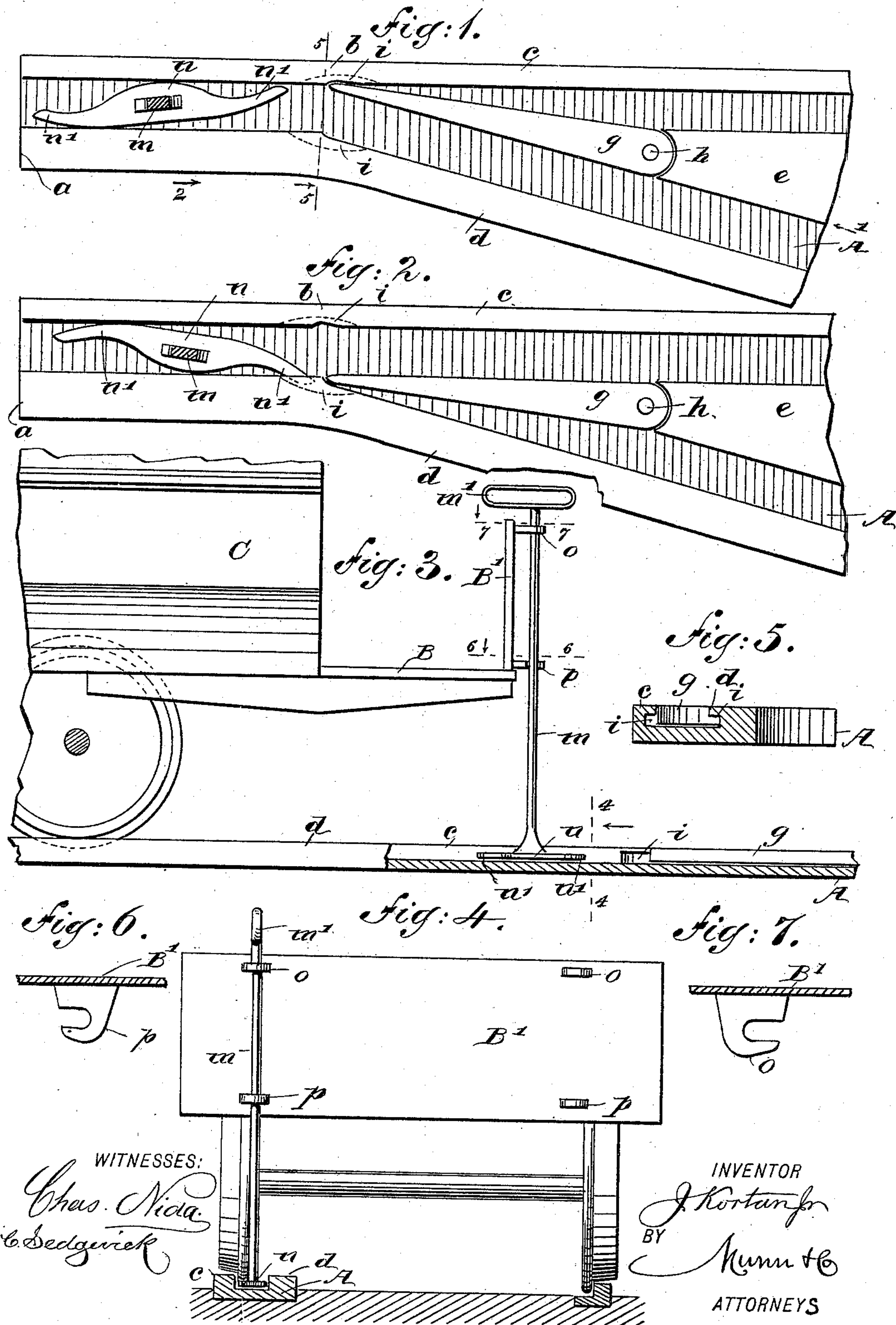


(No Model.)

J. KORTAN, Jr.  
SWITCH ADJUSTER.

No. 540,103.

Patented May 28, 1895.





# UNITED STATES PATENT OFFICE.

JOHN KORTAN, JR., OF DETROIT, MICHIGAN.

## SWITCH-ADJUSTER.

SPECIFICATION forming part of Letters Patent No. 540,103, dated May 28, 1895.

Application filed November 28, 1893. Serial No. 492,228. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN KORTAN, Jr., of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Switch-Adjuster, of which the following is a full, clear, and exact description.

My invention relates to an improved device for adjusting pivoted tongues of frogs at switches on street railways, and has for its object to provide a novel, simple device for use on a car, and a particular construction of the frog rails, which will afford convenient and reliable means for the manual adjustment of the swinging tongues of frogs at street railway switches, so as to change the direction of a moving car from one track to another.

