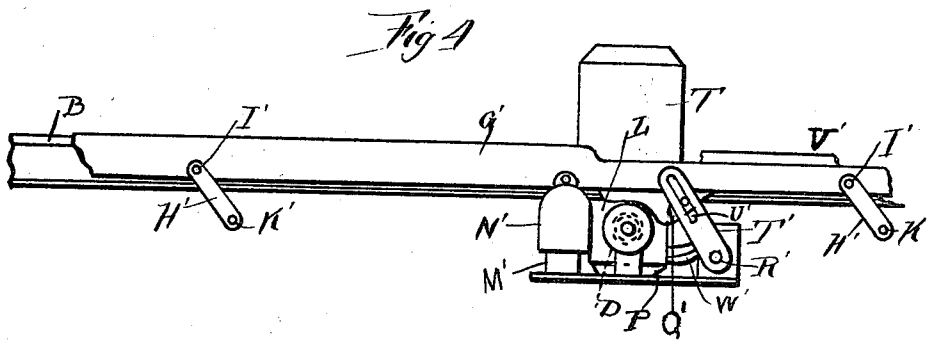
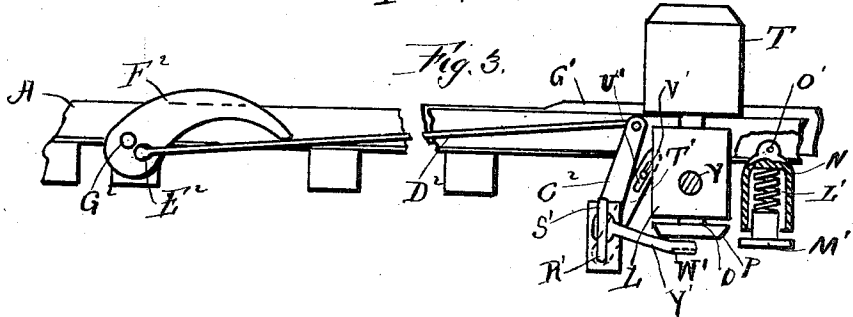
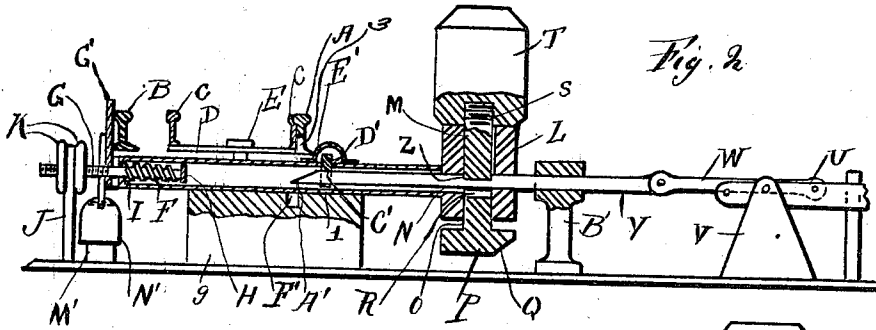


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RAILWAY SWITCH.
APPLICATION FILED OCT. 18, 1910.

1,011,086.

Patented Dec. 5, 1911.
2 SHEETS—SHEET 2.



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RAILWAY-SWITCH.

1,011,086.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Railway-Switches, of which the following is a specification.

My invention relates to a new and useful improvement in railway switches, and has for its object to provide a device of this character, in which the trip lever may be mounted relatively near the switch point, said trip lever remaining unset until the train has entered the siding, and when set may be operated vertically by each succeeding car of the train until the last car has passed the switch point, after which should the trip lever be operated the switch will be immediately closed, thus preventing any mishap to a through train should the switch have been left open by negligence.

Another object of the invention is to provide means for holding the switch point open while the train is passing into the siding, and having means in conjunction with the first named means for setting the trip lever.

A still further object of the invention is to provide a means for locking the switch point either open or closed, thus preventing tampering by unauthorized persons.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a plan view of a track showing a siding leading therefrom and having my improved switch applied thereto. Fig. 2, a section at the line $x-x$ of Fig. 1 looking in the direction of the arrow, minor parts being shown in elevation. Fig. 3, a side elevation of the track showing portions of the switch mechanism broken away to clearly illustrate the construction, and Fig.

4, a side elevation of that side of the track from which runs the siding.

