

(No Model.)

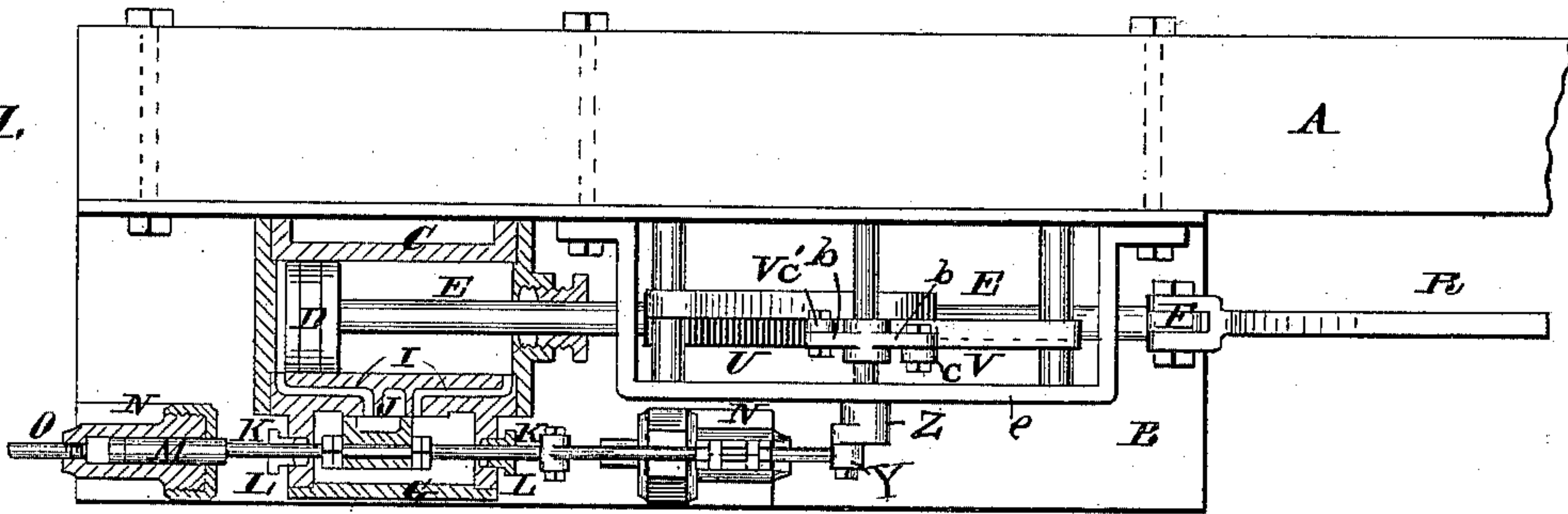
M. WUERPEL.

MACHINERY FOR OPERATING RAILWAY SWITCHES.

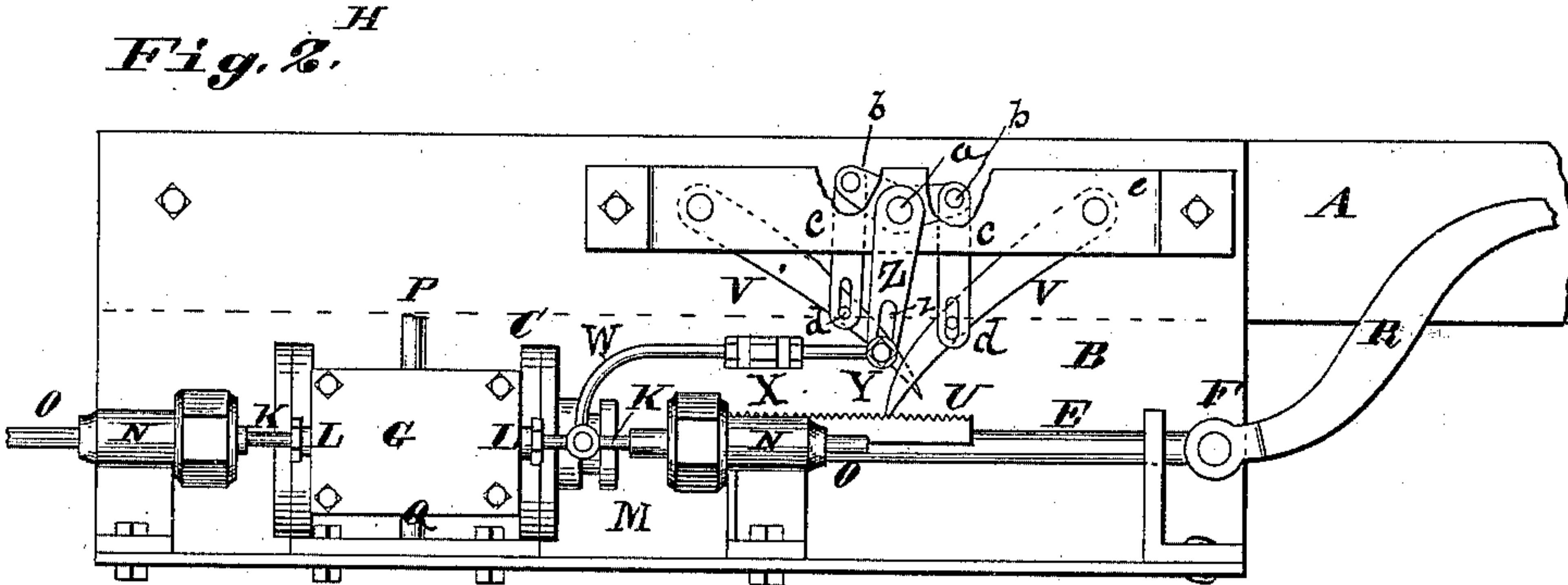
No. 330,862.

