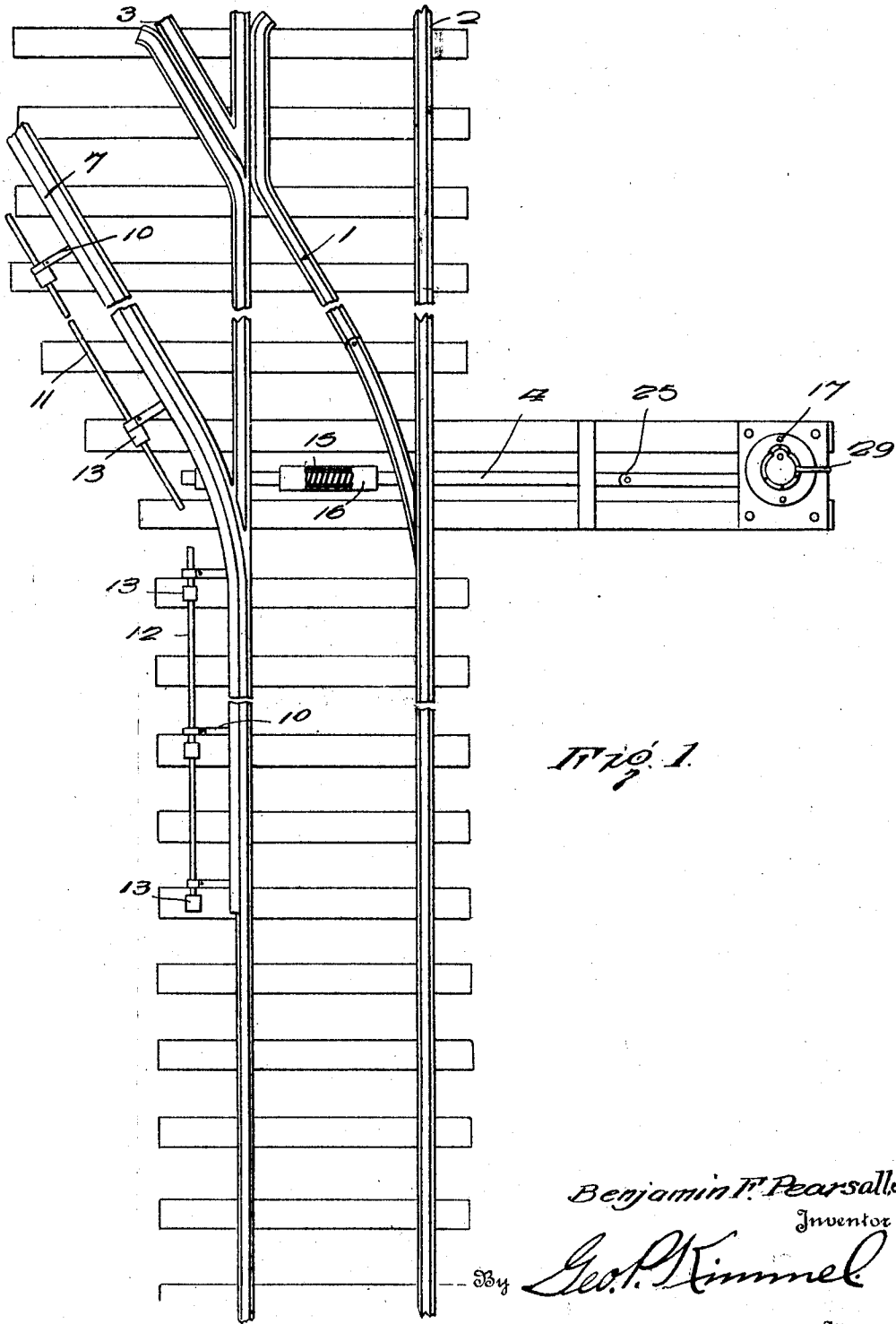


B. F. PEARSALL, Jr.  
AUTOMATIC SAFETY RAILROAD SWITCH.  
APPLICATION FILED MAR. 14, 1918.

1,326,779.

Patented Dec. 30, 1919.

