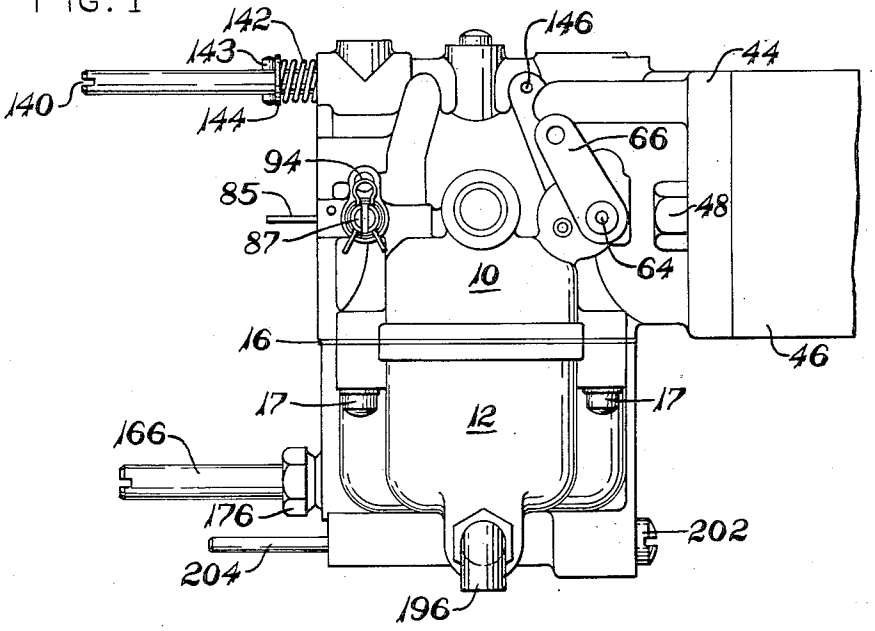
March 18, 1958 B. C. PHILLIPS 2,827,272

CHARGE FORMING DEVICE

Filed May 27, 1955 4 Sheets-Sheet 1

FIG. 1



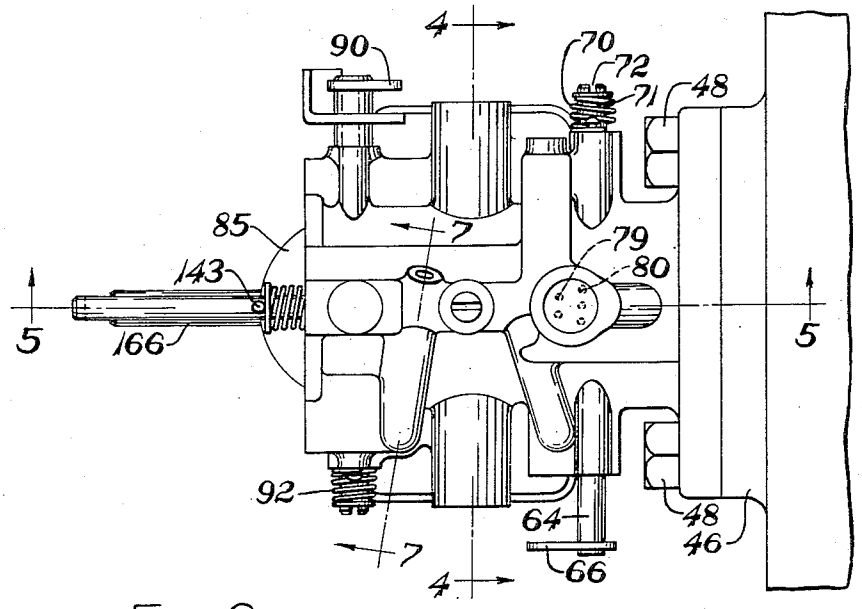


FIG. 2

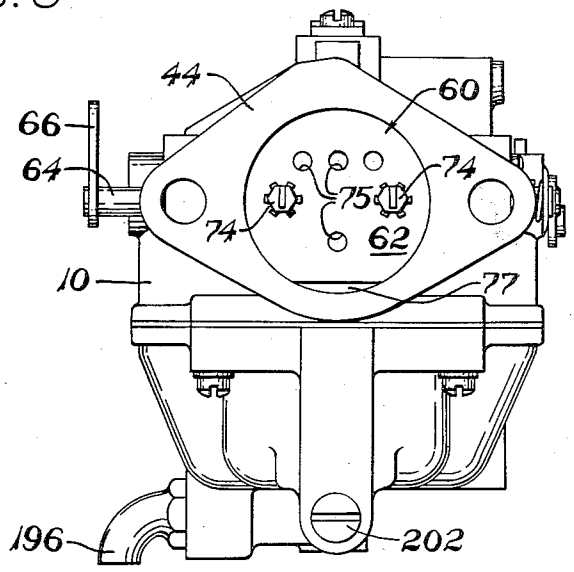
INVENTOR.
BERNARD C. PHILLIPS
BY
Harry O. Ernsberger
ATTY.

