

BURNING EFFECT BOOSTER FOR AN ENGINE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a burning effect booster for an engine, particularly to one converting clean filtered air into swift helical current like whirlwind, which is then mixed with gas in complete vaporized condition so that the gas can burn completely, lowering the volume of waste gas exhausted out, thus reducing air pollution.

2. Description of the Prior Art

A conventional burning effect booster for an engine shown in Fig. 1 includes a body 1, a filter device 2, adjusting screws 3, and vacuum valve units 4, 4'. It is installed on a proper location of an engine of an automobile, with nozzles 40, 40' of the vacuum valve units 4, 4' connected with the intake manifold of an engine and a soft tube. Then the filter device 2 filters air, with the adjusting screws 3 adjusted depending on air intake volume, compression rate and the number of the throttles of the engine. Thus vaporized mixture of gas with filtered air may burn completely, reinforcing the horsepower of the engine, lowering waste gas exhausted out, reducing air pollution thereby, and attaining the purpose of saving fuel energy.

Nevertheless, the conventional burning effect booster can filter air, enabling fuel to burn effectively, but the nozzles 40, 40' cannot control the air intake volume, nor convert air current into whirlwind so as to vaporize completely the mixture of gas with filtered air, resulting in "randomly spreading" in ignition, so it cannot immediately burn completely.

Therefore, this invention has been devised to offer a kind of burning effect booster for an engine, which can control the volume of filtered clean air

in a best condition so as to be completely vaporized and then burn instantly and completely.

SUMMARY OF THE INVENTION

The purpose of the invention is to offer a burning effect booster for an engine, which can convert filtered air into a swift helical air current like
5 whirlwind, so air can completely be mixed with gas and then vaporized sufficiently so as to be burned completely, thus lowering the volume of waste gas exhausted out, and accordingly reducing air pollution.

The feature of the invention is two vacuum valve sets that
10 respectively consist of a nozzle provided with a helical guide hole, and one of the nozzles has a larger diameter than the other.

BRIEF DESCRIPTION OF DRAWINGS

This invention will be better understood by referring to the accompanying drawings, wherein:

15 Fig. 1 is a cross-sectional view of a conventional burning effect booster for an engine;

Figure 2 is an exploded perspective view of a burning effect booster for an engine in the present invention;

Figure 3 is a cross-sectional view of the burning effect booster for an engine in the present invention, showing a small nozzle blowing air; and
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Figure 4 is a cross-sectional view of the burning effect booster for an engine in the present invention, showing a large nozzle blowing air.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A burning effect booster for an engine in the present invention, as
25 shown in Fig. 2, includes a body 1, a filter device 2, two adjusting screw sets 3,

two vacuum valve sets 4 and 5, as main components combined together.

The body 1 is provided with a central vertical passageway 10, a round chamber 11 formed on the passageway 10, a stop wall formed between the chamber 11 and the passageway 10, an annular tapered surface 120 formed
5 under the stop wall 12, two first holes 13 formed lengthwise in parallel in a right portion, a threaded hole 130 formed in a bottom of each first hole 13 and communicating with the passageway 10, female threads 131 formed in the inner wall of each first hole 13, two second holes 14 formed longitudinally in parallel in a left portion and formed with a through hole 140 in its bottom.

10 The filter device 2 is inserted in the chamber 11 of the body 1, provided with a cap 20, a filter tube 21 and a ring gasket 22 orderly arranged. The cap 20 has plural tiny holes 200 spaced equidistantly around the circumference and an annular groove 201 for receiving the gasket 22 therein, threadably combined with the chamber 11. Another ring gasket 22 is located
15 under the filter tube 21, fitting around the annular tapered surface 120 and restricted by the stop wall 12. The filter tube 21 is made of metal bits by means of compressive forging, having caterpillar air holes to effectively filter tiny dirty matters, and its top pushing against the bottom of the cap 20 and closely contacting the gasket 22 in the annular groove 201.

20 The two adjusting screw sets 3 engage with the first holes 13 in the right side of the body 1, respectively consisting of a male-threaded screw 30 engaging with the threaded hole 130 of each first hole 13 and having a pointed end 300 and a flange 301 in a rear portion. Then a spring (S) fits around each screw 30, having an end pushing against the flange 301 and the
25 other end urging the bottom of each first hole 13 of the body 1. Each screw 30 further has a notch 31 in a rear end, engaging with the threaded hole 130 of each first hole 13, with the pointed end 300 extending in the passageway 10 of the body 1. The adjusting screw sets 3 further have a cap 32 with male

threads 320, and a cap cover 33 is added on the cap 32 for preventing dirty matters from entering the cap 32.

