

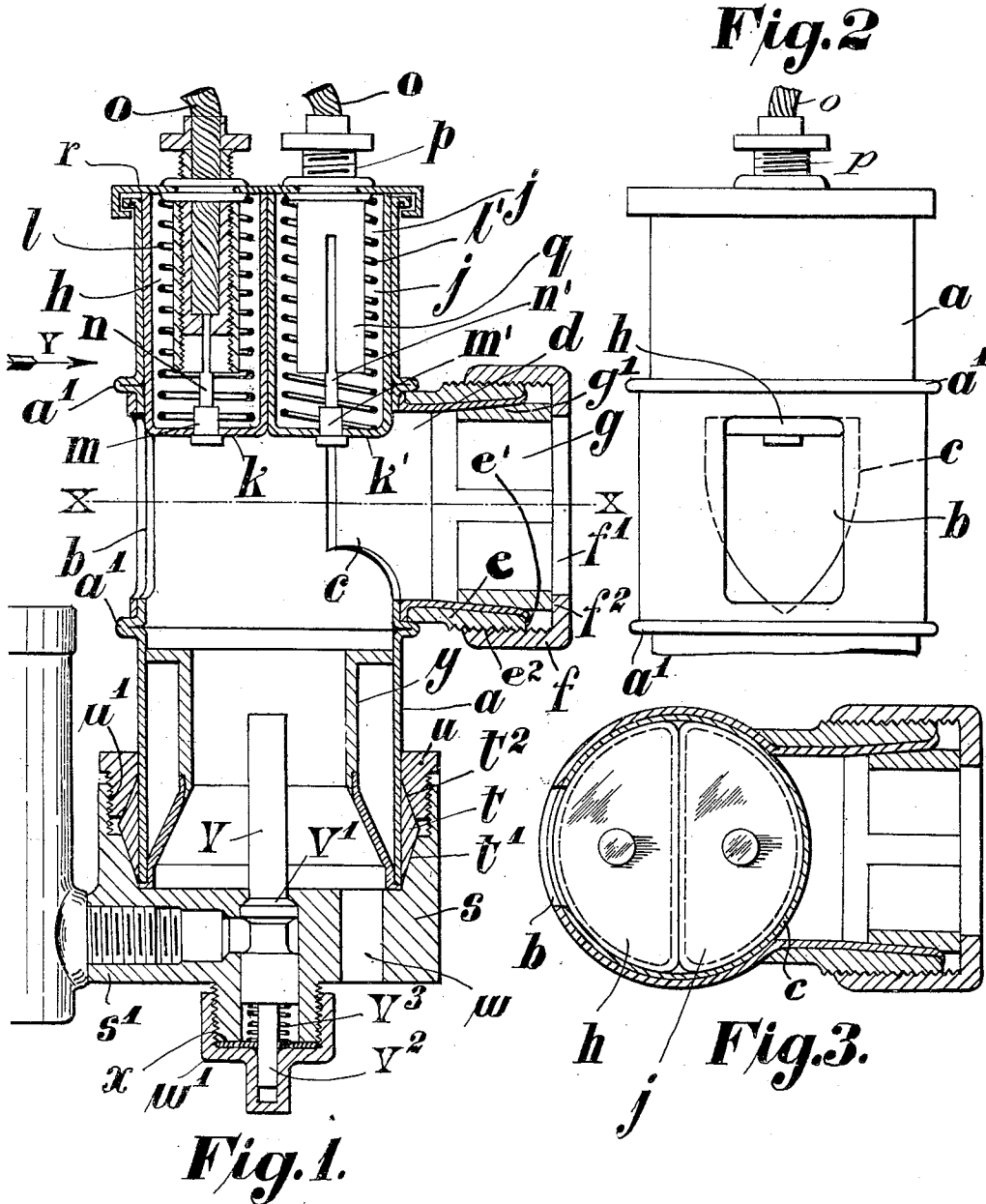
C. BROWN.
CARBURETER.

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1,042,077.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.



WITNESSES:

