

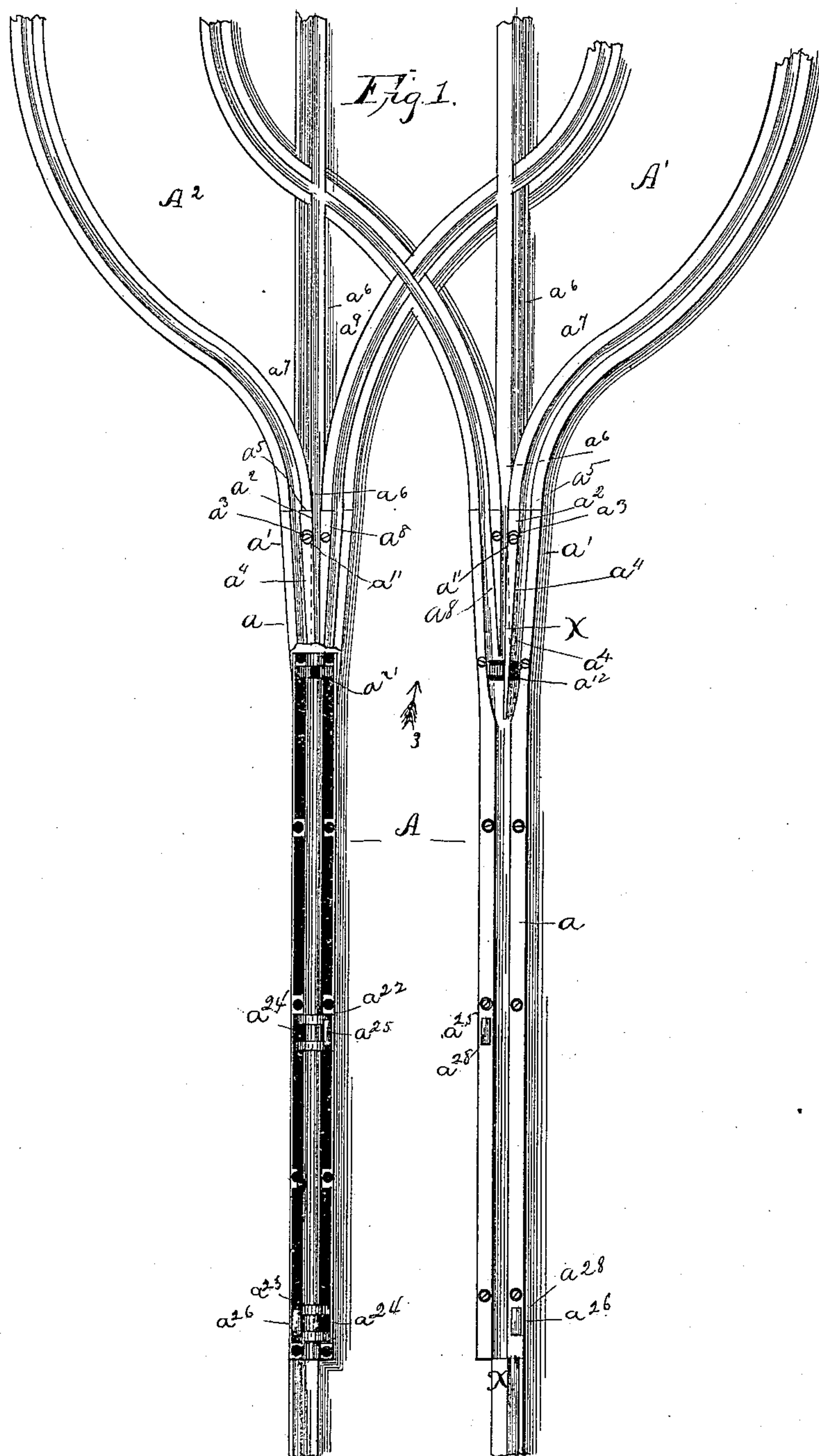
(No Model.)

3 Sheets—Sheet 1.

N. G. DU BOIS.  
RAILROAD SWITCH.

No. 330,826.

Patented Nov. 17, 1885.



Witnesses:  
J. F. Holden  
W. C. Chappin

Inventor.  
N. Grenard DuBois  
per H. A. Choate  
Attys.

