J. C. SIMONSEN.

CARBURETER.

APPLICATION FILED APR. 15, 1911.

1,123,027.

Patented Dec. 29, 1914.

2 SHEETS—SHEET 1.

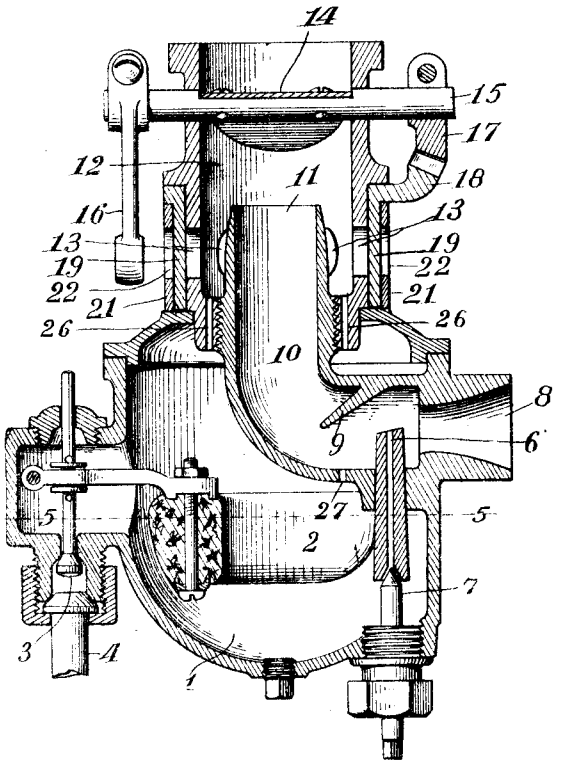


Fig. 1.

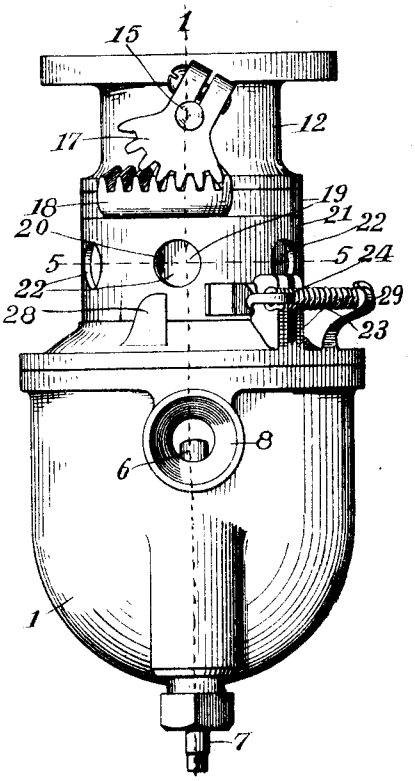


Fig. 2.

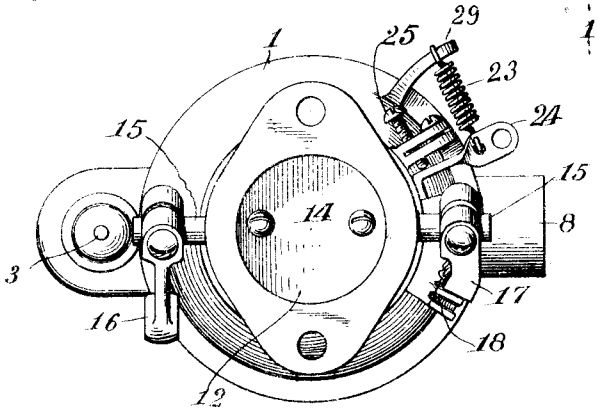


Fig. 3.

Witnesses:

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2 SHEETS—SHEET 2.

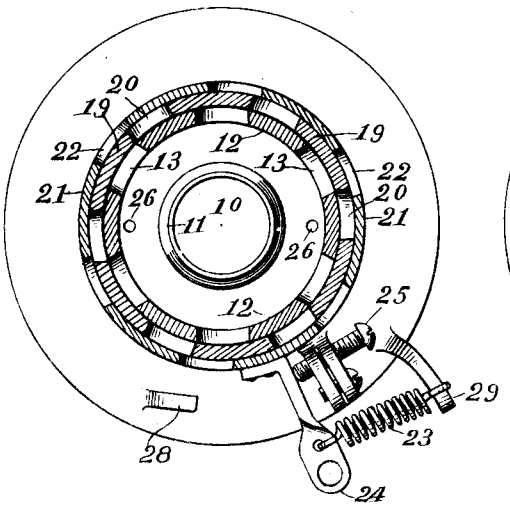


Fig. 5.

