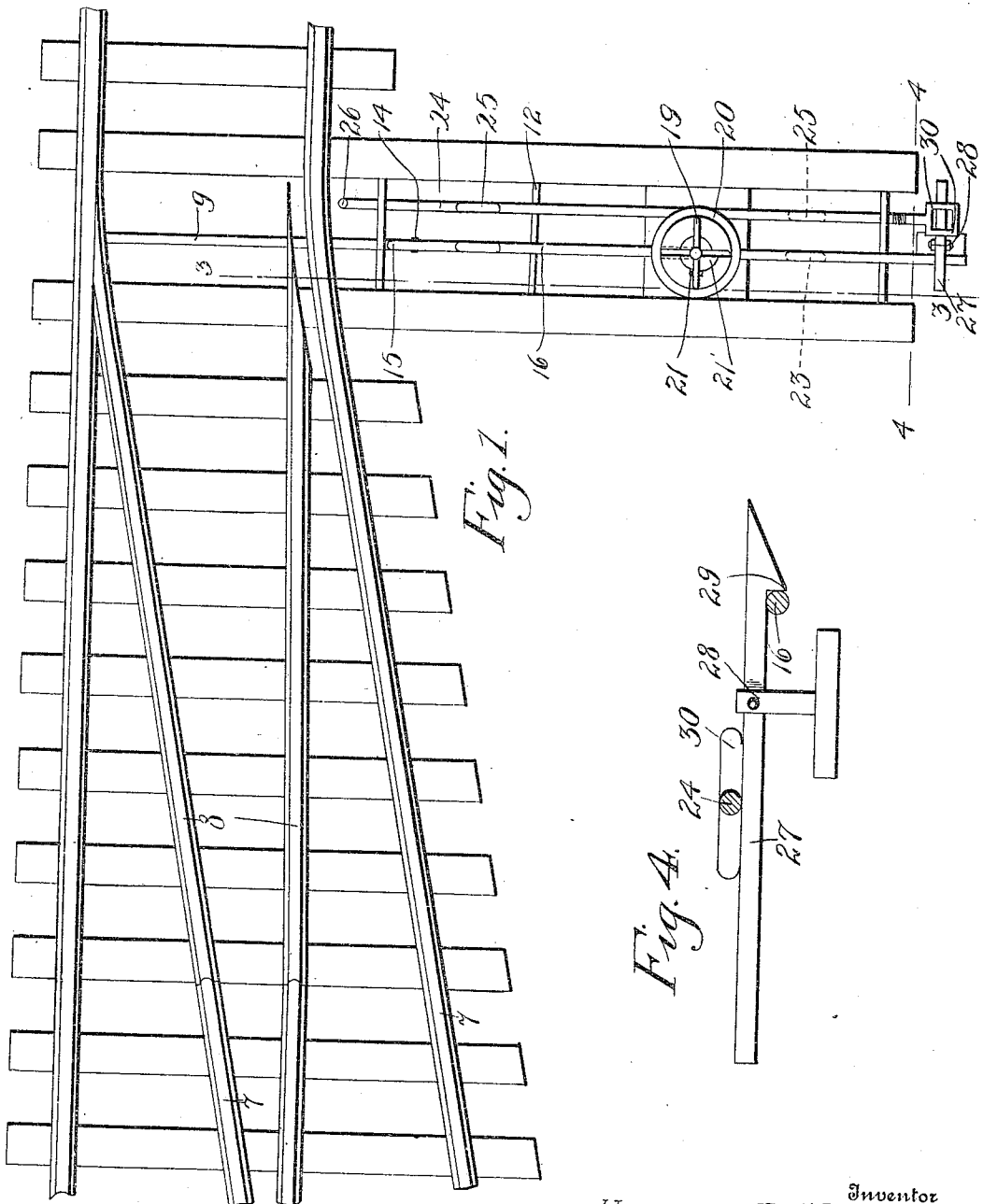


H. B. NOBLE.
 AUTOMATIC SELF CLOSING RAILWAY SWITCH MECHANISM.
 APPLICATION FILED NOV. 17, 1908.

959,582.

Patented May 31, 1910.

