W. C. WESTAWAY.

VAPORIZING VALVE.

APPLICATION FILED OCT. 7, 1907.

1,068,830.

Patented July 29, 1913

2 SHEETS—SHEET 1.

Fig. 1.

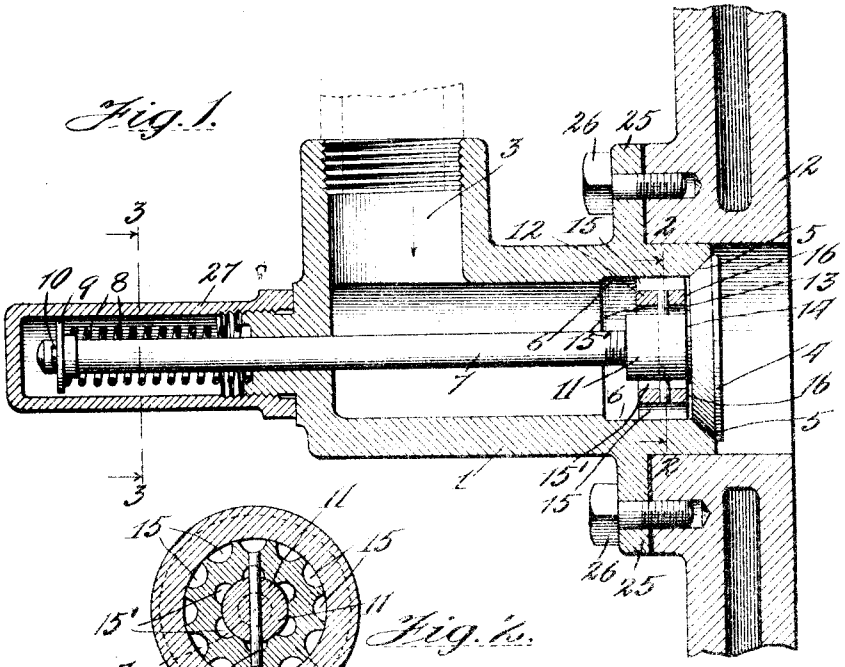
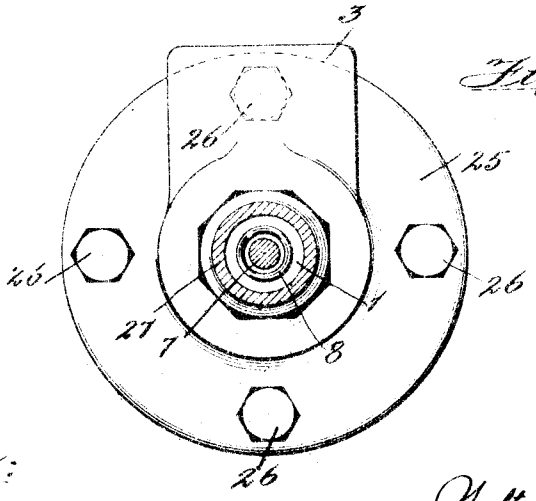


Fig. 2.

Fig. 3.



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 4.

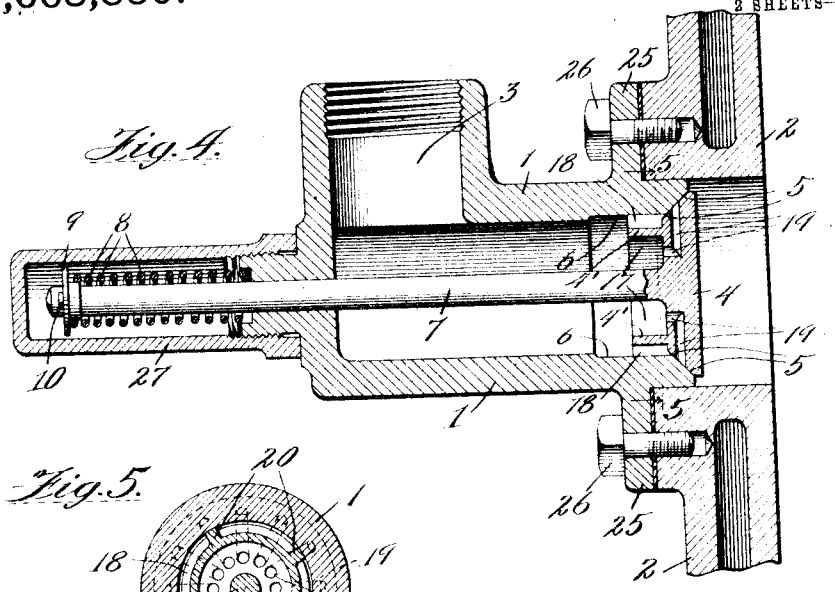


Fig. 5.

