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F. K. HOFFMAN.
RAILWAY SWITCH MECHANISM.

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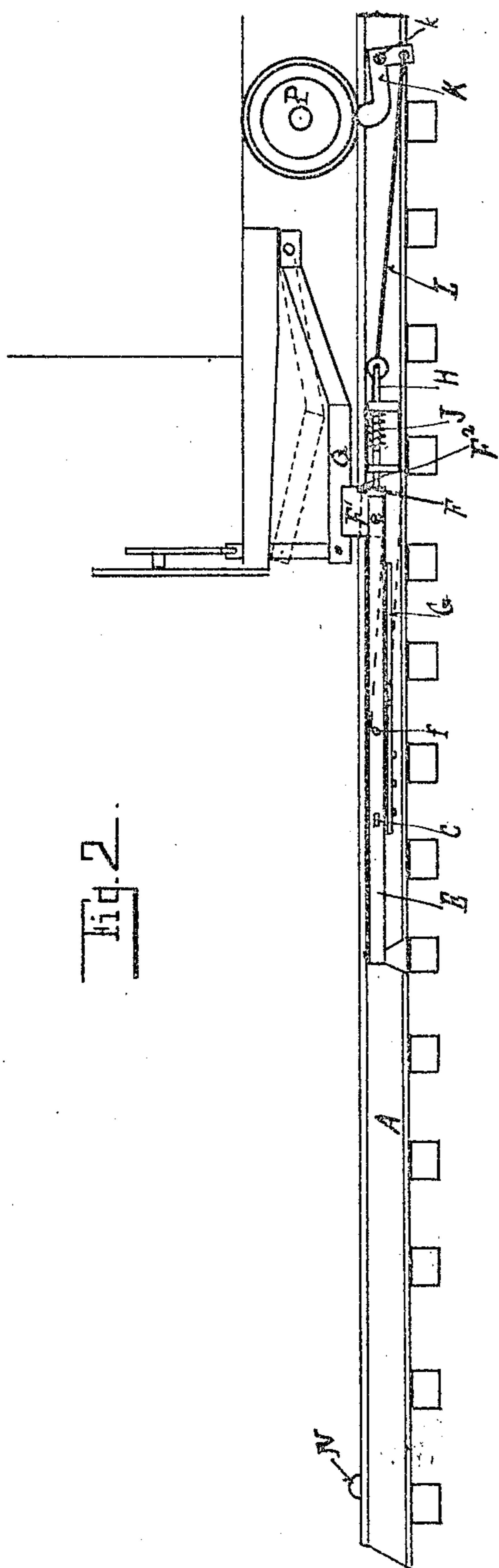


Fig. 2.