In carrying out my invention as here embodied, A represents the main track, B the siding and C the switch point. To the switch point beneath the same is secured a tube D by means of a screw E or its equivalent, so that as said tube is operated the switch point will move with it in the same direction for opening and closing the switch. In the tube D is mounted a helical spring F, it being coiled about the rod G, one end resting upon the head H of said rod, the other end against the flange I of the tube. This rod is fastened to a bracket J, or some other immovable portion of the switch by the nuts K; the spring F is so situated that when the switch point is opened, said spring is compressed between the end of the tube and the end of the rod, and when the switch point is released the spring will expand, thus closing the switch.

Upon one end of the tube D is mounted the casing L, having a vertical opening M and a horizontal opening N. In the vertical opening is mounted the sliding rod O, having a foot P, a portion of which is beveled, as at Q for a purpose to be hereinafter described. Said rod O is provided with a horizontal opening R and has its upper end threaded as at S, on which is mounted the weight T for normally holding the rod O downward.

U is a switch lever pivoted to the bracket V and to the former is pivoted the link W, one end of which is pivoted to the switch rod Y, said switch rod having a notch Z therein and having its free end beveled as at A'. This switch rod may pass through a suitable bracket B', then through the openings N and R in the casing L and the rod O respectively. The end of this switch rod rests within the tube D and when moved toward the switch point, its beveled end will pass into the opening C' in the pin D' which pin is mounted within the tube D and passes through an opening (1) in the under side of said tube, thus raising said pin and disengaging it from the opening F' in the stationary block or bracket g, and when this pin D' is disengaged from the opening F', the switch point will be unlocked and again be operated.

The pin D' being longer than the inside height of the tube D, or of such length that it will not operate within the tube it is necessary to form an opening 2 in the top of the tube to permit said pin D' to pass there-
 5 through, and in order to prevent outside interference with said pin I provide a cap E' which covers the opening 2 and is secured to the tube. As said cap is at one time upon
 10 one side of the rail A and at another time upon the opposite side, an opening 3 is formed in said rail to permit said cap to pass from one side to the other.

From the foregoing description it will be
 15 seen, that by turning the handle end of the switch lever U over toward the switch point, it being understood that the switch is closed, the switch rod Y will be moved inward with relation to the tube D, the beveled end there-
 20 of disengaging the pin D' from the opening F' unlocking the switch point, since said switch point is fastened to the tube D, at the same time the notch Z in the switch rod Y will be brought into alinement with
 25 the rod O, and as the notch Z is of greater width than the rod O, said rod will drop into the notch because of the weight T. When in this position the switch lever U is operated in the opposite direction, which
 30 will draw the switch rod U outward, and as the rod O is in engagement with said switch rod, and said rod O is mounted in the casing L, which is mounted upon the tube D; these last named parts will be drawn
 35 outward, thus opening the switch, since said switch is securely fastened to the tube D. By this action the spring F will be compressed and when the tube is released, as will be hereinafter described, said spring
 40 will expand, and close the switch.

G' denotes a holding member, which is a long strip of metal conforming with the curvature of the siding and is mounted adjacent one of the rails on the outside there-
 45 of, and is sufficiently removed from said rail at the switch point to prevent it from being engaged by the wheels of trains using only the main track. Said holding member is pivoted to the links H' at I' and these
 50 links are pivoted to some stationary brackets J' at K'. These links are so placed that as the holding member G' moves downward it will move slightly horizontally. Said holding member is normally held upward
 55 by a spring L' mounted in the base tube M' placed beside the track and over which telescopes the cap tube N', which is pivoted to the holding member G', at O'. Said holding member is limited in its movement at
 60 one end by the guide and stop P'. The holding member G' is produced sufficiently wide at Q' to cause it to rest behind the end of the tube D when said member is moved downward, and when in this position, should

the switch be released the tube will be pre- 65
 vented from moving, causing the switch to remain open until the holding member G' is released, and when this is released the train has passed beyond the switch point.

Passing beneath the tracks is the rod R', 70
 having the end which is adjacent the casing L bent at right angles to the body of the rod, as at S', and this extension normally rests in a vertical position. On the oppo-
 75 site end of said rod R' is securely mounted the arm T', which is provided with a slot U', and in this slot operates the pin V' mounted upon the sliding member G', so that with any downward movement of the
 80 holding member G' the rod R' will be rotated, causing the extension S' to be moved toward the casing L, causing the catch W' to pass beneath the foot P. This catch is provided with a nose X' and has a finger Y'
 85 produced from one side, with which engages the extension S' to force the nose X' of the catch beneath the foot P. This catch is pivoted at Z' to a rod A², which is journaled
 90 in the bracket B². On the opposite end of this rod is mounted the arm C², to the upper end of which is connected the cable D² or its equivalent, said cable being fastened at
 95 E² to the trip lever F² pivoted at G² beside one of the rails at some suitable distance from the switch point.