Fig. 6.

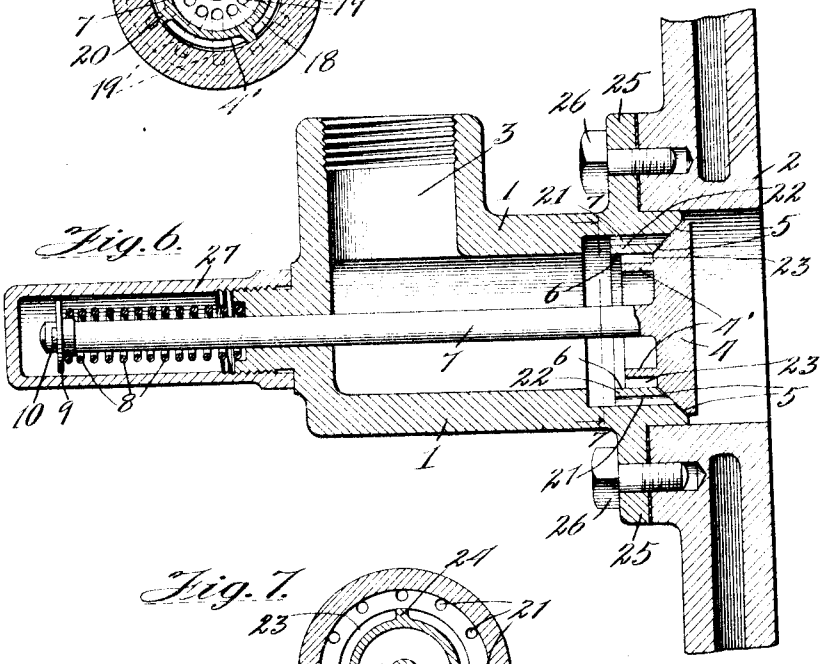
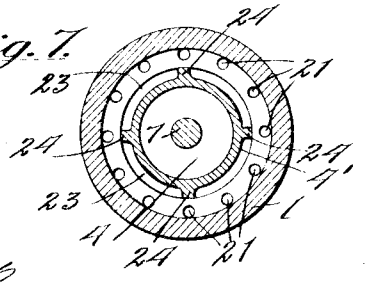


Fig. 7.



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UNITED STATES PATENT OFFICE.

WALTER C. WESTAWAY, OF ROCKFORD, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO CHICAGO PNEUMATIC TOOL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

VAPORIZING-VALVE.

1,068,830. Specification of Letters Patent. Patented July 29, 1913.

Application filed October 7, 1907. Serial No. 396,320.

To all whom it may concern:

Be it known that I, WALTER C. WESTAWAY, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Vaporizing-Valves, of which the following is a description.

My invention belongs to that class of devices known as valves, and particularly to that class of valves designed to assist in or to substantially complete the commingling or vaporizing of fluids passing through the same, and has for its objects the production of a cheap, simple and efficient device of the kind described.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawings wherein like reference characters indicate like or corresponding parts, Figure 1 is a longitudinal sectional view of my preferred form of device; Fig. 2 is a cross-sectional view of the same taken substantially on line 2—2 of Fig. 1; Fig. 3 is a cross-sectional view of the same taken substantially on line 3—3, Fig. 1; Fig. 4 is a longitudinal sectional view of a modified form of my device; Fig. 5 is a cross-sectional view of the same taken substantially on line 5—5, Fig. 4; Fig. 6 is a longitudinal sectional view of another slightly modified form of my device, and Fig. 7 is a cross-sectional view of the same taken substantially on line 7—7 of Fig. 6.

