No. 827,138. PATENTED JULY 31, 1906.

L. C. BROWN.

AUTOMATIC RAILWAY SWITCH ADJUSTER.

APPLICATION FILED MAR. 16, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

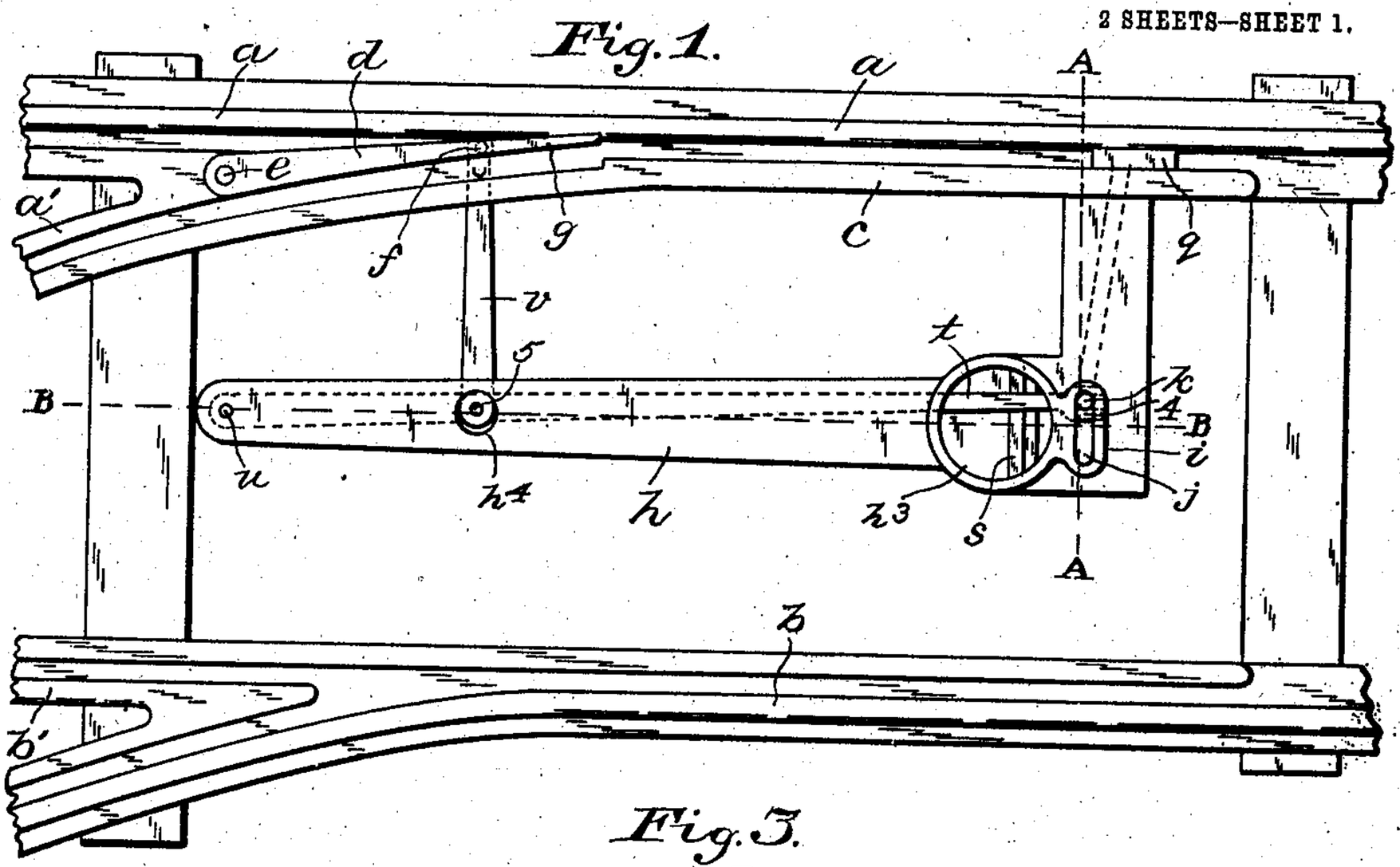


Fig. 3.

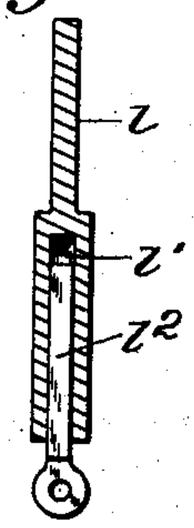


Fig. 2.

