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J. B. SERRES

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VACUUM REDUCER

Filed Sept. 11, 1924

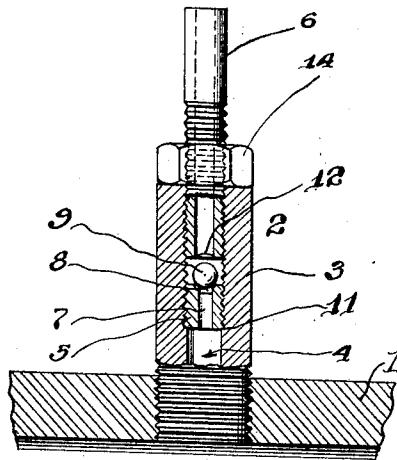


*Fig. 1.*

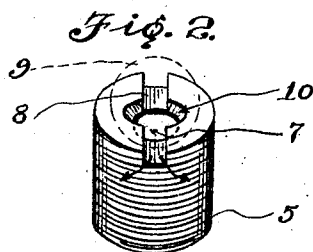


*Fig. 2.*



*Fig. 3.*

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## UNITED STATES PATENT OFFICE.

JOSEPH BERNARD SERRES, OF MADISONVILLE, LOUISIANA, ASSIGNOR OF ONE-THIRD TO PAUL POLICAR AND ONE-THIRD TO OSCAR P. GOLDATE, BOTH OF MADISONVILLE, LOUISIANA.

## VACUUM REDUCER.

Application filed September 11, 1924. Serial No. 737,172.

*To all whom it may concern:*

Be it known that I, JOSEPH B. SERRES, a citizen of the United States, residing at Madisonville, in the parish of Saint Tammany and State of Louisiana, have invented certain new and useful Improvements in Vacuum Reducers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a vacuum reducer, and has for its object the construction of a simple and efficient device for equalizing the vacuum in all of the cylinders of a gasoline motor.

It is to be understood that it is practically impossible to construct a gasoline motor that will have, or keep the same amount of compression in all of its cylinders, and, therefore, to have all of the cylinders work somewhat evenly, the needle valve of the carbureter is usually adjusted, to suit the cylinder that has the least compression. This causes the other cylinders to "pick up" too much fuel (gasoline) thereby keeping them in a semi-flooded condition, reducing the power of the motor, wasting the fuel, and carbonizing the compression chambers and spark plugs.

Therefore, in order to secure full power of motor, economize fuel, and prevent carbon, there should be a way to equalize the "vacuum" which is necessary to permit the fuel to enter the combustion chambers. To equalize the vacuum, it can only be done by reducing the strongest ones until they are equal to the weakest. This can be done by allowing air to enter the desired cylinder, or cylinders, independent from the carbureter manifold, and from the fact that most motors have priming cup openings, my device can be placed at these openings, and also serve as a priming cup when desired.

With the foregoing and other objects in view, my invention comprises certain combinations, constructions and arrangement of parts as will be illustrated in the accompanying drawings, described in the following specification, and more particularly pointed out in the appended claim.

In the drawings:

Figure 1 is a view of my device, shown partly in vertical section and partly in side elevation.

Figure 2 is a perspective view of the ball check supporter.

Figure 3 is a perspective view of the adjustable tube.

Referring to the drawings by numerals, 1 designates the motor case into the priming cup opening of which is screwed my device 2.

My device 2 comprises casing 3 having a passage 4 extending the entire length thereof, part of which passage is screw-threaded for receiving the ball check supporter 5 and the inner part of the adjustable tube 6.

The supporter 5 has a passage 7 extending therethrough and its upper end is bifurcated, as at 8, to permit air to pass around ball 9, when said ball is resting on concaved seat 10 (Fig. 2) of supporter 5. This supporter rests against shoulder 11, at the lower end of the threaded portion of passage 4.

The adjustable tube 6 is threaded on its outer face so that it can be adjusted longitudinally of the casing 3, to permit the desired amount of air to enter the cylinder. The tube is provided with a valve (ball 9) seat 12 on its inner end; when ball 9 is resting against seat 12 air will be prevented from entering the cylinder. Locking or "jam" nut 14 is threaded upon tube 6, against the outer end of casing 3, to hold tube 6 in an adjusted position.

My device 2 is intended particularly for the four cycle type motor (engine).

When in use, the valves will be screwed into the threaded primary cup receiving openings of the cylinders and will extend upwardly from the cylinders. During operation of the motor, the suction into the cylinders causes fuel to be drawn into them and when this occurs a certain amount of air will be drawn into the cylinders through the valves. The amount of air drawn into the cylinders is controlled by the amount of suction created in the various cylinders and therefore, if one cylinder has more suction than the others, a relatively large quantity of air will be drawn into this cylinder and mixed with the fuel drawn from the carbureter. Therefore, the explosive mixture drawn into the cylinders will be of approximately the same richness in all of the cylinders. When a com-

pression stroke takes place the valve ball is raised from its seat 10 and moved against the seat 12 so that the passage through the tube is closed and a good compression is obtained. By proper adjustment of the stem, the amount of movement permitted before the ball engages the seat 12 can be controlled. A certain amount of the mixture escapes through the valve during movement of the ball towards the seat 12 and it will be seen that adjusting the tube 6, the amount permitted to escape can be controlled and an even compression obtained in all of the cylinders.

15 While I have described the preferred embodiment of my invention, and have illustrated the same in the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates, during the extensive manufacture of the same and I, therefore, reserve the right to make such alterations or changes as shall fairly fall within the scope of the appended claim.

25 What I claim is:

A valve comprising a tubular casing of an even diameter throughout its length and having its lower end portion externally

threaded and being internally threaded from its upper end to a point in spaced relation 30 to its lower end, a valve seat screwed into said casing and when in an operative position seated at the lower end of the internally threaded portion, said valve seat having an axially disposed bore having its upper end 35 portion flared and said seat having its upper end face provided with radial grooves leading from the flared upper end portion of the bore, a valve ball in the casing above the valve seat and of its own weight normally seated upon the valve seat and covering the flared upper end of the bore, a tube of an even diameter throughout its length externally threaded from its lower end and screwed into said casing above said 45 valve ball for adjustment towards and away from the ball, and a lock nut carried by said tube above the upper end of said casing and adapted to be moved into engagement with the upper end of the casing to 50 lock the tube in a set position with its lower end spaced a predetermined distance from said ball and valve seat.

In testimony whereof I hereunto affix my signature.

JOSEPH BERNARD SERRES.