2 SHEETS—SHEET 1.



Witnesses
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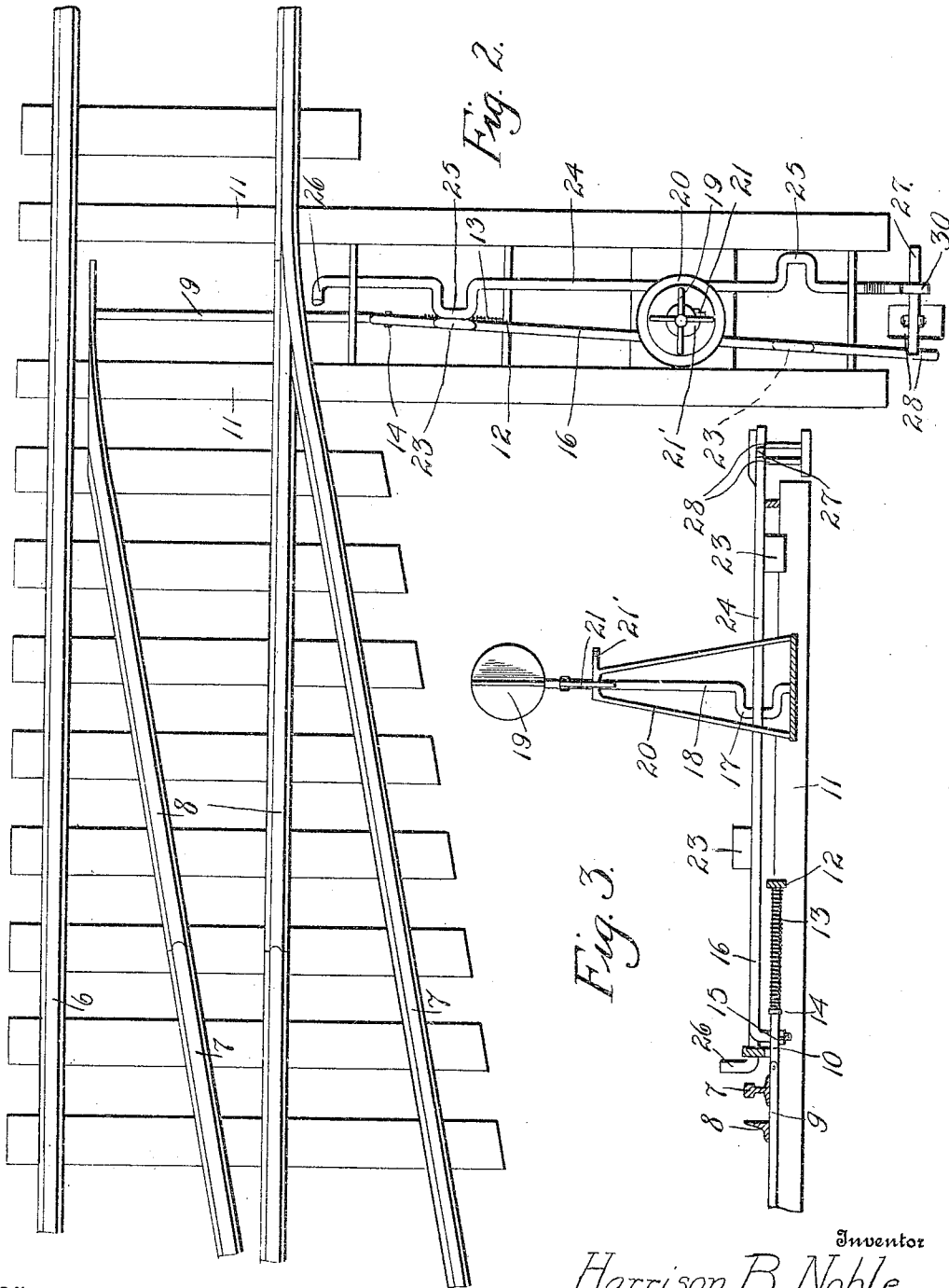
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UNITED STATES PATENT OFFICE.

HARRISON B. NOBLE, OF HEYWORTH, ILLINOIS.

AUTOMATIC SELF-CLOSING RAILWAY SWITCH MECHANISM.

