

(No Model.)

M. WUERPEL.

PNEUMATIC SWITCH FOR RAILWAYS.

No. 398,364.

Patented Feb. 19, 1889.

Fig. I.

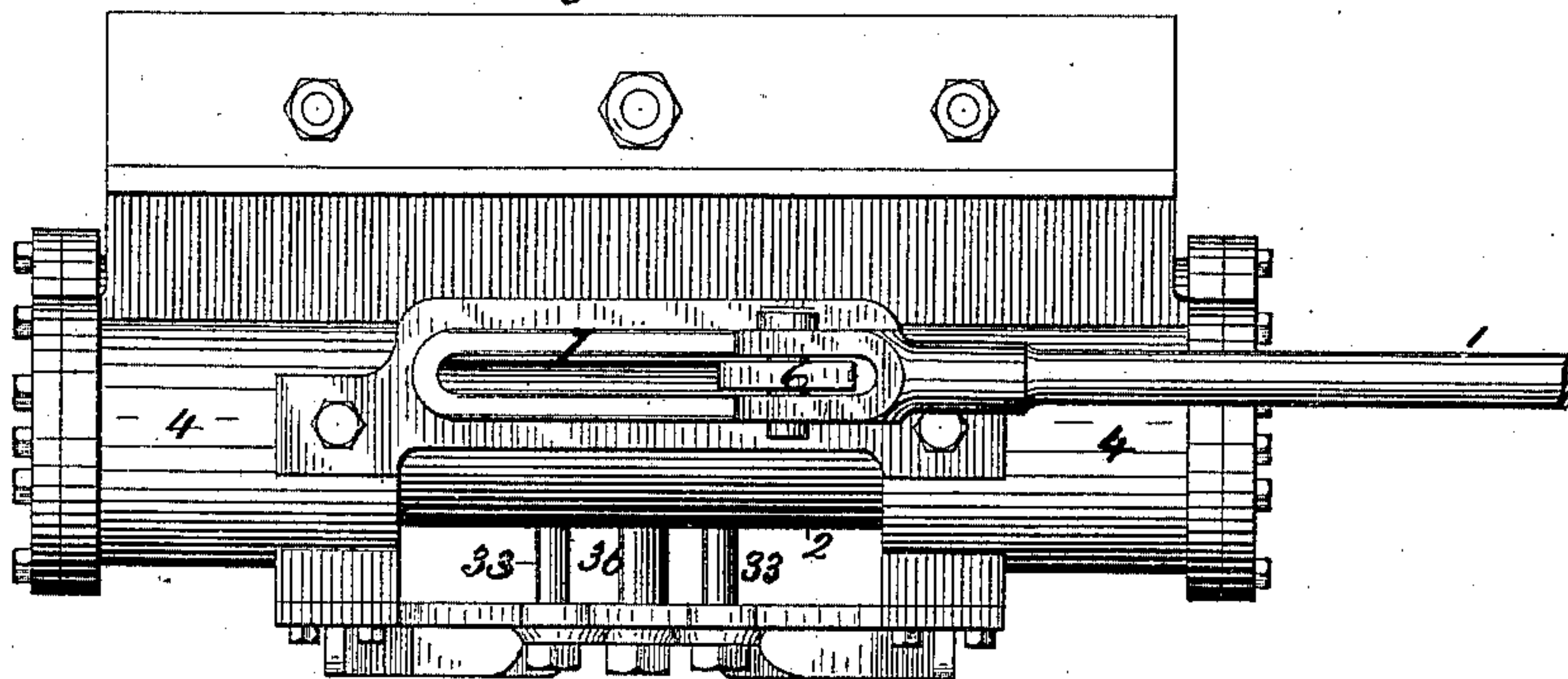


Fig. II.

