

No. 639,374.

Patented Dec. 19, 1899.

A. L. GEORGE.  
DERAILING SWITCH.

(Application filed July 27, 1899.)

(No Model.)

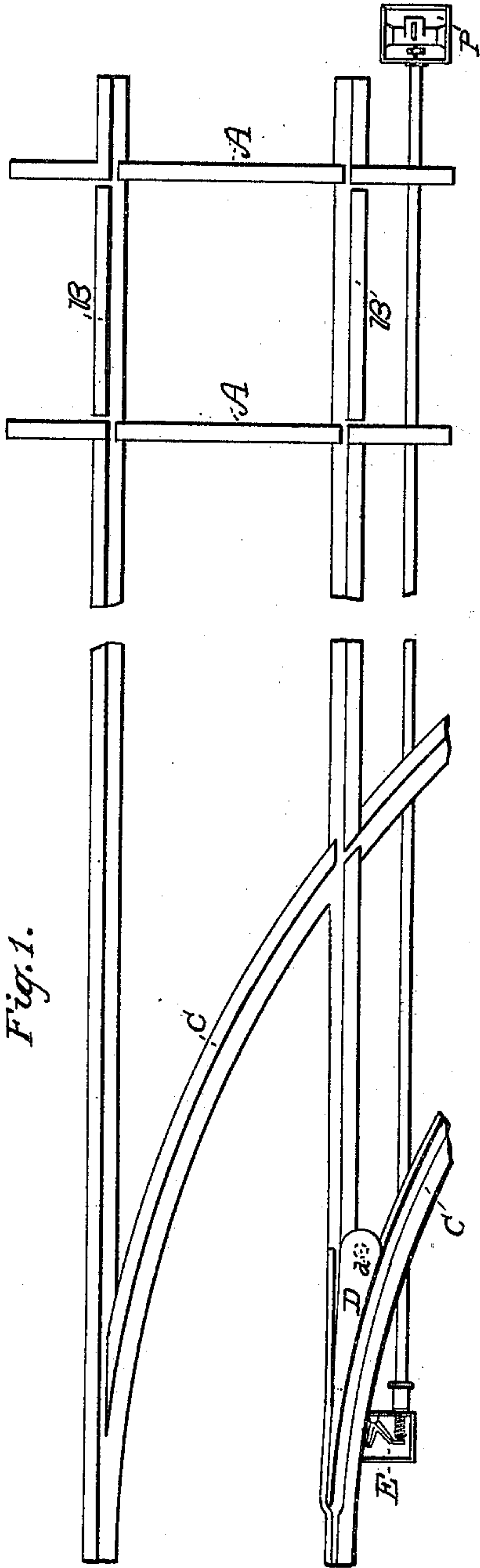


Fig. 1.

