

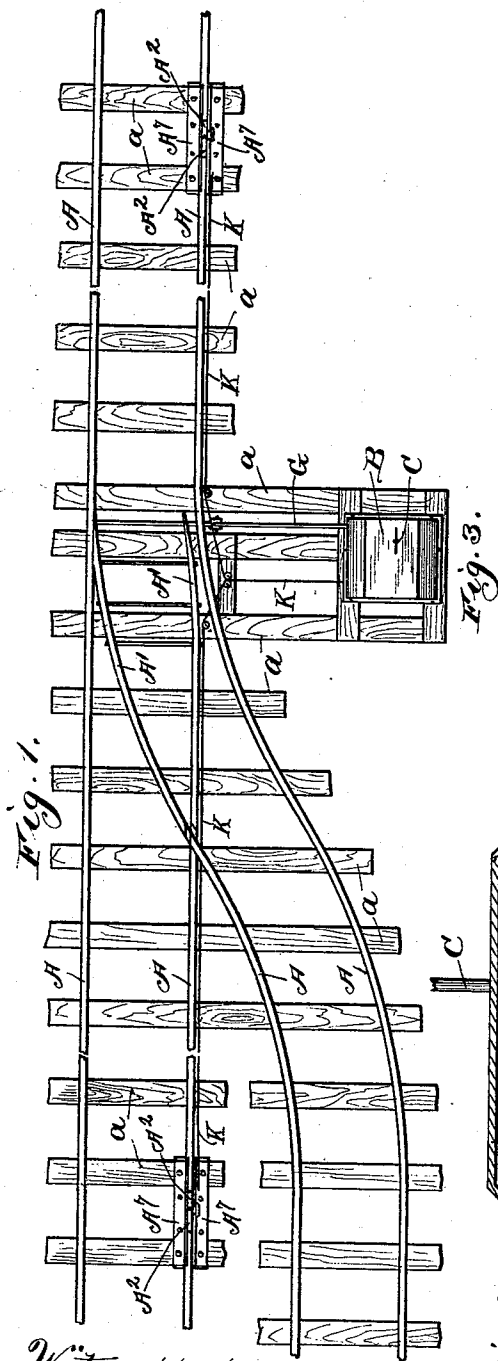
(No Model.)

2 Sheets—Sheet 1.

E. A. LOOMIS.
AUTOMATIC RAILROAD SWITCH.

No. 543,156.

Patented July 23, 1895.



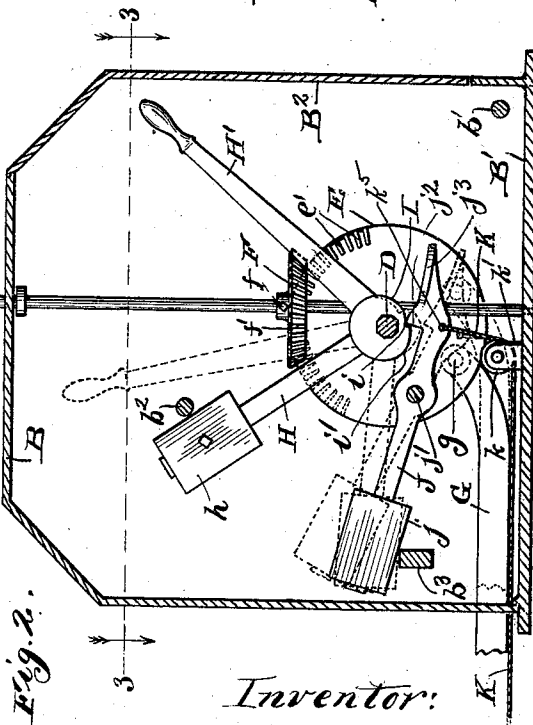
Witnesses:

W. J. Jacker,
W. H. Dellenback.

By

Fig. 2.

Fig. 3.