March 18, 1958 B. C. PHILLIPS 2,827,272

CHARGE FORMING DEVICE

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FIG. 3



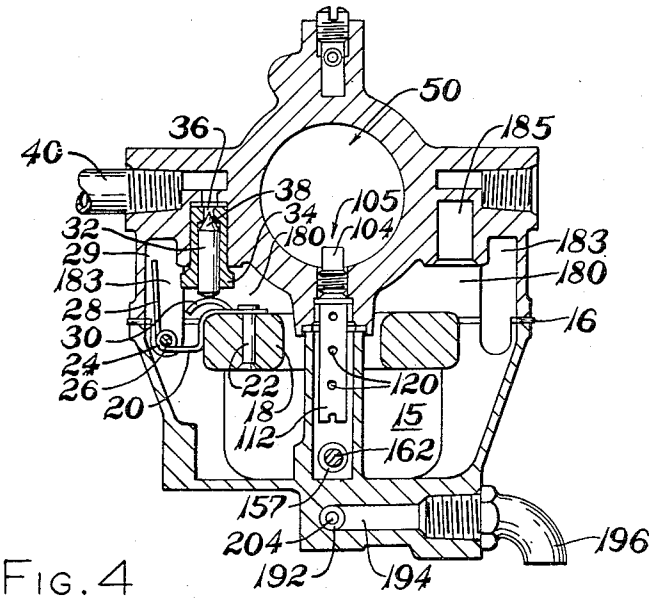


FIG. 4

INVENTOR.
BERNARD C. PHILLIPS
BY
Harry A. Ernsberger
ATTY.

March 18, 1958 B. C. PHILLIPS 2,827,272

CHARGE FORMING DEVICE

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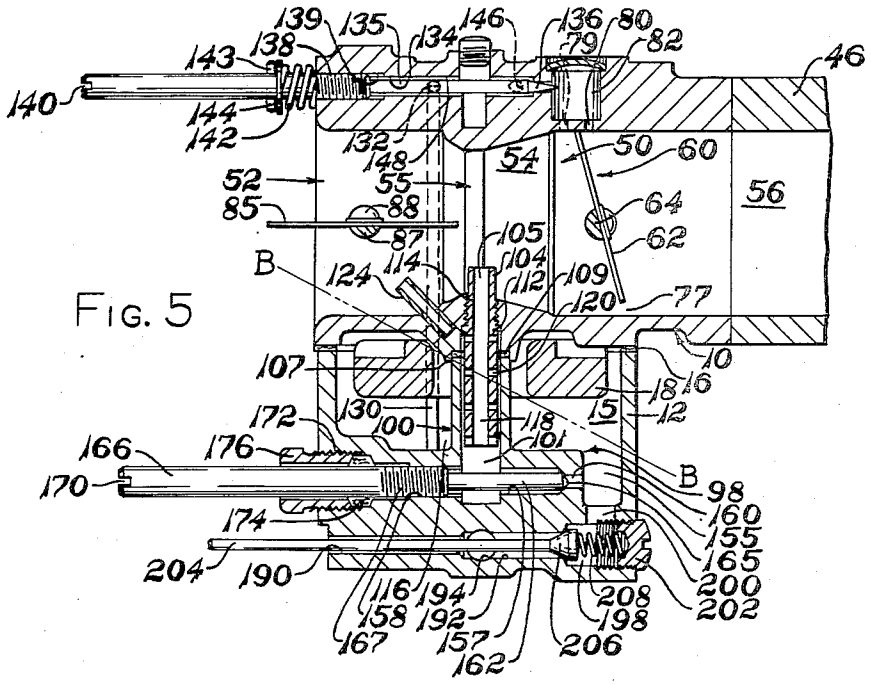


FIG. 5

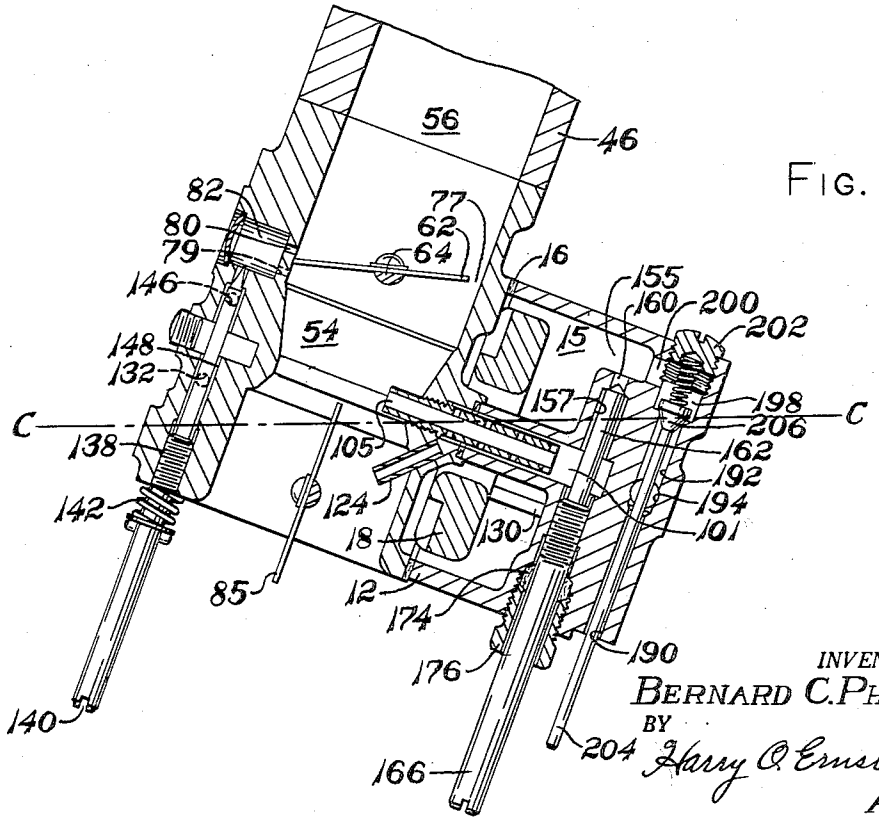


FIG. 6

INVENTOR.
BERNARD C. PHILLIPS
BY
Harry O. Ernsberger
ATTY.