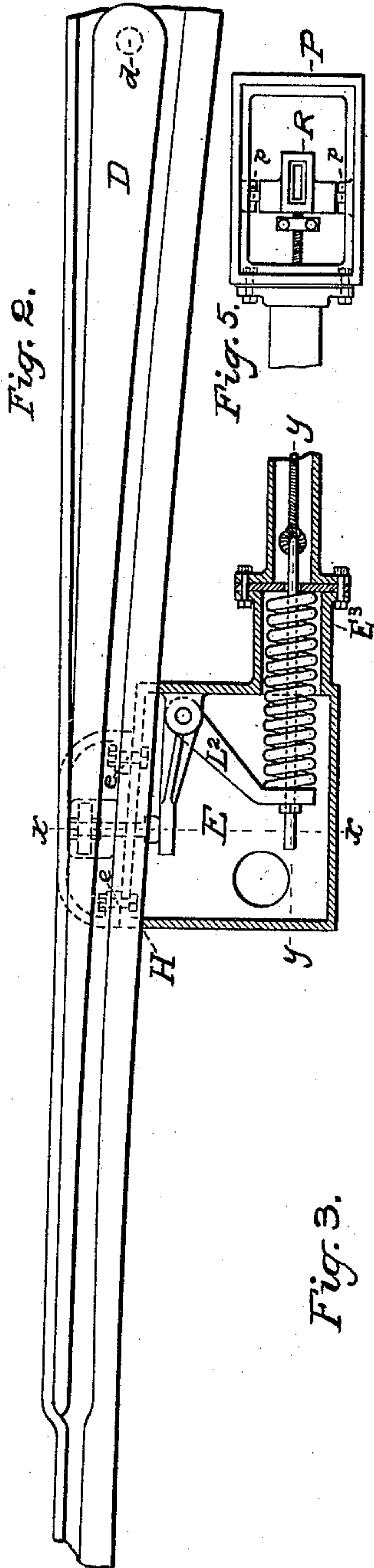


Fig. 2.

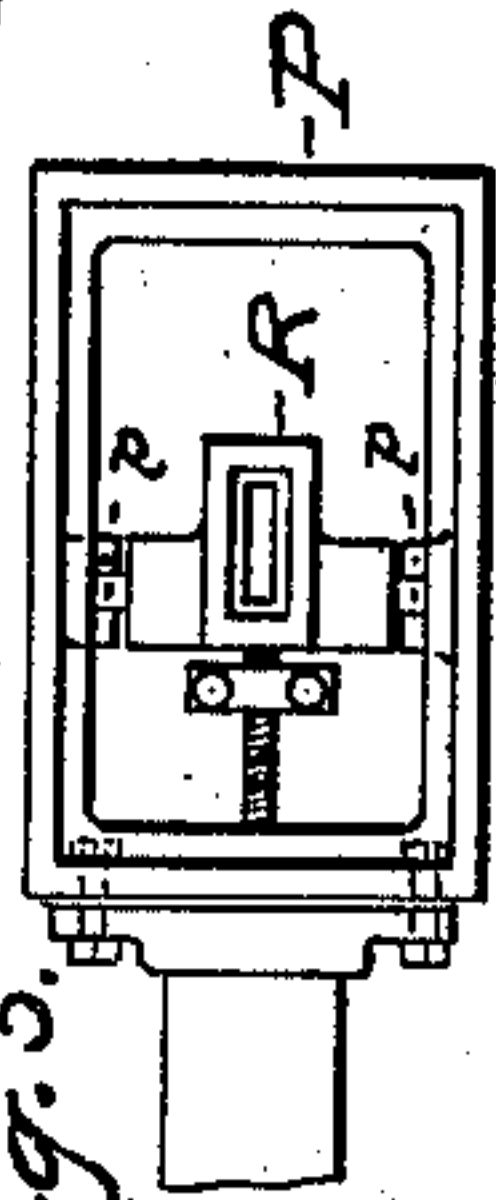


Fig. 5.