Inventor:

Ellsworth A. Loomis

J. R. Mowman Atty.

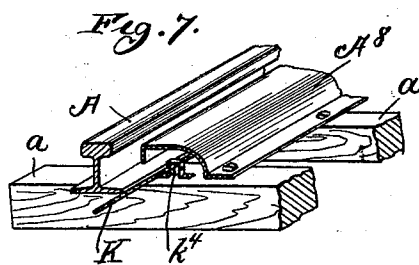
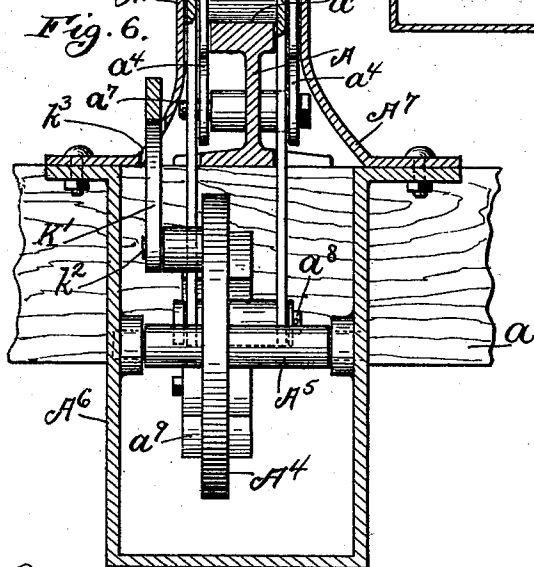
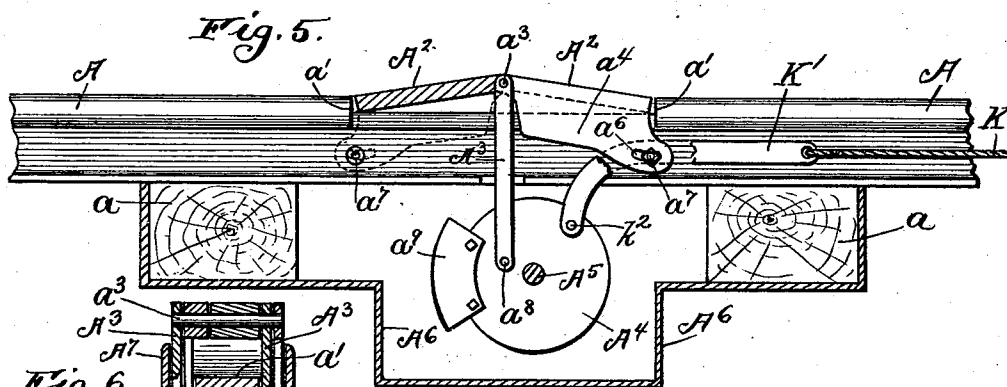
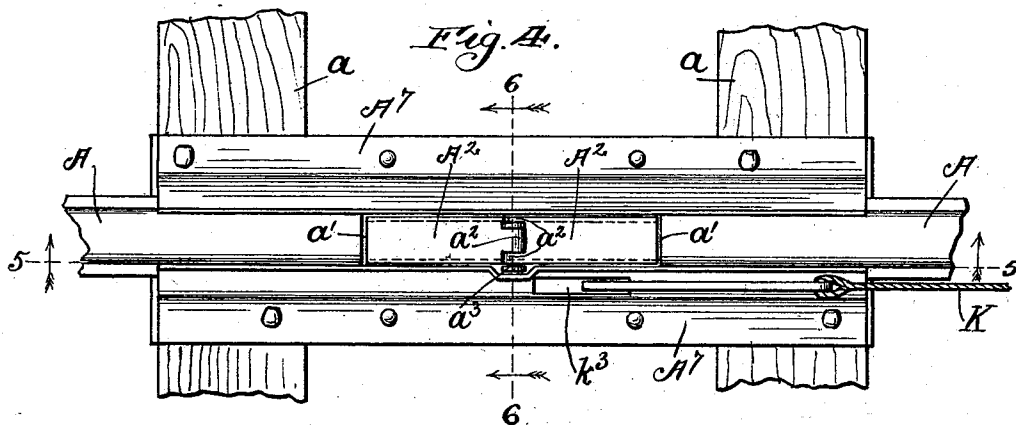
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AUTOMATIC RAILROAD SWITCH.

