

L. C. ROUSSEAU.
RAILWAY SWITCH.
APPLICATION FILED SEPT. 30, 1910.

983,771.

Patented Feb. 7, 1911

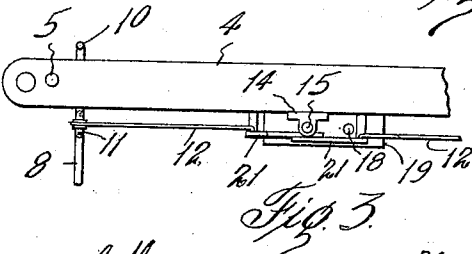
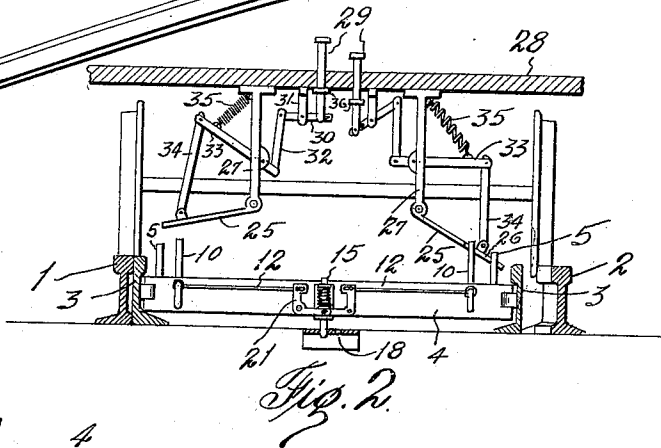
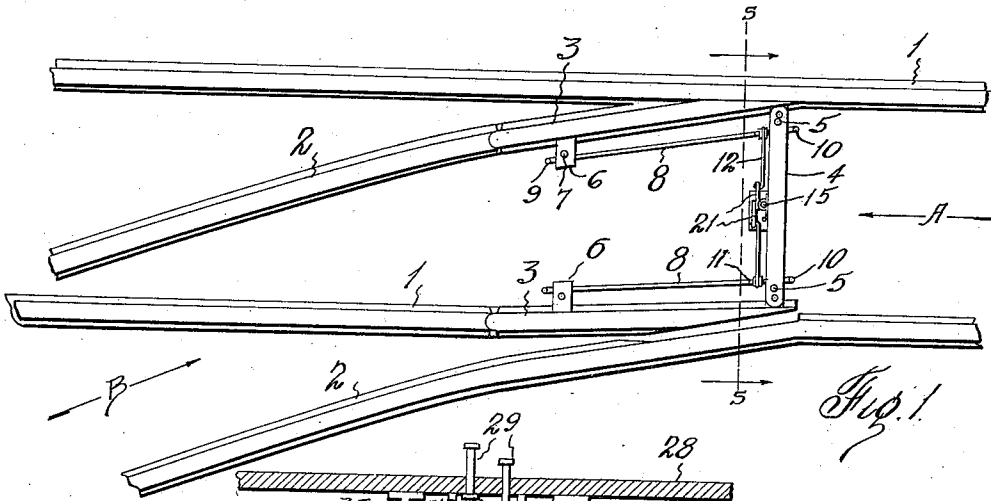
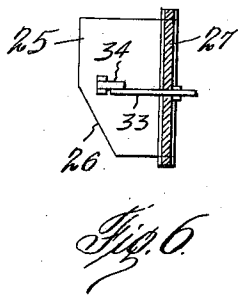
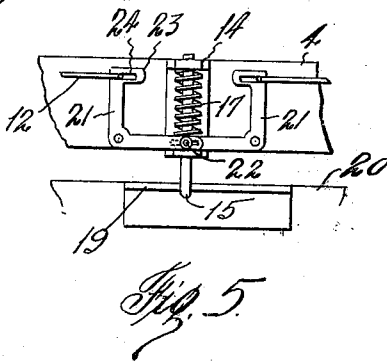


Fig. 4.
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RAILWAY-SWITCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LAWRENCE C. ROUSSEAU, a citizen of the United States, residing at Waxahachie, in the county of Ellis and State of Texas, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

This invention relates to new and useful improvements in railway switches.

The object of the invention is to provide a switch which may be thrown by depressible hinged shoes carried on a car or engine, together with a particular form of locking mechanism released by the shoes and adapted to fasten the switch tongues in their adjusted position.