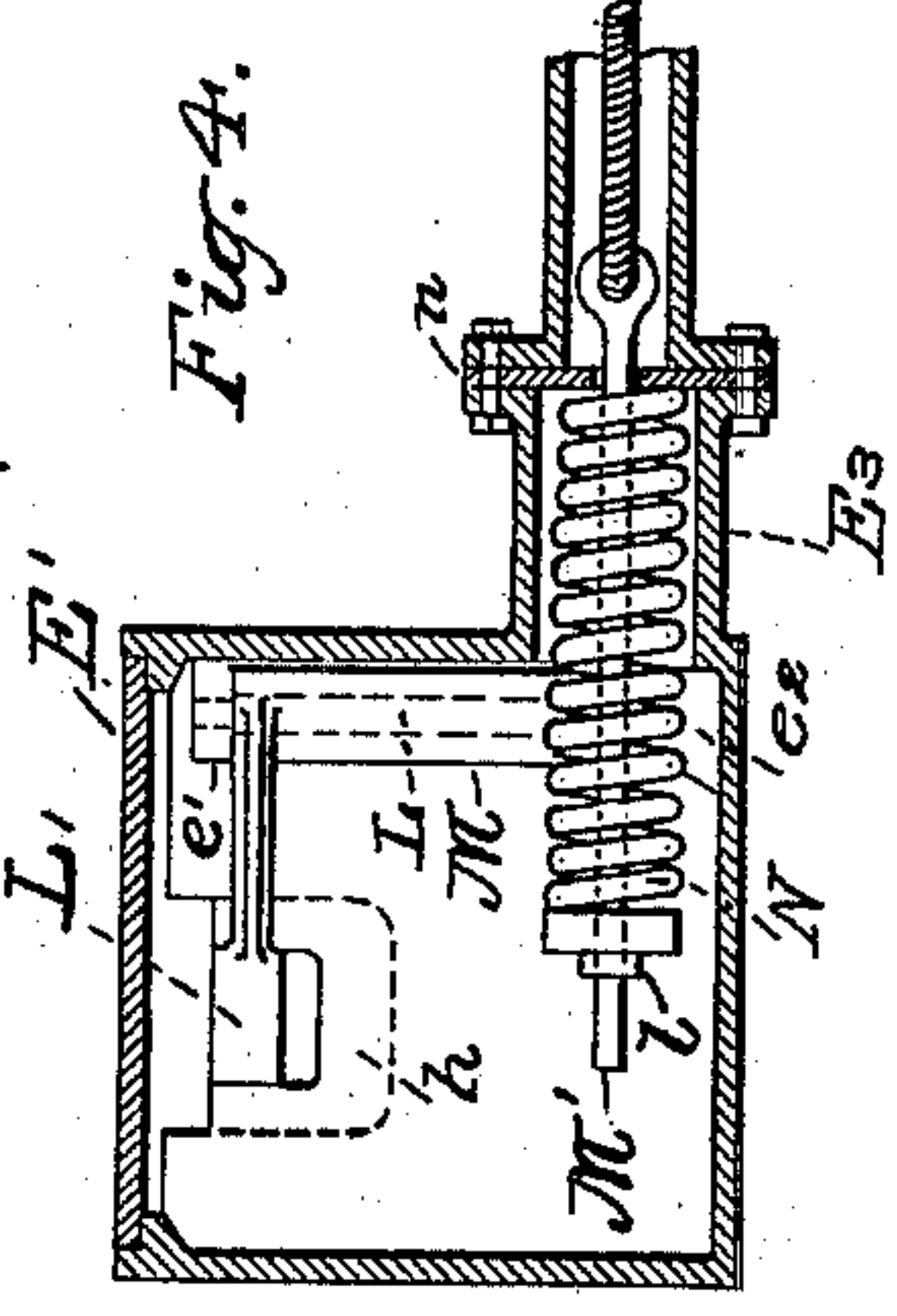


Fig. 4.

