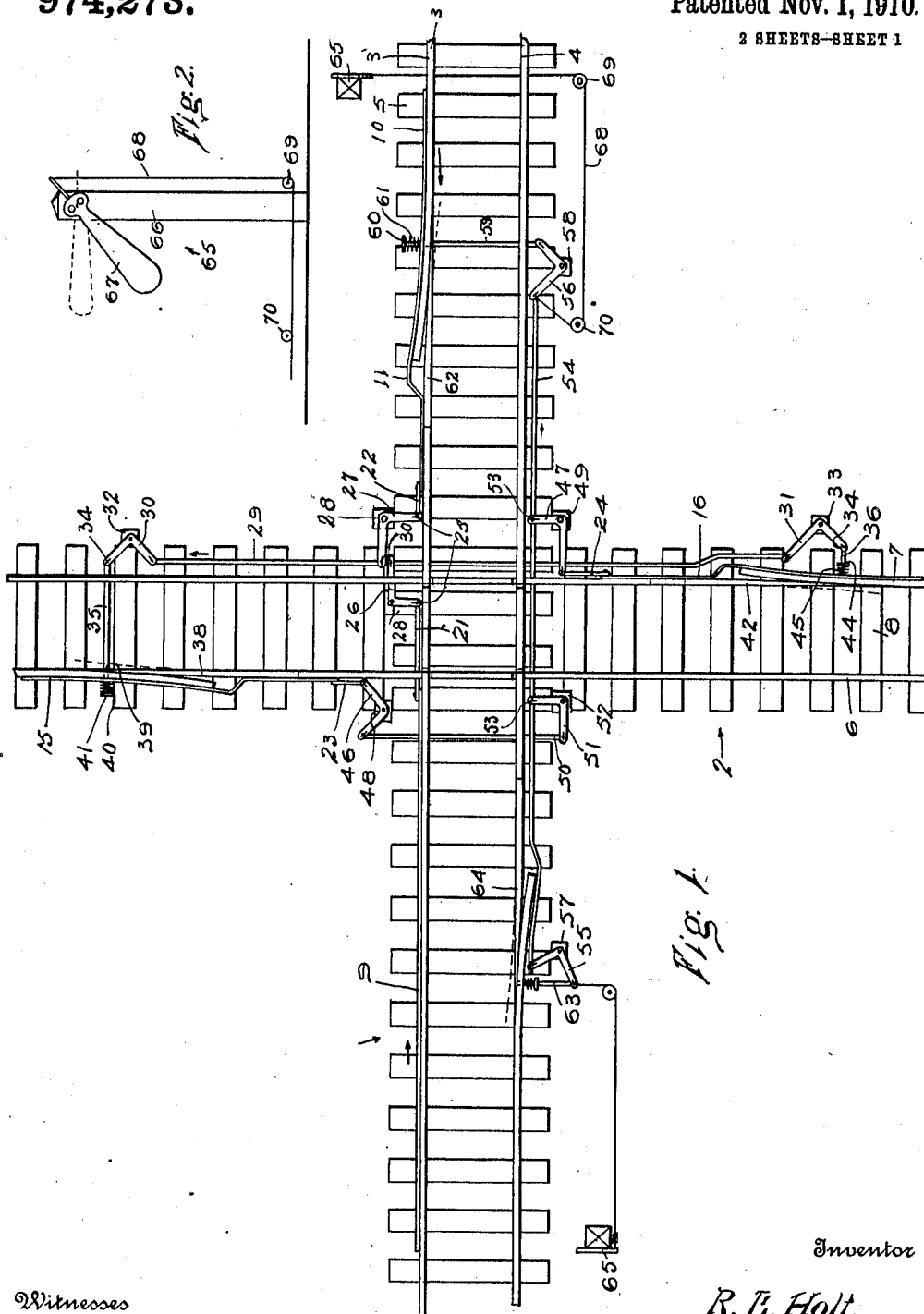


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 AUTOMATIC INTERLOCKING CROSSING SYSTEM.
 APPLICATION FILED NOV. 16, 1909.

974,273.