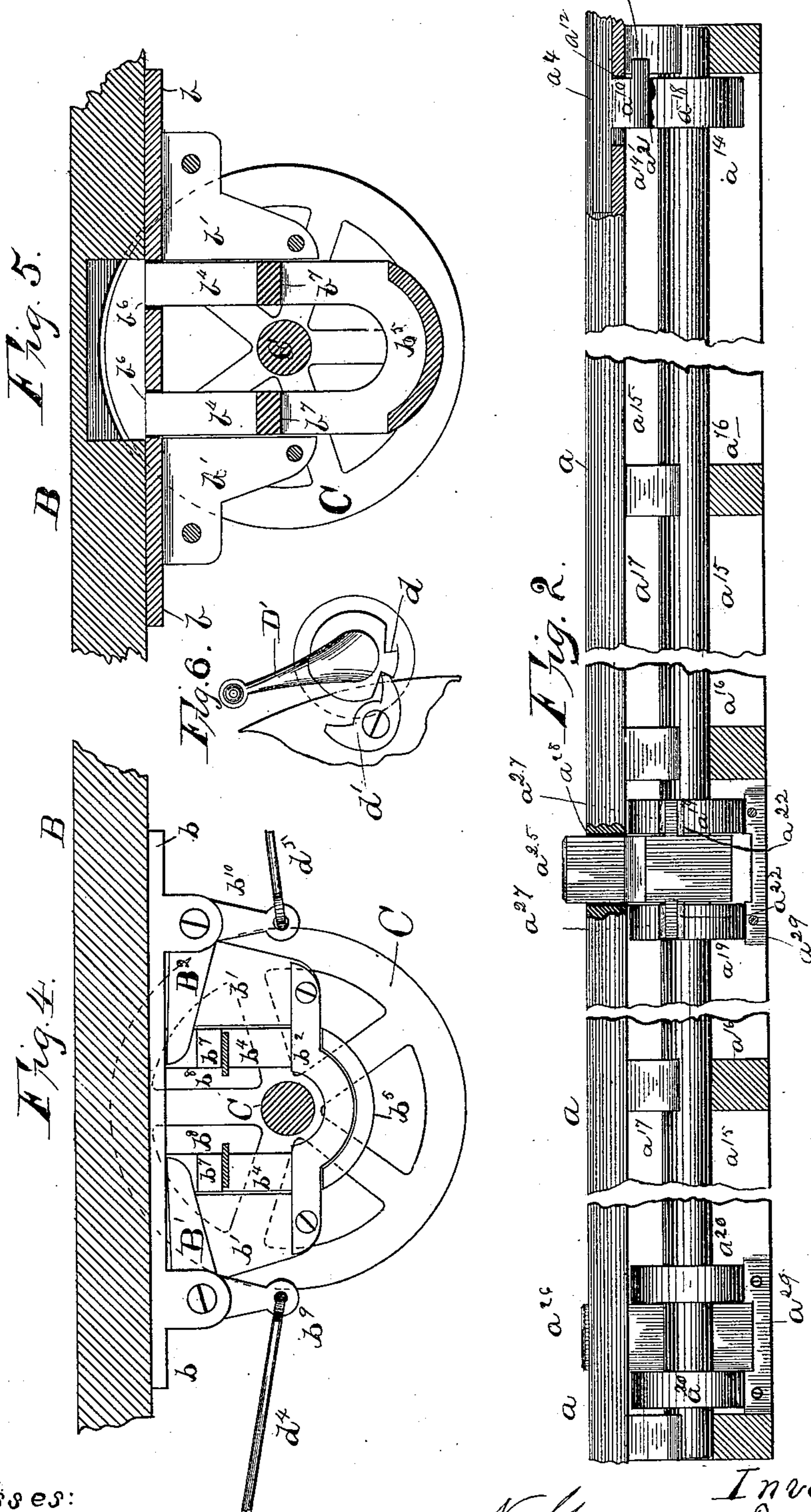
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Att'y.



