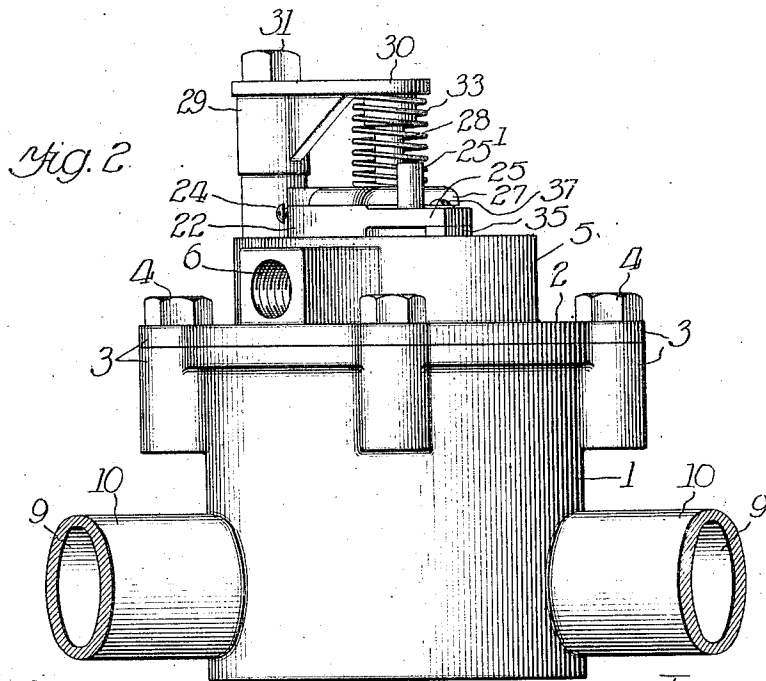
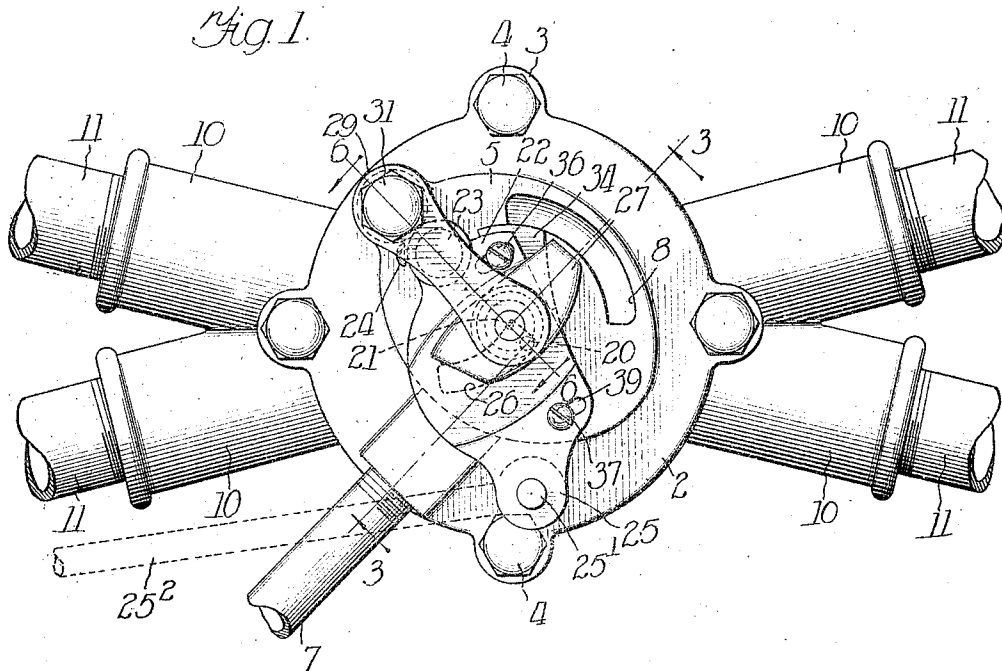


W. C. WESTAWAY.
CARBURETER.
APPLICATION FILED APR. 18, 1910.

1,049,318.

Patented Dec. 31, 1912.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 3.