959,582.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed November 17, 1908. Serial No. 463,071.

To all whom it may concern:

Be it known that I, HARRISON B. NOBLE, a citizen of the United States, residing at Heyworth, in the county of McLean, State of Illinois, have invented certain new and useful Improvements in Automatic Self-Closing Railway Switch Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an automatic switch closing mechanism and more particularly to the class of safety switch mechanism.

The primary object of the invention is the provision of safety switch mechanism in which the switch points will be brought to a closed position by a tripping device controlled by a passing train, so that there will be no possibility of the switch remaining open and accidentally side tracking the said train.

Another object of the invention is the provision of switch operated mechanism which is controllable by a passing train to automatically close the side track with respect to the main track when it is desired that the train continue its travel along the main track.

A further object of the invention is the provision of switch operated mechanism for use in railroads which is simple in construction, thoroughly reliable and efficient in operation, and inexpensive in the manufacture.

In the drawings accompanying and forming part of this specification is illustrated one form of embodiment of the invention, which to enable those skilled in the art to practice the invention, will be set forth at length in the following description, while the novelty of the invention will be pointed out in the claims succeeding said description. However, it is to be understood that changes, variations and modifications may be resorted to such as come properly within the scope of the appended claims, without departing from the spirit of the invention or sacrificing any of its advantages.

In the drawings:—Figure 1 is a plan view of the switch with the invention applied thereto, the said switch being shown in open position. Fig. 2 is a similar view with the switch closed. Fig. 3 is a longitudinal sectional view on the line 3—3 of Fig. 1. Fig.

4 is a transverse sectional view on the line 4—4 of Fig. 1.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings by numerals, 6 designates the track rails of the main line, and 7, the track rails of the siding or branch line of a railroad, and these latter rails 7, are adapted to intersect the main line through the medium of movable switch points or rails 8, the same being connected by the usual switch bar 9, disposed transversely of and beneath the plane of the rails of the main line. This switch bar 9, is pivotally connected to a slidable rod 10, projecting laterally to one side of the main line between spaced ties 11, which latter also project laterally from said main line and are disposed in parallel relation to each other and support a cross piece 12, through which freely works the slidable rod 10. Surrounding the said slidable rod 10, is a coiled expansion spring 13, one end of which has its bearing against the cross piece 12, while its opposite end has its bearing against a collar 14 fixed to the said sliding rod, and this spring serves to move the switch points to open position thus establishing communication between the branch line and the main line.

Connected to the sliding rod 10, by means of a pivot terminal 15, is one end of a swinging bar 16, which latter also has loose connection with a crank 17, formed on a vertically disposed rotatable shaft 18, carrying at its upper end the usual signal target 19, and this shaft is supported in the usual manner in a switch stand 20. Connected to the said shaft 18, is a pivotal handle or lever 21, by which the switch may be manually operated.

Formed on the switch stand 21, is a cam offset 21', so that upon manipulating the handle to bring the switch into closed position the said handle may be dropped into engagement with the cam offset 21', so as to lock the switch when thrown into its closed position. It is of course obvious that this handle 21, may be shifted upwardly on its pivot so that the handle will not engage the cam offset 21', on the switch stand should it be desired.

Formed integral with the swinging bar 16, at suitable points thereon at opposite

sides of the axis of the vertical shaft 18, are vertically extending striker plates or lugs 23, one of which extends upwardly while the other extends downwardly from the bar 16, so that the said plates 23, are disposed in opposite directions with respect to each other to have one plate rising above the plane of said swinging bar and the other plate depending therefrom for the purpose as will be hereinafter described.