March 18, 1958 B. C. PHILLIPS 2,827,272

CHARGE FORMING DEVICE

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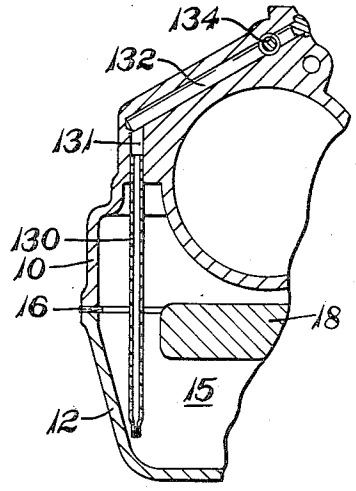
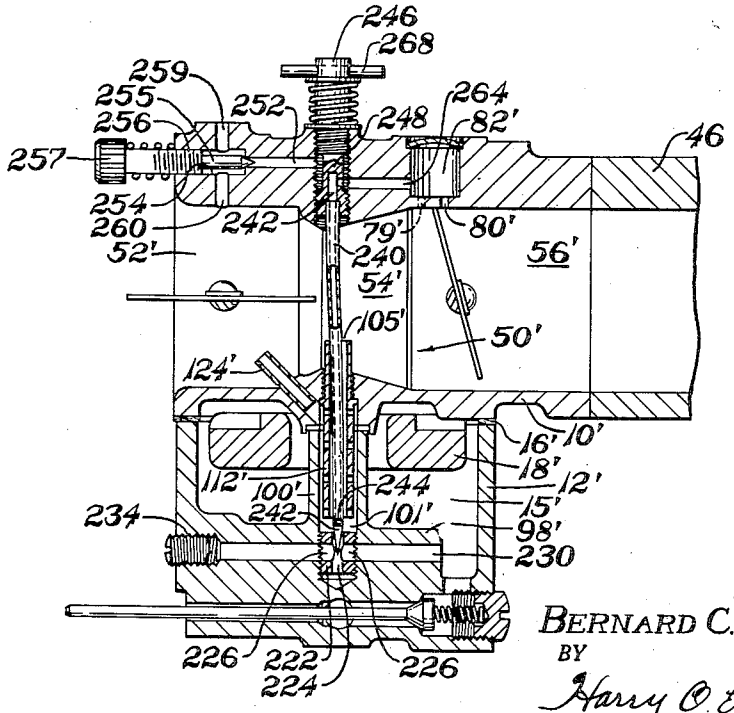


FIG. 7

FIG. 8



INVENTOR.
BERNARD C. PHILLIPS
BY
Harry O. Ernsberger
ATTY.

United States Patent Office

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2,827,272

CHARGE FORMING DEVICE

Bernard C. Phillips, Toledo, Ohio, assignor to The Tillotson Manufacturing Company, Toledo, Ohio, a corporation of Ohio

Application May 27, 1955, Serial No. 511,495

5 Claims. (Cl. 261—41)

This invention relates to charge forming devices and more especially to charge forming devices or carburetors for use with internal combustion engines that are adapted to be tilted or moved to angular positions when out of use.

In the operation and use of marine engines of the so-called outboard mounting type, the engine is usually hingedly supported upon or carried by a mounting bracket or other structure secured to the rear of a boat. A form of pivotal support facilitates or makes possible a swinging of the engine about the pivot axis to elevate the propeller above the water when the motor is out of use or the boat is being parked. The charge forming device or carburetor for the engine is fixedly secured to the engine and upon tilting the engine to an angular position, the charge forming device or carburetor is likewise tilted or moved into an angular position. The conventional carburetor, when moved into an angular position, causes the fuel in the carburetor to flow from the main fuel jet or jets, air bleed passage, and in some instances through the low speed idling system resulting in loss of fuel onto the engine or parts of the boat. This condition presents a serious fire hazard as the waste fuel may be ignited upon contact with heated parts of the engine.

The tilting of a conventional carburetor as now provided on outboard engines results in substantially draining the fuel from the carburetor reservoir so that when the carburetor and engine are swung to their normal position of use, the engine cannot be started until sufficient time has elapsed to enable fuel from a supply to fill the reservoir in the carburetor to an operating level.

The present invention embraces a charge forming device or carburetor embodying an arrangement for preventing loss of fuel during tilting movements of the carburetor normally encountered in swinging or tilting an outboard-mounted marine engine to an out of use position.

The invention embraces a method of delivering liquid fuel from a fuel reservoir in a carburetor to the mixing passage when the carburetor is in a normal position of use and for interrupting or preventing the delivery of liquid fuel from the carburetor when the carburetor is moved to an angular or tilted position.

Another object of the invention resides in the provision of a fuel passage in a carburetor arranged to convey fuel to a fuel metering or control means, the entrance to the passage being spaced from the zone of the main jet whereby substantial tilting of the carburetor disposes the entrance to the fuel passage above fuel level in the carburetor.