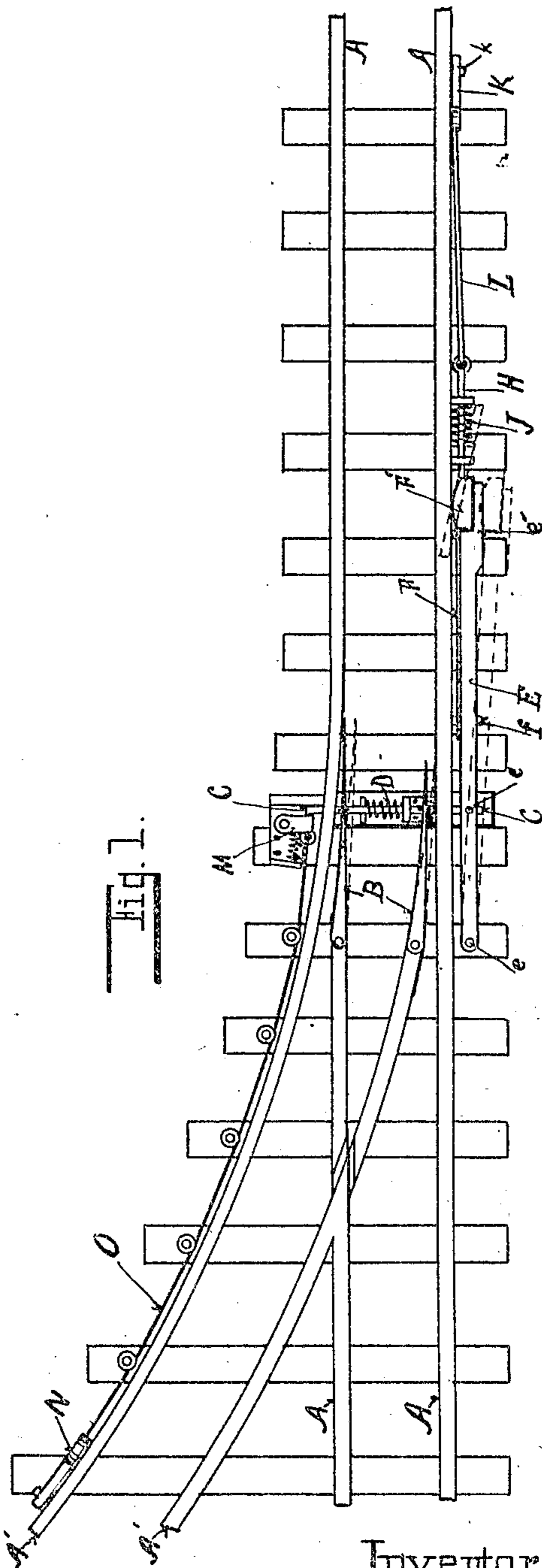


Fig. 1.

Witnesses.

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RAILWAY SWITCH MECHANISM.

No. 815,533.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK K. HOFFMAN, a citizen of the United States, residing at Dunkirk, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Railway Switch Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to switch mechanism for railway-tracks; and its object is to provide a switch-operating mechanism for street-railways which can be operated by a street-car approaching a switch, so that it will be thrown open for the spur, and after the car has passed the switch and onto the spur the car will contact with a lever, which will cause the switch to be closed, so that the main-line track will again be open. Heretofore this has been accomplished by a man getting off of the car and opening the switch and closing it again in some of the well-known ways.

The features of my invention are hereinafter more fully set forth and explained and are illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a street-railway switch embodying my invention. Fig. 2 is a side view of the same, showing the front platform and wheel of a street-car about to enter the switch.

In the drawings, A A indicate the rails of a railway main track; and A' A' the rails of a spur-track cut into the main line by means of the ordinary switch-tongues B. (See Fig. 1.) For operating these tongues B there is the usual sliding bar C, to which the tongues B are secured in the usual manner. For returning the tongues B to their normal position, as shown by full lines in Fig. 1, so that the main line will be open again after the passage of a car onto the spur A' A', I provide a spring mechanism D, adapted to operate directly upon the sliding bar C and through it return the tongues B to their normal position. For operating the bar C to open the spur-track A' A', I provide a horizontal lever E, one end of which is pivoted, preferably, outside of the track A; toward which the tongues B are to be thrown, by the pivot e, said lever extending along the side of said

track to a point sufficiently distant in advance of the switch to be operated by an approaching car before the wheels of the car reach the points of the tongues B, and to this lever E the sliding bar C is secured by means of the pivot e. The forward end of the lever E is provided with an upturned end adapted to contact with a switch-operating device upon a car. I preferably make the upturned end of the lever E depressible, so that it will not be in the way of general street traffic, except when a car is approaching a switch. I here show one way of doing this in the drawings, which is as follows: I provide the lever E at its free end with an offset e', and at a point between the pivot e and the offset e' I secure a supplemental bar F by means of a pivot f, which bar F has an upturned end F', which projects upward between the offset end e' of the lever E and the rail A of the track and is pressed upward by the spring G. (See Fig. 2.) This upward projection F' is provided with a notch F², adapted to engage a latch for holding the bar F and its end F' in a normally depressed position. I provide a spring latch mechanism adapted to engage the notch F², which preferably consists of a sliding bolt H with a retracting-spring J to hold the bolt normally in engagement with the notch F², and at a point sufficiently distant in advance of the end e' of the lever E to permit of its contacting with the wheel of an approaching car before the switch-operating device on the car reaches the end e' of the lever E, I place a bell-crank lever K, which is preferably mounted upon the side of the rail A by means of the pivot k and connect the lower arm of the lever K with the latch-bolt H by means of a link L. The upper arm of the lever K is upturned, as shown in Fig. 2, and normally extends slightly above the track-rail A. For holding the sliding bar C and tongue B in a position to open the spur A', I provide a spring-dog M, which springs in behind the end of the bar C when the tongues B are thrown over by an approaching car, and thereby hold them in the position shown by broken lines in Fig. 1 until the car-wheels contact with the lever N at the side of the switch-track A', which may be a duplicate of the bell-crank lever K, but reversed and connected by the wire or link O with the spring-dog M, which will withdraw the dog M from behind the end of the bar C and allow the bar and tongues B to be returned to their normal position by the spring D.

