(No Model.)

A. F. LETSON.

RAILROAD SWITCH.

No. 489,536. Patented Jan. 10, 1893.

Fig.1

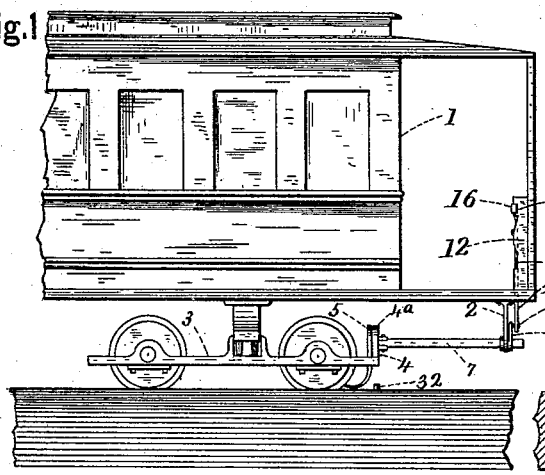

Fig.2

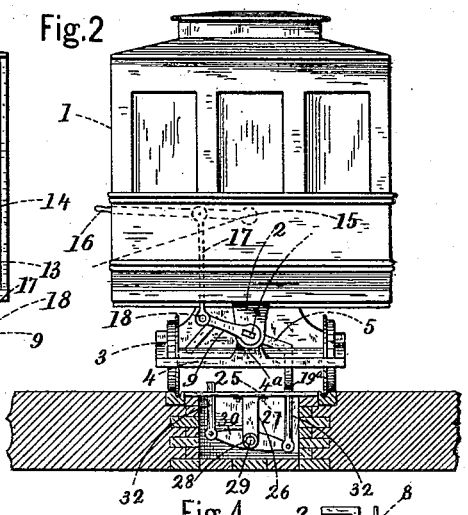

Fig.3

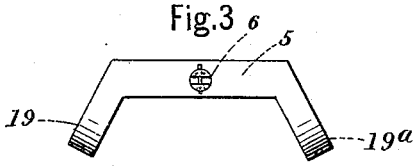

Fig.4.

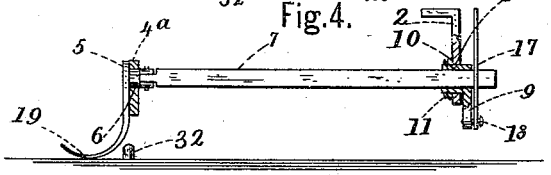

Fig.5.

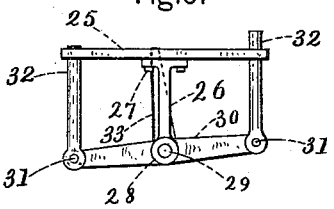

Fig.6

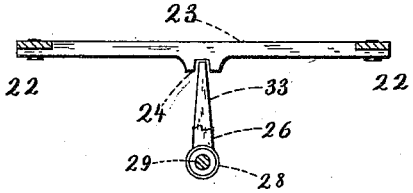

Fig.7.

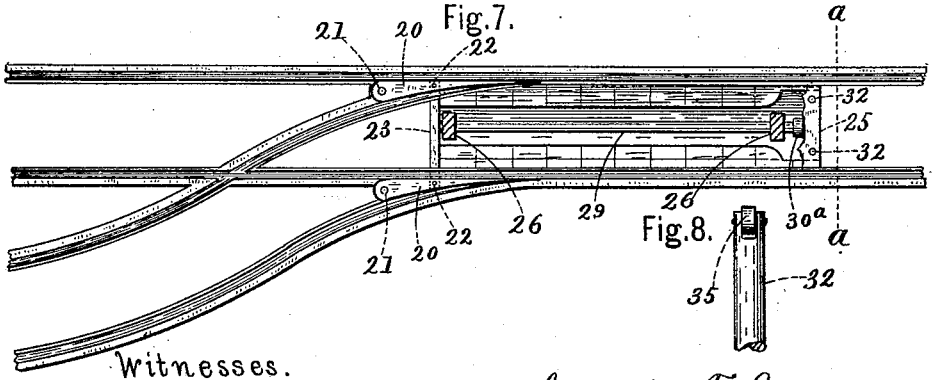

Fig.8.

Witnesses.

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UNITED STATES PATENT OFFICE.

AUGUSTUS F. LETSON, OF BUFFALO, NEW YORK, ASSIGNOR TO CATHERINE E. LETSON, OF SAME PLACE.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 489,536, dated January 10, 1893.

Application filed September 5, 1892. Serial No. 445,039. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS F. LETSON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a specification.

My invention relates to certain improvements in rail road switches whereby the switch is under the control of the operator on the car, and is rendered more effective in its operation, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of an electric car showing my invention connected therewith. Fig. 2 is a front elevation of the same, also a transverse section through the road way, on or about line *a a*, Fig. 7 showing a similar view of the apparatus located below the track for operating the switch. Fig. 3 is a detached enlarged front elevation of the centrally pivoted bar located under the car and carrying a curved spring foot piece at each end for operating the vertical switch pins when operating the switch. Fig. 4 is an enlarged detached side elevation of the apparatus located on the car for operating the switch, certain portions being in section so as to show the construction more clearly. Fig. 5 is an enlarged detached front elevation of that portion of the apparatus located under the car track for operating the switch, showing the two vertical pins, one being at the limit of its upward movement and the other in its downward position, showing also other portions which will be more clearly hereinafter specified. Fig. 6 is a detached enlarged front elevation of the transverse bar which is pivoted to the pivoted pointed switch rails, said rails being shown in section pivoted thereto, a cross section being also shown through the horizontal shaft and a portion of one of the arms for supporting it. Fig. 7 is a plan view of a portion of a rail way track and cross track, showing also a similar view of a portion of the mechanism below the track for operating the trackswitch, nearly the whole of the cover or top covering plate being omitted, a horizontal cross section through the supporting arms which project down from the under side of the covering plate being shown. Fig. 8 is an enlarged side elevation of a portion of one of the vertical switch pins.

