

No. 778,008.

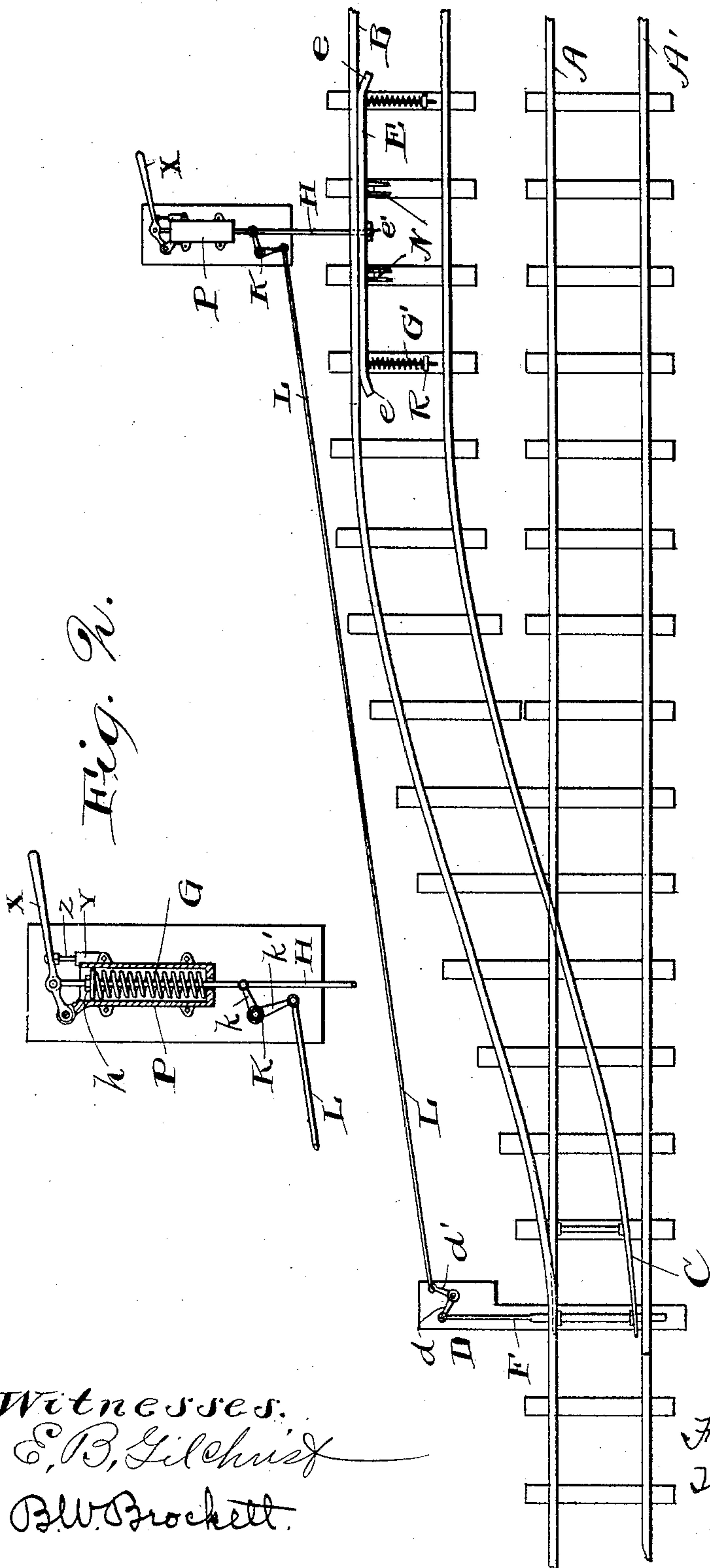
PATENTED DEC. 20, 1904.

F. C. CARROLL & T. FLEMING.
RAILWAY SWITCH.

APPLIOATION FILED AUG. 12, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.

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B. W. Brockett.

Inventors.

