Feb. 12, 1924. 1,483,634

D. GUELBAUM

CARBURETOR

Filed March 14, 1921

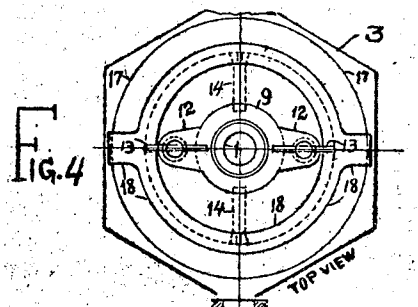


FIG. 4

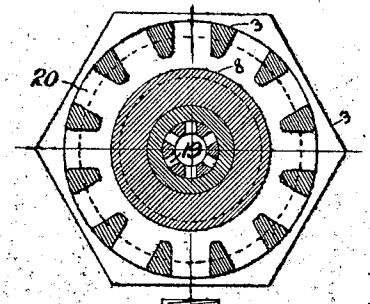


FIG. 5

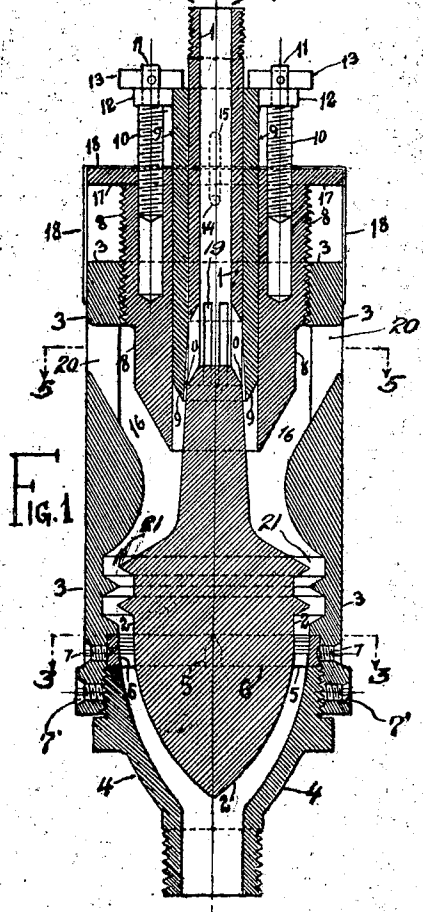


FIG. 1

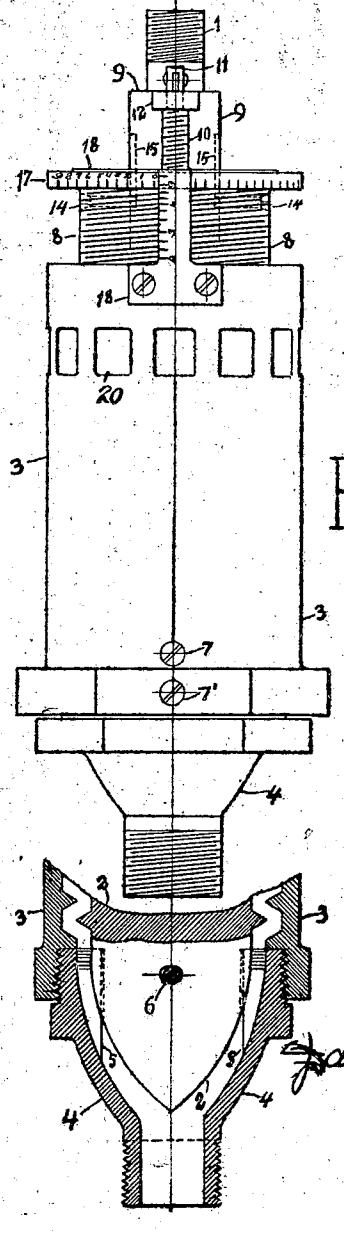


FIG. 2.

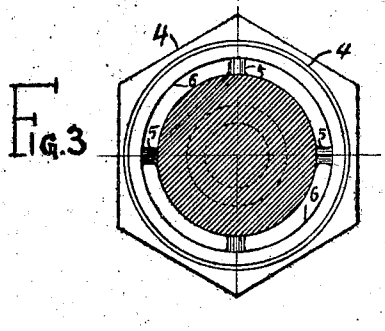


FIG. 3

FIG. 6.

