

(No Model.)

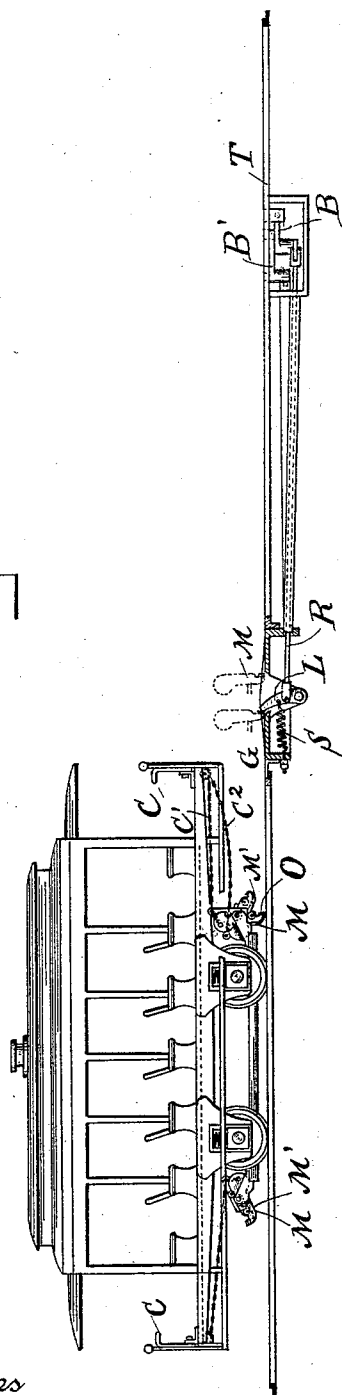
3 Sheets—Sheet 1.

O. E. SEIFERT.
AUTOMATIC RAILWAY SWITCH.

No. 537,077.

Patented Apr. 9, 1895.

Fig. 1.



Witnesses
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By *his* Attorney

Otto Emil Seifert
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Fig. 2.

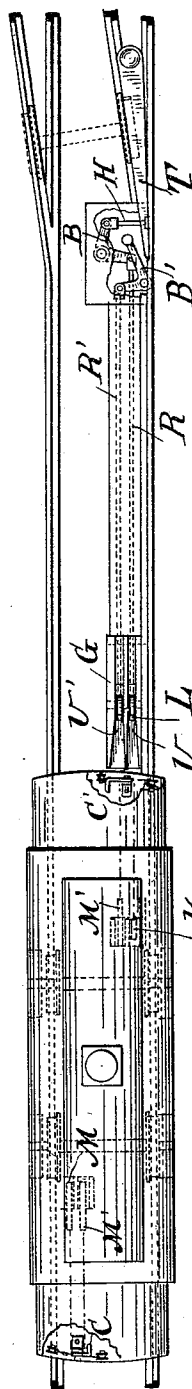
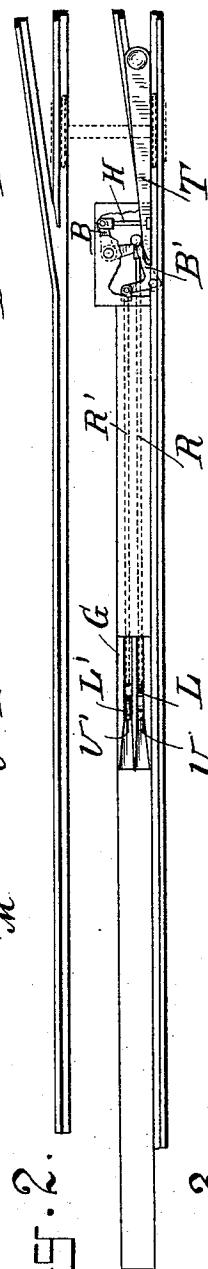


Fig. 3.



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Fig. 6.

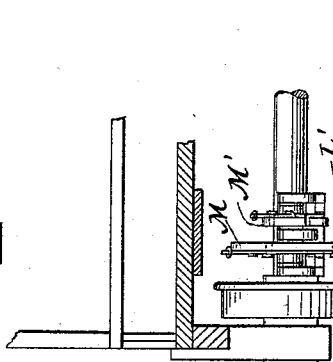


Fig. 7.

