J. GARLICK.

SELF-GRINDING VALVE.

APPLICATION FILED JULY 2, 1918.

1,297,342.

Patented Mar. 18, 1919.

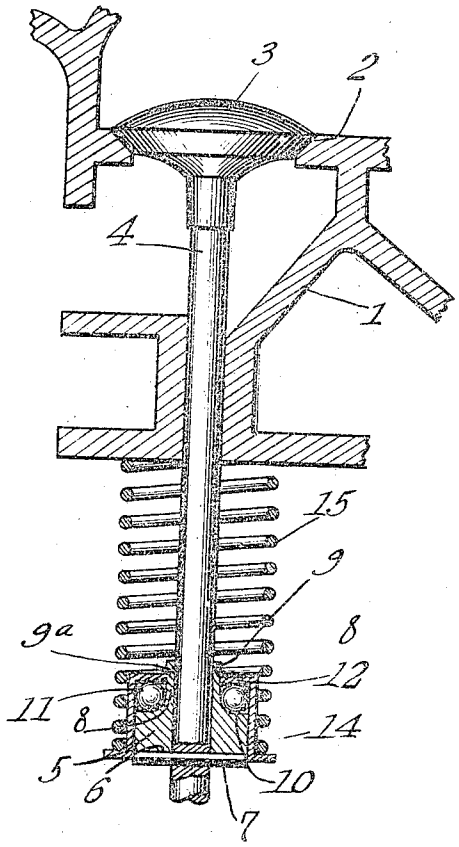


Fig. 1.

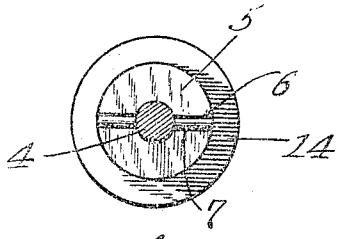


Fig. 2.

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UNITED STATES PATENT OFFICE.

JEW GARLICK, OF PATERSON, NEW JERSEY.

SELF-GRINDING VALVE.

1,297,342. Specification of Letters Patent. Patented Mar. 18, 1919.

Application filed July 2, 1918. Serial No. 243,010.

To all whom it may concern:

Be it known that I, JEW GARLICK, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Self-Grinding Valve, of which the following is a specification.

It is the object of this invention to provide a novel means for supporting the stem of a valve in an internal combustion engine anti-frictionally with respect to the valve frame, so that the valve may rotate with respect to the seat for the valve, thus to effect a grinding of the valve and to keep the valve clean.

In the accompanying drawings:—

Figure 1 shows in section, a device constructed in accordance with the present invention;

Fig. 2 is an elevation looking at the lower end of the valve stem, the valve stem appearing in section.

The numeral 1 denotes the frame of an internal combustion engine including a seat 2 with which coöperates a puppet valve 3. The valve 3 carries a stem 4 mounted to reciprocate in the frame 1. A holder 5 is mounted on the stem 4 and is provided in its outer end with a seat 6 receiving a cross pin 7 inserted removably through the stem 4, the pin serving to support the holder, and the seat 6 in the holder serving to hold the pin in place against endwise movement, and to connect the holder to the stem 4 or rotated therewith. The holder 5 has an upstanding neck 8 surrounding the stem 4, the neck being supplied with a circumscribing seat 9 wherein is seated a spring ring 9^a. In the upper surface of the holder 5 a ball race 10 is formed. Balls 11 are mounted in the ball race 10. A cap 12 surrounds the neck 8 and is retained loosely, for rotation, by means of the ring 9^a on the neck. The depending wall of the cap 12 coöperates with the balls 11 to hold them in the ball race 10 and is journaled on the periphery of the part 5. At its lower end, the side wall of the cap 12 is supplied with an outwardly extended projection 14, which may be a flange. The lower end of a compression spring 15 is supported on the flange 14, the upper end of the spring abutting against the frame 1. The spring 15 maintains the valve 3 closely engaged with the seat 2, in a common and well known manner. The holder 5, the balls 11 and the cap 12 may be alluded to, generally, as an abutment.

The construction of the device is such that when the valve 3 is raised and lowered, the valve tends to rotate, the lower end portion of the stem 4 being anti-frictionally connected with the lower end of the spring 15 by means of the balls 11. It is to be observed that the holder 5 is connected by means of the pin 7 with the stem 4 so that the holder rotates with the stem. The device above described will be found thoroughly efficient to permit a slight rotation of the valve 3 at each reciprocation of the valve, and as a result, the valve will grind itself and remain clear of foreign deposit.

Having thus described the invention, what is claimed is:—

In an internal combustion engine, a frame having a seat; a puppet valve coöperating with the seat; a stem assembled with the valve and slidable in the frame; a holder mounted on the stem and including a neck, the holder having a notch in its outer end, there being a ball-race in the holder, about the neck; a pin inserted through the stem and engaged with the notch of the holder to maintain the holder against rotation with respect to the stem; a cap inverted over the ball race and including a side wall surrounding the holder, the side wall engaging the ends of the pin to hold the same in place; means carried by the neck and coöperating with the cap to retain the cap in place, the cap being provided at its outer end with a laterally extended flange; a spring supported at one end on the flange and inclosing the cap, the other end of the spring coöperating with the frame; and balls in the ball-race, the balls supporting the cap.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JEW GARLICK.

Witnesses:
W. A. HARRISON,
FREDK. D. HARRISON.