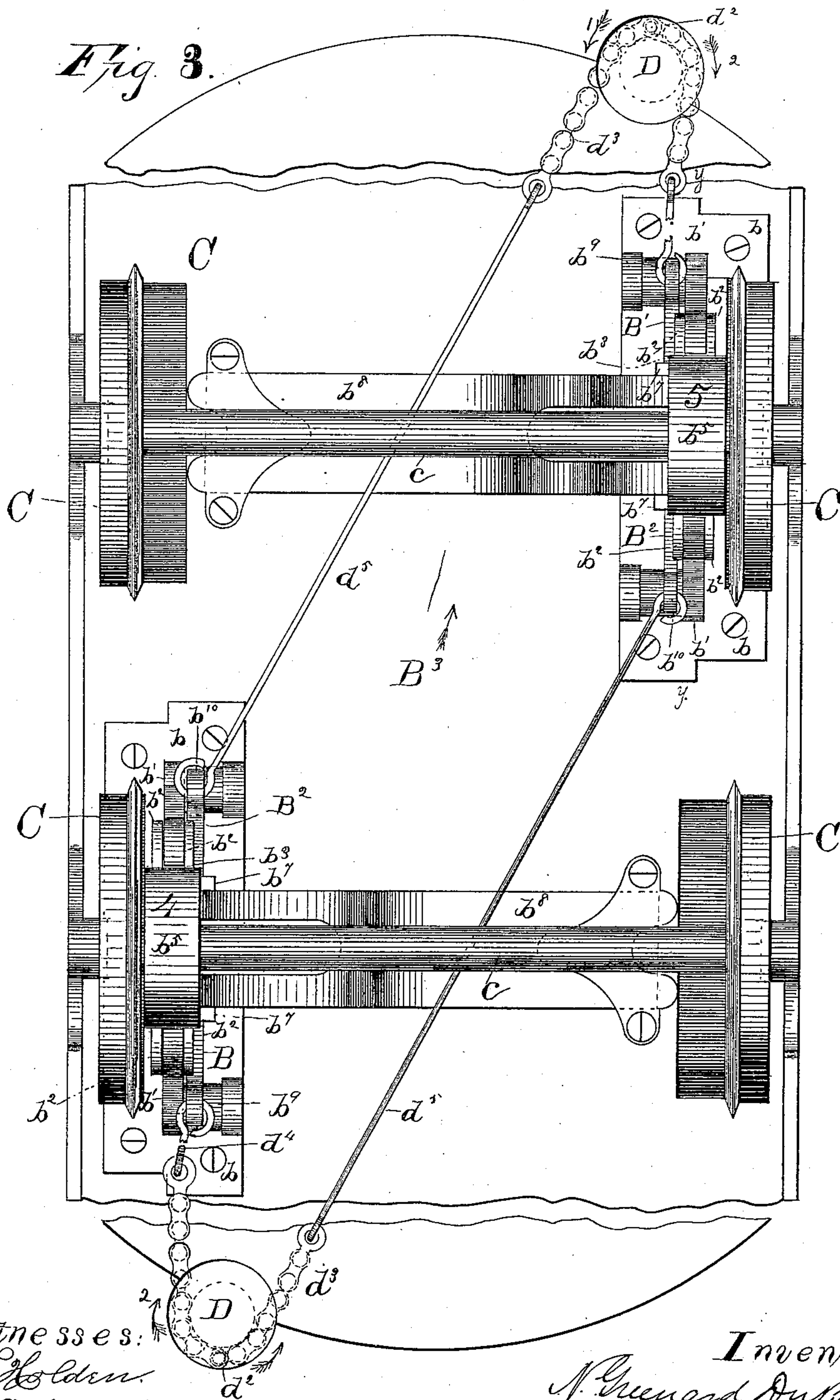
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J. F. Holden  
W. E. Chaffee

Inventor.  
N. Guenard DuBois  
per *Hauch & Hallen*  
Attys



# UNITED STATES PATENT OFFICE.

N. GREENARD DU BOIS, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO F. R. MALONEY, OF SAME PLACE.

## RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 330,826, dated November 17, 1885.

Application filed September 8, 1884. Serial No. 142,519. (No model.)

*To all whom it may concern:*

Be it known that I, N. GREENARD DU BOIS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Railroad-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to that class of devices in which the switch is operated by the movement of the street-car. The object is to provide the track and car with such devices that the driver can control the switch at pleasure.

My invention therefore consists of constructions and combinations, all as will hereinafter be described in the specification, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of the track, having one section of the rail removed to show the switch-working parts beneath; Fig. 2, a section on line *x x*, Fig. 1; Fig. 3, a plan of the bottom of the car; Fig. 4, a longitudinal section of a portion of the car; and Fig. 5 a section on line *y y*, Fig. 3. Fig. 6 represents a top plan of the crank and pawl.