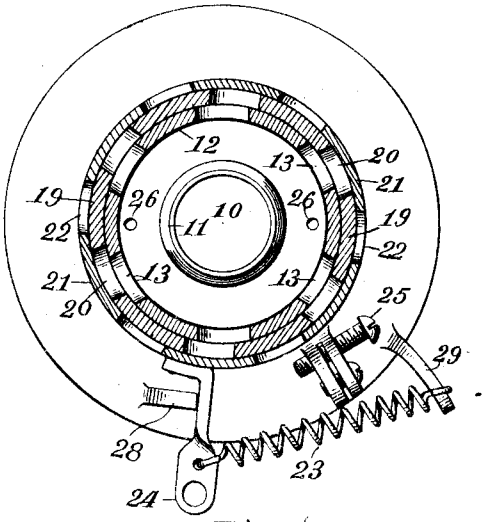


Fig. 6.

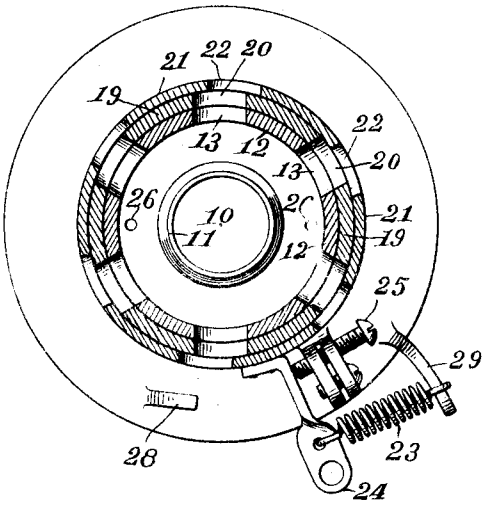


Fig. 7.

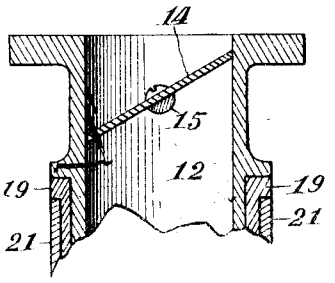


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHAN CHARLES SIMONSEN, OF DETROIT, MICHIGAN.

CARBURETER.

1,123,027. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed April 15, 1911. Serial No. 621,252.

To all whom it may concern:

Be it known that I, JOHAN CHARLES SIMONSEN, a citizen of Norway, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in carbureters, and more particularly to carbureters for use with internal combustion engines, and its object is to provide improved means for controlling the air inlet and to provide the device with various new and useful features, as hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which:—

Figure 1 is a vertical section of a device embodying my invention taken on the line 1—1 of Fig. 2; Fig. 2 an elevation of the same viewed from the right of Fig. 1; Fig. 3 is a plan view of the same; Fig. 4 a detail in vertical section of the throttle and adjacent parts taken at right angles to Fig. 1; Fig. 5 a horizontal section on the line 5—5 of Fig. 2 showing the outer sleeve in open position and the inner sleeve wholly throttled down; Fig. 6 shows the outer sleeve in position to shut off the air inlet for starting purposes and the like; and Fig. 7 shows the sleeve in open position as when the throttle is wide open.

Like numbers refer to like parts in all of the figures.

1 represents the body of the device forming a fuel reservoir in which is maintained a supply of liquid fluid, preferably gasolene, up to the level of the line 5—5.

2 is a float in the gasolene chamber which operates to control an inlet valve 3 to admit gasolene to the chamber 1 supplied by a pipe 4 from any convenient reservoir.

6 is a nozzle extending upward from the chamber 1 terminating at its upper end in front of an air inlet passage 8 provided with an adjustable needle valve 7 to control and adjust the flow of gasolene therethrough.

9 is a downwardly extended and inclined deflector in the air passage 10 behind the nozzle 6 to deflect the air current downward toward the bottom of the air passage at this point. The air passage 10 is curved upward and extends vertically within the axis of the mixing chamber 12 extending above the bottom of the same as at 11 and having the upper end tapered on the outside as shown in Fig. 1.