Another object of the invention resides in positioning a fuel passage for the main fuel jet of a carburetor in a position remote from the main jet in the fuel reservoir of the carburetor whereby fuel flow to the main jet is interrupted or prevented when the carburetor is tilted a substantial amount from its normal position and wherein recesses or chambers are provided in the body portion of the carburetor to receive or accommodate the

fuel when the carburetor is swung to a tilted position.

Another object of the invention resides in disposing a fuel passage in a carburetor so as to provide for tilting movement of the carburetor without loss of fuel whereby the fuel receptacle or float bowl in the carburetor retains a proper amount of fuel to enable immediate starting of the engine when the carburetor is restored to its normal position.

Further objects and advantages are within the scope of this invention such as relate to the arrangement, operation and function of the related elements of the structure, to various details of construction and to combinations of parts, elements per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification and drawing of a form of the invention, which may be preferred, in which:

Figure 1 is a side elevational view of a carburetor embodying the invention, the carburetor being illustrated in normal operating position;

Figure 2 is a top plan view of the construction shown in Figure 1;

Figure 3 is an end elevational view of the carburetor shown in Figures 1 and 2;

Figure 4 is a vertical sectional view taken substantially on the line 4—4 of Figure 2;

Figure 5 is a longitudinal vertical sectional view taken substantially on the line 5—5 of Figure 2 showing the carburetor in normal position of use;

Figure 6 shows the carburetor of Figure 5 tilted to an out-of-use position;

Figure 7 is a fragmentary sectional view taken substantially on the line 7—7 of Figure 2, and

Figure 8 is a longitudinal vertical sectional view showing the carburetor embodying a modified construction for delivering fuel to the low speed and idling orifice arrangement of the carburetor.

While the arrangement of my invention has been illustrated as embodied in a charge forming device or carburetor, especially usable with marine engines of both two cycle and four cycle types of the so-called outboard character, it is to be understood that I contemplate the embodiment of the invention in any type of charge forming device and particularly those devices which are subjected to tilting or angular movements when they are moved to a position out of use.

Referring to the drawings in detail, the charge forming device or carburetor illustrated in Figures 1 through 7 is inclusive of a body or body portion 10 beneath which is disposed a portion 12 providing a fuel receptacle or float bowl configurated to provide a fuel chamber 15. A gasket 16 is disposed between the body portion 10 and the fuel receptacle 12 to establish a seal between these components of the carburetor construction.

Disposed within the chamber 15 is a float or float member 18 preferably of annular or doughnut shape and which may be formed of cork or other material adapted to be buoyed up by liquid fuel in the chamber 15. The float 18 may be a hollow thin-walled metal member providing an air chamber or it may be formed of a floatable resinous material having characteristics resistant to deterioration on contact with the fuel.

The float 18 is for the purpose of predetermining and controlling the level of liquid fuel in the bowl or chamber 15. A projecting arm or lever 20 is secured to the float by means of a rivet 22. The arm or lever 20 has an eye portion 24 through which extends a pin or shaft 26 providing a pivotal support for the float 18. The lever or arm 20 is preferably made of thin sheet metal, as for example brass, aluminum or the like, and is formed with an upwardly extending portion 28. The portion 28 extends into a recess 29 and the walls of the recess

provide means for determining the extreme limits of movement of the float member 18.

The arm or lever member 20 is formed with an intermediate portion 30 preferably of arcuate shape as shown in Figure 4, the portion 30 engaging the extremity of a valve 32 of polygonal cross-section, for example, of triangular or square shape. The valve 32 extends into a bore in a fitting 34, the latter being provided with a restricted passage 36 adjacent one end of the fitting.

The valve member 32 is formed with a cone-shaped or tapered valve portion 38 adapted to seat on the portion of the fitting defining the entrance to the restricted passage 36. The passage 36 is in communication with a tube 40 which is threaded into a bore formed in the carburetor body, the tube being in communication with a fuel tank or reservoir for supplying liquid fuel to the carburetor chamber 15.

From examination of Figure 4, it will be apparent that when the fuel level falls in the chamber 15, the float 18 is swung downwardly about the axis of shaft or pin 26 whereby the needle valve 32 is moved downwardly away from its seat through the pressure of fuel entering through the passage 36 from the fuel supply pipe 40. As the level of fuel in the chamber 15 rises, the float 18 is moved upwardly causing the portion 30 of the arm 20 to move the valve 32 to closed position, seating the valve to obstruct passage 36 and prevent further flow of fuel into the carburetor. Through this means the proper operating level of fuel is maintained in the chamber 15 so as to provide the proper fuel supply for delivery into the mixing passage.

The carburetor body is formed with a flange 44 which is adapted to be secured to the manifold 46 of an internal combustion engine construction of the four cycle type, the carburetor being secured to the manifold by means of bolts 48 or other suitable securing means.

If the engine is of the two cycle type, the carburetor is connected with a passage arranged to convey the fuel and air mixture into the crankcase of the engine.

The body portion 10 is formed with a mixing passage 50 which includes an air inlet zone 52, a venturi 54 having a choke band 55 and a mixture outlet zone 56 as shown in Figure 5. Disposed in the outlet zone 56 of the mixing passage is a throttle valve 60 in the form of a substantially circular disk 62 which is mounted upon a rotatable shaft 64 extending through suitable journals in the walls of the body portion. As shown in Figure 2, one end of the shaft 64 is equipped with an arm 66 for manipulating the throttle valve by rotating the shaft.