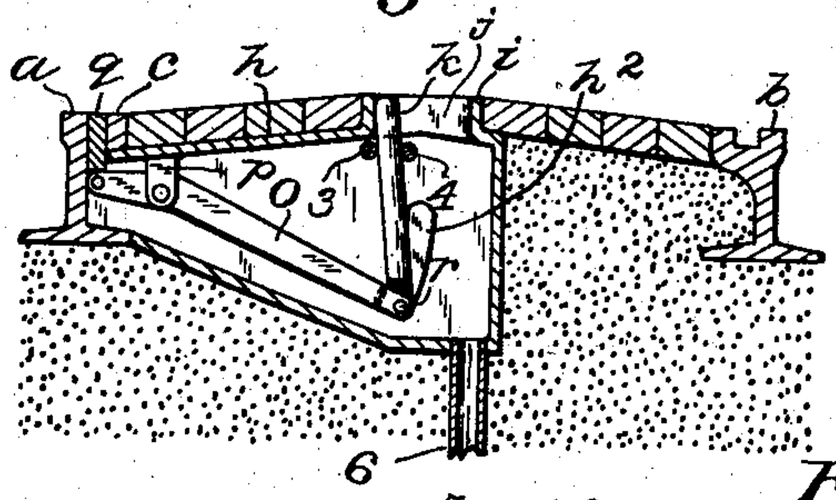


Fig. 4.

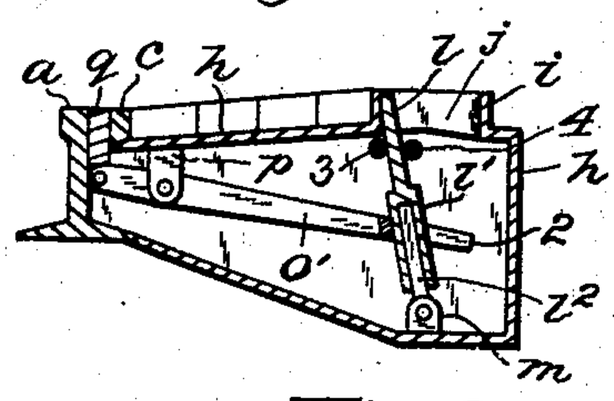


Fig. 5.

