

V. H. NULLE.
POINT RAIL LOCKING DEVICE.
APPLICATION FILED MAR. 10, 1911.

1,021,725.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

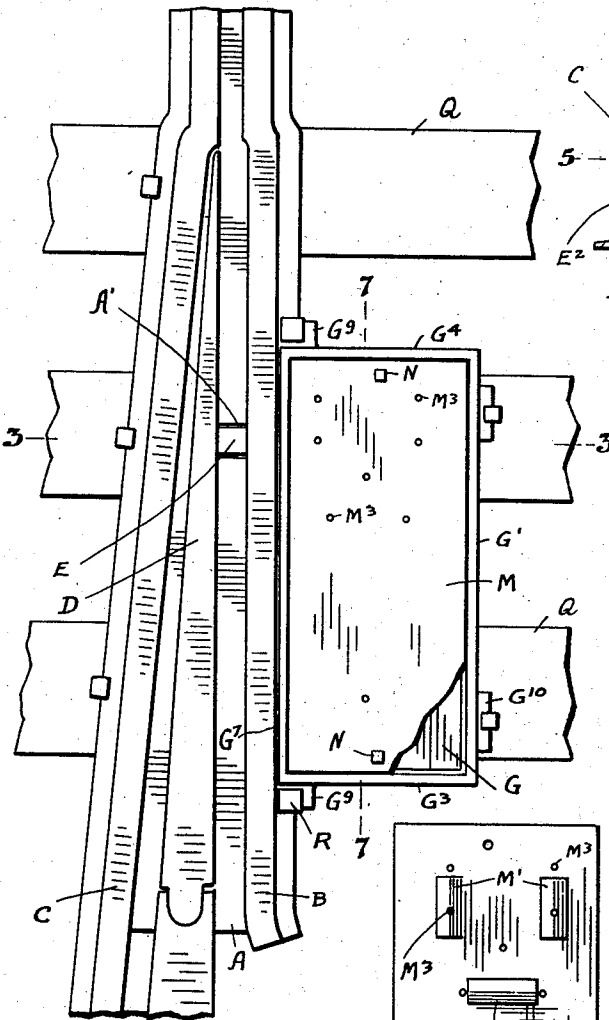


Fig. 6.

WITNESSES:

Edmund A. Nevills
Edna G. Gentry

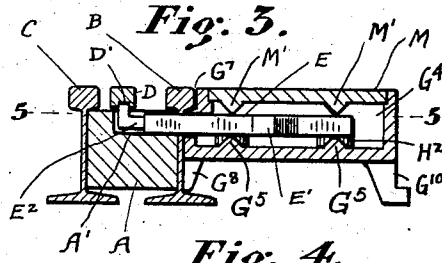
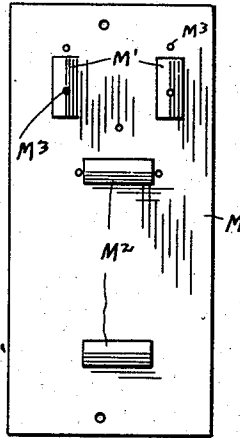


Fig. 4.

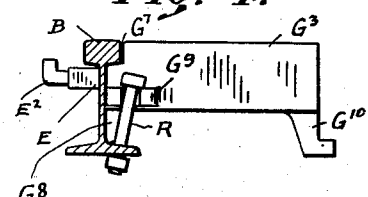
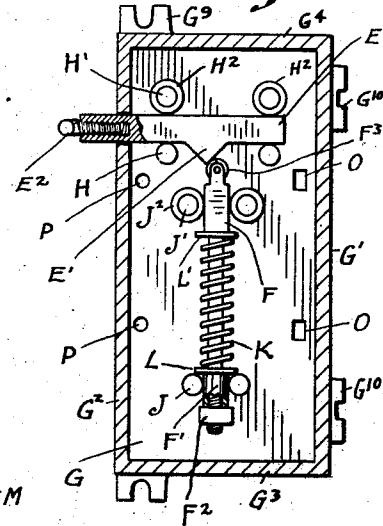


Fig. 5.



INVENTOR

VICTOR H. NULLE,

BY

Thomas & Ryan
ATTORNEY

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2 SHEETS—SHEET 2.

Fig. 2.

