E. SPRUNG & H. ROSE.

CARBURETER.

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989,515.

Patented Apr. 11, 1911.

Fig. 1.

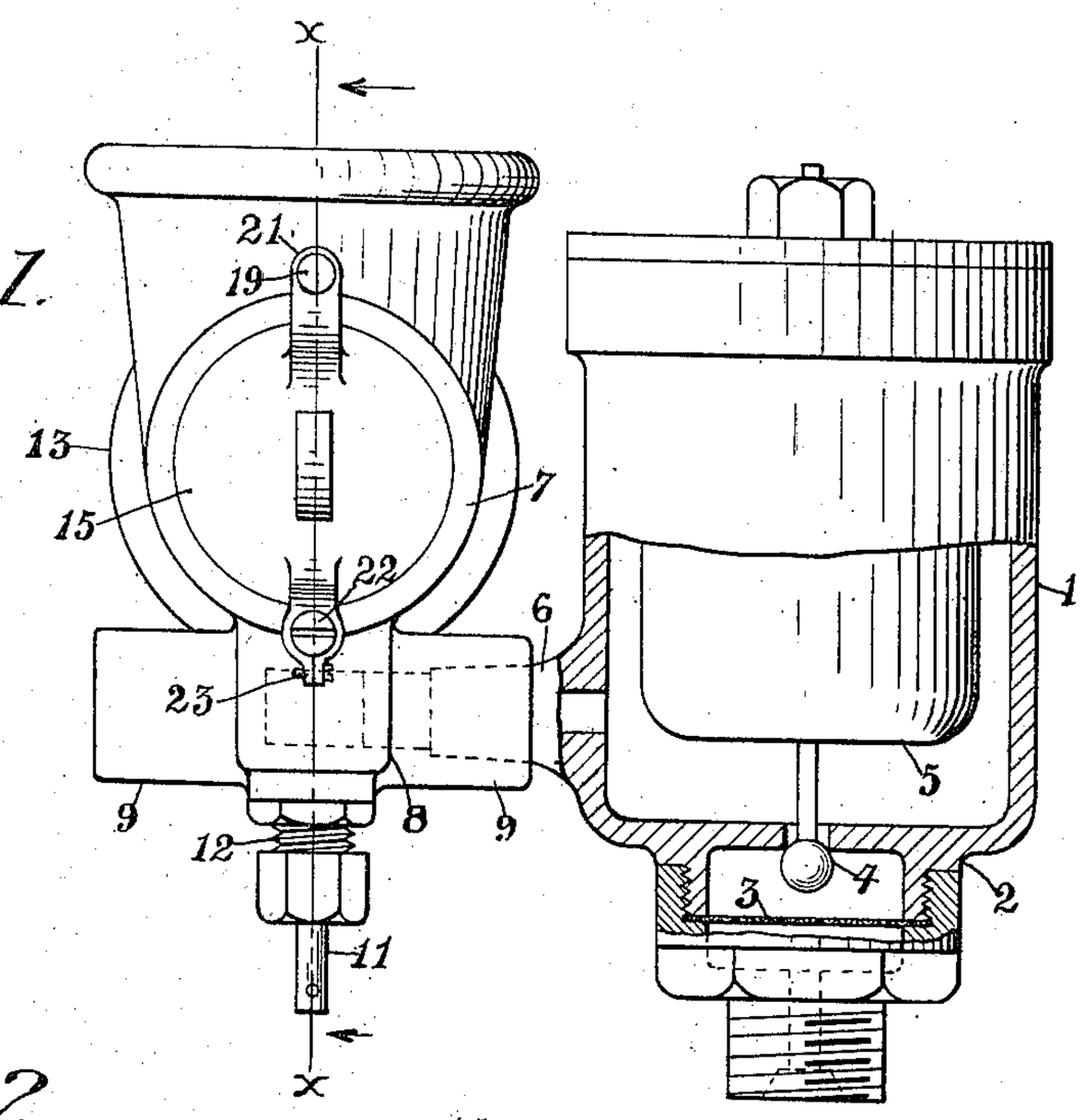
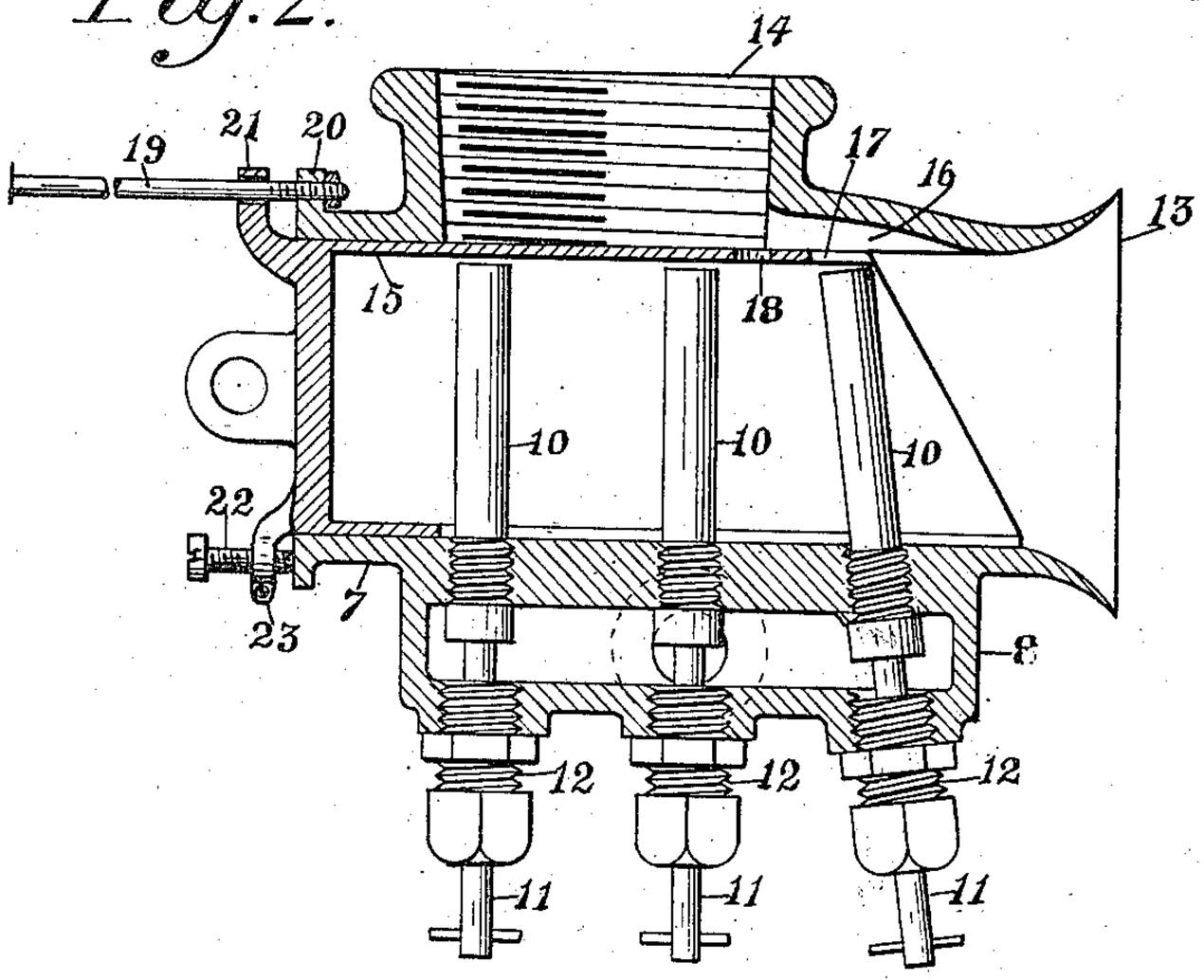


