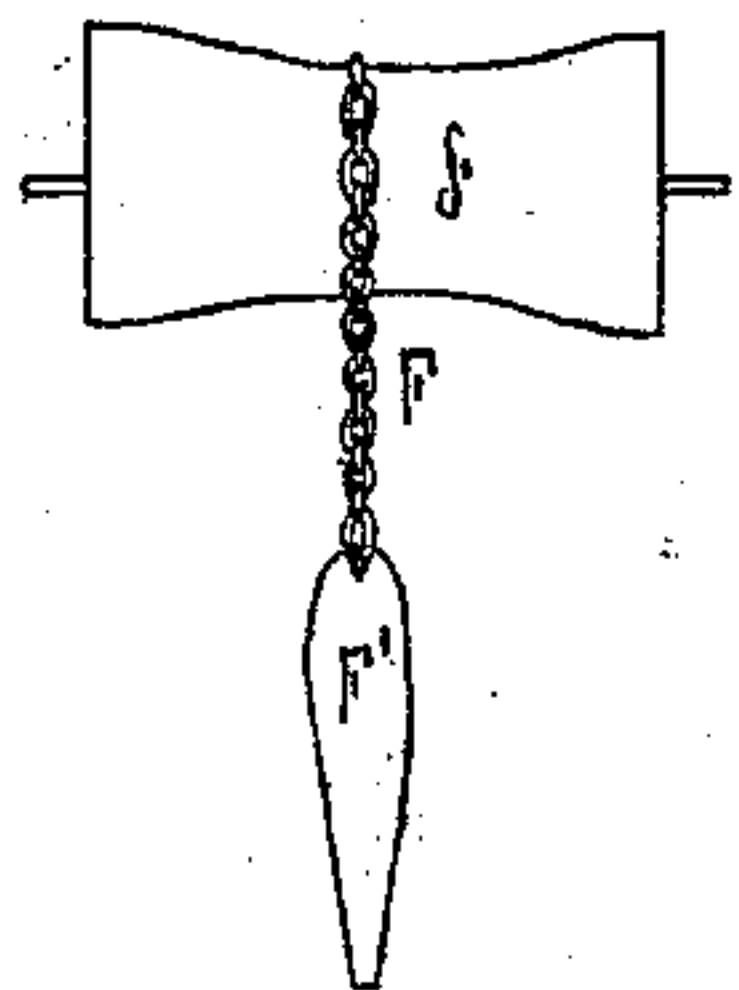


FIG: 5.