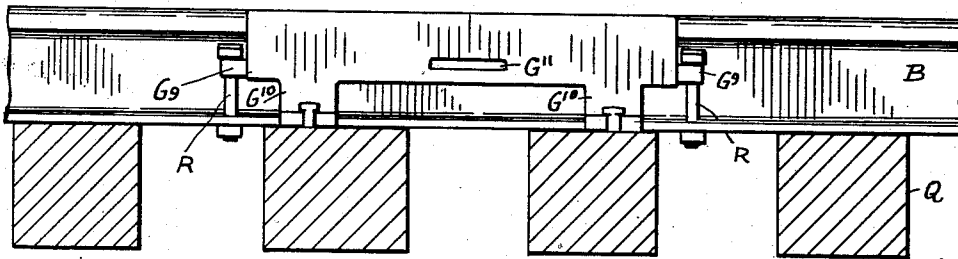


Fig. 7.

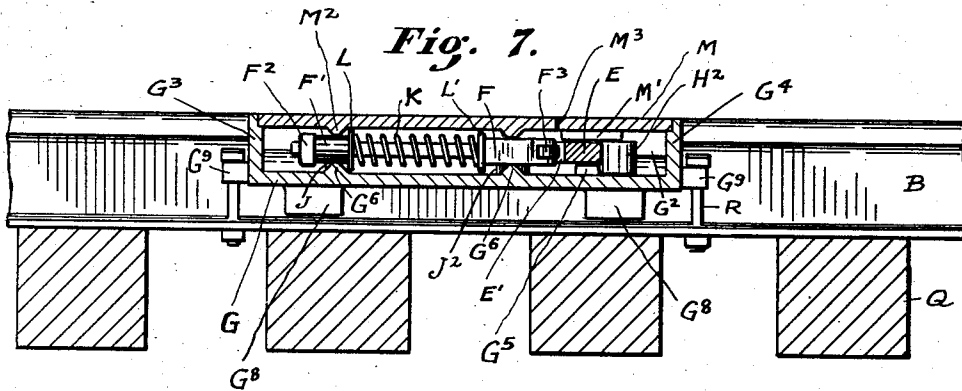


Fig. 9.

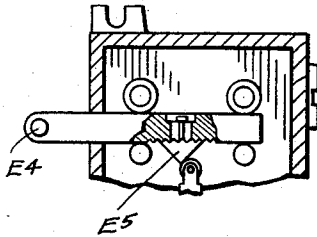
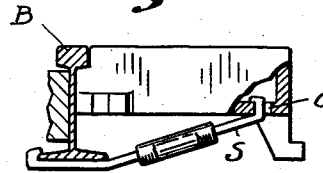


Fig. 8.



WITNESSES:

Edmund A. Neville -
Edna G. Gentry

INVENTOR

VICTOR H. NULLE.

BY

Thomas L. Ryan

ATTORNEY

UNITED STATES PATENT OFFICE.

VICTOR H. NULLE, OF ANDERSON, INDIANA.

POINT-RAIL-LOCKING DEVICE.

1,021,725.

Specification of Letters Patent.

Patented Mar. 26, 1912.

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To all whom it may concern:

Be it known that I, VICTOR H. NULLE, a citizen of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Point-Rail-Locking Devices, of which the following is a specification.

This invention relates to improvements in street railway equipment.

In street railway trackage there has come into universal use, the class of switch shown in Figure 1 of the annexed drawings. This standard switch is constructed and its several parts are arranged substantially as shown and includes the separator block A to which the rails B and C are secured. The point rail D having its rear end connected in position pivotally, is capable of being shifted from the one side to the other of the space between the rails B and C, thereby closing or opening the track main line as the case may be. In order that the cars may at all times be operated safely over this switch, and that the point rail may be protected against injury, it is essential that the point rail should be so retained in place that it will not be accidentally dislodged or shifted from its operative position at engagement with one or the other of the rails B or C. Heretofore there have been means devised for so retaining or holding this point rail, but I am not aware that any of such devices or inventions have proven to be practicable.

To be of utility or real use, a mechanism intended to accomplish the objects sought by devices of the character above referred to, should be simple in construction and composed of parts so constructed and arranged that the device will be rugged and durable and not liable to become deranged or to get out of repair. Moreover the device should be capable of being applied easily and practically to switches that are already in use and with the expenditure of the minimum amount of time and labor.

To provide a mechanism whereby the above named advantages may be gained, are the objects of my invention.

These, and other objects which will be apparent as the specification of my invention is read, are accomplished by, and my present invention consists of the new and improved construction, combination and arrangement of parts described in this speci-

fication, defined in the appended claims, and illustrated in the accompanying drawings.

The several parts of my invention are designated in the different views by similar characters of reference.