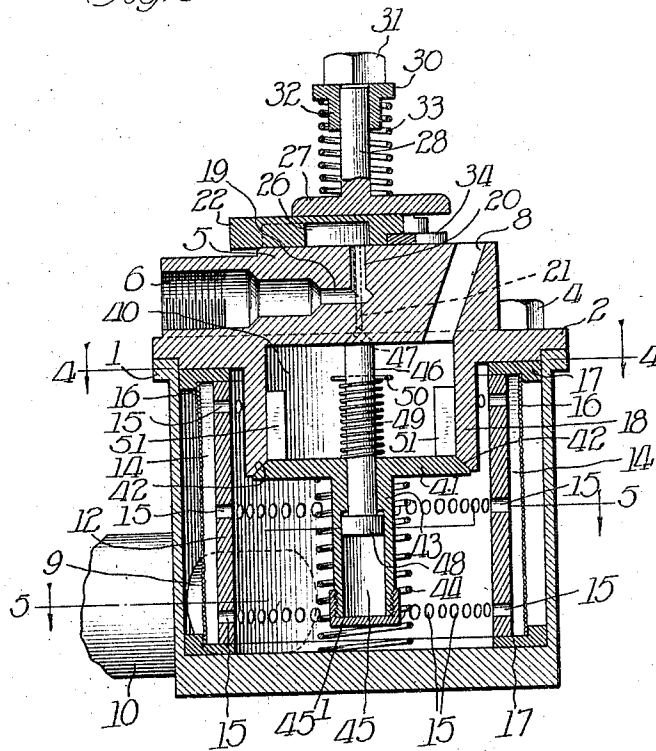
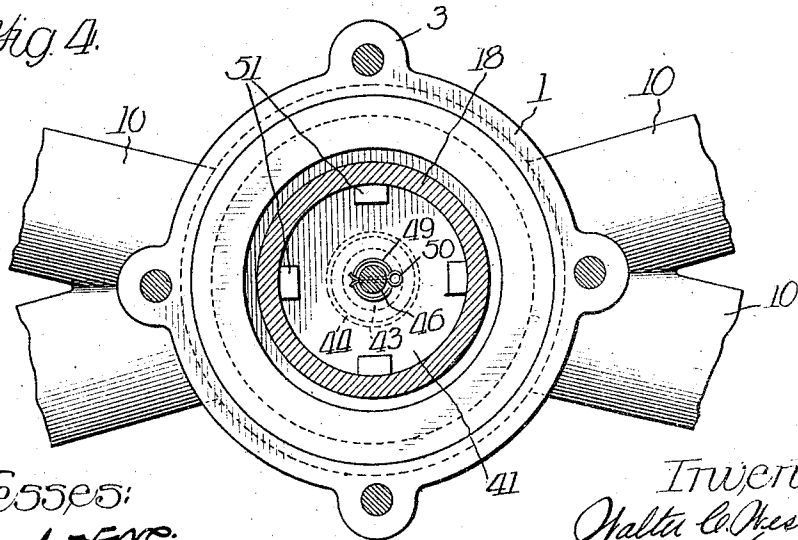


Fig. 4.