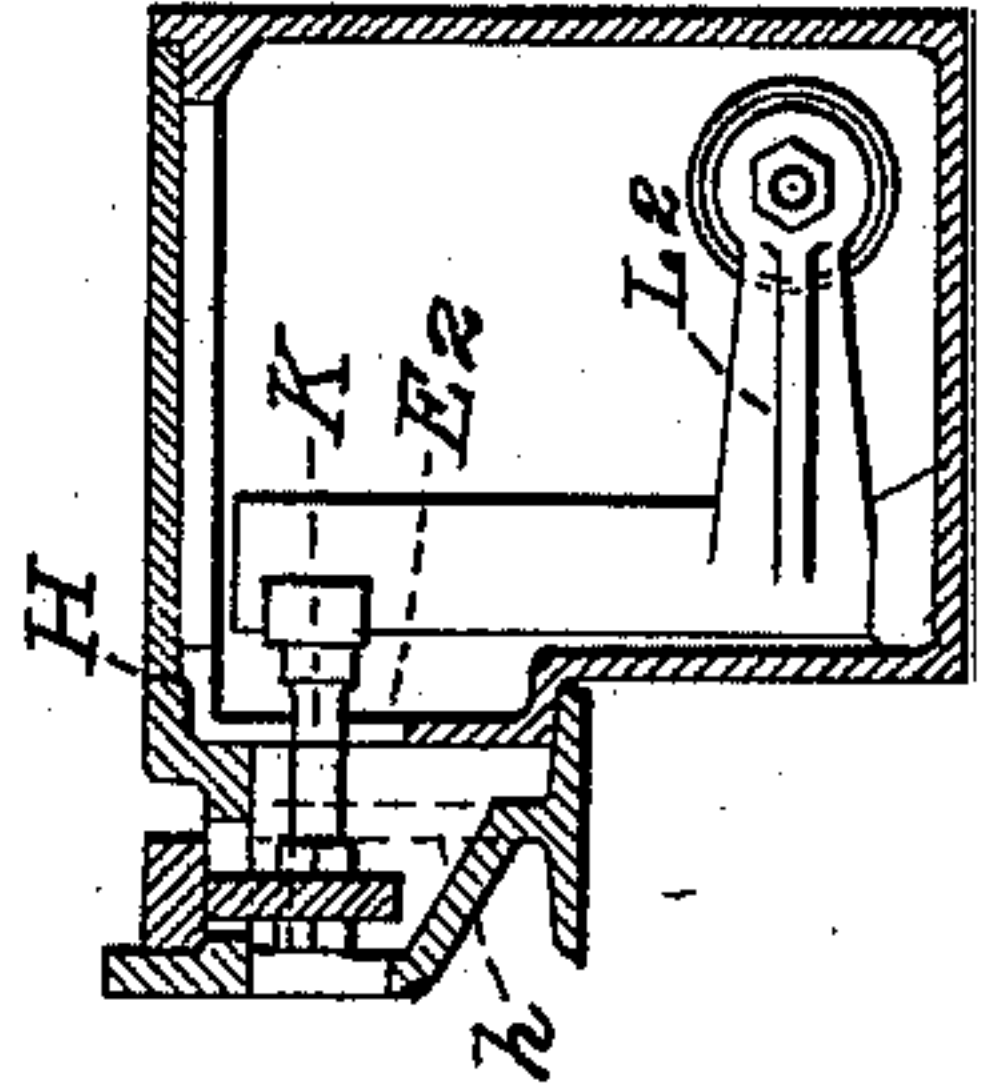


Fig. 3.