Near the bottom of the mixing chamber and opposite the air passage 10 are a series of air inlet openings 13 preferably six in number to admit air to the mixing chamber.

14 is a throttle valve mounted on a transverse rock shaft 15 and controlled by a lever 16.

17 is a segment gear on the shaft 15 which meshes with a segment gear 18 projecting from the upper edge of an inner sleeve 19 surrounding the lower part of the mixing chamber 12 and having a series of openings 20 therein corresponding to the openings 13 and adapted to come opposite the same or to turn to a position between the same.

The gears 17 and 18 are so adjusted that when the throttle is opened and closed the sleeve 19 will turn to correspondingly open and close the openings 13. To further control the air inlet and adjust the maximum amount that may be admitted, an outer sleeve 21 surrounds the sleeve 19 and is independently rotative thereon, in which outer sleeve are a series of openings 22 corresponding to the openings 13 and 20. This outer sleeve is adjusted by means of an arm 24 fixed thereon and normally held in position to limit the maximum flow of air, by means of an adjusting screw 25 engaging the arm 24 whereby the openings 22 therein will be more or less normally opposite the openings 13. The maximum amount of admission is thus determined by adjustment of the screw 25 to bring these openings 22 more or less opposite the openings 13. To wholly stop off the air as occasion may require as for starting or other like purposes, a suitable mechanism is attached to the arm 24 whereby the sleeve 21 may be turned to move the openings therein out of opposition to the openings 13. A stop 28 limits this movement as indicated in Fig. 6. An arm 29 serves as anchorage for the spring 23. In the bottom of the mixing chamber 12 are small openings 26 whereby any gasolene or liquid carried over into the same will be drained back into the reservoir 1. In the bottom of the air passage 10 is also a passage 27 for the same purpose the chamber and air passage both being thus kept clear

of any accumulation of gasolene or other liquid, so that in the event that the nozzle discharges more fluid than is vaporized none of this excess will be carried into the engine but such excess will all return to the reservoir.

In operation, whenever air is drawn in through the inlet 8, the gasolene is drawn up through the nozzle 6 and blown against the deflector which breaks up the stream of gasolene and discharges it downward off the edge of the deflector in a fine spray into the current of air which is accellerated in speed in passing through the contracted throat below the deflector, and thus the gasolene is intimately mixed with the air and effectually vaporized, any unvaporized excess going back into the reservoir as heretofore explained. The diluting air coming in through the openings 13 in the side of the mixing chamber, strikes the side of the upper part 11 of the air tube and is thus broken up and discharged upward and inward from the upper and conical end of said tube, and thus becomes intimately mixed with the carbureted air discharged from the tube, and whenever the throttle is shifted to increase or decrease the flow through the device, the sleeve 19 is correspondingly shifted to simultaneously increase or decrease the quantity of air admitted through the openings 13 whereby the richness of the mixture is kept substantially uniform, regardless of the quantity required by the engine to do its work. By adjusting the outer sleeve 21 to more or less throttle the inlet of the diluting air, the normal richness of the charges may be modified at pleasure.

What I claim is:—

1. A carbureter, comprising an upwardly projecting air passage, means for admitting a mixture of liquid fuel and air to said passage, a mixing chamber surrounding the upper end of said passage and extending above the same, a throttle in the upper part of said chamber, lateral openings in the side of said chamber opposite the air passage, a sleeve rotative about the mixing chamber and having corresponding openings to control the admission of air, and gearing connecting the throttle and sleeve whereby the sleeve may be rotated on the mixing chamber as an axis, and the throttle valve simultaneously operated.

2. A carbureter, comprising an air passage, means for supplying a mixture of air and liquid fuel to said passage, a mixing chamber surrounding the upper end of the passage and extending above the same, a throttle in the upper part of said chamber, said chamber also having air inlet openings opposite said passage, an inner sleeve having corresponding openings and rotative about the chamber, gearing connecting the throttle and the sleeve to simultaneously operate the same, and an outer sleeve also having corresponding openings and independently rotative about the inner sleeve, a spring to move the outer sleeve to open position and an arm on the sleeve to manually move the sleeve to closed position.

In testimony whereof I affix my signature in presence of two witnesses.

JOHAN CHARLES SIMONSEN.

Witnesses:

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W. H. MAYBEE.