The other end zone of the shaft is surrounded by a coil spring 70, one end of which is secured to the carburetor body by means of a pin 71, the other end of the spring extending into a kerf 72 as shown in Figures 2 and 3, the spring serving to resiliently bias the throttle valve 60 toward closed position as shown in Figure 5. The valve disk 62 is secured to the shaft 64 by screws 74 as shown in Figure 3. The valve disk 62 is formed with openings 75 and is relieved at zone 77 to provide a limited amount of air for admixing with fuel for low speed and idling operations of the engine.

The upper wall of the mixing passage is formed with two groups of openings designated respectively 79 and 80, the group 80 of openings supplying a fuel and air mixture from a chamber 82 into the mixing passage adjacent the closed position of the throttle valve 60 as shown in Figure 5 for maintaining an idling speed of the engine. The group of openings 79 is disposed with respect to the throttle valve 60 so as to be substantially inactive in delivering fuel and air mixtures into the mixing passage with the throttle in closed position. When the throttle 60 is opened slightly, the group of openings 79 discharges fuel and air mixture into the mixing passage to supplement the mixture discharged from the openings 80 until the main fuel discharge jet of the carburetor comes into operation at higher engine speeds.

A valve in the form of a circular disk 85 provides a means for substantially closing the air inlet 52 during starting operations of the engine with which the carburetor is used. The air inlet valve 85 is supported upon a shaft 87 and secured thereto by means of screws 88.

One end of the shaft 87 is provided with a manipulating or control arm 90 and the opposite end of the shaft is equipped with a coil spring 92 having one end secured to the carburetor body, the other end engaging a cotter key 94 on the shaft 87. The spring 92 provides a resilient bias urging the air inlet valve 85 toward closed position.

The bottom wall portion of the fuel receptacle or bowl 12 is formed with a longitudinally extending boss portion 98 which is also formed with an upwardly extending sleeve-like portion 100 forming a fuel well 101 from which fuel is delivered into the venturi 54 of the mixing passage by a main fuel jet in the form of a tube 104 having a discharge orifice 105. The lower wall of the body 10 is formed with an annular projection or flange 107 which embraces the upper end zone of the sleeve or cylindrical wall 100 as shown in Figure 5. A gasket 109 is disposed at the upper end of the sleeve 100 to effect a seal between the body of the carburetor and the sleeve 100 forming the fuel well 101.

The main jet or orifice tube 104 is integrally formed as a part of a fitting 112 having a threaded portion 114 threaded into an opening in the wall of the mixing passage. The portion of the fitting 112 beneath the threaded portion 114 is of lesser diameter than the diameter of the interior of the sleeve 100 providing an annular space 116 surrounding the fitting 112. The fitting 112 is formed with a central bore 118 therethrough terminating in the fuel discharge exit or orifice 105 disposed in the mixing passage.

The fitting 112 is formed with transversely extending openings 120 arranged at different vertical levels as shown in Figure 5. Angularly disposed in an opening in the mixing passage wall adjacent the air inlet zone 52 is a tube 124 which is in communication with the annular space 116 surrounding the fitting 112. The tube 124 is for the purpose of admitting air from the air inlet passage 52 into the space 116.

During operation of the main fuel jet or orifice 105 of the carburetor, fuel is drawn into the mixing passage under the influence of subatmospheric pressure in the engine manifold through the bore 118 and at the same time the transverse openings 120 facilitate the bleeding of air into the fuel prior to its discharge from the main jet 105 of the carburetor. The bleeding of air into the fuel provides better atomization and distribution of the fuel in the mixture delivered to the engine.

The air inlet end of the carburetor body is usually provided with a cleaner or filter not shown for removing dust and foreign particles from the air before its entrance into the mixing passage. It is preferable to obtain air from the air inlet for back bleeding purposes in order that clean or filtered air may be admitted into the fuel well.

Figures 5, 6 and 7 illustrate one form of arrangement of feeding fuel to the chamber 82 for delivery into the mixing passage for engine idling and low speed purposes. A tube 130 extends into the receptacle 12 the upper end of the tube projecting into a bore 131 intersecting a bore 132 which communicates with a bore 134 disposed substantially parallel with the mixing passage as shown in Figure 5. Arranged in the passage 134 is a manually adjustable needle valve 135 for controlling the flow of fuel through a restricted passage 136 opening into the chamber 82.

The valve 135 is formed with a threaded portion 138 as shown in Figure 5 threaded into a bore 139. The end of member 135 is formed with a kerf 140 to accommodate a manipulating tool for adjusting the valve member. An expansive coil spring 142 held in place by a pin 143 and

washer 144 establishes sufficient friction whereby the valve member 135 may be held in adjusted position.

A small opening 146 shown in Figures 1 and 5, establishing communication between the bore 134 and the atmosphere, provides for the flow of air for mixing with the fuel supplied to the low speed and idling orifices 79 and 80. It should be noted that a portion of the valve member 135 is of lesser diameter than the walls of the bore providing an annular space 148 through which fuel from the channel 132 and air from the vent or bleed opening 146 are admitted to the idling and low speed orifices. The valve member 135 may be adjusted to regulate the fuel and air mixture supplied to these orifices.