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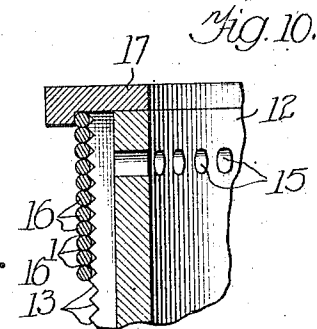
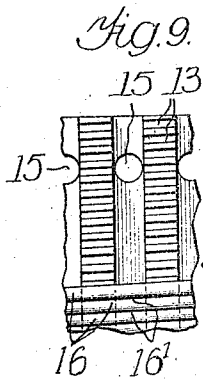
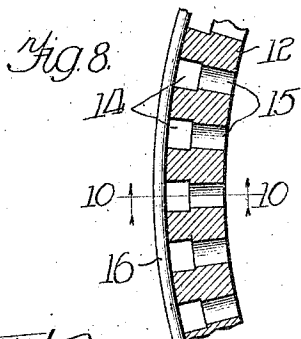
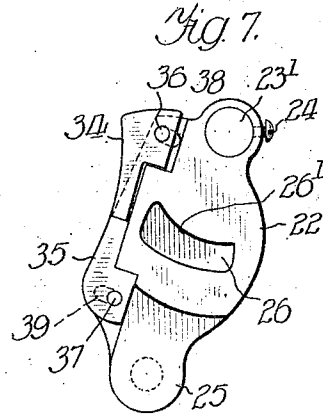
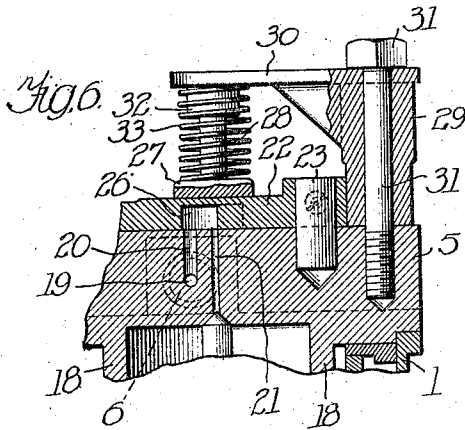
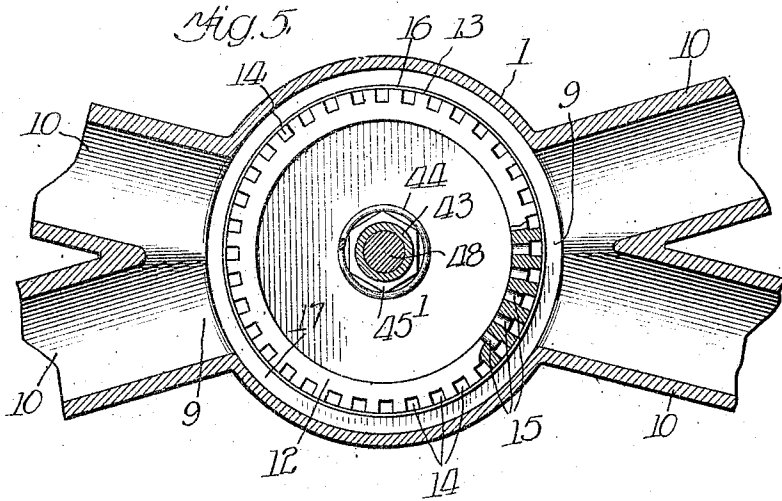
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W. C. WESTAWAY.
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APPLICATION FILED APR. 18, 1910.

1,049,318.

Patented Dec. 31, 1912.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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CARBURETER.

1,049,318.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed April 18, 1910. Serial No. 556,066.

To all whom it may concern:

Be it known that I, WALTER C. WESTAWAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carbureters or the Like, of which the following is a description.

My invention belongs to that class of devices known as carbureters designed to combine fluids, as for example, air and a suitable hydro-carbon, and has among its objects the production of a simple, efficient, durable and satisfactory device of the kind described for use wherever found applicable.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawings wherein like reference characters indicate like or corresponding parts, Figure 1 is a top plan view of my device, Fig. 2 is a side elevation of the same, Fig. 3 is a sectional view of the same taken substantially on line 3—3 of Fig. 1, Fig. 4 is a cross sectional view taken substantially on line 4—4 of Fig. 3, Fig. 5 is a cross sectional view taken substantially on line 5—5 of Fig. 3, Fig. 6 is a sectional view taken substantially on line 6—6 of Fig. 1, Fig. 7 is a view of the working face of the valve member 22, Fig. 8 is an enlarged cross sectional view taken through the wall of the shell, Fig. 9 is an exterior side elevation of the same, and Fig. 10 is a sectional view of the same taken substantially on line 10—10 of Fig. 8.

My preferred form of device comprises a casing 1 provided with a cover 2 extended as at 5, the casing or shell 1 and the cover being provided with suitable lugs 3 and bolts 4 or their equivalents for securing the two parts together. An inlet 6 for the oil or hydro-carbon is provided in the top 5, the same being conducted thereto through a pipe 7, the supply of oil or hydro-carbon to the device being controlled by suitable valves as hereinafter described. The part 5 is also provided with an air inlet 8, the amount of air admitted being also controlled as hereinafter described. The casing or shell 1 is provided with one or more outlets 9 which may be arranged as at 10 (see Fig. 1) the mixture or gas being con-

ducted to the engine cylinders or where desired by one or more pipes 11 or the equivalent.

