

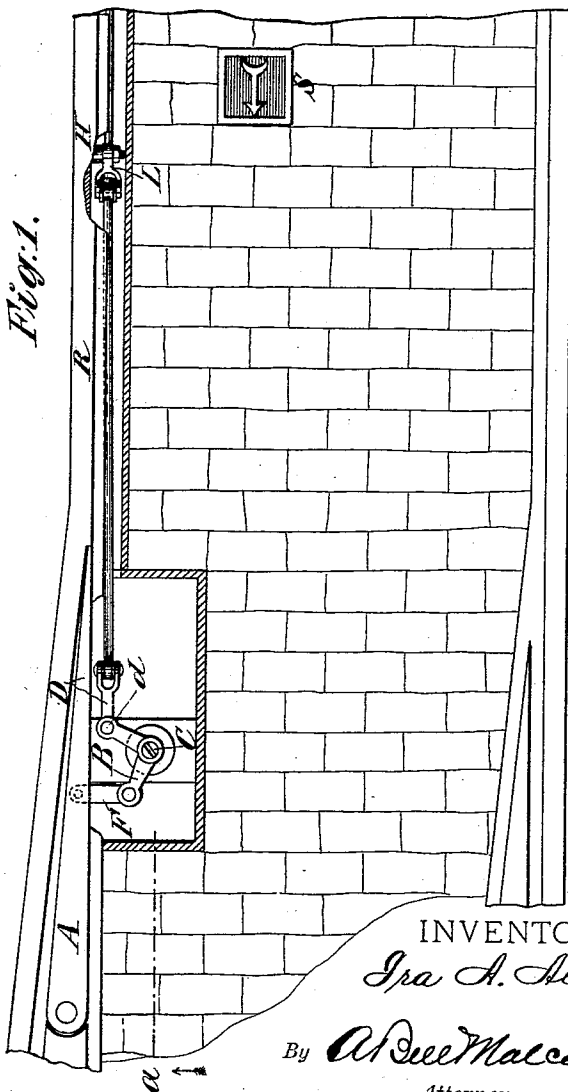
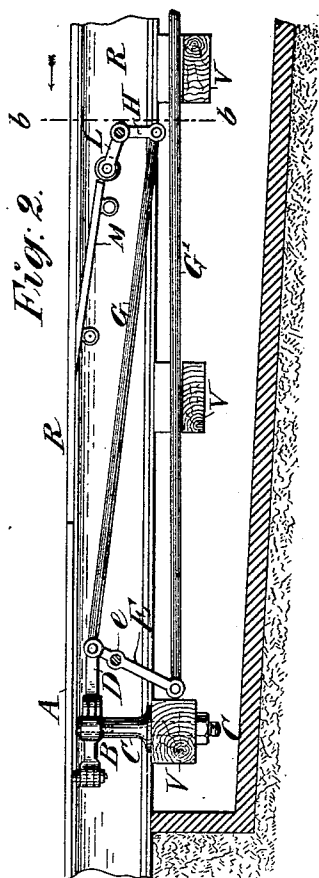
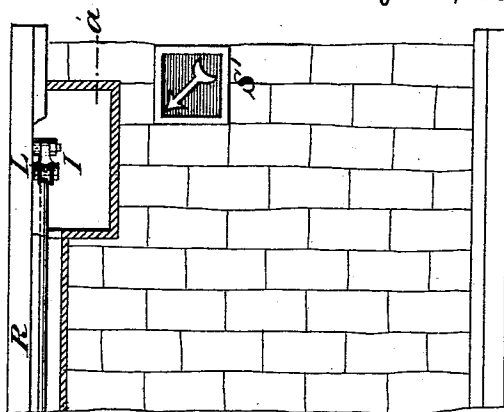
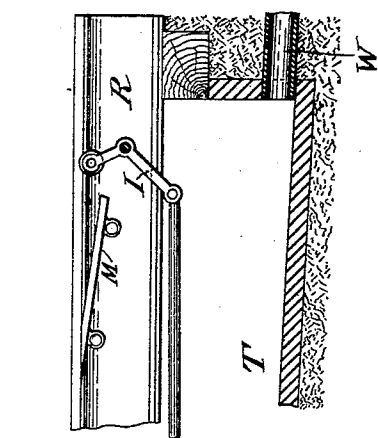
(No Model.)