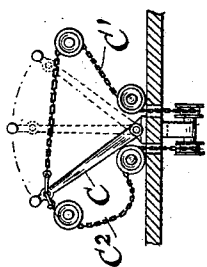


Fig. 4.

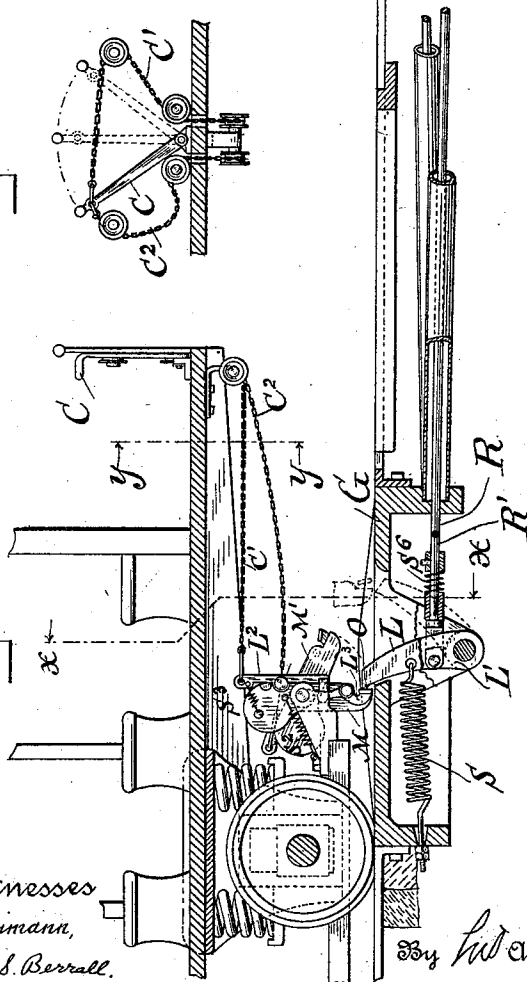


Fig. 8.

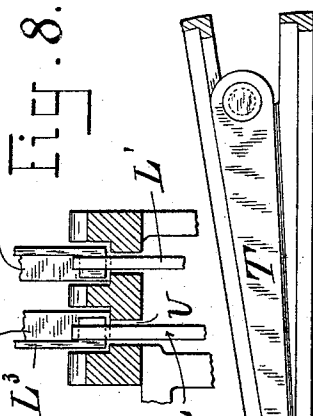
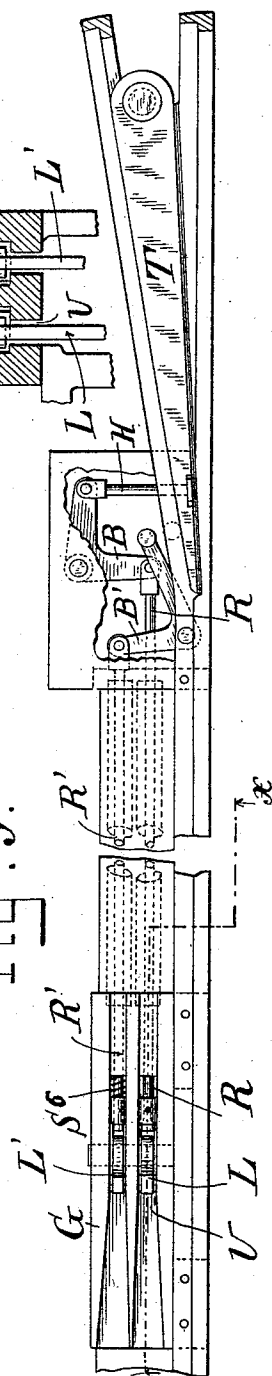


Fig. 5.



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(No Model.)

