

No. 638,572.

Patented Dec. 5, 1899.

E. R. GOW.  
AUTOMATIC RAILWAY SWITCH.

(Application filed May 27, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

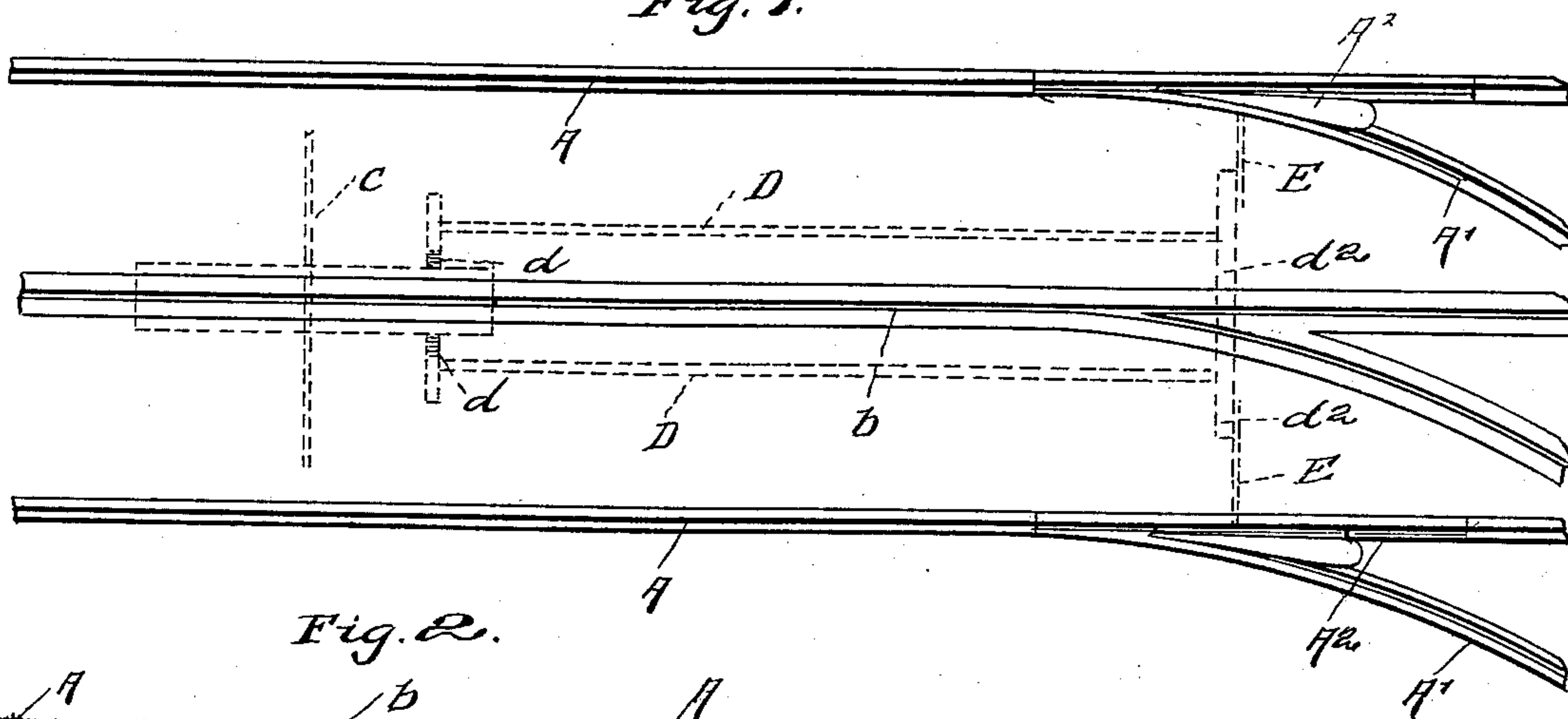


Fig. 2.

