

J. P. WALSH.
ENGINE VALVE.
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1,063,482.

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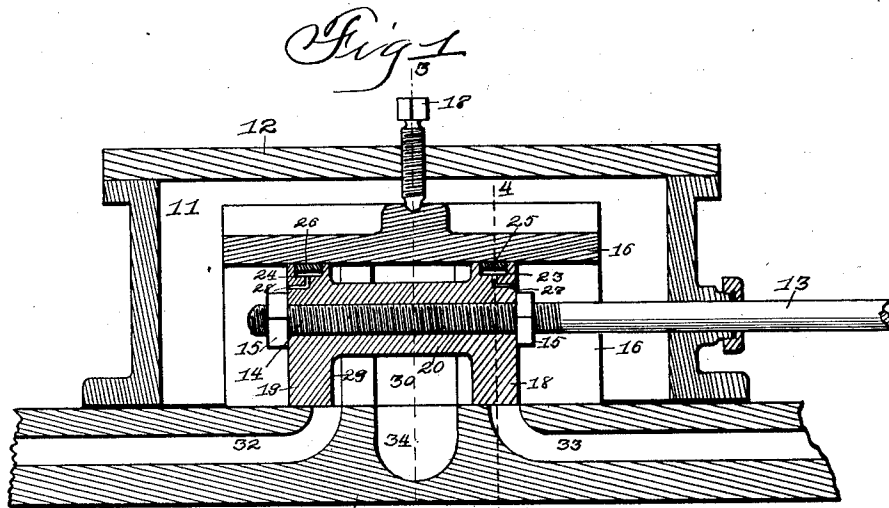


Fig 11

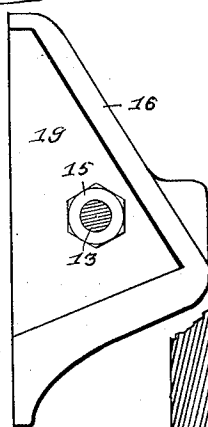


Fig 1V

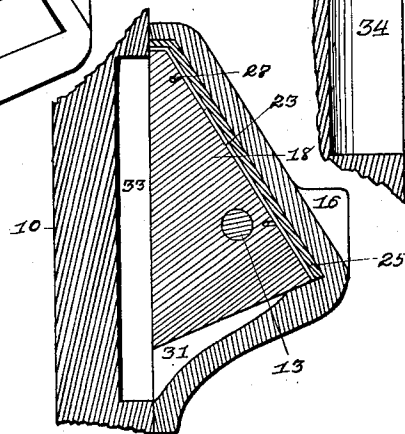
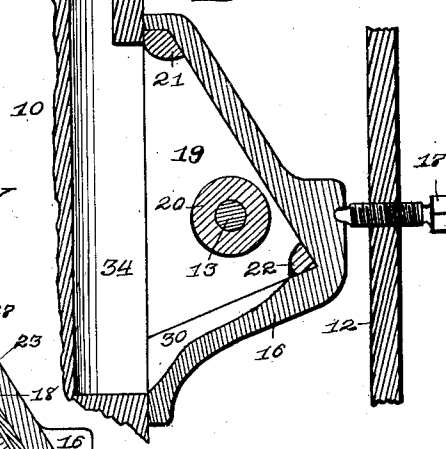


Fig 111



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UNITED STATES PATENT OFFICE.

JAMES P. WALSH, OF MARENGO, IOWA.

ENGINE-VALVE.

1,063,482.

Specification of Letters Patent.

Patented June 3, 1913.

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To all whom it may concern:

Be it known that I, JAMES P. WALSH, a citizen of the United States, residing in Marengo, county of Iowa, and State of Iowa, have invented a new and useful Improvement in Engine-Valves, of which the following is a specification.

The object of my invention is to provide an evenly balanced, non-leaking, reciprocating, slide valve in a steam chest which will accurately admit live steam, alternately, to the cylinder ports and also at proper intervals, connect the ports to the exhaust.