Finally the object of the invention is to provide means of the character described that will be strong, durable, efficient, and easy of operation, simple and comparatively inexpensive to construct, and also in which the several parts will not be likely to get out of working order.

With the above and other objects in view, the invention has relation to certain novel features of construction and operation, an example of which is described in this specification and illustrated in the accompanying drawings, wherein:

Figure 1. is a plan view of the switch, Fig. 2. is a transverse section on the line S-S of Fig. 1 and showing the operating mechanism about to engage with the switch throwing mechanism, Fig. 3. is a detail in plan of the locking mechanism, Fig. 4. is a vertical section of the same, Fig. 5. is a detail of the locking mechanism in elevation, and Fig. 6. is a detail in plan of one of the shoes.

In the drawings the numeral 1 designates the rails of the main line and 2 the rails of a siding. In the usual manner switch tongues 3 are pivoted to the ends of the adjacent rails 1 and 2 and adapted to swing to open and close the switch.

The switch tongues near their points are connected by a bar 4 which is pivotally engaged therewith at its end. Near each end of the bar a stud 5 projects upward that is adapted to be engaged by a shoe mounted on the car or engine and hereinafter described. When a car approaches the switch on the main line in the direction of the arrow A one of its shoes is depressed to engage one of the studs 5 whereby the switch tongues

will be swung to one side or the other to open or close the switch.

On the adjacent sides of the switch tongues and a short distance from their pivot points lugs 6 project toward the center of the track. Each lug is provided with a stud 7 substantially the same as the studs 5. When a car or engine approaches the main line in the direction of the arrow B the shoe is depressed to engage the stud 7 according to whether the switch is open or closed.

Each lug 6 supports one end of a crank rod 8 and beyond the lug each rod is bent upward to form an arm 9. The other end of each rod is passed through one end of the bar 4 and bent upward to form a vertical arm 10. These rods and their arms are set nearer the center of the track than the studs 5 and 7 and they are also positioned so that in approaching the switch the shoes of the car must engage the arms before engaging the studs.

Near the bar 4 each crank rod is provided with a normally vertical crank 11. From each crank a rod 12 extends inward. At the central portion of the bar 4 a vertical bracket 14 is secured. A locking pin 15 is mounted to slide vertically in the bracket and a collar 16 as shown in Fig. 4 is fixed on the pin and engages the bottom of the bracket to limit the downward movement of the pin. A coil spring 17 surrounds the pin in the bracket and bears on the collar whereby said pin is held in either of the openings 18 of an angular lock plate 19 extending from the side of a tie 20 disposed under the bar 4.

On each side of the bracket a bell crank lever 21 is pivotally mounted on the bar 4 and has its horizontal member directed toward the collar 16. A lug 22 extending from the collar engages in the ends of the levers 21 which are overlapped and slotted. At the upper end of each vertical member of the levers 21 a horizontal extension 23 is directed inwardly toward the bracket 14. Each extension has a horizontal slot 24 in which the end of one of the rods 12 engages and normally stands at the outer end of the slot so that the lever can be swung without movement of the rod.

The locking pin 15 is always in engagement with one of the openings 18 and the switch tongues cannot be swung until the pin is raised out of the opening.

It is obvious that the arms 9 and 10 being

set in advance of the studs 5 and 7 with relation to the approach of the car or engine, the suitable shoe carried by the car or engine will first engage one of the arms, the particular arm being that nearest the stud which is to be engaged by the depressed shoe. The arm being encountered by the shoe is swung outward and its respective crank shaft rocked so that the crank 11 thereof is also swung outward. The rod 12 which is connected to said crank will be moved outward and thus swing the bell crank lever 21 to which it is attached. When the lever 21 is swung its horizontal member raises the pin 15 out of the opening 18 against the tension of the spring, the other lever 21 being also swung by the lug 22 but owing to its slot 24 no movement will be transmitted to its rod 12 or the parts connected with said rod. After the pin has been raised the shoe will engage the stud and throw the switch tongue, the locking pin being held in its raised position during the swinging of said tongue. It is obvious that the end of the shoe will pass the arm before it disengages with the stud. Just as soon as the end of the shoe passes off of the arm, the spring 17 forces the bolt downward into the other opening 18, returning all parts to their normal positions and locking the switch tongues in position before the end of the shoe rides off the stud.