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Witnesses:

W. J. Jacker,

W. H. Dellenbach.

Inventor:

Edgar A. Lewis

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UNITED STATES PATENT OFFICE.

ELLSWORTH A. LOOMIS, OF CHICAGO, ILLINOIS.

AUTOMATIC RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 543,156, dated July 23, 1895.

Application filed March 23, 1895. Serial No. 542,962. (No model.)

To all whom it may concern:

Be it known that I, ELLSWORTH A. LOOMIS, of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Automatic Railroad-Switches, of which the following is a specification.

My invention relates to means for automatically closing open switches; and the object of my improvements is to provide means, in connection with the track and the switch-throwing mechanism, adapted to be elevated when the switch is open and to be depressed by the engine or car wheels passing over it and thereby closing the switch in advance of the approaching wheels. I attain this object by the means illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a fragment of railroad track and switch provided with my improvements. Fig. 2 is an enlarged vertical cross-section through the box inclosing the switch mechanism. Fig. 3 is a horizontal section taken on the line 3 3 of Fig. 2. Fig. 4 is a detail showing a top view of a fragment of one of the track-rails and ties right at the point where the tripping mechanism is applied to the rail. Fig. 5 is a longitudinal vertical section taken on the line 5 5 of Fig. 4. Fig. 6 is a cross-section taken on the line 6 6 of Fig. 4, and Fig. 7 is a detail showing in perspective a fragment of one of the rails with its supporting-ties and a part of my apparatus in connection therewith.

In the drawings, *a* designates the ties, *A* the track-rails, and *A'* the switch-rails.

B designates a box inclosing the switch-operating mechanism.

C is a signal or danger shaft journaled in the bottom and top of the box and carrying the usual sign (not shown) above the box. The box is preferably made of cast-iron plates secured together by bolts or bars *b*² and *b*³, *B'* being the bottom of the box and there being a door *B*² at the back end.

D is a shaft provided with shoulders journaled in the sides of the box, *E* a bevel-wheel upon said shaft *D*, and provided with a cogged segment *e*.

F is a bevel-gear secured to the signal-shaft *C* by a set-screw *f*, and having its cogs *f'* engaging in the cogs of the gear *E*.

G is a switch-bar pivotally connected at *g*

with the lower part of the gear *E* extending out through an opening in the front of the box *B* and connecting with the switch-rails *A'*. 55

H *H* designate levers whose inner ends are attached to the shaft *D* by means of set-screws and whose outer ends are provided with weights *h* secured in place by set-screws.

H' is a hand-lever secured to the shaft *D* by means of a set-screw. 60

I is a cam mounted on the shaft *D* and provided with a shoulder *i* at the end of the bulging part *i'*.

J is a lever provided with a weight *j*, secured to its outer end and held in place by a set-screw, said lever being mounted upon a shaft or stud secured to the side of the box. Said lever is provided with a shoulder or catch *j*² at its inner end, which is adapted to work in connection with the cam *I*, and it has a foot-plate *j*³ on the extreme end for releasing the connection of the catch of said lever with the cam when opening the switch by hand. 75

K *K* designate wires fastened to the lower side of the lever *J* and passing under a grooved pulley, thence out of the box toward the track, thence around pulleys where said wires part and run in opposite directions along the rails of the track, for a purpose presently to be described. 80

*A*² *A*³ designate hoods or pieces of metal *U*-shaped in cross-section, which are adapted to fit into a notch cut out of the top of the track-rail *A* and to form close-fitting joints *a'* at the opposite ends of the notch in the rail. Said hood-pieces are provided with perforated lips *a*² at their inner ends, which are connected by a bolt or a pin *a*³, so as to form a hinged joint between said parts. The lower outer parts *a*⁴ of said hood-pieces are pivoted to the track-rail by means of slots *a*⁶ and bolts *a*⁷. 85