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDMUND SPRUNG AND HARRY ROSE, OF DETROIT, MICHIGAN.

CARBURETER.

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To all whom it may concern:

Be it known that we, EDMUND SPRUNG and HARRY ROSE, citizens of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Carbureters, of which the following is a specification, reference being had therein to the accompanying drawings.

In supplying fuel to explosive engines it is found desirable to vary the quality of the gas or carbureted air as the engine speed changes, for a motor running slowly gives most efficient results on one mixture and develops most power when running at a different speed, on a different mixture.

This invention relates to a carbureter adapted to furnish a predetermined mixture to an engine for each of several speeds at which the latter may be running without readjustment or rearrangement of the carbureter parts.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a view in side elevation partly broken away of a carbureter that embodies features of the invention; and Fig. 2 is a view in section on line *x*—*x* of Fig. 1.

In the drawings, a float feed chamber 1 of any preferred design has an intake nipple 2 fitted for connection with a fuel supply pipe and provided preferably with a removable strainer 3. A float valve indicated at 4 is operated by a float 5 to maintain a constant level in the chamber 1 above an outlet nipple 6.

A cylindrical casing 7 is secured in horizontal relation to the float chamber by the nipple 6 which discharges into the interior of a hollow rib 8 depending from the casing. To permit either right-handed or left-handed use of the carbureter, the connection between the nipple 6 and the casing is made through either one of a pair of bosses 9 extending oppositely from the rib 8, the unused boss being closed. A plurality of needle valve tubes 10 are screwthreaded through apertures connecting the interior of the rib 8 with the bore of the casing 7 and are so disposed that their discharge ends are close to the upper side of the casing. Needle valve closures for the tubes are operated by stems 11 each of which passes through a suitable stuffing box indicated at 12 so as to be readily manipulated.