2 SHEETS—SHEET 1.



Benjamin F. Pearsall, Jr.  
Inventor

By *Geo. P. Kimmel*

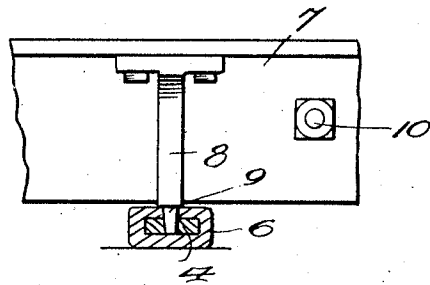
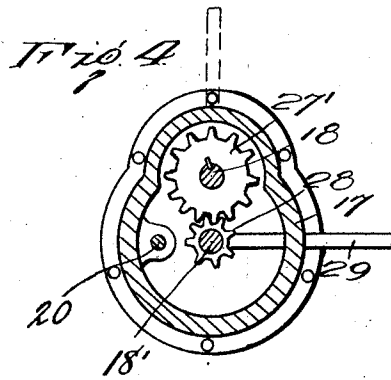
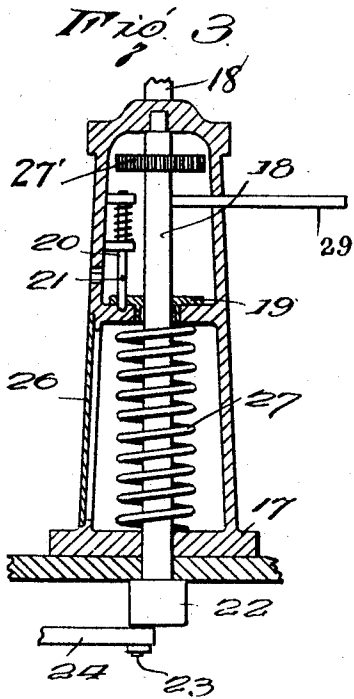
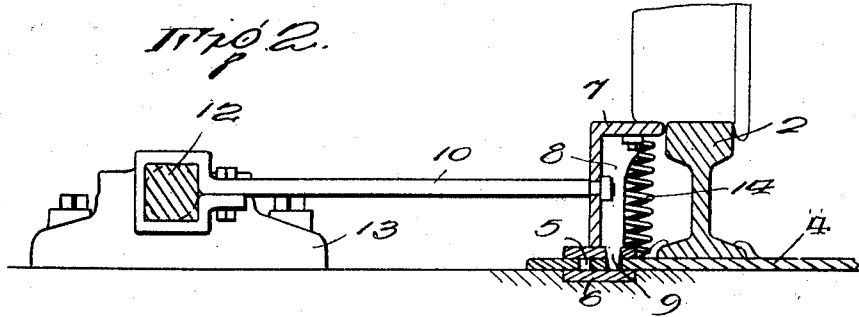
Attorney

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. PEARSALL, JR., OF WALLACE, NORTH CAROLINA.

AUTOMATIC SAFETY RAILROAD-SWITCH.

1,326,779.

Specification of Letters Patent.

Patented Dec. 30, 1919.

Application filed March 14, 1918. Serial No. 222,363.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. PEARSALL, JR., a citizen of the United States, residing at Wallace, in the county of Duplin and State of North Carolina, have invented certain new and useful Improvements in Automatic Safety Railroad-Switches, of which the following is a specification.

This invention relates to improvements in railway switches and it is the principal object of the invention to provide a novel form of automatic safety switch which will serve to prevent the accidental or undue opening thereof and as a consequence, prevent trains from entering a siding by way of an open switch and the resultant wrecking of the same.

Another and equally important object of the invention is to provide the switch with a form of automatic lock adapted to be engaged by the wheels of the rolling stock passing thereover whereby the same will be operated to lock the switch in an open position to allow a train to enter a siding and which when disengaged from the wheels will instantly move to its closed or normal position, thus, automatically closing the switch in order that the following trains will proceed on the main track.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention consists, furthermore, of the novel arrangements and combinations of the parts of the switch, as well as in the details of the construction of the same, all of which will be more fully described in the following specification and then finally embodied in the clauses of the claim which are appended to this specification and which form an essential part of the same.

In the drawings:

Figure 1 is a top plan of the improved automatic safety switch,

Fig. 2 is a fragmentary vertical transverse section therethrough,

Fig. 3 is a vertical fragmentary section through the switch stand,

Fig. 4 is a horizontal section therethrough, and

Fig. 5 is a fragmentary detail partly in section showing the engagement of the automatic locking means.

Having more particular reference to the drawings, in connection with which like reference characters will designate corresponding parts throughout the several views,

1 represents the usual type of switch in its entirety, the same, of course communicating with a main track 2 and side track 3 and including the usual pivotal points, which are interconnected by means of a switch throwing bar 4 extending laterally to a point beyond the main track 2 whereat the same is connected with suitable operating means, hereinafter more fully described. As will be noted, the free end of the bar 4 is extended and formed with a plurality of tapered openings 5; a suitable form of guide 6 being arranged beneath the extended portion and serving to slidably support the same.

Arranged in proximity to a portion of one side of the main track and a portion of one side of the siding track is an auxiliary rail 7, the same being formed of angle iron and curved to permit the proper positioning thereof with relation to the adjacent sides of the main and side tracks. Secured to the inner side of the auxiliary rail is a vertically disposed bolt 8 having a tapered pin 9 formed on its lower end and projecting for a distance below the adjacent marginal portion of said auxiliary rail, in order that the same may be engaged in either of the tapered openings 5 formed in the extended free end of the switch throwing bar 4.

A plurality of right angularly disposed arms 10 having bearing openings formed in their outer ends are engaged with the auxiliary rail 7 at suitable intervals throughout its length and are fixedly mounted on squared shafts 11 and 12, portions of which are rounded and rotatably mounted in bearings generally indicated by the numeral 13 supported on certain of the ties.

