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CARBURETOR

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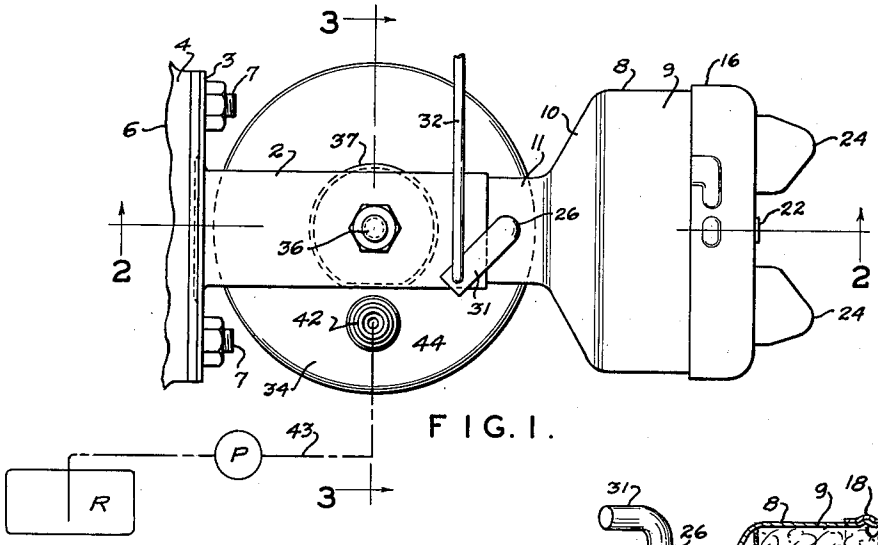


FIG. 1.

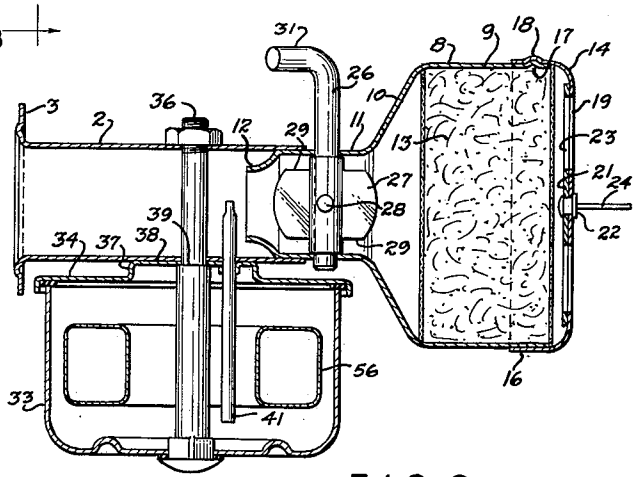
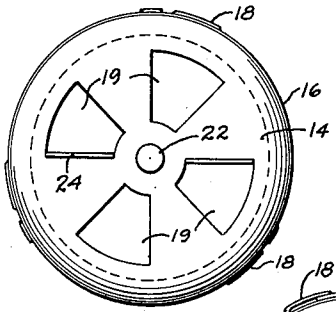


FIG. 2.

FIG. 4.



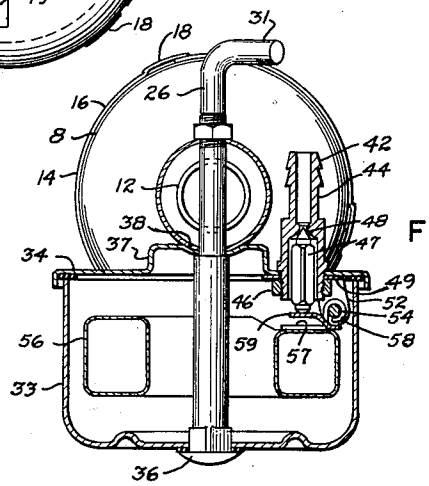


FIG. 3.

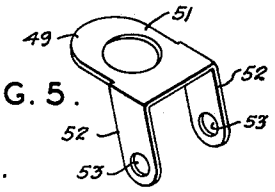


FIG. 5.

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CARBURETOR

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This invention relates to anterior throttle carburetors adapted for use with small internal combustion engines of the type provided for driving lawn mowers, and has for an object the provision of a carburetor adapted to be inexpensively fabricated from sheet metal.

Another object of the invention resides in the provision of a carburetor embodying a length of sheet metal tubing forming a mixture conduit, and a tubular sheet metal air horn section telescopically engaged within one end of the mixture conduit.

