No. 804,909. PATENTED NOV. 21, 1905.

H. W. YOUNG.

ENGINEER'S VALVE.

APPLICATION FILED MAR. 1, 1905.

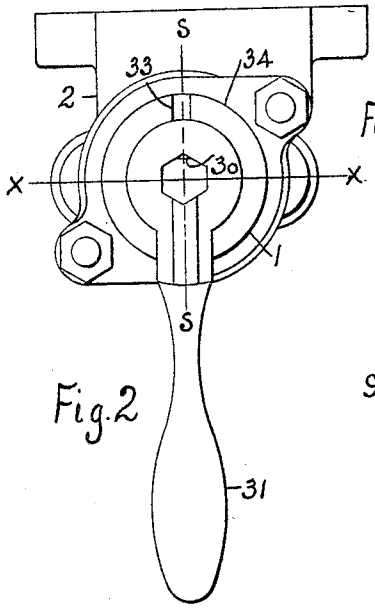


Fig. 2

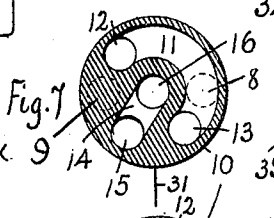


Fig. 7

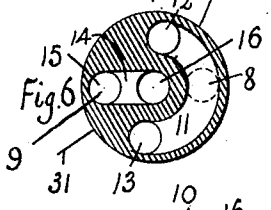


Fig. 6

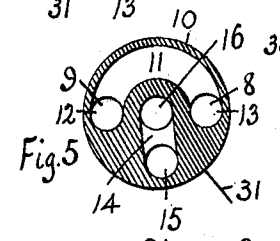


Fig. 5

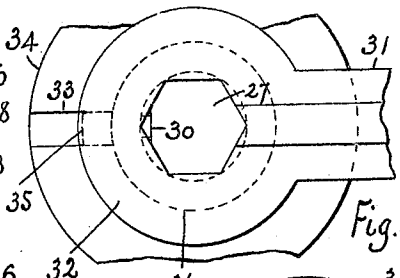


Fig. 8

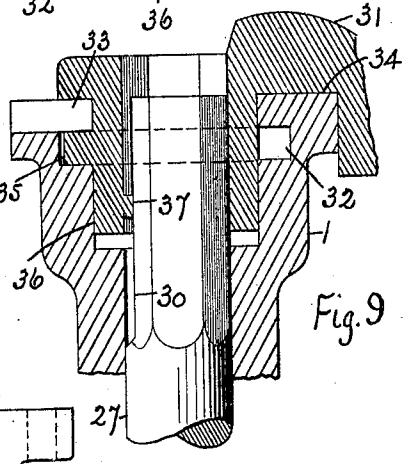


Fig. 9

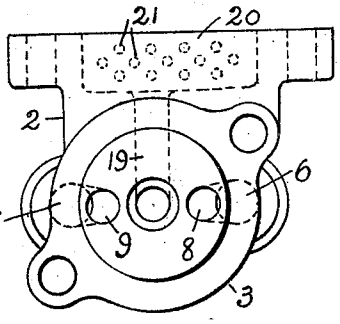


Fig. 4

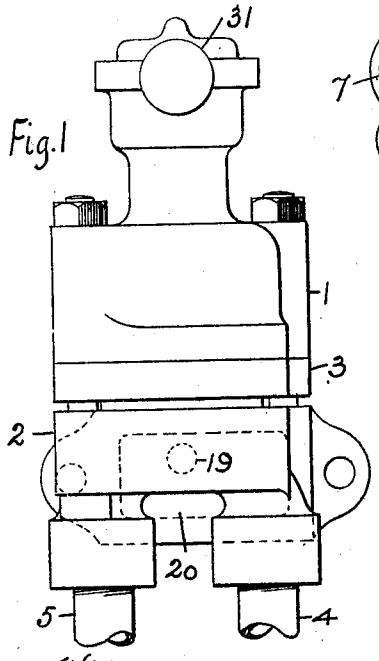


Fig. 1

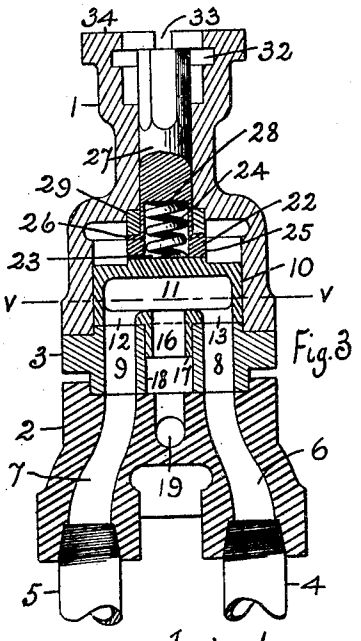


Fig. 3

Witnesses

E. J. Bradley

Elizabeth Hinkley

Inventor

Harry W. Young

By R. C. Wright Atty.

UNITED STATES PATENT OFFICE.

