

Aug. 9, 1966

G. R. MORTON

3,265,374

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Filed Aug. 14, 1963

2 Sheets-Sheet 1

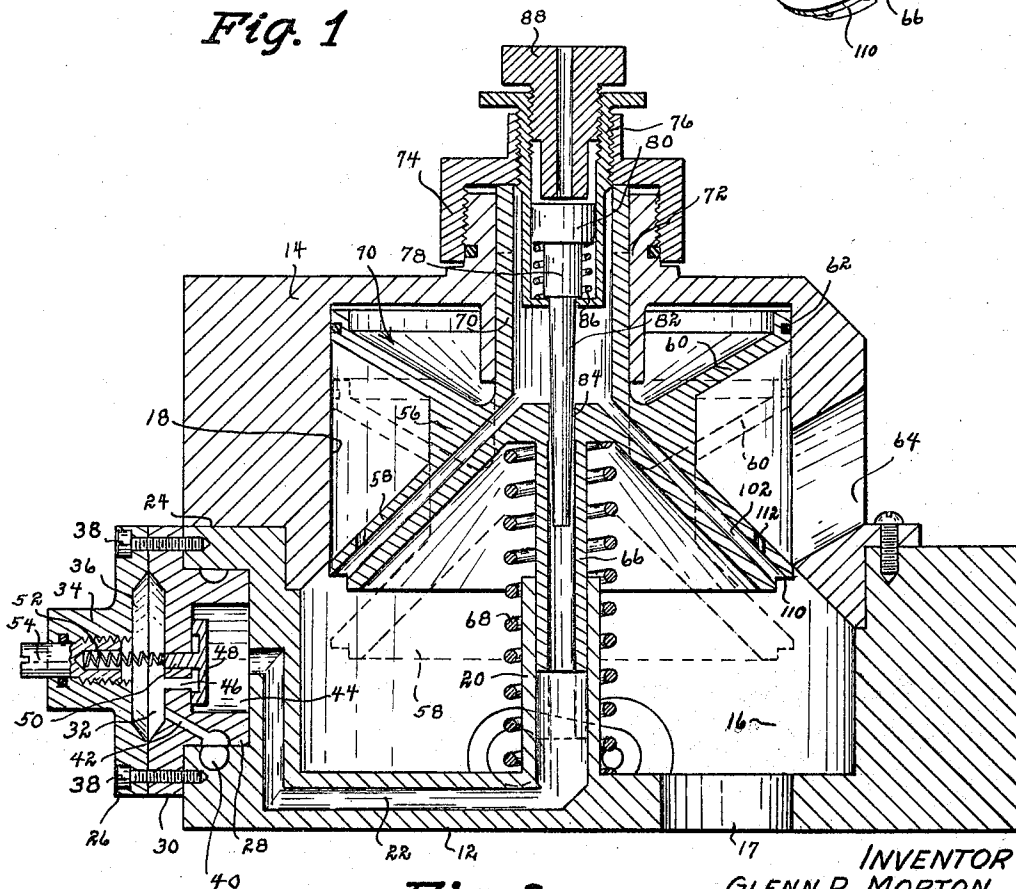
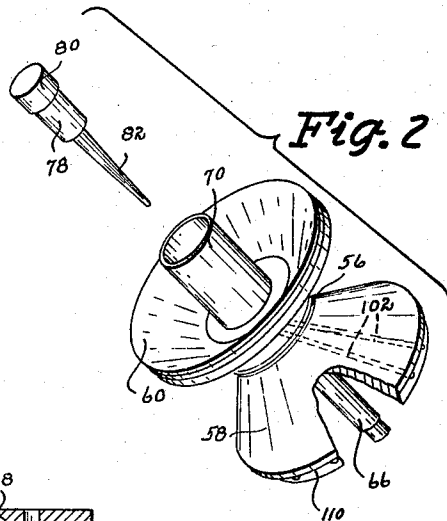
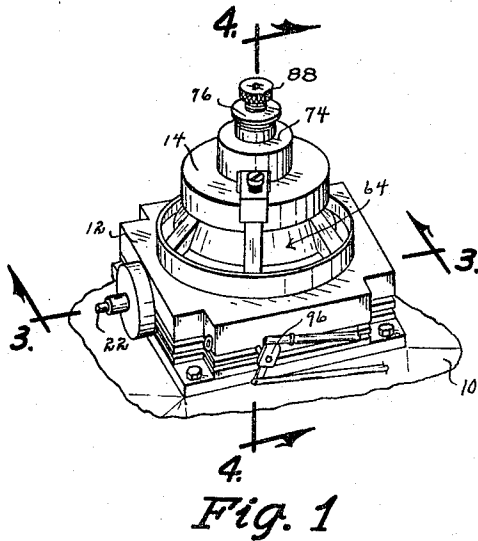