Fig. 1 is a plan view, and Fig. 2 is a side view showing a standard track switch equipped with my invention. Fig. 3 is a transverse sectional view taken on the line 3—3 in Fig. 1. Fig. 4 is an end view of my improved point rail locking device removed from its operative position. Fig. 5 is a sectional plan view taken on the line 5—5 in Fig. 3. Fig. 6 is a view of the cover plate removed and in inverted position. Fig. 7 is a vertical sectional view taken on the line 7—7 in Fig. 1. Fig. 8 is a view showing a modified form of fastening means, and Fig. 9 shows a modification of the shift bar.

Broadly stated, my invention consists of a transverse bar supported slidably in position and adapted to be connected to the underside of the point rail, the said bar having an angular tooth thereon, a detent to yieldingly maintain a pressure against the said tooth, and means whereby the distance between the connecting end of the shift bar and the center of said tooth may be varied. More specifically, the invention consists of the new and useful features and details of construction shown in the drawings.

The shift bar E is rectangular in cross section and may be made of cast iron of ordinary quality; it has the V shaped tooth E¹ formed integral therewith. For reasons which will be apparent as the nature of my invention is better understood, it is essential that there may be adjustment of the distance between the point of connection at the point rail, and the center line of said tooth. The preferable form of construction for obtaining this adjustment is that shown in Fig. 5. In the outer end of the bar E is screwed a finger piece E² consisting of a threaded bar, the upturned end of which will engage a recess provided therefor in the underside of the point rail D. By this means, adjustment of the distance between the tooth E¹ and the point rail is possible.

The frame support and housing for the shift bar and the detent F consists of a cast metal case having the walls G¹, G², G³ and G⁴ formed integral with the bottom G. Guide studs H and H¹ may be formed integral with the bottom G, but preferably con-

sist of threaded pieces screwed into suitably threaded holes in the said bottom. On the studs H^1 are the bearing rings H^2 . Between these pairs of studs and formed integral with the bottom G are the ridges G^5 of rounded or angular form in cross section, so that the ways so formed for the shift bar will present the minimum of bearing surface. The guide studs J and J^1 may be formed integral with the bottom G , but preferably consist of threaded pieces screwed into suitably threaded holes in the said bottom. On the studs J^1 are the bearing rings J^2 . Between the pairs of studs J and J^1 are ridges G^6 which together with the studs J^1 and the rings J^2 constitute guide ways for the detent F . The construction and arrangement of this detent will be clearly understood by reference to Fig. 5. The forward end of this detent is square in cross section, and is retained between the rings J^2 ; its lower face resting on one of the ridges G^5 . The body portion of this detent is round in cross section and disposed thereon is a coil spring K whose function will be presently referred to. The sleeve F^1 arranged loosely on the rear end of the detent performs the function of a bearing to engage the guide studs J and constitutes a member between the nut F^2 and the loose collar L whereby the position of the latter on the detent may be varied by manipulating the nut F^2 . The collar L^1 bears against the forward portion of the detent. The sides of the collar L will bear against the studs J . By this construction it will be seen that the detent is free to move longitudinally but is held against transverse movement. The position to which the shift bar will be adjusted relative to the center line of the detent, will be determined by the distance through which that portion of the point rail where the finger piece is connected will be moved when the point rail is shifted to operate the switch. In this regard further reference will be made when the operation of my invention is described.

The features of construction of the case-ment whereby the foregoing parts may be practically held and sustained at operative position in combination with the track rail and point rail will now be pointed out. The wall G^2 of the case is provided with the offset G^7 of such depth that it will fit to the ball of the rail when the face of the said wall G^2 is tightened against the web of the track or guard rail B . The lugs G^8 are formed integral with the bottom of the case and will rest against the base of the flange of the track rail. On the ends of the case are formed the bifurcated ears G^9 . At the side or wall G^1 of the case are provided feet G^{10} each of which has a recess for the reception of a spike or other fastening means. G^{11} designates an opening at the base of the wall

G^1 , thus possibility of the accumulation of water in the case is obviated.

The cover plate M is provided with a pair of ridges M^1 and a pair of ridges M^2 on its under side. These ridges are so positioned that when the cover plate is at the position as shown in Fig. 1, the ridges M^1 will register with the tops of the studs H and H^1 and will complete the guide ways for the shift bar E ; and the ridges M^2 will register with the tops of the studs J and J^1 and will complete the guideways for the detent F . The inner edges of the walls of the case are rabbeted, as shown in Fig. 2 so that the cover plate may be easily placed, and will be effectively retained at the closed position. It may be secured by suitable bolts N . The purpose in providing the openings O and P in the bottom of the case will presently be referred to.

This invention is capable of being applied to use at switches of varied styles and structure, and it is shown in this specification as applied to a switch of the most generally adopted type.

