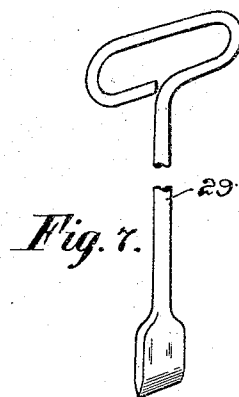
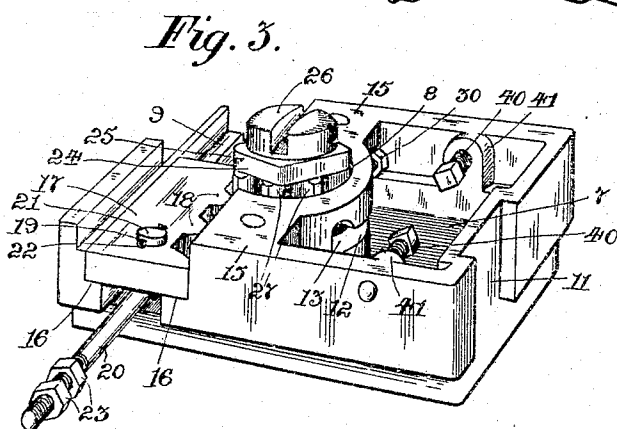
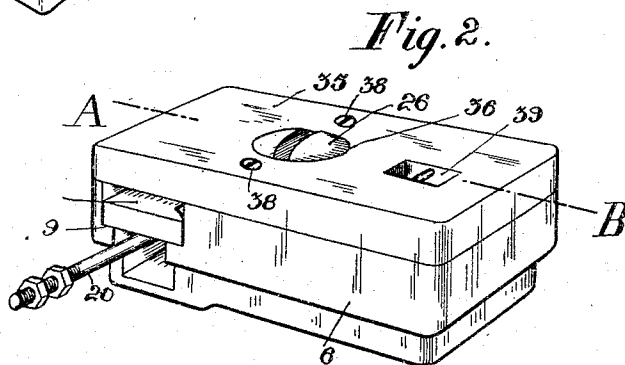
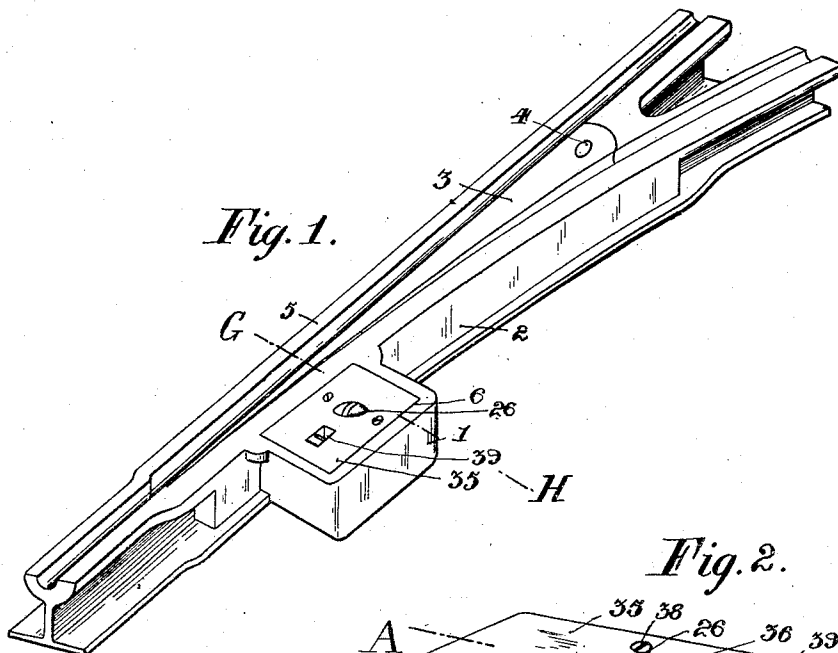


939,279.

B. LEGAULT.
RAILWAY SWITCH MECHANISM.
APPLICATION FILED MAR. 1, 1909.

Patented Nov. 9, 1909.
4 SHEETS—SHEET 1.