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2 SHEETS-SHEET 1



Witnesses

J. Milton Jester
 By J. H. Holt.

By

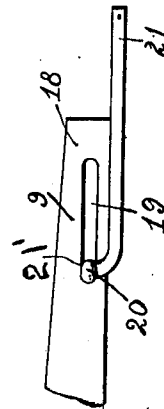
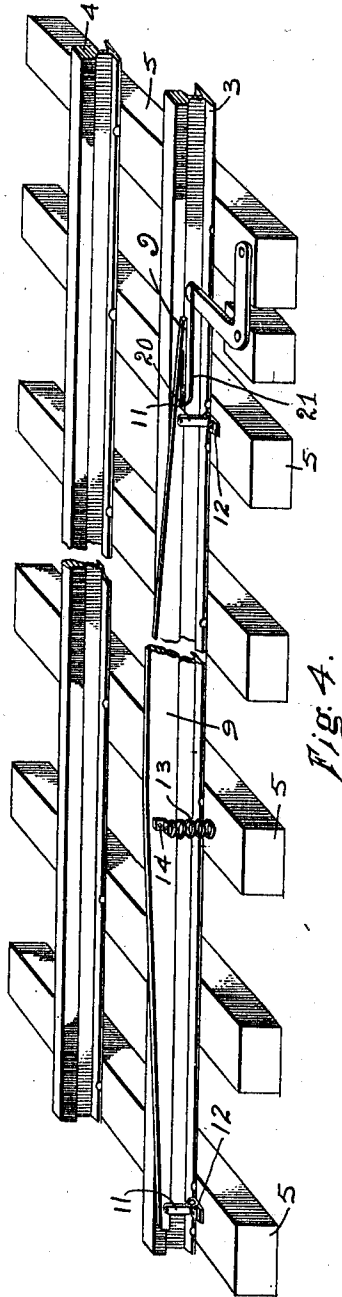
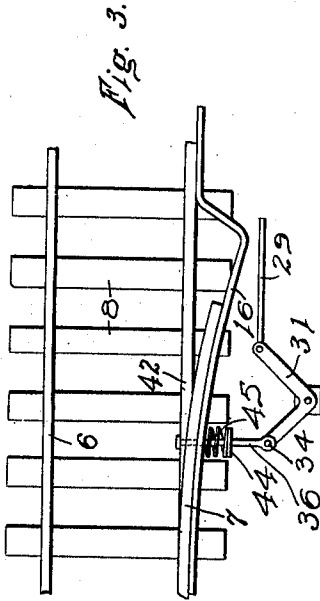
C. L. Parker. Attorney

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

RANSOM LEE HOLT, OF WOODBURY, GEORGIA.

AUTOMATIC INTERLOCKING CROSSING SYSTEM.

974,273.

Specification of Letters Patent.

Patented Nov. 1, 1910.

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To all whom it may concern:

Be it known that I, RANSOM LEE HOLT, a citizen of United States, residing at Woodbury, in the county of Meriwether and State of Georgia, have invented certain new and useful Improvements in Automatic Interlocking Crossing Systems, of which the following is a specification.

My invention relates to means for preventing the collision of trains or the like running upon tracks which cross each other.

An important object of my invention is the provision of means for signaling a train upon one track when approaching the crossing, that another train is approaching the crossing upon the other track.

A further object of my invention is to provide means when two trains approach a crossing whereby one train will be given the track and the other train will be ditched.

A final object of my invention is to provide simple and inexpensive means for carrying out the above objects, and to provide means which will be reliable in its operation.

With these and other objects in view, my invention consists generally in the arrangement and combination of parts to be hereinafter described.

In the accompanying drawings, forming a part of this application and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a plan view of two crossing tracks equipped with my improved apparatus. Fig. 2 is a side elevation of a semaphore of any well known type. Fig. 3 is an enlarged plan view of a section of one of the tracks and showing means for moving one of the rail sections of the same. Fig. 4 is an enlarged fragmentary perspective view of one of the tracks, and showing the actuating rail used in connection therewith. Fig. 5 is an enlarged fragmentary side view of one end of the actuating rail, shown in Fig. 4.

In the drawings illustrating the preferred embodiment of my invention, 1 and 2 designate tracks which cross each other as shown in Fig. 1. The track 1 comprises rails 3 and 4 secured in the usual manner to ties 5 and track 2 comprises rails 6 and 7 suitably secured to ties 8. The track 1 is provided adjacent and upon the outer side of its rail 3, upon opposite sides of the track 2, with actuating longitudinally movable and hori-