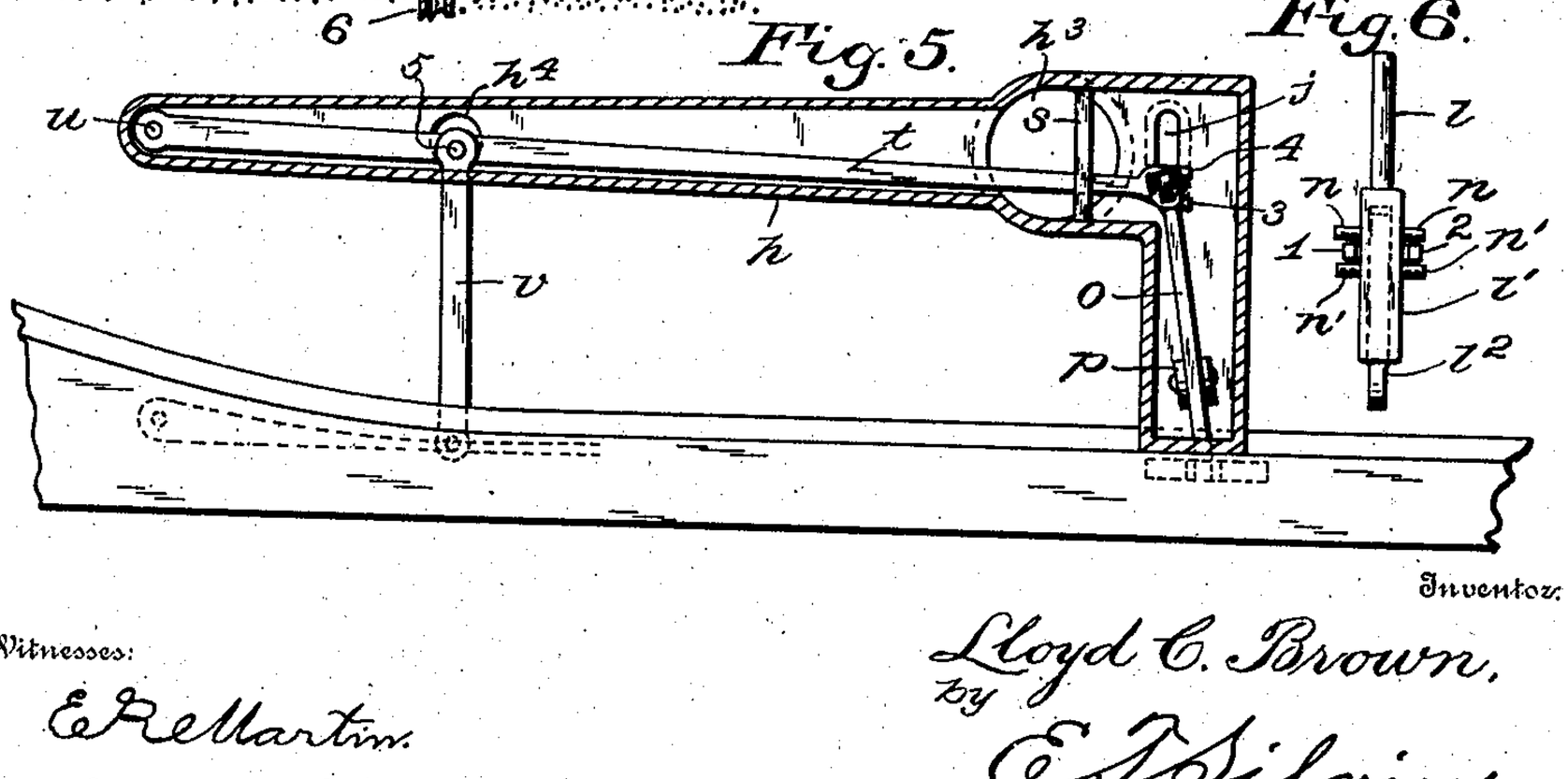


Fig. 6.

Witnesses:

E. R. Martin.

Stella Snider.

Inventor:

Lloyd C. Brown,

by E. T. Silvius.

Attorney.

No. 827,138. PATENTED JULY 31, 1906.

L. C. BROWN.

AUTOMATIC RAILWAY SWITCH ADJUSTER.

APPLICATION FILED MAR. 16, 1905.

2 SHEETS—SHEET 2.

Fig. 7.

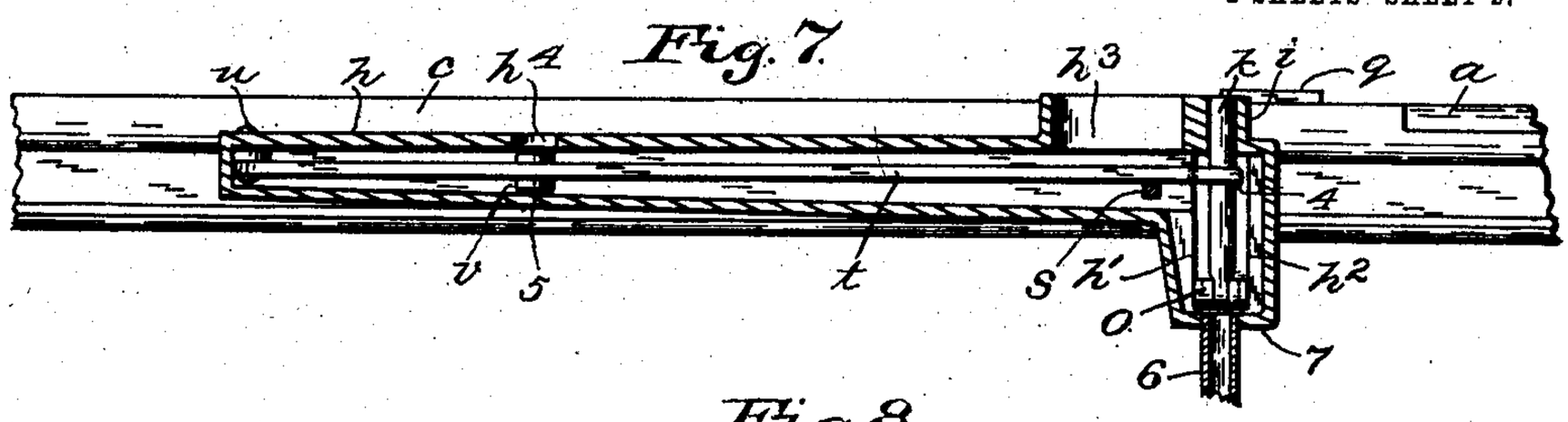


Fig. 8.