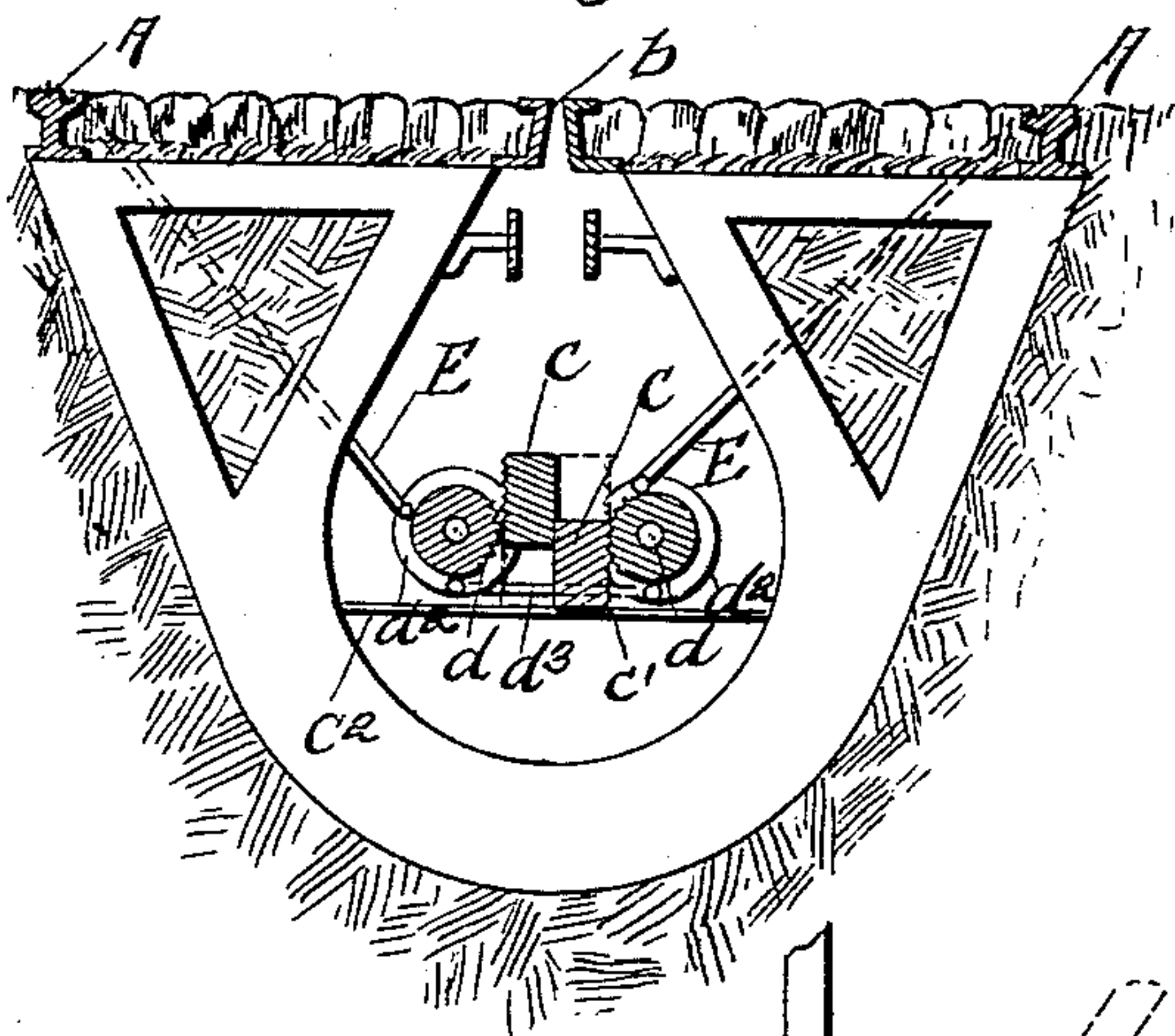


Fig. 3.