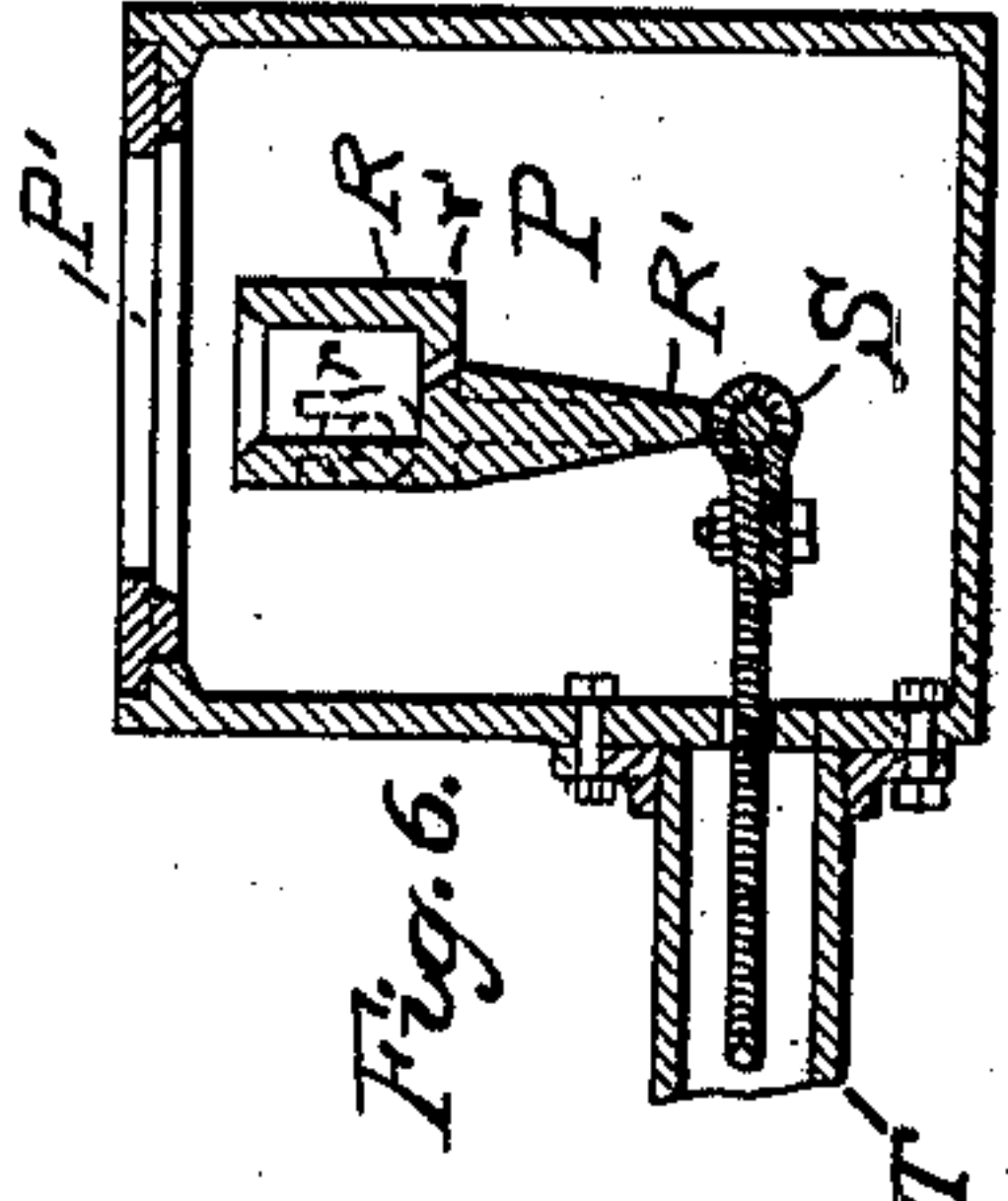


Fig. 6.

WITNESSES:  
M. E. Sharpe.  
A. M. Mace.

INVENTOR  
Arthur L. George  
BY  
Geo. H. Parmelee  
his ATTORNEY.



# UNITED STATES PATENT OFFICE.

ARTHUR L. GEORGE, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE  
LORAIN STEEL COMPANY, OF PENNSYLVANIA.

## DERAILING-SWITCH.

SPECIFICATION forming part of Letters Patent No. 639,374, dated December 19, 1899.

Application filed July 27, 1899, Serial No. 725,333. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR L. GEORGE, of Johnstown, in the county of Cambria, State of Pennsylvania, have invented a new and useful Improvement in Derailing-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to certain improvements in railway-switches of that class known as "derailing-switches," and which are used at grade-crossings for the purpose of preventing accidents. In switches of this class, which are generally used where electric or street cars cross a steam-railroad, the electric or street track is provided with short siding or run-off rails, with the switch normally set in position to divert an approaching car onto such rails, thereby making it necessary for the car to stop at that point and the switch to be thrown to pass the car along the main track. Heretofore various means have been employed for operating the switch-point to throw it at a tower or some other distant point, at which an operator is stationed or to which the conductor or other employee proceeds for that purpose. These means, however, have not been entirely satisfactory for several reasons. In the first place, the mechanism employed has been of a more or less complicated character, expensive to construct, install, and maintain, and generally involves some special form of switch-tongue or movable member. A further objection is that through carelessness on the part of the distant operator or by reason of some defect in the connections or obstruction at the switch the operator may signal a car to proceed before the switch has been thrown, the motor-man on the car relying wholly upon the signal received, or he may pass an approaching car without compelling it to stop, and by carelessness on his part may thus entirely frustrate the object and purpose of the switch.