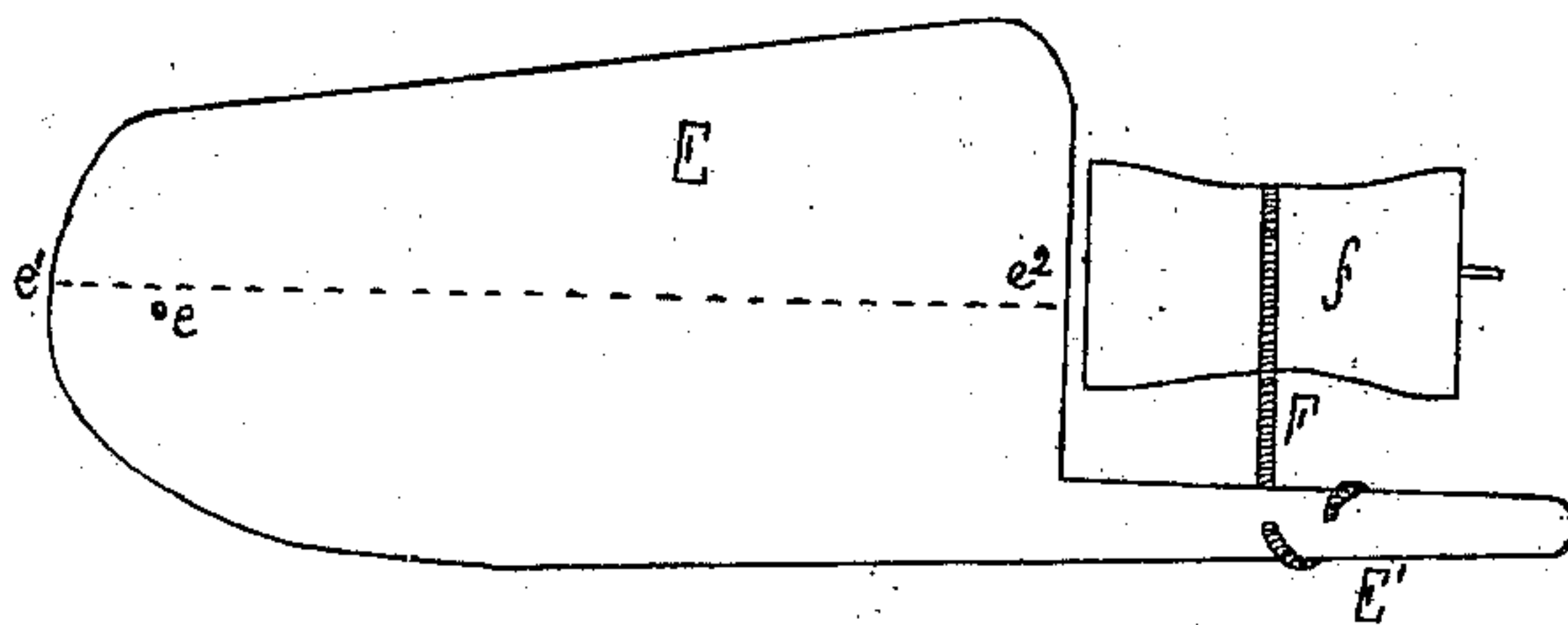


FIG: 6.

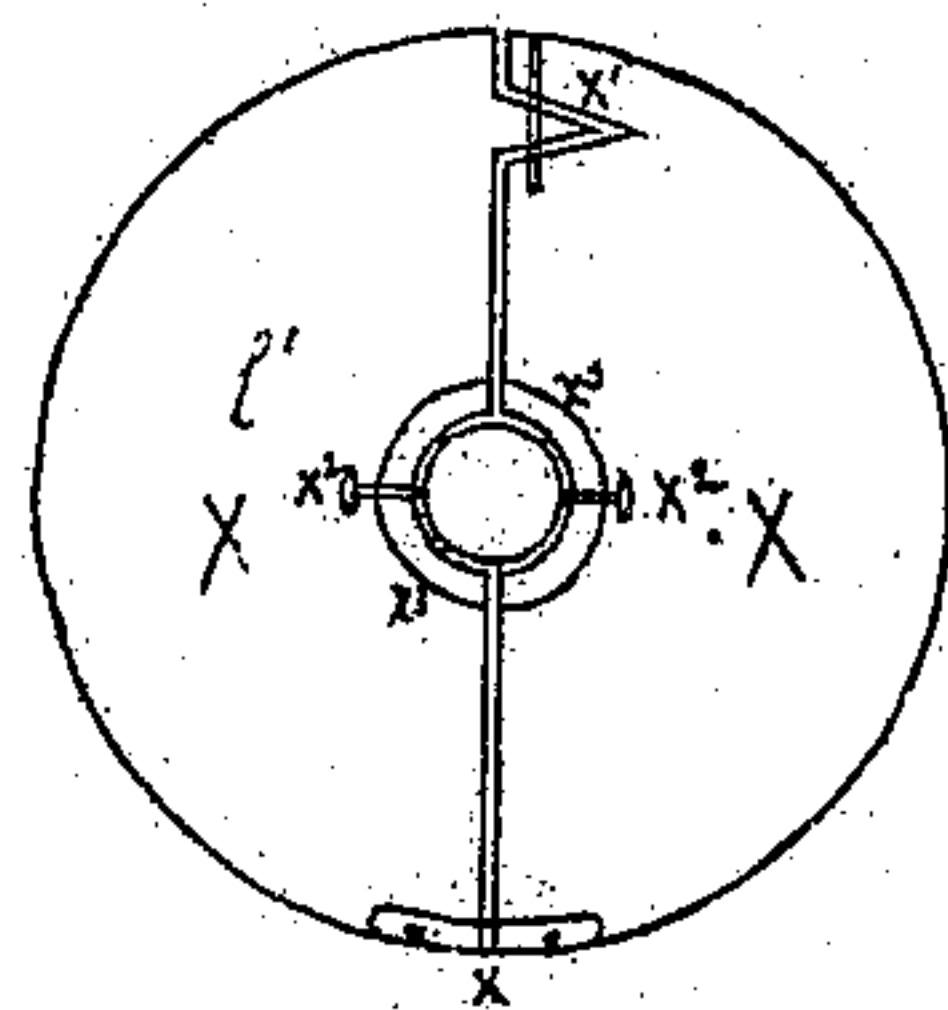


FIG: 7.

**WITNESSES.**

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# United States Patent Office.

N. F. HAWKINS, OF CHICOT COUNTY, ARKANSAS.

Letters Patent No. 104,305, dated June 14, 1870; antedated June 3, 1870.

