

No. 884,006.

PATENTED APR. 7, 1908.

G. B. BLEVINS.

SWITCH POINT LOCK.

APPLICATION FILED OCT. 1, 1907.

Fig. 1.

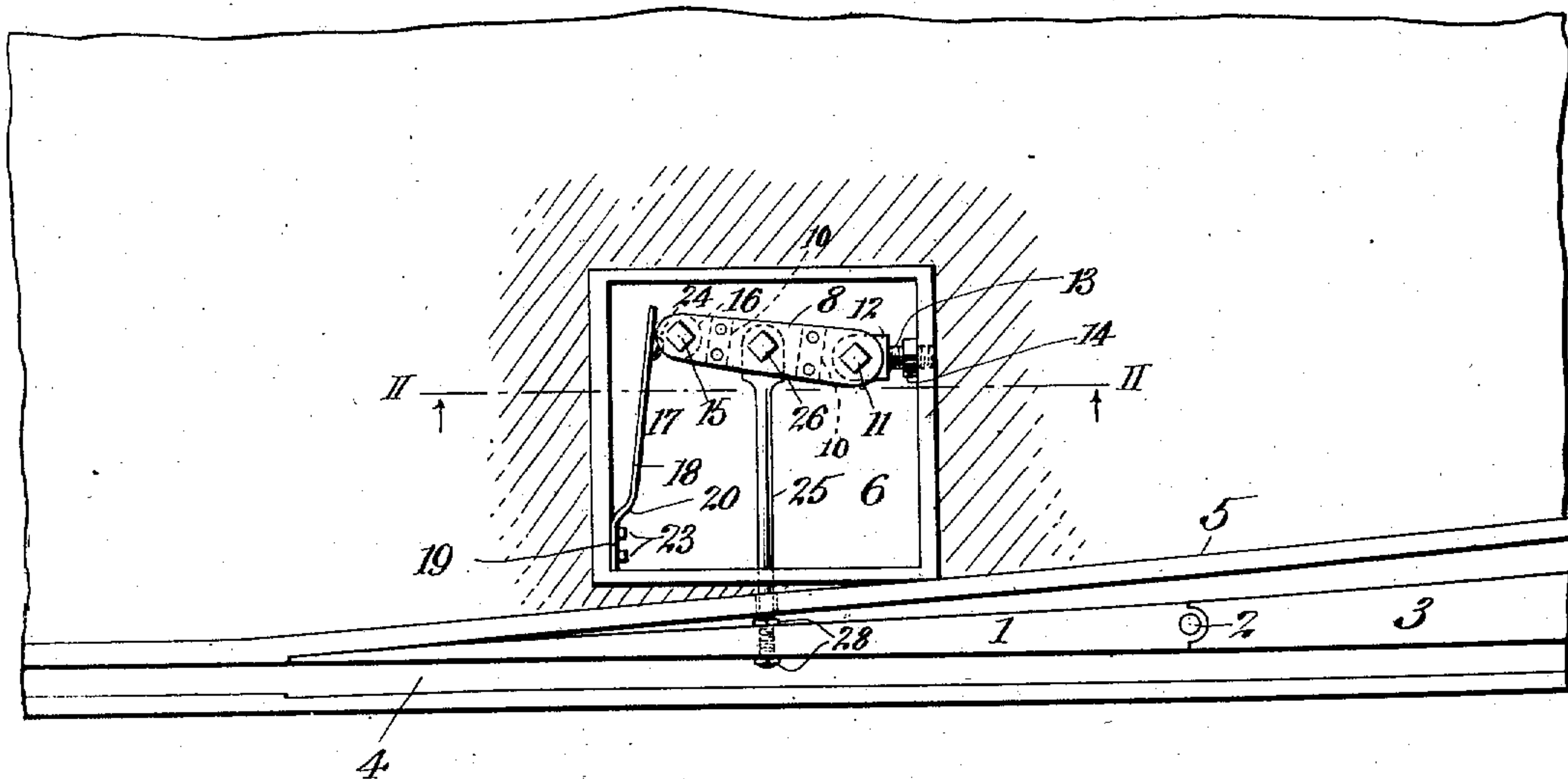


Fig. 2.