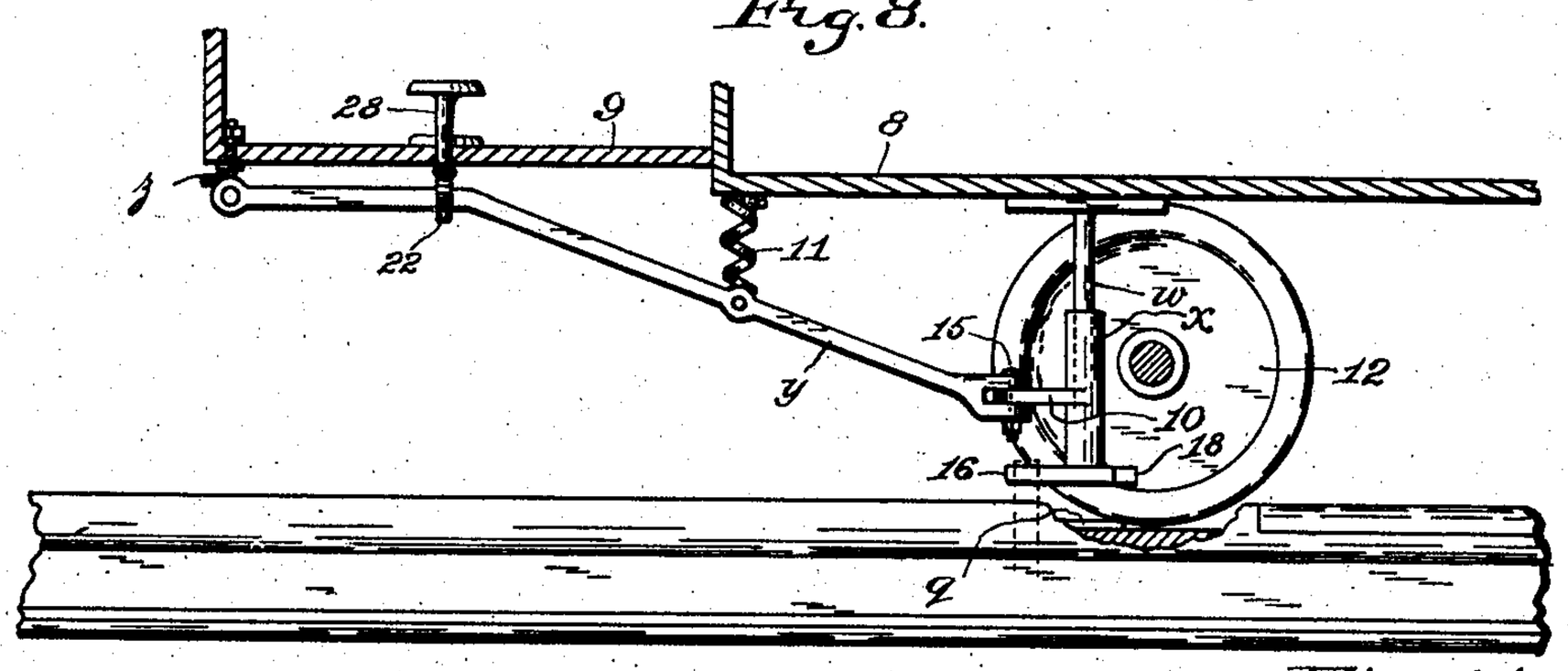


Fig. 9.