Witnesses.
Harry Davis
Rene Legault

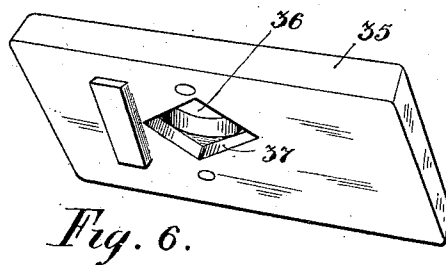
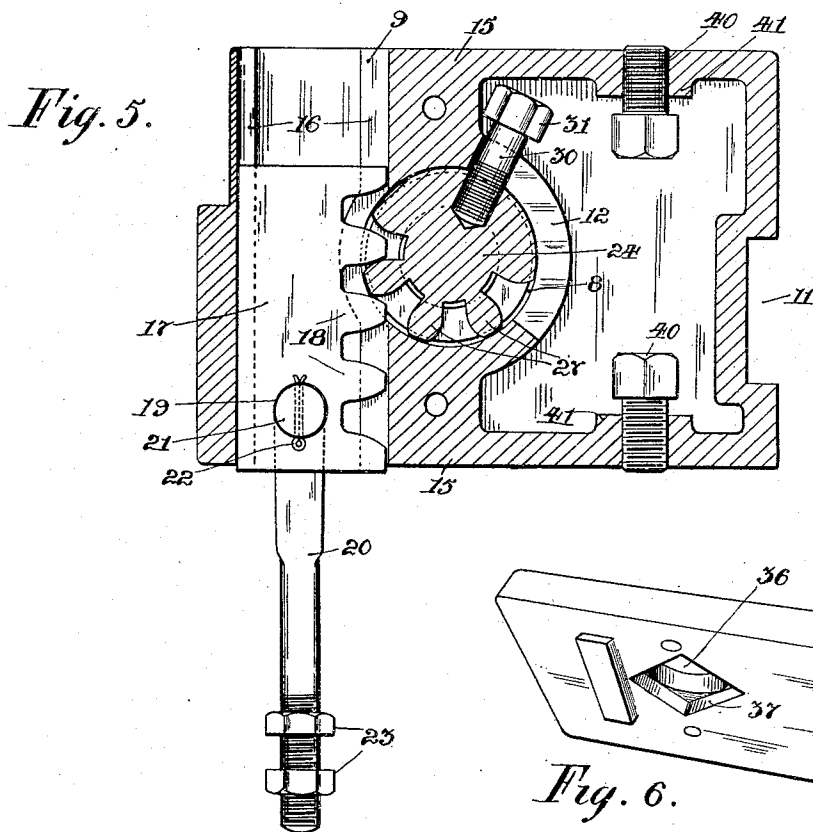
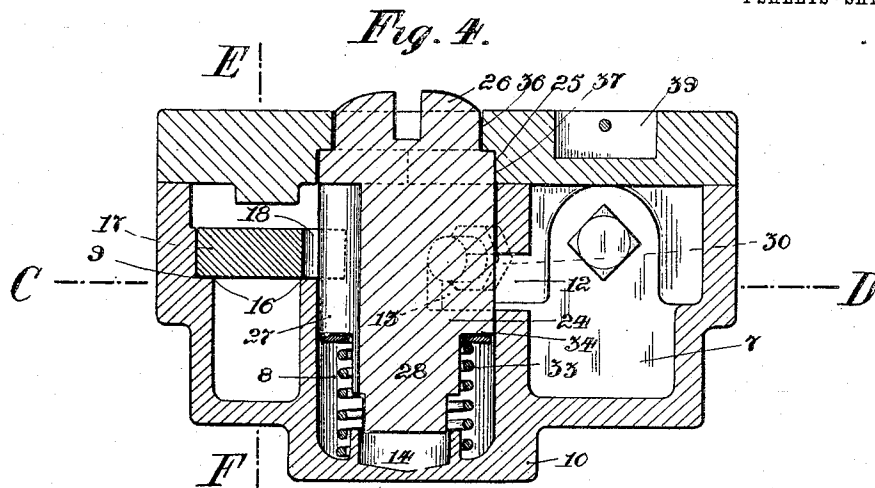
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 8.

