

(No Model.)

D. L. BOLAND.  
DEVICE FOR MANIPULATING SWITCHES.

No. 501,317.

Patented July 11, 1893.

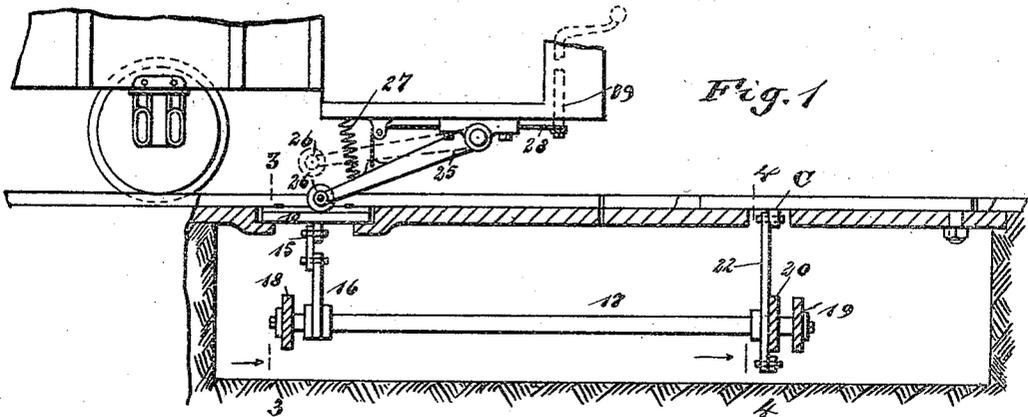


Fig. 1

Fig. 2

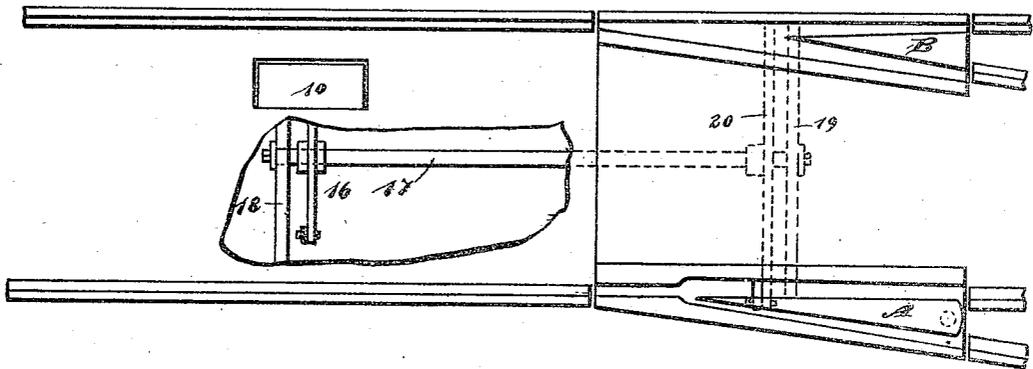


Fig. 3

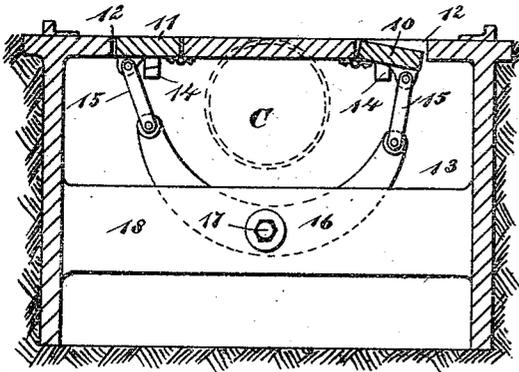


Fig. 4

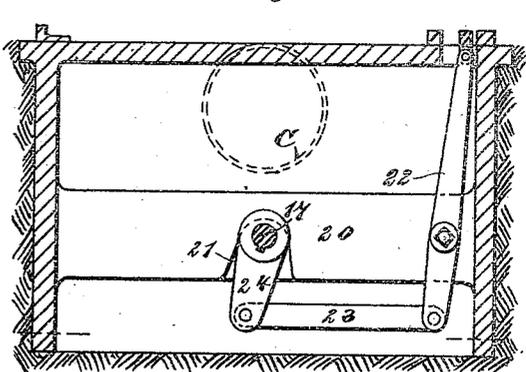
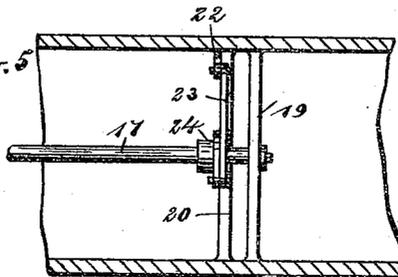


Fig. 5



WITNESSES:  
*J. a. Bengtson*  
*L. Sedgwick*

INVENTOR  
*D. L. Boland*  
BY  
*Munnif*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

DANIEL L. BOLAND, OF NEW YORK, N. Y.

## DEVICE FOR MANIPULATING SWITCHES.

SPECIFICATION forming part of Letters Patent No. 501,317, dated July 11, 1893.

Application filed July 8, 1892. Serial No. 439,347. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL L. BOLAND, of New York city, in the county and State of New York, have invented a new and useful  
5 Improvement in Devices for Manipulating Switches, of which the following is a full, clear, and exact description.