In Fig. 2 I show the front platform and wheel of a street-car. The wheel P has depressed the upper arm of the lever K, and thereby withdrawn the spring-bolt H from the notch F² in the upwardly-projecting end F' of the supplemental bar F, pivoted to the lever E, and the motoneer has lowered the switch-operating device Q, so that it will contact with the upturned end E'. The switch-operating device Q is a bar so placed under the car-platform that its forward end is relatively over the rail and will pass behind the upturned end F', and the rear end of the bar Q is considerably outside of the rail. In other words, the bar Q is suspended over the rail and at an oblique angle thereto and while normally in the raised position (shown by broken lines in Fig. 2) when lowered, as shown in full lines in said figure, will pass in an oblique position behind the upturned end F' of the lever E and force it outward, and thereby throw the tongues B into the position shown by dotted lines in Fig. 1 and allow the car to pass onto the spur-track A', where the wheels of the car will contact with the lever N and release the bar C and allow the tongues to be returned to their normal position. When it is not desired to enter the branch or spur track, the motoneer keeps the oblique bar Q raised in the position shown by dotted lines in Fig. 2. When the upturned end F' is released and rises to the position shown in full lines in Fig. 2 and the car passes it with the oblique bar Q raised, so that the switch is not operated thereby, any passing vehicle-wheel contacting therewith will press it down again into the position shown by dotted lines in Fig. 2, where it will be engaged and retained by the spring-bolt H.

I have illustrated and described my improved switch mechanism as applied to an open-work railroad-track; but it is obvious that the operating mechanism can be entirely covered with only the upturned end of the lever E and the levers K and N visible; but as this covering forms no part of my invention and is common in street-railway construction I have not included it in this description.

Having thus fully described my invention, so as to enable others to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a railway switch mechanism the combination of, a switch-tongue, a sliding bar for operating the same, spring mechanism adapted to retain said tongue in a closed position, a switch-operating lever connected with and adapted to operate said sliding bar, an upturned end on said operating-lever adapted to be engaged and operated by a switch-operating device on a railway-car, a spring latch mechanism adapted to lock the switch mechanism in an open position, and

lever-and-link mechanism adapted to release the spring latch mechanism, substantially as described.

2. In a railway switch mechanism the combination of a switch-tongue, a sliding bar for operating the same, an operating-lever pivoted beside the railway-track rail connected, and adapted to operate said sliding bar, an offset at the free end of said lever, a supplementary bar pivoted to said lever, the free end thereof being upturned behind the offset end of said lever and adapted to contact with a switch-operating device on a car, and a spring adapted to press said supplementary bar upward, substantially as described.

3. In a railway switch mechanism the combination of, a switch-tongue, a sliding bar for operating the same, an operating-lever pivoted beside the railway-track rail connected to and adapted to operate said sliding bar, an offset at the free end of said lever, a supplementary bar pivoted to said lever the free end thereof being upturned behind the offset on said lever, and adapted to contact with a switch-operating device on a railway-car, a spring adapted to press said supplementary bar upward, a spring latch mechanism adapted to engage said supplemental bar when the same is pressed downward and retain it in a downward position, and lever-and-link mechanism adapted to operate said spring latch mechanism and release said supplemental bar, substantially as set forth.

4. In a railway switch mechanism the combination of a switch-tongue, a sliding bar for operating the same, spring mechanism to retain the tongue in a closed position, a lever connected with and adapted to operate said sliding bar, a shoulder on said lever, a supplemental bar pivoted to said lever and having the free end thereof upturned behind the shoulder on said lever, a spring adapted to press said supplemental bar upward, spring latch mechanism adapted to engage said supplemental bar and retain it when the same is pressed downward, lever-and-link mechanism adapted to operate said spring-latch to release said supplemental bar, a spring-latch adapted to retain the switch mechanism in an open position until released, lever-and-link mechanism adapted to operate said latch to release the switch mechanism, a switch-operating device on a railway-car adapted when lowered to contact with the upturned end of the supplemental bar and operate said lever, and means to raise and lower said switch-operating device, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK K. HOFFMAN.

Witnesses:

VICKTOR WYSOCKI.
H. B. HILL.