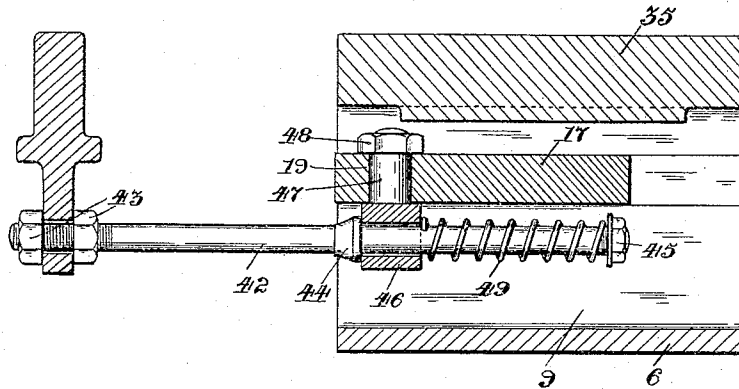
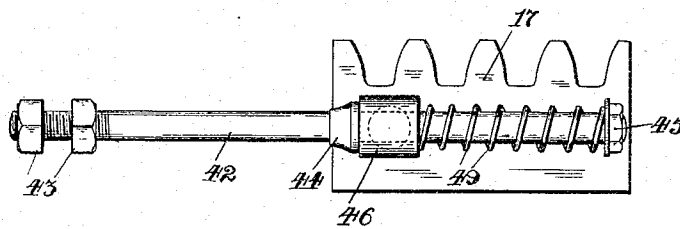


Fig. 9.



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4 SHEETS—SHEET 4.

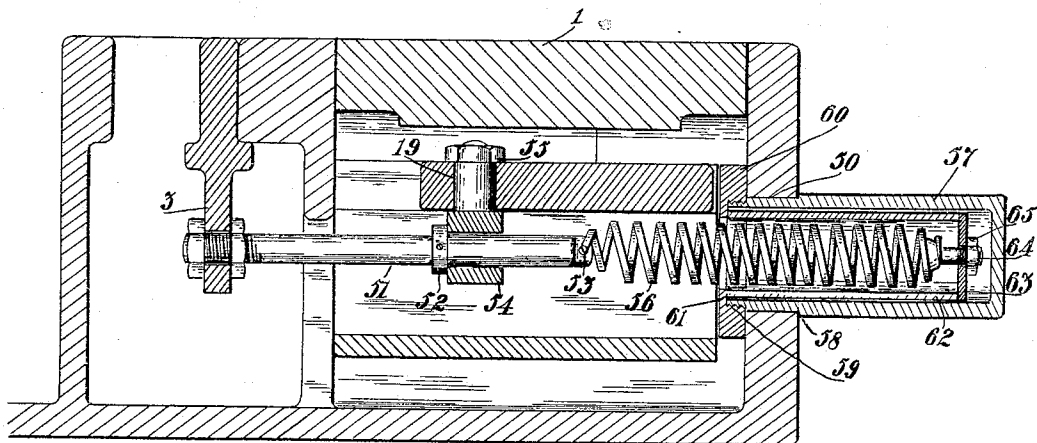


Fig. 10.

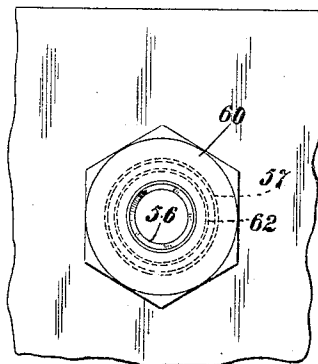


Fig. 11.

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UNITED STATES PATENT OFFICE.

BRUNO LEGAULT, OF MONTREAL, QUEBEC, CANADA.

RAILWAY-SWITCH MECHANISM.

939,279.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed March 1, 1909. Serial No. 480,654.