Fig. 3

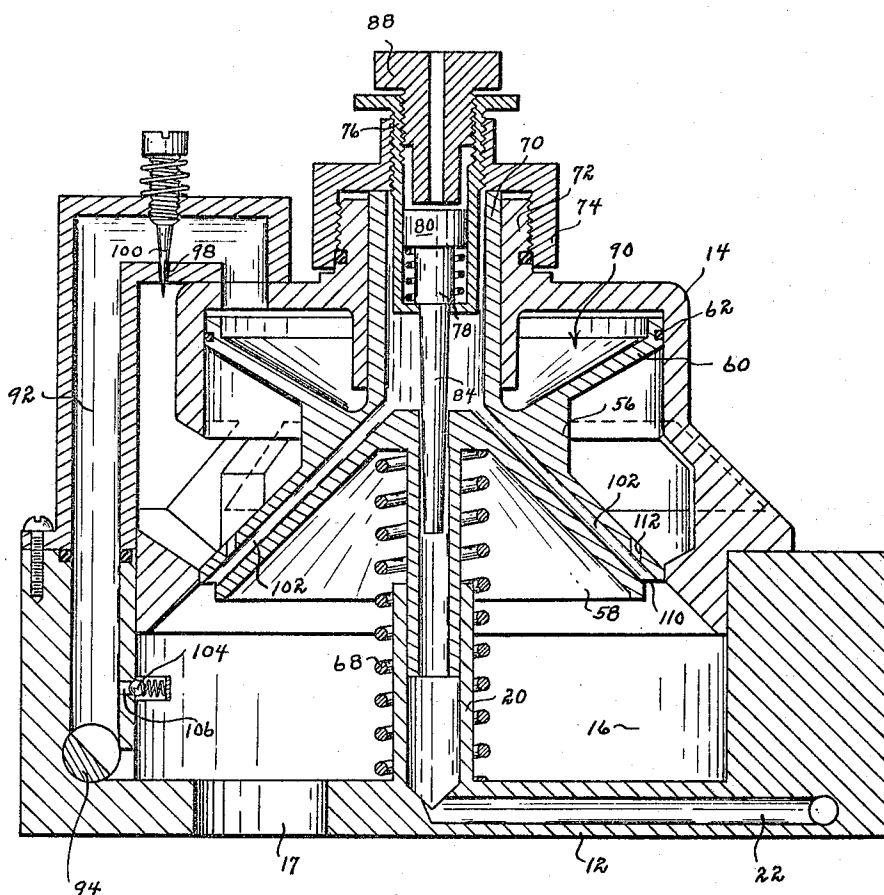
INVENTOR
GLENN R. MORTON

BY

Halbert Dick & Zorley
ATTORNEYS

3,265,374

2 Sheets-Sheet 2



1

3,265,374

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Glenn R. Morton, 7025 Sarpy Ave., Omaha, Nebr.

Filed Aug. 14, 1963, Ser. No. 302,078

13 Claims. (Cl. 261-50)

This invention relates to carburetors for internal combustion engines and more particularly to a carburetor that will automatically adjust to varying temperatures, atmospheric pressures, and engine manifold pressures.

Substantially, all internal combustion engines employ a carburetor to mix the liquid fuel, such as gasoline, and air into an ignitable gas. Obviously the efficiency of the engine will depend on the proper mixture of the air and liquid fuel. Most standard carburetors may be adjusted for maximum efficiency for a given engine speed, and/or a given atmospheric pressure. However, most carburetors have only one general use control, i.e., a butterfly throttle valve in the air inlet conduit. This air flow is induced by the engine piston suction and is hereinafter referred to as manifold pressure. The carburetors now in general use have a gasoline float actuated valve in the fuel supply line and a fuel pump to furnish the gasoline to the carburetor bowl. Obviously, such a mechanism is complicated, and does not automatically adjust to changing conditions.

