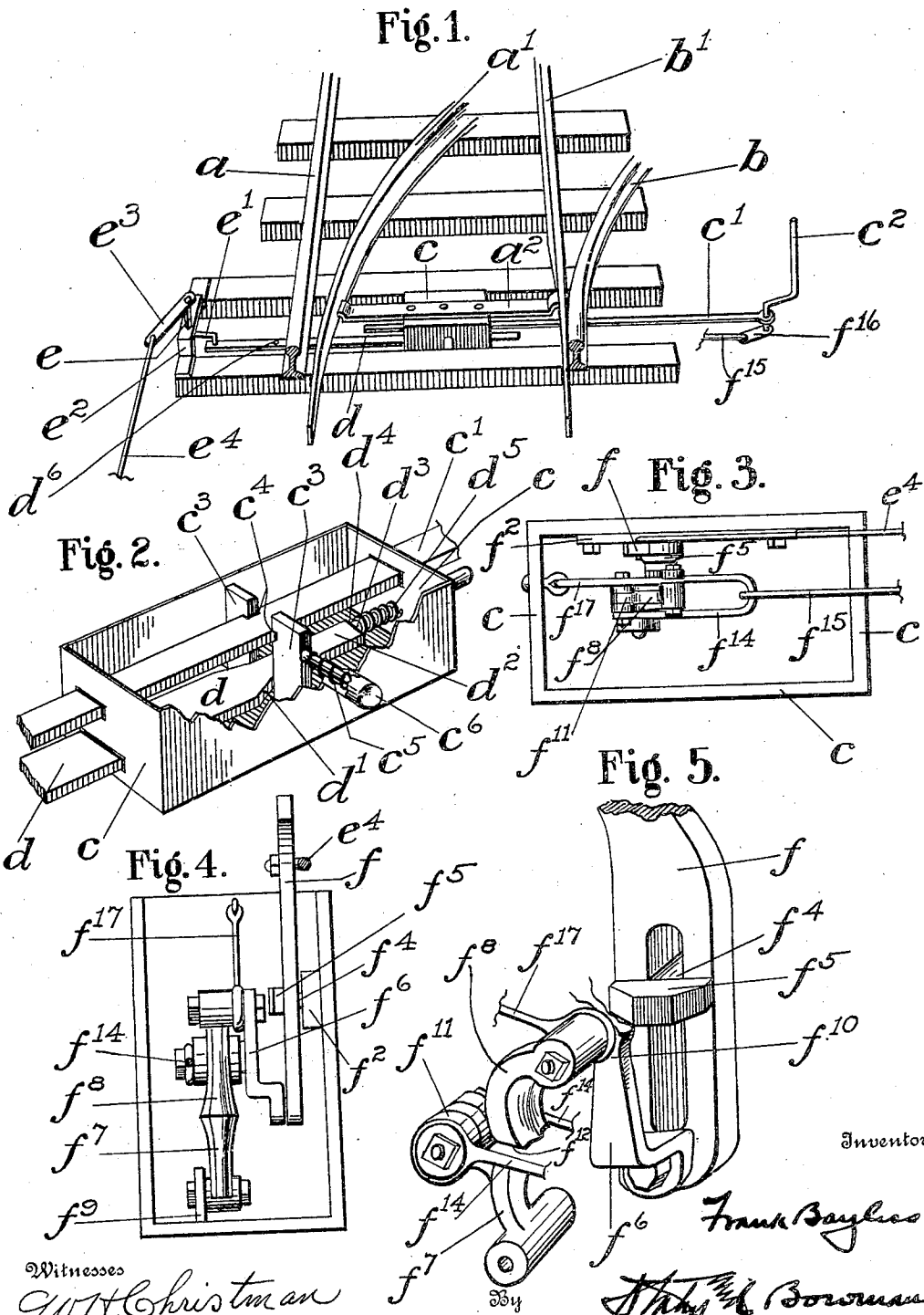


942,996.

F. BAYLESS.
RAILWAY SWITCH.
APPLICATION FILED APR. 13, 1907.

Patented Dec. 14, 1909.
3 SHEETS—SHEET 1.



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Fig. 6.

Fig. 7.

Fig. 8.

*f*⁸ *f*³ *f*¹⁰ *f*⁴ *e*⁴ *f*⁵ *f*⁶ *f*² *f*¹⁷ *f*¹¹ *f*⁷ *f*¹² *f*¹⁴ *f*¹⁵ *f*⁹ *f*¹³ *Frank*

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Fig. 11.