From this description it will be seen that when the switch is opened the catch W' is out of engagement with the foot P, there-
 100 fore the trip lever F² is unset or rests below the surface of the rail. Since the switch will not be opened unless the siding is to be used, it is unnecessary to set the trip lever until the train has passed into the siding, and in so doing the holding member G' will
 105 be pressed downward, causing the arm T' to rotate the rod R', whose extension S' will engage the finger Y' of the catch W', forcing the nose X' of said catch beneath the foot P of the rod O, but because of the
 110 weight T and the friction between the rod O and the switch rod Y, said rod O will not be disengaged from the switch rod Y, as the nose of the catch passes beneath the foot P, the free end of said catch will be moved
 115 downward, rotating the rod A², which through the medium of the arm C² of the cable D² will set the trip lever F² and if the train is long enough to extend back over the trip lever F² the wheels of the last cars
 120 as they pass over the trip lever F² will depress the same, rotating the rod A² in the opposite direction, which will lift the foot P and the rod O and disengage it from the switch rod Y, but as the first part of the train is passing over the holding member G',
 125 it being understood that said holding member is of sufficient length so that a wheel rests upon the same, at all times said hold-

ing member will be depressed and will be resting behind the end of the tube D, preventing any movement of said tube and likewise the switch point, then after the last car has passed over the trip lever, the weight T will cause the rod O to again engage the notch Z and the switch rod Y, thus holding the switch open, but having the trip lever F² set. If the switch point is left open after the train has passed into the siding and a through train is passing, the wheels thereof will engage the trip lever F², depressing the same, and through the medium of the cable D² and the arm C² will rotate the rod A² lifting the nose X' of the catch W', which will lift the foot P and the rod O, disengaging the same from the notch C in the switch rod Y. At this point the spring F will be allowed to expand, moving the tube D to close the switch, thus permitting the through train to pass safely. As the switch is closed, the tube D slides in the bracket g, and when the pin D' alines with the opening F' it will drop therein, securely locking the switch point. Should any through train pass while the other train is on the siding, then as said train passes from the siding to the main track it will first engage the holding member G' to prevent the closing of the switch until after the last car has passed through the switch, then as said holding member G' is released, with the next movement of the trip lever F² the switch will be closed behind the train.

Of course I do not wish to be limited to the exact details of construction here shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

1. In a railway switch the combination with the railway tracks and the switch point thereof, a horizontal tube movable from side to side and attached to the switch point, a casing having a horizontal opening and a vertical opening, said casing attached to one end of the tube, a rod having an opening therethrough mounted in the vertical opening in the casing, a weight mounted on top of said rod, means passing through the horizontal opening in the casing and the opening in the rod for engagement with said rod to draw the tube to one side for opening the switch and resilient means for drawing the tube to the opposite side thus closing the switch when the rod and the opening means are disengaged.

2. In a railway switch the combination with the railway tracks and the switch point thereof, a horizontal tube movable from side to side and attached to the switch point, a casing having a horizontal opening and a vertical opening said casing attached

to one end of the tube, a rod having an opening therethrough mounted in the vertical opening in the casing, a weight mounted on top of said rod, a means passing through the horizontal opening in the casing and the opening in the rod for engagement with said rod to draw the tube to one side for opening the switch means for disengaging the vertical rod from the switch, throwing means and means for drawing the tube in the opposite direction when said disengagement takes place.

3. In a railway switch the combination with the railway tracks and the switch point thereof, a horizontal tube movable from side to side and attached to the switch point, a casing having a horizontal opening and a vertical opening, said casing attached to one end of the tube, a rod having an opening therethrough mounted in the vertical opening of said casing, a weight mounted on top of said rod, means passing through the horizontal opening in the casing and the opening in the rod for engagement with said rod to draw the tube to one side for opening the switch, means for disengaging the vertical rod from the switch throwing means, a stationary rod having a head, a portion of said rod extending into the tube and a spring coiled about said rod one end resting against the head and the opposite end against a portion of the tube said spring acting to draw the tube in the opposite direction for closing the switch when the vertical rod is disengaged from the throwing mechanism.

4. In a railway switch the combination with the railway tracks and the switch point thereof, a horizontal tube movable from side to side and attached to the switch point, a casing having a horizontal opening and a vertical opening, said casing attached to one end of the tube, a rod having an opening therethrough mounted in the vertical opening of said casing, a weight mounted on top of said rod, means passing through the horizontal opening in the casing and the opening in the rod for engagement with said rod to draw the tube to one side for opening the switch, means for disengaging the vertical rod from the switch, throwing means, a stationary rod having a head, a portion of said rod extending into the tube and means for locking the tube when the switch is closed.