The carburetor embodies an arrangement enabling the tilting of the carburetor through a substantial angle without fuel being discharged through any of the fuel orifices or air bleed channels or vents. As shown in Figures 5 and 6, the boss portion 98 extends substantially across the bottom portion of the carburetor and terminates short of the wall of the bowl 12 providing a comparatively narrow space or recess 155. The boss portion 98 is formed with a substantially horizontal bore 157 having a threaded portion 158.

The end zone of bore 157 is in communication with the fuel chamber 15 and the pocket or recess 155 by a restricted entrance, channel or passage 160. A valve member 162 is disposed in the bore 157 and is formed with a portion of lesser diameter than the bore to establish an annularly shaped fuel passage along the valve member. The end zone 165 of valve member 162 is cone-shaped and adapted to seat against the inner edge zone of the wall defining the fuel passage 160. The valve member 162 is formed with a portion 166 of larger diameter provided with a threaded portion 167 cooperating with the threaded portion 158 of the bore 157.

The end of the portion 166 of the valve member is formed with a kerf or slot 170 to receive a suitable tool for manually rotating or adjusting the opening between the cone-shaped end zone 165 of the valve and its seat adjacent the passage 160 so as to meter or regulate the flow of liquid fuel from the float chamber 15 into the bore 157. The bore 157 communicates with the bore or well 101 and conveys fuel thereto for supplying the main fuel jet 105.

Formed concentrically with the valve member 162 in boss portion 98 is a threaded bore 172 in which is disposed a gland filled with sealing material 174 which is held in engagement with portion 166 of the valve member by a bushing 176.

The sealing material 174 prevents leakage of fuel along the portion 166 of the valve member 162.

The carburetor of the invention is especially adapted for use with a marine engine of the outboard mounting type wherein the engine is hingedly or pivotally supported so as to be swung or tilted to a position to raise the driving propeller above the water. To accomplish this result, the engine is usually tilted through an angle of from 50° to 70° relative to its normal operating position. The carburetor, being fixed to the engine, is therefore tilted through the same angle.

The herein described arrangement of fuel entrance 160 at a lower zone of the fuel chamber 15 and at one side of or substantially offset from the axis of the fuel well 101 facilitates tilting the carburetor through a substantial angle relative to the normal horizontal position of Figure 5 without loss of fuel through the fuel orifices and air vents. Figure 6 shows the carburetor of Figure 5 tilted through an angle of approximately 70° relative to a horizontal position.

When the carburetor is tilted through a lesser angle such as to cause the fuel level in the chamber 15 to attain a level indicated by the line BB shown in Figure 5, the fuel level is above the entrance channel 160, but fuel from the chamber 15 will not flow through or be discharged from the air bleed tube 124 and the main fuel orifice 105 as they are still above fuel level. When the carburetor approaches or reaches the angle of tilt illustrated in Figure 6, the fuel level indicated in horizontal position by the line C—C is below the entrance of the fuel passage 160 adjacent the needle valve 162.

The fuel level having fallen below the entrance 160 the flow of fuel through entrance 160 ceases and hence only the small amount of fuel in the well 101 flows from the air bleed tube 124 or the main fuel discharge orifice 105. The zone of intersection of the air bleed opening 146 with the bore 148 of the fuel supply system for the low speed and idling orifices is likewise above the fuel level C—C so that fuel will not be discharged through the air bleed opening 146. Hence the carburetor may be tilted through substantially a 90° angle with respect to the horizontal without fuel being discharged through the air bleed openings or fuel orifices.

The zones of the body 10 above the float 18 adjacent the air inlet tube 52 are relieved or cored out to form chambers or spaces 180 shown in Figure 4 so that upon tilting movement of the carburetor toward the position shown in Figure 6 the fuel in the chamber 15 flows into the spaces or compartments 180 to accommodate enough of the fuel in chamber 15 so as to cause the fuel level in the carburetor to fall below the entrance to passage 160.

It should be noted from Figure 4 that recesses 183 are formed in opposed lateral zones of the carburetor and that openings 185 are formed in the carburetor body. With this arrangement the fitting 34, fuel inlet control valve 32 and the fuel inlet pipe 40 may be arranged at either side of the carburetor. The recesses 183 and one of the openings 185 also accommodate or receive fuel from the float chamber during tilting movements of the carburetor to assist in lowering the fuel level.

Disposed in a lower wall portion of the receptacle or float bowl 12 is a means for quickly draining the fuel from the float bowl when the engine is to be removed from the boat. The lower wall portion of the float bowl is provided with a bore 190 which is aligned with a bore 192 of larger diameter. The bore 192 communicates with or intersects a bore 194 communicating with the atmosphere through an elbow or fitting 196 as shown in Figures 1, 3 and 4. A larger bore 198 is in communication with the recess 155 by a channel or passage 200.

The outer end of the bore 198 is closed by means of a threaded plug 202. A rod or member 204 extends through bores 190 and 192 and is provided with a conically shaped valve portion or head 206 which seats against the zone of entrance to the bore 192. An expansive coil spring 208 is disposed between the plug 202 and the valve 206, the spring normally exerting expansive pressure biasing the valve 206 to closed position. The member 204 extends exteriorly of the carburetor receptacle or float bowl 12.

The valve 206 provides a simple yet effective means for draining the carburetor float bowl when the engine with which the carburetor is connected is temporarily out of use. It has been customary to scavenge or exhaust the fuel in the float bowl by abutting the prow of the boat against a dock or abutment closing a valve in the fuel supply pipe and running the engine until the fuel has been exhausted from the float bowl. In the carburetor disclosed herein, the operator wishing to exhaust the fuel from the float bowl exerts longitudinal pressure upon member 204 to move the valve or head 206 from its seat permitting fuel to flow from the float bowl through the bores 198, 192, 194 and elbow 196 for discharge exteriorly of the carburetor.