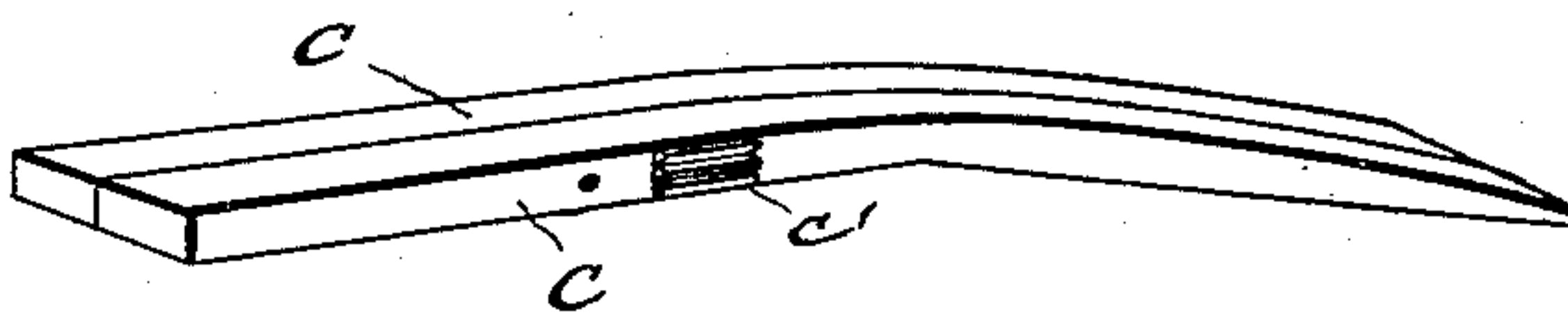
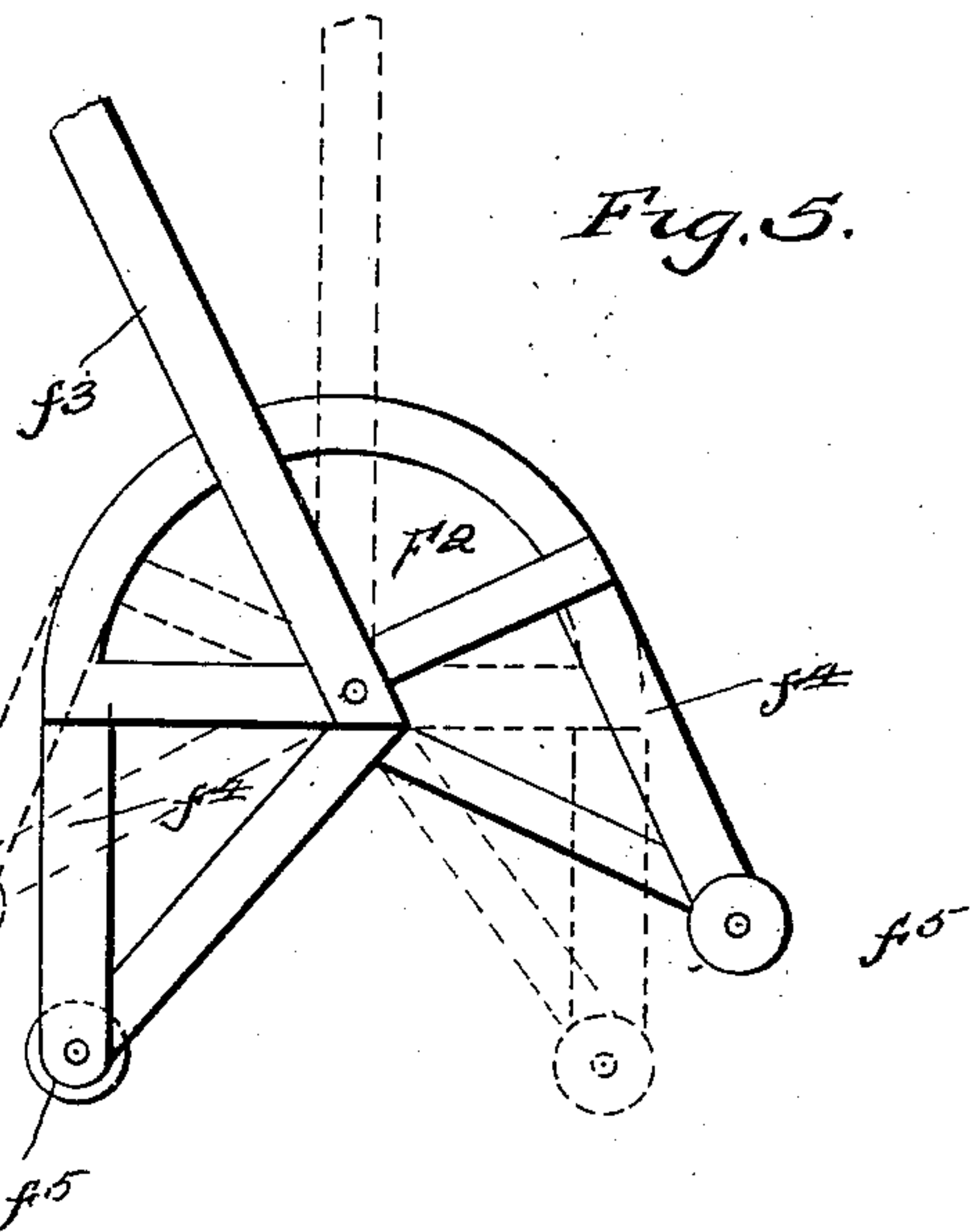
