

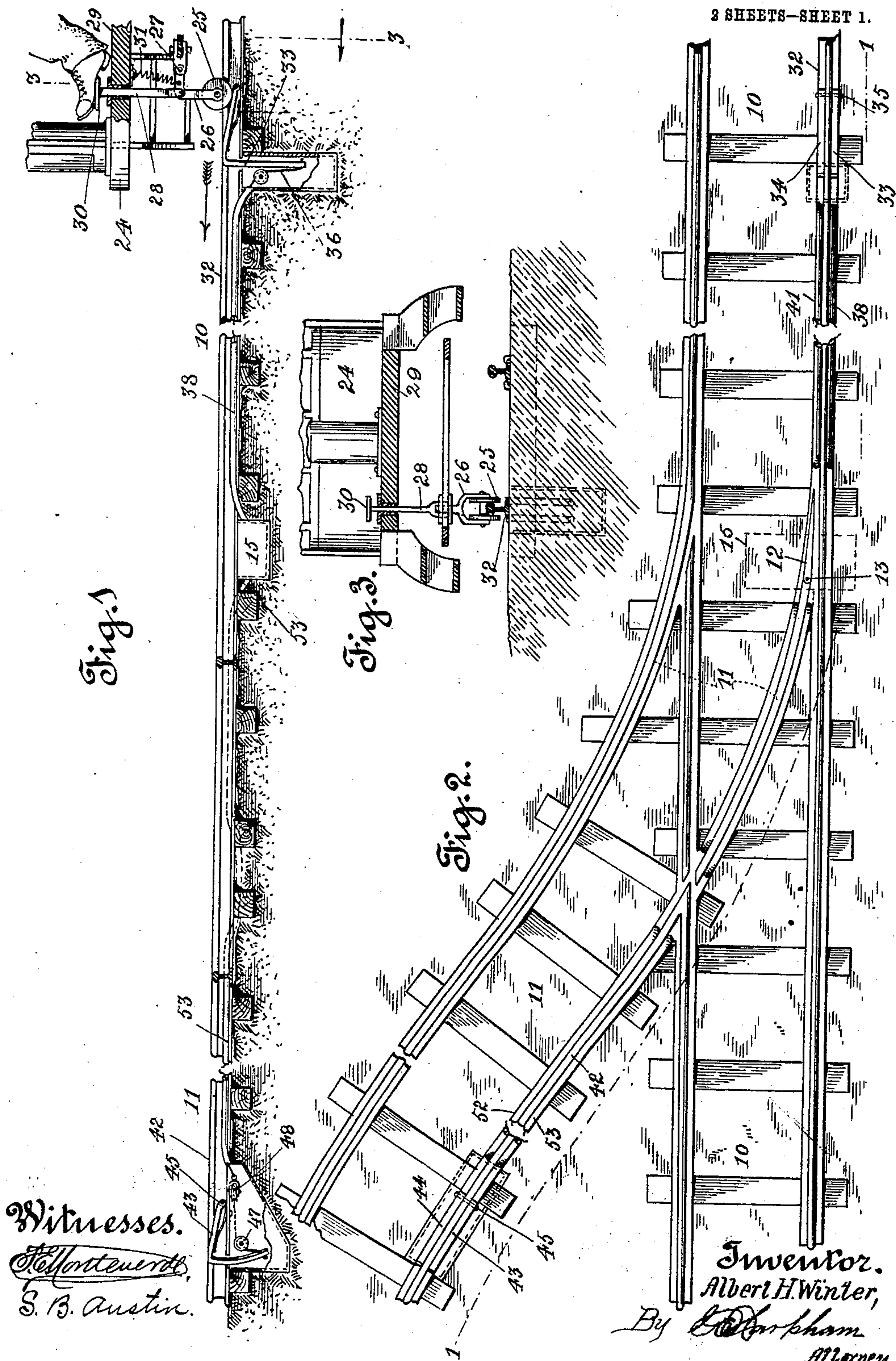
No. 860,843.

PATENTED JULY 23, 1907.

A. H. WINTER.
RAILWAY SWITCH.

APPLICATION FILED MAY 31, 1907.