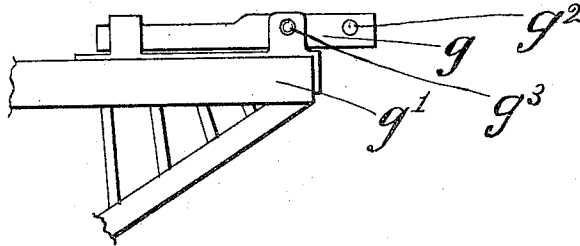


Fig. 10.

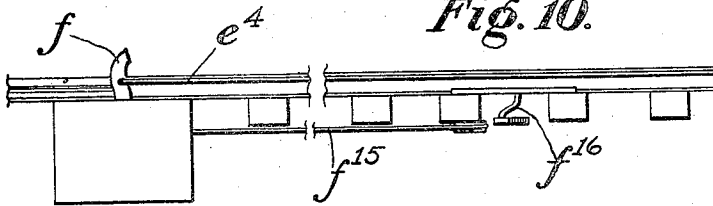
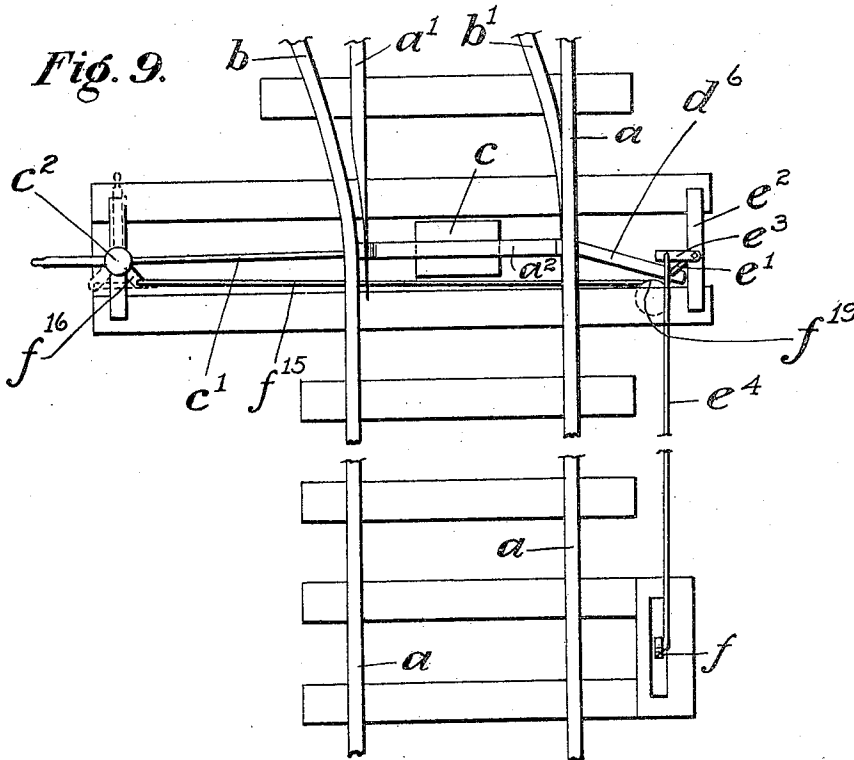


Fig. 9.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH.

942,996.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed April 13, 1907. Serial No. 367,919.

To all whom it may concern:

Be it known that I, FRANK BAYLESS, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

My invention relates to improvements in railway switches, and it more particularly relates to a switch which is designed to be operated under certain conditions by a moving car or train.

The object of my invention is to improve upon the construction set forth in my United States Letters-Patent, No. 750,334, dated January 26th, 1904; the particular object being to provide means for throwing the train operated devices into position to be operated by a moving car or train whenever the switch is opened by the usual hand-operated device.

My invention consists in the construction and combination of parts hereinafter described and set forth in the claims.

In the accompanying drawings, Figure 1 is a general perspective view of a railway switch to which my improved device is adapted to be applied. Fig. 2 is a perspective view of some of the operating parts of the switch, these parts being shown and more fully set forth in my prior patent. Fig. 3 is a top plan view of the train-operated devices. Fig. 4 is an end view of the same devices looking from the front. Fig. 5 is a perspective view of the same, some of the parts being broken away. Fig. 6 is a side view of the said devices showing the same in inoperative position. Fig. 7 is a similar view showing the devices raised to an operating position. Fig. 8 is a similar view showing the position of the parts after the devices have been operated to throw the switch. Fig. 9 is a plan view of the switch showing the connections from the hand-operated switch to the contacting device and its operating parts. Fig. 10 is a side view of the same. Fig. 11 is a bottom plan view of a portion of the pilot of a locomotive showing the contacting device located thereon.

