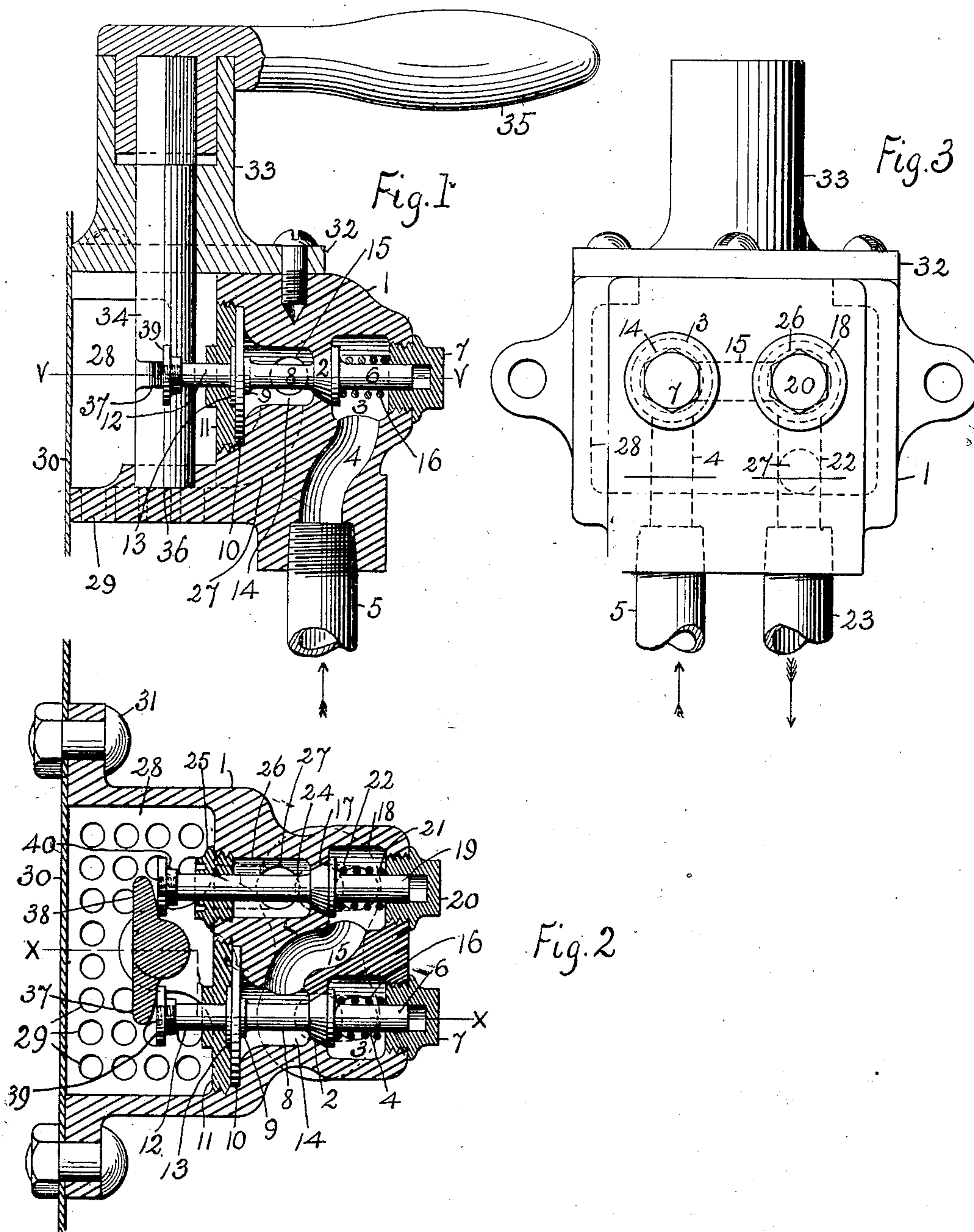


No. 835,468.

PATENTED NOV. 6, 1906.

W. K. RANKIN.  
ENGINEER'S VALVE.  
APPLICATION FILED JAN. 30, 1906.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## ENGINEER'S VALVE.

No. 835,468.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed January 30, 1906. Serial No. 293,693.

*To all whom it may concern:*

Be it known that I, WILLIAM K. RANKIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Engineers' Valves, of which the following is a specification.

This invention relates to means for the control of air-brakes, especially for electrically-driven cars.

The objects sought to be accomplished are double valves, which will be non-leakable, easy to maintain in good workable condition on account of the movable parts being simple in construction, easily removable for inspection, repairs, and renewals, and sensitive in applying and releasing the air-pressure by the employment of separate valves for the application and release of the pressure.

The invention is illustrated in the accompanying drawings, in which similar figures of reference indicate similar parts throughout the views, and in which—

Figure 1 is a section on line X X, Fig. 2. Fig. 2 is a section on line V V, Fig. 1, some parts not being in section. Fig. 3 is a view of the front of the case.