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Fig. 14

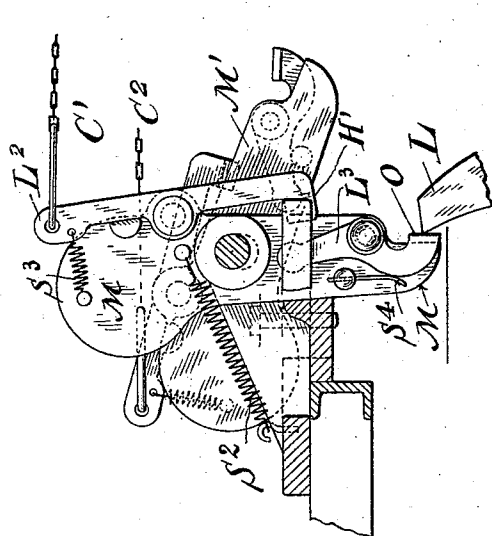


Fig. 9.

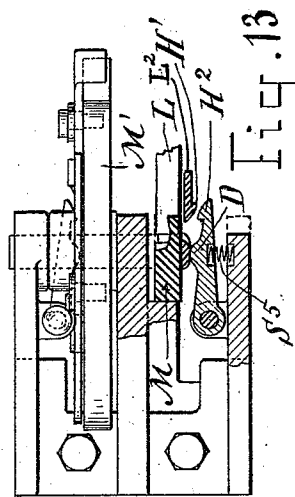
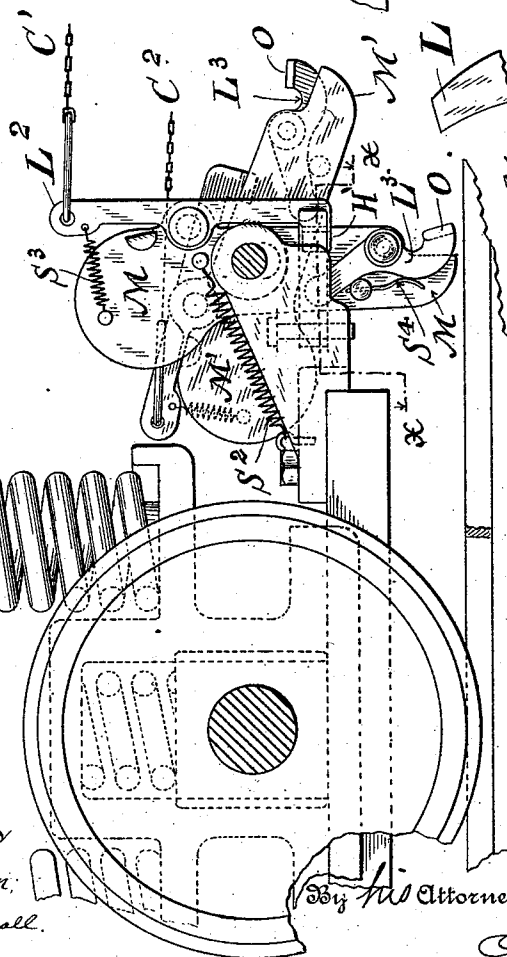
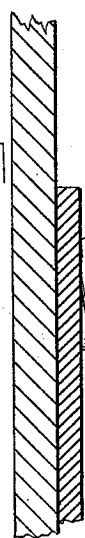


Fig. 13



Fig. 11

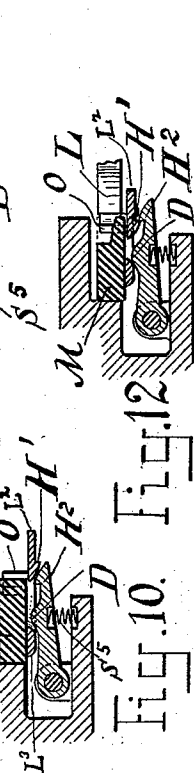


Fig. 10

Fig. 12

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UNITED STATES PATENT OFFICE.

OTTO EMIL SEIFERT, OF BROOKLYN, NEW YORK.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 537,077, dated April 9, 1895.

Application filed June 6, 1894. Serial No. 513,621. (No model.)