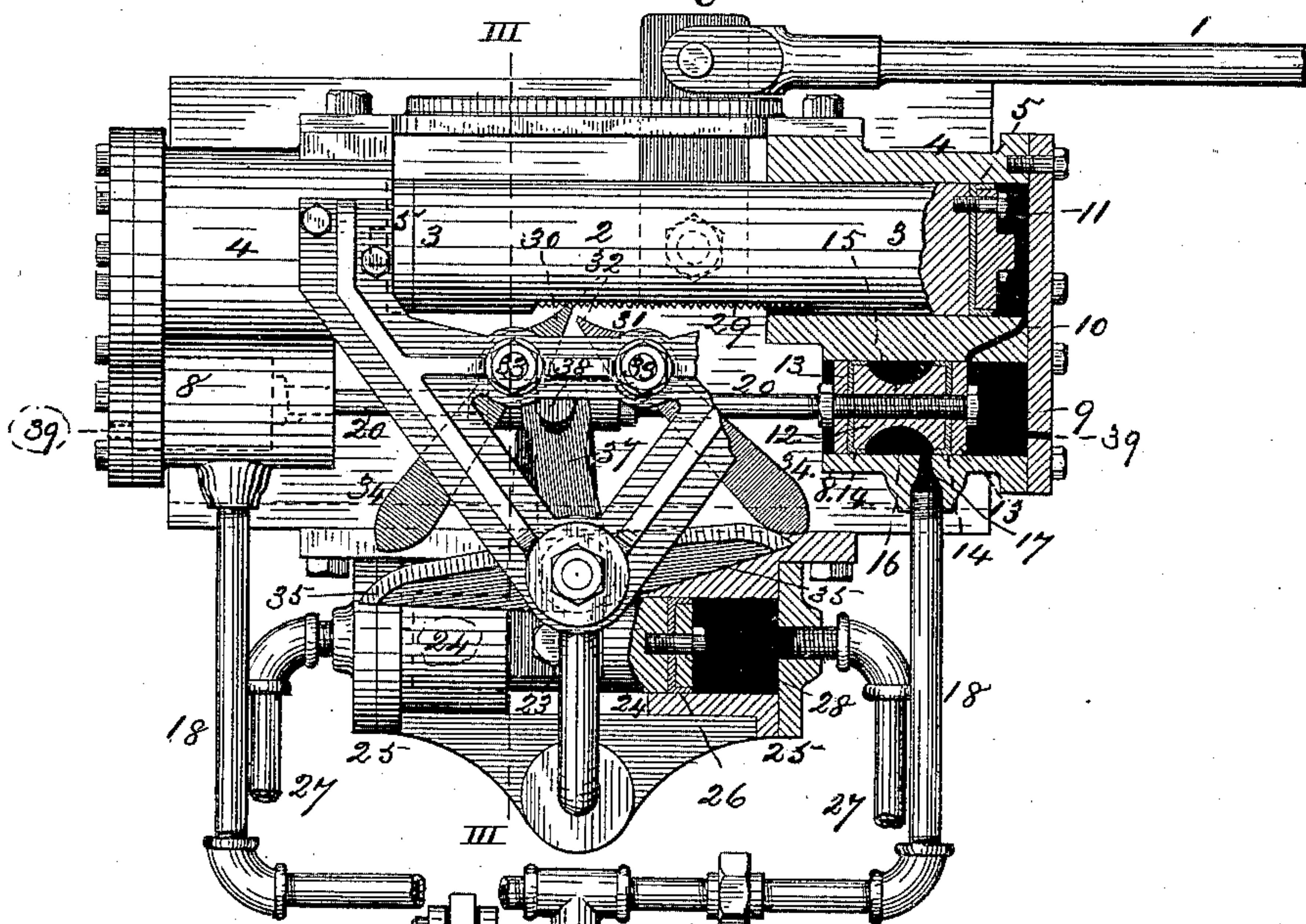