Referring to the drawings, Fig. 1 shows my preferred form of device as applied on the intake port of a gas engine 2, or the like. As shown, a suitable casing member 1, having an inlet 3 therein is secured to the engine 2 in proximity to the port opening. The casing may be secured to the cylinder of the engine in any preferred or suitable manner, preferably by extending the casing as at 25 and securing the same in position by screws or bolts 26 or their equivalents for the purpose. The casing is provided with a valve seat face 5 on which seats the movable valve member 4, the valve member having an extended stem 7 as shown. The valve member 4 is normally held on the seat 5 by means of the spring 8 or its equivalent. 9 is a member secured on the stem 7 by means of the pin 10 or the like adapted to engage the spring 8. As the piston of the engine operates, the fluids, which have preferably been previously commingled or vaporized in some suitable form of carbureter, enter in at inlet 3 and pass between the valve and its seat into the cylinder, the difference in pressure at opposite sides of the valve caused by the movements of the piston controlling the movements of the valve and the passage of fluid therethrough.

My preferred form of construction is arranged to divide the passing fluids which are commingled into a plurality of currents so that they form a number of opposing currents tending to more thoroughly and completely commingle or vaporize the same.

In the form shown in Fig. 1 a member 12 provided with a plurality of openings 15 and 15′ is arranged on the enlarged portion 11 of the valve stem. The member 12 is arranged on the portion 11 of the valve stem so as to leave an opening between the member 12 and the valve member 4, as shown at 16. In the preferred form a shoulder 14 is provided on a valve member 4 and the member 12 arranged thereon and secured by means of a pin 13 or its equivalent for the purpose. As the fluids pass through the valve, a portion passes through 15 and a portion through 15′ and 16, where they can meet and pass into the cylinder of the engine. As is obvious, member 12 may be made integral with the member 4 if desired, and that there may be any number of openings 15 and 15′. The valve member 4 is guided by member 12 contacting with the surface 6 of the casing, and a suitable cap 27 is provided to cover the extended end of the stem 7 and spring 8.

In the form shown in Figs. 4 and 5 the valve member 4 is extended as at 4′ and arranged to permit the fluids to pass through 18 and through the openings 17 and 19 so that they will meet in the opposing currents as before described, and more completely vaporize the fluids.

While the duct 19 is shown extended to the valve seat, it is obvious that it might open into the passageway 18. In this form the extended portion 4′ of the valve mem-

ber 4 is provided with lugs or extensions 20 arranged to guide the valve member to its position on its seat.

Figs. 6 and 7 also show a modified arrangement in that the casing 1 is provided with a plurality of channels or ducts 21. In this form the mixture is divided into currents, by the walls 22 of the casing as it passes through the openings or passageways 21 and 23, forming currents as before described. In this form the valve member 4 is also provided with the guiding lugs 24 arranged to contact with the face 6 of the casing 1.

As it is obvious that my form of valve may be used in combination with other forms of devices rather than a gas engine or the like, I wish to be understood as not limiting the same to that special use, and in the claims, by the word "fluid" I wish to be understood as meaning either the fluids or the mixture of the same after it has passed through some preferred form of carbureter.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the form or construction shown without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact form or construction shown.

What I claim and desire to secure by Letters Patent is:

1. In a device of the kind described and in combination, a casing provided with an inlet and outlet with a valve seat at said outlet, a movable valve member coöperating with said seat arranged at said outlet, said valve member provided with a member spaced therefrom arranged adjacent thereto on the stem thereof, said member provided with a plurality of perforations therethrough and with a plurality of substantially longitudinal grooves on the exterior thereof.

2. In a device of the kind described and in combination, a casing provided with an inlet and outlet with a valve seat at said outlet, a movable valve member coöperating with said seat arranged at said outlet, said valve member provided with a collar arranged on the stem and spaced from the valve member, said collar provided with longitudinal grooves on the exterior and interior thereof, means for securing said collar on the valve stem and means tending to normally resiliently maintain said valve in a closed position.

3. In a device of the kind described and in combination, a casing provided with an inlet and outlet, with a valve seat at said outlet, a movable valve member coöperating with said seat arranged at said outlet, said valve member provided with a removable collar arranged adjacent thereto on the stem thereof, means for spacing said collar and valve member, said collar provided with longitudinal grooves on the exterior and interior thereof, means for securing said collar on the valve stem and means tending to normally maintain said valve in its closed position.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

WALTER C. WESTAWAY.

Witnesses:
A. E. FISHER,
BLANCHE PARDRIDGE.