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(54) **Title**: THE FUEL SAVING INTAKE MANIFOLD FOR COMBUSTION ENGINE

(57) **Abstract**: When the engine work, air and fuel are mixed in together in the carburetor, then are sucked into the fuel saving intake manifold with tremendous velocity. Along inside, there are the metal objects with the same or different shapes, thanks to these ob - jects, fuel / air mixture have strong collision, to create small turbulent spiral lines and same direction spiral lines which shall move with a very high velocity so that they are mixed very smooth, so are beaten, before going into the combustion chamber. In the cylin- der they burn out completely, thus saving fuel, but still meet the required capacity.

DESCRIPTION

1- Name of invention.

The fuel saving intake manifold for combustion engine.

2- Technical areas mentioned.

When engine is working, it creates a certain capacity, so the engine consumptions fuel at a corresponding level. The main problem mentioned here is to reduce the fuel consumption down to maximum level, which still gives a capacity does not change as designed.

3- The technical status of invention.

As known, when the engine worked, fuel and air are mixed in together in the "carburetor" and then go through the "intake manifold" or other names (suction neck, fuel/air mixture loading tube etc...) finally went straight into the combustion chamber of cylinder. The disadvantages are that fuel / air mixture blow through the intake manifold without any mixing, when into the cylinder almost burn not completely so often exhaust smoke, smell of fuel ... so loss of fuel . To overcome this weakness between carburetor and the combustion chamber of the cylinders, we install a part namely "**the Fuel saving intake manifold for combustion engine**" which advantages are simple, stable and durable structure, without any jam due to dust, no need to maintenance etc... the advantages of engine are stable and smooth operation, good and not exhaust soot, no smell of fuel.

4- Technical description of the nature of the invention.

Therefore, the purpose of invention is to reduce fuel consumption down to the lowest level without reducing the capacity, by method of smooth mixing and fine spread fuel / air mixture before entering the combustion chamber. Here differ completely, the fuel saving intake manifold is made of one or "clusters" pipes between carburetor and the combustion chamber of cylinders. Along the inner side of the tubes, with the "metal objects" has the same shapes or different shapes. The metal objects shaped like a wall grid shapes, piece of metal, wing screw, propeller disc .etc.. are located inside, non — stick, stick or casted into block with tube. etc.. When a piston has sucked, fuel / air mixture shall be sucked into the fuel saving intake manifold, they move very quickly, to generate an air flow with very great

velocity, strong collision to the metal objects. Therefore fuel / air mixture is beaten very finely before coming to the cylinders. The greater velocity is, the collision density of fuel / air mixture is more and the fineness is more. Velocity , collision density also depends on the aerodynamic shape, which replies on the technical specifications and shape of objects metal in the connecting pipe. Velocity, collision density also depends on the aerodynamic shape, which replies on the technical specifications and shapes of metal objects in the connecting pipe. In other words, velocity, collision density, aerodynamic shape and technical specification as well as the shape of metal objects have mutual interaction. Depending on the locating way of metal objects, the fuel saving intake manifold shall create different types of aerodynamic such as spiral type, turbulent collision and many turbulent spirals.

The detailed example below shows us the above relations, at the time, piston sucks, we have two cases:

-In the case 1: the intake manifold is an empty connecting conduit, the air flow moves parallel with the axis of intake manifold, goes in a distance L1, which is the length of the intake manifold with velocity V1, time T1 = 1/4 of the period, when the piston is in sucking status, we have V1 = L1/T1. L1 shall have an enough length as design, We should not increase the length of L1 as The intake manifold is too long and the speed acceleration of the engine is delayed (weak)

- In the Case 2: (see figure 2) as we replace a intake manifold by The Fuel saving Intake manifold whose outer shape is similar to one of Intake manifold. In this case, inside the pipe, there are the propeller disks in the condition that place of the propeller disks is the same direction, which shall create movement in the spiral type, the movement distance of L2, velocity V2 and similar time with the case 1, T1, we have V2 = L2/T1. because L2> L1, we have V2> V1. if we want V2 accelerates promptly, we have to extend distance of L2, we have two ways: increasing diameter or increase the number of spirals, the number of spiral is increased by locating more the propeller disk in a suitable distance and the diameter of spirals increased by increasing the diameters of the propeller disks in the condition that the diameter is enough length and the density of air

flowconcentrates on the inner side the pipe. In each the propeller disk, we shall add many wings to increase the collision density, etc