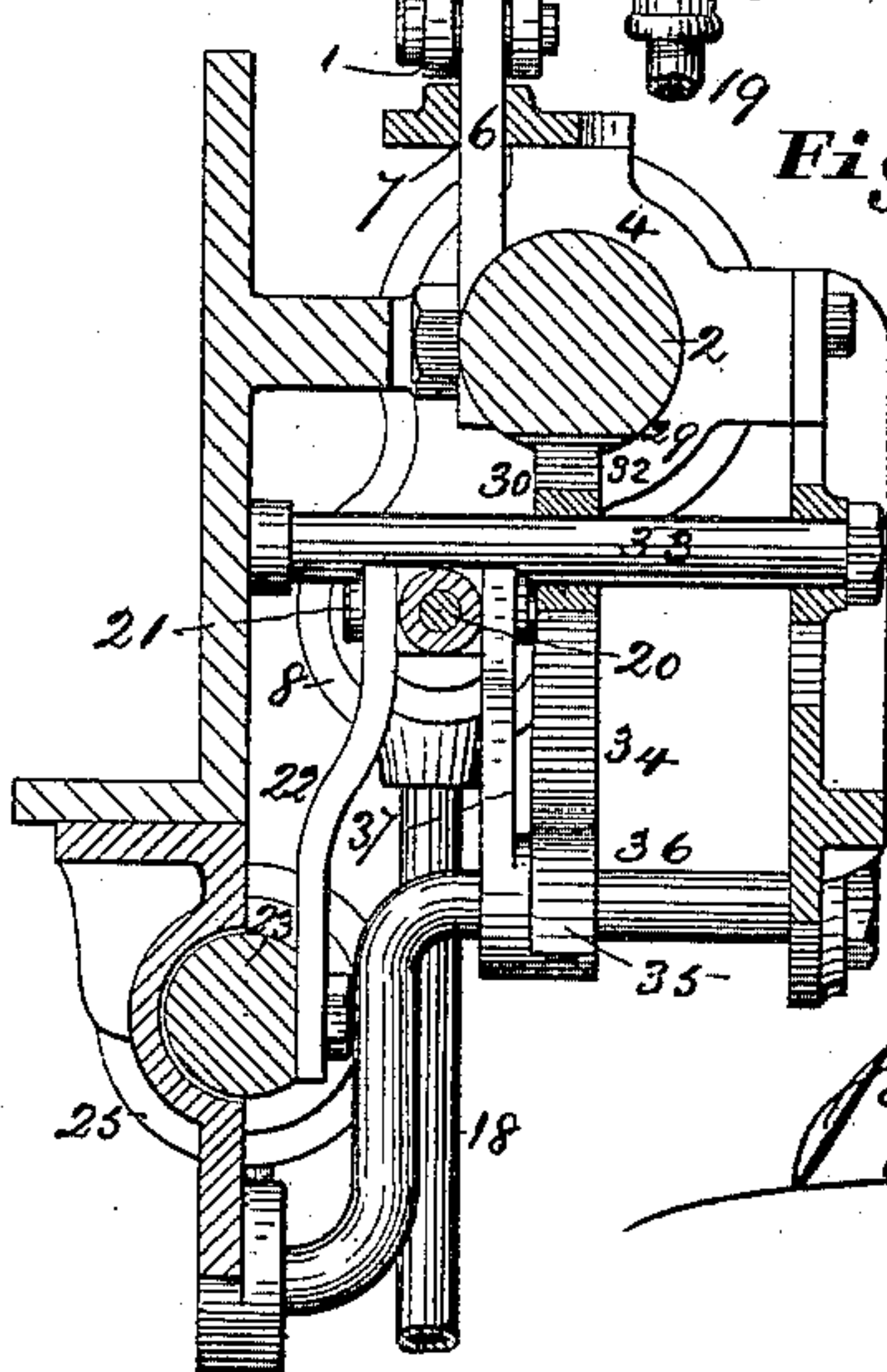