To this end my invention consists of the construction and combinations of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a railway-track in part at a track intersection, showing a swing-tongue at the junction of the converging tracks and one feature of the improvement, partly in section, in advance of the tongue. Fig. 2 is a similar view representing the parts differently adjusted. Fig. 3 is a broken side view of the end of a car on a railway-track, broken away near the switch, and another feature of the improvement at the front of the car-platform and adjusted to engage and swing the tongue of the switch-frog. Fig. 4 is an end view of a car, looking in the direction of the arrow in Fig. 3, with the railway-track in section on the line 4 4 in said figure, and showing the improvement in place on the car for adjustment of the pivoted tongue. Fig. 5 is a transverse sectional view on the line 5 5 in Fig. 1. Fig. 6 is a partly-sectional view on the line 6 6 in Fig. 3, and Fig. 7 is a similar view on the line 7 7 in Fig. 3.

In the drawings, A represents a metal casting, such as is ordinarily placed at the point of angular intersection of a side track with a main track, forming the body of a switch frog that is provided to transfer the cars from one track to another.

The frog body A, is parallel on its sides from one end *a*, to a point *b*, where one side

begins to diverge from the other, the degree of separation representing the angle of approach given to a side track with regard to the main track it intersects at the switch of which the frog body is a part.

A rib *c*, is formed along the straight edge of the frog body, having parallel sides, and such a relative thickness and height as will adapt it to become a portion of a main track rail, or in some cases a guard rail.

On the opposite edge of the frog body A, another rib *d*, is formed, that is of an equal height with the rail portion *c*, and affords a rail that is laterally bent and in use becomes a main track portion between the points *a* and *b*, and the other part that diverges from the rail *c* at *b* serves as a guard rail for the side track when the track construction is complete.

On the bottom of the open recess produced between the rails *c, d*, by their elevation from the base portion of the frog A, and at the wider ends of its body, a block *e*, is formed or secured between these rail portions. The part *e*, is tapered on its sides to render them parallel with the inner edges of the rail portions *c, d*, an equal space intervening between the rail portions and the block.

The front and narrowest end of the tapered block *e*, is preferably in-curved, and is at such a distance from the point *b*, that room is afforded between the end of the block and said point, for the location of the wedge-like tongue *g*, in advance of the block.

The wider end of the tongue *g*, is rounded to mate with the in-curved end of the block *e*, and is loosely engaged with the same, a pivot bolt *h*, that is loose in the tongue and fast in the frog body, serving to hold the tongue in place on the frog body, and permitting the forwardly tapered portion to be freely swung so as to impinge its front end on the inner surface of either rail portion *c* or *d*, at or near the point *b*, as indicated in Figs. 1 and 2.

It will be seen that when the tongue *g* is adjusted as shown in Fig. 1, a car moving on a side track in the direction of the arrow 1, will traverse the block *e* with the peripheries of its wheels, and thence on the tongue *g*, to engage the main rail track *a* at the free terminal of the tongue, thus transferring the car



or other wheeled object from the side track (not shown) to the main track of a railway system.

When the tongue *g* is swung into the position represented in Fig. 2, a car moving on the main track will have a free course over the switch in either direction of travel, the flanges of the wheels that move on the main track or side track, traversing the grooves between the sides of the tongue *g* and rails *c*, *d*, the part *e* becoming a portion of the frog tongue.

The rails *c* and *d*, are notched at points opposite the free end of the tongue *g*, so as to permit the partial embedment of said end for its protection from an impinge of the flanges of rolling wheels when in service, and also to allow the end of the tongue to be made of a substantial thickness and avoid impediment to a free movement of car wheels over the switch frog.

The features of construction that have been described are not claimed as new, and have been presented to illustrate the improvement that will be described.

At the inner sides of the rail portions *c*, *d*, opposite the free point of the tongue *g*, an incurved recess *i*, is formed in each rail, of a suitable depth and height, the bottoms of said recesses being level with that of the main grooves that are produced along the inner sides of the rail portions of the frog *A* for the traverse of the wheel flanges as before mentioned.

On the front wall *B'*, of each car platform *B*, on a car *C*, that traverses the main tracks and side tracks of a railway system having the improvement, provision is made for the temporary support of a novel tongue shifting device that is part of the improvement, the latter comprising a bar *m*, of such a length as will adapt it to reach from the track rails above the top of the wall *B'*.

The bar *m*, is preferably made cylindrical, having a diameter that will afford proper strength and rigidity and avoid excessive weight, and on its lower end a finger block *n*, is formed or secured at right angles to the bar. Each end portion of the block *n*, is tapered edgewise to produce a finger *n'*, and these are laterally curved on the same side of the block, as shown in Figs. 1 and 2, the ends of the fingers being tapered from their incurved sides, to render them wedge-shaped.

There is a handle piece *m'*, provided for the bar *m* on its upper end, which piece is preferably given an elongated loop form, and located in the same vertical plane with the finger block *n*, so that an operator holding the device by its handle piece will know by its position the direction in which the fingers *n'* are projected.