The objects of my invention are to provide a switch of the class described which is simple and inexpensive in its parts and can be used with any ordinary switch point or tongue, which is not shifted from a distant point, but from a point immediately in advance of the

car, and which cannot, however, be operated until released by a second operator on the distant side of the crossing, and which compels the stoppage of the car before it reaches the crossing.

With these objects in view my invention consists in providing a lock or stop whereby the switch is normally held in position to divert the car to the siding or run-off rails, together with means whereby such lock or stop cannot be released except from a point beyond the crossing, although when so released the switch is operated at the car, and can be operated only at that point.

The invention also comprises means whereby the switch is automatically reset after the car has passed.

The invention also consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a main track and crossing and illustrating the invention. Fig. 2 is an enlarged plan view showing the switch and the means for normally locking the same, the cover of the box which incloses said means being removed. Fig. 3 is a cross-section on the line *xx* of Fig. 2. Fig. 4 is a section on the line *yy* of Fig. 2. Fig. 5 is a plan view of the device at the distant side of the crossing, and Fig. 6 is a vertical section of the same.

In the drawings the letter A designates the track-rails of the steam-road, B the main-track rails of the electric or street road, and C the siding or run-off rails.

D is the switch-tongue, which is shown as of the usual form, pivoted at *d* to the bed of the switch structure.

E designates a suitable box or closure having a removable cover *E'* and set in the road-bed beside the switch intermediate the point and heel of the switch-tongue D. This box is shown as being securely bolted to the guard-rail member H of the switch structure at *cc*. Firmly secured to the switch-tongue and projecting laterally through an opening *h* in the guard-rail H and into the box E through an opening *E'* in the wall thereof is a stud K.

L is a bolt or stud secured in vertical posi-



tion within the box E in the upper and lower lugs  $c'$   $c^2$  thereof.

M is a bell-crank sleeve or rocker, which is loosely mounted on said bolt or stud with its upper arm  $L'$  normally impinging against the inner end of the stud K and its lower and oppositely-extending arm  $L^2$  engaging the end of the rod  $M'$ . The rod  $M'$  extends into the lower portion of the box E through a hollow projection  $E^3$  thereof, and coiled around the rod, between the arm  $L^2$  and a fixed bearing  $n$ , is a stiff coiled spring N. The arm  $L^2$  is held on the rod against this spring by means of a nut  $l$ .

P designates a box set in or adjacent to the road-bed upon the distant side of the crossing. Journaled within this box P, in open side bearings  $p$ , is a rocker R, having a socket  $r$  to receive therein the end portion of a suitable operating-bar and also having a depending arm  $R'$ . Connected to this arm  $R'$  at one end and to the rod  $M'$  at its opposite end is a suitable cable S, which is inclosed in a pipe T or other protective covering.

P' is a slotted cover for the box P.

$r'$  is a drain-opening at the bottom of the socket  $r$ .

The operation is as follows: A car approaching the crossing is compelled to stop, owing to the normal position of the switch, and the conductor or other employee proceeds to the box P at the distant side of the crossing. At this point, by means of a suitable bar inserted into the socket  $r$  of the rocker R, the latter is actuated to move the arm  $R'$  to the right, (looking at the drawings,) thereby pulling on the cable S and rod  $M'$ . This actuates the rocker M to move its arm L away from the stud K of the switch-tongue, and thereby release the lock which said arm formed against movement of the tongue. At the same time the spring N is put under compression. The motorman now, by means of his bar, throws the tongue over and the car proceeds, the distant operator meanwhile continuing to hold the rocker R in the position described. As soon as the operator releases this rocker the spring N immediately throws the point back to its normal position.

It will be observed from the foregoing that the switch is not operated from the distant point, but is simply released to permit its operation at the car, and that until so released it cannot be operated at the car, the spring N being too strong to be overcome by the motorman with the limited leverage which he can obtain with his bar upon the switch-tongue. Moreover, should an attempt of this kind be made, it would avail nothing, as the spring N would return the tongue to its normal position the moment the bar is withdrawn. The tongue will, however, trail to permit the car to pass in the opposite direction.