Fig. III.



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MORRIS WUERPEL, OF ST. LOUIS, MISSOURI.

PNEUMATIC SWITCH FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 398,364, dated February 19, 1889.

Application filed April 30, 1888. Serial No. 272,356. (No model.)

To all whom it may concern:

Be it known that I, MORRIS WUERPEL, of the city of St. Louis and State of Missouri, have invented a certain new and useful Improvement in Actuating Devices for 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 This is a device by which railway-switches may be operated from a distance.

Figure I is a top view of the device. Fig. II is a side elevation with parts in section. Fig. III is a transverse vertical section viewed from the left at III III, Fig. II.

1 is the switch-rod or rod to which the moving switch-rails are connected.

2 is a piston having at its ends heads 3, working in cylinders 4, and having cup or other packing 5. The piston has a standard, 6, to which the switch-rod is connected. The standard works in a guide-slot, 7. Cast in one piece with the cylinders 4, or intimately connected therewith, are cylindrical valve boxes or cylinders 8, whose chambers 9 are connected by ports 10 with the chambers 11 of the cylinder 4.

12 are valves working as pistons in the cylinders 8, and having each two heads, 13, with packing 14, fitting the interior of the cylinder, and a waist, 15, of smaller diameter, forming, with the cylinder, an annular chamber, 16. When the valve is in its outer position, the annular chamber 16 is in communication with the port 10, so that air entering the chamber through the passage 17 will enter the chamber 11 in the cylinder 4 and force the piston 2 endwise in the cylinders.

The ports or passages 17 of the two cylinders 8 are in connection with the branches 18 of a pipe, 19, through which air or other fluid may be forced to cause the movement of the switch-piston 2. It will be seen that the direction in which the piston 2 is moved is dependent upon the position of the valves 12. The means for moving the valves will now be described. The valve-stem 20 has upon it a wrist-pin, 21, which occupies a vertical slot in a standard, 22, upon a piston, 23, so that when this piston is moved the valves are moved with it. The piston 23 has at the

ends heads 24, working, each, in a cylinder, 25, and having packing 26.

27 are pipes, through which water or other fluid is forced into the chambers 28 of the cylinders 25. No means are shown of forcing the water or other fluid through the pipes 27 or the air or other fluid through the pipe 19, with its branches 18, nor the valves for controlling and directing the currents, as appliances for these purposes are well known and numerous and form no part of my present invention.

In order to prevent the accidental movement of the switch, I form on the under side of the piston 2 a cog-rack, 29, which is engaged by dogs 30 and 31, to hold the piston to whatever position it may be carried. These dogs have points 32, adapted to engage the rack 29, and are pivoted to the frame at 33. At 34 are extensions forming weights that act to lift up the points against the rack, except when they (the extensions 34) are held up by the tappet 35. The tappet rocks on an arbor, 36, and has an upwardly-extending arm, 37, which is slotted to receive a wrist-pin, 38, on the valve-stem 20. When the valve-stem begins to move into the position shown in Fig. II, the point 32 of the dog 31 is disengaged from the rack 29, so as to allow the movement of the piston 2, the dog 30 at the same time engaging the rack, so as to prevent the opposite movement of the piston and switch until by the movement of the valve-stem 20 in the opposite direction the tappet is reversed and the dog 30 is disengaged from the rack 29, the dog 31 being at the same time engaged with the rack.

In order to allow the water or other fluid to exhaust from the chambers 9 when the valves 12 are moved outward, holes 39 are made in the end of the cylinders 8. The contents of the chamber 11 also find vent through the holes 39 after passing through the passage 10.

This invention is in some respects an improvement on the invention for which Letters Patent No. 330,862 were granted to me November 17, 1885, and the devices therein shown I do not claim in the present application.

I claim—

1. The combination, in a switch-actuating mechanism, of the piston 2, attached to the

switch-rod, cylinders 8, in communication with cylinder 4, the piston-valves 12, actuating double-ended piston connected to the valve-stem 20, cylinders 25, and pipes 27, for
5 the purpose set forth.

2. The combination, in a switch-actuating mechanism, of the double-ended piston 2, attached to the switch-rod and working in cylinders 4, valve-cylinders 8, in connection with
10 the cylinders 4 by ports 10, piston-valves 12,

working in the cylinders 8, the latter having exhaust-ports 39, double-ended piston 24, working in cylinders 25, and pipes 18, 19, and 27, supplying fluid under pressure to work the pistons 2 and 24, for the purpose set forth. 15

MORRIS WUERPEL.

In presence of—

SAML. KNIGHT,
JOS. WAHLE.