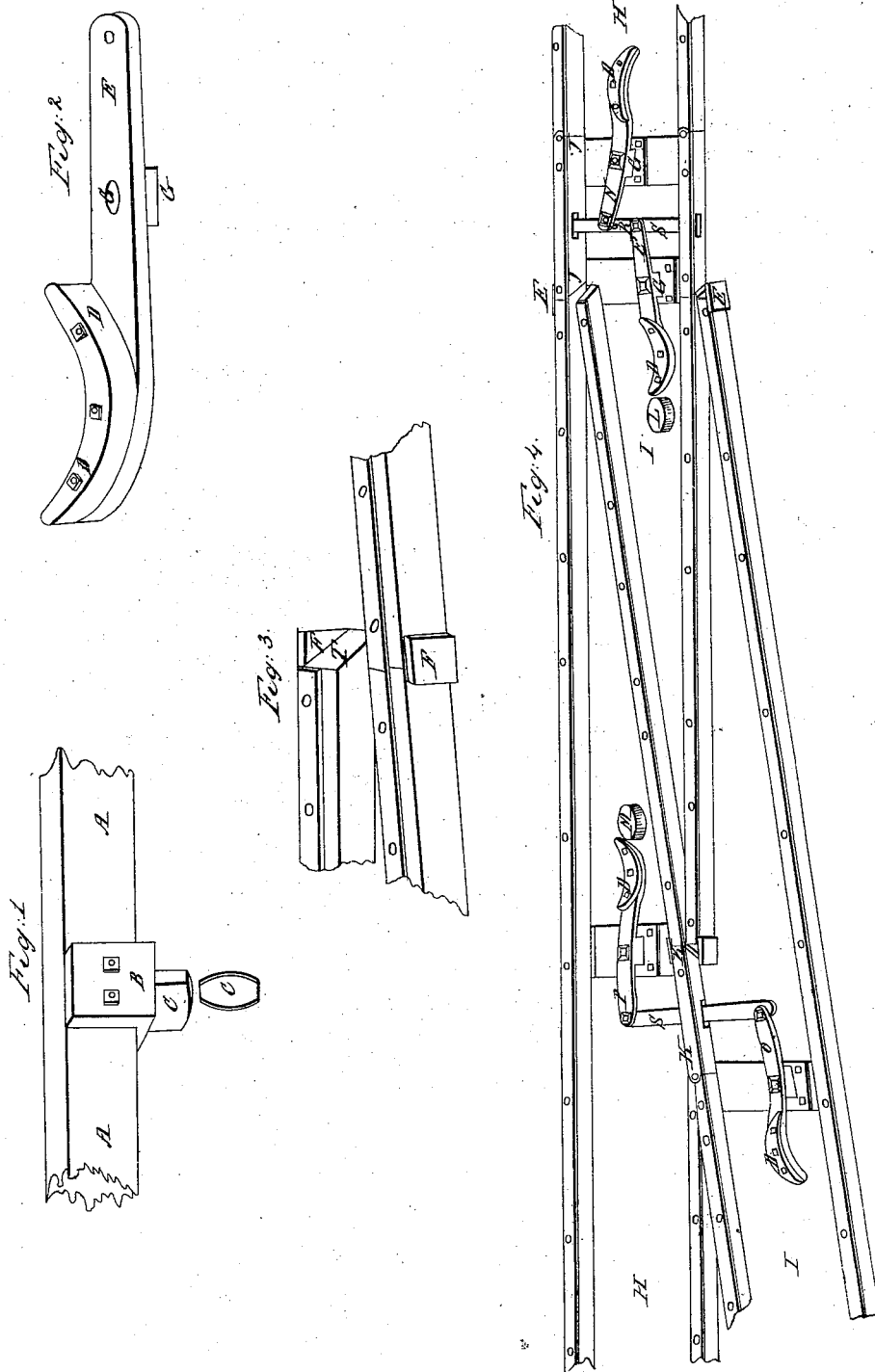


*J. La Rue.*

*Railroad Switch.*

*N<sup>o</sup> 1,852.*

*Patented Nov. 10, 1840.*



# UNITED STATES PATENT OFFICE.

JESSE LA RUE, OF BUCKS COUNTY, PENNSYLVANIA.

## MANNER OF CONSTRUCTING AND SHIFTING THE SWITCHES USED AT TURNOUTS ON RAILROADS.

Specification of Letters Patent No. 1,852, dated November 10, 1840.

*To all whom it may concern:*

Be it known that I, JESSE LA RUE, of the county of Bucks and State of Pennsylvania, have invented a new Improvement to the Mode of Constructing Self-Adjusting Switches Used at Turnouts and Railroads; and I do hereby declare that the following is full and exact description.

The nature of my invention consists, first in an appendage permanently attached to the front beam of the engine and that of each car and in eight wheel cars, also in front of the hind wheels which appendage I call the operating power; second in a casting to be fastened to the curved ends of certain levers, against which casting the operating power acts and which as a weight by which a vertical tendency is given, whereby the friction produced by the weight of the switch, is to a great extent overcome; third, in the beveled ends of the rails of the track and also those of the switch; fourth, in fulcrums whereby the vertical leverage is obtained.

