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Edmonston

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[54] **CARBURETOR**

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Related U.S. Patent Documents

Reissue of:

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Appl. No.: **928,292**
Filed: **Jul. 26, 1978**

[51] **Int. Cl.**[3] **F02M 9/06**
[52] **U.S. Cl.** ..... **261/44 B**
[58] **Field of Search** ..... 261/44 C, 44 B

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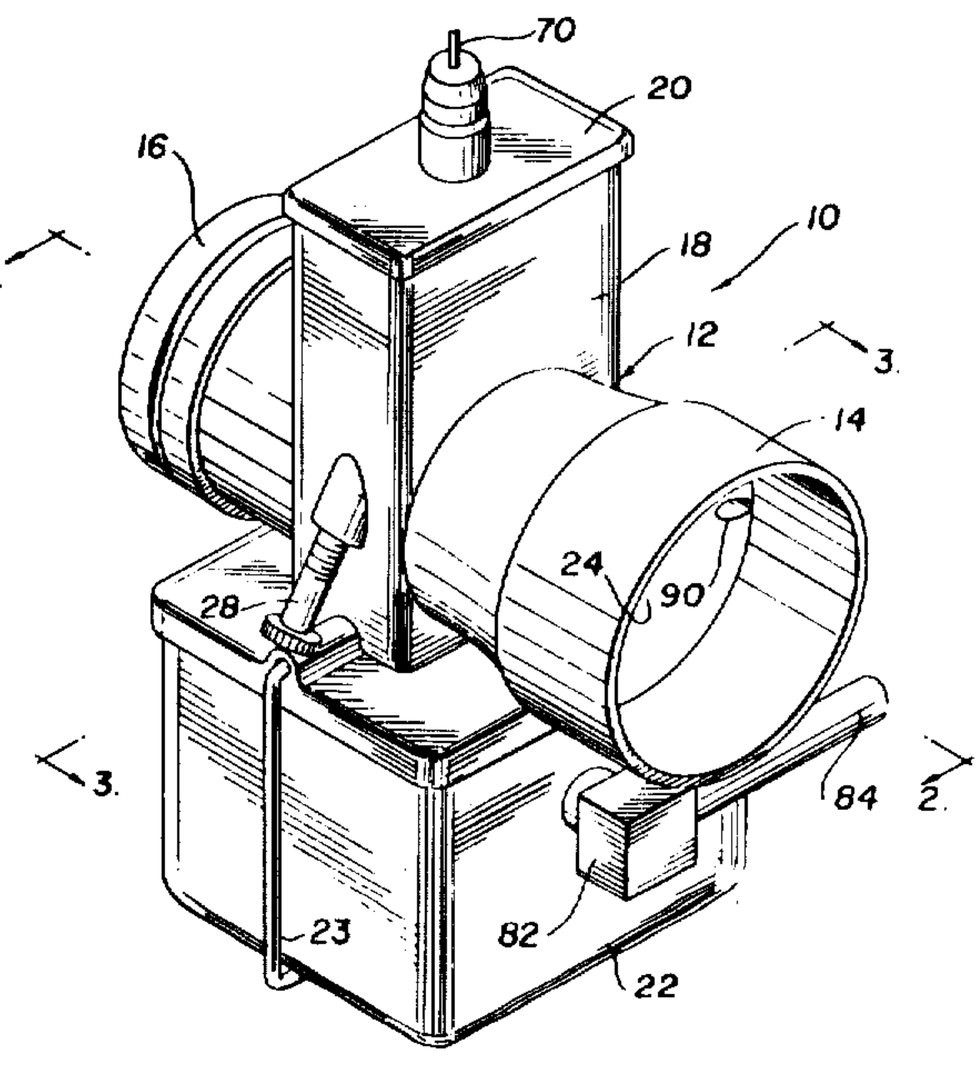
Attorney, Agent, or Firm—Jacobi, Siegel, Presta, Marzullo & Aronson

[57] **ABSTRACT**

A carburetor comprising a body defining a throat, a throttle slide member slidably mounted on the body and disposed in the throat, and a tapered metering rod or needle mounted on the slide member and extending downwardly into a fuel supply tube leading into a fuel reservoir or bowl secured to the body. The slide member has front and rear, substantially flat panels disposed in substantially parallel relation, with the front panel being shorter than the rear panel for the purpose of providing air at the outlet of the fuel supply tube even when the slide is in a closed position and for directing air toward the outlet when the slide is in an open position. The body is provided with a substantially axial groove intersecting the fuel outlet at the throat for the purpose of directing high speed air flow toward the metering rod and over the fuel outlet when the slide is opened. The metering rod is provided with a downwardly and inwardly tapered, rear flat face and is mounted for longitudinal adjustment relative to the slide member.