In a case 1 there is an admission-valve 2, horizontally-disposed, with a horizontally-disposed chamber 3, into which leads a port 4 from a pipe 5, which is in communication with the air-reservoir. (Not shown.) The valve has a stem 6 at its back face, which is guided in a cap-nut 7, screwed into case 1, and a stem 8 at its inner face, which has a flange 9 abutting a flexible diaphragm 10, preferably of rubber, secured air-tight to the case 1 by a flange-nut 11, screwed into the case 1. In alignment with stem 8 is a stem 12, guided in nut 11 and having a flange 13 against diaphragm 10 opposite flange 9. Between valve 2 and diaphragm 10 there is a horizontally-disposed chamber 14, with a port 15 leading therefrom. A spring 16 is placed over stem 6 between valve 2 and cap-nut 7.

In the case 1 oppositely to valve 2 there is an exhaust-valve 17, with a horizontally-disposed chamber 18 in communication with port 15 from chamber 14. The valve has a stem 19, guided in cap-nut 20, with a spring 21 over the stem and between the valve and nut. From chamber 18 a port 22 leads to

pipe 23 in communication with the jam-cylinders of the brake. Valve 17 has an inner stem 24, guided by a flange-nut 25, screwed to case 1. Between valve 17 and nut 25 there is a horizontally-disposed exhaust-chamber 26, having a port 27 leading into the muffler 28, formed in case 1 opposite the valves and having multiple apertures 29, through which the exhaust inaudibly escapes.

The case 1 is represented as being secured to the car-dasher 30, which forms a side of the muffler, by bolts 31; but it may be supported by its pipes 5 23, independent of the dasher 30, in which case bolts 31 will secure a back plate instead of the dasher. Above muffler 28 there is secured a flange 32, with a hub 33 for the shaft 34 of the operative handle 35, the handle being secured to the shaft for easy removal when the brake is not in use. Shaft 34 is stepped in the muffler 28 of case 1 at 36 opposite stem 12. Shaft 34 has a projecting arm 37, and opposite stem 24 it has another projecting arm 38. Stem 12 has a removable flange 39, and stem 24 has a removable flange 40, both circular in form, against which arms 36 37 abut, only a slight movement of handle 35 being necessary to operate the valves, owing to the proximity of the edges of flanges 39 40 to the shaft 34.

When air is to be admitted to the jam-cylinders, the handle 35 will be moved to press arm 37 against flange 39 of stem 12, which will open valve 2 and allow the air in the reservoir to pass through pipe 5, port 4, chamber 3, ports 15 22, to pipe 23 and to the jam-cylinders, and apply the brake. When the brake is to be released, the handle 35 will be turned the reverse way, causing arm 38 to press against flange 40 of stem 24, when valve 17 will open communication between pipe 23, chambers 18 26, and port 27 to muffler 28. When both valves 2 17 are to be closed and inoperative, handle 35 will either be removed or remain central.

The springs 16 21 and the air-pressure in chamber 3 against the back of valve 2 will cause the valves to be closed and inoperative automatically when handle 35 is removed, and shaft 34 being below or flush with the top of hub 33 will prevent any operation of the valves except by the application of handle 35.

I claim—

1. In an engineer's valve, a case, an inlet-



valve, horizontally disposed between two horizontal chambers at one side of the case, one of said chambers being in communication with an air-reservoir; an outlet-valve  
5 also horizontally disposed between two horizontal chambers at the opposite side of the case, and parallel to the inlet-valve and its chambers, one of said chambers being in communication with a chamber of the inlet-  
10 valve, and having connections to brake jam-cylinders, and means to operate the valves for the purposes set forth.

2. In an engineer's valve, a case, a connection thereto from an air-reservoir, a connection therefrom to brake jam-cylinders; a  
15 horizontal chamber in communication with the reservoir connection, a horizontal inlet-valve in the chamber, a stem from the valve and abutting a flexible diaphragm located in  
20 a chamber under the valve; a horizontal chamber in communication with the jam-cylinder connection, a passage therefrom to a chamber under the inlet-valve, an exhaust-  
25 valve in the jam-cylinder chamber, a chamber under the valve, a muffler having com-

munication with the chamber under the valve, resilient means for closing the valves, a shaft having arms to move the valves, a handle engaging the shaft so that, when  
turned in one direction one of the valves is  
30 opened and the other remains closed, and vice versa.

3. In an engineer's valve, a case, a horizontal inlet-valve at one side of the case and a horizontal outlet or release valve therein, at  
35 the opposite side of the case, in parallel alignment; a horizontal chamber located at each side of each valve, a stem for each valve, an air-inlet to one of the valves, and an air-outlet from the other valve, a passage from the  
40 inlet to the outlet valve, a shaft having separate arms to operate the valves, and a handle to operate the shaft, and a muffler wherein the shaft is located.

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

WILLIAM K. RANKIN.

Witnesses:

WILLIAM C. STOEVER,  
RANSOM C. WRIGHT.