5. In a railway switch the combination with the main tracks and the switch point thereof, a horizontal slidable tube attached to the switch point, a casing mounted on one end of said tube, a vertical rod slidably mounted in said casing, a weight carried by said rod, a switch rod passing through the casing and the vertical rod adapted to engage the first named rod,

means for operating the switch rod, to open the switch point and means for engaging one end of the tube for holding the switch point while a train is passing into the siding.

5 6. In a railway switch the combination with the main tracks and the switch point thereof, a horizontal slidable tube attached to the switch point, a casing mounted on one end of said tube, a vertical rod slidably
10 mounted in said casing, a weight carried by said rod, a switch rod passing through the casing and the vertical rod adapted to engage the first named rod, means for operating the switch rod to open the switch
15 point, resilient means engaging the tube for closing the switch point and means mounted beside the track and engaging one end of the tube in its downward movement for holding the switch point open when a train is pass-
20 ing into the siding.

7. In combination with the main track and the switch point thereof, of a bracket mounted beneath the track, a tube having a flange formed with one end, slidably mount-
25 ed upon said bracket and attached to the switch point, a stationary rod having a head formed therewith passing into the tube, a spring coiled about said rod, one end resting against the head the opposite end
30 against the flange, said spring adapted to normally hold the switch point closed, a casing mounted upon the opposite end of the tube, said casing having a vertical and a horizontal opening therethrough, a verti-
35 cal rod having an opening therethrough mounted in said opening, a foot formed with said rod having a beveled edge, a weight carried by the upper end of said rod, a switch rod having a notch therein
40 passing through the horizontal opening in the casing and the opening in the first named rod said first named rod adapted to engage the notch in the switch rod when the switch rod is moved into the tube, a switch
45 lever, a link connecting said switch lever with the switch rod for operating said switch rod and likewise the switch point, means for disengaging the vertical rod in the casing from the switch rod and means
50 engaging the tube for holding the switch point open when the vertical rod is disengaged from the switch rod while a train is passing into the siding.

8. In combination with the main track
55 and the switch point thereof, of a bracket mounted beneath the track, a tube having a flange formed with one end, slidably mounted upon said bracket and attached to the switch point, a stationary rod having a
60 head formed therewith passing into the tube, a spring coiled about said rod one end resting against the head the opposite end against the flange, said spring adapted to normally hold the switch point closed, a cas-

ing mounted upon the opposite end of the 65 tube, said casing having a vertical and a horizontal opening therethrough, a vertical rod having an opening therethrough, a foot formed with rod having a beveled edge, a weight carried by the upper end of said rod, 70 a switch rod having a notch therein and having its inner end beveled, said rod passing through the opening in the casing and the opening in the vertical rod into the tube, a switch lever, a link for connecting said 75 switch lever with the switch rod, a pin having an opening therein, passing through the tube and engaging the bracket beneath the tube when the switch point is closed, the beveled end of the switch rod adapted to 80 pass through the opening in said pin for raising said pin and a trip lever, said trip lever remaining unset when the switch is opened to let the train pass to the siding.

9. In a combination with the main track 85 and the switch point thereof, of a bracket mounted beneath the track, a tube having a flange formed with one end, slidably mounted upon said bracket and attached to the switch point, a stationary rod having a head 90 formed therewith passing into the tube, a spring coiled about said rod one end resting against the head and the opposite end against the flange, said spring adapted to normally hold the switch point closed, a cas- 95 ing mounted upon the opposite end of the tube, said casing having a vertical and a horizontal opening therethrough, a vertical rod having an opening therethrough, mount- ed in said casing, a foot formed with said 100 rod having a beveled edge, a weight carried by the upper end of said rod, a switch rod having a notch therein and having its inner end beveled, said rod passing through the opening in the casing, and the open- 105 ing in the vertical rod into the tube, a switch lever, a link for connecting said switch lever with switch rod, a pin having an open- ing therein passing through the tube and engaging the bracket beneath the tube when 110 the switch point is closed, the beveled end of the switch rod adapted to pass through the opening in said pin for raising said pin, a bracket, a rod journaled therein, a catch pivoted to one end of said rod adapted to 115 engage the foot of the vertical rod, a trip lever, a cable connecting the trip lever with the rod and means for forcing the catch beneath the foot of the vertical rod, thus setting the trip lever when a train passes 120 into the siding.