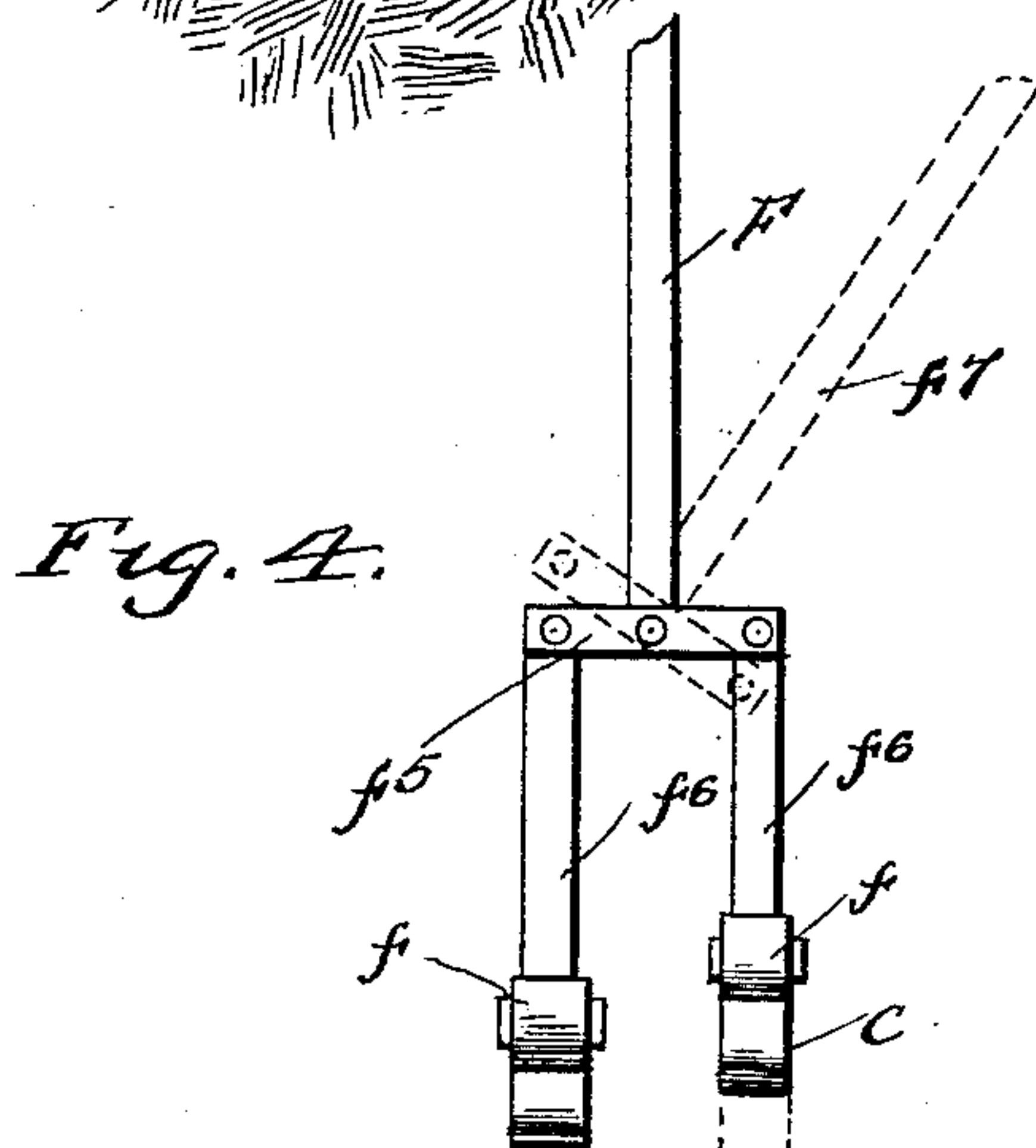


