J. Y. PORTER, Jr.

VALVE GRINDER.

APPLICATION FILED APR. 9, 1910.

983,084. Patented Jan. 31, 1911.

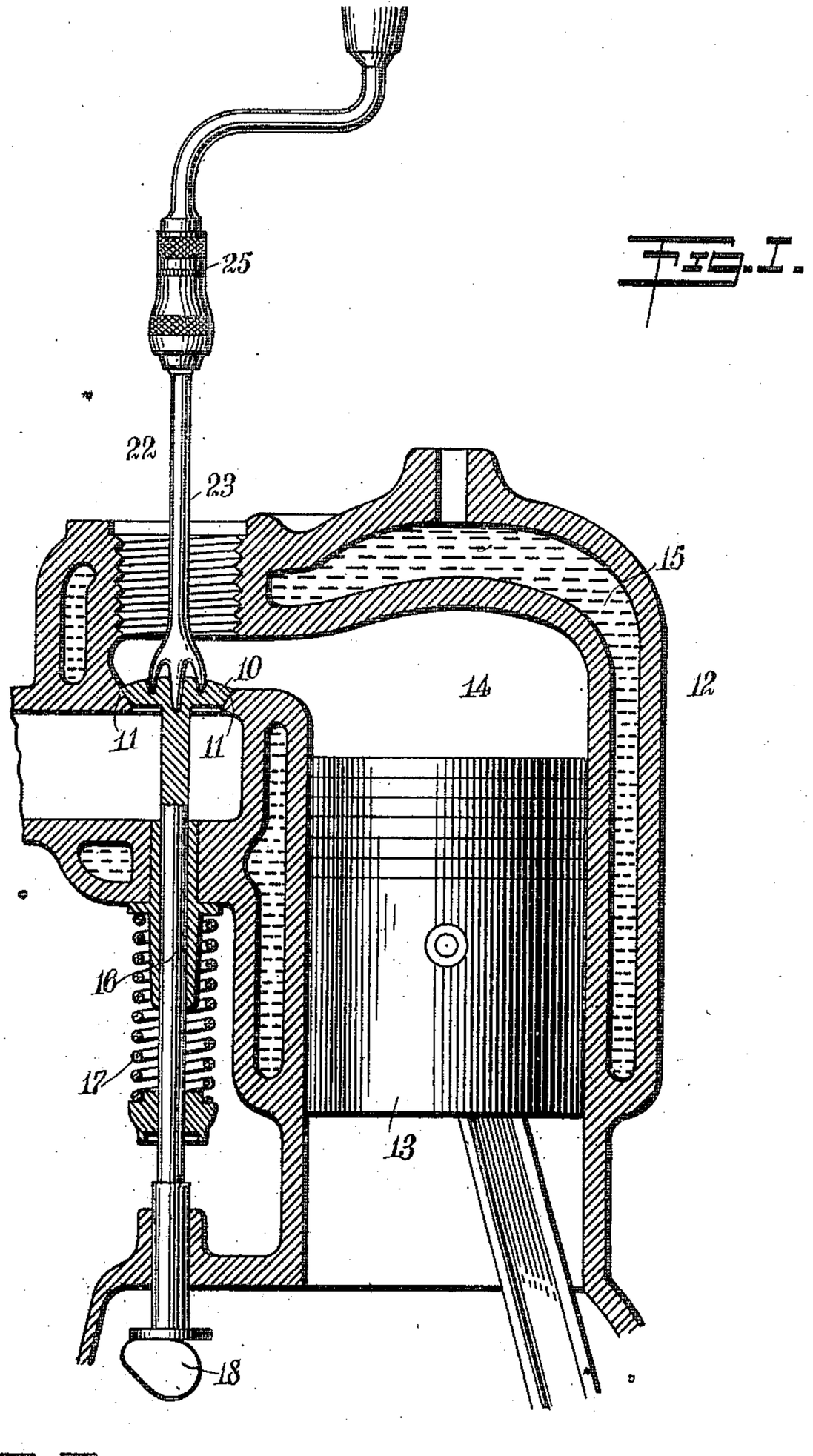

Fig. 1.

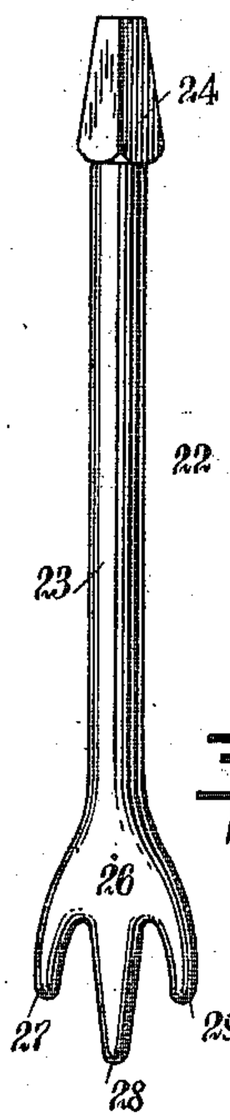

Fig. 2.

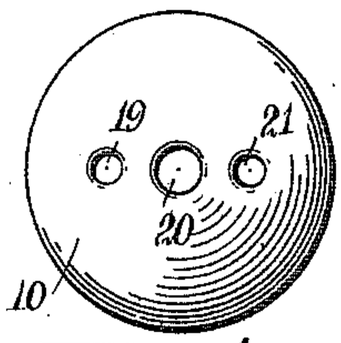

Fig. 4.