In Fig. 1 the main track is shown with two branch or side tracks; but it will be obvious from the following description that the device can be used on a single branch. It will therefore be only necessary to minutely describe one branch, as both are constructed in a similar manner, the necessary changes for a right or left hand branch track being made.

A represents the main track; A' and A<sup>2</sup>, the right and left hand branch tracks. One section-rail of the main track A, at a point near the switch, is provided with a grooved rail, *a*, which at the switch end *a'* is made flaring to connect it with the branch. Upon end *a'* is a raised part, *a*<sup>2</sup>, having a semicircular end, *a*<sup>3</sup>, against which the movable tongue-rail or switch *a*<sup>4</sup> abuts. Against the opposite end, *a*<sup>5</sup>, the end of the flange on the main-track rail *a*<sup>6</sup> and the inner flange of the branch-track rail *a*<sup>7</sup> abut for an obvious purpose. The other rail is provided with a stationary tongue-rail,

*a*<sup>8</sup>, which abuts against the flange of the branch-track rail *a*<sup>9</sup>, to serve as a bearing for the car-wheels when the car is shifted from the main to the branch track by movable tongue-rail *a*<sup>4</sup>. If two branches are desired, the end *a'* of each main-track rail is provided with a movable tongue-rail, *a*<sup>4</sup>, and a stationary rail, *a*<sup>8</sup>, as shown in Fig. 1. The movable tongue-rail *a*<sup>4</sup> is provided on its under side with a projection, *a*<sup>10</sup>, which passes downwardly through an opening, *a*<sup>12</sup>, in the groove of the rail. The projection *a*<sup>10</sup> is of the same length as the opening *a*<sup>12</sup>, which is provided with an extension, *a*<sup>14</sup>, of less width than the opening *a*<sup>12</sup>. The toe *a*<sup>13</sup> of projection *a*<sup>10</sup> projects beneath the rail to hold the loose end of the tongue down. The tongue may be withdrawn from opening *a*<sup>12</sup> by removing the pivot *a*<sup>11</sup>. Beneath the rail *a* is a box, *a*<sup>15</sup>, having bearings *a*<sup>16</sup> for a shaft, *a*<sup>17</sup>, provided with collars *a*<sup>18</sup>, *a*<sup>19</sup>, and *a*<sup>20</sup>. The collar *a*<sup>18</sup> has a longitudinal groove, *a*<sup>21</sup>, for the projection *a*<sup>10</sup> on the movable tongue-rail *a*<sup>4</sup>, which is moved to the right or left as the shaft *a*<sup>17</sup> is partly revolved to the right or left, thus causing the car to pass either on the main or the branch track.

To partly revolve shaft *a*<sup>17</sup> various means may be used, that shown, however, being preferred, and which will now be described. Upon shaft *a*<sup>17</sup>, as before mentioned, are double collars *a*<sup>19</sup> and *a*<sup>20</sup>, each having longitudinal grooves *a*<sup>22</sup> and *a*<sup>23</sup>, the latter being on the opposite side of the shaft to the former. Between each pair of collars is a groove, *a*<sup>24</sup>, for the reception of posts *a*<sup>25</sup> and *a*<sup>26</sup>, having trunnions *a*<sup>27</sup>, which rest in the grooves *a*<sup>22</sup> and *a*<sup>23</sup>. These posts *a*<sup>25</sup> and *a*<sup>26</sup> project through openings *a*<sup>28</sup> on opposite sides of the groove in the rails *a*, and are alternately raised above the level of the track, while their lower ends alternately rest on the bottom of socket-stops *a*<sup>29</sup>.

It is obvious that many different forms of device may be used to depress the posts to the level of the track and operate the switch. If such a device could be manipulated by the driver, manifest advantages over the usual manual method would be gained. The device shown in Figs. 3, 4, and 5 accomplish this result, and the parts of which I will now describe.

B represents the bottom of a street-car, and



C the wheels. Attached to the under side of bottom B is a plate,  $b$ , having pendants  $b'$ , to which cross-bars  $b^2$  are attached. These bars have semicircular depressions for the axle  $c$ .  
 5 Between these bars  $b^2$  is a space,  $b^3$ , through which the tongues  $b^4$  of a tread,  $b^5$ , project and extend upwardly through openings  $b^6$  in plate  $b$ , which serves as a guide for the same. The tread is preferably semicircular in form, and  
 10 when not in use fits closely to the semicircular part of bars  $b^2$ .