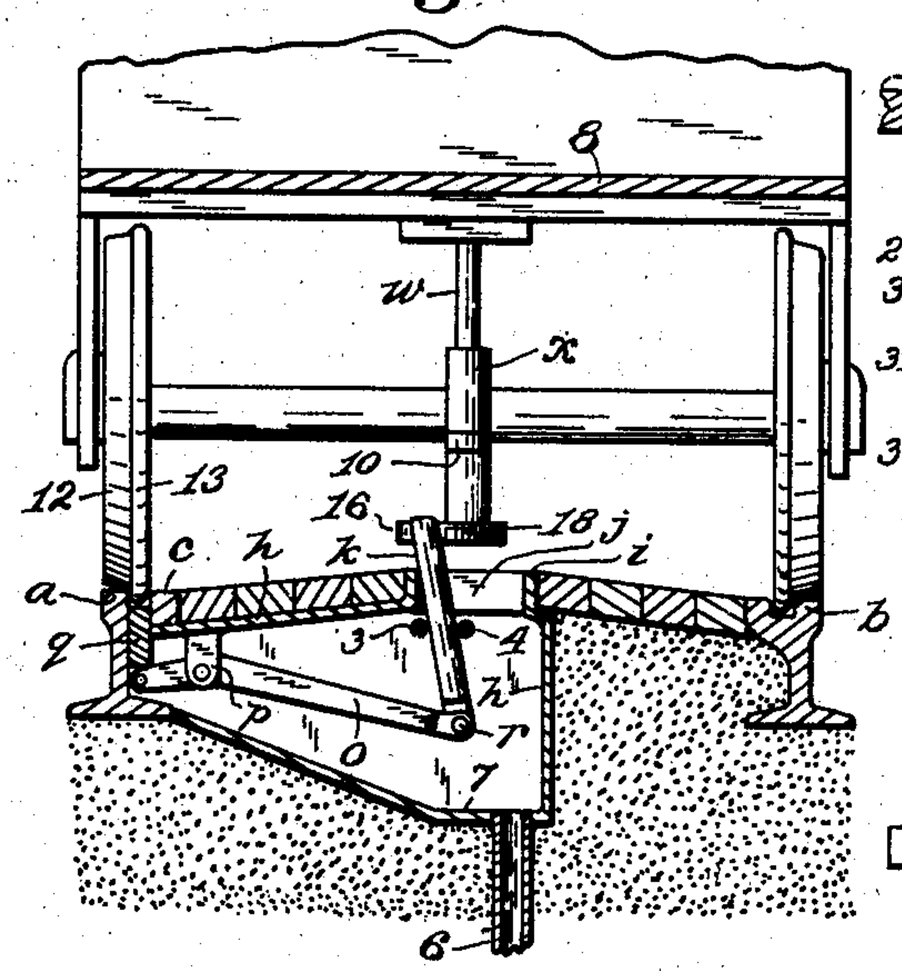


Fig. 10.

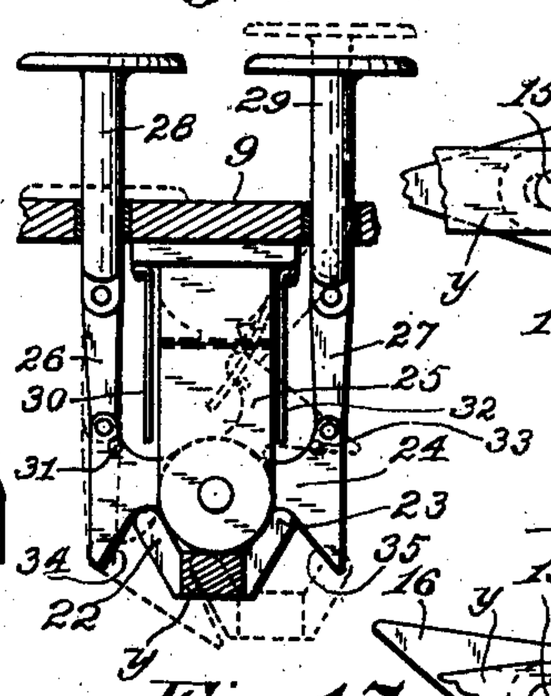


Fig. 11.

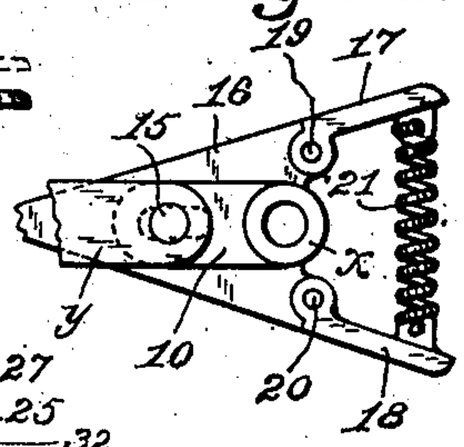


Fig. 12.

