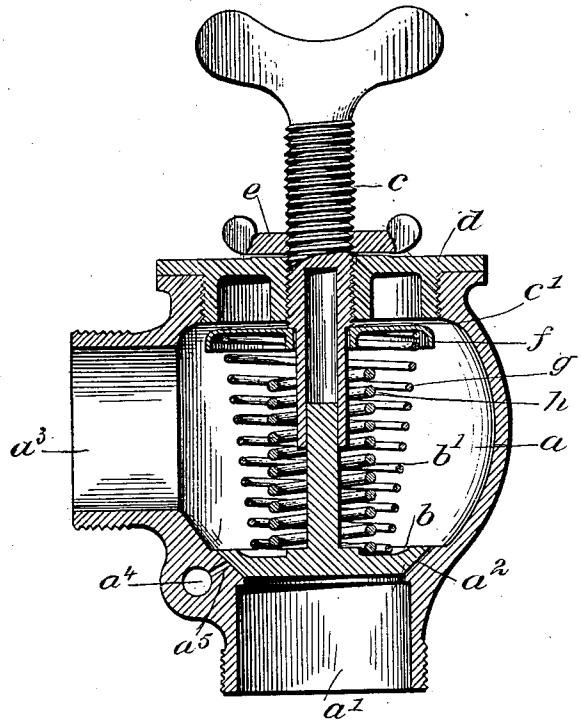
No. 731,218. PATENTED JUNE 16, 1903.

O. B. PERKINS.

VAPORIZER FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED MAR. 11, 1903.

NO MODEL.



WITNESSES:

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No. 731,218. Patented June 16, 1903.

UNITED STATES PATENT OFFICE.

OSCAR BERTROM PERKINS, OF GLOUCESTER, MASSACHUSETTS.

VAPORIZER FOR INTERNAL-COMBUSTION ENGINES.

SPECIFICATION forming part of Letters Patent No. 731,218, dated June 16, 1903.

Application filed March 11, 1903. Serial No. 147,264. (No model.)

To all whom it may concern:

Be it known that I, OSCAR BERTROM PERKINS, a citizen of the United States, and a resident of Gloucester, in the county of Essex and State of Massachusetts, have invented a new and Improved Vaporizer, of which the following is a full, clear, and exact description.

This invention relates to a vaporizer applicable to internal-combustion engines, and particularly those engines in which the supply is choked to reduce the speed of the engine.

The prime object of the present invention is to provide a vaporizer in which the ratio of the air and fuel in the explosive mixture will remain the same, notwithstanding that the volume of the mixture may be varied considerably, according to the adjustment of the vaporizer. This end I attain by certain special features of construction, the most prominent of which is the arrangement of two springs which by adjustment may be successively brought into action, so that when one spring is active the engine may be run at high speed and when both springs are active the supply of mixture will be choked or throttled, thus cutting down the speed.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure represents a vertical section taken through the vaporizer.

The shell a has an air-inlet a', having a valve-seat a^2 at its inner end. The shell also has a connection a^3 with the inlet-port of the engine and an oil-supply a^4, communicating by a passage or passages a^5 with the valve-seat a^2. The oil-supply a^4 should be, of course, fitted with a needle or other suitable valve, so as to regulate the amount of gasolene discharged from the passage a^5.

b indicates the valve, which works on the seat a^2 and opens into the shell a. The stem b' of the valve is fitted to slide freely in the hollow lower end of a screw c. This screw works in a head d, which is threaded or otherwise fastened in the top of the shell a to close the same, and e indicates a lock-nut working on the screw c above the head d, so that the said screw may be held securely in the desired adjustment. On the screw c is formed a shoulder c', and against this shoulder bears a preferably circular plate f.

g and h indicate two spiral springs, the spring g being of less strength than the spring h and said spring g always engaging both the valve b and the plate f. By adjusting the screw c the tension of the spring g may be varied; but said spring is always active to some extent, at least. The spring h, however, is shorter than the spring g and is supported on the valve b. It does not normally engage the plate f. When, however, the screw c, with its plate f, is moved downward sufficiently, this spring h will be engaged by the plate f, and both springs will therefore become active.

In the operation of the invention, after the gasolene-supply is adjusted, to run it full speed the screw c should be moved upward, placing the spring g under minimum tension, and thus the valve b will be lifted at the very inception of the suction-stroke and the gasolene and air will be drawn into the cylinder throughout the whole of the stroke, thus attaining a maximum charge. This may be slightly decreased by increasing the tension of the spring g without, however, bringing the spring h into action; but to merely slow down or throttle the engine the screw c and plate f should be screwed down until the spring h is placed under tension. This increased pressure on the valve b will prevent the valve from lifting until a material part of the suction-stroke is traversed, and the result is that the cylinder will be charged only during part of the suction-stroke. The quality of the combustible mixture is, however, unchanged. It is by this means that I am able to vary the volume of the charge at will without in any way affecting its composition.

Various changes in the form, proportions, and minor details of my invention may be resorted to at will without departing from the spirit and scope thereof. Hence I consider myself entitled to all such variations as may lie within the intent of my claims.

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

1. A vaporizer, comprising a shell having air and oil supplies and a valve coacting therewith, two springs, and means for bringing one or both of said springs into action to resist the opening of the valve.

2. A vaporizer, comprising a shell having air and oil supplies and a valve coacting therewith, two springs, and means for bringing one or both of said springs into action to resist the opening movement of the valve, said means comprising a member adapted to engage the springs to hold them engaged with the valve, and an adjustable screw for said member.

3. A vaporizer, comprising a shell having air and oil inlets, and a valve commanding the same, a stem attached to the valve, a hollow adjusting-screw in which the stem is loosely fitted, two springs adapted to engage the valve, and a member connected with the adjusting-screw and engageable with one or both of said springs to throw them into action.

4. A vaporizer, comprising a shell having air and oil inlets and a valve commanding the same, a stem attached to the valve, a hollow adjusting-screw in which the stem is loosely fitted, two springs adapted to engage the valve, and a member connected with the adjusting-screw and engageable with one or both of said springs to throw them into action, said member comprising a plate engaged with a shoulder on the adjusting-screw and of area equal to the diameter of the largest spring.

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

OSCAR BERTROM PERKINS.

Witnesses:

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