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By their Attorneys,
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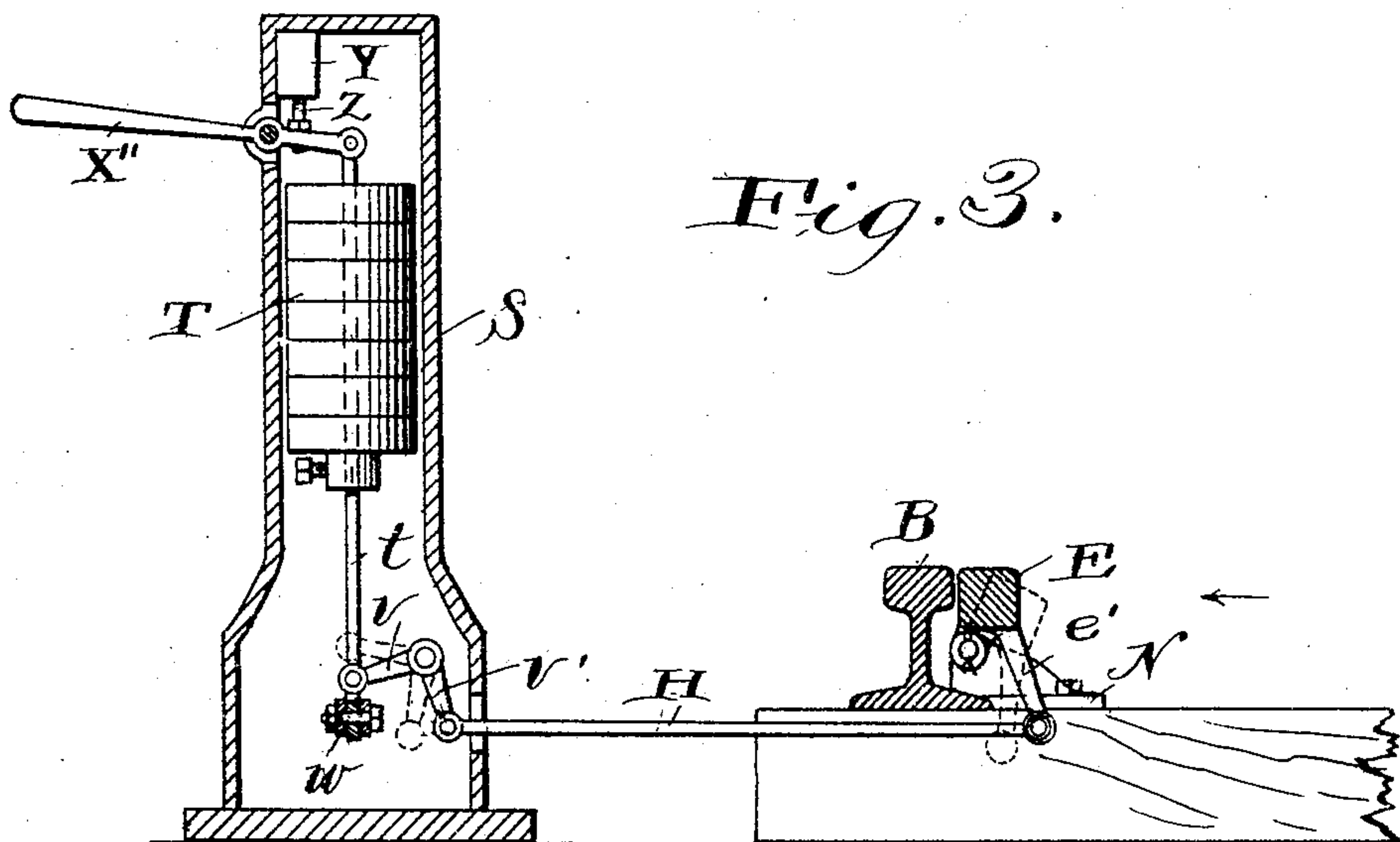


Fig. 3.

Fig. 4.