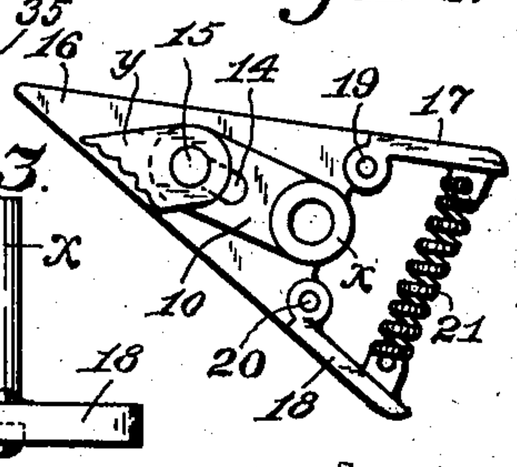
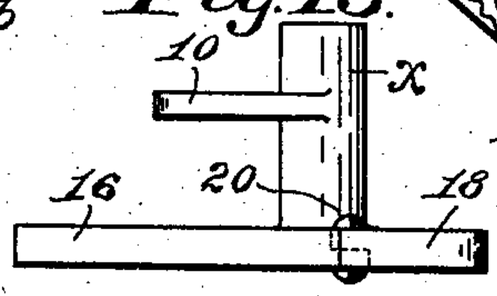


Fig. 13.



Witnesses:

E. Rellartin.

Stella Snider

Inventor:

Lloyd C. Brown,

by E. T. Silvius,

Attorney.

UNITED STATES PATENT OFFICE.

LLOYD C. BROWN, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO LLEWELLYN H. BLANTON AND THREE-EIGHTHS TO AMBROSE D. BLANTON, OF INDIANAPOLIS, INDIANA.

AUTOMATIC RAILWAY-SWITCH ADJUSTER.

No. 827,138. Specification of Letters Patent. Patented July 31, 1906.

Application filed March 16, 1905. Serial No. 250,395.

To all whom it may concern:

Be it known that I, LLOYD C. BROWN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Automatic Railway-Switch Adjusters; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for adjusting railway-switches, and includes devices mounted on motors or cars and operating under manual control, the invention having particular reference to parts of the apparatus arranged in connection with the switches and also to the devices on the motors or cars.

Objects of the invention are, first, to provide improved adjusting devices for the switches, particularly the devices thereof that are designed to be elevated above the ground so as to be engaged by the moving devices that are carried by the cars, and, second, to provide the cars with improved apparatus that may be adapted to engage and actuate the adjusting devices that are arranged in connection with the switches; and specifically it is an object to improve the switch-adjusting apparatus described in my application for Letters Patent, Serial No. 218,331, filed July 27, 1904, wherein is shown a pair of horizontally-movable operating-levers adapted to be elevated above the ground so as to be engaged by either one of two devices carried by each car and a device adapted to be depressed by the car-wheels in order to elevate the pair of levers.

Other objects are to reduce the cost of production of apparatus of the above-mentioned character.

With the above-mentioned objects in view the invention consists in a switch-lever of improved form and arrangement for moving the arm that directly controls the switch-point, the lever being elevated and depressed by means of the presser-bar that is designed to be actuated by the flanges of the car-wheels.

The invention consists also in improved apparatus mounted on cars and comprising each a radially-adjustable arm adapted to be depressed and means for adjusting the arm vertically and radially so as to actuate the switch-lever; and the invention consists, further, in the novel parts and in the combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a plan of a part of a railway-track and the improvements arranged in connection therewith, the housing for the apparatus having uncovered hand-holes; Fig. 2, a vertical transverse sectional view on the line A A in Fig. 1; Fig. 3, a vertical transverse section of a modified form of switch-lever; Fig. 4, a view similar to Fig. 2, with the difference that the arrangement of the modified form of switch-lever is illustrated in lieu of the preferred form; Fig. 5, an inverted plan of the apparatus that is shown in Fig. 1 in its housing, which is in horizontal section; Fig. 6, an elevation of the modified form of switch-lever and end view of the switch-operating arm; Fig. 7, a longitudinal vertical sectional view on the line B B in Fig. 1; Fig. 8, a fragmentary diagrammatic sectional elevation showing parts of a car supporting parts of the improved apparatus and illustrating the manner of adjusting the switch, the car being in central section and the other elements in side elevation; Fig. 9, a vertical transverse section on the line A A in Fig. 1 and transversely of a car shown in the act of coöperating to elevate the switch-lever; Fig. 10, a rear elevation of the foot-operated devices for adjusting the radially-movable wedge that is mounted on the car; Fig. 11, a top plan of the wedge and its connections detached from the car, the point of the wedge being curtailed somewhat; Fig. 12, a top plan of the wedge and its connections in operative position relatively, and Fig. 13 a side elevation of the wedge.

Similar reference characters in the drawings designate corresponding parts or features.

In Figs. 1, 4, 5, 7, and 8 the earth or foundations are omitted in order to avoid obscuring the important elements of the invention.