Fig. 4.



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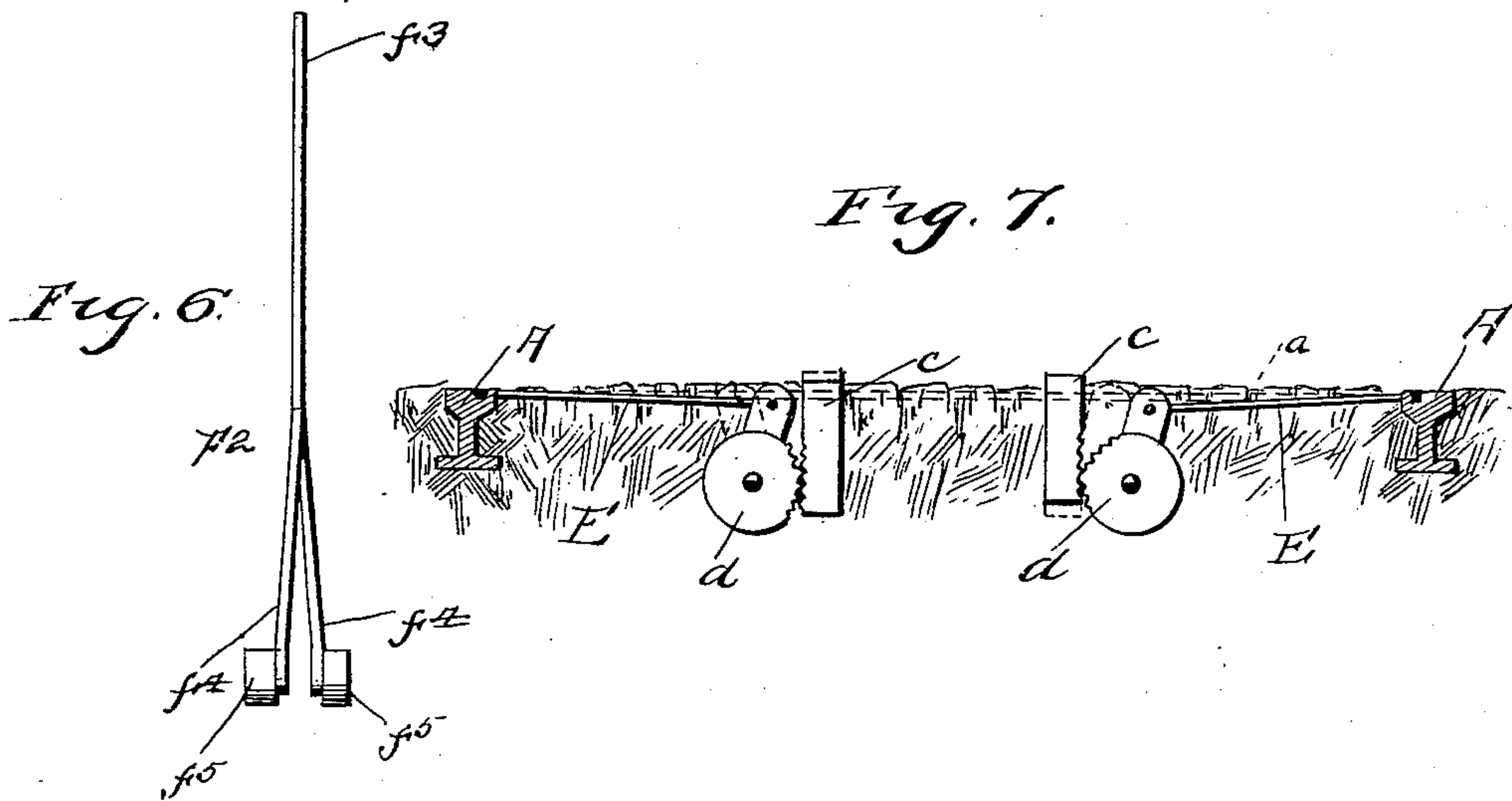
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