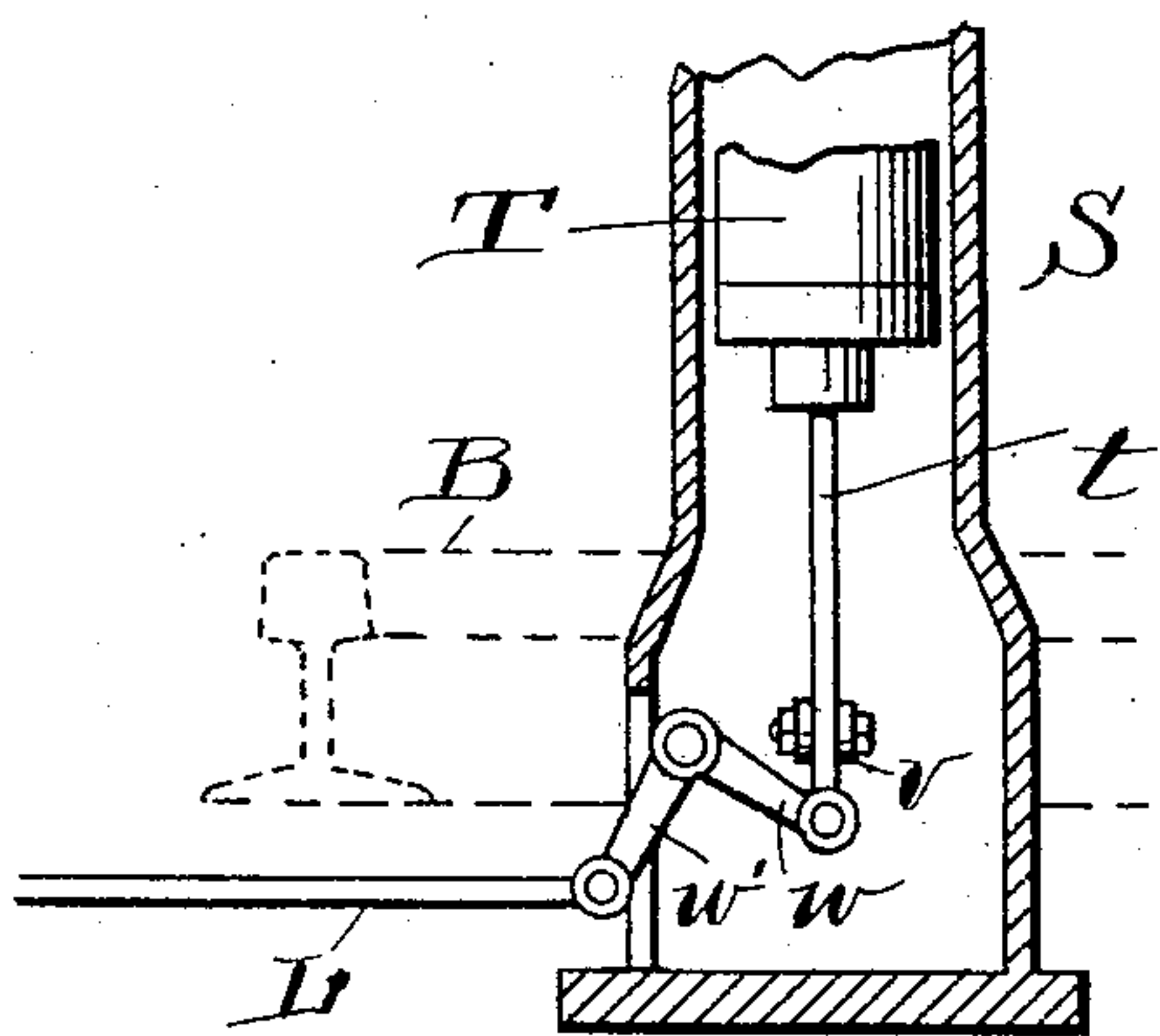
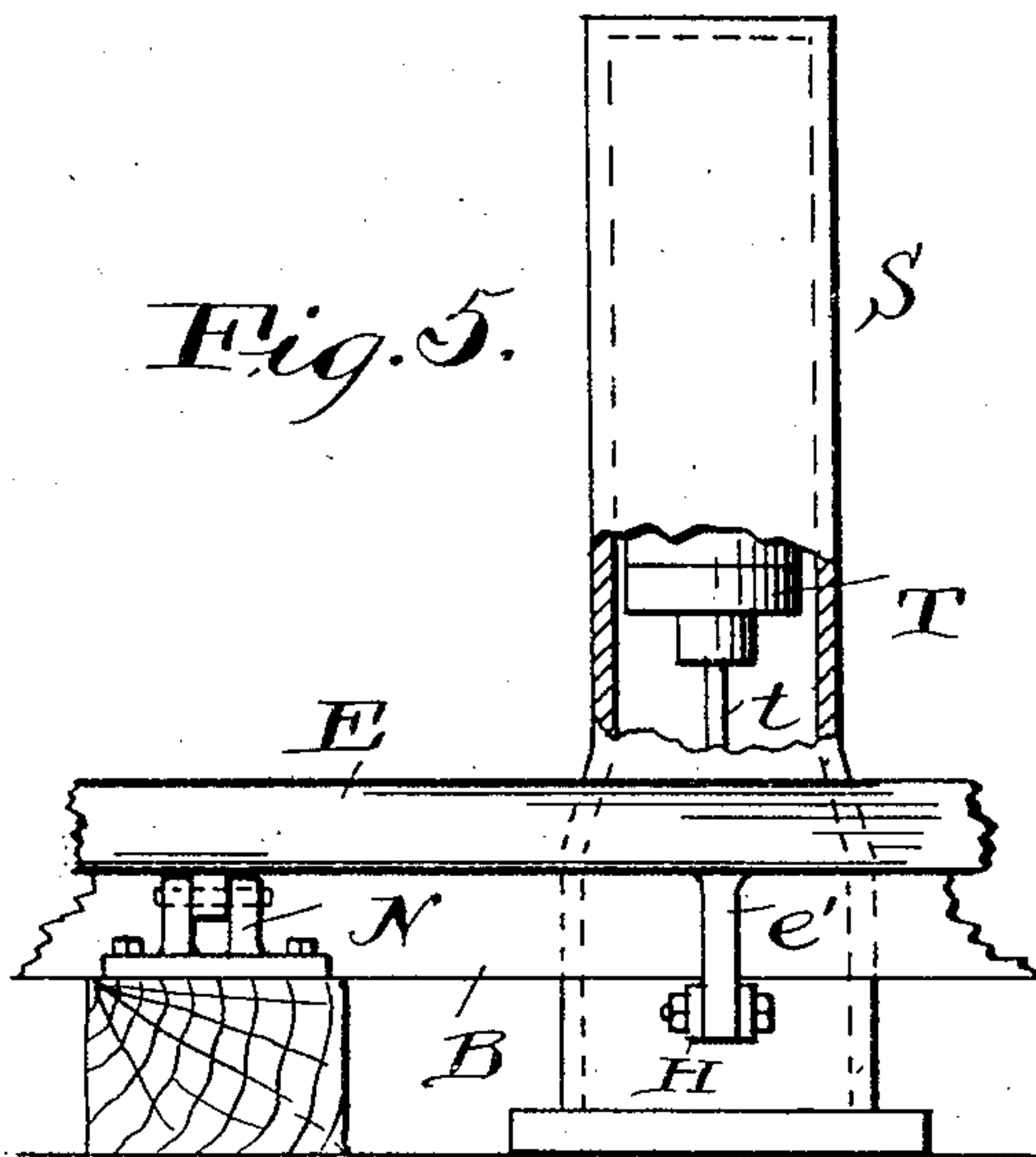