10. In a combination with the main track and the switch point thereof, of a bracket mounted beneath the track, a tube having a flange formed with one end slidably mount- 125 ed upon said bracket and attached to the switch point, a stationary rod, having a head formed therewith passing into the

tube, a spring coiled about said rod one end resting against the head the opposite end against the flange, said spring adapted to normally hold the switch point closed, a casing mounted upon the opposite end of the tube, said casing having a vertical and a horizontal opening therethrough mounted in said casing, a foot formed with said rod having a beveled edge, a weight carried by the upper end of said rod, a switch rod having a notch therein and having the inner end beveled, said rod passing through the opening in the casing and the opening in the vertical rod into the tube, a switch lever, a link for connecting said switch lever with the switch rod, a pin having an opening therein passing through the tube and engaging the bracket beneath the tube when the switch point is closed, the beveled end of the switch rod adapted to pass through the opening in said pin for raising said pin, a bracket, a rod journaled therein, a catch having a nose and a finger formed therewith pivoted to said rod, an arm secured to the opposite end of said rod, a trip lever pivoted beside the track, a desirable distance from the switch point, a cable for connecting said trip lever with the arm and means for forcing the catch beneath the foot of the vertical rod thus setting the trip lever.

11. In combination with the main track and the switch point thereof, of a bracket mounted beneath the track, a tube having a flange formed with one end slidably mounted upon said bracket and attached to the switch point, a stationary rod having a head formed therewith passing into the tube, a spring coiled about said rod one end resting against the head and the opposite end against the flange, said spring adapted to normally hold the switch point closed, a casing mounted upon the opposite end of the tube, said casing having a vertical and a horizontal opening therethrough, a vertical rod having an opening therethrough mounted in said casing, a foot formed with said rod having a beveled edge, a weight carried by the upper end of said rod, a switch rod having a notch therein and having its inner end beveled said switch rod passing through opening in the casing and the opening in the vertical rod into the tube, a switch lever, a link for connecting said switch lever with the switch rod, a pin having an opening passing through the tube and engaging the bracket beneath the tube when the switch point is closed, the beveled end of the switch rod adapted to pass through the opening in said pin for raising said pin, a bracket, a rod journaled therein, a catch having a nose and a finger formed therewith pivoted to said rod, an arm secured to the opposite end of said rod, a trip lever pivoted beside the track a de-

sirable distance from the switch point, a cable for connecting said trip lever with the arm, a holding member mounted beside the track leading to the siding, resilient means for normally holding said member upward, an L shaped rod passing beneath the track and engaging the catch for forcing the latter beneath the foot of the rod to set the trip lever and means for connecting the holding member and said rod.

12. In a combination with the main track and the switch point thereof of a bracket mounted beneath the track, a tube having a flange formed with one end slidably mounted upon said bracket and attached to the switch point, a stationary rod having a head formed therewith passing into the tube, a spring coiled about said rod one end resting against the head and the opposite end against the flange, said spring adapted to normally hold the switch point closed, a casing mounted upon the opposite end of the tube, said casing having a vertical and a horizontal opening therethrough, a vertical rod having an opening therethrough mounted in said casing, a foot formed with said rod having a beveled edge, a weight carried by the upper end of said rod, a switch rod having a notch therein and having the inner end beveled, said switch rod passing through opening in the casing and the opening in the vertical rod into the tube, a switch lever, a link for connecting said switch lever with the switch rod, a pin having an opening passing through the tube and engaging the bracket beneath the tube when the switch point is closed, the beveled end of the switch rod adapted to pass through the opening in said pin for raising said pin, a bracket, a rod journaled therein, a catch having a nose and a finger formed therewith pivoted to said rod, an arm secured to the opposite end of said rod, a trip lever pivoted beside the track a desirable distance from the switch point, a cable for connecting said trip lever with the arm, a holding member adapted to lie adjacent to the track, brackets, links pivoted to said brackets and to the holding member, a guide and stop mounted at one end of said holding member, a rod having one end bent at right angles to form an extension, said extension engaging the finger of the catch, an arm secured to said rod, said arm having a slot therein, a pin carried by the holding member and registering with the slot so that with the downward movement of the holding member the rod will be rotated causing the catch to be forced beneath the foot of the vertical rod to set the trip lever, said trip lever when pressed downward adapted to raise the catch, thus disengaging the rod in the casing from the switch rod allowing the switch point to be

closed by the action of the coiled spring, a
base tube mounted beneath the holding
member, a cap tube telescoping upon the
base tube said cap tube being pivoted to
5 the holding member and a spring mounted
within said tubes for normally forcing them
apart.

In testimony whereof, I have hereunto
affixed my signature in the presence of two
subscribing witnesses.

FREDERICK SMITH.

Witnesses:

HARRY HOBDELL,
MORRIS L. KOLB.