EDWIN R. GOW, OF WASHINGTON, DISTRICT OF COLUMBIA.

## AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 638,572, dated December 5, 1899.

Application filed May 27, 1898. Serial No. 681,866. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN R. GOW, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Automatic Railway-Switches; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to automatic railway-switches.

The object of the invention is to provide a switch of the class referred to which shall be simple and cheap in construction, positive in operation, and capable of being operated to throw the movable parts of the rails by either a stationary or a movable projection or projections from a car whose direction of movement is to be governed.

With this object in view the invention consists of an automatic railway-switch comprising two bars extending longitudinally of a track and capable of being depressed, teeth or corrugations on the bars, gears engaging the teeth on the bars, disks connected to the gears, movable portions of rails connected to the disks, and a projection from a car adapted to contact with and depress the bars.

The invention consists, further, in various novel details of construction whereby the object of the invention is attained and the effectiveness of the device insured.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a railway-switch, showing by dotted lines one form of my improved means for operating the switch. Fig. 2 is a sectional view of a track, showing an end view of my switch-operating mechanism. Fig. 3 is a perspective view of the vertically-movable bars adapted to be depressed by projections from cars. Fig. 4 is an end view of the form of projection from cars used on surface roads. Fig. 5 is a side view of the projection from a car used on cable, underground electric, or similar roads. Fig. 6 is a front view of the form of projection shown in Fig.

5. Fig. 7 is a view showing the application of the device to a surface road.

In Figs. 1, 2, and 3 of the drawings I have shown the simplest and preferred form of device used in connection with a cable or other underground system of railroad. In these figures A A represent the rails of the main line, A' A' the rails of a branch line, and A<sup>2</sup> A<sup>2</sup> the movable portions of the track forming part of the switch. Arranged in the conduit B, preferably directly below the slot b, leading into the conduit, are bars C, pivotally mounted and supported at one end upon a rod c, extending across the conduit B.

The bars C are preferably curved from their free ends to about their middles, and from these points their upper surfaces are plane. In their normal positions the bars extend slightly upward from their pivots, the curved upper faces being a distance above the path of movement of the projection from a car, to be described hereinafter, corresponding to the distance which the bars are depressed in operating the switch. Thus when a projection engaging one of the bars reaches the end of the curved portion it will pass over the plane portion of the bar, resulting in holding the bar downward, preventing rebound, and insuring the proper position of the switch until the car has passed over the switch.

Below the bars C is a cross-piece c<sup>2</sup>, which limits the downward movement of the bars.

Mounted in the conduits are two shafts D D, each provided at one end with a gear-wheel d and at the other end with a wheel or disk d<sup>2</sup>. The shafts D D are parallel to the bars C, and at points on the bars C opposite the gear-wheels d are serrations or teeth c', with which the gears engage. The disks are connected by a bar d<sup>3</sup>, which is pivoted at each end to one of the disks. The disks or wheels d<sup>2</sup> are each connected with one of the movable parts of the track, the connection being made by rods E E, each connected pivotally at one end to one of the disks and attached to one of the movable parts of the track at the other end. The points of attachment to the disks are eccentric of the disks. The bars C are depressed by a projection F, attached to a car and carrying a roller f, which roller is adapted to come into contact with one of the bars C to depress the same.