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

FRANK C. CARROLL, OF WILLOUGHBY, AND THOMAS FLEMING, OF CLEVELAND, OHIO.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 778,008, dated December 20, 1904.

Application filed August 12, 1904. Serial No. 220,580.

To all whom it may concern:

Be it known that we, FRANK C. CARROLL, residing at Willoughby, in the county of Lake, and THOMAS FLEMING, residing at Cleveland, 5 in the county of Cuyahoga, State of Ohio, citizens of the United States, have invented a certain new and useful Improvement in Railway-Switches, of which the following is a full, clear, and exact description, reference being 10 had to the accompanying drawings.

In railroad practice two varieties of switch-operating mechanisms are in use. In both varieties some one has to open the switch; but in one variety the switch is self-closing, and 15 therefore some one has to hold it open all of the time the train is passing over it. This is objectionable because it keeps one man from other work which he might do. In the other variety of switch-operating mechanism some one 20 has also to close the switch. The failures of parties to close such switches has been the cause of a great many serious railroad accidents.

The object of the present invention is to provide switch-operating mechanism of such character that when it has once been opened to permit a train to pass onto a side track the train itself will hold the switch open until the 30 entire train has so passed, and then the switch will close itself.

The invention may be summarized as consisting in the combination of parts as herein-after described, and definitely set forth in the claims.

35 In the drawings, Figure 1 is a view of the invention in an approved form. Fig. 2 is a horizontal sectional view of the casing P and associated parts. Fig. 3 is a sectional elevation of the device, showing a modified form 40 of mechanism for moving the bar E and closing the switch. Fig. 4 is a sectional view of the lower part of the mechanism shown in Fig. 3, the section being taken in a vertical plane at right angles to the plane of Fig. 3. 45 Fig. 5 is a view looking in the direction of the arrow in Fig. 3, showing some of the parts in section.

Referring to the parts by letters, A A' represent the two rails of the main track.

B B' represent the two rails of the side 50 track, and C represents an ordinary switch for connecting the main line and side track.

D represents an ordinary switch-stand, which may be connected with the switch in the usual way—as, for example, a lever-arm 55 *d* of the switch-stand may be connected, by means of a rod F, with the switch.