My invention relates to an improvement in devices for the manipulation of railroad  
10 switches, and has for its object to provide a means whereby a switch may be turned in the desired direction through the medium of levers or the equivalents thereof located beneath the car, the said levers being capable  
15 of manipulation to throw the switch in either direction in advance of the car.

Another object of the invention is to provide a means whereby the device may be manipulated by a rapidly moving train while the  
20 said train is yet some distance from the switch.

It is also the object of the invention to provide a device capable of the above named functions which will be simple, durable and not liable to get out of order and wherein in  
25 the main operative parts no springs will be employed.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and  
30 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 all the  
35 views.

Figure 1 is a vertical section taken between the rails of a track and through a conduit beneath the track, illustrating the operative mechanism of the switch in side elevation and  
40 the means employed for manipulating the switch from a car. Fig. 2 is a plan view of the track shown in Fig. 1, a portion of the space between the rails of the track being broken away. Fig. 3 is a transverse section  
45 taken through the conduit in front of the shifting lever, the section being taken practically on the line 3—3 of Fig. 1. Fig. 4 is a vertical transverse section taken practically on the line 4—4 of Fig. 1; and Fig. 5 is a bottom plan view of the switch lever and operating shaft.  
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Between the rails of the track, at a suitable

distance from the switch A to be operated, two platforms 10 and 11, are located, which when closed fill suitable apertures or openings 12, produced in the surface between the  
55 rails, as shown in Fig. 3. These platforms are hinged to the surface between the rails at their inner edges, as is likewise shown in Fig. 3. Their outer edges, however, are free  
60 to drop downward within the conduit or chamber 13, located beneath the track. The downward movement of the platforms 10 and 11, however, is limited by stops 14 placed beneath them.  
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Each platform at its outer or free end is connected by a link 15 with the ends of an essentially crescent-shaped lever 16, and this lever is firmly attached at or near its center to a shaft 17, which is located within the  
70 chamber 13 and extends longitudinally within said chamber, being journaled preferably at the end carrying the lever 16 in a horizontal supporting bar 18, secured at its ends within the chamber. The opposite end of the shaft  
75 17, is journaled in a like brace or supporting bar 19, located a predetermined distance from the former named and corresponding bar 18.

Near the brace bar 19 another bar 20, is located, and through a recess 21 in this bar  
80 the shaft passes, as shown in Fig. 4. Upon one face of the bar 20 the switch lever 22, is fulcrumed, the fulcrum of the lever being preferably nearer its lower than its upper end, and the lower end of the switch lever is  
85 connected by a link 23, with a crank arm 24, firmly keyed or otherwise secured upon the shaft 17; and the upper end of the switch lever 22, is connected with the movable switch point A near the free end thereof, whereby  
90 the said lever 22, when properly acted upon by pressure brought to bear upon either of the platforms 10 or 11, will carry the switch point A in direction of, or throw said point in engagement with a rail of the main track  
95 or a rail of the siding, as may be desired, it being understood that a fixed point B, is arranged at the opposite side of the track to the movable point A.

The above described switch-throwing device is adapted especially for use upon street car tracks, and is to be operated from the car before said car reaches the switch.

The operation of the switch-throwing mech-

anism is brought about in any approved manner, but preferably through the medium of an arm 25, located beneath the car preferably at the platform, as shown in Fig. 1, which arm is capable of being raised or lowered, and when lowered is adapted to engage at its lower or free end with one of the platforms 10 or 11 and depress the same. To avoid friction a roller 26, is normally located at the free end of the arm, and the arm is normally held in its lower position through the medium of a spring 27, and may be raised by a rope or chain 28, connected therewith and with a brake stem 29, or its equivalent, and when so constructed, the moment that the brake stem is permitted to turn the spring 27, acts to force the arm 25 downward, and this operation is performed when the car is in such position that the arm will strike a platform, and in striking a platform the arm forces the latter downward, thus raising the other platform, which had been lowered, throwing the switch point A in a position to carry the car upon a siding or permit it to travel upon the main track, the position which the switch point will assume being regulated by the position of the platform to be operated upon.

By forming the trip lever 16 in the crescent shape and connecting it at its points with the platforms, a conduit C, may be erected within the chamber 13 without interfering with the manipulation of any portion of the device, as shown in dotted lines in Figs. 3 and 4.

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

1. In a switch operating device, the combi-

nation with a switch rail, of platforms, hinged at one edge a shaft below the platforms, a curved lever secured to the shaft, links connecting the ends of the said lever with the platforms, a pivoted lever having one end connected with the switch rail, and a connection between the said pivoted lever and shaft, substantially as described.

2. In a switch operating device, the combination with a switch rail, of platforms, hinged at one edge a shaft below the platforms and provided with a crank arm at one end, a crescent shaped lever secured to the said shaft, links pivoted at the ends of the lever and to the platforms, a pivoted lever having its upper end connected to the switch rail, and a link pivoted to the lower end of the said lever and to the crank arm of the said shaft, substantially as herein shown and described.

3. In a switch operating device, the combination with a switch rail, of the platforms 10 and 11 hinged at one edge, the stops 14 below the platforms, the shaft 17 provided with the crank arm 24 at one end, the crescent shaped lever 16 secured to the shaft 17, the links 15 pivoted to the ends of the said lever and to the platforms, the pivoted switch lever 22 having its upper end pivoted to the switch rail, and the link 23, pivoted to the lower end of the switch lever and to the crank arm, substantially as herein shown and described.

DANIEL L. BOLAND.

Witnesses:

D. GUNN,  
JOHN D. LEAHY.