INVENTOR.

David Guelbaum.

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UNITED STATES PATENT OFFICE.

DAVID GUELBAUM, OF SYRACUSE, NEW YORK.

CARBURETOR.

Application filed March 14, 1921. Serial No. 452,361.

To all whom it may concern:

Be it known that I, DAVID GUELBAUM, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Carburetor, of which the following is a specification.

This invention of a carburetor has for its object the thoro permeation of air with any kind of liquid fuel, in a fixed ratio between the volumes of the air and the fuel, by means of two concentric sheet streams of air and oil of adjustable thicknesses, as of the type set forth in my previous applications, Sr. No. 412,736, filed Sept. 25, 1920; Sr. No. 432,186, filed Dec. 21, 1920 and Sr. No. 448,060, filed Febr. 26, 1921, my present device being distinguished by the special construction of the bottom of the outer casing, of the double adjusting sleeve and of the central fuel supply pipe.

My invention consists in the novel features as hereinafter set forth and claimed, and as shown on the accompanying drawings, in which like characters designate corresponding parts in all the views.

Fig. 1 is a vertical section of my carburetor.

Fig. 2 is a side view of the same.

Fig. 3 is a section 3—3 with outer casing removed.

Fig. 4 is a top view of same.

Fig. 5 is a section 5—5 thro the air and fuel inlets.

Fig. 6 shows another means for securing the inner central pipe to the outer casing.

As seen on Fig. 1 the fuel enters the top of the inner central pipe 1 and passes thro the slots 19 into the concentric passage 0, while the outside air enters the open ports 20 in the outer casing 3 and passes into the concentric passage 16, both sheet streams, impinging upon each other and spreading out into a conical stream, intermingle together in the zig-zag passages 21 and pass out at the bottom opening.

The regulation of the air and fuel supplies is here effected by means of two concentric sleeves 8 and 9, slidingly fitting into each other.

The inner sleeve 9 slidingly fits the central pipe 1 and at its bottom inside spreads out into a cone surface of very slight bevel, parallel to the similar adjacent cone surface of the central pipe 1, both these cone surfaces forming the sides of the fuel passage 0 Fig. 1.

The outer sleeve 8 screws in and out of the casing 3, and is provided with two tapped holes to receive the screws 10. The ends 11 of these screws, reduced in diameter and passing thro the lugs 12 cast on the top of the inner sleeve 9 are held in engagement with said lugs and operated by the thumb handles 13, as shown on Figs. 1 and 2. By turning the screws 10 by means of the handles 13, the inner sleeve 9 is moved in or out of the sleeve 8. The movement of the sleeve 9 relative to the sleeve 8 is limited by the two pins 14 screwed into the sleeve 8 and entering the grooves 15 on the sleeve 9, as shown dotted on Figs. 1, 2 and 4. On Fig. 1 both sleeves are shown in their highest position with the air passage 16 and the fuel passage 0 fully open.

By turning its top flange 17 the sleeve 8 is screwed in or out of the casing 3, carrying with it the sleeve 9, and the air and fuel passages are both simultaneously closed or opened. By turning the handles 13 the inner sleeve 9 is moved in or out of the outer sleeve 8, closing or opening the fuel passage 0, while the air passage 16 remains unchanged. The movement of the outer sleeve 8 upward is limited by the overlapping top plate 18 fastened to the outer casing, as shown on Figs. 1, 2 and 4.

The plate 18 is graduated, being provided on its vertical sides with subdivisions giving the number of turns of the sleeve 8, while subdivisions on the periphery of the flange 17 indicate fractions of a turn of the sleeve 8 as shown on Fig. 2. Thus, the exact position of the sleeve 8 is indicated and with it the extent of the opening of the air passage 16.

As seen on Fig. 1, the inner pipe 1 of the mixing and proportioning valve heretofore described is provided at its bottom with the curved head 2, the projecting ribs on this head and on the inside of the adjacent outer casing 3 forming together a zig-zag passage for the intermingling of the air with the fuel.

On this head 2 are cast the four arms 5 with the outer rim 6, which is fitted into the outer casing 3 and held by the set screws 7, as shown on Figs. 1 and 3. The arms 5 are beveled off on top to reduce resistance to the passing stream of air and fuel.

