To all whom it may concern:

Be it known that I, Oscar August Krug, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and improved Railway-Switch Mechanism, of which the following is a full, clear, and exact description.

This invention relates to improvements in railway switch mechanism, the object being to provide a simple means whereby an open switch may be automatically closed by an approaching train from either direction, thus preventing possible accident.

I will describe a railway switch mechanism embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 shows in plan a switch mechanism embodying my invention; Fig. 2 is a section on the line x—x of Fig. 1; and Fig. 3 is a section on the line y—y of Fig. 1.

Referring to the drawings, 1, 2 indicate the main rails of a track, 3 a switch tongue connected to the main rails 1, 2, 4 a switch tongue acting with the main rails 1 and 2, and 5 the switch tongue acting on the switch tongue 4, as clearly indicated in Fig. 1.

At the ends of the switch tongues are a section of one of the cross bars 5 from which a link 6 extends outward and is pivoted to a section of the cross bar 5 supported on a section of the cross bar 5 mounted to one of the ties. A locking disk 8 is rotatably mounted on a metal plate 10 secured to the cross ties, and a connection between an arm 11 extended from said disk and the cross bar 11 consists of a link 12, as shown in Fig. 1. The disk is provided at its periphery with two notches 13, 14 designed to receive the ends of a locking rod to be hereinafter described. Also extended from the disk 8 at substantially right angles to the arm 11 is an arm 15 pivotally connected to a shifting rod 16 for the disk 9. The opposite end of the shifting rod 16 engages with a crank 17 on the shaft of a tappet finger 18 arranged to swing vertically in a casing 19. Mounted to swing horizontally on the plate 10 is a lever 20, the inner end being pivoted to said rod 16 and the other end extended outward to the side of the track 55 and from this outer end a draw rod 21 extends to connection with a crank 22 on the outer end of a shaft 23 having bearings in brackets attached to one of the railway ties, and on the inner end of this shaft 23 is a crank 24 having link connection 25 with a crank 26 on the shaft of a tappet finger 27 mounted to swing vertically in a casing 28.

From a lever 29 mounted to swing on the plate 10, a rod 30 extends to connection with a crank 31 on a transverse rod 32 having bearings in sections attached to one of the ties, and having at its inner end a crank 33 which is connected by a link 34 with a crank 35 on the shaft of a tappet finger 36 mounted to swing vertically in the casing 28. At the end of this rod 30, this crank 37 being on the inner end of a shaft 38 mounted in a casing 39, and on the outer end of the shaft 38 is an operating rod 40 provided with a foot piece 41. It will be noted that the lever 7 is provided with a weight 42, which is designed to move said lever downward when released. The inner end of the lever 29 is pivotally connected to a locking rod 43, the end of which is designed to engage with either one of the notches 13, 14 in the disk 9. The outer end of the locking rod connects with a crank 44 on the shaft of a tappet finger 45 mounted to swing in the casing 19, and arranged between a bearing, through which said rod is shiftable, and a collar 47, is a coiled spring 48 for yieldingly holding the said rod in a notch of the locking disk.

As before stated, it is designed that should, by inadvertence, the switch tongues be in position to direct a train from the main track to a siding, the switch tongues shall be automatically moved to open the main track by an approaching locomotive. Therefore I provide the locomotive with an inclined shoe plate a, so situated that in case the tappet fingers are in upright position, the shoe will engage therewith to operate the parts. To shift the switch tongues to cause a train to pass from the main line to a siding, the lever 7 is to be swung upward, causing the tongue 3 to engage with the rail 1, leaving the tongue 4 free from the rail 2 and the sliding extension therefrom. Before this operation of the lever 7 the treadle 40 is to be pressed down.
ward which will force the locking rod 43 out of the notch 13 and at the same time swing the fingers 45 and 27 upward, and the rotary movement of the disk 9, caused by the movement of the cross bar, will, by drawing upon the rod 16 and swinging the lever 20, swing the fingers 18 and 27 upward and the locking rod 43 at this time will be engaged in the notch 14 of the locking disk. Now, should a train approach the switch from either side, the shoe a carried by the engine will first engage the outer tappet finger, causing the locking rod 43 to be moved out of the notch 14, and thus, when the shoe engages immediately the next or inner tappet finger, the rod 16 will rotate the disk until the end of the locking rod engages in the notch 13. The rotary movement of the disk of course swings the switch tongues to the position indicated in Fig. 1, thus opening the main line.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a railway switch mechanism, switch tongues, a bar connection between the free ends of the tongues, a locking disk having link connection with said bar and provided at its periphery with two notches, a sliding locking rod for engaging in either one of said notches, a tappet finger mounted to swing from horizontal to vertical position and having a crank connection with the end of said locking rod, another tappet finger mounted to swing inward of the first-named tappet finger and having a crank portion, and a draw rod extended from said crank portion to connection with the locking disk.

2. In a railway switch mechanism switch tongues, a connection between the free ends of the tongues, a locking disk connected with said connection and provided at its periphery with two notches, a sliding locking rod for engaging in either of said notches, a tappet finger mounted to swing from horizontal to vertical position and having a crank connection with the end of said locking rod, another tappet finger mounted to swing inward of the first named tappet finger and having a crank portion and a draw rod extending from said crank portion to connection with the locking disk.

3. A railway switch mechanism, comprising switch tongues, a bar connecting the free ends of the tongues a weighted shifting lever for moving the tongues in one direction, a locking disk having link connection with said bar, the said locking disk having two notches in its periphery, a locking rod for engaging in either one of said notches, a vertically swinging tappet finger actuated by said locking rod at one side of the switch, a swinging lever pivoted to said rod, another tappet finger mounted to swing at the opposite side of the switch and actuated from said lever, a treadle for automatically moving the first-named lever in one direction, fingers mounted to swing at opposite sides of the switch inward of the first-named fingers, a rod connection between one of said inner fingers and the locking disk, a swinging lever pivoted to the last-named rod, and operating connection between said last-named lever and the inner finger at the opposite side of the switch.

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

Witnesses: O\n
Oscar August Krug.

Allen F. Heyne,
Stephen Talbot.