The mechanism above the track and connected with the car is as follows, reference being had to the drawings.

1 represents a portion of an ordinary street car, showing a portion of my invention connected therewith. At the bottom near each end of the car is a downwardly projecting supporting arm, 2, and at the forward part of the usual truck, 3, is a cross bar, 4. In the central portion of the cross-bar, 4^a, an arm, 5, is pivoted by a pin, 6, which is rigidly secured to the arm so as not to turn therein. This pin projects through a hole in the cross bar, 4, so that the arm, 5, can swing or turn thereon. The end of the pin, 6, which projects through the cross bar at, 4^a, is forked so as to receive the flat end of a square or flat sided bar, 7. The opposite end of this bar, 7, projects forward through a square or other shaped hole longitudinally through a short crank shaft, 8. This crank shaft, 8, is rigidly secured to the crank arm, 9. The outside or periphery of the short shaft, 8, is round and passes through a corresponding opening in the arm, 2, so as to turn therein. Over the end of the shaft, 8, at the rear side of the arm, 2, is a holding collar, 10, (see Fig. 4) secured to the shaft, 8, by screws or pins, 11, or by any well known means.

At the front of each end of the car is a vertical bar, 12, having small depressions 13 and 14, and to the front of the car is pivoted at or about the point, 15, (see Fig. 2,) an operating arm, 16, (shown partly in dotted lines) and to the arm, 16, is pivoted the upper end of a connecting rod, 17, also shown partly in dotted lines in Fig. 2. The lower end of the connecting rod, 17, is pivoted by a pin, 18, to the outer end of the crank arm. At the ends of the arm, 5, is a curved foot piece 19 and 19^a.

From the above construction it will be seen that a movement of the operating arm, 16, upward so as to rest in the notch or depression, 14, will cause the spring foot piece, 19^a, to move down nearly to the track while the other foot piece, 19, is raised up substantially as

shown in Fig. 2. The object of this will appear farther on.

The mechanism connected with the switch and below the track is as follows—

The pointed movable switch bars, 20, are constructed in the well known way and are pivoted to the track by pins, 21, see Fig. 7, and are also pivoted by pins, 22, to a cross bar, 23, shown in Fig. 6, also Fig. 7. At the center of the under side of the cross bar, 23, is a recess or depression, 24, shown in Fig. 6.

Below the track is a pit covered by a top plate, 25, shown in Figs. 2 and 5 and a portion of it in Fig. 7. This covering plate may be of any shape desired and may be made of iron or other suitable material. Projecting down from the under side of the covering plate, are two arms, 26, secured thereto by bolts, 27, see Figs. 2 and 5, in which the forward arm is shown, a portion of the rear arm being shown in Fig. 6. These arms, 26 are each made exactly alike and are secured near opposite ends of the covering plate, 25, and are provided with bearing boxes, 28, in which is mounted a horizontal shaft, 29. To the forward end of the shaft is rigidly secured a cross bar, 30, (its hub, 30^a, being shown in Fig. 7,) having pivoted at each end by pins, 31, (see Fig. 5) a vertical bar, 32, the upper ends of these vertical bars project up through holes in the front end of the covering plate, 25, see Figs. 2, 5 and 7, the construction being such that when one pin is down even with the top of the covering plate the other projects above it. At the rear of the shaft, 29, is rigidly secured an arm, 33, it is secured substantially at right angles to the cross bar, 30. The upper end of the arm, 33, projects up into the opening, 24, in the cross bar, 23. It will now be seen that if either of the curved spring foot pieces 19 and 19^a, be turned down as hereinbefore mentioned, it will depress the pin, 32, on that side of the track and through the rock arm 33, and cross bar, 23, the switch will be moved toward that side. It will be further noticed that as the bar, 7, projects forward and fits loosely in a substantially square hole in the crank arm shaft, 8, the crank arm will be able to turn either way and at the same time the bar, 7, being loosely fitted in the hole, it is permitted to move longitudinally therein so that the truck, 3, will be free to turn while the car is going around curves without in any way interfering with the action of the rock arm, 5, while operating the switch.

The square bar may be a three sided bar or it may be a round bar provided with a feather or with one or more flat sides, the object being to prevent it from turning in the crank shaft and at the same time have a longitudinal movement therein.

In Fig. 8 I have shown a friction roller, 35, in the top of one of the pins, 32, so as to permit the spring foot pieces to pass easily over while operating the switch.

I claim as my invention,

In a rail road switch, the mechanism located below the car consisting of a bar having a curved spring foot at each end and pivoted on the forward cross bar of the truck, the pivotal pin, 6, having a forked forward end into which is pivoted a bar provided with one or more substantially flat sides and having its opposite end project through an opening through a crank shaft supported in a bearing under the car, the bar, 7, being incapable of turning in the crank shaft but free to move longitudinally therein, and mechanism substantially as above described for operating the crank shaft so as to throw one spring foot or the other down upon the track for the purposes described.

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Witnesses:

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