To all whom it may concern:

Be it known that I, BRUNO LEGAULT, resident of 951 Charlevoix street, of the city and district of Montreal, in the Province of Quebec, in the Dominion of Canada, a subject of the King of Great Britain, have invented certain new and useful Improvements in Railway-Switch Mechanism; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention relates to improvements in railway switch mechanism, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel arrangement and construction of parts whereby the switch point is positively held to each shifted position by locking mechanism arranged in conjunction with the shifting mechanism.

The objects of the invention are to prevent the derailing of cars from misplaced switch members, to facilitate the operation of the switch member by the attendants, particularly by the motormen in street car work and generally to provide a positive switch locking mechanism simple in its arrangement of parts and cheap to construct.

In the drawings, Figure 1 is a perspective view showing the box containing the operating and locking mechanism and a switch. Fig. 2 is a perspective view showing a detail of the operating and locking mechanism removed from the box. Fig. 3 is a perspective view of the operating and locking mechanism with the cover-plate removed to disclose the interior. Fig. 4 is a vertical section of the operating and locking mechanism on the line A—B in Fig. 2. Fig. 5 is a horizontal section on the line C—D in Fig. 4. Fig. 6 is a perspective detail of the cover showing the underside. Fig. 7 is a perspective detail of the key. Fig. 8 is a vertical section on the dotted lines E—F in Fig. 4, but showing a modified arrangement of the connection to the needle. Fig. 9 is an under side plan of the rack shown in Fig. 8. Fig. 10 is a cross section of a modified form on the line G—H in Fig. 1. Fig. 11 is a plan view of the retaining nut and tubes illustrated in Fig. 10.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 is the outer box permanently secured to the rail 2 adjacent to the point 3, said point being pivoted as customary at 4 and moving from the rail 2 to the rail 5 to determine the track-way over which the vehicle shall travel.

6 is the inner box contained within the box 1 and removable therefrom and having the closed receptacle portion 7, the circular well or recess 8 to the inner side of said portion and the slide-way 9 to the other side of said well and at one end of the box, said box also having a boss 10 projecting downwardly from the under side thereof, the recess 11 in the end wall of the receptacle portion and the circumferential slot 12 in the wall of the well 8 and enlarged ends 13 in said slot 12, leading upwardly in said wall.

The well 8 is formed at the bottom end with the central cup 14 forming a bearing.

The partition walls 15 extend from the walls of the well 8 to the sides of the box 1 dividing the receptacle 7 from the slide-way 9, the latter being open at each end, that is to say, the sides of the outer box terminate at the edge of said slide-way, and said slide-way has the tracks 16, one on each side thereof preferably forming part with the other portions of the box 6.

The circular wall of the well 8 on the outer or slide-way side thereof extends up to the height of the track 16 on that particular side of the slide-way.

17 is a rack having its teeth 18 on the well side of the slideway, said rack 17 traveling on the tracks 16 and having a hole 19 adjacent to one end thereof.

20 is a link having the off-set end 21 extending upwardly through the hole 19 and secured in said rack 17 by the pin 22, the outer end of said link being threaded and having the nuts 23 which secure the pin to the point 3, said pin extending through the rail 2, thus a connection is established between the inner box 6 and the point 3.

24 is the operating spindle having the squared head 25 surmounted by the cross slotted crown 26, the gear teeth 27 formed thereon immediately below the squared head 25 and the reduced lower end 28 extending into the cup bearing 14.

It will be thus seen that the operating spindle 24 is inserted in the well 8, the reduced lower end 28 turning in the bearing 14, while the gear teeth 27 mesh with the teeth 18 and move said rack 17 on the turning of the said spindle by means of the key 29 inserted in the slot of the crown 26.

30 is a threaded pin having the head 31 and extending through the circumferential slot 12 into a correspondingly threaded hole in the operating spindle 24.

33 is a spiral spring encircling the operating spindle 24 just above the reduced lower end 28, the upper end of said spring abutting a suitable shoulder or stop 34 on the said operating spindle and the lower end abutting the bottom of the well 8, said spring normally keeping said spindle always in its uppermost position.

35 is a cover plate for the box 6, said cover plate having the hole 36 through which the crown 26 extends and the squared recess 37 from the underside surrounding the inner edges of said hole 36, said recess 37 being of corresponding size to receive the squared head 25 in the uppermost position of the operating spindle 24.