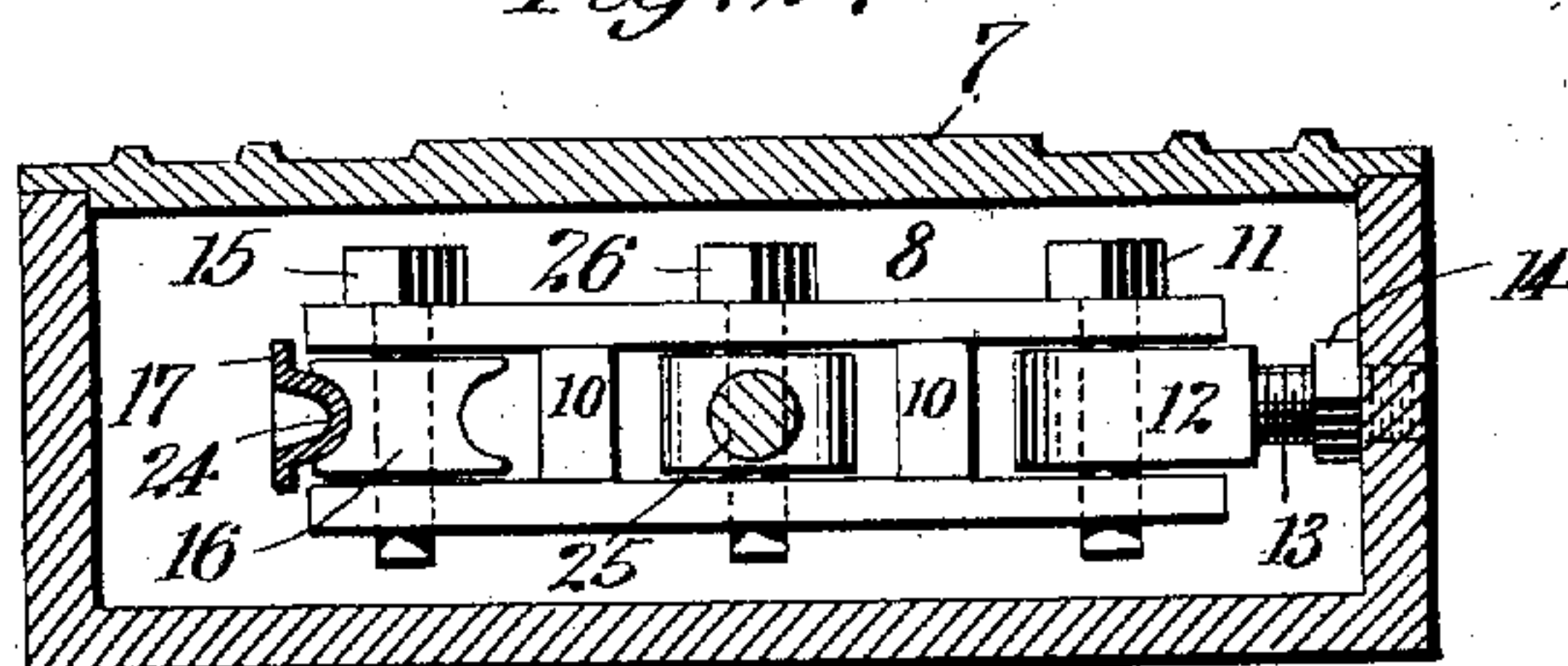
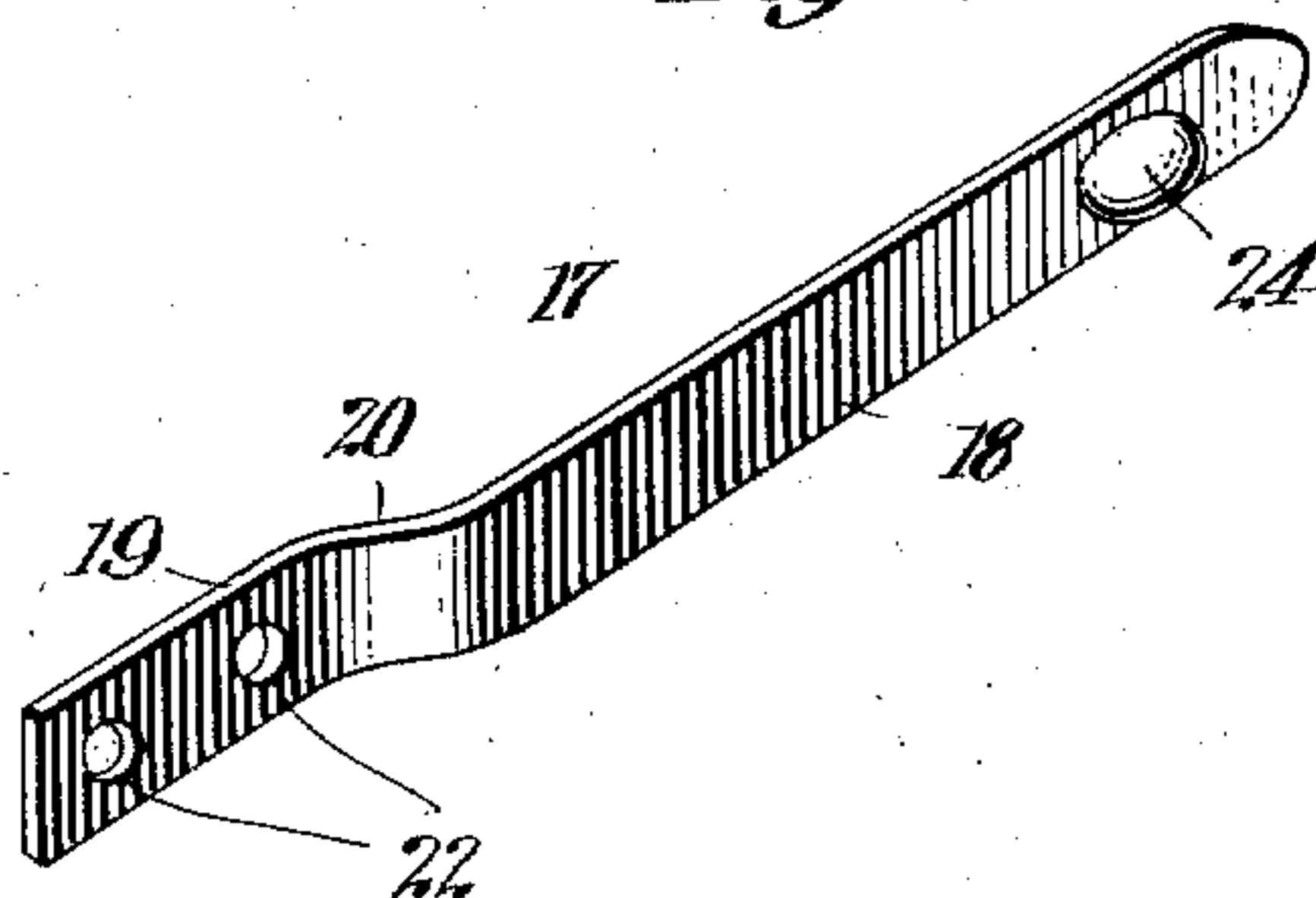