16 Claims, 11 Drawing Figures



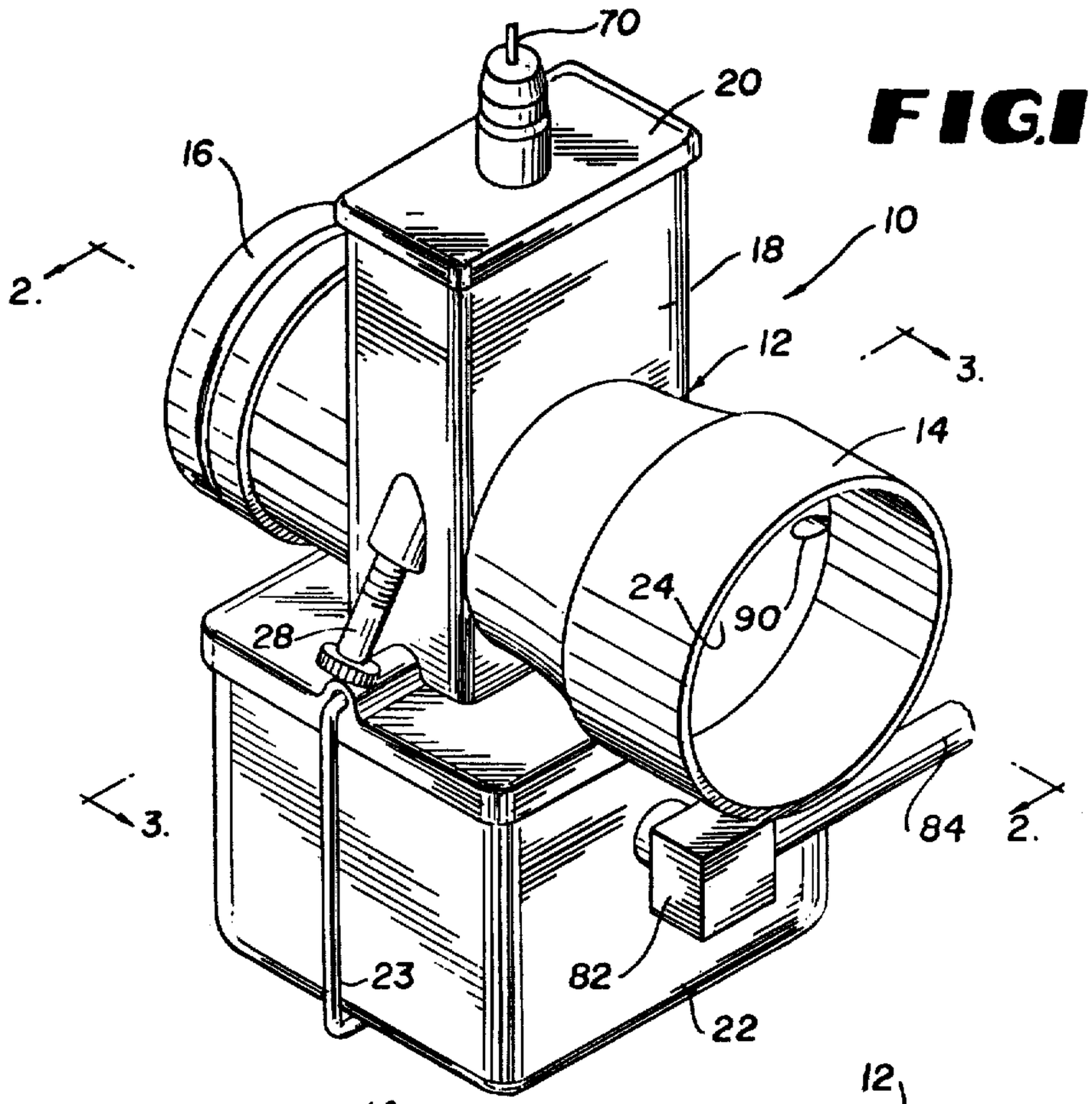


FIG.1

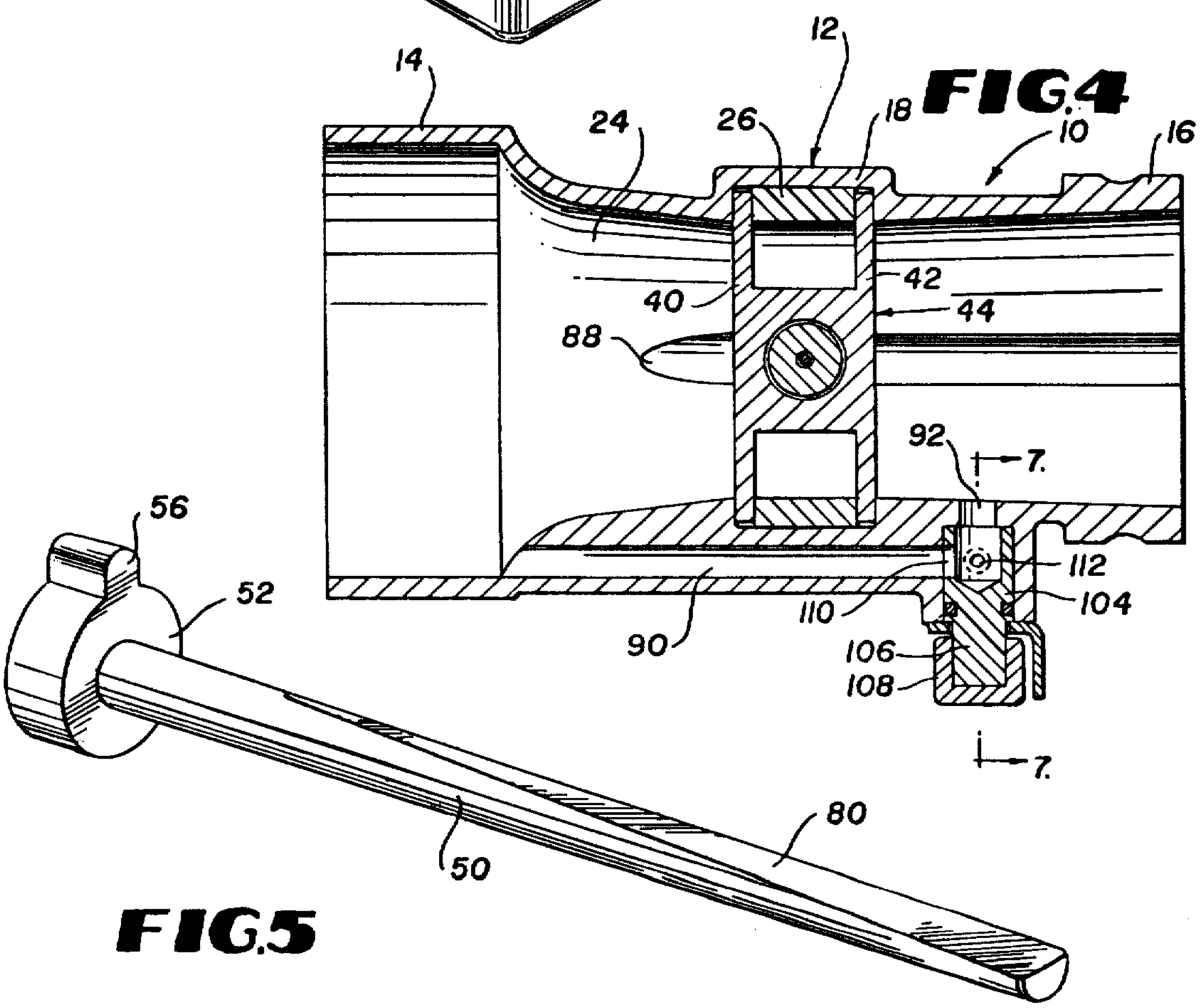
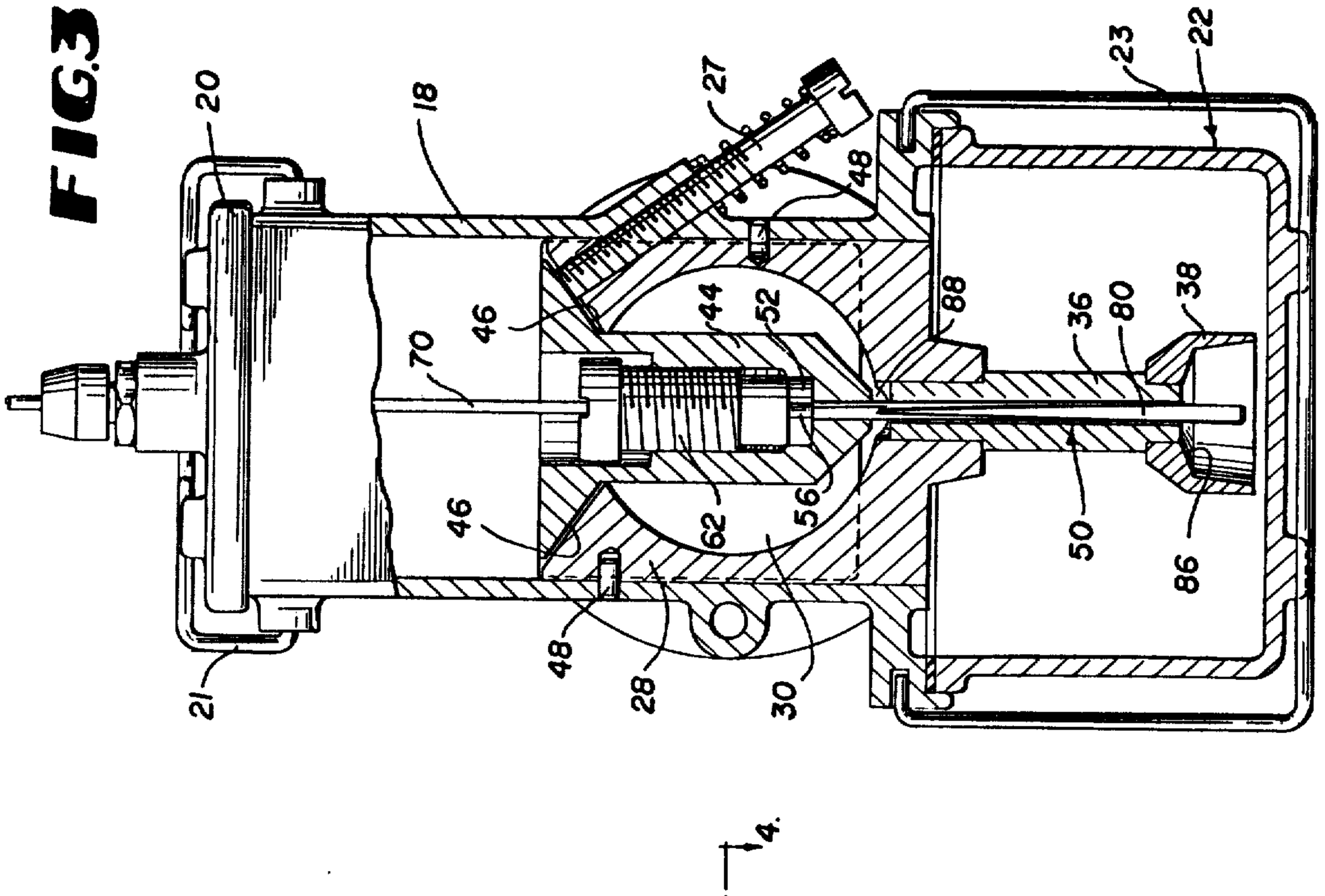