Like parts are represented by similar characters of reference throughout the several views.

In the construction described in my prior patent referred to, the contacting device

which I employed for the purpose of operating the switch by the moving car or train normally stood in a position to be operated by the moving train, and it was the intention, in the event the switch was left open, for the train operator to throw a contacting device on the car or train to a position to contact with this switch-operating device. In the construction described in this application it is the intention to have the contacting device on the moving car or train always in position to operate the train-operated device and so construct this train-operated device that it will only be in operative position, or in a position to be contacted by the contacting device on the moving car or train, when the switch is in an open position, and I have accomplished this by providing a connection from the hand-operated switch to the train-operated device in such a manner as to throw this train-operated device into operative position upon the opening of the switch and permit it to return to its normal inoperative position when the switch is again closed; the connections being such as to permit the ready operation of the devices by the moving car or train to close the switch.

The general construction of my switch and its manner of operation is fully shown and described in my prior patent referred to and but a brief description here will be necessary.

a represents the rails of the main line or track, *b* the rails of the siding and *a*¹ *b*¹ the usual movable rails of the switch; these movable rails being connected by a bar, *a*², attached to a casing or box *c*. Extending through the casing is a bar, *c*¹, adapted to be operated by an ordinary hand-switch, *c*², and it is normally connected to the movable rails through the medium of devices in the said casing so as to move the same in the usual way when the hand-switch is operated; this connection being made by means of spring-pressed plates, *c*³, normally spring-pressed into engagement with notches, *c*⁴, in the sides of the bar, *c*¹, by springs, *c*⁵, located in hollow trunnions, *c*⁶, connected to and extending laterally from the sides of the casing, said plates having spindles, *c*⁷, which extend into the hollow trunnions for the purpose of guiding the plates, and around which the springs are located. Also extending through the casing, *e*, is the train

operated bar, d , beveled at d^1 , into a reduced portion, d^2 , which reduced portion normally lies between the two spring-pressed plates, c^3 , and is of such width as to freely pass between the same when in their engaged position with the bar, c^1 ; the beveled portion, d^1 , of the bar normally standing slightly removed from said plates when the switch is open. The bar is further reduced at d^3 and is extended through the ends of the casing, this reduced portion having a shoulder, d^4 , which normally stands slightly removed from the end of the casing; a spring, d^5 , being preferably placed between the shoulder and casing. The auxiliary bar, d , extends out to the side of the track and is pivotally connected by a link, d^6 , to a crank arm, e^1 , of a vertically disposed crank shaft, e , located in a suitable support, e^2 . This crank shaft is connected by means of a crank arm, e^3 , to a rod, e^4 , which extends along the track for a suitable distance and is connected with the contacting or train operated device, f , so that in the event said operating or contacting device, f , is operated by a moving car or train, the bar, d , will be operated so as to press the spring-pressed plates, c^3 , from engagement with the bar, c^1 , and thus unlock the hand switch, and, by the contacting of the shoulder, d^4 , with the side of the casing through the medium of the spring, will throw the rails over into closed position, as more fully explained in my prior patent.

The contacting device, f , is located in a suitable casing, f^1 , at the side of the track, being pivoted to a suitable support, f^2 , on the side of the casing, and being normally adapted to stand in the position shown in Fig. 6, in which position the upper end thereof will be substantially flush with the top of the rails, or in a position to be readily cleared by the contacting device or any other parts on a passing train or car; this position being the normal one or the one occupied when the track is straight or the switch in closed position. The lower portion of the lever is provided with a slotted opening, f^3 , through which is extended a stud, f^4 , from the support, f^2 , having a head, f^5 , to hold the lever in position on the stud. In the normal position of the device this lever will be maintained in a vertical position on said stud by the connecting rod, e^4 , which extends to the switch. Pivoted to the lower end of this lever is a link, f^6 , which is pivotally connected at its other end to raising and lowering devices for the lever. These raising and lowering devices are in the nature of a toggle-joint consisting of two parts, f^7 and f^8 , the part f^7 being pivoted to a stationary support on the bottom of the casing, as at f^9 , and the part f^8 being pivoted at its upper end to the link, f^6 , as shown at f^{10} . The parts f^7 and f^8 are also pivoted