Fig. 3.



Witnesses:

James D'Antonio

Inventor

George B. Blum
By his Attorneys
Rosenbaum & Sockin

UNITED STATES PATENT OFFICE.

GEORGE B. BLEVINS, OF LITTLE ROCK, ARKANSAS.

SWITCH-POINT LOCK.

No. 884,006.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed October 1, 1907. Serial No. 395,352.

To all whom it may concern:

Be it known that I, GEORGE B. BLEVINS, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Switch-Point Locks, of which the following is a full, clear, and exact description.

My invention relates to railway switches, particularly of that class used in street railways and trolley roads where the switch point is moved to and fro manually being loosely pivoted in a suitable cavity or depression in the frog, or portion of the track rail at the location of such switch point. With switches of this class considerable difficulty is experienced from cars "splitting the switch" in which case the front trucks take one track while the rear trucks take the other. Even if this does not actually occur, it is common for the switch point to become jarred or sprung out of its proper position at one side or the other, while the car is passing, so that the point lies in the path of the wheel flanges. In order to overcome these difficulties various plans have been proposed including spring locks and detents for keeping the switch point pressed at one limit or the other of its throw.

The present invention relates to certain features of improvement in mechanism of this class, and aims to provide a detent or like mechanism for the switch point which is of maximum simplicity and cheapness of construction, and which is very efficient in use.