38 are cap screws extending through the cover plate 35 into the partitions 15 and securing said cover firmly in place on the inner box.

39 is a lifter recess in the top of the cover plate, by means of which said cover plate may be easily raised on the insertion of a suitable instrument.

In the operation of this device, the key is inserted in the cross slot or any other suitable arrangement in the crown of the operating spindle 24, the said spindle is pressed downwardly by the key until the reduced lower end 28 reaches the bottom of the cup 14 and bearing on said bottom, the spindle is turned, for it will be seen that by lowering said spindle, the squared head 25 is moved out of the recess 37 and the pin 30 is moved into line with the main portion of the circumferential slot 12 in the wall of the well 8, thus allowing said pin free movement in said circumferential slot.

The turning of the operating spindle moves the rack 17 in the slide-way 9 thereby pushing or pulling the link 20, as the case may be, and as said link is moved, the point 3 must also move, until it reaches its position against one or other of the rails according to the direction that it is being moved. On reaching its proper position against a rail, the key is released from engagement with the operating spindle and the pin 30 moves up into the enlarged portion of the circumferential slot at the opposite end to that from which it has been moved. The squared head 25 fits into the recess 37 on the under side of the cover

plate, thus said pin and said squared head 65 in conjunction with the gear teeth and rack effectually lock the point 3 against the rail to which it has been moved.

The receptacle 7 is particularly adaptable for cold climates to prevent any possibility of interference with the operation by frost, but it may also be filled with grease in any climate, so as to facilitate the operation. In cold climates, however, it will usually be filled with brine or salt and thus overcome any danger whatsoever from the frost. It will be also seen that this device is extremely well protected; the cover plate fits closely thereon and the only possible opening is that immediately around the crown in the hole 19 and even this opening is very securely stopped by the squared head 25, consequently in this particular arrangement of switch operating and locking mechanism, it is almost impossible for dirt or grit to enter the box and even if it does, as already explained, it will not to any extent interfere with the successful operation of the parts, for all the said parts are large and the arrangement is so simple and so convenient that they will operate under almost any conditions.

The inner box 6 is secured in the outer box 1 in any suitable manner; though bolts 40 are herein shown extending through lugs 41 and the recess 11 fitting on a corresponding boss from the inner wall of the said outer box 1.

In Fig. 8 the construction is slightly varied where a switch is opened by reason of a car, say coming on to the main or other line through a closed switch, that is to say, where the flange of the wheel of the car itself opens the switch when coming behind the point. In this construction the aforesaid link is replaced by the rod 42 which is secured to the point in substantially the same manner, viz:—by the nuts 43, the said rod has a shoulder or a collar 44 mounted thereon intermediate of its length and a nut 45 at the other and extreme end. 46 is a collar encircling the rod 42 behind the shoulder 44. 47 is a pin extending upwardly through the hole 19 in the aforesaid rack, said pin having the threaded turning end and secured to said rack by the nut 48. 49 is a spiral spring encircling the rod 42 between the nut 45 and the collar 46 so that said rod 42 is slidably arranged in the collar 46 and when the point is forced outwardly through such cause as explained, the spring will automatically draw it back into the position to which it normally belongs. The operation of this arrangement of the invention is precisely similar to the operation as already described, that is to say, the key is inserted into the crown 26 and moves the point over in precisely the same manner, a

spring under such circumstances not being a factor in the working of the switch.