Within the shell or casing 1 is a member 12, the same being shown in the form of a cylindrical shell, which is preferably threaded or progressively grooved as at 13, and also longitudinally grooved as at 14, suitable ducts or openings 15 connecting the interior of the shell with the grooves 14. About the shell and arranged in the grooves 13 is a wire 16, which is progressively wound about the shell forming a great number or plurality of preferably small angular openings 16¹ through which the air and hydro-carbon which may be more or less mixed at this time, must pass through before passing out through the outlets 9. The arrangement of the shell and angular openings is such that it may be broadly described as interposed between the inlet and outlet. The shell 12 may be provided with heads 17 which afford a tight fit at the ends as well as secure the ends of the wire 16 tightly in position, the wire, however, being also preferably soldered or otherwise secured to the shell. There may be any desired number of slots 14 and holes 15 of suitable sizes. The wire may be maintained against displacement in any other equivalent way, or any equivalent means provided to form the angular opening 16¹, but the present construction shown is a very satisfactory arrangement and one that is comparatively easy and inexpensive to manufacture. The threads 13 not only maintain the wires against displacement, but space and maintain the same so that the angular openings 16¹ are approximately all the same size. While the openings may be made any size that may be found satisfactory in the preferred construction the wires are placed comparatively close together so that the openings are very small.

As most clearly shown in Fig. 3, I extend the top 2 down as shown at 18 to form a chamber 40 as hereafter described. In the extended part 5 is a duct 19—20 from the inlet 6 to the face of the top and also a duct 21 from the face to the chamber 40. The hydro-carbon or oil enters through the inlet 6 and passes through the duct 19—20 to the face and thence through the duct 21 to the chamber 40, the admission to the inlet duct 21, however, being controlled by a suitable valve 22 or its equivalent. As shown,

the valve 22 is pivotally secured to the top 5 by means of a pin 23 and screw 24. The construction of the valve member 22 is most clearly shown in Fig. 7 in which 26 is a chamber slot or groove in the face of the same arranged with an edge 26¹ eccentric to the pin 23 or its axis of rotation so that as the valve member moves back and forth over the face of the top 5 it will regulate or control the amount of oil or hydro-carbon admitted through the duct 21 to the interior of the device, the duct 20 being open to the chamber or slot 26 in the valve member. This is most clearly shown in Fig. 1 in which the openings 26 and ducts 20 and 21 are shown in dotted lines. The valve member 22 may be controlled and maintained in position in any suitable manner. As shown, it is resiliently maintained against the face of the top 5 by means of a member 27 provided with a stem 28 and a part 29 secured to the top part 5 by a screw 31 and extended as at 30. The end is provided with an extension 32 arranged to cooperate with a spring 33 and maintain the same in position, the resilient member or spring 33 acting between the arm 30 and the member 27, thereby maintaining the valve 22 tightly against the face of the top. The valve member 22 may be operated by a rod 25¹ secured to the end 25 or by equivalent means. In the construction shown the amount of air admitted to the inlet 8 is also controlled by the member 22, as most clearly shown in Fig. 7. To give adjustability to member 22 in controlling the amount of air admitted through the inlet 8 the member may be provided with one or more adjustable extensions 34 and 35 secured to the member 22 by screws 36 and 37 extending through the upper face of the member 22 through slots 38 and 39. In this manner the size of the member 22 may be adjusted so that the amount of air and oil admitted to the interior of the device will be in the desired proportions.

Within the shell is arranged a valve member 41 arranged to cooperate with a seat 42 on the extended part 18 of the top and control the air and hydro-carbon or oil passing through the casing, the same with the part 18 forming a chamber 40. One of the parts, as shown, the member 41 is provided with lugs arranged to guide the valve during its movement, a spring 44 being provided for normally maintaining the valve in its closed position. The valve member 41 is preferably provided with a stem 43 having a chamber 45 therein normally closed by a cap 45¹. The valve member 41 carries a hydro-carbon or oil controlling valve member 46 arranged to control the amount of oil or hydro-carbon admitted through the duct 21 to the chamber 40, the same being normally maintained in its closed position when the valve member 41 is closed by means of a re-

silient member 49 and a pin 50, the movement of the same being limited by the enlarged end 48 positioned in the chamber 45. With this construction a close fit is obtained between the valve member 46 and its seat 47 and the valve member 41 and its seat 42. Any slight wear, however, of one part will not affect the adjustment or operation of the other part so that both valves are always perfectly adjusted and seated. If desired, however, they may be made integral, in which case the operation will be substantially the same.