FIG.4

FIG.5

FIG. 3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18
27
23
22
48
46
70
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36
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38
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62
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50
86
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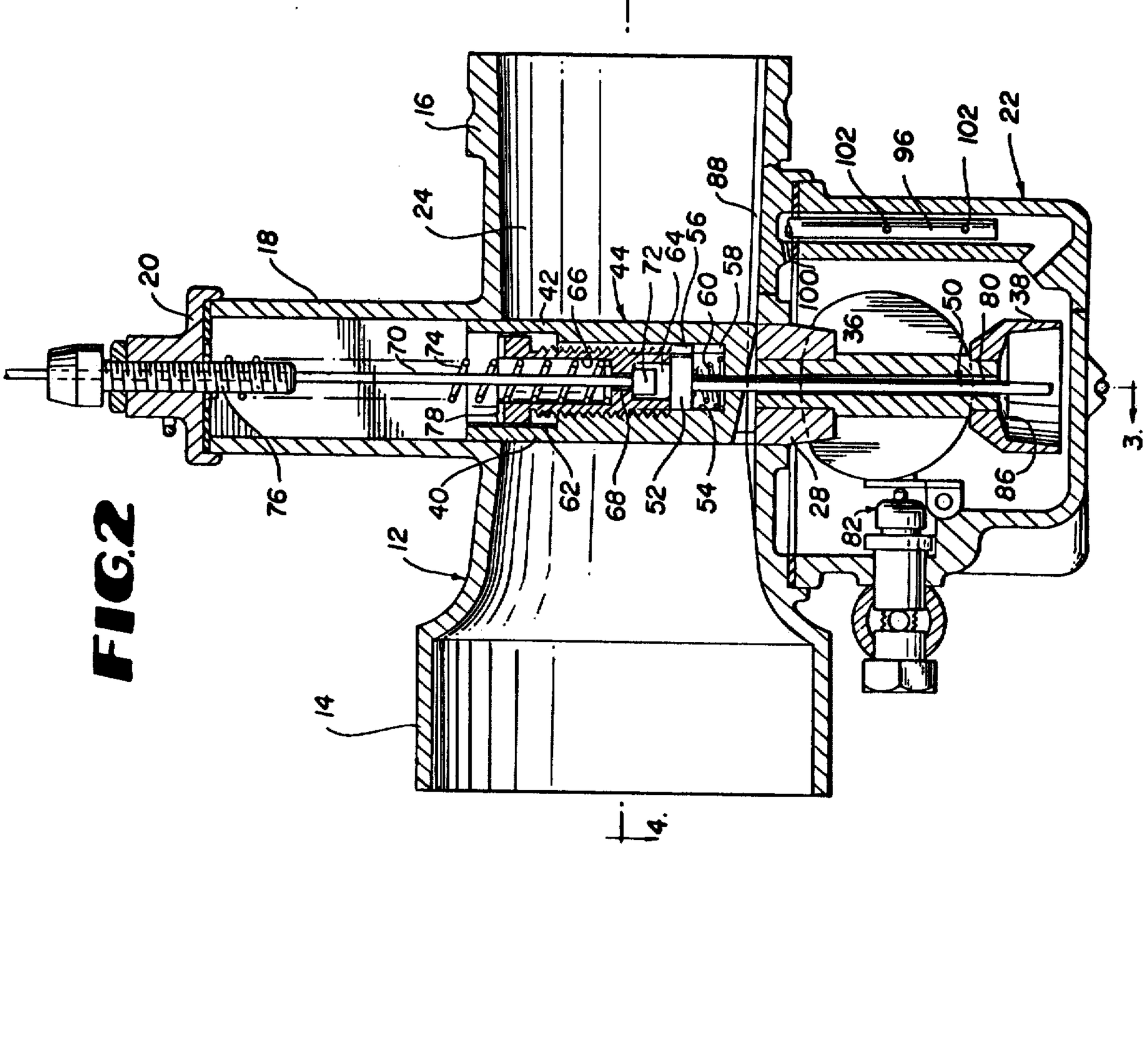
28
30
21

4.

FIG. 2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60
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100
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38
36
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68
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54
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82
86
12
14
3.
4.