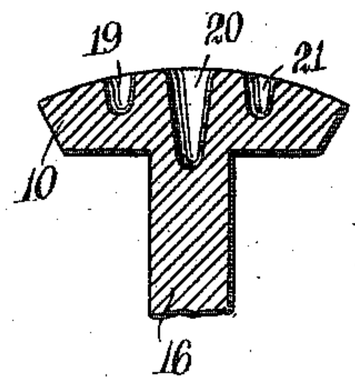

Fig. 3.

WITNESSES:

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VALVE-GRINDER.

983,084. Specification of Letters Patent. Patented Jan. 31, 1911.

Application filed April 9, 1910. Serial No. 554,417.

To all whom it may concern:

Be it known that I, JOSEPH Y. PORTER, Jr., a citizen of the United States, and a resident of Knights Key, in the county of Monroe and State of Florida, have invented a new and Improved Valve-Grinder, of which the following is a full, clear, and exact description.

The object of the invention is to provide a grinder for grinding valves and their seats, to secure a perfect fit between the valve and its seat.

For the purpose mentioned, use is made of a shank having depending prongs, one of the prongs being longer than the others, and a valve having holes therein, one of the holes being deeper than the others, the said prongs being adapted to engage the said holes in the valve, so that the longer prong depends to the bottom of the deeper hole and the remaining prongs extend a distance into the remaining holes.

Reference is to be had to the accompanying drawings constituting a part of this specification, in which similar characters of reference denote corresponding parts in all the views and in which—

Figure 1 is a sectional side view of an internal combustion engine and showing my device as applied to a valve of the engine; Fig. 2 is a side elevation of my invention; Fig. 3 is a fragmentary sectional side view of the valve to which my device is adapted to be applied; and Fig. 4 is a plan view of the valve.

In grinding gas engine valves, it is necessary that the valve be ground in its seat with some substance, such as fine emery and oil, interposed between the seat and the valve. In this manner a perfect seat can be obtained, that will hold the pressure exerted by the gasolene vapor and air. The usual operation performed to obtain this result is to employ an ordinary screw-driver, inserting the end of the same in a slot in the top of the valve and turning it backward and forward, or an ordinary carpenter's brace equipped with a screw-driver bit can be used, but with these tools the valve is very seldom ground perfectly true, due to the varying pressure and the different angles at which the screw-driver is held.

In my device I not only employ a tool adapted to grind a valve and seat to obtain a true fit, but if there should be a deviation in the use of the tool, the grinding will not in any way, be affected, thus making it possible for a novice to use my device and obtain the best results.

Referring more particularly to the various views, I show a valve 10 mounted on a valve seat 11 of an internal combustion engine 12, having a piston 13 mounted to operate in a cylinder 14, and a water jacket 15 inclosing the cylinder 14, and the said engine having suitable admission and exhaust chambers common to most engines of this type. A valve stem 16 is formed integral with the valve 10 and is controlled by a spring 17 and operated by a cam 18. In the valve 10 three holes 19, 20 and 21 are formed, the holes 19 and 21 extending a short distance into the valve and the hole 20 extending a greater distance into the valve and terminating in the valve stem 16, as will be seen by referring to Fig. 3. A tool 22 is provided, having a shank 23 and tapered securing means 24 for engagement with a brace 25, to permit of conveniently operating the tool 22. A head 26 is formed at one end of the shank 22 and terminates in three prongs 27, 28 and 29, of which the prongs 27 and 29 are of the same length while the prong 28 is longer than the prongs 27 and 29.

The tool is fitted to the brace 25 and the long prong 28 is disposed in the hole 20 of the valve 10, so that the prong 28 engages with the bottom of the hole and the prongs 27 and 29 are disposed a distance into the holes 19 and 21, but not in engagement with the bottoms of the said holes, as may be clearly discerned by referring to Fig. 1. A grinding substance and a lubricant, such as fine emery and oil, are interposed between the valve 10 and the seat 11 thereof, and the brace 25 is then manipulated to turn the tool 22, thus also causing the valve 10 to turn. It will be readily understood that by this operation the fine emery gradually grinds the burs from the valve and valve seat, and in a short time a perfect fit will be assured between the valve 10 and the valve seat 11. The extension of the prong 28 to the bottom of the hole 20, tends to distribute the force acting on the valve and valve seat, evenly, so that the said valve and valve seat will be ground perfectly true, while the prongs 27 and 29 in the holes 19 and 21 guide the valve 10 in its turning movement. It will be easily seen that should the operator deviate the tool 23 slightly from the

correct alinement, the valve 10 will still turn with an equally distributed pressure, due to the fact that the point of contact of the tool 23 and valve 10 is below the point of contact of the valve 10 and the valve seat 11, and from the foregoing description it will be further seen that an efficient and durable tool is provided for grinding valves and the like.

It will be understood, that although I have shown a particular construction in the drawings, for the purpose of clearly describing my valve grinder, the scope of my invention is fully disclosed in the appended claim.

Having thus described my invention I claim as new, and desire to secure by Letters Patent:

A valve comprising a circular valve head, and a valve stem extended laterally therefrom, the said valve head having a plurality of openings thereon, one of the said openings extending longitudinally into the valve stem and the said openings being substantially disposed in alinement.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH YATES PORTER, Jr.

Witnesses:

Geo. E. McDonald,

Chas. B. Williams.