2 SHEETS—SHEET 1.



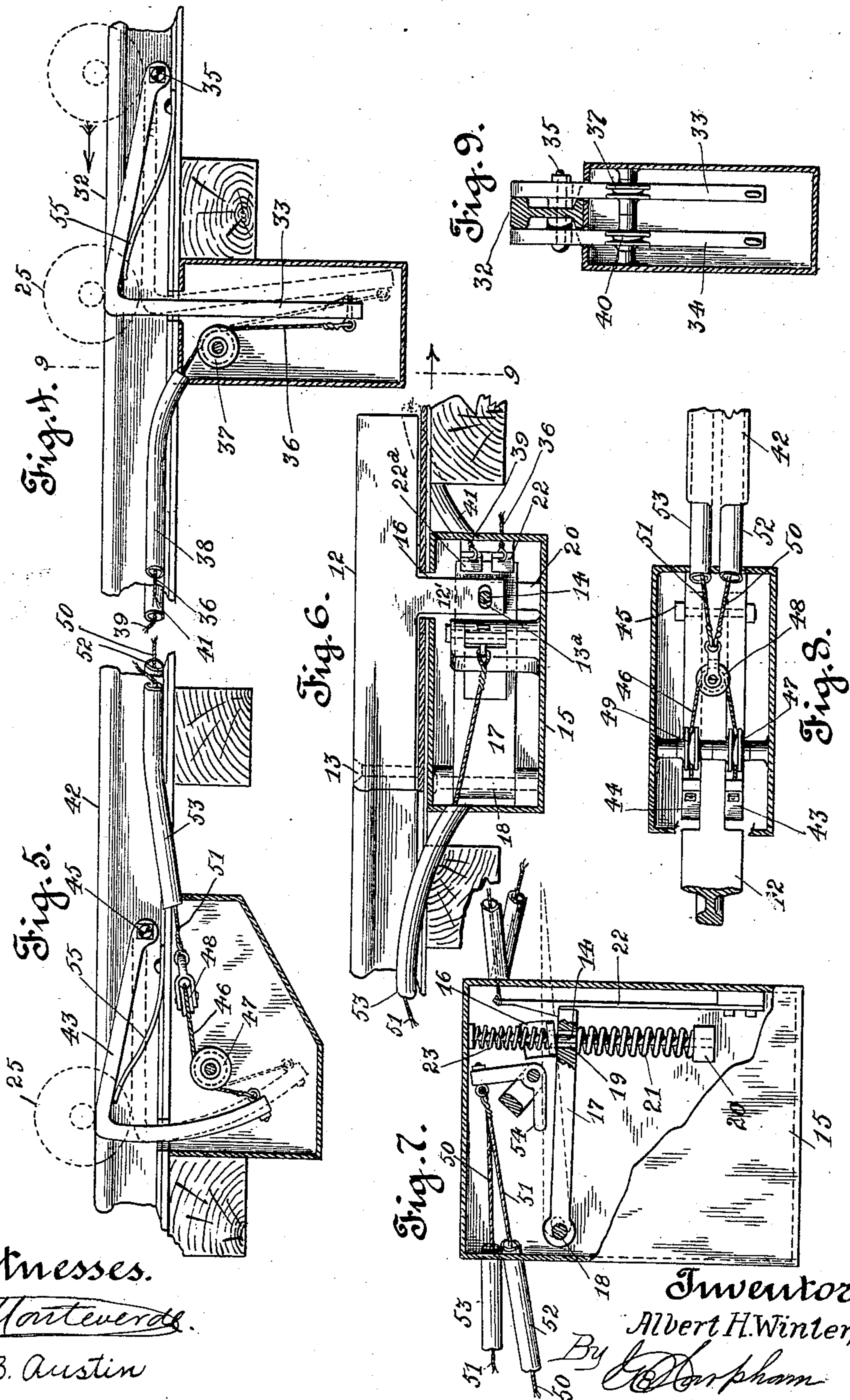
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Witnesses.
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UNITED STATES PATENT OFFICE.

ALBERT H. WINTER, OF LOS ANGELES, CALIFORNIA.

RAILWAY-SWITCH.

No. 860,843.

Specification of Letters Patent.

Patented July 23, 1907.

Application filed May 31, 1907. Serial No. 376,609.

To all whom it may concern:

Be it known that I, ALBERT H. WINTER, a citizen of Great Britain, residing at Los Angeles, county of Los Angeles, State of California, have invented new and useful Improvements in Railway-Switches, of which the following is a specification.

My invention relates to a railway switch for shifting the car from the main track to a switch track, and the object thereof is to provide a switch mechanism which can be operated by mechanism on the traveling car to close the switch as the traveling car approaches the junction of the switch track with the main track to cause the car to travel onto the switch track; and to open the switch after the car has cleared the main track.

Another object is to so construct the switch operating mechanism that it will only be operated when acted upon by the special mechanism carried by the traveling car, which last mechanism must be put in action by an operator on the car, so that the accidental operation of the switch mechanism is not possible.

I accomplish these objects by the mechanism described herein and illustrated in the accompanying drawings in which;

Figure 1 is a side elevation of a portion of a main track and switch track on the line 1—1 of Fig. 2. with a portion of a traveling car on the main track with the mechanism secured thereto for operating the switch mechanism. Fig. 2. is a plan of a portion of a main track and a switch track. Fig. 3 is a section on the line 3—3 of Fig. 1. Figs. 4 to 9 are details of different parts of the switch closing and restoring mechanism.