## IMPROVED RAILWAY-SWITCH.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, N. F. HAWKINS, of Chicot county, in the State of Arkansas, have invented certain new and useful Improvements in Railroad-car Switches; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon, making part of this specification, in which—

Figures 1 and 2 are plan views of main track, turn-outs, switch, and lever, and the method whereby the two latter features are connected.

Figures 3 and 4 are horizontal sectional views of car, showing the mechanism through which the lever is depressed which operates the switch.

Figures 5 and 6 are side views, showing in detail the lever, pulleys, weight, and cord, whereby the lever is operated and held in position.

Figure 7 is a cross-section, on an enlarged scale, of the wheel shown in fig. 4.

The object of my invention is to provide the means whereby railroad-cars, chiefly those propelled by horses, can be readily shifted from the main track to the turn-out.

The nature of my invention consists in furnishing a switch with appliances by which it may be shifted from a car in motion, as will appear in the following description:

A slotted bar or plate is placed between the rails of the main track in such a position that the forward end of the slot will be nearly on a line with the pointed or free end of the switch. Within this slot, and at a point near the rear end of the same, is pivoted a flat plate-lever. The forward end of this lever is held in an elevated position by means of a chain and weight, or other equivalent device, working over pulleys, which mechanism is contained in a suitable box or other receptacle beneath the surface of the track. The switch-rail is to be firmly pivoted at such position that, when laid, it is on a line with one of the main rails, its free end extending to the point where the curvature of the turn-out begins. The forward end of this switch-rail is firmly secured to the chain, which is attached to and operates with the lever referred to. The lever and switch-rail are thus, by means of the chain, so connected that the movement of one insures the simultaneous movement of the other. Thus, by simply depressing the lever, the switch is instantly opened and drawn to such a position that the car can readily pass from the main to the turn-out or diverging track. The switch is retained in an open position until the pressure on the lever ceases, when instantly the weight, through the chain, draws the switch to its former position, when it again forms a portion of the main track.

My invention also consists in arranging on the un-

der side of the car a simple and practical means whereby the driver or other person on the platform can depress the lever and operate the switch at pleasure, and is as follows:

In suitable projecting bearing-plates is secured and works a horizontal bar. A spring acts against one end of this bar, and a lever or handle, which passes up through the platform, acts on the other end. This bar is provided with a slot, through which passes a short arm, which is pivoted, at its upper end, in suitable bearings on the under side of the car, and is provided, at its lower end, with a slightly angular or curved head, or with a friction-roller. The position of this arm is regulated entirely by the slotted bar through which it passes. When there is no pressure on the lever or handle, and it is left perfectly free, the tension of the spring draws the horizontal bar toward the rear of the car, which movement, owing to the position and formation of the slot, will raise and hold in an elevated position the short arm; but so soon as sufficient pressure is applied to the lever to overcome the tension of the spring, the horizontal bar is drawn forward, when the short arm will fall, the slot retaining the same in a fixed position, and compelling it to act on the above-mentioned switch-lever. Thus it will be observed that simply by drawing in the lever or handle on approaching the switch-lever, the driver can readily depress the latter, when the switch is instantly opened.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A A' are the rails of the main track.

B B' are the rails of the diverging track or turn-out.

C is the switch-rail, which is firmly pivoted at *c*.

This switch-rail C is of the ordinary wedge-shape in form, its free end extending toward the rail A and meeting the same at its junction with the turn-out rail B, and, when closed, uniting with and forming a portion of the rail A between the points *a a'*, which distance is the entire length of the switch-rail.

Between the rails A A' is permanently secured a slotted bar or rail, D.

The slot *d* of this rail D extends from a point nearly opposite the junction of the main and turn-out rail.

E is a flat plate lever, and is usually constructed in the form shown in fig. 6.

This lever E is firmly pivoted, at *e*, to the rail D, and in such manner as to work freely in the slot *d*.

In order to insure the proper working of the lever E, the dimensions of the slot *d* should be such that, in width and length, they shall exceed a little those of the lever.

Thus the length of the slot is only required to be a few inches greater than the length of a line drawn between the points *e' e''* on the lever, fig. 6.



When the slot and lever are thus constructed, and the former is so pivoted in the latter as to work freely, its arm, *E'*, will extend beyond the forward end of the slot *d*, and always remain in the under surface of the bar or rail *D*, where it works, acting as a stop for the lever, preventing the forward end of the latter from being drawn up or elevated beyond the desired point.

To the arm *E'* of the lever *E* is firmly secured a cord or chain, *F*.