E represents a bar, which must be so placed with respect to one of the rails B B' that the wheels of a car traversing the rail will engage 60 with this bar and move it out of its normal position. In the particular embodiment of the invention shown this bar is placed just inside of the outer rail B, and it is pivoted on a horizontal axis which is substantially parallel 65 with the rail and located a suitable distance below the top of the rail. The pivots are supported by plates N, which are secured to the ties. This bar is normally held so that its outer face engages with the inner face of the ball of the 70 rail, and it is held in this position by a spring G or springs G' G', or both, or some equivalent self-acting mechanism. It is not material to the present invention whereabouts this spring shall be located. In the embodiment of the 75 invention shown in Figs. 1 and 2, however, a rod H is connected with a lever-arm *e'* on bar E and extends under the rail B, and the spring G lies in a fixed spring-case P and embraces this rod, being compressed slightly between 80 the end of the spring-case and a collar *h* on the rod H. This rod is connected with one arm, *h*, of the bell-crank lever K, the other arm, *h'*, of which lever is connected by a rod L with a lever-arm *d'* of the switch-stand. 85

As shown in Fig. 1, other springs G' G' may be compressed between bar E and plates R secured to the ties, and they will supplement the action of the spring G.

In Figs. 3, 4, and 5 a counterweight is shown 90 in place of the spring G. This counterweight T is on a vertically-movable rod *t* in a fixed case S, and the lower end of this rod is connected with one arm, *v*, of a bell-crank lever whose other arm, *v'*, is connected with the rod 95 H. The rod *t* is also connected with the horizontal arm *w* of a bell-crank lever whose other arm, *w'*, is connected with the rod L.

A lever (indicated by X in Figs. 1 and 2 and by X' in Fig. 3) may be used to move the described mechanism to open the switch.

From the foregoing description it is apparent that the spring or weights referred to will act not only to hold the bar E against the rail, but will also act through the described mechanism to close the switch. As before stated, it is of no consequence to the present invention where the mechanism is located which will automatically close the switch or move the bar E, as stated, nor is the particular form of the mechanism for so moving them material to the present invention.

The bar E should be about forty feet long, more or less, and its ends *e* should curve away from the rail B. When the wheels of a car riding on the rail come to this bar, the wheel-flanges will force themselves between the bar and rail, thereby moving the bar, if it has not already been moved, and opening the switch. Ordinarily a brakeman or some other employee will open the switch by moving some part of the mechanism described with which the switch is connected, preferably the lever X or X', and he will hold it open until the wheel-flanges have passed between the bar E and rail B. These flanges will prevent the bar from moving toward the rail and will therefore prevent the closing of the switch. The bar is made of substantially the length specified, so as to make it assured that so long as a train is passing from the main line onto the side track some wheel or wheels on the passing cars will be in engagement with the bar and will thus hold the switch open until said cars have passed on to the side track and beyond this bar. When they have so passed, the described mechanism acts automatically to close the switch and to move the bar against the rail. It is therefore obvious that the brakeman having once opened the switch may leave it as soon as the first car has carried one of its wheels between the bar and rail and go about his other business. This bar E should be placed at such a point that the last car on the side track must pass beyond it before it will be possible for cars to pass on the main line without striking the last car on the side track.

The drawings show the bar to be pivoted, as described, so as to be moved by the flanges of the car-wheels; but it is not essential to

the invention that the bar shall be a pivoted bar or that it shall be moved by the wheel-flanges. Any movable bar capable of being held out of its normal position by the wheels of the passing cars may be substituted for the bar shown and described, provided it is connected by suitable transmission mechanism with the switch and provided automatic mechanism is provided which will move the bar to its normal position and will close the switch when the car-wheels no longer engage with the bar.

It is thought that it will be advantageous to provide means whereby the switch will not only be closed automatically, but will also be locked automatically. For this purpose a spring-lock Y may be screwed to the case P or S and the bolt Z may be connected with the lever X or X'.

Having described our invention, we claim—

1. The combination of a railway-switch, its operating mechanism, with a movable bar which normally lies in contact with the inner edge of one of the side-track rails, a spring constraining it to move to this position, and mechanism connecting it with the switch-operating mechanism.

2. The combination of a railway-switch, its operating mechanism, and mechanism by which the switch is closed when said mechanism is permitted to act, with a long bar which normally lies just inside and against one of the side-track rails, which bar is pivoted on a horizontal longitudinal pivot, and mechanism connecting said bar with the switch-operating mechanism.

3. The combination of a railway-switch, its operating mechanism, with a movable bar which normally lies in contact with the inner edge of one of the side-track rails, means constraining it to move to this position, and mechanism connecting it with the switch-operating mechanism, said bar having inwardly-bent ends which permit the wheel-flanges to pass between it and the rail and so move said bar.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

FRANK C. CARROLL.
THOS. FLEMING.

Witnesses:

E. B. GILCHRIST,
E. L. THURSTON.