In Figs. 10 and 11, a modified form of normally retaining the point of the switch mechanism in one position is shown, and in these figures, 50 is a hole drilled through the side of the outer box 1. 51 is the rod extending into the inner box from the point 3 and rigidly secured to said point, said rod having the collar 52 firmly secured thereon intermediate of its length and the eye 53 formed at its inner end. 54 is a sleeve encircling the rod 51 behind the collar 52 and having the stem extending upwardly therefrom through the hole 19, said stem being firmly held in said hole by the nut 55. The collar 52 normally abuts the sleeve 54 and simultaneously the point 3 abuts the near rail. 56 is a spiral spring caught to the rod 51 through the eye 53 and extending therefrom through the hole 50 in the outer box 1. 57 is a tube closed at one end and reduced at the other forming the shoulder 58, the said shoulder abutting the outer surface of the box 1 around the hole 50, said reduced end extending into said hole, and a further reduced end 59 threaded and screwing into the nut 60. The nut 60 is formed with the shoulder 61 in the bore thereof and the tube 57 screws up to said shoulder. 62 is an inner tube open at both ends and encircling the spiral spring 56, one end of the said tube 62 abutting the shoulder 61 in the nut 60. 63 is a head abutting the other end of the said inner tube 62. 64 is a threaded pin extending centrally through said head and secured to the other end of said spiral spring 56 and held in said head by the nut 65. It will be thus seen that a simple arrangement of spring for holding the point to the near rail is provided without any risk of damage to the parts through exposure to the elements, and the said spring exerts a straight pull on the rod 51 and is completely inclosed by the arrangement of tubes and nuts, the extra length in which the spring is arranged being the tube extension from the box.

What I claim as my invention:

1. In a railway switch mechanism, a pivoted switch point, a box rigidly secured adjacent to said point, an operating and locking spindle in said box extending upwardly through and terminating on the upper side of the lid of said box, means for retaining said spindle normally in its uppermost position, and means connecting said spindle to the said point.

2. In a railway switch mechanism, a pivoted switch point, a box secured adjacent thereto, a box contained within the aforesaid box having a well or a recess arranged therein, an operating and locking spindle turning in said well extending upwardly and termi-

nating slightly above the lid of said box, 65 means for retaining said spindle in its uppermost position, and means operatively connecting said spindle with said point.

3. In a railway switch mechanism, a pivoted switch point, a box rigidly secured adjacent to said point, a box contained within the aforesaid box having a partition thereacross forming a receptacle, and a well or recess to one side of said receptacle, an operating and locking spindle operating in said well, and means operatively connecting said spindle with said point. 70

4. In a railway switch mechanism, a pivoted switch point, a box rigidly secured adjacent to said point, a box contained within the aforesaid box having a lubricating substance receptacle, a well or recess to one side of said receptacle and a slide-way to the other side of said well, a locking spindle turning in said well, a slide traveling in said slide-way and operatively connected to said spindle, and a link connecting said slide to said point. 80

5. In a railway switch mechanism, a pivoted switch point, a box rigidly secured adjacent to said point, a box contained within the aforesaid box having a lubricating substance receptacle at one end, a cross slide-way at the other end and an intermediate partition having a central well or recess, a spindle turning in said well or recess having gear teeth toward the upper end, a rack sliding on said slide-way, a link connecting said rack with the point, and means locking said spindle in a fixed position at the finish of each operation. 85 90 95 100

6. In a device of the class described, in combination, a plurality of rails, a pivoted switch point operating between said rails, a box rigidly secured to one of said rails, a link extending from said point through the rail into said box, a box contained within the aforesaid box having a receptacle at one end, a slide-way at the other end, a recess or well arranged in the intermediate partition and a cover plate having a hole therethrough and a squared recess surrounding said hole from the underside, a spindle operating in said well and having a squared head corresponding and entering said squared recess, and a crown above said squared head extending through said hole and gear teeth below said squared head, a spring encircling said spindle and retaining it normally in its uppermost position, a rack sliding in said slide-way and coacting with said spindle and connected with said link, and a key engaging said crown. 105 110 115 120

7. In a device of the class described, in combination, a plurality of rails, a pivoted switch point operating between said rails, a box secured to one of said rails, a link secured to said point and extending through 125

the rail into said box, a box contained within the aforesaid box having a lubricating substance receptacle at one end, a slide-way at the other and a well or recess in the intermediate partition, said wall or recess having a circumferential slot in the side wall thereof with enlarged ends leading upwardly and a cover plate to said box having a hole there-through and a squared recess surrounding said hole, a spindle turning in said well and having a squared head corresponding and fitting into said squared recess, a cross slotted crown fitting into said hole in the cover plate and gear teeth below said squared head, a spring in said well encircling said spindle and retaining the latter normally in its uppermost position, a rack sliding in said slide-way coacting with said gear teeth of the spindle and connected with said point through said link, a pin inserted through said circumferential slot in the wall of the well into said spindle, and a key engaging said crown.