A further object of the invention resides in the provision of an air horn section having an enlarged air inlet end to receive an air filter element and a removable cover formed with air inlet openings adapted to be opened or closed by a manually operable choke valve disk journaled on the cover.

Another object of the invention resides in the provision of an air horn section having its inner end formed to provide a venturi anterior to and adjacent a fuel tube extending upwardly from a fuel bowl into the mixture conduit.

Another object of the invention resides in the provision of a cup-shape fuel bowl having a cover formed with a concentric dome portion having a recess to receive the lower portion of the mixture conduit, the bowl and cover being detachably connected to the mixture conduit by means of a single bolt.

Another object of the invention resides in the provision of a needle valve structure detachably mounted on the float bowl cover by means of a nut threaded on the needle valve body.

Another object of the invention resides in the provision of a ring-shape float provided with a bearing plate having spaced bearings to receive a pivot pin, the pivot pin being mounted at its ends in apertures formed in a pivot pin bracket which is secured in fixed position between the float bowl cover and the needle valve nut.

Another object of the invention resides in the provision of a finger formed on the float bearing plate to engage and move a needle relative to its seat to maintain a substantially constant fuel level within the fuel bowl.

Another object of the invention resides in the provision of a throttle valve secured to a shaft journaled in bearing apertures formed in the inner end of the air horn section anterior to the venturi, the throttle valve having parallel side edges spaced from their respective bearing apertures.

The invention embodies other novel features, details of construction and arrangement of parts which are hereinafter set forth in the specification and claims and illustrated in the accompanying drawing, forming part thereof, wherein:

FIG. 1 is a top plan view illustrating an anterior type carburetor embodying features of the invention.

FIG. 2 is a longitudinal section taken along the line 2—2 of FIG. 1.

FIG. 3 is a transverse section taken along the line 3—3 of FIG. 1.

FIG. 4 is an end elevation showing the air horn section cover and choke valve.

FIG. 5 is a perspective view showing the float pivot pin bracket.

Referring now to the drawing for a better understanding of the invention, the anterior throttle carburetor is shown as comprising a horizontal mixture conduit 2 formed of sheet metal and provided at one end with a flange 3 for detachable engagement with the intake manifold 4 of an internal combustion engine 6 by means of bolts or screws 7, the conduit being of substantially uniform diameter throughout its length.

An air horn section 8 is also formed of sheet metal to provide a relatively large diameter air inlet section 9 which converges at 10 to merge with a throttle section 11. The throttle section 11 is snugly telescopically secured within the end of the mixture conduit remote from the flange 3 by means of a suitable cement. The inner end of the air horn section 8 tapers from the throttle section 11 toward the axis of the mixture conduit to provide an axially located annular venturi section 12.

A suitable air filter element 13 is snugly engaged with the air inlet section 9 and retained against displacement therefrom by means of a cover 14 having a rim portion 16 telescopically mounted on the outer end of the section 9. The cover 14 is detachably connected to the air inlet section by means of protuberances 17 formed on said section for engagement in grooves 18 formed in the rim portion 16. The cover 14 is formed with air inlet openings 19 adapted to be closed by a choke valve disk 21 during cold starting of the engine, the disk being mounted for rotational movement on a rivet 22 on the cover and provided with apertures 23 for registry with the openings 19 during operation of the engine. The choke valve disk 21 is provided with ears 24 which project outwardly through the openings 19 for manual engagement by the operator to adjust the position of the disk.

A throttle shaft 26 is journaled in diametrically opposed bearing apertures formed in the throttle section 11 and has a throttle valve 27 secured thereto by a rivet 28, the valve having parallel upper and lower edges 29—29. When the throttle valve is in its closed position, it will be noted that a reduced quantity of air will flow between the openings defined by the valve edges 29—29 and the inner surface of the throttle section 11. The upper end of the throttle shaft 26 is offset at 31 for engagement by a suitable throttle operating linkage 32.

A cup-shape fuel bowl 33 and a circular cover 34 are shown as blanked and formed from sheet metal and secured to the mixture conduit 2 by means of a single bolt 36 which extends upwardly through central coaxial apertures formed in the bowl and cover and vertically aligned apertures in the mixture conduit. The cover 34 is formed with an upwardly projecting dome portion 37 formed with an arcuate recess 38 to receive the lower side of the mixture conduit 2. The bolt 36 is preferably provided with a shoulder 39 for engagement against the lower side of the dome portion 37 to limit the clamping force exerted by the bolt against the bottom of the fuel bowl.