Patented Nov. 17, 1885.

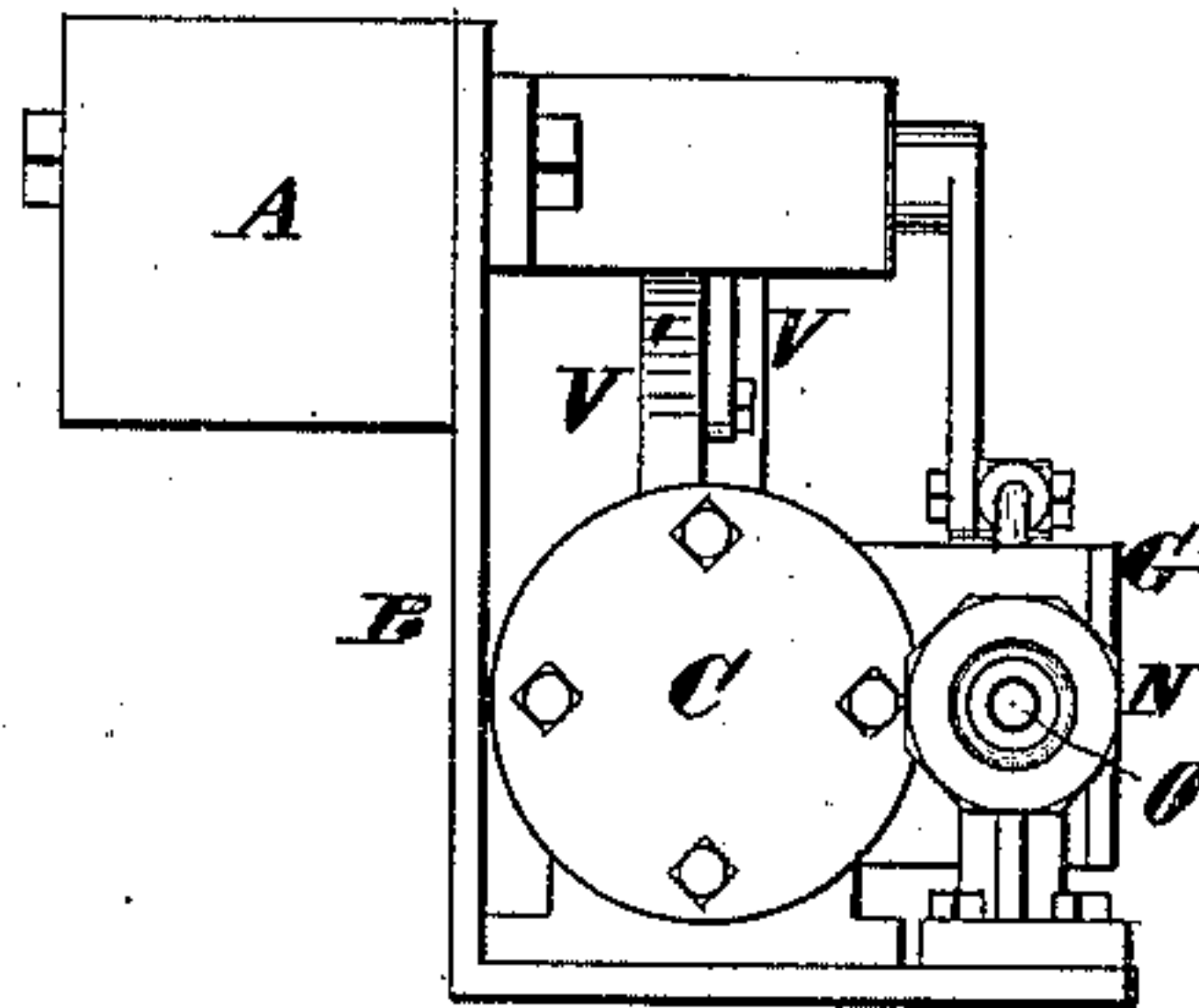
*Fig. 1.*



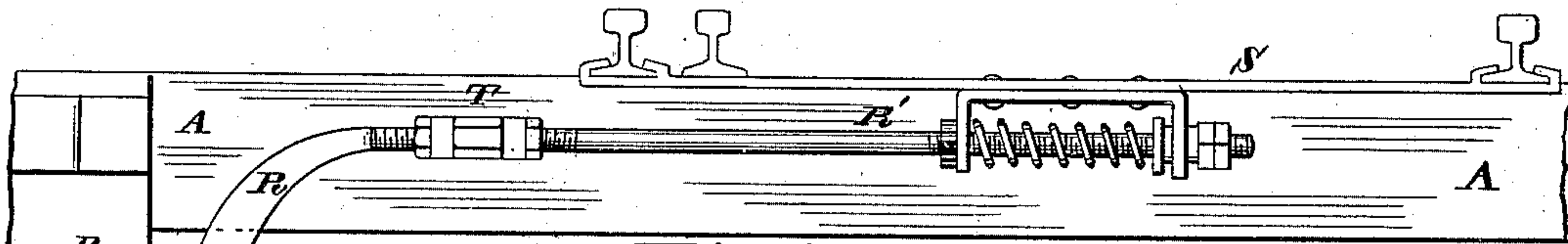
*Fig. 2.*



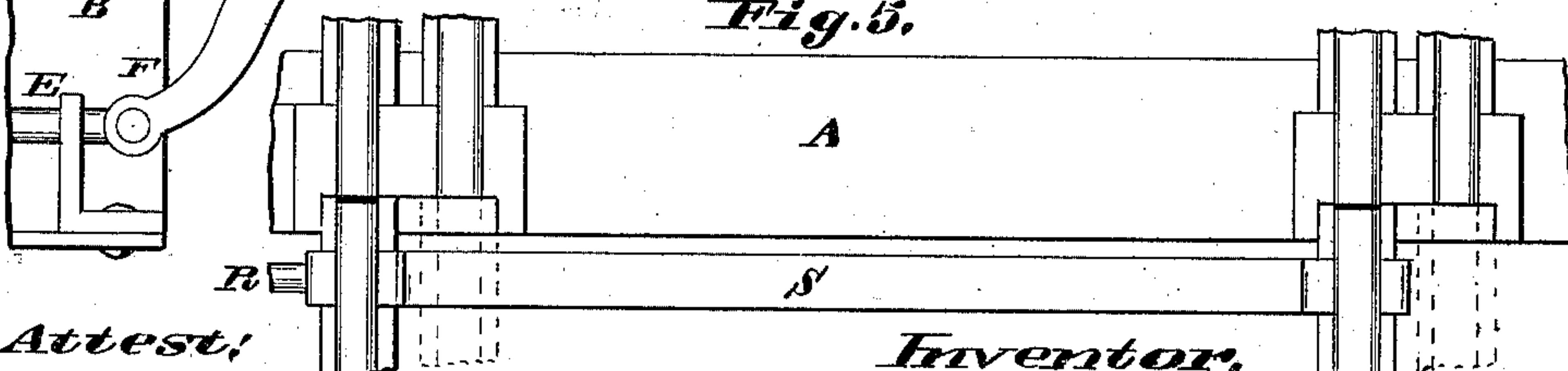
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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## MACHINERY FOR OPERATING RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 330,862, dated November 17, 1885.

Application filed December 13, 1884. Serial No. 150,256. (No model.)