Upon the release of manual pressure upon the member 204, the spring 208 closes the valve 206 placing the carburetor in readiness to receive fuel from a supply for subsequent engine operation.

Figure 8 shows a carburetor embodying the invention equipped with a modified form of means of controlling

the fuel feed to the main fuel discharge orifice for the mixing passage and a modified form of fuel feed from the float bowl to the idling or low speed orifices in the wall of the mixing passage. In the carburetor shown in Figure 8, the carburetor body 10' is equipped with a receptacle or float bowl 12' having a fuel reservoir or chamber 15'.

A sealing gasket 16' is disposed between the body 10' and the float bowl 12' to form a fluid tight joint. A float 18' controls a fuel inlet valve in the manner illustrated in Figure 4. The body 10' is formed with a mixing passage 50' embodying a venturi 54' and an air inlet passage 52' and an outlet chamber 56'. The carburetor body is secured to an engine 46 in the same manner as illustrated in Figure 2.

A fitting or sleeve 112' is disposed in a well 101' and is formed a jet portion 104' providing an outlet or orifice 105' for discharging fuel into the zone of the choke band of the venturi 54'. The well 101' is formed within an upwardly extending portion 100'. The wall portion of the lower zone of the well is threaded to receive a member 222. The member is formed with a vertically disposed passage 224 and transversely arranged passages 226.

The boss portion 98' is formed with a bore 230 which is aligned with a threaded bore 232, the latter adapted to receive a threaded plug 234 for closing one end of the bore 230. Disposed within the tube 104' is a tube 240 of smaller diameter than the interior diameter of the sleeve or fitting 112'. The lower end of the tube 240 is formed with a needle or tapered valve portion 242 which extends partially into and cooperates with the passage 224 for regulating or metering the fuel flow from chamber 15' through passages 230, 226 and 224 into the fuel well 101'. The tube 240 is formed adjacent and above the tapered valve portion 242 with a transverse opening or openings 244 to facilitate flow of fuel from the well 101' into the interior of the tube 240.

The upper end zone of the tube 240 extends into a bore in a fitting 246 and is secured thereto, the fitting 246 being threaded into a bore formed in the carburetor body. A zone 248 of the fitting 246 is of reduced diameter to provide an annular chamber. A bore 252 is aligned with a larger bore 254 in which is disposed a needle valve or valve member 255 having a portion 256 threaded into a threaded portion of the bore 254. The valve member 255 is equipped with a knurled knob 257 for adjusting the position of the cone shaped valve portion of valve member 255 relative to the bore 252.

Transverse passages 259 and 260 establish communication between the bore 254 and the atmosphere and the air inlet 52'. The passages or bores 252, 254, 259 and 260 admit air into the annular space 248 for admixing with fuel delivered through the tube 240.

The bore in the fitting 246 into which tube 240 extends communicates by means of transverse passages 262 and a bore 264 with a chamber 82'. The air in the annular passage or chamber 248 is mixed with the fuel flowing through passage 264 whereby low speed and idling mixtures are delivered through the orifices 79' and 80' into the mixing passage 50'.

The fitting 246 is threaded throughout the portion extending into the threaded bore in the carburetor body, the fitting extending exteriorly of the body and provided with a transversely extending pin or member 268 forming a grip portion to facilitate rotation of the fitting 246 and tube 240 in order to adjust the longitudinal position of the tube 240 for regulating the flow of liquid fuel from chamber 15' through passage 224 into the fuel well 101'. The diameter of the tube 240 is sufficiently small to enable discharge of fuel through the main jet or orifice 105'.

The tube 240 provides a means for delivering fuel for low engine speeds and idling purposes and the solid tapered portion of the tube forms the main regulating valve for controlling the fuel flow into the well 101'. The valve 255 is adjustable in order to regulate the amount of air admitted to the passage 252 to be mixed with the fuel in the passage 264.

It should be noted that the entrance to the passage 230 is in the same relative position in the form of carburetor shown in Figure 8 as the passage 160 shown in the carburetor of Figure 5, so that upon tilting of the carburetor shown in Figure 8 the fuel level falls below the entrance to the passage 230 and only the small amount of fuel in the well 101' will flow from the main orifice 105' or the air bleed tube 124'.

The zones of the body of the carburetor adjacent the air inlet passage 52' are recessed or cored out in the same manner as shown in the carburetor illustrated in Figure 4 to accommodate a substantial portion of the fuel in the float bowl 15' when the carburetor is tilted into an angular position similar to that shown in Figure 6.