zontally arranged rails 9 and 10. The actuating rails 9 and 10 are substantially alike except that the rail 10 is provided with an offset or bent portion 11. It is to be understood that the way in which the actuating rails 9 and 10 are mounted and the manner in which they operate are alike and therefore it is necessary to describe only one of them. I will now proceed to describe the actuating rail 9. By reference to Fig. 4, it will be seen that the actuating rail 9 has an upper curved longitudinal edge and is pivotally mounted near its ends to the upper ends of swinging strips 11. The swinging strips 11 have their lower ends pivotally mounted within brackets 12, which are suitably secured to the ties 5. By the arrangement of the actuating rail 9 above described, it is obvious that the rail 9 is capable of a longitudinal movement, which movement is caused by the wheels of a train running over its curved upper edge. The actuating rail 9 is held in its normal or raised position by means of a spring 13, which is secured to a bracket 14, which is in turn secured to the actuating rail 9, and said spring 13 is further secured to the tie 5. By reference to Fig. 1, it will be seen that the track 2 is provided with longitudinally movable actuating rails 15 and 16 which are arranged adjacent the outer side of the rails 6 and 7 respectively. It is to be understood that the longitudinally movable rails 15 and 16 are substantially similar to the corresponding rails 9 and 10, and that they operate in a like manner. As I have already given a detailed description of the rail 9, it is therefore unnecessary to give a detailed description of the corresponding rails 15 and 16.

The actuating rails 9, 10, 15 and 16, are each provided at their end 18 nearer the crossing of the tracks 1 and 2 with a longitudinal opening 19, within which is slidably mounted a pin 20, which is normally arranged at the end 21' of the opening 19, and said pin 20 pivotally connects the actuating rails 9, 10, 15 and 16 to connecting rods 21, 22, 23 and 24, respectively. The connecting rods 21 and 22 arranged upon the ends of the rails 9 and 10, are pivotally connected at 25 to bell-crank levers 26 and 27 respectively. The bell-crank levers 26 and 27 are swingingly mounted upon suitable supports 28 and are further pivotally connected to a shaft 29, as at 30. By the construction thus

far described it is obvious that a train running over the actuating rail 10 in the direction of the arrow near the same, will move the actuating rail longitudinally toward the crossing, whereby the connecting rod 22 is moved to swing the bell crank lever, which causes the shaft 29 to move in the direction of the arrow near the same. In like manner if a train should travel over the actuating rail 9, in the direction of the arrow near the same, the actuating rail 9 would be moved longitudinally toward the crossing of the tracks, which movement would cause a similar movement of the connecting rod 22, whereby the bell-crank lever 26 would be swung upon its pivot and the shaft 29 moved in the direction of its arrow. It is thus seen that a train coming from either end of the track will cause a similar longitudinal movement of the shaft 29. It is also obvious that when a train passing over the actuating rail 9, and moving the same in the direction of its arrow, whereby the shaft 29 is moved as above described, reaches the actuating rail 10, said train will move said rail 10 in a direction opposite to its arrow. This reverse movement of the rail 10 however is not imparted to the connecting rod 22, for the pin 20, connecting the rail 10 to the rod 22 will then move longitudinally in the opening 19. Further, when the train comes from the opposite end of the track and moves the rail 10 in the direction of its arrow, and passes over the actuating rail 9, said rail 9 will be moved longitudinally opposite to its arrow, but its corresponding bell-crank lever will not be actuated.

The shaft 29 is pivotally connected at its ends to bell-crank levers 30 and 31, which are swingingly mounted upon supports 32 and 33 respectively, which are arranged upon opposite sides of the track 1. The bell-crank levers 30 and 31 are pivotally connected as at 34 to rods 35 and 36 respectively. The rod 35 extends transversely of and below the rails 6 and 7 of track 2, and further extends laterally beyond rail 6. The rod 35 is secured by any suitable means to an inwardly movable rail section 38 of the rail 6, as at 39, whereby when the bell-crank lever 30 is swung by the movement of rod 29, the rail section 38 will be moved inwardly to assume the position shown by the dotted lines. The rail-section 38 is held in its normal position by a coil spring 40, which is compressed between the enlarged end 41 of the rod 35 and a portion of the rail 6, it being understood that the spring 40 is arranged below the actuating rail 15, so that said spring will not conflict with the movement of said rail 15. The connecting rod 36, extends below the rail 7 and is secured to one end of an inwardly movable rail section 42 of the rail 7. The rod 36 is provided near its center with a collar 44,

between which and the rail 6 is compressed a coil spring 45, which normally holds the rail-section 42 in its closed position. Upon the movement of the shaft 29, the bell-crank lever 31 is swung upon its pivot, whereby the rail-section 42 is swung inwardly to assume the position shown by the dotted lines near the same. It is obvious from the construction above described, that when a train running in either direction upon the track 1, moves either of the actuating rails 9 and 10, the rail sections 38 and 42 will be swung inwardly, and a train approaching the track 1, from either direction upon track 2 will thus be derailed or ditched.