2 Sheets—Sheet 1.

I. A. ALLEN.
RAILWAY SWITCH.

No. 564,909.

Patented July 28, 1896.



WITNESSES:

J. H. Wilman
Peter A. Ross

INVENTOR:

Ira A. Allen

By *Atlee Malcomson*
Attorney.

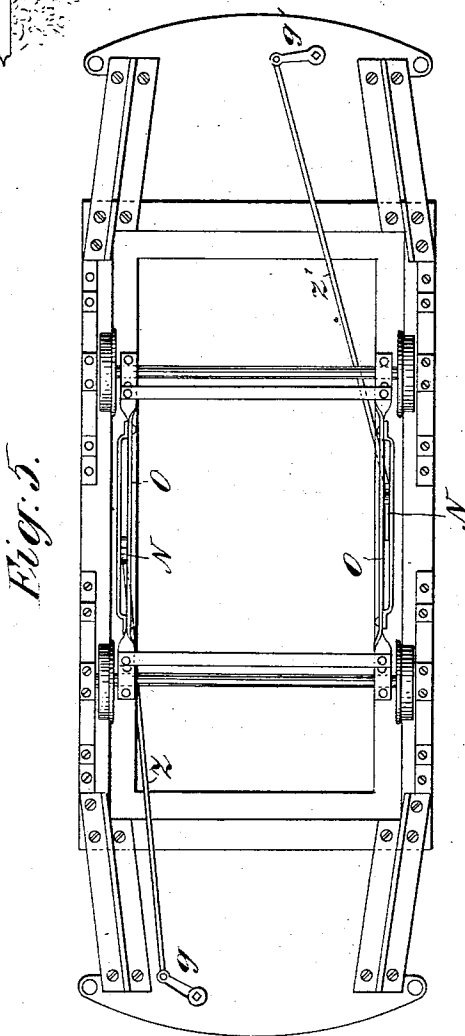
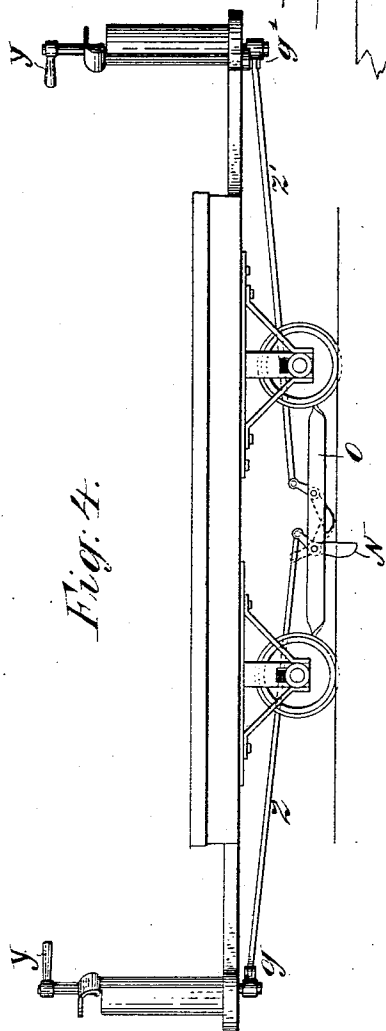
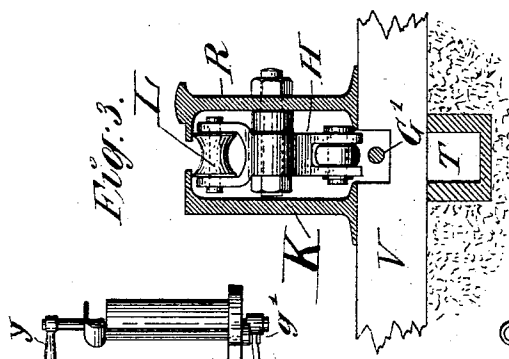
(No Model.)