While I have herein shown and described the invention as applied to a tongue-switch, it is obvious that it may be applied with equal advantage to other forms of switches.

I do not limit myself to the particular means which I have herein shown and described, although I believe that such means are in all respects well adapted to the practical application of my invention. It is obvious, however, that the construction and arrangement may be changed in many particulars without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. The combination with a main track, of a derailing-switch normally set to divert the car from said main track, of a lock for holding the switch so set, and means whereby said lock can be released from a distant point and whereby the switch cannot be shifted except at the place where it is situated.

2. The combination with a main track, of a derailing-switch situated adjacent to a crossing thereof and normally set to divert a car from said track, a lock to normally hold the switch so set, and means whereby said lock may be released only from a distant side of the crossing and without shifting the switch.

3. The combination with main-track and siding rails, of a switch whose movable member is normally set to divert a car to said siding-rails, a lock which normally prevents movement of said member and which is independent of means for shifting or throwing the member to its other position, and means for releasing said lock from a distant point.

4. The combination with main-track and siding rails, of a switch whose movable member is normally set to divert a car to said siding-rails, a lock which normally prevents movement of said member and which is independent of means for shifting or throwing the member to its opposite position, and means for releasing said lock from a distant point said lock having means for automatically resetting it after a car has passed the switch.

5. The combination with main-track and siding rails, of a switch whose movable member is normally set to divert a car to said siding-rails, locking devices for said member arranged to move the tongue in one direction only, and means for releasing the locking device from a distance, said lock having means for actuating the locking device to reset the same and also return the movable member to normal position.

6. In a derailing-switch, the combination with a switch having its movable member normally set to divert a car from the main track, of a locking device disconnected from said member but having a normal impingement against the said member to prevent operation thereof, a spring for maintaining such impingement and means operated at a distance for releasing said impingement.

7. In a derailing-switch, the combination with a switch having its movable member normally set to divert a car from the main track, of a rocker having an arm which normally im-



5 pinges against said member or a projection thereof, a spring acting upon the rocker to maintain such impingement and means operated at a distant point for actuating said rocker in opposition to the spring.

10 8. In a derailing-switch, the combination with a switch tongue or point normally set to divert a car from the main track, and having a lateral projection, a box or casing adjacent to the switch and into which said projection extends, a rocker pivoted in said box or casing and having one arm normally impinging the said projection, means for maintaining such impingement and a connection from said 15 rocker and leading to a distant point, together with means at such point for operating the rocker, through said connection, to release such impingement.

20 9. In a derailing-switch, the combination with a switch-tongue normally set to divert a car from its main track, of a box or closure adjacent to said tongue, a rocker having an arm normally impinging said tongue, a spring for maintaining such impingement, a cable or 25 the like connected to said rocker, and means at the distant end of said cable for operating said rocker in opposition to the spring.

30 10. In a derailing-switch, a movable switch-tongue having a lateral stud or projection, a rocker having an arm normally in contact

with said stud or projection and locking the tongue against movement, a rod engaged by said arm, a spring coiled about said rod between the rocker-arm and a fixed bearing, a cable or the like connected to said rod and 35 extending to a distant point, and means at such point for operating said cable and at the same time to put said spring under compression.

11. In a derailing-switch, a movable switch 40 member, a movable device normally contacting therewith to form a lock against its movement, a cable connected to said device and extending to a distant point, and a socketed rocker to which the distant end of the cable 45 is connected.

12. The herein-described means for compelling a car to stop before passing a crossing, consisting of a switch normally set to divert the car from its course, and locked in that 50 position, and lock-releasing devices located at a distance from the switch, said switch when released being actuated only at the switch.

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

ARTHUR L. GEORGE.

Witnesses:

JOHN H. KENNEDY,  
H. W. SMITH.