In the drawings 10 is the main track and 11 is the switch track which is provided with the usual switch having the ordinary pivoted tongue 12, which in street railways is constructed in the usual manner and may be closed in the usual manner by a chain operated at the side of the switch. This switch tongue is pivoted at 13 and is provided with a downwardly projecting arm 12' which near the lower end thereof is provided with a slot 13^a therein through which slot passes guide bar 14 which prevents any upward movement of the switch tongue, and guides it in its transverse movement. This guide bar at one end is secured to the end of a box 15, which is preferably made of metal, in the top of which is a slot 16 through which slot the depending arm 12' of the switch tongue projects into the box. A shifting lever 17 is pivotally secured by pin 18 in the box. This lever has a transverse opening 19 there-through through which passes guide bar 14. The outer end of the guide bar is supported by a post 20, and between the post and the shifting lever is a spiral spring 21 which causes the movement of the shifting lever against the arm of the switch tongue whenever

the spring catches 22 and 22^a are disengaged from the shifting lever, whereby the switch tongue is thrown into engagement with rail 32 of the main track, thereby closing the switch when the car will move onto the switch track when traveling in the direction of the arrow in Fig. 1. Between the switch tongue arm and the edge of the box surrounding guide bar 14 is a spiral spring 23 of less strength than spring 21, which when the shifting lever is brought into the position shown in Fig. 7, causes the movement of the switch tongue away from the rail of the main track thereby opening the switch. Normally the switch will be in its open position.

To close the switch, I have mounted upon the traveling car 24 a double flange depression pulley 25 which is mounted on bifurcated L-shaped bar 26 which is pivoted at 27 to bearings secured to the frame of the car. A foot bar 28 is secured to bar 26 and passes upwardly through the floor 29 of the car, and is provided with a foot piece 30 upon which the foot of the operator may be placed to depress the same as shown in Fig. 1. A spring 31 is secured to bar 26 and to the floor of the car so that when the pressure is removed from the foot piece the depression pulley will be elevated a suitable distance above rail 32. At a suitable distance from the switch at each side of the rail 32 of the main track, which rail is on the same side as the movable switch tongue, are closing depression levers 33 and 34. These levers are preferably pivoted to the web of the rail by bolt 35 and are preferably L-shaped as best shown in Figs. 1 and 4. To the lower end of lever 33 is secured a cable 36 which passes over a direction changing pulley 37 and then through conduit 38, which conduit leads to box 15 running along the side of the rail and over the ties and bending downwardly to the box, and then passes into the box and is secured to spring catch 22. To the lower end of lever 34 is secured a cable 39 which passes over a direction changing pulley 40, and then through conduit 41, which conduit leads to box 15 running along side of the rails and over the ties and bending downwardly to the box, and then passes into the box and is secured to the spring catch 22^a. When the car is traveling in the direction shown by the arrow in Fig. 1, and the operator desires the car to travel off onto the switch track he places his foot on the foot piece as shown in Fig. 1 and depresses the depression pulley so that it will contact with and depress the closing depression levers 33 and 34. This movement of the closing depression levers through the cables attached thereto and to the spring catches releases said catches from engagement with the shifting lever which is thereupon free to move, and does move the switch tongue into engagement with rail 32, so that when the car reaches the same it travels off onto the switch track.

To open the switch I have provided at a suitable distance from the switch at each side of rail 42 of the switch track restoring depression levers 43 and 44, which are pivotally secured by bolt 45 to the web of the rail 42. These levers are hook or L-shaped as best shown in Figs. 1 and 5, and to the lower ends thereof is secured a cable 46 which passes over direction changing pulley 47, then around the pulley of block 48 and over direction changing pulley 49, as best shown in Fig. 8. To block 48 are secured cables 50 and 51 which run through conduits 52 and 53 which conduits lead to box 15, and then enter the box and are secured to bell crank lever 54. Just before the car reaches the restoring levers, the operator places his foot again on the foot piece and depresses the depressing pulley so that it will contact with, and depress the restoring depression levers. This movement of the restoring depression levers through the cable attached thereto and to the bell crank lever, causes the movement of the bell crank lever to move shifting lever 17 so that it is caught and held by the spring catches 22 and 22^a, and as said lever is moved by the bell crank lever spring 23 shifts the switch tongue back to its open position. It will be observed that spring 21 is much more powerful than spring 23 so that when lever 17 is released it can close the switch against the power of spring 23 and hold the same closed until returned to its locked position as shown in Fig. 7, as before explained.