2 Sheets—Sheet 2.

I. A. ALLEN.
RAILWAY SWITCH.

No. 564,909.

Patented July 28, 1896.



WITNESSES:

J. H. Climan
Peter A. Ross

INVENTOR:

Ira A. Allen

By *Abell Macdonald*
his Attorney.

UNITED STATES PATENT OFFICE.

IRA A. ALLEN, OF NEW YORK, N. Y.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 564,909, dated July 28, 1896.

Application filed April 11, 1895. Serial No. 545,410. (No model.)

To all whom it may concern:

Be it known that I, IRA A. ALLEN, a citizen of the United States, and a resident of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Railway Switches and Turnouts, of which the following is a specification, the principle of the invention being therein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to that class of apparatus by means of which a car traveling on the rails of a track is transferred onto the rails of an adjoining track by a point-switch which is operated by mechanism attached thereto; and one of the objects of my invention is to place the movement of the switch in control of the driver or motorman or other person on the moving car which is to be switched from one track to the other. Among the disadvantages and difficulties incurred in the usual forms of mechanism designed for this purpose have been in the cumbersome-
ness of structure in the system of levers organized to form the reciprocating mechanism and the consequent difficulty in housing in of the train of mechanism in a suitable manner, and the improper exposure and disposition of the switch-keys, which subject them either to misplacement or breakage by passing vehicles or requires special or complicated means on a car to operate them if hidden below the crown of the rail or disposed on both of the rails of the track. Heretofore whenever the mechanism required repairs or adjustment it necessitated the delay of traffic at that point consequent to the removal of a great many parts in order to get at the member of the combination which needed repairs or adjustment. This is entirely obviated in the organization herein presented, as the parts are so located as to be readily accessible to removal and adjustment without causing delays.

One of the important distinguishing features of the present invention is the respective location of the vertical swinging switch-keys below the crown and ranged along in alignment, with respect to the depending car mechanism, on the same rail of a track.

Another distinguishing feature of my invention is the positive maintenance of equilibrium

between the respective members of the reciprocating mechanism, which are supported and balanced in a vertical position.

The different features of my improved device are more particularly set forth in the following specification.

In the drawings, Figure 1 is a plan view of the track, showing the switch and a portion of the operating device at the switch-point. Fig. 2 is a vertical section through lines *a a* of Fig. 1, showing the connection between the operating device at the switch-point and the levers below the rail. Fig. 3 is a vertical cross-section of the track at the point *b b* of Fig. 2. Fig. 4 is a side view of the car, showing the apparatus by means of which the automatic levers below the rail are operated. Fig. 5 is a bottom view of the car with operating device attached.

In practicing my invention I first provide at the junction of the two tracks the usual guard-rails and a movable point *A*. Below the level of the track the movable point *A* is connected with one arm of a bent lever *B*, turning on the pin *C* by means of a bar *F*. The other arm of the bent lever *B* is attached by a pin *d* to a bar *D*, which is again attached by a pin to the bar *E*, which swings at the center on a pin *e*, preferably attached to the side of the track-rail *R* under the point-rail. This bar *E* has attached to it two rods *G* and *G'*, one above and one below the center pin *e*. The rod *G* extends along the rail of the track to a point some little distance, preferably about the length of the car, from the switch, and is there pinned loosely to a pivoted bell-crank or bent lever *H*. The other rod *G'* also extends along the rail of the track in the same direction, but extends some distance farther than the rod *G* and is also attached at its end to a pivoted bell-crank or bent lever *I*.

