(No Model.)

W. DRYDEN.

SWITCH OPERATING DEVICE.

No. 532,447. Patented Jan. 15, 1895.

Fig: 1.

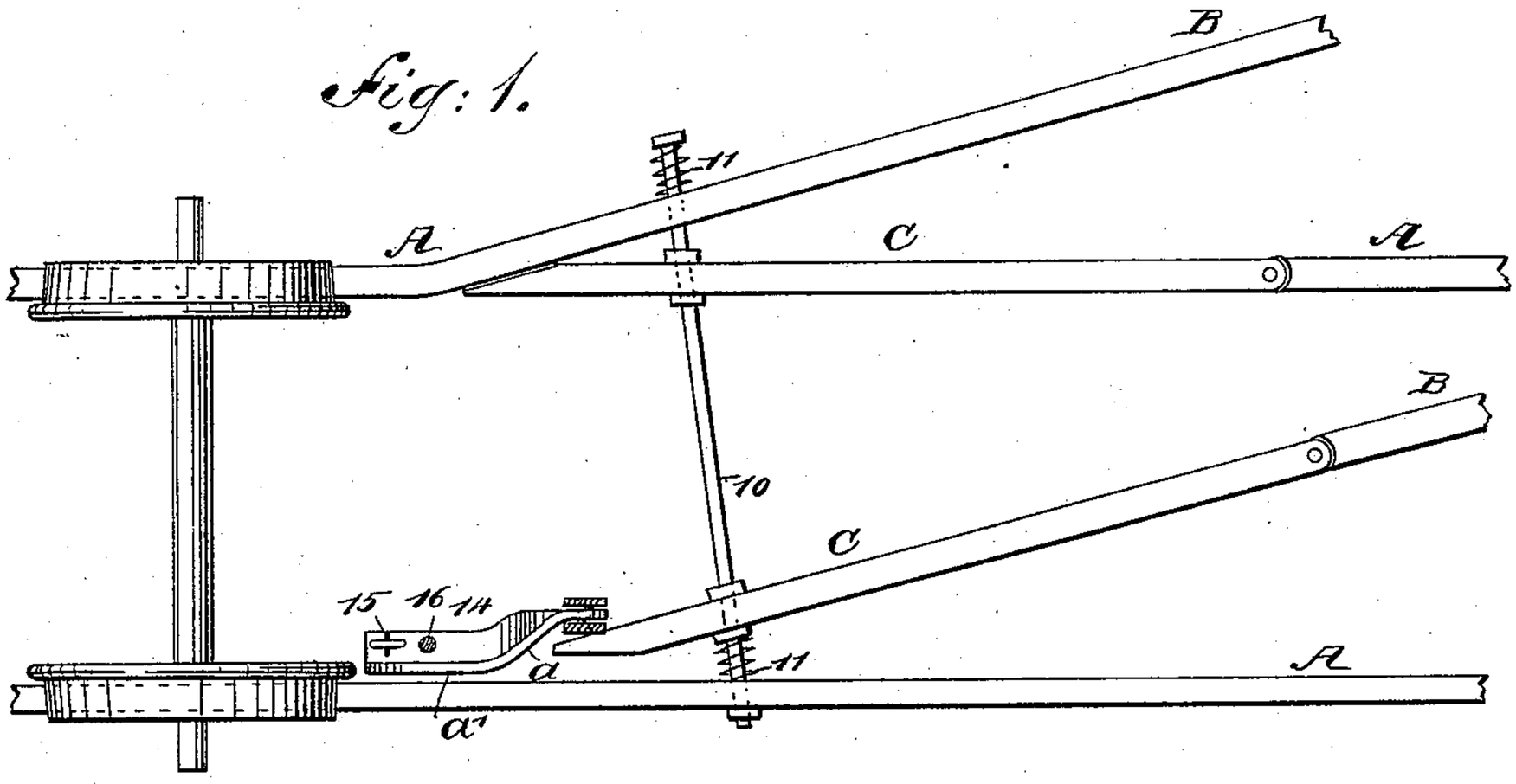
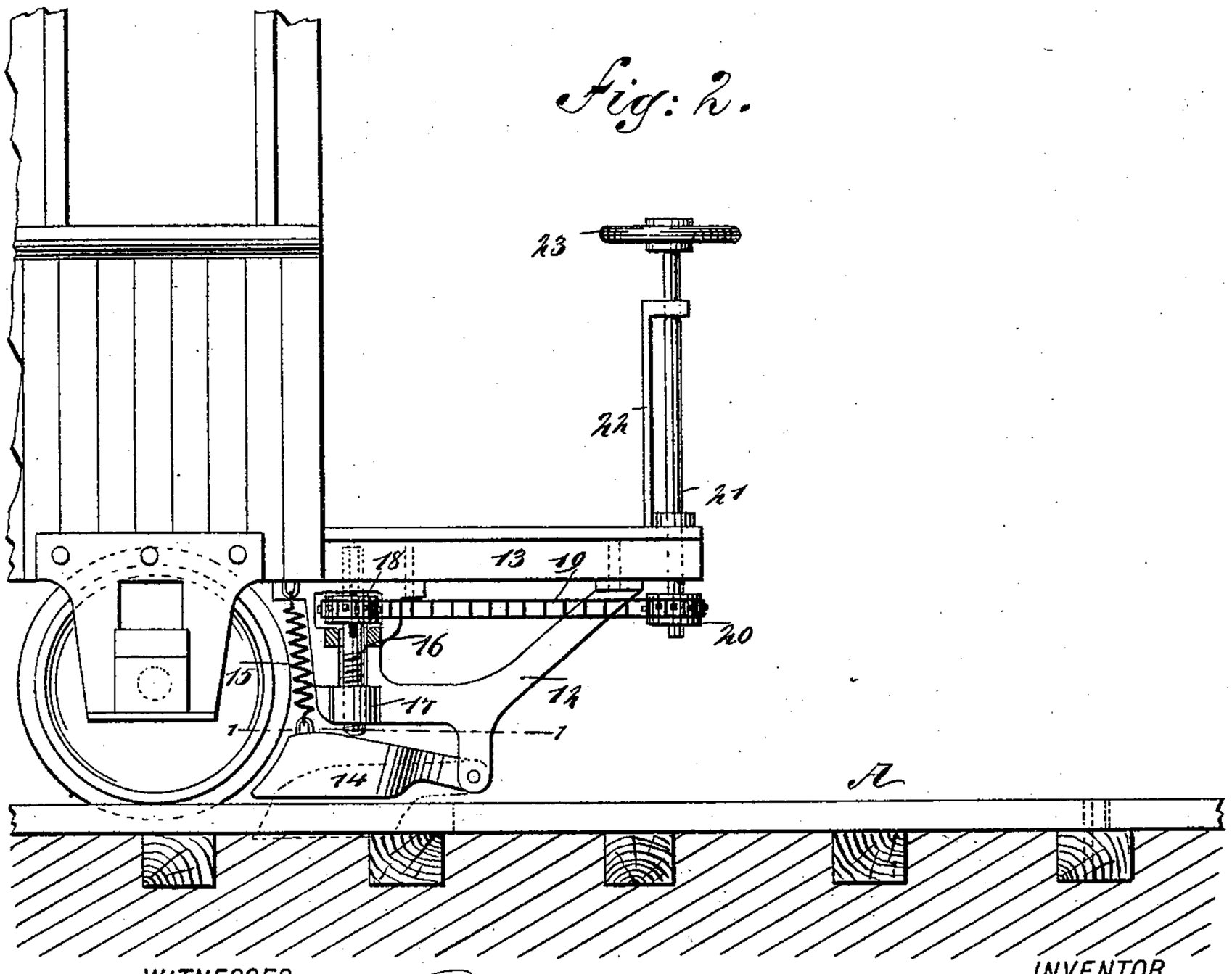