With this object in view the invention consists in the features of construction and combination as hereinafter set forth and claimed.

In the drawings: Figure 1 is a top or plan view of a switch point embodying the principles of my invention; Fig. 2 is a section on the line II—II of Fig. 1, looking in the direction of the arrows; and Fig. 3 is a detail perspective view showing the construction of the operating spring.

It is evident that any switch point lock or mechanism is subjected to the most unfavorable conditions in use, being exposed more or less to the dust and dirt and water of the street. In the present invention all the parts are of such simple character (sliding parts, spiral springs, etc., being entirely eliminated) that no harm results if they are subjected to dust and dirt, and corroded by

moisture and exposure. It is necessary to have these characteristics in order that any mechanism may be practical in the installation of a street railway switch.

Referring to the drawing in which like parts are designated by the same reference sign, 1 indicates a switch point, pivoted at the point 2 of the usual frog 3, so as to swing laterally back and forth in its containing groove or cavity 4.

5 indicates the usual guard rail also forming a portion of the frog or track section at the location of the switch point. These features are of the ordinary and well known construction and of themselves constitute no part of the present invention.

6 indicates a box or casing conveniently made integrally of cast iron, for example the usual ring box supplied with railway switches, and either adapted to be inserted in the road-bed at a location substantially opposite the switch point or forming a permanent part of the frog. This box may be open at the top so as to be closed by an ordinary cover 7, similar to those employed with man holes in various relations.

8 indicates a lever arm pivoted at one end on a wall of the box 6 so as to extend transversely across the interior of the box at one end thereof. This lever arm may be made in different ways, but I prefer the structure shown and particularly illustrated in Fig. 2. In this construction, 9 indicates a pair of plates or bars spaced apart a predetermined distance by a spacing block 10. I provide bolts 11, 15, and 26, passed through the plate or bars 9 at points between the spacing blocks which serve to rigidly connect or tie the plates together. Each of these bolts has an additional function in the mechanism as will later appear.

The bolt 11 serves as a pivot or fulcrum for the lever arm 8 being passed through a block 12, which is rigidly secured to the wall of the box 6. A convenient construction of the block 12 is that shown, having a threaded stem 13, adapted to enter a correspondingly threaded hole in the wall of the box.

14 indicates a lock nut which can be screwed down upon the stem 13, so as to bind the same in its engagement upon the wall and secure the block 12 in proper rigid relation. This arrangement permits an adjustment of the block 12 away from and toward its supporting wall.

The bolt 15 serves as a pin or fulcrum for a

roller 16 received between the plates or bars 9 at the outer extremity of the lever arm 8. The peripheral surface of this roller is grooved with a channel or groove of rounded transverse section. This groove is formed quite deeply in the roller and exerts an important function in the apparatus as will later appear.

17 denotes an integral metallic blade, preferably of steel of the type used in carriage springs, etc. This spring is adapted to be forged complete in all respects without requiring any machine work whatever. It is first bent into the form shown, having a main portion 18, inclined away from a flat portion 19, at the end, being joined thereto by a curved section 20 of generally steeper inclination.

22 indicate holes or openings forged in the flat portion 19, and adapted to receive bolts or screws 23, by which the spring blade is securely clamped to the wall of the box 6 on the side opposite to that at which the lever arm 8 is pivoted. The outer end of the blade spring 17 is forged to form an oval protuberance 24 which projects quite sharply from the surface of the surrounding blade and has a curvature roughly corresponding to the curve of the roller 16. This protuberance can be quickly struck up when the metal is heated by the use of a disk or by hammering the metal into a depression. The spring bar is thus completed throughout without machine work of any kind. When it is screwed or bolted in place within the box 6, the protuberance 24 lies directly opposite the lever arm 8, and engages the roller 16, when said lever arm is in a position generally perpendicular to the direction of the blade. Under these circumstances the lever arm 8 lies approximately in a position extending transversely across the box 6, as indicated in Fig. 1.

25 indicates a link connecting the lever arm 8 with the switch point. The link 25 is pivoted to the lever arm 8 at substantially the middle thereof at the bolt 26 and at its other end passes through holes in the guard rail 5 and the switch point 1.