The rails are designated by *a*, *a'*, *b*, and *b'*, and *c* designates a guard-rail, *d* the switch-point, and *e* the pivot thereof, *f* the connecting-stud near the movable end *g* of the point for the manipulation thereof. The housing is designated by *h* and is composed of cast-

iron of suitable length and relatively narrow, except at its head end where the switch-lever is located therein. The body of the housing has but little depth; but the head end is somewhat deeper and has a lateral section extending to one rail, while the body of the housing is arranged centrally between the two rails of the track. The deeper end of the housing has guides h' and h^2 for guiding the lower end of the preferred form of switch-lever, and in the top of the housing are hand-holes h^3 and h^4, which in practice will be suitably covered. The housing is designed to be covered by paving, and about the hand-hole h^3 a flange extends to the top of the paving. On the top of the housing is also a flange i, extending to the top of the paving and surrounding a slot j in the top of the housing, the slot extending transversely to the track. The flanges, however, will be omitted when it may be desired to arrange the top of the housing flush with the road-grade. The switch-lever k is arranged to operate in the slot j and is the preferred form of lever, being a one-piece element, the upper end thereof being normally flush with the paved or grade surface, the lower end of the lever being suitably supported so that the lever may be bodily elevated somewhat for coöperating to adjust the switch.

The modified form of switch-lever l is guided at its upper end in the slot j, and its lower portion has a guide-socket l', in which is a guide-bar l^2, that has its lower end pivoted to a projection m, fixed in the housing, the lever being adapted to move endwise on the guide-bar, and it is provided with projections n and n' for use in its support and control in substantially the same manner that the lever k is controlled.

A transverse lever o is pivoted to a bracket p, that is fixed to the housing. One end of the lever is connected to a presser-bar q, that is arranged at the inner side of the rail a so as to be depressed by passing car-wheel flanges, and the other end of the lever o is connected to the lower end of the switch-lever k by means of a pivot r.

When the lever l is used, a lever o' is used in connection therewith, the latter being similar to the lever o in form and arrangement, except that it has two fingers 1 and 2 at its free end which extend between the projection n and n' at either side of the lever l or the socket thereof, so as to control its positions and its movements vertically in the slot j.

In the head end of the housing is a horizontal guide s, which supports the working end of an arm t, which has its other end connected to the housing by a pivot u, said working end having a pair of fingers 3 and 4, extending to either side of the switch-lever k or l, so as to be moved and controlled thereby. A link v is connected to the arm t by a pivot 5, and it is also connected to the switch-point by means of the stud f, so that a train of connections extend from the switch-point to the switch-lever. A drain-pipe 6 is connected to the deeper part 7 of the housing for carrying away water that may enter the housing through the slot j.

In Figs. 8 and 9 the numeral 8 designates the car-body, having a platform 9. A cylindrical shaft w is secured to the car-body (or to the platform, if preferred) and extends downwardly near the forward axle of the car-wheels in a plane centrally between the two track-rails. A sleeve x is arranged on the shaft w so as to move endwise and also rotatively thereon, and the sleeve is provided with an arm 10, to which is connected a lever y, that is pivoted to a stud z, and the stud is pivoted to the platform 9. A spring 11, suitably supported, is connected to the lever y and supports its free end, and thereby the sleeve x, and by this means the sleeve may be depressed in order to adjust the switch when the wheel 12 carries its flange 13 onto the presser-bar q. The end of the lever y has a jaw engaging the arm 10, and the arm has a slot 14, through which extends a pin 15, that is secured to the jaw end of the lever y. A wedge 16 is secured to the lower end of the sleeve x for engaging the switch-lever k or l and normally the point of the wedge is carried midway between the two track-rails.

The wedge 16 is provided with two yielding arms 17 and 18, that are connected by pivots 19 and 20 to the broad rear end of the wedge, the ends of the arms being held apart in their normal relative positions by a spring 21, compressed between them, the outer faces of the arms forming continuations of the angular sides of the wedge.

In order to directly control and operate the lever y, it is provided with two lateral angular arms 22 and 23, the ends of which normally rest in recesses in the under side of a rocking lever 24, that is pivoted centrally to a hanger 25, which is supported beneath the platform 9. Push-bars 26 and 27 are pivoted to the lever 24 and are connected to treadles 28 and 29, which extend above the platform, so that they may be manually operated. A spring 30 is suitably supported so as to be engaged by a lug 31, secured to one side of the lever 24 when the lever is tilted, a similar spring 32 being arranged at the opposite side for engagement with a corresponding lug 33. The lever y is held up to the lever 24 by the spring 11 and centrally by the lever 24, which has inclined under faces 34 and 35 diverging downwardly, the faces being adapted to engage the ends of the arms 22 and 23 and to thereby draw the lever y to its central position, and thus hold the point of the wedge in its central position.