The two vacuum valve sets 4 and 5 are respectively combined in the second holes 14 of the body 1, having respectively a nozzle 40, 50, with the first nozzle 40 provided with a large diameter than the second nozzle 50. Each nozzle 40, 50 further has a through hole 400, 500, a rear tubular portion provided with female threads 401, 501, and a front portion provided with a helical air guide hole 402, 502. The two vacuum valve sets 4 and 5 further respectively have pistons 41 and 51 and springs (S) and (S) received in the threaded holes 401, 501 of the nozzles 40 and 50. The pistons 41 and 51 respectively have a pointed head 410 and 510 formed at one end, an anti-leak ring (P) fitted around the pistons 41 and 51 respectively, a hollow end for the spring (S) to extend in, and plural small air holes 411 and 511 bored in an annular wall. The vacuum valve sets 4 and 5 further respectively have a threaded tube 42, 52 engaging with the female threaded hole 401, 501 of the nozzle 40, 50, with the piston 41, 51 received in its center hole. The threaded tubes 42 and 52 are respectively provided with a center hole 420, 520 in an inner end for the head 410, 510 of the piston 41, 51 to protrude out.

In using, as shown in Figs. 3 and 4, the two nozzles 40 and 50 are connected to the intake manifold of the engine by a soft tube. Then in operating, the adjusting screws 3 are properly adjusted with a tool, depending on the air intake volume of an engine, the compression rate, and the number of throttles, so the filtered clean air to be sucked in the engine can be controlled, and air may be sucked in through the tiny holes 200 of the cap 20 of the filter device 2, then in the chamber 11 of the body 1, and then filtered by the filter tube 21 to become completely clean. Then the filtered clean air will flow through the passageway 10 to be sucked into the vacuum

valve set 4 or 5, with the piston 41 or 51 forced by the sucking function of the engine and sliding in the threaded tube 42 or 52 so that the filtered clean air may be timely pushed into the intake manifold of the engine via the nozzle 40 or 50. When the filtered clean air flows through the nozzle 40 of a large
5 diameter, guided by the air guide hole 402, it becomes whirlwind of rather slow speed for supplementing insufficient air in the engine because of the large air volume of the large nozzle 40. Then the gas and the air may be mixed completely, and then ignited to burn thoroughly in the engine. When the filtered clean air flows in the engine via the small diameter nozzle 50,
10 guided by the helical guide hole 502, the air volume is comparatively small, but the swirling speed is swift, not only mixing sufficiently gas with air to vaporize completely so that the mixture of gas with air may be ignited to burn absolutely and quickly.

While the invention has been described above, it will be recognized
15 and understood that various modifications may be made therein and the appended claims are intended to cover all such modifications that may fall within the spirit and scope of the invention.

WHAT IS CLAIMED IS:

1. A burning effect booster for an engine comprising:

a body (1) provided with a center vertical passageway (10), a round
5 chamber (11) formed on said center vertical passageway, two first holes (13)
formed horizontally in parallel in a right portion, each said first hole provided
with a threaded hole (130) in its bottom communicating with said center
vertical passageway, two second holes (14) formed horizontally in parallel in
a left portion, each said second hole provided with a through hole (140) in its
10 bottom to communicate with said center vertical passageway;

a filter device (2) inserted in said round chamber of said body, said
filter device consisting of a cap (20), a filter tube (21) and at least a ring
gasket (22), said cap provided with plural tiny holes (200) spaced
equidistantly around and located at an outer circumference of said filter tube;

15 two adjusting screw sets (3) threadably combined with said first holes
(13) of said body respectively, said adjusting screw sets respectively
consisting of a spring (S), a screw (30), a cap (32) and a cap cover (33)
combined together orderly, each said screw engaging with each said
threaded hole (130) of each said first hole (13), each said screw having a
20 pointed end (300) extending in said center vertical passageway (10);

two vacuum valve sets (4 and 5) inserted in said two second holes
(14) of said body respectively, each said vacuum valve set consisting of a
nozzle (40, 50), a coiled spring ((S), a piston (41,51) and a threaded tube
(42,52), each said piston provided with a pointed head (410,510) at a first
25 end to coordinate with said pointed end (300) of each said screw (30), each
said piston having a center hollow in a rear portion for receiving each said
coiled spring (S) therein and plural air holes (410, 510) formed in an annular
wall; and

characterized by said two nozzles (40,50) respectively provided with a helical guide hole (402,502), one (40) of said two nozzles having a larger diameter than another (50) of said two nozzles.