To all whom it may concern:

Be it known that I, OTTO EMIL SEIFERT, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Automatic Railway-Switches, of which the following is a specification.

My invention relates to improvements in automatic railway switches in which the switch tripping or operating devices located on or connected with the car and deriving their motive force therefrom, operate in conjunction with levers and connecting rods located under or adjacent to the track to automatically move the switch bar, point or tongue, and it is an improvement upon my invention shown in Letters Patent of the United States No. 518,281, dated April 17, 1894, granted to me.

The object of my improvement is to provide locking levers and tripping devices that are capable of automatic unlocking after having been put in position and locked by the motorman or car-driver, the unlocking being effected in and by the act of operating the switch.

I attain my object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a car provided with the locking and automatic unlocking switching apparatus. Fig. 2 is a plan view of the same, including a top view of the track and a closed switch. Fig. 3 is a plan view of the track and switch, the switch being open. Fig. 4 is a detail side view of a part of a car in part section and with the switch tripping mechanism. Fig. 5 is a plan view of one rail and associated switch operating mechanism. Fig. 6 is a section on line $x-x$ of Fig. 4. Fig. 7 is a view of the hand lever operating the switch. Fig. 8 is a partial vertical section on line $x-x$ at bottom. Fig. 9 is an enlarged side elevation of the switch tripping devices and the locking and unlocking attachments in different positions. Figs. 10, 11 and 12 are detail sectional views on line $x-x$ of Fig. 9 with the parts in three

different positions. Fig. 13 is a part sectional and part top view of the switch levers and locking devices, and Fig. 14 is a side elevation of the parts as shown in Fig. 13.

Similar letters relate to similar parts throughout the several views.

T is the switch point or tongue, which is made substantially in the usual manner, is pivoted at one end, and its movement to and fro, made in opening and closing the switch, as shown, is under the control of a system of levers and connecting rods located between the rails and adjacent to the rail on the side at which the switch point or tongue is located, substantially as shown in my previous invention and patent; but I do not intend to confine myself to the precise arrangement thus shown, since by the use of enlarged bell-crank levers a switch point or tongue may be located and operated at or adjacent to the opposite rail or side of the track upon which the tripping levers and rods are located, and other immaterial variations may be made in the apparatus.

B is a bell crank lever provided at its outer end with a pivoted or hinged rod H having a hook at its outer end engaging the switch point or tongue T on the outer side for the purpose of moving the same in opening the switch. The other end of the bell crank lever B is connected, by the connecting rod R, with the switch lever L located in the outer groove U of the guide plate G.

The switch lever L is normally held in its retreated position as shown in Figs. 1 and 4 by a spring S; but when the tripping contact is made therewith by the tripping lever M on the car, the switch lever L is thereby moved forward with the moving car, and communicates motion to the bell crank lever B through the rod R, and also to the switch tongue T, which is moved into the position of the open switch as shown in Fig. 3, in which position of the switch tongue the car under way will proceed on the main track beyond the switch. The tripping lever M, which is shown as preferably attached to the truck-frame, is thrown into position for making contact with the switch lever L by the driver or motorman,

who properly manipulates the lever C and the chains C' C² arranged for that purpose. The tripping lever when thus thrown into position for tripping, is automatically locked at