In the above-described construction the several elements are simple in form and arrangement and eliminate objectionable fea-

tures that have heretofore been included in mechanism for automatically adjusting switches, and obviously minor modifications other than those described may fairly be made without departing from the scope of the invention.

In practical use the presser-bar *q* normally is elevated, and the switch-lever *k* or *l* depressed, so that when a car-wheel depresses the bar *q* the switch-lever will be elevated. When the switch requires adjusting, the proper one of the treadles 28 or 29 must be depressed while the car approaches the switch, and in depressing the treadle the rocking lever 24 will be caused to tilt, and thereby cause the lever *y* to be depressed and at the same time to be moved laterally, thereby swinging the arm 10 and also rotating and depressing the sleeve *x*, which in turn properly positions the wedge 16. The lever *k* or *l* may be positioned at either end of the slot *j*, and when the wedge 16 is properly set the lever will be moved thereby radially to the opposite end of the slot, being guided thereby, moving the arm *t* and the switch-point by reason of the connecting-fingers 3 and 4 and the link *v*. After adjusting a switch the treadle is to be released, and the spring 30 or 32 will cause the lever 24 to start to return to its normal position, after which the spring 11 will cause the lever *y* to complete the movement. When excessive lost motion in the car-journals might ordinarily cause the heel of the wedge (if solid) to bend the switch-lever *k* or *l*, this evil will be obviated by means of the arms 17 and 18, which will yield slightly rather than injure the switch-lever.

Having thus described the invention, what I claim as new is—

1. Automatic switch-adjusting apparatus including a movable switch-point, a housing having a guide-slot in the top thereof, an arm pivoted in the housing extending approximately to the guide-slot of the top thereof and controlling the switch-point, a switch-lever supported in the housing in engagement with the arm and extending movably into the guide-slot of the top of the housing, and means for temporarily elevating the switch-lever.

2. Automatic switch-adjusting apparatus including a movable switch-point, a housing having a guide-slot in the top thereof, an arm pivoted in the housing extending approximately to the guide-slot of the top thereof and controlling the switch-point, a pivot in the housing, a switch-lever supported on the pivot and extending movably into the guide-slot of the top of the housing, a connection between the arm and the switch-lever, and means for temporarily elevating the switch-lever.

3. Automatic switch-adjusting apparatus including a movable switch-point, a housing having a guide-slot in the top thereof, an arm pivoted in the housing extending approximately to the guide-slot and controlling the switch-point, a switch-lever having a pivotal support in the housing and extending into the slot and movable therein laterally and vertically, an operative connection between the arm and the switch-lever, and a presser-bar mounted on a horizontal pivot in the housing and operatively connected with the switch-lever for the temporary elevation of the switch-lever through the slot.

4. Automatic switch-adjusting apparatus including a movable switch-point, a housing having a slot in the top thereof, an arm pivoted in the housing extending under the slot that is in the top of the housing and controlling the switch-point, a switch-lever supported in the housing in engagement with the arm and extending through the slot of the housing, means for temporarily elevating the switch-lever, a guide for the lower portion of the switch-lever in the housing, a vertically-adjustable and radially-adjustable device carried by a car and adapted to engage and shift the switch-lever, and a controller for the device.

5. In automatic switch-adjusting apparatus, a wedge provided at the base or rear end thereof with yielding arms, and springs yieldingly holding the arms in their normal positions, in combination with means for moving the wedge vertically and radially, and a switch-lever adapted to be engaged by the wedge and coöperating to adjust a switch.

6. In automatic switch-adjusting apparatus, a controlling-lever supported pivotally at an end thereof, a sleeve having an arm connected to the other end of the lever, a guide for the sleeve, a wedge attached to the sleeve, a stationary hanger, a rocking lever pivoted to the hanger and adapted to force the controlling-lever downwardly and laterally, and a pair of treadles connected to the rocking lever, in combination with a spring supporting an end of the controlling-lever and the wedge, and a switch-lever adapted to be engaged by the wedge and coöperating to adjust a switch.

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

LLOYD C. BROWN

Witnesses:
WM. H. PAYNE,
E. T. SILVIUS.