together at f^{11} , this pivoted point being located in a plane to the rear of the plane of the pivotal points f^9 and f^{10} . In front of this pivotal point f^{11} the respective parts are provided with adjacent stop faces f^{12} and f^{13} to limit their movement about the pivotal point f^{11} when the parts are dropped to inoperative position, and thus determine the normal inoperative position of the lever f . Located on the pivot f^{11} is a forwardly extending yoke, f^{14} , which is connected by a cable f^{15} with the hand-operated switch, this connection being made to a crank, f^{16} , or in any suitable manner. A link, f^{17} , pivoted to the casing at f^{18} , is also pivoted at the pivotal point, f^{19} , so as to confine the movement of the raising and lowering devices. A suitable guiding sheave or roller, f^{19} , may be provided for the cable, f^{15} .

It will be seen from this description that as the hand switch is operated to open the switch, the toggle-jointed raising and lowering devices will be operated to throw the contacting lever upwardly into a position to be contacted by proper devices located on a moving car or train and the switch thus operated in the manner more fully described in my prior patent referred to. By this means, the contacting devices on the train, which may be in the nature of a heavy bar, g , located on the forward part of the locomotive as on the pilot, g^1 , shown in Fig. 11, may be permanently left in proper position to strike the operating lever. This bar may, however, be thrown back out of the way, if desired, or for the purposes of switching, and is provided with a series of openings, g^2 , adapted to receive a pin or bolt, g^3 , for this purpose.

Having thus described my invention, I claim:

1. In a railway switch, the movable rail or rails thereof, hand-operated devices normally connected to said rail or rails, train-operated devices for operating said rail or rails under certain conditions independently of said hand-operated devices, means operated by said hand-operated devices for placing said train-operated devices in operative position, and means operated by said train-operated devices for disconnecting said rail or rails from said hand-operated devices, substantially as specified.

2. In a railway switch, hand-operated devices for opening and closing said switch, train-operated devices for closing said switch when open independently of said hand-operated devices, means operated by said hand-operated devices to throw said train-operated devices into operative position upon the opening of the switch and into inoperative position upon the closing of the switch, and means operated by said train-operated devices for disconnecting said switch from said hand-operated devices upon the opera-

tion of said train-operated devices by a moving car or train, substantially as specified.

3. In a railway switch, hand-operated devices for opening and closing the movable rails of said switch, train-operated devices to operate the movable rail or rails of said switch under certain conditions, said train-operated devices comprising a pivoted lever normally lying in inoperative position, means operated by said hand-operated devices for throwing said lever to operative position and returning the same to inoperative position, and means when said lever is operated for disconnecting said rail or rails from said hand-operated devices, substantially as specified.

4. In a railway switch, hand-operated devices normally connected to the movable rail or rails thereof for opening and closing the same, train-operated devices for closing said rails when open, said train-operated devices comprising a pivoted lever normally lying in inoperative position, means operated by said hand-operated devices for throwing said lever to operative position upon the opening of the switch and returning same to inoperative position upon the closing of the switch, and means operated by said train-operated devices for disconnecting said rail or rails from said hand-operated devices, substantially as specified.

5. In a railway switch, the movable rail or rails, a hand switch detachably connected to said rails, devices, operated by a moving car or train and normally disconnected from said rails, for disconnecting said hand switch and operating said rails, and means, operated by the opening of the switch, for throwing said devices into operative position, substantially as specified.

6. In a railway switch, the movable rail or rails thereof having a hand switch normally connected thereto, train-operated devices normally disconnected from said movable rails but adapted to be operated by a moving train or car to disconnect said hand switch from said rails and move said rails to a different position, and means for throwing said train-operated devices into operative position upon the operation of the switch, substantially as specified.

7. In a railway switch, the movable rail or rails thereof, a hand-operated device for throwing said rails either to an open or closed position, said hand-operated devices being detachably connected to said rails; devices, normally disengaged from said rails, adapted to be operated by a moving car or train when said rails are in open position to disconnect said hand-operated devices and move said rails to a closed position; and means for throwing said train-operated devices into operative position when the switch is opened, substantially as specified.

8. In a railway switch, the movable rail

or rails, a hand-switch bar having a connection to said rails, a train-operated bar independent of, but adapted to release said hand-bar from said connection and move said connection to throw said rail or rails, and means for placing said train-operated bar in operative condition upon the operation of the hand-operated bar, substantially as specified.