Very little work on the switch preparatory to installing this invention is necessary. The device may be located with reference to the positions of the cross ties Q , and the only work necessary on switch parts proper is to cut holes in the flange of the rail B for the reception of the bolts R . In case it may (by reason of the cross ties) be unhandy to use bolts R at the ends of the case, then they may be used at the holes P . Being disposed at an angle, as shown in Fig. 4, the case when the bolts are tightened will be drawn and will be held to tight contact with the rail B . Spikes driven into the ties at the feet G^{10} will complete the fastening of the case into position.

There having been provided a channel A^1 in the separator block A , and through the web of rail B , and a hole D^1 in the underside of the point rail D , the installation of my invention may be completed. The rings H^2 and J^2 are first disposed on the studs H^1 and J^1 respectively. The shift bar is then inserted into position as shown in Fig. 5, the finger piece E^2 coming into engagement with the hole D^1 . To make possible such final placement of this shift bar that the detent F constructed and arranged as shown, will operate to hold the rail at contact with one or the other of the track rails, is the function of the adjustable finger piece E^2 . When the final adjustment in the shift bar of the finger piece is had, the point rail and the tooth E^1 , each will be at central or neutral position.

A desirable slope for the sides of the tooth E^1 is that shown at Fig. 5, and the tooth is of such depth that when the shift bar is at either of the extreme positions of its movement, there will be a bearing of the wheel F^3

against one side of the tooth and at a location between the point and base thereof. With the placement and securing in position of the cover plate M, the ridges M¹ and M³ complete the guide ways for the shift bar and the detent, and the device is complete.

A point rail locking device constructed in accordance with my invention is capable of such adjustment, and of being so easily secured in position that it is adaptable to form part of the equipment of any style of track switch employing the point rail. By virtue of the adjustability of the shift bar and of its arrangement relatively to the yieldable holding member which operates to urge the point rail in one direction or the other at all times, it is possible to rig the invention at any point desired with reference to the location of the cross ties or other form of structure or material upon which the rails are supported. Comparatively small work on the switch structure is needed preparatory to installing my invention. All of the parts are strong and durable, the work of construction and installation is simple, and there being only a small amount of machine work necessary, the invention may be manufactured very economically.

Another important result of my invention is that it serves as an effective drain; the water and slush of the switch will have egress through the channel A¹ and will flow over the bottom of the case, and out through the opening G¹¹. In the cover plate are provided holes M³ through which lubricant may be introduced to lubricate the guide ways of the shift bar and the detent, and the tooth E¹.

A modified form of means whereby the desired adjustability between the point rail and the center line of the tooth is shown at Fig. 9. The shift bar has a plain outer end provided with a stud E⁴ to engage the point rail and the tooth E⁵ is capable of being moved to and held at different adjusted positions on the shift bar.

In the work of installing this invention should it occur that it would not be so convenient to use the ears G⁹, then the bolts R would be passed through the holes P in the bottom of the case. Still another manner of fastening the case in place in engagement with the rail is shown in the modification at Fig. 8, wherein turnbuckle tie-rods S have their hook ends to engage the flange of the rail B and the holes O of the bottom of the

case. When my invention is to be applied to a switch composed of a rail B of height or proportion different from the one shown herein, alteration of the depth of the lugs G⁸ and of the feet G¹⁰ and change in the shape of the offset G⁷ will be made accordingly.

What I claim as new and desire to secure by Letters Patent is:—

1. In a track switch, the combination of a casement having an open top and adapted to have its side secured adjacent to the guard rail, pairs of studs rising from the bottom of said casement there being intermediate ridges on the said bottom at each pair of studs, friction rings on the guide studs, a transverse shift bar between said studs and having its one end to pass through the guard rail and having connection with the point rail, and being provided with a triangular tooth, a second set of studs rising from the bottom of the casement, friction rings on the forward pair of these last named studs, a detent disposed between the said studs, and at alinement to register with the center of the tooth when the point rail is in neutral position, a friction wheel at the forward end of said detent, a spring to press said detent forwardly, and against said tooth, a cover plate for said casement, having pairs of ridges on its under side to register with the tops of the said pairs of guide studs.

2. In a track switch, the combination of a casement to be secured adjacent to the rail, pairs of studs rising from the bottom of said casement, friction rings on the said studs, a transverse shift bar between said studs and having connection with the point rail, a triangular tooth on the side of said bar, a second set of studs rising from the bottom of the casement, friction rings on the forward pair of these studs, a detent disposed between the said studs and at alinement to register with the center of the tooth when the point rail is at neutral position, a friction wheel at the forward end of said detent, a spring to press said detent forwardly and against said tooth, and means to adjust the tension of said spring.

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

VICTOR H. NULLE.

Witnesses:

EMMA TURNER,
MARY E. NULLE.