The head 2 of the inner pipe 1 is surrounded by the corresponding extension piece 4, the top of which is screwed into the tapped bottom of the outer casing 3, butting against the rim 6 and held by the set screws 7^1, while its bottom terminates in a threaded nipple for ready connection to the engine intake, or to any other pipe line.

Thus, the inner pipe 1 with its extension piece 2 is located vertically and centered relative to the outer casing 3, forming one compact body with same.

On Fig. 6 is shown another means of locating and securing the inner central pipe 1 with its head 2 relative to the outer casing 3. On the extension piece 4 are cast the two lugs, 5^1 fitting into grooves on the extension piece 2, which is thus supported and is secured from vertical displacement by the pin 6 passing thro it and the extension piece 4. Slight side clearances are provided for the webs 5^1 and the pin 6, as shown, in order to allow for self centering of the inner pipe 1 in assembling.

Fig. 4 is a top view of the carburetor, showing the limiting and indicating plate 18. It has a circular hole in the centre to allow the inner sleeve 9 with its lugs 12 to pass thro, when the flange 17 is being turned to the right, and both sleeves are turning and moving downward together, while the plate 18 is fixed and stationary.

Fig. 5 is a cross section 5—5 thro the air and fuel inlet ports.

What I claim is:

1. A carburetor comprising a casing open at both ends and having air inlet openings in its periphery; a fuel supply pipe having a closed end and peripheral discharge ports extending into one end of said casing with its closed end secured in the other end thereof so as to leave a discharge opening around the closed end of said pipe; a sleeve valve reciprocating on said fuel supply pipe to control the thickness of the fuel sheet stream and a second sleeve valve adjustably secured to the first mentioned sleeve valve and reciprocably mounted in the end of the casing to control the thickness of the air sheet stream, substantially as and for the purpose specified.

2. A carburetor comprising a casing open at both ends tapped inside and having air inlet openings in its periphery and provided with a cone shaped projecting surface inside to form a converging air sheet stream and having a curved head screwed in at its outlet end and terminating with a discharge nozzle; a fuel supply pipe having peripheral discharge ports and a closed end secured inside of said casing at its outlet end; a sleeve valve reciprocating on said fuel supply pipe to control the thickness of the fuel sheet stream and a second sleeve valve adjustably secured to the first mentioned one and reciprocably mounted in the inlet end of said casing to control the thickness of the air sheet stream, substantially as and for the purpose set forth.

3. A carburetor comprising a casing open at both ends and having air inlet openings in its periphery and provided with an extension piece screwed in at its outlet end; and a fuel supply pipe having peripheral discharged ports and a closed end provided with a diverging cone shaped head for spreading out the fuel into a diverging sheet stream and having a rim connected to it by cast on arms and held securely in the outlet end of said casing by the head; a sleeve valve reciprocating on said fuel supply pipe to control the thickness of said fuel sheet stream and a second sleeve valve adjustably secured to the first mentioned one and reciprocably mounted in the inlet end of said casing to control the air sheet stream thickness therein, substantially as and for the purpose described.

4. A carburetor comprising a casing open at both ends tapped inside and having air inlet openings in its periphery and provided with a cone shaped projecting surface inside to form a converging air sheet stream and having an extension piece with a discharge nipple screwed in its outlet end; a fuel supply pipe having peripheral discharge ports and a closed end with a diverging cone shaped surface for spreading out the fuel into a diverging sheet stream and held securely in the outlet end of said casing; and a sleeve valve reciprocating on said fuel supply pipe and having a diverging cone surface at its bottom inside for controlling the thickness of said diverging fuel sheet stream and a second sleeve valve adjustably mounted on the first mentioned one and flanged and threaded at its top to screw in and out in the inlet end of said casing and having its bottom beveled on the outside to control the thickness of the converging air sheet stream spread over the projecting cone surface inside of said casing and being provided with screws passing through lugs secured on top of the first mentioned sleeve valve for adjusting the relative position of both sleeve valves for regulating the thicknesses of said fuel and air sheet streams separately or together, substantially as and for the purpose specified.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 11th day of March, 1921.

DAVID GUELBAUM.