Therefore, one of the principal objects of my invention is to provide a carburetor of simplified parts that will automatically compensate for varying conditions of pressures and temperatures.

A further object of this invention is to provide a carburetor that will balance its throttle position with the outside atmosphere as the engine manifold pressure changes.

A still further object of this invention is to provide a carburetor that will automatically enrich the mixture of gasoline at critical engine stages of operation that require such additional fuel.

A still further object of this invention is to provide a carburetor that will successfully operate without a fuel pump or float valve.

A still further object of this invention is to provide a carburetor that provides rapid engine acceleration.

A still further object of this invention is to provide a carburetor that idles perfectly.

A still further object of this invention is to provide a carburetor that is so efficient under all conditions that the pollution of the air from the engines exhaust is greatly reduced.

Still further objects of my invention are to provide a carburetor that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

This invention consists in the construction, arrangements, and combination, of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in the claims, and illustrated in the accompanying drawing, in which:

FIGURE 1 is a perspective view of my carburetor installed on an internal combustion engine;

FIGURE 2 is an exploded perspective view of the throttle and needle valve with a section cut away to illustrate the throttle construction;

FIGURE 3 is a vertical sectional view of the carburetor taken on line 3-3 of FIGURE 1, and

FIGURE 4 is a vertical sectional view of the carburetor taken on line 4-4 of FIGURE 1.

In the drawings I have used the numeral 10 to designate the intake manifold of the internal combustion engine and to which my carburetor is associated and into which

2

it communicates. The main housing of my carburetor consists of a lower housing 12 communicating with an upper housing 14, as shown in FIGURE 3. The lower housing 12 has an internal chamber 16 which is adapted to be in communication with the manifold of the motor upon which the unit is to be used, such as the opening 17. The upper housing 14 has an internal cylindrical chamber 18 which, except for the throttle to be described hereafter, would be in communication with the chamber 16 in the lower housing 14. A vertical hollow tube 20 extends upwardly from the center of compartment 16 and is in communication by means of conduit 22 with bore 44 in the outer face of base housing 12.

A pressure regulator 26 has a cylindrical stud portion 28 which is received within bore 24. The outer end of stud portion 28 terminates in cup 30 having compartment 32 which receives oppositely disposed cups 34 with registering compartment 36. Bolts 38 extend through the cups into base housing 12. A fuel port 40 is in communication with a source of gasoline and communicates with chamber 32 by means of conduit 42 in the cup 30. The chamber 32 is in communication with the chamber 44 in the portion 28 by means of the conduit 46 in the cup 30. A hollow cap member 48 in chamber 44 normally covers the inner end of conduit 46 and center stem 50 slidably extends through the cup 30 into the compartment 32. A spring 52 has one end connected to the stem of the cap 48 and its other end connected to a set screw 54 threaded in the member 34. This spring yieldingly holds the cap in a closed position and this yielding action is adjustable by the set screw 54. The adjustment yieldingly governs the amount of gas pressure. The numeral 56 generally designates the vertically slidable throttle which is spool shaped in that it has a downwardly and outwardly extending lower skirt portion 58 and an upwardly and outwardly extending skirt portion 60. The skirt 60 slides within the cylinder bore 18 and a sealing ring 62 is imposed between the edge of the skirt 60 and bore 18. The area between the two skirts 58 and 60 communicates with the outside atmosphere through the opening or openings 64 that extend through the wall of the upper housing 14. On the bottom center of the throttle 56 is a downwardly extending tube 66 having its lower end portion slidable in the tube 20. A coil spring 68 embraces the tube 20 having its lower end engaging the inside bottom of the lower housing and its upper end engaging the under side of the throttle 56 for yieldingly holding the throttle in an upper position of its sliding action. The numeral 70 designates an upwardly extending tube on the top center of the throttle 56. This tube 70 vertically slides in a bearing 72 of the upper housing part 14. A cap nut 74 is threaded around the bearing 72. Threaded through the top of the cap nut is a thimble 76. The numeral 78 designates a needle valve having a top head 80 slidable in the thimble 76, and a tapered stem portion 82, slidably extending through the bottom of the thimble and slidably through a hole 84 in the lower portion of the throttle below the tube 70. Due to the location of the tube 66, the hole 84 will communicate with its upper inside and the stem 82 of the needle valve will extend loosely into the tube 66. The numeral 86 designates a coil spring having its lower end engaging the inside bottom of the thimble 76 and its other end engaging the needle valve head 80 for yieldingly holding the needle valve in an upper position of its movement. An adjustable hollow stop plug 88 is threaded into the top of the thimble 76 and above the head of the needle valve. The area inside the upper housing and above the upper skirt 60 of the throttle is designated by the numeral 90. The numeral 92 designates a passageway conduit connecting the manifold minus pressure area 16 with the area 90 above the