A fuel metering tube 41 extends from the fuel bowl 33 upwardly through openings in the cover 34 and mixture conduit 2 to the longitudinal axis of the mixture conduit, the tube being disposed between the bolt 36 and the venturi section 12 whereby fuel is discharged into the mixture conduit responsive to the flow of air from the venturi. The tube 41 is preferably press-fitted into the opening in the cover 34 and slidably engaged in the opening in the mixture conduit.

A float actuated needle valve structure 42 is provided to control the flow of fuel passing from a reservoir R and pump P through conduit 43 to the fuel bowl 33. The valve structure is shown as comprising a tubular valve body 44 mounted in an opening in the bowl cover 34 and secured to the latter by a nut 46. A needle valve

member 47 is slidably mounted in the body 44 for engagement with a valve seat 48 to stop the flow of fuel to the bowl.

A float structure for actuating the valve member 47 is shown as comprising a pivot pin mounting bracket 49 having a body portion 51 formed with an aperture to receive the valve body 44 and to be clamped against the lower side of the cover 34 by the nut 46. A pair of ears 52—52 extend downwardly from opposite sides of the body 49 and are formed with coaxial apertures 53—53 to receive the ends of a pivot pin 54.

A ring shape float 56 is disposed within the fuel bowl 33, coaxial with the bolt 36 and fuel bowl. A bearing member 57 is secured to the float 56 and provided with spaced coaxial bearings 58—58 to receive the pivot pin 54, the bearings being engaged against movement axially of the pin by the ears 52—52. A finger 59 is provided on the bearing member 57 for engagement against the lower end of the valve member 47, whereby the valve member is moved relative to the valve seat 48 to maintain a substantially constant fuel level in the fuel bowl.

It will be noted that the carburetor thus shown and described is adapted to be inexpensively fabricated from sheet metal and readily assembled for use or disassembled for cleaning and repair.

Certain structures have been described herein which will fulfill all the objects of the present invention, but it is contemplated that other modifications will be obvious to those skilled in the art which come within the scope of the invention as defined by the appended claims.

We claim:

1. A carburetor comprising a first cylindrical sheet metal section of uniform diameter formed at one end with a flange for connection to an engine manifold, a second cylindrical sheet metal section having one end thereof snugly telescopically fitted within the other end of said first cylindrical section to form a fuel and air mixture conduit therewith, said second section terminating at its said one end within said first section with a reduced terminal portion defining an axially located uninterrupted annular venturi concentrically arranged with the first section of said fuel and air mixture conduit, the other end of said second section extending outwardly of said first section and being enlarged to define an air inlet opening, a throttle valve movably mounted in said mixture conduit and spaced from said venturi, a fuel chamber, a bolt structure within said fuel chamber and having a head at one end holding said fuel chamber to said first cylindrical section, the other end of said bolt structure extending laterally through said first cylindrical section downstream of said venturi and with its axis in a plane intersecting the axis of the venturi, a nut threaded on said other bolt end at the outside of said first cylindrical section to clamp said fuel chamber and said first cylindrical section together, and fuel passage means having a terminal discharge portion, said fuel passage means extending from the fuel chamber into the first sheet metal section of said mixture conduit and terminating at a point between a portion of said bolt structure and said annular venturi defined by the reduced terminal portion of the second section and in the path of the airstream therefrom.

2. A carburetor comprising a first cylindrical sheet metal section of uniform diameter formed at one end with a flange for connection to an engine manifold, a second cylindrical sheet metal section having one end thereof snugly telescopically fitted within the other end of said first cylindrical section to form a fuel and air mixture conduit therewith, said second section terminating at its said one end within said first section with a reduced terminal portion spaced from the adjacent wall of the first section defining an axially located annular venturi, the other end of said second section extending outwardly of said first section and being enlarged to define an air inlet housing, an apertured cover for said enlarged end of said second section, means for controlling the amount of air flow through said cover, a throttle valve movably mounted in the second section of said mixture conduit between the annular venturi and the outer enlarged end portion thereof, a fuel chamber, a cover for said fuel chamber, a bolt within said fuel chamber and having a head at one end holding said fuel chamber to said first cylindrical section, the other end of said bolt extending laterally through said first cylindrical section, a nut threaded on said other bolt end to clamp said fuel chamber, said cover and said first cylindrical section together, and fuel passage means extending from said fuel chamber into said mixture conduit downstream of said venturi and between said venturi and said bolt.

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