5 - Brief description of the drawings:

- Figure 1:shows in longitudinal section illustration the fuel saving intake manifold and location of metal objects(A). fuel / air mixture which not be mixed (F1) after passing through the fuel saving intake manifold which have been mixed (F2)
- Figure 2: is a simple drawing showing longitudinal the fuel saving intake manifold under the invention, in the case to use many propeller disks (B), they shall be fixed by the connecting wire (D) and aerodynamic movement shape of fuel / air mixture

6 - Detailed description

The fuel saving intake manifold has duty to mix smoothly and grind fuel / air mixture fine before entering to the combustion chamber of cylinder. Its structure includes one or (clusters) of metal tubes is connected between the carburetor and the combustion chamber of cylinder. Inside the tubes, there are the "metal objects" has the same shapes or different shapes as propeller disc shape, mesh walls, wing screw, piece of metal etc.. shape of the fuel saving intake manifold depends on the location between the carburetor and the combustion chamber of cylinder, in the condition that the length of connecting conduit is shortest. if the connecting conduit is too long, the engine acceleration is delayed. The cross-sectional area large enough in order that the amount of fuel / air mixture is enough to provide for the engine. Figure 2 is showing the profile of the fuel saving intake manifold in the simplest manner according to the invention. In order increase the finest or increase the resistance and collision density, along inner side of the fuel saving intake manifold, there are many propeller disks (B), with are located in the same direction with a proper distance; the disk surface is perpendicular to the longitudinal axis of the tube. Each disc shall be added with wings as much as possible. between the disks are conneced with each other by a metal wire (D) to fix the propeller disc When the piston is in suction status, fuel / air mixture from the carburetor to go straight to the fuel saving intake manifold with strong velocity, fuel / air mixture impacts very strong on the propeller disc to create same direction spiral line. Fuel /

air mixture with are ground finely shall be burnt fully as coming to the combustion chamber. For the pieces of metal we also do the same, mounted in different directions, fuel / air mixture has numerous small spiral chaos .. When we located the mesh wall shapes wih same shapes, the collision of fuel / air mixture shall be increased. Regarding wing screw, it shall only increase the distance and velocity but the collision on the wings is less.

CLAIMS

1- The process operation of claim 1

Operation use of the fuel saving intake manifold for combustion engine is to mix, to beat finely fuel / air mixture before into the combustion chamber of cylinder.

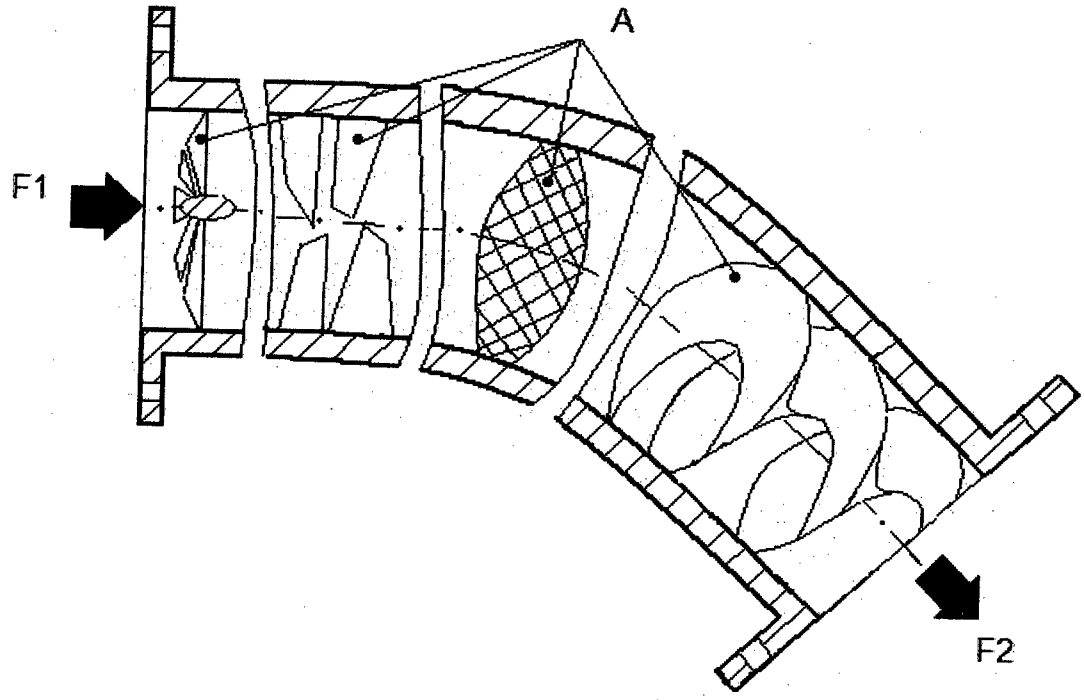
2 - The limited scope of claim 2:

Space along inside of the fuel saving intake manifold, which is from a hole out of the carburetor to hole into the cylinder's combustion chamber

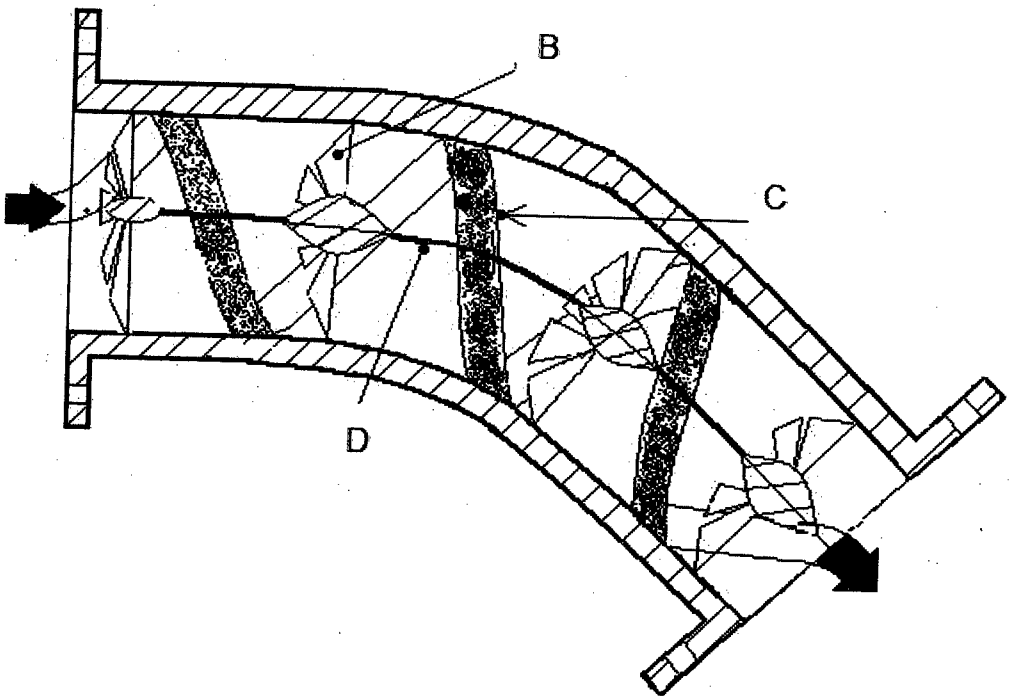
3- the structure of claim 3:

Structure of the fuel saving intake manifold includes one or (clusters) the metal tubes are connected between the carburetor with one or the cylinders. Inside the tube there are "metal objects" the shapes are similar or different, as the mesh wall shape, wing screw, propeller disc, pieces of metal .etc., they are located techniques along inside the tubes, separately, non - stick, stick, cast into block with tubes.

- Figure 1



- Figure 2



INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

F02M 29/06 *(2006.01)*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F02M 27/00, 27/08, 29/00-29/10, 35/00, F02B 27/00, 27/02, 31/00, 31/04, 51/00, 51/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatSearch (RUPTO internal), Esp@cenet, PAJ, USPTO

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SU 1673748 A1 (MOSKOVSKY INSTITUT PRIBOROSTROENIYA) 30.08.1991, abstract, fig. 1	1-3
X	SU 1758267 A1 (NAUCHNO-ISSLEDOVATELSKY INSTITUT "KVANT") 30.08.1992, abstract, fig. 1	1-3
X	SU 1262082 A1 (KISHINEVSKY POLITEKHNICHESKY INSTITUT IM. SERGEYA LAZO) 07.10.1986, abstract, fig. 1	1-3
X	WO 03104624 A2 (CYCLONE USA INC) 18.12.2003, abstract	1-3

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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