The means for supporting the tongue shifting device in position on the front side of the upright wall *B'*, consists of two pairs of hook-like brackets *o*, *p*, that are projected from the front of said wall as shown in Figs. 3, 4, 6 and

7. The two hooks of each pair are located one near the top and the other near the bottom of the wall *B'*, in the same vertical plane, and at such a point that one pair of the hook brackets will be directly above the longitudinal groove in the frog *A*, that is formed between the rails *c*, *d*.

The parts *o*, *p*, are of similar form being laterally notched, as indicated in Figs. 6 and 7, which notches are cut from opposite side edges of the bracket hooks, so that the bar *m*, may be readily introduced within and removed from them.

It will be seen in Figs. 3 and 7, that the notch in the upper bracket piece *o*, is cut from the inner side or edge of said piece, and in the lower bracket piece *p*, the notch is formed from the outer side edge inwardly, each pair of vertically aligned bracket hooks having their hook openings arranged as stated.

In service, the operator who occupies the platform *B*, grasps the tongue shifting device that is kept in a convenient place near at hand, and quickly engages the bar *m*, with an appropriate pair of the bracket hooks *o*, *p*, when approaching and near to the point of the frog tongue *g*. When the frog tongue *g*, has previously been swung toward the rail *c*, so as to allow a car on the side track to enter the main track, as indicated in Fig. 1, the operator so engages the tongue shifter, that one curved finger *n'* of the same will enter one of the lateral recesses *i*, forwardly of the point of the tongue, while the block *n* is held diagonally across the groove of the frog that it occupies, the particular formation and arrangement of the supporting bracket hooks *o*, *p*, facilitating such a manipulation of the implement. The progressive movement of the car whereon the tongue shifting device is supported as described, will cause the leading finger *n'*, to pass into and through the recess *i*, it has entered, and in an obvious manner swing the frog tongue so that it will have contact with the opposite rail *d*, and therefore be removed from the path of the flanges of the progressively moving wheels, that have their peripheries supported by the tongue which is aligned on one edge with an edge of the tongue block *e*, and the portion of the rail *d* that is between the points *a* and *b*.

If there is a car moving on the main track toward the point of the tongue *g*, and said tongue is aligned with the main track while it is desired to run the car from the main track onto a branch track that is controlled by the tongue of the switch frog, the tongue swinging implement hereinbefore described is so sustained on the bracket hooks *o*, *p*, that one curved finger will enter the lateral curved recess or groove *i* in the rail *d*, in advance of the frog tongue point, and as the operator holds the body of the finger block so that the curved side of the other finger *n'* will bear on the inner surface of the rail *a*, it will be evident that the tongue *g*, will swing over as the car advances, and afford a support for the



wheels of the latter as it moves from the main track on to the side track.

Where the railway system contains a "belt" line or a continuous main track, and has lateral branches intersecting it along each member of the belt, it becomes necessary to provide means for operating switches along each side of the car platforms. To this end the two pairs of bracket hooks are provided, and it is to be understood that a like provision is made for each platform of a car.

It is claimed for this device that it is adapted for use on street railways having any type of motive power, being equally available on cable, electric motor, or horse drawn cars, affording simple, practical, convenient and inexpensive means for the reliable adjustment of the swinging tongues of frogs at switches along the main line of railway, without requiring the operator to leave the car to effect such an operation.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A switch thrower for attachment to street cars, the same comprising a vertically movable rod, a blade at the lower end of the rod having curved fingers extending on each side of the same, and a handle for the rod having the same set as the blade, substantially as described.

2. A switch thrower for attachment to street cars, the same comprising the brackets having oppositely opening lateral notches, a removable rod to move vertically and axially in said bracket notches, a switch operating blade at the lower end of the rod, and a handle on the upper end of the rod, substantially as described.

3. An adjusting device for the swing tongue of a switch frog, comprising an elongated bar, a transverse block at the lower end of the bar, having similarly curved fingers at its extremities, said fingers being wedge-pointed, and a transverse handle piece at the upper end of the bar, and located in the vertical plane of the finger block, substantially as shown and described.

4. In an adjusting device for the swing tongue of a switch frog, the combination with a frog having a pivoted tongue, and in-curved recesses formed in the inner sides of the rail portions of said frog, opposite the free end of the tongue, of a tongue shifting device comprising a bar, a block having curved fingers on its ends and projected at a right angle from one end of the bar, a transverse handle on the other end of said bar, and means for detachably supporting the bar on the front of a car platform, substantially as described.

5. In an adjusting device for the swing tongue of a switch frog, the combination with the frog rails having in-curved recesses therein opposite the point of the frog tongue, and the pivoted frog tongue, of the tongue shifting device comprising an elongated bar, a transverse handle on one end of the bar, a transverse block on the other end of the bar, having similarly curved wedge-pointed fingers, and a pair of bracket hooks on the front wall of the car platform adapted to detachably support the tongue shifting device, substantially as described.

JOHN KORTAN, JR.

Witnesses:

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ANTHONY GROSFIELD.