Fig: 2.



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SWITCH-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 532,447, dated January 15, 1895.

Application filed May 2, 1893. Serial No. 472,760. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DRYDEN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Switch-Operating Device, of which the following is a full, clear, and exact description.

My invention relates to a switch operating mechanism, and it has for its object to provide a means whereby the switch may be shifted in advance of a car while in motion, and also to provide a simple, durable and economic mechanism capable of application to a platform or other support of a car, whereby an attendant may throw the shifting device in engagement with the switch points, or carry the device out of possible engagement with the switch points or rails over which the car is to travel, as occasion may demand, the parts of the shifting mechanism being exceedingly convenient of manipulation.

A further object of the invention is to provide a switch operating mechanism especially adapted for application to trolley cars or tram cars in general.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a plan view of a main line and switch or branch, and a horizontal section through a portion of the shifting mechanism, the section being taken essentially on the line 1—1 of Fig. 2; and Fig. 2 is a partial side view of a car, illustrating the application of the shifting mechanism thereto.

The main rails A, are illustrated in Fig. 1 in connection with siding rails B; and switch points C, are pivotally connected at one of their ends with a section of a main rail and a siding rail, the two latter rails being opposing rails. The switch points at their opposite free ends are adapted for engagement with the outer siding rail where it joins the main rail A, and likewise with the other unbroken main rail, the contact between the switch points and the outer siding rail and main rail being alternately made. The normal position of the switch points, however, is one in engagement with the outer siding rail where it connects with a rail of the main track, while the opposite switch point is held out of engagement with the opposite main rail of the main track, as shown in Fig. 1; and the switch points are held in this normal position by means of a tie rod 10, connecting them and having guided movement in suitable supports at its ends; and the said tie rod is provided at its ends with springs 11, exerting tension in direction of the outer switch rail B. By this means the main line is always in condition to be traveled upon, and when a car is to be switched from the main line upon the siding rails B, the position of the switch points must be changed in a manner to cause the inner switch point to engage with the continuous main rail A. The mechanism by means of which this shifting is accomplished is shown in Fig. 2, in which it will be observed that a bracket or pedestal 12, is secured to the under face of the platform 13 of the car. A shoe 14, is pivotally connected with the lower portion of the bracket or pedestal, and the said shoe is provided with a partially straight and partially curved outer face, as shown in Fig. 1, with or without friction wheels. The forward portion *a* of the outer face of the shoe is curved, while the rear portion *a'* is straight, as shown best in Fig. 1. The shoe may be made of any cross sectional shape, and at the rear end of the shoe a spring 15, is secured, which spring is connected with the under portion of the car or platform, and the spring normally acts to maintain the shoe at an elevation which will enable it to clear the rails over which the car is traveling. A screw 16, is held to turn in suitable bearings in the bracket or pedestal, the bearings being located preferably in the rear portion of the pedestal, and the lower portion of the screw is passed through what may be termed a nut 17, provided with an internal thread, and the said nut is ordinarily formed integral with the pedestal.