*A*⁸ designates a link or links having their upper ends attached to the hood by means of the pin *a*³, which joins the lips of the hood, the lower ends being pivotally mounted at *a*⁸ on a disk or crank-wheel *A*⁴, which is supported on a shaft *A*⁵, said shaft being journaled in a cast-iron box *A*⁶, placed below the track for the protection of that part of the apparatus. The wheel *A*⁴ is provided with a weight *a*⁹ on one side, which is adapted to bear down on the link *A*³, so as to pull the 95 100

hood-pieces A^2 down upon the track-rail, so as to hold them normally down on a level with the upper surface of the rail, and fitted in the notch in the rail, so as to form an even surface for the wheel of the car to pass over said notch the same as it does over the rail at other points.

K' is a curved bar pivotally mounted at k^2 upon the disk or crank-wheel A^4 and having the wire or cable K secured to its opposite end.

A^7 designate protection-jackets having their lower edges secured to the flanges of the box A^6 on opposite sides of the track-rail by means of bolts and extended up so as to cover and protect the sides of the hood-pieces, said jackets being extended beyond the head-pieces for some distance at each end. One of said jackets is provided with an opening or slot k^3 for permitting the curved or hooked bar to pass down to connect with the crank-wheel A^4 .

A^8 is a metal guard adapted to fit against the side of the track-rail and to be secured to the ties by nails for covering the wires or cables K where they pass along parallel with said track-rail from the switch mechanism to the place where the hood-pieces are mounted on the rail.

The operation is as follows: When the switch is closed the hand-lever H' and lever J are up in the position shown in dotted lines, Fig. 2, and the hood-pieces lie down flat in the notch in the track-rails, the cable K being held taut by the weight a^9 . The switch may be opened by opening the door B^2 and pulling the hand-lever down until the shoulder of the cam engages in the notch or catch of the lever J . This gives movement to the switch-bar G in the required direction to open the switch, and the engagement of the cam with the lever J locks it open. The falling of the weight of lever J pulls the cable or cables K in the required direction to move crank-wheel A^4 and cause the link A^3 and weight a^9 to be elevated and to raise the joint of the hood-pieces, as shown in Fig. 5, so that an approaching train passing over the raised joint will press it down and thereby pull the cable K in the opposite direction by reversing the crank-wheel, and such pulling of the cable will disengage the connection of the lever J with the cam I , whereupon the weights

h are brought into operation to reverse the movement of the wheel E and close the switch, also reverse the switch-signal by means of the gear connection of said wheel with the signal-shaft. The foot-piece is ordinarily operated for closing the switch. The hood-pieces are preferably placed on the track in both directions from the switch in order to automatically close it, when accidentally left open, by an engine or train of cars approaching from either direction.

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

1. In an automatic switch apparatus of the class described, the switch bar G having one end connected with the switch rails, an operating wheel pivotally connected with the opposite end of said switch bar and mounted on an operating shaft, a hand lever and weights in connection with said operating shaft, an eccentric cam on said shaft and a weighted locking lever in connection with said cam substantially as specified.

2. In an automatic switch apparatus of the class described, the combination of a pair of hinged pieces forming part of the track, of a link and crank mechanism in connection therewith, a weight adapted to hold said hinged pieces down and a pair of jackets connected with the track for protecting said hinged pieces as specified.

3. In an automatic switch apparatus of the class specified, switch operating mechanism connected by a switch bar with the switch rails, a hand lever and weights for operating said switch mechanism, locking mechanism in connection with the switch mechanism, a pair of hinged pieces forming part of the track, gravity operated link and crank mechanism in connection therewith and a cable connecting the switch locking mechanism with said gravity operated link and crank mechanism whereby said hinged pieces may be elevated when the switch is opened and set in position to trip said switch locking mechanism on being depressed, substantially as specified.

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Witnesses:

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