In both forms of carburetor illustrated herein the carburetors may be tilted through 70° or more without liability of loss of fuel through the fuel orifices and air bleeds or vent openings. Due to the particular positioning of the entrance of the fuel passage from the float bowl to the fuel well being in the lower righthand zone of the float bowl as viewed in Figures 5 and 8, a tilting movement of the carburetor causes the fuel level to fall below this entrance and thereby preclude discharge of fuel from the float chamber when the carburetor is in a tilted position. It is apparent that, within the scope of the invention, modifications and different arrangements may be made other than is herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

I claim:

1. A carburetor including, in combination, a body having a mixing passage formed therein, a fuel receptacle associated with the body means for controlling delivery of liquid fuel from a supply into the receptacle, a fuel well formed in the receptacle, a channel formed in a lower wall of the receptacle extending in a direction normal to the fuel well and having an entrance arranged at a zone spaced from the fuel well and adjacent the bottom zone of the receptacle and near a side wall thereof, said channel being arranged to convey fuel from the receptacle into the fuel well, a fuel orifice for discharging fuel from the fuel well into the mixing passage, the exterior zone of the mixing passage wall in the body portion being formed with recesses extending partially around the mixing passage wall to accommodate fuel in the receptacle upon tilting movement of the carburetor through a substantial angle, the entrance to the channel formed in the lower wall of the receptacle being arranged to be disposed above the fuel level in the receptacle upon tilting movement of the carburetor through a substantial angle.

2. A carburetor including, in combination, a body having a mixing passage formed therein, a fuel receptacle associated with the body, valve means for controlling flow of liquid fuel from a supply into the receptacle to maintain a predetermined normal fuel level in the receptacle, a fuel well formed in the receptacle, a channel formed in a lower wall of the receptacle extending in a direction normal to the fuel well and having an entrance spaced from the fuel well arranged adjacent the bottom zone of the receptacle and adjacent a side wall thereof, said channel being arranged to convey fuel from the receptacle into the fuel well, a main orifice for discharging fuel from the fuel well into the mixing passage, a supplemental orifice spaced from the main orifice for delivering fuel into the mixing passage, the entrance to the channel formed in the lower wall of the receptacle being disposed whereby tilting of the carburetor elevates the entrance to said channel above the

level of the normal amount of fuel in the receptacle to interrupt flow of fuel from the receptacle to the main and supplemental orifices.

3. A charge forming means including, in combination, a body member having a mixing passage formed therein, a fuel receptacle secured to the body member, valve means for controlling the flow of liquid fuel from a supply into the receptacle for maintaining a predetermined normal fuel level in the receptacle, a fuel well formed in the receptacle, a main fuel discharge orifice formed in a lower wall region of the mixing passage and in communication with the fuel well to supply fuel to the mixing passage, a supplemental fuel discharge orifice formed in the upper region of the wall of the mixing passage, means connecting the supplemental orifice with the receptacle for delivering fuel into the mixing passage through the supplemental orifice, a boss portion formed on the bottom wall of the receptacle, a channel formed in the boss portion extending in a direction normal to the fuel well and having an entrance spaced from the fuel well adjacent the bottom zone of the receptacle and adjacent a side wall thereof, said channel being arranged to convey fuel from the receptacle into the fuel well, the entrance to the channel in the boss portion of the receptacle being arranged whereby tilting movement of the charge forming means shifts the position of the fuel in the receptacle below said entrance to prevent discharge of fuel through said orifices upon substantial angular movement of the carburetor from its normal position.

4. A charge forming means including, in combination, a body member having a mixing passage formed therein, a fuel receptacle secured to the body member, valve means for controlling the flow of liquid fuel from a supply into the receptacle for maintaining a predetermined normal fuel level in the receptacle, a fuel well formed in the receptacle, a main fuel discharge orifice formed in a lower wall region of the mixing passage and in communication with the fuel well to supply fuel to the mixing passage, a supplemental fuel discharge orifice formed in the upper region of the wall of the mixing passage, means connecting the supplemental orifice with the receptacle for delivering fuel into the mixing passage through the supplemental orifice, a boss portion formed on the bottom wall of the receptacle, a channel formed in the boss portion extending in a direction normal to the fuel well and having an entrance spaced from the fuel well arranged adjacent the bottom zone of the receptacle and adjacent a side wall thereof, said channel being arranged to convey fuel from the receptacle into the fuel well, the surface of the mixing passage wall adjacent the receptacle defining recesses in the body member extending partially around the mixing passage to accommodate fuel in the receptacle upon tilting movement of the charge forming means, the entrance to the channel in the boss portion of the receptacle being arranged whereby tilting movement of the charge forming means shifts the position of the fuel in the receptacle below said entrance to prevent discharge of fuel through said orifices upon substantial angular movement of the carburetor from its normal position.

5. A charge forming means including, in combination, a body member having a mixing passage formed therein, a fuel receptacle secured to the body member, valve means for controlling the flow of liquid fuel from a supply into the receptacle for maintaining a predetermined normal fuel level in the receptacle, a fuel well formed in the receptacle, a main fuel discharge orifice formed in a lower wall region of the mixing passage and in communication with the fuel well to supply fuel to the mixing passage, a supplemental fuel discharge orifice formed in the upper region of the wall of the mixing passage, means connecting the supplemental orifice with the receptacle for delivering fuel into the mixing passage through the supplemental orifice, a boss portion formed on the bottom wall of the receptacle, a channel formed in the boss portion extending in a direction normal to the fuel well and having an entrance spaced from the fuel well arranged adjacent the bottom zone of the receptacle and adjacent a side wall thereof, said channel being arranged to convey fuel from the receptacle into the fuel well, means including a vent opening into the mixing passage in communication with the fuel well for admitting air for admixing with the fuel prior to its discharge from the main fuel orifice, the entrance to the channel in the boss portion of the receptacle being disposed whereby substantial tilting of the charge forming means elevates the entrance to said channel above the level of the normal amount of fuel in the receptacle to interrupt flow of fuel to the main and supplemental orifices.

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