HARRY W. YOUNG, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN E. REYBURN, OF PHILADELPHIA, PENNSYLVANIA.

ENGINEER'S VALVE.

No. 804,909. Specification of Letters Patent. Patented Nov. 21, 1905.

Application filed March 1, 1905. Serial No. 247,986.

To all whom it may concern:

Be it known that I, HARRY W. YOUNG, 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, more especially for electric cars for urban and interurban service, and has for its object the construction of a valve which will be balanced against tilting on its seat, so that it will wear evenly, and the air-pressure will thereby be prevented from escaping, and the air when being exhausted will escape through a passage at the center of the valve, so that no undue pressure can be exerted at the valve's edge. The valve is also provided with another internal double-ported passage for the air from the reservoir to the brake-cylinders. The stem by which the valve is operated together with the removable handle for operating the stem are constructed in manner to prevent the valve being tampered with, the upper part of the stem being hexagonal-shaped with one vertex flattened, and an internal projection within the hub of the handle prevents its being removed from or put on the stem except when the brake is out of service, and other features which will be further described.

The invention is illustrated in the accompanying drawings, in which like parts are designated by similar reference characters, in which—

Figure 1 is a front elevation. Fig. 2 is a top view. Fig. 3 is a section on line *x x*, Fig. 2. Fig. 4 is a plan view of the valve-seat on the lower part of the case. Fig. 5 is a section of the valve on line *v v*, Fig. 3, as when set to admit air to the brake-cylinders. Fig. 6 is the same section as Fig. 5 with the valve as set to release the air from the brake-cylinders. Fig. 7 is the same section as the two previous views with the valve as set to close all the ports or at "stop," as in Figs. 1, 2. Fig. 8 is a top view of the valve-stem and the hub of the handle. Fig. 9 is a section through the handle-hub and the top of the upper case on line *s s*, Fig. 2.

The valve-case comprises an upper part 1 and a lower part 2, between which is secured valve-seat 3. Pipe 4 leads from the air-reservoir, and pipe 5 leads to the brake-cylinders, and through ports 6 7 in part 2 and ports 8 9 in valve-seat 3 they are put into communication or cut off by valve 10. Valve 10 is a disk with an internal port 11, which at 12 13 opens through the bottom of the valve, and an internal port 14, which has an opening 15 through the bottom of the valve concentric with openings 12 13 and an opening 16 through a central hub 17 at the bottom of the valve, which fits into an opening 18 in valve-seat 3 in communication with port 19 in part 2, leading to the muffler 20, which is preferably secured to the dasher of the car and is provided with multiple small exits 21 to deaden the noise of the escaping air. Thus it will be seen that valve 10 is a solid disk except as to its ports 11 14 and their openings 12 13 15 16. At the top of the valve is an annular ring 22, forming a pocket 23 for spring 24. Ring 22 is cut away on opposite sides to receive projections 25, reaching down from a collar 26, formed on stem 27, the engagement of projections 25 with ring 22 being the means by which stem 27 turns valve 10. Spring 24 passes upward into a pocket 28 within stem 27, and part 1 has a removable wearing-ring 29, which bears on collar 26 of the stem. Stem 27 at its lower end is of circular section, and its upper end is a polygonal section within the diametral limits of the lower end, except that one vertex is cut away to form a flattened surface 30, the part 30 being in the position shown in Fig. 2 when the brake is inoperative and the only position in which handle 31 can be removed or attached. Within the upper part of part 1 is a groove 32, with a slot 33 therefrom through top 34, and a projection 35 on the outside of hub 36 passes through slot 33 as the handle is put on or taken off, and when on and turned the handle cannot be removed until the projection is again at the slot. To insure the valve being at its inoperative position when the handle is removed, a projection 37 extends within the hub 36, which can only pass the flattened part 30 of stem 27, and being in the same plane as the outer projection 35 the stem and handle can only be separated or united when projections 35 and 37 are opposite slot 33, at which time valve 10 has all ports and openings covered and inoperative.

I claim—

1. In a valve, a case therefor, and a rotatable disk valve having two distinct and separate ports formed within its interior, one of said ports being curvilinear, near its periphery, with an opening at each end through the bottom of the valve, and the other port being radial, with one opening through the bottom of the valve at its center, and the other opening concentric with the openings of the opposite port and means whereby the valve may be rotated to place the ports aforesaid in operative and inoperative relation with the ports of the valve seat and case.

2. In a valve, a case, a valve within the case having separate and independent ports within its interior and adapted to communicate with ports in the case, a stem engaging the valve for its rotatable movement, the upper part of the stem being formed polygonal, with a flattened vertex; a handle for the stem having a hub with a polygonally-formed interior adapted to fit over the stem, a projection within the hub which will only allow the hub to pass onto the stem when its flattened portion is opposite thereto, and at which time the valve is in inoperative position, and means to prevent the removal or replacing of the handle from the stem and case-top except when the valve is in its inoperative position.

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

HARRY W. YOUNG.

Witnesses:

R. C. WRIGHT,

WILLIAM C. STOEVER.