FIG.7

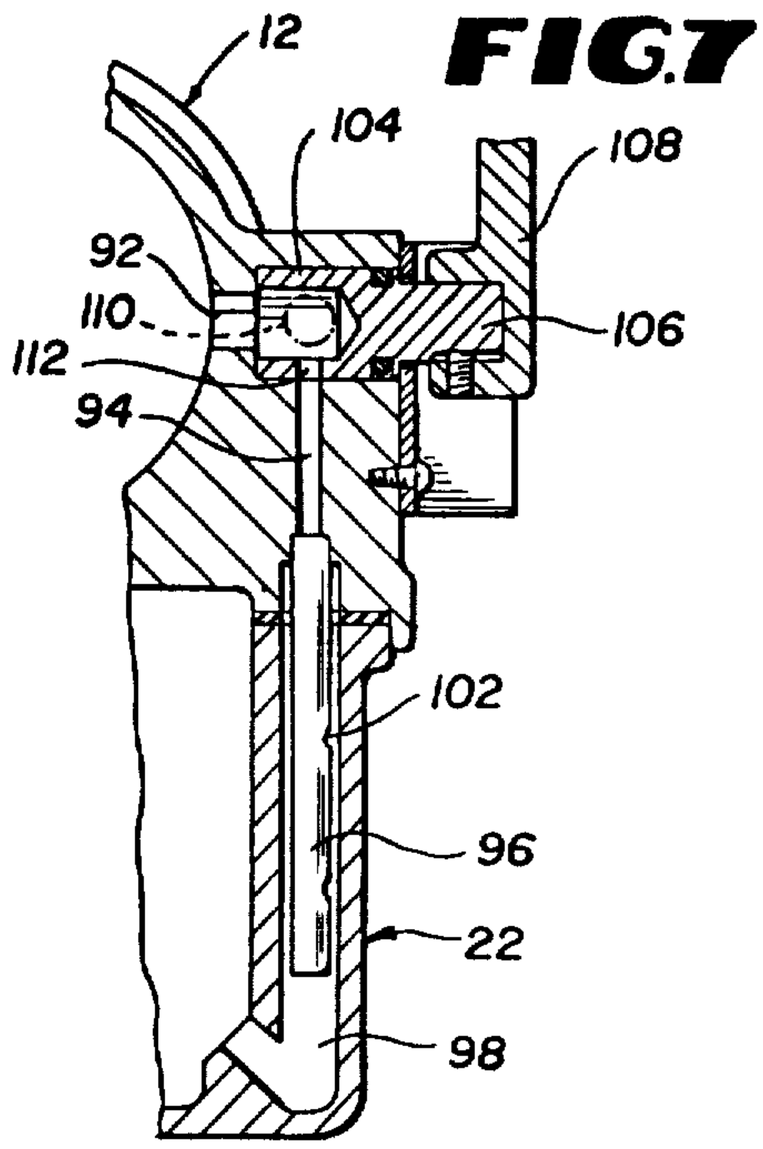


FIG.6

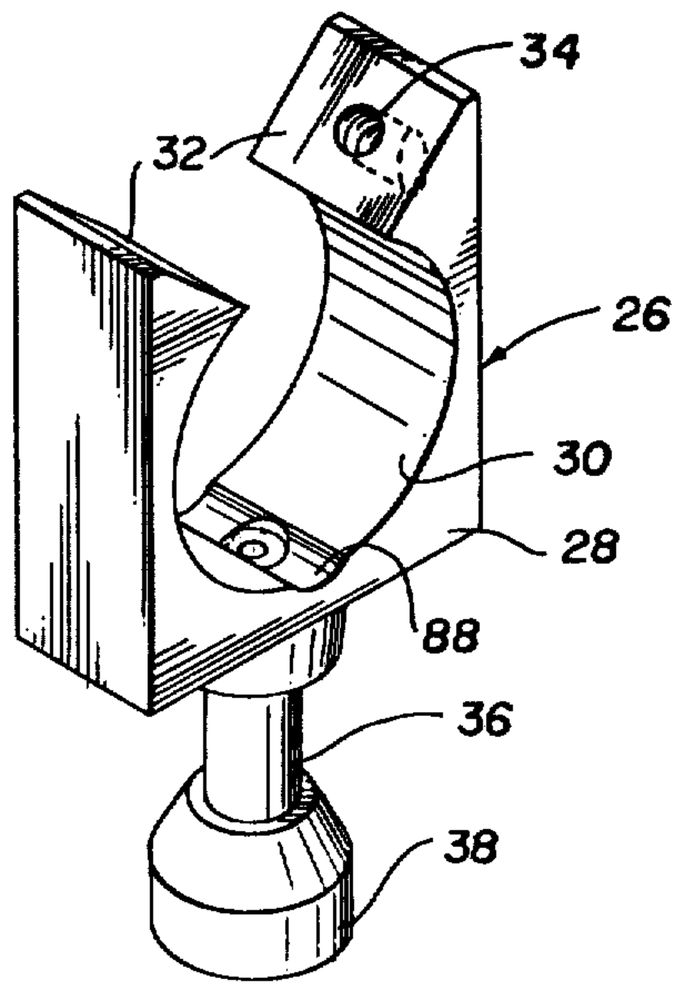


FIG.9

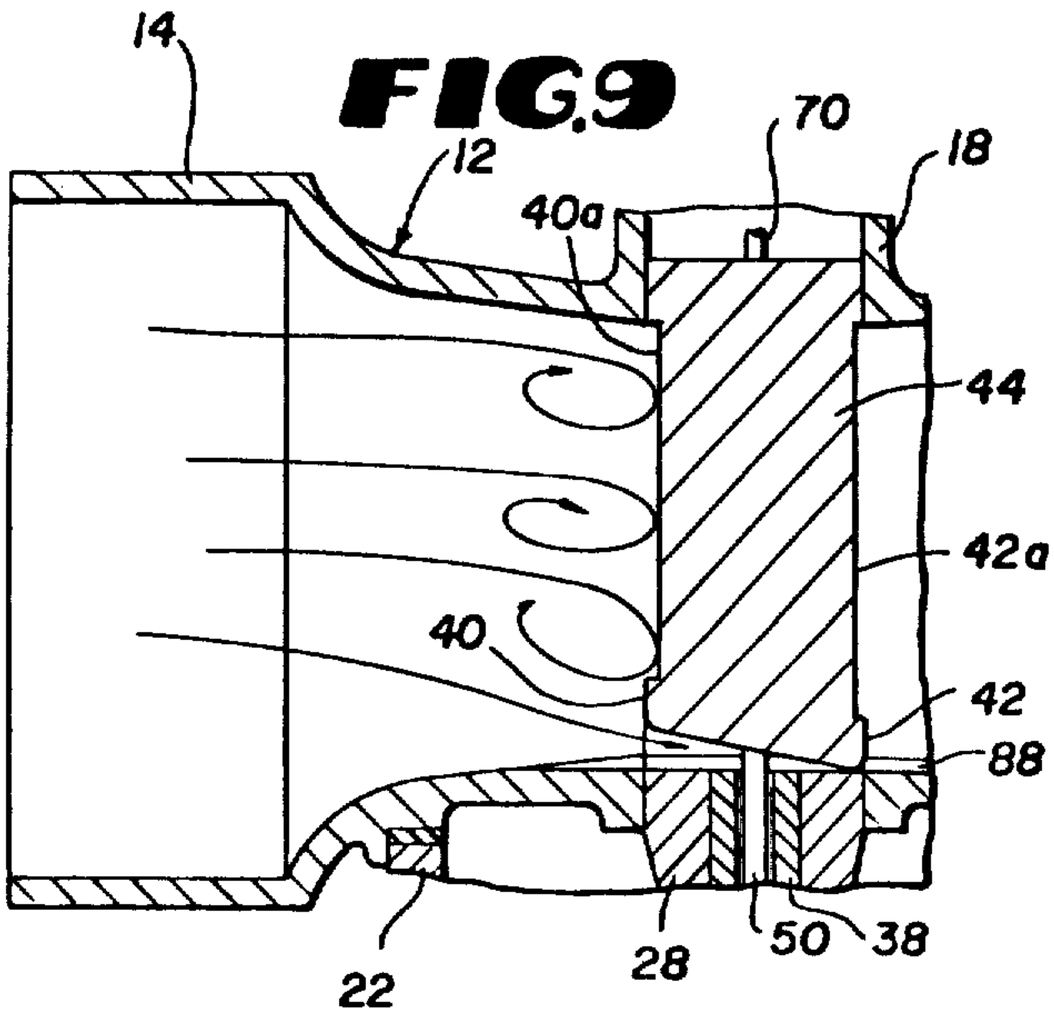


FIG.8

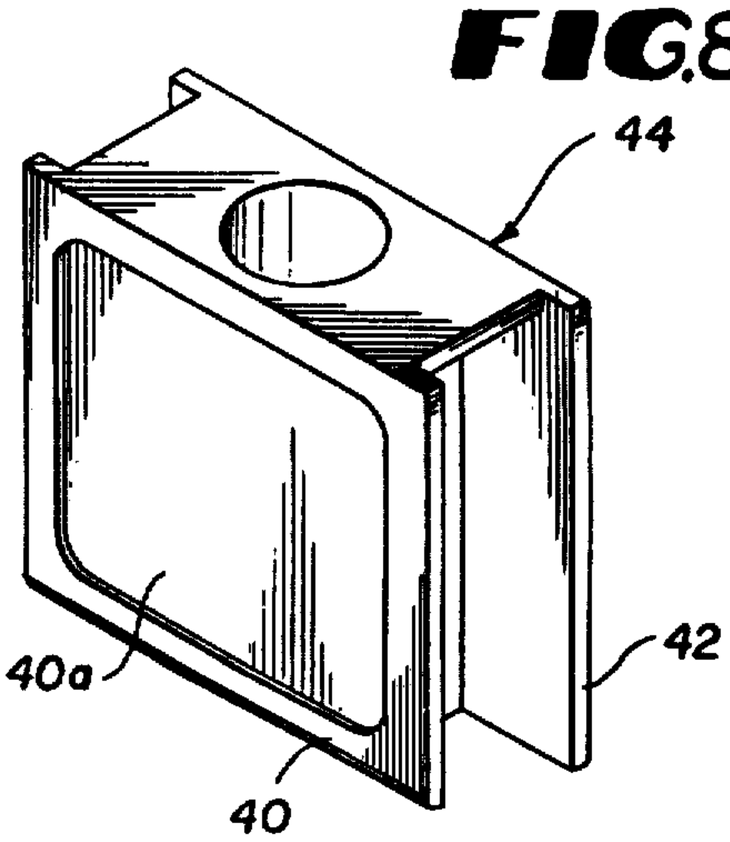


FIG.10

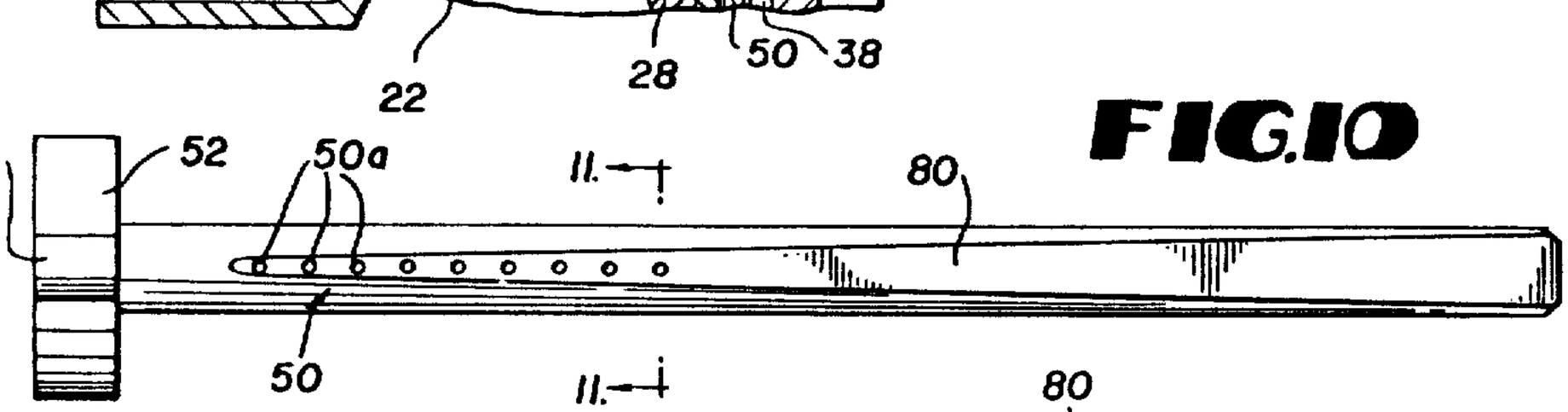
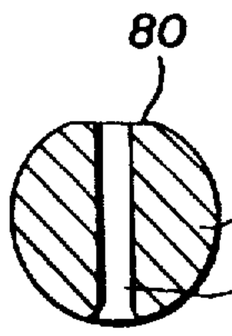


FIG.11



CARBURETOR

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

BACKGROUND OF THE INVENTION

The present invention relates to a carburetor construction and, more particularly, to a carburetor of the slide and metering rod type which is generally like those disclosed in my prior U.S. Pat. Nos. 3,985,839 and 4,013,741. The carburetor of the present invention is constructed to maximize the flow of air in the vicinity of the metering rod and fuel outlet to assure thorough atomization and distribution of the fuel in the airstream before it reaches the combustion chamber, thereby minimizing the possibility of fuel droplets leaving the airstream and condensing on the wall of the fuel passage.

Although previously used and disclosed carburetors of the slide and metering rod type have generally served the purpose, these carburetors have been subject to one or more of the following disadvantages:

(1) Insufficient atomization and distribution of the fuel in the airstream;

(2) Insufficient flow of air in the vicinity of the fuel outlet and metering rod;

(3) Insufficient choke arrangement;

(4) Poor design of metering rod or needle;

(5) Difficulty in mounting and adjustment of metering rod or needle; and/or

(6) Turbulent and inconsistent fuel flow when vehicle is subjected to rough terrain.

Accordingly, it will be readily seen that a need has arisen for a new and improved carburetor of the slide and metering rod type which is not subject to any of the above-mentioned disadvantages. The carburetor of the present invention fills this need and possesses certain improvements and advantages which are not embodied in the prior art carburetors of this type.