This cord or chain *F* passes over pulleys *f f*, which are firmly secured in suitable bearings between the rails, and a short distance below the under face of the same.

To the free end of this cord or chain *F* is attached a heavy weight, *F'*.

To this cord or chain *F* is firmly attached the free or forward end of the switch-rail *C*.

Instead of the chain *F* being one continuous chain, it may be broken and a rod inserted.

Also, instead of the weight *F'*, a spring may be advantageously used.

Thus it will be observed that, except when direct pressure is applied to the lever *E*, its forward end is held in an elevated position by the power of the weight *F'*, and the switch-rail *C* occupies its position on a line with the rail *A*, all communication with the turn-out rails *B B'* being entirely cut off. But, so soon as sufficient pressure is applied to the lever *E* to depress the same instantly, the switch-rail *C* is drawn against the check-rail or bar *C'*, where it is firmly held until the pressure is removed from the lever. So long as the switch-rail *C* is held in this position, the straight line of the main rail *A* is broken, and, consequently, the turn-out is open and the car can readily pass from the former to the latter. Of course the lever *E* can be depressed, and the switch *C* operated in many ways.

A projecting flange may be bolted on the inside of the wheel, or the wheel may be cast with an inner tread; but this renders the operation of the switch purely automatic, and compels the car to run on the turn-out whether desired or not. Therefore such an arrangement is only desirable when the turn-out or diverging track is invariably used.

The mechanism by which I depress the lever *E* is simple and practical, and is so arranged as to be entirely under the control of the driver or other employee of the road, and is easily operated.

On the under side of the car *G*, in suitable projecting bearing-plates *H' H'*, I secure, so as to allow of its free movement in a horizontal direction, a flat bar, *H*.

One end of this bar *H* is acted on by a spring, *K'*, which is fastened, by any convenient means, to the car, at such point and in such manner that its natural tension shall be constantly employed in drawing the bar *H* toward the rear of the car *G*.

The other end of the bar *H* is acted on by a lever or handle, *K*.

This lever or handle *K* passes up through an opening, *g*, in the platform of the car, where it rests and works in suitable bearings.

This lever *K* may be provided with a treadle-step, *k*,

so that it can be worked by either the hand or the foot of the driver.

On the under side of the car *G*, and at a suitable point between the bearing-plates *H' H'*, are secured other bearing-plates, *L' L'*, between which is pivoted, so as to work freely, a short arm, *L*.

This arm *L* passes through a slot, *h*, in the horizontal bar *H*.

This slot *h* is cut with its ends sloping, so as to conform to and fit exactly the angle of incline of the arm *L*, when the same is held in an elevated position, as it always is, as seen in fig. 3, except when sufficient power is applied to overcome the tension of the spring *K'*, and draw the bar *H* forward, when instantly the arm *L* falls to the position shown in fig. 4, in which it is firmly held by the slot *h*.

This arm *L* is formed with a slightly angular or circular head or shoulder, *l*, or, instead of this head or shoulder, a friction-wheel or roller, *l'*, may be attached.

This wheel *l'* may be cast on the axle, or, if preferred, in the form shown in fig. 7, *X X* representing two half or semicircular wheels, united by any suitable hinged connection, at *x*, and fastened by angular tongue and groove-joint and bolt, as seen at *x'*.

This wheel, by means of the flange *x'* and screws *x'' x''*, is firmly secured to the axle.

From the foregoing description, the operation will readily suggest itself to any one familiar with railroads.

The car is in the position as seen in fig. 3, the tension of the spring *K'* causing the entire mechanism to occupy the position shown therein.

On approaching the lever *E*, the driver pulls toward him the handle *K*, which instantly draws forward the bar *H*, when the arm *L* falls, and, by means of the slot *h*, is firmly held in a fixed position, as shown in fig. 4.

The tread of the shoulder *l* or wheel *l'* depresses the lever *E*, which instantly opens the switch *C*, as already described.

Should it be found that the tread of the arm *L* is not sufficiently long on the lever *E* to permit the entrance of the rear car-wheels, this difficulty can readily be removed simply by duplicating the short arm *L*.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent of the United States, is—

1. The lever *E*, cord or chain *F*, weight *F'*, pulleys *f f*, and switch-rail *C*, when they are so combined and arranged as to operate substantially as and for the purpose described.

2. The bar *H*, arm *L*, spring *K'*, and lever *K*, when the same are so combined and arranged as to operate substantially as and for the purpose described.

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

N. F. HAWKINS.

Witnesses:

WM. WELLS,  
H. P. WALSH.