It will be apparent that while several forms of operating devices may be employed a shoe having its working edge or face cut at an angle must be employed. In the drawings I have shown a shoe 25 having an angular edge 26. Two of these shoes are employed and each is hinged at its inner end to a hanger 27 depending from the bottom 28 of a car. The shoes are directed outwardly and each with its angular edge forward. The operating means for each shoe is substantially the same and a description of one will suffice for both.

Near the center of the bottom 28 of the car a vertical plunger 29 is mounted and projects above the bottom. The lower end of the plunger has slotted engagement with a lever 30 centrally pivoted in a bracket 31 depending from the car bottom 28. The upper end of a link 32 is pivoted to the outer end of the lever 30, while the lower end of the link is pivoted to the inner end of a lever 33. The lever 33 operates through the hanger 27 and is pivoted therein nearer its inner end whereby the outer end of said lever will have a comparatively long swing. The outer end of the lever 33 has pivotal connection with a link 34 pivoted at its lower end to the shoe 25. A coil spring 35 connected to the lever 33 and the hanger 27 holds the parts in their normal positions and the shoe elevated so as to pass over and not engage the arms and studs of the switch.

A collar 36 fixed on the plunger 29 engages the underside of the car bottom 28 and limiting the upward movement of the plunger forms a stop whereby the parts are arrested when swung back to their normal positions by the spring 35. In approaching the switch the motorman or engineer places his foot on one of the plungers 29 depending on which way he desires to throw the switch tongues. By observing Fig. 2 it will be seen how the depressing of the shoe is accomplished.

In Fig. 2 the switch is open and the right hand shoe is depressed for the purpose of closing the same. As the shoe approaches the switch its angular edge 26 will first engage the arm 10 and swing the same to the right whereby the locking pin 15 will be raised. As the shoe moves forward the stud 5 will be engaged and the switch tongues thrown to the right thus closing the switch. The rear end of the shoe will pass the arm 10 and permit the spring 17 to force the locking pin into the right hand opening 18 before said rear end passes the stud 5, the switch thus being locked in its closed position.

What I claim is:

1. In combination in a railway switch, a pair of pivoted switch tongues, a bar connecting the free ends of the tongues, lugs projecting from the tongues a short distance from their pivot points, studs extending upward from the bar and the lugs, crank rods supported in the bar and each having one end supported in one of the lugs, arms projecting upward from the ends of the crank rods, the arms being set in advance of the studs with relation to the approach of a car, a locking device carried by the bar and having connection with the crank rods, the locking device being arranged to be operated by one crank rod without transmitting movement to the other crank rod, and a car carried depressible shoe having an angular edge adapted to engage the arms and studs.

2. In combination in a railway switch, a pair of pivoted switch tongues, a transverse bar pivotally connecting the free ends of the tongues, lugs extending from the tongues a short distance from their pivot points, vertical studs extending upward from the bar and the lugs, crank rods extending through the bar and each having one end extending through one of the lugs, vertical arms, one extending upward from each end of each crank rod, the arms being positioned in advance of the studs with relation to the approach of a car, a bracket carried by the bar, a locking plate fixed below the bar and provided with openings, a vertically movable spring pressed pin mounted in the bracket and adapted to engage the openings of the locking plate, bell crank levers pivoted to the bar on each side of the bracket and having their ends overlapped and connected to

the pin, the levers having their free ends slotted, and connections between the crank rods and the slotted ends of the levers.

5 3. In a railway switch, a pair of pivoted switch tongues, a transverse bar pivotally connecting the free ends of the tongues, crank rods passing through the bar, one crank rod being supported along the inner side of each tongue, projections adjacent the
10 tongues, some of said projections extending from the bar and the others being supported on the inner sides of the tongues near their pivot point, arms extending upward from

the crank rods, a locking plate fixed below the bar, a locking device carried by the bar 15 and adapted to engage the plate, and connections between the crank rods and the locking device.

In testimony whereof I have signed my name to this specification in the presence of 20 the subscribing witnesses.

LAWRENCE C. ROUSSEAU.

Witnesses:

GEO. L. GRIFFIN,
JOHN TEMPLETON,
ZELMA BEACHUM.