SUMMARY OF THE INVENTION

The carburetor of the present invention generally comprises a body defining a throat, a throttle slide member slidably mounted on the body and disposed in the throat, and a tapered metering rod or needle mounted on the slide member and extending downwardly into a fuel supply tube leading into a fuel reservoir or bowl secured to the body. The slide member has front and rear, substantially flat panels disposed in substantially parallel relation, with the front panel being shorter than the rear panel for the purpose of providing air at the outlet of the fuel supply tube even when the slide is in a closed position and for directing air toward the outlet when the slide is in an open position. The body is provided with a substantially axial groove intersecting the fuel outlet at the throat for the purpose of directing high speed air flow toward the metering rod and over the fuel outlet when the slide is opened. The metering rod is provided with a downwardly and inwardly tapered, rear flat face and is mounted for longitudinal adjustment relative to the slide member.

The metering rod may be provided with a plurality of holes therethrough for the purpose of providing more direct air flow at the fuel outlet and better atomization of the fuel. Also, the metering rod may be provided with various tapered configurations for different operating characteristics, such as a straight portion near its lower end and a more radically tapered portion near its upper end for the purpose of providing a more rapid flow of fuel for mid-range operation.

In a further embodiment of the carburetor of the present invention, the outer faces of the slide member panels may be recessed for the purpose of reducing sliding friction, aiding in removal of dirt or other foreign matter from the rim portion thereof and, in the case of the front panel, aiding in directing incoming air downwardly toward the metering rod and fuel outlet.