It will be observed that by the use of two locking catches to hold the switch shifting lever in its locked position as best shown in Fig. 7 and arranging the other mechanism so that it requires the simultaneous depression of both closing depression levers I have secured the switch closing mechanism from being accidentally operated by a vehicle passing over the track. If the vehicle is traveling longitudinally with the track the wheels of such vehicle cannot at the same time operate both closing depression levers, and if said closing depression levers are operated one at a time no effect is produced, as the switch closing lever will be held inoperative by the spring catch which is not acted upon. It will also be observed that I have also provided security against the accidental operation by a vehicle traveling on the track of the switch restoring mechanism as it requires the simultaneous depression of both restoring depression levers to operate the bell crank lever to return the switch closing lever to its locked position as shown in Fig. 7. If only one restoring depression lever is operated at a time the cable will simply travel through the block, and will not draw upon the cable that runs to the bell crank lever. It will also be observed that my mechanism can be attached to street railway switches now in use without in any way interfering with their ordinary operation, so that in case of accident such switch could be operated in the usual manner. Each of the depression levers is provided with a restoring spring 55 which returns the same to its normal position after the depression pulley has passed thereover.

Having described my invention what I claim is:

1. A railway switch closing mechanism comprising a spring operated switch tongue closing lever; two independently operated spring catches for securing the switch closing lever in its inoperative position; closing depression

levers at each side of one of the rails of the main track; connections from said levers to said catches; in combination with operating means carried by the car to simultaneously depress said depression levers.

2. A normally open railway switch; mechanism to close the same, comprising a spring operated switch tongue closing lever; two independently operated spring catches engaging said switch closing lever and holding the same inoperative; closing depression levers at each side of one of the rails of the main track; connections from said levers to said catches; in combination with operating means carried by the car to simultaneously depress said depression levers.

3. A railway switch normally held open by spring pressure; mechanism to close said switch comprising a spring operated switch tongue closing lever held normally inoperative; two independently operated spring catches engaging said switch closing lever and holding the same inoperative; closing depression levers at each side of one of the rails of the main track; connections from said levers to said catches; in combination with a double flange depression pulley carried by the car and adapted to be thrown into engagement with and depress simultaneously said depression levers.

4. A railway switch normally held open by pressure; mechanism to close said switch comprising pressure operated mechanism normally held inoperative by two independently operated locking mechanisms; two independently operated releasing mechanisms operatively connected to said locking mechanisms; in combination with operating means carried by the car to simultaneously operate said releasing mechanisms.

5. A railway switch normally held open by spring pressure; spring operated mechanism held normally inoperative for closing said switch; independently operated locking mechanism engaging and holding said spring operated closing mechanism in its inoperative position; independently operated releasing mechanism operatively connected to said locking mechanism; in combination with operating means carried by the car to simultaneously operate said releasing mechanism.

6. In a railway switch mechanism; a pivoted switch tongue having a dependent arm; a spring bearing against said arm to throw the switch tongue away from the rail of the main track; a switch tongue closing lever engaging said arm on the opposite side from said opening spring; a spring bearing against said closing lever adapted to operate the same to close the switch against the power of the opening spring; locking catches adapted to engage said closing lever and hold the same from closing said switch tongue; two releasing depression levers pivotally connected to one of the rails of the switch track on opposite sides thereof; a bell crank lever adapted to engage said switch closing lever and carry it to engagement with its locking catches; and a connection between said releasing levers and said bell crank lever, whereby upon the simultaneous depression of both of said levers said closing lever is returned to its locked position.

7. In a railway switch mechanism a pivoted switch tongue having a dependent arm; a spring bearing against said arm to throw the switch tongue away from the main track; a switch tongue closing lever engaging said arm on the opposite side from said opening spring; a spring bearing against said closing lever adapted to operate the same to close the switch against the power of the opening spring; locking means for holding said closing lever from closing said switch tongue; a bell crank lever adapted to engage said switch closing lever and carry it to engagement with said locking means; two L-shaped restoring levers pivotally secured on opposite sides of the rail of the switch track; two direction changing pulleys adjacent to said levers; a block; a cable passing through said block and over said direction changing pulleys and secured to said levers; a connection from said block to said bell crank lever; in combination with operating means carried by the car to simultaneously operate said levers.

8. In a railway switch mechanism a pivoted switch tongue having a dependent arm; a spring bearing against said arm to throw the switch tongue away from the main track; a switch tongue closing lever engaging said arm on

the opposite side from said opening spring; a spring bearing against said closing lever adapted to operate the same to close the switch against the power of the opening spring; two spring catches engaging said closing lever to prevent the closing of said switch tongue; two L-shaped closing depression levers pivotally secured to a rail of the main track on opposite sides thereof; connections from said levers to said spring catches; in combination with a double flange depression pulley carried by the car and

adapted to be thrown into engagement with and depress 10 simultaneously said levers.

In witness that I claim the foregoing I have hereunto subscribed my name this 24th day of May, 1907.

ALBERT H. WINTER.

Witnesses:

G. E. HARPHAM,
S. B. AUSTIN.