throttle. The numeral 94 designates a pilot valve imposed in the passageway conduit 92. This valve 94 is actuated by the control rod 96. The numeral 98 designates a small bleeder passageway communicating with the area between the upper and lower skirts of the throttle 56 and the passageway conduit 92. This opening passageway 98 is controlled by an adjustable threaded needle valve 100 as shown in FIGURE 4. The numeral 102 designates a plurality of radially extending passageways in the lower skirt 58 of the throttle. These passageways communicate with the inside bottom of the tube 70 and the area 16 of the inside lower housing at the periphery of the skirt 58.

The practical operation of the device is as follows: The throttle 56 is vertically floatable, but is controlled by engine suction and atmospheric pressures working in conjunction with the yieldable support spring 68. The area between the two skirts of the throttle 56 is exposed to the outside atmosphere and in some experiments I permitted air to leak around the edge of the upper skirt 60 into the area 90. However, if there be any leakage, and with the valve 94 open, any such air leakage would be pulled into the engine intake manifold as fast as it came in. When the engine is at idling speed the manifold vacuum will exist in the area 16, passageway conduit 92 and area 90 above the throttle, thus pulling the throttle to an upper position of its movement. With the throttle in such an upward position, it will more closely embrace the needle valve stem 82, (which is tapered as it extends downwardly) and less gasoline will pass through the throttle passageways 102. The course of the gasoline will be drawn by the suction of the manifold pressure through the passageway 22, thence through the tube 20, thence through the tube 66, thence past the needle valve and into the tube 70, thence through the passageways 102 and then into the air stream passing the periphery of the lower skirt of the throttle. As the accelerator lever 96 is progressively moved to further progressively close the valve 94 there will be less vacuum exerted on the top of the throttle and the suction of the manifold pressure below the throttle will pull the throttle downwardly thereby increasing the flow of gasoline around the needle valve and through the opening 84. If the accelerator rod is quickly actuated to increase engine speed, the manifold pressure is quickly dropped and there is a tendency for the throttle to quickly move downwardly and then objectionably bounce upwardly. This tends to cause a hesitation of the engine as the gasoline catches up with the volume of air. To slow down the rapid downward movement of the throttle, a small spring loaded relief valve 104 is imposed in a passageway 106 connecting the area 16 with the passageway conduit 92. Thus if any air were to rush down the conduit 92 after the valve 94 were closed, the valve 104 would yieldingly permit the passage of air into the area 16 and slow the downward movement of the throttle. The chief source of air into the passageway conduit 94 and the area 90 above the throttle is through the adjustable passageway opening 98. The O-ring 62 is for preventing substantially all bleeding of air around the periphery of the skirt 60 of the throttle. The adjustment of the needle valve 100 is used to smooth out the carburetor for all speeds of a given engine. When the throttle is moved downwardly by a minus atmospheric pressure in the area 16, the air will flow past the peripheral edge of the skirt 58 of the throttle and will suck gasoline from the passageways 102, and atomize it. The spring loaded needle valve 78 may move upwardly or downwardly five or six thousandths of an inch. It will raise with pressures of twenty-five inches or more. A ring groove 110 may be cut around the periphery of the lower throttle skirt 58 and a plurality of spirally positioned grooves 112 extended thereto for the atmosphere to aid in drawing and atomizing the gasoline. From the foregoing it will be appreciated that the throttle is controlled by a minus pressure below it versus a controlled pressure above it. When the throttle

is in an up position, the area 16 is substantially closed to the outside atmosphere and as it progressively lowers, the communication between the area 16 and the outside atmosphere progressively increases. No fuel pump is necessary. When the engine starts, the vacuum will pull the needle valve down, thus eliminating gasoline flooding. The action in conjunction with the throttle determines the proper richness of the gas relative to the air ratio. This automatic adjustment of parts insures the proper mixture at all speeds and atmospheric conditions. This proper mixture is maintained regardless of the throttle position.