One end 13 of the casing which is preferably slightly flared or bell shaped, forms an air inlet to the casing and a lateral nipple 14 on the casing constitutes the outlet for the carbureter. A cylindrical closure 15 fits the bore of the casing and is arranged to slide longitudinally therein, its open end which is toward the casing inlet 13 being slightly beveled to permit the connection of the inlet with the outlet nipple in all positions of the closure through a by-pass 16 formed in the casing. The beveled end of the closure is also so arranged with a longitudinal slot indicated at 17 as to leave one of the needle tube discharge ends always clear to discharge into the by-pass 16. To further facilitate this, the needle valve tube adjacent the bell 13 is preferably inclined inwardly so as to discharge into the by-pass through the slot. An opening 18 is also formed in the closure near the inner end of the slot so that a slight movement of the closure uncovers the next inner tube. This makes the action of the closure gradual.

A stop finger 19 longitudinally adjustable in an ear 20 on the casing and through a guide aperture in a lug 21 of the closure prevents withdrawal of the closure from the casing. Its inward movement may be regulated by a stud 22 passing through an extension 23 on the closure end and abutting the adjacent part of the casing.

In adjusting the carbureter, the needle valve adjacent the bell is arranged to furnish the proper amount of fuel for the air passing the valve jet to supply the motor when running slow with the most efficient mixture for that speed. When another jet is uncovered by the further withdrawal of the closure a different mixture is obtained at the carbureter outlet which is best fitted for the motor when the latter is running at a second predetermined speed.

By use of a number of needle valves together with a proper proportioning of the closure, the carbureter may be permanently adjusted by experiment to meet the requirements of any motor to which it may be connected thereby making it especially efficient for use in automobiles or the like.

Obviously changes in the details of construction may be made without departing from the spirit of the invention and we do not care to limit ourselves to any particular form or arrangement of parts.

What we claim as our invention is:—

1. In a carbureter the combination with a float-feed chamber, of a carbureter-chamber casing comprising a cylindrical shell having at one end thereof an air-inlet opening and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having apertures adjacent the outlet opening, and a series of fuel-supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, said throttle being longitudinally-movable in said casing to bring said apertures into and out of register with said supply tubes.

2. In a carbureter, the combination with a float-feed chamber, of a carbureter-chamber casing comprising a cylindrical shell having at one end thereof an air-inlet opening, and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having apertures adjacent the outlet opening, and a series of fuel-supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, the first tube of the series being in constant open communication with said inlet and outlet openings, and said throttle being longitudinally-movable in said casing to bring said apertures into and out of register with the other supply tube.

3. In a carbureter the combination with a float-feed chamber, of a carbureter-chamber casing comprising a cylindrical shell having at one end thereof an air-inlet opening, and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having apertures adjacent the outlet opening, and a series of fuel-supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, the distance between the discharge ends of the first and second tubes being less than the distance between the succeeding tubes of the series, and said throttle being longitudinally movable in said casing to bring said apertures into and out of register with said supply tubes.

4. In a carbureter, the combination with a float-feed chamber, of a carbureter-chamber casing comprising a cylindrical shell having at one end thereof an air-inlet opening, and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having apertures adjacent the outlet opening, and a series of fuel-supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, said throttle being longitudinally-movable in said casing to bring said apertures into and out of register with said supply tubes, and adjusting means for limiting the closing movement of the throttle.

5. In a carbureter, the combination with a float-feed chamber, of a carbureter-chamber casing comprising a cylindrical shell having at one end thereof an air inlet-opening, and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having apertures adjacent the outlet opening, and a series of fuel-supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, said throttle being longitudinally-movable in said casing to bring said apertures into and out of register with said supply tubes, adjusting means for limiting the closing-movement of the throttle, and adjusting means for limiting the opening movement of the throttle.

6. In a carbureter, the combination with a float-feed chamber, of a carbureter-chamber casing comprising a cylindrical shell having at one end thereof an air-inlet opening and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having a longitudinal slot and having apertures adjacent the outlet opening, and a series of fuel-supply tubes projecting through said slot and diametrically into said throttle and terminating near the inner surface thereof, said throttle being longitudinally-movable in said casing to bring said apertures into and out of register with said supply tubes.

7. In a carbureter, the combination with a float-feed chamber, of a reversible carbureter-chamber casing removably secured thereto comprising a cylindrical shell having at one end thereof an air-inlet opening and having intermediate its ends an air-outlet opening in constant communication with said inlet-opening, a non-rotatable hollow cylindrical throttle having apertures ad-

jacent the outlet opening, and a series of fuel-supply tubes projecting diametrically into said throttle and terminating near the inner surface thereof, said throttle being longitudinally-movable in said casing to bring said apertures into and out of register with said supply tubes.

In testimony whereof we affix our signatures in presence of two witnesses.

EDMUND SPRUNG.
HARRY ROSE.

Witnesses:
OTTO F. BARTHEL,
C. R. STICKNEY.