*To all whom it may concern:*

Be it known that I, MORRIS WUERPEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful  
5 Improvement in Machinery for Operating Railway-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 Figure 1 is a top view, part in section. Fig. 2 is a side view. Fig. 3 is an end view. Fig. 4 is a side view showing the attachment of the connecting-rod and switch-bar. Fig. 5 is a detail top view of the switch.

15 A is a timber to which is secured an angle plate or case, B, of metal, to which the operating mechanism is attached. C is a cylinder in which works a piston, D, whose rod E is connected at F to the switch-rod.

20 The construction of the cylinder, with its piston-valve chest G, slide-valve H, cylinder-ports I, and exhaust-port J, are similar to these parts of a common steam-engine, and need not be particularly described. There are  
25 peculiarities, however, in the manner of actuating the slide-valve. The valve-stem K passes through stuffing-boxes L in both ends of the valve box or chest, and each end of the stem carries a plunger, M, working in a cylinder,  
30 N, having a pipe, O, by which the compressed air, steam, liquid, or other medium enters and forces the plunger M toward the valve-chest, forcing the slide-valve and the other plunger with it.

35 The engine C D may be worked by compressed air, steam, liquid, or other medium, as preferred, said medium entering the valve-chest through a pipe, as P, upon one side, and the cylinder exhausting through a pipe, as Q.

40 The switch-rod may be of any suitable form. I claim no novelty therein in this application, but will describe it as shown. R is a part of the rod having an ogee-curve, and extending from the piston-rod to an extension-joint by  
45 which it is connected to the part R' of the rod, which is directly connected to the switch-bar S. The extension-joint has the usual construction—viz., right and left threads on the adjacent ends of the parts R R' of the rods, with  
50 a right and left screw-socket, T, working on these ends.

In order to lock the switch in the position to which it may be set, a cog-rack, U, is secured to the piston-rod, and above the rack are hung two dogs or pawls, V V', one of  
55 which engages the rack in one position of the switch and the other in the other position.

The inactive pawl is sustained by the following mechanism:

W is a curved rod connected to the valve-stem and having an extension-joint, X. The other end of the rod has a pin, Y, occupying a slot, z, in an arm, Z, of a rock-shaft, a, so that the movements of the valve-stem cause the rocking of the shaft.  
65

b b are arms on the shaft, from whose ends depend links c, slotted at the lower ends to receive pins d in the sides of the two pawls V V', the construction being such that the lifting of either of the arms b lifts the pawl to which  
70 it is connected from engagement with the rack U.

e is a bracket going to the support of the pawl mechanism.

As shown in the drawings, the piston is in  
75 its retracted position, and the pawl V prevents the movements of the parts until the valve H is reversed, when the pawl V is lifted out of engagement with the rack U, and the pawl V' lowered, so as to engage the rack. The slots  
80 of the links c allow the pawls to rise over the rack-teeth as the rack moves.

I claim as my invention—

1. The combination, in a railway-switch-moving mechanism, of a rack and two auto-  
85 matic pawls working upon the rack, and device connecting the pawls with the valve-stem K, substantially as and for the purpose set forth.

2. The combination, with the main cylinder and piston, of a slide-valve having a stem pro-  
90 jecting from each end thereof, a piston secured to each of said stems, and a pair of cylinders with supply of motive power independent of that of the main cylinder in which the respective pistons work, substantially as and for  
95 the purposes set forth.

3. The combination, in a railway-switch-moving mechanism, of an engine moving the switch having a rack upon its piston-rod and pawls acting upon the rack and lifted alter-  
100 nately by connection with the valve-stem of the engine.

4. The combination, in a railway-switch-moving mechanism, of a rack and pawls working thereon connected to the arms of a rock-shaft rocked by connection to the valve-stem of the engine.

5. The combination, with the main cylinder and piston, of a slide-valve having a stem projecting from each end thereof, a piston secured to each of said stems, a pair of cylinders with supply of motive power independent of that of the main cylinder, a pair of oppositely-engaging pawls, and connection between said pawls and the valve-stem, whereby one or the other of them is lifted out of engagement at each oscillation of the valve, substantially as set forth,

6. In a railway-switch-operating mechanism, the combination, with a main cylinder and piston and a supply of motive power therefor, of a slide-valve for controlling the admission of said motive power to the said main cylinder and a supply of motive power for moving said valve in each direction, the three supplies being entirely independent of each other, as explained.

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Witnesses:

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GEO. H. KNIGHT.