28 indicate bolts on the threaded extremity of the link 25 and located on opposite sides of the switch point so as to tie the same with great security to said link. This engagement of the link with the switch point is sufficiently flexible under ordinary practical conditions by virtue of the looseness of the bolts, to accommodate the very slight angular movement of the switch point in its throw.

In operation the mechanism is so adjusted that the roller 16 bears against the center of the protuberance 24 when the switch point is at exactly the middle position of its throw. Under these circumstances the roller 16 is strongly pressed to one side or the other of said protuberance when the switch point is moved to either limit of its throw, and by a

thoroughly anti-friction engagement. It will be further noted that the degree of movement of the roller 16 is generally equal to that of the end of the switch point on account of the particular lever connections employed. It is obvious that the exact relation may be varied, but in practice I prefer about the proportions shown. The link 25 has a very limited movement, which is desirable, as this part may be exposed to considerable friction from dirt, etc., and it is desirable to have a considerable mechanical leverage applied thereto so that its friction will not interfere with the operation.

It is evident that the present arrangement may be embodied in the construction of a switch point when it is initially made, or it may be applied to any existing switch point in use, it being merely necessary to bore the lateral holes in the guard rail 5 of the frog and in the switch point 1, and then bolt the apparatus in place, installing the lever arm and spring in the usual spring box. I consider this an important practical feature of the invention, since in this way the switch point lock or detent may be applied to any existing switch, wherever the need of such locking means is found to exist.

By means of the grooved roller 16 which engages a rounded protuberance of the blade spring being kept impelled thereagainst by the tension of such spring blade, the lever arm 8 is kept sustained against gravity in its proper operative relation, regardless of considerable wear and looseness of its pivotal support in the block 12. Such engagement is also maintained in spite of the rough usage to which the switch is always subjected, but although lever arm 8 is constantly kept maintained in such perfect engaging relation, it is nevertheless virtually floating in its engagement, since there are no fixed guiding walls or surfaces. In this way the parts are insured against either dust, dirt, corrosion or wear interfering with their proper functions.

What I claim, is:—

1. In a switch point lock, a lever arm having a roller, a spring blade having a free end engaging said roller, and a link connecting said lever arm to the switch.

2. In a switch point lock, a lever arm having a grooved roller, a spring blade having a rounded protuberance at its free end engaging said roller, and a link connecting said lever arm to the switch point.

3. In a switch point, a lever having a roller, a spring blade bearing thereagainst and cooperating with the roller to prevent lateral movement thereof, and a link connecting said lever arm to the switch point.

4. In a switch point lock, a lever arm having a roller, a spring blade having a free end engaging said roller, means for adjusting said lever arm toward and from said blade,

and a link connecting said lever arm to the switch point.

5 5. In a switch point lock, a lever arm comprising two blades held in predetermined spaced apart relation, a roller, bolts connecting said blades and serving as pivots for the arm and said rollers respectively, a spring blade having a free end engaging said roller, and a link connecting said lever arm to the
10 switch point.

6. In a switch point lock, a lever arm having a pair of spaced plates, three bolts connecting said plates, spacing blocks intermediate said bolts, a link connecting one of said
15 bolts to the switch point, a roller journaled on another bolt, a spring blade engaging said roller, and means for supporting said lever arm on the remaining bolt as a fulcrum.

7. In a switch point lock, a lever arm having a roller, a spring blade having a free end engaging said roller, a link connected to said lever arm and having a threaded end, and bolts for said threaded end, whereby it may be attached to the switch point.

25 8. In combination with a switch point

having a lateral hole, a lever arm having a roller, a spring blade having a free end engaging said roller, a link connected to said arm and having a threaded end, and bolts for securing said threaded end in the hole of
30 said switch point.

9. In a switch point lock, a lever arm having a roller with a rounded groove, a spring blade having an egg-shaped protuberance embossed on its free end and engaging the
35 groove of said roller, and a link connecting said lever arm to the switch point.

10. In a switch point lock, a casing, a lever arm having a roller, a spring blade engaging said roller, and a block having a
40 threaded stem to which said lever arm is pivoted, said stem having a lock nut whereby it is locked in its containing casing.

In witness whereof, I subscribe my signature, in the presence of two witnesses. 45

GEORGE B. BLEVINS.

Witnesses:

L. H. HOLLAND,

J. C. CURTIS.