$B'$  and  $B^2$  are crank-levers, one at each end of plate  $b$ , and having their inner ends projecting toward each other and resting upon a lug,  $b^7$ , on tongue  $b^4$ , and when moved downwardly force the tongue and tread downwardly. When the downward pressure upon tongues  $b^4$  is removed, springs  $b^8$  force them back to the former position. In the plan view strap-springs are shown; but it is obvious that compression-springs may be substituted therefor by inserting them between the lugs  $b^7$  and bars  $b^2$ .

To operate the crank-levers  $B'$  and  $B^2$  various means may be used, one manner being shown in the drawings, and consists of a drum,  $D$ , journaled to one end of the car, and having a crank,  $D'$ , provided with notches  $d$ , for the double pawl  $d'$ , which holds the drum in the desired position by inserting one of its ends in one of the notches. Between the flanges of the drum is a post,  $d^2$ , passing through and holding the chain  $d^3$  in place. One end of this chain is connected by link  $d^4$  to the end  $b^9$  of lever  $B'$ , and by links  $d^5$  with end  $b^{10}$  of lever  $B^2$ . When the crank  $D'$  is turned in the direction indicated by arrow 1, the lever  $B'$  is operated, and when turned in the direction of arrow 2 lever  $B^2$  is operated. So far the description relates to a single-horse car; but it is obvious that by placing a similar device at each end of a two-horse car the device can be operated from either end.

The operation of the device is as follows:  
 45 Suppose a car were moving on the main track in the direction of the arrow 3 and the driver wishes to pass to the right-hand branch track. He should turn the crank  $D'$  in the direction of arrow 2. The tread marked 4 would be  
 50 lowered and strike the right-hand post  $a^{25}$ , depress it to the surface of the track, and by reason of this movement partly revolve the shaft, which will shift the right-hand rail  $a^4$  from the position shown in dotted lines to the position  
 55 shown in full lines, Fig. 1, and thus close the main passage and connect the groove in rail  $a$  with the groove in the right-hand rail of the branch track. If it be desired to switch the next car to the left-hand branch, the crank  $D'$   
 60 is moved in the direction of arrow 1, and the

tread marked 5 will be lowered to the track, ready to depress post  $a^{25}$  on the left-hand side of the track, and thus shift the rail  $a^4$  on the left-hand track. Before this can be done the right-hand rail  $a^4$  must be shifted to the position shown in dotted lines, Fig. 1. This is automatically accomplished by the rim or tread of the car-wheel striking the right-hand post  $a^{26}$ , which revolves the shaft in an opposite direction to that caused by right-hand post  $a^{25}$ .  
 65 If it be desired to send the second or another car on the main track, the rim or tread of the car-wheels will strike both posts  $a^{26}$ , if raised, and shift the rails  $a^4$  to the position shown in dotted lines, Fig. 1. If only a single branch  
 75 track is used, the car may be provided with a double-flange car-wheel, which will operate both posts on the rail nearest the branch track. When it is desired to go straight ahead, neither of the treads are lowered. The tread of the  
 80 car-wheels will strike the post  $a^{26}$  on each side and shift the rails  $a^4$  into the recess.

What I claim as new is—

1. In a switch, the combination of a movable-tongue switch-rail having a projection, a shaft having a slot for said projection, and posts on each side of and connected with said shaft, one of said posts being operated by the car-wheel and the other under the control of the driver, substantially as described.

2. In a switch, the combination of a movable-tongue switch-rail having a projection, a shaft having a slot for said projection, and collars provided with longitudinal openings, and posts having trunnions resting in said longitudinal slots and adapted to be alternately raised by the car-wheel and mechanism under control of the driver, substantially as described.

3. A car-switch having on the wheel-bearing flange of the main rail a post operated by the car-wheel, and a second post outside the wheel-bearings, and adapted to be operated by a device on the car under control of the driver, substantially as described.

4. A car-switch the main rails of which are grooved, the outer flanges having a depressible post, and the inner flanges having a depressible post which is raised when the posts upon the outer flanges are depressed, and depressed when the posts on the outer flanges are raised, substantially as and for the purpose set forth.

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

N. GREENARD DU BOIS.

Witnesses:

WM. STEVENSON,  
 F. R. MALONEY.