As means for normally maintaining the upper portion of the auxiliary rail 7 at a point slightly above the upper surface of the rails composing the side and main tracks, expansible coil springs 14 are seated in a suitable manner on portions of the ties and have their upper ends engaged with the under side of the auxiliary rail 7. Hence, it will be understood that the upper portions of the guard rail 7 will be normally maintained slightly above the tread surface of the track rails.

The switch throwing bar 4 is also engaged by one end of a coil spring 15, the remaining end of which is engaged with a suitable U-shaped housing 16 arranged thereover. In this way, it will be understood that the bar

4 will be normally maintained in proper position and as a consequence, the switch will be normally maintained in closed position.

As is usual in switch constructions, operating means are provided whereby the switch throwing bar 4 can be shifted and to this end, certain of the ties are extended and have secured thereto a switch stand 17 formed with vertically alined bearing openings through which operating shafts 18 and 18' are passed, the upper end of said shaft 18' being extended and provided with the usual form of signal target. A disk like plate 19 is keyed to the intermediate portion of the shaft 18 and is formed with an opening adapted to receive the slidable latch member 20 therein at times, said latch member being formed with a lateral projection 21 adapted to be engaged, at times, by a key inserted through a suitable opening formed in one side of the stand by a switchman. The lower end of the shaft 18 is extended through the bottom thereof and provided with an enlargement 22 carrying an eccentric pin 23 with which one end of a connecting link 24 is engaged, said connecting link, in turn, being pivotally connected to the adjacent end of the bar 4 as at 25. To permit access to the interior of the stand 17, a portion of one side thereof is open and is provided with a removable closure plate 26, said plate of course being secured in position by means of bolts or other similar fastening devices. To cause the operating shaft 18 to be retained in normal position, a coil spring 27 is arranged about the lower portion thereof and has one end of the same connected to said shaft while the remaining end is engaged with the adjacent portion of the stand. Hence, upon rotation of the shaft the spring will be placed under sufficient tension to cause counter-rotation of the same to its normal position when released.

In this connection, it is to be noted that the operating shaft 18 at the upper end thereof carries a large gear 27', while the shaft 18' carries a small gear 28 which meshes with the gear 27'. Hence, the transmission of motion from the shaft 18 to the shaft 18' will be reduced and as a consequence, the signal target carried thereby will be partially turned to permit displaying thereof. An operating handle 29 is engaged with the shaft 18' and projects through a horizontal slot formed in one wall of the stand 17.

In operation, should it be desired to enter a train onto the side track, the shaft 18 is released by disengaging the locking pin 20 from the disk 19 whereupon the same is then rotated by means of a handle 29 to cause shifting of the switch points to the proper position. As the front wheels of the rolling stock engage the adjacent end of the aux-

iliary 7, this rail will of course be depressed against the tension of the spring 14 and as a consequence, the tapered locking pin 9 will enter one of the adjacent tapered openings 5 formed in the extended free end of the switch throwing bar 4, thereby locking said bar in its adjusted position and holding the switch points of the switch in proper positions to enable the switching of the train into the side track. As the wheels of the rolling stock disengage from the opposite end of the auxiliary, the spring 14 will then serve to return the same to its uppermost or normal position, thus disengaging the locking pin 9 from the opening in the free end of the switch bar 4, which bar due to its connection with the spring 15 and the spring 27 arranged in the switch shaft 17 will then be caused to instantly be returned to its normal or closed position, thus closing the switch through the main track and causing following trains to proceed over this track.

From the foregoing, it will be readily understood by those skilled in the art that I have provided an exceedingly efficient automatic safety switch, which, by reason of its arrangement and construction will serve to prevent accidents and the like caused by open switches. Further, the opening of the switch by unauthorized persons will be prevented, since the same would immediately return to its normal position when released, except when the auxiliary rail had been engaged by the wheels of the rolling stock passing thereover.

Manifestly, the construction shown is capable of considerable modification and such modification as is within the scope of my claims, I consider within the spirit of my invention.

I thereby claim:

1. In combination with a railroad switch, a switch throwing bar connected to the point thereof, switch throwing means connected to said bar, spring means engaged with the bar for normally maintaining the switch in closed position, the free end of said switch throwing bar being extended and formed with a plurality of openings, an auxiliary rail movably mounted adjacent the switch, a locking pin carried by said auxiliary rail engageable in the openings formed in the switch throwing bar, and spring means engaged with the auxiliary rail for normally maintaining the same in its uppermost position.

2. In combination with a railroad switch and switch throwing means, a switch throwing bar connected to the point of the switch and to said throwing means, means for normally maintaining the bar in one position, the free end of the throwing bar being extended for a distance beyond the adjacent rail and formed with a plurality of

openings, a curved auxiliary rail mounted for vertical movement adjacent that side of the switch in proximity to the extended end of the throwing bar, a vertically disposed bolt carried by and extending beyond the lower marginal portion of said auxiliary rail engageable, at times, in the openings formed in said throwing bar, and means en-

gaged with the auxiliary rail for normally maintaining the same in inoperative position with relation to the extended end of said switch throwing bar.

In testimony whereof, I affix my signature hereto.

BENJAMIN F. PEARSALL, JR.