As shown in Fig. 3, only one roller will be attached to the arm of each car when the cars move uniformly in the same direction, and this roller is designed to come into contact  
 5 with one of the bars C, according to the direction in which the car is to move. The roller will be rigidly attached to the arm F, and consequently, as will more fully hereinafter appear, a car carrying it will uniformly be  
 10 guided in the same direction as it passes over the switch.

When it is desired to regulate the direction of movement of cars by depressing one or the other of the bars, one of the forms of projections shown in Figs. 4, 5, or 6 is used, in the  
 15 form shown in Figs. 5 and 6 a frame  $F^2$ , pivoted to the car and having arms  $f^4$ , projecting through the slot and carrying at their lower ends rollers  $f^5$ . The frame is so formed that  
 20 the paths of movement of the two rollers are a distance apart corresponding to the distance between the bars C over which the rollers are to pass. The frame has attached to it a lever  
 25  $f^3$ , by which the frame is moved on its pivot to bring one or the other roller down to engage one or the other of the bars C. The lever  $f^3$  extends up to a convenient place on the car to be grasped by an operator, and it may have suitable means for holding it in the  
 30 position to which it is moved.

In Fig. 7 of the drawings I have shown the application of my invention to a surface road. In this form of embodiment of the invention the bars C are so arranged as to have their  
 35 upper faces project a short distance above the road-bed. The means by which the bars are depressed in this form is preferably made as shown in Fig. 4 of the drawings. The cross-bar  $f^5$ , from which depend arms  $f^6$ , each carrying a roller  $f$ , is pivoted to the frame of a  
 40 car, and rigidly attached to the cross-bar is a lever  $f^7$ . By this construction it will be seen that the cross-bar  $f^5$  may be moved to carry either of the rollers downward into the path  
 45 of the bars C, and that consequently the movable parts of the track may be operated to cause the car to go in either direction after crossing the switch. In this form of device the movable parts of the rails are connected  
 50 by a bar  $a$ .

In the modified form of operating means shown in Figs. 8 and 9 means different from those described for communicating movement from the depressed bars are shown.

55 The operation of the switch when constructed as described is positive, is effected

by means which may be made of any requisite strength, and which, by reason of their simplicity, are not liable to get out of order. As a car approaches a switch a roller carried  
 60 either by a rigid projection from a car or by a movable projection, as shown in Figs. 4, 5, and 6, comes in contact with one of the bars C, and as the bar is depressed by reason of this contact the movable parts of the rails  
 65 are, through the described connections, moved in one direction or the other, according to which bar is depressed. By reason of the connections described the movable parts of the rails are simultaneously moved in the  
 70 same direction. When a number of cars pass over a track and alternate cars are to be switched uniformly in different directions, the operation of the switch is not interfered with, as, even if the switch is left in the op-  
 75 posite position to which it is designed to assume, a projection extending a proper distance in the right direction from a car will move it from the position in which it rests and will place it in the desired position without  
 80 the employment of extraneous means.

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

1. An automatic railway-switch comprising  
 85 two bars extending longitudinally of a track and capable of being depressed, teeth or corrugations on the bars, two shafts arranged parallel to the bars and each provided with gears engaging the teeth on the bars, and with  
 90 disks, movable portions of a rail connected with the disks, and a projection from a car adapted to contact with and depress the bars, substantially as described.

2. An automatic railway-switch comprising  
 95 two substantially horizontal bars capable of vertical depression and having teeth or corrugations on their outer faces, wheels or disks having corresponding teeth or corrugations engaging those on the bars, connecting-rods  
 100 each connected by suitable means to wheels or disks on each end and connected at the other end to a movable portion of the track, and a projection from a car adapted to contact with and depress the bars, substantially  
 105 as described.

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

EDWIN R. GOW.

Witnesses:

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 S. G. HOPKINS.