8. In a device of the class described, in combination, a plurality of rails, a pivoted switch point operating between said rails, a box rigidly secured to one of said rails adjacent to said point, a link extending from said point through the rail into said box, a box contained within the aforesaid box having a lubricating substance receptacle at one end, a cross slide-way at the other and a well or recess in the intermediate partition, said well or recess having a circumferential slot with enlarged ends leading upwardly and a cover plate closing in said inner box having a hole and a squared recess surrounding said hole from the under side, said slide-way having tracks arranged at each side thereof and said well having the bottom thereof extending below the bottom of the box and a cup-bearing centrally formed in its bottom, a spindle turning in said well and having a squared head corresponding to and fitting into said squared recess, a cross slotted crown above said head extending through said hole, gear teeth formed below said squared head and a reduced lower end extending into said cup bearing, a pin extending through said circumferential slot in the side wall of said well and secured in said spindle, a spiral spring encircling said spindle and normally holding it to its uppermost position, a rack sliding on said track-ways and coacting with said gear teeth connected with said link, and a key engaging said crown.

9. In a device of the class described, in combination, a plurality of rails, a pivoted switch point, a box secured to one of said rails, a sliding member arranged in said box, a rod at one end connected to said point extending under said sliding member, a collar connecting said rod to said sliding mem-

ber, a spiral spring encircling said rod between the other end thereof and said collar, and means for operating said sliding member.

10. In a device of the class described, in combination, a plurality of rails, a pivoted switch point, a box secured to the rail, a rod secured to said point extending into said box and having a shoulder thereon arranged intermediate of its length, a sliding member in said box, a collar loosely encircling said rod and abutting said shoulder, a spring holding said collar to said shoulder, and means for operating said sliding member.

11. In a device of the class described, in combination, a plurality of rails, a pivoted switch point, a box secured to the rail, a sliding member in said box, a rod at one end secured to said point and extending into said box under said sliding member and having a shoulder arranged thereon intermediate of its length and a head on the other end, a ring or collar loosely encircling said rod having a threaded pin extending upwardly therefrom through said sliding member, a nut securing said pin to said sliding member, a spiral spring encircling said rod between said shoulder and said head, and means for operating said sliding member.

12. In a device of the class described, a plurality of rails, a pivoted switch point, a box secured to a rail, a box contained within the aforesaid box having a suitable slide-way at one end thereof, and an opening from the end of said slide-way, a rack sliding in said slide-way having a hole there-through, a rod having a shoulder formed thereon intermediate of its length and secured to said point and extending under said rack, a ring or collar loosely encircling said rod and abutting said shoulder and having a threaded pin extending upwardly therefrom through said hole in the rack, a nut securing said pin in said rack, a nut on the other end of said rod forming a head, a spiral spring encircling said rod between said head, nut, and said ring or collar, and a toothed gear operating said rack.

13. In a device of the class described, in combination, a box, a sliding member in said box, a pivoted switch point, a rod extending from said point into said box and operated by said sliding member, a spring connected with said sliding member and holding said point to the near rail, a spring cushioned vertical gear member operating said sliding member, and a suitable arrangement of rails.

14. In a device of the class described, in combination, a box secured to the rail having a hole through the side thereof, a pivoted switch point, a rod secured to said

point and extending into said box, a sliding member in said box engaging said rod, a spring extending from the end of said rod through said hole, a tube having a closed end.
5 inserted in said hole over said spring, a nut on the inside of said box into which said tube screws, having a shoulder on the bore thereof, an inner tube encircling said spring and at one end abutting said shoulder and
10 having a loose head at the other end to which

said spring is adjustably secured, means for operating said sliding member, and a suitable arrangement of rails.

Signed at the city and district of Montreal, Quebec, Canada, this 22nd day of 15 February, 1909.

BRUNO LEGAULT.

Witnesses:

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P. SHEE.