For the purpose of preventing turbulence in the fuel reservoir or bowl and insuring a constant fuel flow even when the vehicle is subjected to rough terrain, the lower end of the fuel supply tube is provided with an enlarged downwardly opening flange or "umbrella" portion disposed near the lower end of the fuel reservoir. The flange serves to trap fuel and prevent turbulence therein, and is provided with an upwardly and inwardly tapered inner surface for the purpose of directing fuel upwardly into the fuel supply tube to further reduce turbulence.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a carburetor constructed in accordance with the principles of the present invention;

FIG. **2** is an enlarged sectional view taken substantially along line **2—2** in FIG. **1**;

FIG. **3** is an enlarged sectional view taken substantially along line **3—3** of FIG. **1**;

FIG. **4** is a sectional view taken substantially along line **4—4** of FIG. **2**;

FIG. **5** is an enlarged perspective view of one embodiment of a metering rod or needle for the carburetor of the present invention;

FIG. **6** is a perspective view of one embodiment of a throat insert and fuel supply tube for the carburetor of the present invention;

FIG. **7** is an enlarged sectional view taken substantially along line **7—7** in FIG. **4**;

FIG. **8** is an enlarged perspective view of a modified form of the throttle slide member of the carburetor of the present invention;

FIG. **9** is a partial side elevational view of the carburetor of the present invention, showing the modified slide member of FIG. **8**;

FIG. **10** is a rear elevational view of a modified metering rod or needle for use in the carburetor of the present invention; and

FIG. **11** is an enlarged sectional view taken substantially along line **11—11** of FIG. **10**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. **1** through **4**, the carburetor **10** of the present invention generally comprises a body **12** having an air inlet end **14**, an air outlet end **16** and a centrally located slide supporting portion **18**; a cover **20** adapted to fit over the upper portion of the slide supporting portion **18**; and a fuel reservoir or bowl **22** secured to the underside of the body beneath the slide supporting portion **18**. Preferably, the inlet end **14**, outlet end **16** and slide supporting portion **18** are formed of unitary construction, and a throat **24** extends through the body from one end to the other. The cover **20** and reservoir **22** may be removably secured to the body **12**

in any suitable manner, such as by flexible and resilient spring members **21** and **23**, respectively.

As specifically shown in FIGS. **3**, **4** and **6**, the body **12** is provided with an insert **26** fixedly mounted by a locking screw **27** within the slide supporting portion **18**. The insert **26** comprises an upper portion **28** having an aperture **30** therethrough that corresponds in size and shape to the adjacent portions of the throat **24** in the body **12**. The upper end of the upper insert portion **28** is open and comprises oblique end faces **32**, one of which has a threaded aperture **34** extending therethrough which is adapted to receive the locking screw **27**. A fuel supply tube **36** is secured to the bottom of the upper portion **28** and extends through an aperture therein into communication with the aperture **30**. The fuel supply tube **36** extends downwardly into the fuel reservoir or bowl **22** and is provided at its lower end with an outwardly and downwardly extending flange or "umbrella" portion **38** disposed near the lower end of the bowl **22** for a purpose to be more fully described hereinafter.

As shown in FIG. **4**, the insert **26** is narrower than the adjacent portions of the slide supporting portion **18** so as to define grooves on each side of the slide supporting portion that are adapted to slidably receive the side edge portions of the front and rear panels **40** and **42** of a throttle slide member **44** mounted within the slide supporting portion **18** for substantially vertical slidable movement therein. At its upper portion, the slide member **44** is provided with a pair of downwardly facing oblique surfaces **46** which are adapted to engage the complementary oblique faces **32** on the upper end of the insert **26** for the purpose of limiting the downward movement of the slide member **44** within the slide supporting portion **18** of the body **12**. As specifically shown in FIG. **3**, the locking screw **27** can be adjusted to engage one of the oblique surfaces **46** on the slide member **44** for the purpose of adjusting the lowest position of the slide member. In addition to the locking screw **27**, the insert **26** may be retained within the slide supporting portion **18** by locking pins **48**.

A fuel metering rod or needle **50** is adjustably secured to and extends downwardly from the slide member **44**, through the fuel supply tube **36** and into the flange portion **38** thereof disposed near the bottom of the reservoir or bowl **22**. The metering rod **50** is provided with an enlarged head portion **52** at its upper end which is slidably received within an internal bore **54** within the slide member **44**. The head portion **52** is provided with a key portion **56** that is receivable within a complementary groove **58** in the slide member bore **54** for the purpose of maintaining the metering rod **50** in a desired orientation which will be more fully described hereinafter. A coil spring **60** or other biasing means is provided between the bottom of the slide member bore **54** and the lower surface of the head portion **52** of the metering rod **50** and serves to urge the head portion **52** upwardly away from the lower end of the bore **54**, as specifically shown in FIG. **2**.

An adjusting screw **62** is threadably mounted within an upper threaded portion of the slide member bore **54** and has a lower end in engagement with the upper surface of the enlarged head portion **52** of the metering rod **50**. The adjusting screw **62** is provided with a lower internal bore **64** and an upper internal bore **66** which are separated by an intermediate flange portion **68** having an aperture therethrough extending between the lower bore **64** and the upper bore **66**. A control cable **70** for

the throttle slide member **44** extends through the upper bore **66** in the adjusting screw **62** and through the aperture in the intermediate flange **68**. The control cable **70** is provided with an enlarged head portion **72** at its lower end which is disposed within the lower bore **64** in the adjusting screw **62** and is in engagement with the intermediate flange **68** for the purpose of connecting the cable **70** to the adjusting screw **62** and to the throttle slide member **44**. A helical spring **74** surrounds the cable **70** and extends from the lower end of the upper bore **66** and the adjusting screw **62** to the upper end of the slide supporting portion **18**. At its upper end, the helical spring **74** surrounds the lower end of a tube **76** extending downwardly from and threadably secured in an aperture in the cover **20** for the slide supporting portion **18**. The cable **70** extends through the tube **76** and the cap member **20** for connection to any suitable type of manual control means disposed on the vehicle in which the carburetor is mounted. The helical spring **74** serves to urge the slide member **44** to the closed or down position shown in FIGS. **2** and **3** wherein it cuts off air flow through the throat **24** of the body **12**. Upward movement of the cable **70** serves to move the slide member **44** upwardly against the force of the spring **74** to allow air flow through the throat **24** and upward movement of fuel from the reservoir **22** through the fuel supply tube **36** in a manner to be described more fully hereinafter.

The vertical position of the metering rod or needle **50** relative to the slide member **44** may be easily adjusted by rotation of the adjusting screw **62** which is provided at its upper end with a transverse recess **78** or the like for receiving the head of a screwdriver or similar tool. Rotation of the adjusting screw **62** serves to move the head portion **52** of the metering rod **50** upwardly or downwardly within the lower portion of the bore **54** in the throttle slide member **44**.

In one embodiment of the present invention shown in FIGS. **2**, **3** and **5**, the metering rod or needle **50** is provided with a downwardly and inwardly tapered flat portion **80** extending from the upper portion to the lower end thereof. The key portion **56** is so located on the enlarged head portion **52** of the metering rod **50** that the flat portion **80** faces the outlet end **16** of the carburetor body **12** when the metering rod **50** is mounted within the throttle slide member **44**, as specifically shown in FIG. **2**. It will be readily seen, therefore, that upper movement of the slide member **44** and corresponding upward movement of the metering rod **50** within the fuel supply tube **36** will cause a gradually larger opening at the outlet of the fuel supply tube for the supply of fuel from the fuel reservoir or bowl **22** to the carburetor throat **24**, owing to the tapered flat portion **80** on the metering rod. By varying the taper of the flat portion **80** on the metering rod **50**, the variation in fuel flow for a given upward movement of the slide member **44** and metering rod **50** may be adjusted.