Another object is to provide means for utilizing the steam in constructing a non-leaking valve.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims and illustrated in the accompanying drawings, in which—

Figure I shows a horizontal sectional view of my improved device, steam chest and cylinder, in working position; Fig. II is an end view of my improved valve and guide; Fig. III is a sectional view taken on the line 3—3 in Fig. I, and looking in the direction indicated by the arrows; and, Fig. IV shows a sectional view taken on the line 4—4 in Fig. I, looking in the direction indicated by the arrows.

Referring to the accompanying drawings the reference numeral 10 is used to indicate the wall of an expansion engine cylinder, and the numeral 11 a steam chest mounted thereon, said steam chest being provided with a cover 12. Entering the steam chest, from one end thereof, is a valve stem 13, screw threaded as shown at 14 and having a valve, hereinafter described, adjustably mounted on its inner end and held in position, in the proper relation thereto, by means of the nuts 15.

The numeral 16 indicates a covering for my valve, which is held securely in position against the cylinder wall 10, by means of the set screw 17 which has a bearing in the cover 12. The valve covering 16 is designed as a guide to keep the valve in alinement.

The valve is constructed of two end members, 18 and 19, similar to each other and trapezium shaped, and they are joined, and held in fixed relation to each other, by the hollow cylinder, 20, through which the valve stem 13 is projected, and the bars 21 and 22. The trapezium shaped end members are pro-

vided with grooves, 23 and 24 respectively, in two of their outer surfaces, as shown, and mounted in said grooves are the metal strips 25 and 26, respectively, said strips being of less thickness than the depths of the said grooves.

The numerals 27 and 28 indicate small, pin hole ports entering from the outer surfaces of the members 17 and 18 respectively, and continuing to openings into the bottom of the grooves 23 and 24 respectively.

The cover or guide, 16 is formed with chambers 29, 30 and 31, the chambers 29 and 31 being in alinement with the live steam ports 32 and 33, respectively, in the cylinder wall 10, as shown, and the chamber 30 being in alinement with the exhaust port 34 in the cylinder wall. The function of the chambers 29, 30 and 31, is to maintain the capacity of the ports in the engine cylinder since the width of the valve face is less than the length of said ports.

The operation of my device is as follows:—The steam chest 11 is supplied, in the ordinary manner, with an expansive gas, or vapor, such as steam, under pressure. The valve is oscillated by the stem 13 to such position as will allow live steam to enter the ports 32 and 33, alternately, and connect, at proper intervals, the ports 32 and 33 with the exhaust port 34. The construction of my device is such that the valve is never working under unbalanced pressure, since the only surfaces that can be affected by the steam pressure are the two opposite ends. The end members, 18 and 19, are packed against a possible leakage of live steam into the exhaust port, by live steam entering the small, pin hole, ports 27 and 28, creating a pressure under the strips 25 and 26, respectively, in the grooves 23 and 24, respectively, forcing the strips tight against the two sides of the covering, or guide, and the end members 18 and 19, back against the other two sides.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:

In combination with a cylinder having an inlet, outlet and an exhaust between the inlet and outlet, a valve in said cylinder composed of two spaced and connected triangular end members, a cover in the cylinder having its interior of triangular cross-section, the rear side wall of said cover being formed with three chambers arranged so

that one of same alines with the inlet, another with the outlet and the remaining one with said exhaust of the cylinder, each of said chambers extending from a point adjacent the apex of the triangular cover at the rear side wall thereof through the base of the said rear side wall of said cover, the front side wall of the cover being turned downwardly and seating on the cylinder, a bar at the apex of said valve end members

that conformably engages in the apex of the cover, and a second bar at the lower front end of the valve end members that engages the cylinder, the front side wall of the cover and said downturned portion thereof.

JAMES P. WALSH.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."