The connecting rods 23 and 24 are connected to the actuating lever 15 and 16 in a manner above described, and said rods 23 and 24 are pivotally connected to bell-crank levers 46 and 47 respectively, which are in turn pivotally mounted upon supports 48 and 49. Pivotally connected to one end of the bell-crank lever 46 is a rod 50 which extends transversely of and below the rails 3 and 4, and said rod 50 is pivotally connected to a bell-crank lever 51, which is pivotally mounted upon a support 52. Bell-crank levers 51 and 47 are pivotally connected as at 53 to a shaft 54, which is arranged upon the outer side of the rail 4 of track 1. The opposite ends of the shaft 54 are pivotally connected to bell-crank levers 55 and 56, which are pivotally mounted upon supports 57 and 58 respectively, which are arranged upon opposite sides of the track 2. The bell-crank lever 56 is pivotally connected to a rod 59, which extends transversely of and below the rails 3 and 4. The rod 59 extends laterally beyond the rail 3 and is provided with an enlarged head 60, between which and the rail 3 is compressed a coil spring 61. The rod 59 is connected in any suitable manner to one end of a rail section 62 of the rail 3, said section 62 being adapted to be moved inwardly to assume the position shown by the dotted lines. The spring 61 is arranged below the actuating rail 10 so that the same will not interfere with the movement of said rail 10. The bell-crank lever 55 is pivotally connected to a rod 63, which extends below the rail 4 and is secured to a rail section 64 of the rail 4. The rail-section 64 is capable of angular movement to assume the position shown in dotted lines. By the construction above described, it is obvious that when a train approaches the crossing upon track 2 from either direction, owing to the direction from which the train comes, either the actuating rail 15 or 16 will be moved longitudinally in the direction of its arrow, that is toward the crossing. This movement of either of the rails 15 and 16 will cause the shaft 54 to move in the direction of its arrow and the rail sections 62 and 64 will be

moved inwardly, whereby a train approaching the crossing upon track 1 from either direction, will be ditched.

I employ in connection with the means for moving the rail-sections for ditching a train, semaphores shown conventionally in Fig. 1 at 65. Each of the semaphores 65 comprises a support 66, to which is mounted to swing in a vertical plane a signal arm 67, which is generally red in color. When the signal arm 67 is inclined as shown in Fig. 4, the crossing is clear but when the track 2 is occupied by a train approaching the crossing, the train will move the rail sections 62 and 64 as above described and this movement will also raise the arm 67 to its signaling position which is horizontal. As shown in Fig. 1, one of the semaphores 65 is actuated by a cable 68, which is trained around pulleys 69 and 70 and attached to the bell-crank lever 56. It is to be understood that any convenient manner of connecting the semaphore to its corresponding bell-crank lever may be employed. It is to be understood that semaphores are to be employed in connection with track 2, and that the semaphores may be arranged at any desired distances from the crossing so that the train running upon the opened track may be signaled and given sufficient time to stop before the same is ditched. It is also obvious that the distance from the crossing of the actuating rails, and the movable rail-sections may be varied as is deemed advisable.

Having fully described my invention, I claim,

1. The combination with a plurality of track-ways which cross each other, and are provided with movable rail-sections for derailling a train, of a longitudinally movable actuating rail arranged adjacent a rail of one of said track-ways, means connecting said actuating rail of one of said track-ways with the movable rail-section of the other of said track-ways, and said actuating rail being adapted to move the connecting means

by a longitudinal movement of the same in one direction only, substantially as described.

2. The combination with a plurality of track-ways which cross each other, and are provided with movable rail-sections for derailling a train, of a longitudinally movable shaft having means connected thereto for actuating the movable rail-sections of one of said track-ways, of a longitudinally movable actuating rail arranged adjacent a rail of the other track-way, means connecting said actuating rail with said longitudinally movable shaft, and means whereby said last named means is moved by said actuating rail by a movement of the same in one direction only, substantially as described.

3. In combination, a plurality of track-ways which cross each other, a movable rail-section associated with one of said track-ways to derail a train, an actuating rail arranged near a rail of the other track-way, said actuating rail being provided with a longitudinally disposed slot, and connecting means between said actuating rail and movable rail-section including a member movably mounted within said slot.

4. In combination, a plurality of track-ways which cross each other, a movable rail-section associated with one of said track-ways to derail a train, a shaft arranged near the track-way, a bell-crank lever connected to said shaft and movable rail-section, an actuating rail arranged near a rail of the other track-way and provided with a longitudinally disposed opening, a second bell-crank lever connected to said shaft, and connecting means between said actuating rail and said second bell-crank lever, including a member movably mounted within said slot.

In testimony whereof I affix my signature in presence of two witnesses.

RANSOM L. HOLT.

Witnesses:

JOHN W. WILLIAMS,
JOSEPH E. GRIMSLEY.