The distance between the two levers *H* and *I* may be adjusted to secure the best results in each case, and will depend on the location of the switch-point and the length of the car. The space in which rods *G* and *G'* extend is preferably inclosed by a parallel bar acting as a guard-rail, which is shown at *K* in Fig. 3, and the space underneath the ties may be tunneled and inclosed and is preferably so constructed as to carry off any accumulation of water.

At the upper end of the operating-arm of each of the bell-crank levers H and I, I provide a loose pulley, which is shown at L in Fig. 3, and in front of each wheel L, by which I mean on the side of the wheel next to the switch-point I provide a way or platform or inclined plane M, which is inclined at an angle to agree in alinement with the fulcrum of its respective bell-crank from the top of the track-rail R to the level at which the pulley L will be when the lower arm of the levers H and I is in a vertical position. This arrangement is designed to act on the operating-finger attached to the car hereinafter described.

A part of the device attached to the car is shown in the side view of Fig. 4. Various forms of a device for operating on levers H and I may be devised.

I have found the means, as shown in Fig. 4, to answer the purpose fairly well, but I do not desire to limit myself to any particular device or construction or mechanism, so long as the necessary object is obtained, which is to throw down alongside of the rail a finger, such as is shown in Fig. 4, which will come in contact with and operate on the bent levers H and I. In the device which I have used for this purpose a bar O is stretched from the front to the rear axle, and a lever attached to the finger N is connected with a rod or rods passing to the platform of the car for convenience of operation.

The manner of use of my invention will be understood from the drawings and the foregoing description.

The car passing along the track toward the switch-point will continue on the main line of the track if the switch is so set and the mechanism connected with the finger N is not operated, while if the mechanism connected with the finger N is operated upon and the finger N caused to extend down past the crown or top of the rail, so that it will come in contact with the pulley at the end of the lever I, the rod G' will be acted upon and throw the point into the position shown by dotted lines in Fig. 1, and thereby open a passage for the wheels of the car on the rails to the branch track.

The adjustment of the bent levers H and I will determine the position of the switch-point. If it is designed to always have the car follow the main track except when the finger is operated, then the bent levers H and I and the bars G and G' will be set in accordance with this design; and it will also be seen that the finger on passing over the first pulley at the lever I will be reset thereby out of position, so it cannot touch the pulley at the end of the lever H, this

being accomplished by the inclined plane or slide M. In such case, if it is desired to have the movable switch-point thrown into the opposite direction, the finger will be let down from the car only when it has reached a point between the bent lever I and the bent lever H, when the latter only will be acted upon and the switch-point thereby thrown into the desired position. For the convenience of the motorman in throwing down the finger to work the switch-point I place between the rails of the track metal plates S S' at the point where the finger should be thrown down in order to work the switch in the desired manner. The plates may be provided with an arrow or other device indicating the direction the car will take in case the finger is thrown down at that point.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A movable switch-point in a railway-track in combination with levers adapted to move and adjust said point, such levers being controlled in movement by vertically-arranged rocker-lever E, and bell-cranks H and I, positioned and ranged respectively below the crown of the rail of the track and fulcrumed thereon, in alinement with each other and respectively connected by operating-rods to form a rocking frame, which is adapted to be operated by mechanism attached to a moving car, substantially as described.

2. In a railway-switch the bell-cranks H and I supported vertically on the same rail of the track in alinement with each other, a vertically-disposed rocker-lever and operating-rods for connecting the bell-cranks with the respective arms of the rocker-lever, to form a pair of vertically-balanced lever members, and mechanism to communicate the movements of said balanced lever members to a movable switch-point, substantially as described.

3. A movable switch-point in a railway-track in combination with levers adapted to move and adjust said point, such levers being controlled by vertically-supported bell-cranks H and I, fulcrumed in alinement with each other, and inclines M, M, positioned relatively to said bell-cranks, so as to allow the operating-arms of either to assume, when depressed, an oblique position coinciding with the angle of the respective incline, to provide against the accidental pick up of a depressed bell-crank, substantially as described.

IRA A. ALLEN.

Witnesses:

THOMAS F. COEN,
A. BELL MALCOMSON.