As shown in FIGS. **2** and **4**, the inner surface of the carburetor body **12** is tapered inwardly from the inlet end **14** to the slide supporting portion **18** and is tapered outwardly from the slide supporting portion **18** to the outlet end **16**, thereby creating a Venturi effect when air flows through the carburetor throat from the inlet to the outlet end. This air flow past the metering rod **50** and outlet end of the fuel supply tube **36** serves to create a vacuum at the outlet of the fuel supply tube, thereby causing a flow of fuel from the fuel reservoir or bowl **22** upwardly through the opening in the fuel supply tube

defined by the metering rod **50** and into the carburetor throat **24** where the fuel is mixed with incoming air and moves toward the outlet end therewith. The fuel flows upwardly from the fuel reservoir **22** into the fuel supply tube **36** because the reservoir **22** is vented to the atmosphere in a manner to be more fully described hereinafter.

The fuel reservoir bowl **22** is provided with a suitable float valve assembly **82** or any other suitable means for maintaining a minimum quantity of fuel in the reservoir. The float valve assembly **82** is connected to a fuel supply tube **84** in any suitable manner.

The downwardly extending flange portion **38** on the lower end of the fuel supply tube **36** serves to trap fuel within it and to keep air from entering the fuel supply tube when the carburetor is subjected to vibration owing to travel of the vehicle over rough terrain or the like. By trapping fuel within it, the flange portion **38** also serves to reduce turbulence in the fuel entering the lower end of the fuel supply tube. A smooth supply of fuel to the lower end of the fuel supply tube **36** is further enhanced by the upwardly and inwardly tapered inner surfaces **86** of the flange portion **38** which lead to the lower end of the fuel supply tube.

It will be appreciated that upward and downward movement of the throttle slide member **44**, as actuated by the control cable **70**, serves to control the air flow from the inlet end to the outlet end of the carburetor body **12** and also serves to control the flow of fuel from the fuel reservoir or bowl **22** to the carburetor throat **24** because of corresponding upward or downward movement of the metering rod **50** secured to the throttle slide member **44**. A significant feature of the present invention is to maximize air flow past the metering rod and upper outlet end of the fuel supply tube **36** to assure thorough atomization and distribution of the fuel in the airstream before it reaches the combustion chamber. This is accomplished by providing the throttle slide member **44** with a lower end that is tapered downwardly from the front panel **40** to the rear thereof, as shown in FIG. **2**. In other words, the front panel **40** is shorter than the rear panel **42** so that, when the throttle slide member is in the closed position shown in FIG. **2**, the metering rod **50** and outlet end of the fuel supply tube **36** are exposed to air from the inlet end **14** of the carburetor body **12**. In this manner, when the throttle slide member **44** is moved upwardly to open the carburetor throat **24**, air is already present at the outlet of the fuel supply tube **36** to effect immediate mixing with the fuel drawn upwardly through the fuel supply tube, thereby insuring thorough atomization of the fuel. In addition, the tapering of the lower end of the throttle slide member **44** serves to direct or "tunnel" air flow downwardly toward the metering rod **50** and outlet of the fuel supply tube **36** to further enhance air flow and mixing with the fuel at this point.

Air flow across the outlet end of the fuel supply tube **36** and atomization of the fuel entering the carburetor throat at this point is further enhanced by the provision of a longitudinally extending groove **88** in the inner surface of the carburetor body **12** which intersects the metering rod **50** and outlet of the fuel supply tube **36** and extends from the inlet side of the throttle slide member to the outlet side thereof. As shown in FIG. **6**, the groove **88** extends through the upper portion **28** of the insert **26** disposed within the slide supporting portion **18** of the carburetor body **12**. The groove **88** serves to direct air flow and to concentrate it at the metering rod **50** and outlet of the fuel supply tube **36**, thereby further enhancing atomization and distribution of the fuel in the airstream before it reaches the combustion chamber.

In a modification of the present invention, as shown in FIGS. **8** and **9**, the central portions **40a** and **42a** of the front and rear panels **40** and **42**, respectively, of the throttle slide member **44** are recessed to reduce sliding friction between these panels and the adjacent inner surfaces of the slide supporting portion **18** of the carburetor body **12**, and also to facilitate the removal of dirt or other foreign matter from the areas between front and rear panels of the slide member **44** and the surrounding portions of the slide supporting portion **18**.

As specifically shown in FIG. **9**, the recessed area **40a** of the front panel **40** of the throttle slide member **44** aids in directing air flow downwardly toward the lower tapered portion of the slide member, the metering rod **50** and the outlet of the fuel supply tube **38**. This is accomplished because incoming air tends to be locked in the pocket formed by the recessed area **40a** on the front panel **40**, in the manner shown by the lead lines and arrows in FIG. **9**, thereby directing the following air downwardly toward the metering rod **50** and the outlet of the fuel supply tube.

FIGS. **10** and **11** illustrate another embodiment of the metering rod **50** wherein a plurality of vertically spaced, transverse bores **50a** extend rearwardly from the front surface thereof to the rear flat surface **80** thereof. The bores **50a** serve to further maximize direct air flow over the outlet of the fuel supply tube **38** to further enhance fuel atomization and distribution. By reducing air displacement around the metering rod **50**, the bores **50a** create more direct air flow for efficient mixing with the fuel at the entry point into the carburetor throat.

The carburetor of the present invention also includes an improved choke arrangement which allows extra fuel to be atomized and to enter the carburetor throat when desired. As shown in FIGS. **1**, **2**, **4** and **7**, the carburetor body **12** is provided with a longitudinal bore **90** extending from the inlet end **14** thereof to a point rearwardly of the slide support portion **18**. The longitudinal bore **90** intersects with a transverse bore **92** extending into the carburetor throat **24** at the outlet portion of the carburetor body **12** and also intersects with a fuel supply bore **94** extending downwardly to the lower portion of the carburetor body **12**. A choke fuel supply tube **96** is secured at its upper end to the carburetor body **12** in communication with the bore **94** and extends downwardly into a choke fuel supply bore **98** in the fuel reservoir or bowl **22**. The upper end of the fuel supply bore **98** is vented to the atmosphere in any suitable manner (not shown) and an aperture **100** (see FIG. **2**) is provided in a lower portion of the carburetor body **12** for the purpose of conveying atmospheric pressure from the bore **98** to the upper end of the reservoir or bowl **22**. The fuel supply tube **96** is provided with one or more vent openings **102** for the purpose of enhancing upward flow of fuel from the reservoir **22** into the choke fuel supply bore **98** and through the choke fuel supply tube **96**.

At the intersection of the bores **90**, **92** and **94**, a cylindrical valve member **104** is rotatably mounted within the carburetor body **12**. The valve member **104** has a stem portion **106** extending outwardly of the carburetor body **12** and secured in any suitable manner to an actuating member **108** of any suitable type. The cylindrical valve member **104** is provided with a large opening **110**

and a small opening **112** in the wall thereof which are spaced apart by an angle of 90 degrees so that when the valve member is rotated to the open position shown in FIGS. **4** and **7**, the large opening **110** is in communication with the air supply bore **90** and the small opening **112** is in communication with the fuel supply bore **94**, thereby supplying an auxiliary air and fuel mixture to the carburetor throat through the valve member **104** and transverse bore **92**. The choke will be inoperative when the choke valve member **104** is rotated to a position other than that shown in FIGS. **4** and **7** so as to cut off communication between the air supply bore **90** and the fuel supply bore **94**.