Journalled in suitable vertical cross pieces between the ties 11, and disposed parallel with the latter at one side of the main line in proximity to the free terminals of the switch points 8, is a rocking rod or shaft 24, having oppositely directed cranks 25, adapted for movement in the path of and against the striker plates 23, and this shaft is formed at one end with a trip arm 26, arranged in close proximity to one track rail of the main line, whereby the said trip arm may be struck and operated upon by a switch actuating device (not shown) carried by and depending from a train traveling in either direction over the track rails. On the opposite end of the rocking rod 24, and projecting laterally, therefrom in a plane at right angles to the cranks 25, thereof, are further cranks 30, the latter overlying the end portion of a latch member 27, which is formed at its opposite end with a hook bill 29, and this latch member is pivotally supported in any suitable manner so as to have its hook bill 29, automatically engage the swinging bar 16, when in parallelism with the rocking rod or shaft 24, so as to prevent the switch when in open position from becoming accidentally closed. When the trip arm 26, of the rocking shaft or rod 24, is actuated by suitable means upon a passing train, one of these cranks 30, will act upon the latch member 27, to cause its disengagement with the swinging bar 16, thus freeing the same to permit it to be moved by the cranks 25, on the further turning of the rocking shaft or rod for the closing of the switch.

In operation, presuming that the switch points 8, are now in open position to permit a train to pass from the main line into the branch line but it is desired to have the approaching train continue along the main line, it is necessary that the switch operating mechanism on the approaching train be set to engage the trip arm 26, in advance of the truck wheels of the train arriving at the switch. Assuming that the trip arm is being operated or struck in the foregoing manner it will effect the rocking of the rod 24, whereupon one of the cranks 30, will act upon the latch member 27, to disengage the same from the swinging bar 16, this latter part being in horizontal alinement with the axis of the shaft 18, and as the shaft 24, continues its rocking movement one of the

cranks 25, will strike the adjacent lug 23, on the swinging bar 16, causing it to swing to one side of the axis of the shaft 18, and by the loose connection of this bar 16, with the crank 17, of said shaft 18, during the sidewise movement of the bar 16, relative to the axis of the shaft 18, the crank 17, thereof will rotate thus moving the bar 16, in a direction transverse to the main line whereupon the switch will be shifted to closed position. It now being assumed that the switch is in closed position and the truck wheels of the forward car of the train have passed from the main line so that the wheels on one side will engage one rail 6, while the wheels on the other side will engage one of the switch points 8, namely that one being in alinement with the other rail of the main line and in this manner, the switch points 8, will be held in their shifted closed position and before the wheels have passed from the point of the switch the wheels of the succeeding car of the train will engage the said point 8, of the switch and successively in a like manner will all of the car wheels until the entire train has passed over the switch before the latter will be acted upon by the expansion spring 13, which will automatically shift the switch points 8, to open position subsequent to the passing of the train.

What is claimed is:—

1. In mechanism of the class described, movable switch rails, a sliding rod connected thereto, an expansion spring acting upon said rod to hold the rails in open position, a rotary shaft having a crank, a bar pivotally connected to the sliding rod and loosely connected to the crank, said crank being in alinement with the longitudinal extent of the bar when the switch rails are in open position, striker plates on said bar, and trip means adapted to be operated by a passing train to engage the striker plates for moving the bar whereby the switch rails will be shifted to a closed position.

2. The combination, of switch rails, a sliding rod connected thereto, expansion means acting on said rod for holding the switch rails in open position, a rotatable shaft having a crank, a bar having connection with the crank and the sliding rod, and trip means operative upon the swinging bar to cause the closing of the switch rail, and actuated by a passing train.

3. In combination with a main track line and its siding, of a movable switch opening the siding into the main line, means maintaining the switch in open position, a vertically disposed rotatable shaft having a crank, a connection between the crank and the switch and being in alinement with said crank when the switch is in open position, and train actuated trip means operative

upon the connection to move the switch to closed position.

4. In combination with a main track line and its siding, of a movable switch opening
5 the siding into the main line, means maintaining the switch in open position, a vertically disposed rotatable shaft having a crank, a connection between the crank and
10 crank, a connection between the crank and train actuated trip means operative upon the connection to move the switch to closed position, and automatically releasable locking
15 5. In combination with a main track line and its siding, of a movable switch opening the siding into the main line, means

maintaining the switch in open position, a vertically disposed rotatable shaft having a crank, a connection between the crank and
20 the switch and being in alinement with said crank when the switch is in open position, train actuated trip means operative upon the connection to move the switch to closed position, automatically releasable locking
25 means holding the switch in open position, and locking means to hold the switch in closed position.

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

HARRISON B. NOBLE.

Witnesses:

HUGH ROBB,
J. P. SHELTON.