The operation of the device may be briefly described as follows: Assuming that there is a suction caused by the engine or the like at one of the outlets 9, the valve 22 being in a position so that the duct 21 and the air inlet 8 are open. Then the suction will cause the valves 41 and 46 to open, admitting the hydro-carbon and air to the interior of the shell 12 from whence it must be drawn through the angular openings 16¹ to reach the engine cylinder or where required. As it passes through the angular openings it will be thoroughly co-mixed and vaporized, giving a highly efficient charge. It may also be co-mingled to a certain extent in passing between the valve 41 and its seat 42, but a thorough mixing occurs as it passes through the angular openings 16¹. If desired, additional co-mixing or vaporizing members may be used in addition to the present device, but inasmuch as these form no part of the present invention and are not necessary, the same are not shown or described. When there is no suction from the engine or at the outlet, the valve member 46 and valve member 41 are normally and automatically closed, preventing the carbureter or engine cylinders from becoming flooded and inoperative.

Having thus described my invention it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact construction, arrangement or combination of parts herein shown or described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a carbureter, a casing, an outlet pipe communicating with said casing, a chamber communicating with the interior of said casing, said chamber being provided with oil and air ports arranged side by side leading thereinto, a single manually operable valve movable over the oil and air ports for controlling the flow of both oil and air through said ports, to the interior of said chamber, and an automatically operable valve controlling the communication between said chamber and the interior of said casing.

2. In a carbureter, a casing, an outlet pipe

communicating with said casing, a chamber communicating with the interior of said casing, said chamber being provided with oil and air ports arranged side by side leading thereinto from the exterior of the casing, a valve supported upon the casing and movable over the oil port therein for controlling the flow of oil to the interior of said chamber, means adjustably secured to said valve and adapted when the valve is shifted to move over the air port to control the flow of air to said chamber, and an automatically operable valve controlling the communication between said chamber and the interior of said casing.

3. In a carbureter, a casing, an outlet pipe communicating with said casing, a chamber communicating with the interior of said casing, said chamber being provided with oil and air ports leading thereinto, a valve movable over said oil port and adapted to progressively close the same, and a member directly connected to said valve and movable over the air port to vary the size thereof, and an automatically operable valve controlling communication between said chamber and the interior of said casing.

4. In a carbureter, a casing provided with oil and air inlet ports leading from the exterior to the interior thereof, a second oil port positioned in the wall of the casing and terminating on the exterior thereof adjacent said first mentioned oil port, a valve movably mounted on the exterior of said casing, and provided with a recess in the underside thereof, said recess embracing both of said oil ports and one wall thereof being provided with a portion adapted to vary the size of the oil port leading from the exterior to the interior of the casing upon movement of said valve.

5. In a carbureter, a casing provided with oil and air inlet ports leading from the exterior to the interior thereof, a second oil port positioned in the wall of the casing and terminating on the exterior thereof adjacent said first mentioned oil port, a valve movably mounted on the exterior of said casing, and provided with a recess in the underside thereof, said recess embracing both of said oil ports and one wall thereof being provided with a portion adapted to vary the size of the oil port leading from the exterior to the interior of the casing upon movement of said valve, and means carried by said valve and adapted to vary the size of the air port leading from the exterior to the

interior of the casing, upon movement of said valve.

6. In a carbureter, a chamber provided with oil and air inlet ports leading from the exterior to the interior thereof, an oil supply passage terminating on the exterior of the chamber adjacent said first mentioned oil port, a valve movably mounted on the exterior of the chamber and provided with a passage therein adapted to connect said oil passages, an air passage leading to said chamber, and means operatively connected to said valve adapted upon movement thereof to vary the size of said air port.

7. In a carbureter, a casing provided with oil and air inlet ports leading from the exterior to the interior thereof, a second oil port positioned in the wall of the casing and terminating on the exterior thereof adjacent said first mentioned oil port, a valve movably mounted on the exterior of said casing and provided with a recess in the underside thereof, said recess embracing both of said oil ports and one wall thereof being provided with a portion adapted to vary the size of the oil port leading from the exterior to the interior of the casing upon movement of said valve, and an adjustable member extending from said valve and movable over the exterior of the casing and the air inlet port, said movable member being adapted to vary the size of the air port leading from the exterior to the interior of the casing upon movement of said valve.

8. In a carbureter, a chamber provided with a wall having a flat outer surface, said chamber being provided with oil and air inlet ports leading through said wall from the exterior to the interior thereof, a second oil port positioned in said wall and terminating on the exterior thereof adjacent said first mentioned oil port, a valve pivotally supported upon the flat outer surface of the wall of the chamber, yieldable means for holding said valve in engagement with the outer surface of the wall of said chamber, said valve being provided with a passage in the inside thereof embracing both of said oil ports and with a portion movable over the air inlet.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

WALTER C. WESTAWAY.

Witnesses:

ROY W. HILL,
CHARLES I. COBB.