What is claimed is:

1. A carburetor, comprising:

a body having an inlet end, an outlet end, and a throat extending therethrough from said inlet end to said outlet end,

a fuel supply tube secured to the underside of said body and having an outlet in communication with said throat,

a throttle slide member movably mounted on the body intermediate said inlet and outlet ends thereof for substantially transverse movement across said throat to vary the unblocked portion thereof, and

a metering rod secured to said throttle slide member and extending downwardly into said fuel supply tube to control the flow of fuel therethrough,

said throttle slide member comprising a substantially vertical bore therethrough and means for adjusting the position of said metering rod in a substantially longitudinal direction, said metering rod comprising a head portion at the upper end thereof, said head portion being slidable within said bore, spring means being disposed between said head portion and the bottom of said bore, and said adjusting means comprising an adjusting member movably mounted on said throttle member and disposed in the portion of said bore above said head portion of said metering rod, said adjusting member having a lower end in engagement with said head portion, whereby movement of said adjusting member in said bore effects movement of said metering rod in a substantially longitudinal direction.

2. The carburetor of claim **1** wherein said metering rod has a downwardly and inwardly tapered, substantially flat portion on the outlet side thereof.

3. The carburetor of claim **1** wherein said body further comprises a substantially longitudinal choke air supply bore extending from said inlet end thereof to a point rearwardly of said throttle slide member, a choke fuel supply bore intersecting said air supply bore, a choke transverse bore leading into said throat at the outlet side of said throttle slide member and intersecting said choke fuel supply and air supply bores, and a choke valve member movably mounted within said body at the intersection of said choke fuel supply bore, said choke air supply bore and said transverse bore, said choke valve member serving to selectively connect said choke fuel supply and air supply bores with said transverse bore to provide an auxiliary air and fuel mixture to said throat at the outlet side of said throttle slide member.

4. The carburetor of claim **1** wherein the inner surface of said body has a groove extending substantially longitudinally therethrough from the inlet side of said throttle slide member to the outlet side thereof, said groove intersecting said metering rod and fuel supply

tube outlet and serving to direct airflow through said throat to said metering rod and said fuel supply tube outlet to effect thorough atomization and distribution of fuel entering said throat from said fuel supply tube.

5. The carburetor of claim **1**, further comprising a fuel reservoir secured to and disposed beneath said body intermediate said inlet and outlet ends, said fuel supply tube extending downwardly into said fuel reservoir.

6. The carburetor of claim **5** wherein the lower end of said fuel supply tube has a downwardly and outwardly extending flange portion disposed near the bottom of said fuel reservoir, said flange portion serving to trap fuel within it to reduce turbulence in the fuel and to prevent air from entering said fuel supply tube.

7. A carburetor, comprising:

a body having an inlet end, an outlet end, and a throat extending therethrough from said inlet end to said outlet end,

a fuel supply tube secured to the underside of said body and having an outlet in communication with said throat,

a throttle slide member movably mounted on the body intermediate said inlet and outlet ends thereof for substantially transverse movement across said throat to vary the unblocked portion thereof, and

a metering rod secured to said throttle slide member and extending downwardly into said fuel supply tube to control the flow of fuel therethrough,

the lower end of said throttle slide member being tapered downwardly from the inlet side to the outlet side thereof to direct airflow through said throat downwardly to said metering rod and said fuel supply tube outlet,

said throttle slide member comprising front and rear substantially flat panels disposed in substantially parallel relation, said front panel being shorter than said rear panel at the lower end of said throttle slide member, said lower end of said slide member being tapered downwardly from the bottom of said front panel to the bottom of said rear panel, whereby when said throttle slide member is in a position to close said throat, said rear panel extends completely across said throat and the bottom of said front panel is spaced from the adjacent portion of said body to open a portion of said throat from said fuel supply tube outlet to the inlet end of said body, the central portion of the outer surface of said front panel and said rear panel being recessed.

8. The carburetor of claim **7** wherein the inner surface of said body has a groove extending substantially longitudinally therethrough from the inlet side of said throttle slide member to the outlet side thereof, said groove intersecting said metering rod and fuel supply tube outlet and serving to direct airflow through said throat to said metering rod and said fuel supply tube outlet to effect thorough atomization and distribution of fuel entering said throat from said fuel supply tube.

9. A carburetor, comprising:

a body having an inlet end, an outlet end, and a throat extending therethrough from said inlet end to said outlet end,

a fuel supply tube secured to the underside of said body and having an outlet in communication with said throat,

a throttle slide member movably mounted on the body intermediate said inlet and outlet ends thereof

for substantially transverse movement across said throat to vary the unblocked portion thereof, and

a metering rod secured to said throttle slide member and extending downwardly into said fuel supply tube to control the flow of fuel therethrough, said metering rod comprising a plurality of transverse bores extending therethrough to create more direct airflow over said fuel supply tube outlet, said metering rod having a downwardly and inwardly tapered, substantially flat portion on the outlet side thereof.

10. The carburetor of claim **9** wherein the inner surface of said body has a groove extending substantially longitudinally therethrough from the inlet side of said throttle slide member to the outlet side thereof, said groove intersecting said metering rod and fuel supply tube outlet and serving to direct airflow through said throat to said metering rod and said fuel supply tube outlet to effect thorough atomization and distribution of fuel entering said throat from said fuel supply tube.

11. A carburetor, comprising:

a body having an inlet end, an outlet end, an intermediate slide supporting portion, and a throat extending therethrough from said inlet end to said outlet end;

an insert fixedly mounted within said slide supporting portion, said insert comprising an upper portion having an aperture therethrough that corresponds substantially in size and shape to the adjacent portions of said throat, the upper end of said upper insert portion being open and comprising an end face;

a fuel supply tube secured to the bottom of said upper insert portion and having an outlet at its upper end in communication with said insert aperture and said throat;

a throttle slide member movably mounted within said slide supporting portion for substantially transverse movement across said insert aperture and said throat to vary the open portion thereof, said throttle slide member being movable through said open upper end of said upper insert portion and being engageable with said end face of said open upper end of said upper insert portion to limit the transverse movement of said throttle slide member; and

a metering rod secured to said throttle slide member and extending downwardly into said fuel supply tube to control the flow of fuel therethrough.

12. The carburetor of claim 11 wherein said insert is narrower than the adjacent portions of said slide supporting portion so as to define spaces therebetween that are adapted to receive portions of said throttle slide member therein.

13. The carburetor of claim 12 wherein said spaces are grooves on each side of said slide supporting portion, and said throttle slide member comprises front and rear substantially flat panels having side edge portions that are slidably disposed within said grooves.

14. The carburetor of claim 13 wherein said front and rear panels are disposed in substantially parallel relation.

15. The carburetor of claim 14 wherein the upper portion of said insert comprises front and rear substantially flat faces disposed in substantially parallel relation.

16. The carburetor of claim 11 wherein the upper end of said upper insert portion comprises a pair of end faces that are engageable with said throttle slide member.

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