Some changes may be made in the construction and arrangement of my carburetor for internal combustion engines without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area; said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine, throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment, an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area, a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid, means mounting a needle valve stem extending into the passageway of said throttle valve means, at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing, a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means, and a manually controllable valve means imposed in said conduit.
2. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area; said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine, throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment, an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area, a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid, means mounting a needle valve stem extending into the passageway of said throttle valve means, at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing, a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of

5

6

the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 and a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means.

3. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 and an adjustable valve means in said last mentioned passageway.

4. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,

a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 and a means for yieldingly holding said throttle valve means in an upward position.

5. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the upper area of the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 and a manually controllable valve means imposed in said conduit.

6. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a spring loaded needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 and a manually controllable valve means imposed in said conduit.

7. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,

throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 and a means for yieldingly holding said throttle valve means in an upward position;
 said throttle valve means being in the general form of a spool having a lower skirt portion and a spaced apart upper skirt portion.
 8. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 and a means for yieldingly holding said throttle valve means in an upward position;
 said throttle valve means being in the general form of a spool having a lower skirt portion and a spaced

apart upper skirt portion and with said combustible fluid passageway or passageways extending through said lower skirt portion.
 9. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 and a means for yieldingly holding said throttle valve means in an upward position;
 said throttle valve means being in the general form of a spool having a lower skirt portion and a spaced apart upper skirt portion and with said combustible fluid passageway or passageways extending through said lower skirt portion and exiting at the periphery of said lower skirt portion.
 10. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,

a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 and a means for yieldingly holding said throttle valve means in an upward position;
 said throttle valve means being in the general form of a spool having a lower skirt portion and a spaced apart upper skirt portion and with said combustible fluid passageway or passageways extending through said lower skirt portion and exiting at the periphery of said lower skirt portion;
 said lower skirt portion of said throttle valve means having an irregular periphery.
11. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 a means for yieldingly holding said throttle valve means in an upward position,
 and a passageway connecting the lower inside compartment area of said carburetor housing to said conduit at a point beyond said manually controllable valve means.
12. In a carburetor for internal combustion engines, a carburetor housing having an upper bore and a lower compartment area;
 said lower compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore of said housing and adapted to variably restrict the entrance to said lower compartment,
 an air inlet port in said housing communicating with the bore of said housing above the entrance to said lower compartment area,

a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve means and its other end communicating with the inside of the lower compartment area of said carburetor housing,
 a conduit having one end communicating with the lower compartment area of said carburetor housing and its other end communicating with the inside of the bore of said carburetor housing at a position above the said throttle valve means,
 a manually controllable valve means imposed in said conduit,
 a passageway operatively connecting the outside atmosphere with the inside of the bore of said carburetor at a position above said throttle valve means,
 an adjustable valve means in said last mentioned passageway,
 a means for yieldingly holding said throttle valve means in an upward position,
 and a valve regulated passageway connecting the lower inside compartment area of said carburetor housing to said conduit at a point beyond said manually controllable valve means.
13. In a carburetor for internal combustion engines, a carburetor housing having a bore area and a compartment area,
 said compartment area adapted to be in communication with the intake manifold of an internal combustion engine,
 throttle valve means slidably mounted in the bore area of said housing and adapted to variably restrict the entrance to said compartment area,
 an air inlet means in said housing communicating with the inside of said housing at a location above the entrance to said compartment area,
 a passageway extending through said throttle valve means adapted to have one end in communication with a source of combustible fluid,
 means mounting a needle valve stem extending into the passageway of said throttle valve means,
 at least one fluid exit passageway in said throttle valve means having one end operatively connected to the other end of said passageway of said throttle valve and its other end communicating with said compartment area,
 a conduit having one end communicating with said compartment area and its other end communicating with said bore area,
 and a manually controllable valve means imposed in said conduit.

References Cited by the Examiner

UNITED STATES PATENTS

1,862,978	6/1932	Norris	261—50
2,167,892	8/1939	Kent et al.	261—50

FOREIGN PATENTS

435,768	9/1935	Great Britain.
515,040	11/1939	Great Britain.
528,939	11/1940	Great Britain.

HARRY B. THORNTON, *Primary Examiner.*T. R. MILES, *Assistant Examiner.*