A chain wheel 18, is spliced or equivalently secured upon the upper portion of the screw,

whereby when the wheel is revolved the screw will be turned, yet the screw may have vertical movemement without disturbing the position of the chain wheel. A chain belt 19, is passed over the chain wheel 18, and likewise over a second chain wheel 20, which is preferably made fast upon an upright shaft 21, which shaft may be journaled in the forward end of the platform and in a bearing located upon the upper portion of the dash-board 22, and preferably at the upper end of the shaft a hand wheel 23, is located.

It may here be remarked that the length of the switch points is practically equal to the distance between the front and rear wheels of the car.

By turning the shaft 21 in one direction the screw 16 will be made to travel downward and engage with the shoe 14 and depress the shoe in such manner that it will engage with a switch point; but when the shaft is turned in an opposite direction the shoe will be elevated to such an extent as to be out of engagement with the switch point over which the car may pass, the shoe being restored to its upper position by the spring 15 as it is relieved from pressure of the screw 16. The shoe is so located that it is between the rails of the track, and sustains such relation to one of the rails that it will engage with a switch point to be shifted. Thus in operation, if the car is to travel upon the main line only the shoe is kept in an elevated position; but when the car is to be switched on a side track, or upon another track, the shoe is lowered before the switch points are reached, and the shoe will thereupon engage with the inner face of the inner switch point and will force that point over against the unbroken rail A of the main track against the tension of the spring 11, and the shoe will hold the said switch point in contact with the said unbroken main rail until the forward wheels of the car have reached and engaged with the points. The weight of the car passing over the points will serve to hold them in their shifted position until the rear wheels strike them, and after the rear wheels have left the inner switch point the springs 11, will act to automatically restore the said points to their normal position and close entrance to the siding rails and re-establish communication on the main line. After the shoe has served its purpose, the shaft 21, is turned in a manner to relieve the shoe from the pressure of the screw 16, which had been forced downward to depress the shoe prior to the switch being taken.

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

1. In a switch operating mechanism, the combination with a vertically swinging shoe pivoted at its forward end and having the lateral incline a to push and open switch point against the main rail and a straight longitudinal portion a' to hold the switch rail until the car wheels run thereon, a spring having one end secured to the free end of the shoe and the other to the car, and mechanism for depressing the shoe, substantially as described.

2. The herein described switch operating mechanism comprising a shoe pivotally connected with the under portion of the car, adapted to engage with one of the switch points, a spring normally holding the shoe in an elevated position, a screw shaft carried by the car and adapted for engagement with and to depress the shoe, a hand shaft, and a belt connection between the hand shaft and the screw shaft, as and for the purpose specified.

3. A switch operating mechanism comprising a shoe having one face curved at its forward end and substantially straight at its rear, a bracket or pedestal to which the shoe is pivoted, a spring normally holding the shoe in an elevated position, a screw shaft adapted for engagement with and to depress the shoe, a wheel mounted to turn with and slide upon the screw shaft, a hand shaft, and a belt connection between the hand shaft and the wheel upon the screw shaft, as and for the purpose specified.

4. A shifting mechanism for switches, the same consisting of a bracket or pedestal adapted for attachment to a car in advance of its wheels, a shoe pivotally connected with and extending downwardly from the bracket or pedestal, said shoe being adapted for engagement with a switch point when depressed, a spring normally holding the shoe in an elevated position, a depressing mechanism adapted for engagement with the shoe, and an actuating mechanism connected with the depressing mechanism, as and for the purpose set forth.

5. A shifting device for switches, the same consisting of a pedestal or bracket adapted for attachment to a car in advance of its wheels, a shoe adapted for engagement with a switch point and pivotally connected with the pedestal, a spring normally holding the shoe in an upright position, a screw shaft the threaded end of which is located over the screw and is adapted for engagement therewith, said threaded end of the screw shaft being carried through a bearing having an interior thread, a driving wheel mounted upon the screw shaft to turn therewith and slide thereon, a hand shaft, and a belt connection between the hand shaft and the driving wheel, as and for the purpose specified.

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Witnesses:
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