In Figure 1, A, A, represents a section of the front beam to which is permanently attached, B, the front view of the appendage, which is made of any suitable material, such as cast iron, or wood. If the latter be elected it should consist of a block, one foot square of a proper length, provided with two convex surfaces, one on each side at the lower end, C, this may be six inches deep, and is formed by cutting a shoulder on each side, and dressing it so as to form an ellipsis, six inches in breadth and twelve inches in length; the convex surfaces are plated with steel their whole depth. This contrivance is permanently attached to the front beam of the engine and each car.

In Fig. 2, D D represents the cast iron weight attached to one end of the lever, E, which may be four feet in length, and six inches in thickness, and is bolted firmly to the lever. I have made the ends of the rails beveling, with a corresponding bevel on the ends of the switch, T, Figs. 3, and 4. By means of which obstructions are mounted from getting or remaining between the end of the switch and stop F, which would prevent the switch from coming to its place. The stop F, prevents the switch from being carried too far.

The fulcrum on the lower side of the lever, by means of which the vertical tend-

ency is produced by the weight on the end of the levers, is seen at G, Figs. 2 and 4. By this arrangement the great friction produced by the massive iron rails of the switch, is removed entirely or to any extent desired, for it being the point upon which the switch is balanced. This fixture, and the arrangement shown in Fig. 3, removes the greatest objections, urged, by engineers, against the self-acting switches, a desideratum long sought, but never before obtained.

In order to give as clear an idea of the parts connected, as possible, I have added a drawing of the road, in which they are all shown in combination on a scale as large as convenience will admit of. In Fig. 4 H, H, represents the straight track, including both switches, one of which is closed and the other open. I, I, represents the "turn out" running into the single track. J, J, J, J, represents the switch; K, K, the single switch. L shows the operating power acting on the piece D and the levers E, and N, by which the switches J, J, are thrown in opposition with the track I, I, so as to form a continuation into H, H. The same thing is seen at M operating on the lever O, and P. The levers are operated upon in like manner by the cars running in an opposite direction. The bar S, connects the levers with each other.

To enable others skilled in the art to make and use my invention, I will proceed to describe the manner of connecting the different parts, and their operation, I employ any railroad switch in use, first beveling the ends of the rails. I select any car or the frame of an engine; to the front beam of which I attach the appendage called the "operating power" with the ellipsis longitudinally with the car or frame; it is then secured to the beam, so that the center of the ellipsis shall be on a line sixteen inches and a half within the inner surface of the right hand wheel, in this position it is made permanent by means of iron bolts and screw nuts, it is made to extend below the frame to within four or five inches of the surface of the rails. Having thus secured this operating appendage, the switch is provided with two levers, E and N Fig. 4 made of wrought iron four inches wide, one and a quarter inch thick, length proportioned to that of the switch, one end of each lever is provided with a curved casting D, which is

firmly secured by bolts and screw nuts. The levers thus constructed and provided with their cast curves are laid longitudinally with the road with their curved castings in opposite directions, and their inner ends attached to the cross bar S of the switch at Q and R, Fig. 4, and secured to the road by a fulcrum bolt, in such a position that the operating power, shall act efficiently on the curved casting on the ends of the levers, as the engine passes, as represented at L and M, Fig. 4 and give the switch its lateral motion, which, it will be perceived, must be inevitable, as the convex surfaces of the ellipsis, and the curves on the levers come in contact and the end of the lever must yield, to the superior force brought to bear upon it, by the operating appendage, attached to the passing car, as the motion of the engine must be arrested, which cannot occur, as the power exerted by the steam in propelling the engine, is so much greater than the resistance offered by the switch, that the latter must as a natural consequence yield to the former.

The levers are provided, on the lower side, with a fulcrum, at G, Fig. 2, for the twofold purpose of preventing friction, otherwise, produced by the weight of the lever, which would be in contact with the bottom of the road (either plank or the earth) its whole length, and affording a point upon which the cast curves on the end of the lever acts vertically, by means of which the switch can be made to approximate as near a balance as desirable.

Be it observed, that the curved casting of the levers extends above the level of the track, as to enable it to be operated upon by the operating power, without its being of an inconvenient length, and fur-

thermore the invention contemplates the train keeping on the right hand track, if from accident or circumstances, it becomes necessary for the train to deviate from its accustomed route, the switch for the time being must be shifted by hand, the fixtures in this contrivance have been so arranged, as to present no difficulty, from this quarter.

It is to be further observed, that by beveling the ends of the rails upon which the switches shut, those ends are effectually sustained, without its being necessary to form a shoulder for a bearing, which shoulder would retain dirt, or other matter which would interfere with the action of the switches, while such matter will pass down the inclined ends, out of the way.

I am aware that switches have been shifted by the motion of the cars running on the rail leading thereto, and I do not therefore claim this as making any part of my invention; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination, in the manner set forth, of the switches, connecting rod, and the two levers, furnished with the curved metallic castings acting as a counterpoise to the weight of the switches, and acted upon by what I have denominatel the operating power, whereby the switches may be shifted before they are reached by the car, the same being effected by the car itself, when traveling in either direction, as set forth.

2. I also claim the beveling of the ends of the switches, and of the rail, for the purpose, and in the manner, above made known.

JESSE LA RUE.

Witnesses:

THOS. P. JONES,  
GEORGE WEST.