5 the same time, or by the same operation. The motorman's lever C is connected by a chain C' with the upper end of the locking lever L², which is pivoted to the tripping lever M above its bearing pin, in such a way as, 10 when moved, to overcome the springs S² and S³ and throw the tripping lever M into position for tripping. The locking lever L² is provided at the lower end with a beveled locking hook H' which engages with the spring 15 latch H² so shaped and located as to engage the same. On releasing the lever C, the tripping lever, being locked, and held by the spring latch H², remains in position for making contact with the switch lever L. The 20 tripping lever M is provided at its lower end with a releasing or unlocking lever L³ pivoted thereto, and at its lower end provided with the shoulder or offset O, which forms a movable shoe or striking part for the lower end 25 of the tripping lever, and makes contact with the switch lever in tripping. When the tripping lever is in its locked position, the locking lever L² is in the position shown in Figs. 9 and 11, and the unlocking lever L³ is in the position 30 shown in the same figures. The tripping shoe or face making contact with the switch lever L is thrown backward at the lower end, in the act of tripping, until it strikes the face of the tripping lever M and is stopped thereby, 35 and its upper end coincidentally moves forward, coming into contact with the shoulder D on the spring latch H², and its motion being continued, unlatches the two engaged hooks or parts of H² and H', as shown in Figs. 12 and 40 13. The locking lever L² being thus released, comes under the control of the spring S², and is thrown into its disengaged position shown in Figs. 10, 13 and 14, thus leaving the tripping lever M unlocked by an automatic un- 45 locking operation. When the tripping lever has passed the switching lever L, it is taken control of by the spring S², its top is thrown backward, and its lower end is moved into its most upward or non-tripping position. The 50 unlocking lever L³, when not controlled by contact with the switch lever L, is held in position as shown in Figs. 9, 10 and 11 by the spring S⁴ pressing against its lower end, which spring is overcome by the contact of the tripping 55 lever with the switching lever, and assumes control again when the tripping lever is released from contact with the switch lever. The upper edge of the releasing lever or unlocking lever is rounded so as to facilitate its action upon the rounded shoulder D 60 of the spring latch H² in unlocking the locking lever L².

The spring latch is provided with a spring S⁵.

65 The rod R' is provided with a spring device S⁶ to make it capable of yielding in order to prevent injury and allow for obstacles, such

as stones, obstructing the movement of the tongue T. The rod R may have the same device, as shown in Fig. 4, but it is not absolutely necessary. The tripping lever M' is 70 provided with similar associated devices for locking and unlocking, and makes contact with a switch lever L' connected with a switch rod R' and bell crank lever B', all for operating the switch tongue T in an opposite direc- 75 tion, as in my previous invention and patent before mentioned—that is, the tripping lever M is for opening the switch and the tripping lever M' for closing it. When the lever C is in the vertical position shown in Fig. 7, the 80 tripping levers M and M' are both of them swung up out of the way of the switch levers L and L'; but when thrown to the left it brings the tripping lever M into position for tripping, and when thrown to the right brings 85 the tripping lever M' into position for tripping; and the lever C is restored to its vertical position by the action of the spring S² after the tripping lever is unlocked. The relations of the parts heretofore described may be made 90 and adjusted so that when the car is to take the track to the right the motorman must move the lever C to the left; and when it is to take the track to the left he must move the lever C to the right; but if desired, the ar- 95 rangement of the parts may be reversed and so adjusted that when the car is to take the right hand track the motorman must move the lever C to the right to properly operate the switch; and vice versa. This may be ac- 100 complished by making the suitable variation in the relations of the connecting chains, as by crossing them or leading them straight to the tripping levers M and M'.

The upper end of the unlocking lever L³ is 105 supported on one side by the surface of the tripping lever, and moving in contact with the shoulder D on the spring latch H² acts like a wedge to disengage the spring latch H² from the locking lever L². 110

I claim as my invention—

1. A pivoted switch tripping lever in combination with an automatic locking and also an automatic unlocking lever each carried 115 upon and pivoted to the switch tripping lever; substantially as shown and described.

2. A switch tripping lever in combination with a locking lever, an unlocking lever and a spring latch, substantially as shown and de- 120 scribed.

3. A switch tripping lever in combination with an unlocking lever provided with a shoe face for the contact surface of the tripping 125 lever; substantially as shown and described.

4. In combination, a switch tripping lever 130 in combination with a locking lever and an unlocking lever; and switch moving devices for moving the switch in one direction and a switch tripping lever also in combination with a locking lever and an unlocking lever, and switch-moving devices for moving the switch point or tongue in the opposite direction.

5. The tripping levers M M' provided with the automatic locking and unlocking levers L² and L³ in combination with switch levers L L' and a spring latch, substantially as shown and described.

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5 6. A switch tripping lever in combination with a locking lever provided with a spring, an unlocking lever provided with a spring,

Witnesses:

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