9. In a railway switch, the movable rail or rails thereof, a hand-operated bar for said switch, and devices for connecting said bar to said rails, a train-operated bar extending in proximity to said connecting devices and adapted when operated to contact directly with said connecting devices to release said hand-operated bar from said rails and move said rails to a different position, and means for placing said train-operated bar in operative condition upon the operation of the hand-operated switch.

10. In a railway switch, the movable rails thereof, the frame or casing located between said rails and connected rigidly thereto, a hand-switch bar detachably connected to said frame or casing, and a train-operated bar adapted, when operated, to disconnect said hand-switch bar from said frame or casing, and operate said frame or casing to move said movable rails to a different position, and means for placing said train-operated bar in operative position upon the operation of the hand switch bar, substantially as specified.

11. In a railway switch, hand-operated devices for opening and closing said switch, train-operated devices for operating said switch under certain conditions, said train-operated devices comprising a pivoted lever normally lying in inoperative position and a toggle-joint pivotally connected thereto, and means operated by the hand-operated devices for operating said toggle-joint for throwing said lever to operative position, substantially as specified.

12. In a railway switch, hand-operated devices for opening and closing said switch, train-operated devices for closing said switch when open, said train-operated devices comprising a pivoted lever and toggle-joint pivotally connected to said lever, and means connected with said hand-operated devices for operating said toggle-joint to throw said lever to operative position upon the opening of the switch, substantially as specified.

13. In a railway switch, hand-operated devices for opening and closing said switch, train-operated devices for operating said switch under certain conditions, said train-operated devices comprising a pivoted lever, a toggle-joint and a link pivotally connecting said lever and toggle-joint, and a connection between said hand-operated devices and said toggle-joint for throwing said lever

to operative position, substantially as specified.

14. In a railway switch, hand operated devices for opening and closing said switch, train-operated devices for disconnecting said hand-operated devices from and operating said switch under certain conditions independently of said hand-operated devices, means on a moving vehicle normally in operative position to operate said train-operated devices, and means operated by said hand operated devices for placing said train-operated devices in operative position, substantially as specified.

15. 15. In a railway switch, hand operated devices for opening and closing said switch, train-operated devices for disconnecting said hand-operated devices from and closing said switch when opened, means on a moving vehicle normally in operative position to contact said train-operated devices, and means operated by said hand-operated devices to throw said train-operated devices in operative position upon the opening of the switch and into inoperative position upon the closing of the switch, substantially as specified.

16. In a railway switch, hand-operated devices for opening and closing said switch, train-operated devices to disconnect said hand-operated devices from and operate said switch under certain conditions, said train-operated devices comprising a pivoted lever normally lying in inoperative position, means operated by said hand-operated devices for throwing said lever to operative position and returning same to inoperative position, and devices located on a moving vehicle normally lying in position to contact said lever when in its operative position, substantially as specified.

17. In a railway switch, hand operated devices for opening and closing said switch, train-operated devices for disconnecting said hand-operated devices from and closing said switch when opened, said train-operated devices comprising a pivoted lever normally lying in inoperative position, means operated by said hand-operated devices for throwing said lever to operative position upon the opening of the switch and

returning the same to inoperative position upon the closing of the switch, and devices located upon a moving vehicle normally lying in a position to contact said pivoted lever when in its operative position, substantially as specified.

18. In a railway switch, hand operated devices for opening and closing said switch, train-operated devices to disconnect said hand-operated devices from and operate said switch under certain conditions, said train-operated devices comprising a pivoted lever normally lying in a vertical inoperative position, and means operated by said hand-operated devices for raising said lever vertically to operative position upon the opening of the switch and permitting the same to fall back to inoperative position upon the closing of the switch, substantially as specified.

19. In a railway switch, hand-operated devices for opening and closing said switch, train-operated devices having an operative connection to said switch so as to close said switch when operated, and a separate connection extending from said hand-operated devices to said train-operated devices to place said train-operated devices in operative position upon the opening of the switch and in inoperative position upon the closing of the switch, substantially as specified.

20. In a railway switch, the movable rail or rails thereof, hand-operated devices normally connected to said rail or rails, train-operated devices for operating said rail or rails under certain conditions by direct contact therewith, means operated by said hand-operated devices for placing said train-operated devices in operative position upon the opening of the switch, and means operated by said train-operated devices for disconnecting said rail or rails from said hand-operated devices, substantially as specified.

In testimony whereof, I have hereunto set my hand this 25th day of March, 1907.

FRANK BAYLESS.

Witnesses:

CLARA GALLAGHER,
CHAS. I. WELCH.