A. R. Grubb.
R. L. Whittell.

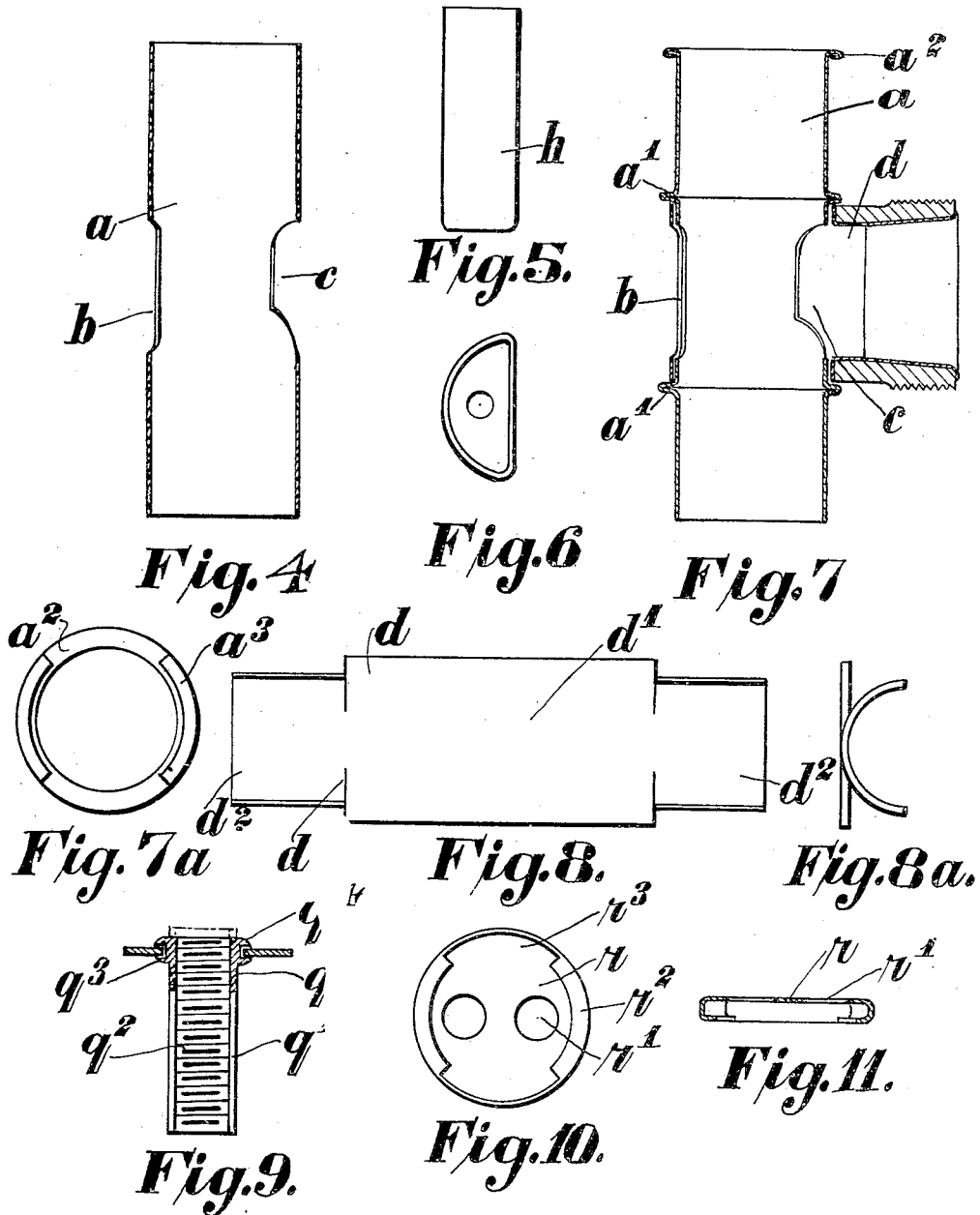
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2 SHEETS—SHEET 2.



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CLEMENT BROWN, OF BIRMINGHAM, ENGLAND.

CARBURETER.

1,042,077.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed October 4, 1909. Serial No. 520,936.

To all whom it may concern:

Be it known that I, CLEMENT BROWN, a subject of the Kingdom of Great Britain, residing at 16 Loveday street, Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Carbureters; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to a carbureter, having a readily detachable mixing chamber, provided with a valve controlling means which can be quickly assembled or dismounted.

In order that this invention may be clearly understood and more readily carried into practice, reference may be had to the appended explanatory drawings, upon which:—

Figure 1 is a sectional elevation of a carbureter according to the invention. Fig. 2 is an elevation of the upper part of the structure shown in Fig. 1, looking in direction of arrow Y. Fig. 3 is a sectional inverted plan on line *x x* Fig. 1. Fig. 4 is a sectional elevation of mixing chamber blank. Fig. 5 is an elevation of one of the control valves. Fig. 6 is a plan of the valve shown in Fig. 5. Fig. 7 is a sectional elevation of the mixing chamber with the elbow in position. Fig. 7^a is a plan of the mixing chamber in Fig. 7. Fig. 8 is an elevation of the elbow blank before attachment to the mixing chamber, and Fig. 8^a is an end view thereof. Fig. 9 is a sectional elevation of the support for the bush of the control wire. Fig. 10 is an inverted plan, and Fig. 11 is a sectional elevation of the cap of the mixing chamber.

In the drawings, the mixing chamber *a* is a cylindrical tubulus having ports *b*, *c*, located about midway between its extremities and diametrically opposite to each other. Supplementary uncarbureted air from the atmosphere enters the port *b*, and the combustible charge egresses by way of the port *c*. The mixing chamber *a* is manufactured from a plain tubular blank shown in Fig. 4, having the supplementary air inlet *b* and the mixture outlet *c*, cut in the periphery of the tubulus. The latter opening has its vertical marginal edges parallel at the upper part and inclining inward at its lower part as shown by the dotted lines in Fig. 2.

At the middle part of the mixing chamber *a* is attached an elbow *d* formed of sheet metal, the partially finished blank being

illustrated in Fig. 8. The central part *d*¹ of the blank is at this stage flat but the ends *d*² are semi-cylindrical, transverse slots *d*³ being cut in the blank at the juncture of the ends and the middle to allow of its being so formed. The blank is placed in position on the mixing chamber and bent therearound until the middle part *d*¹ is cylindrical to fit the periphery of the mixing chamber. It will be obvious that at this position the vertical axis of the two semi-cylindrical ends *d*² lie in the same vertical plane and thus form a seam. Around the horizontal arm of the elbow is placed an annular collar *e*, the bore of which is coned out, the largest diameter being remote from the mixing chamber. The horizontal arm of the elbow is expanded against the taper bore of the collar *e* and is also beaded over at its outer extremity *e*¹. The elbow thus retains the collar in place. The collar periphery is screwed at *e*² to receive a nut *f*. In the elbow mouth is disposed an axially split contractile ring *g* coned on its periphery *g*¹ to fit the coned mouth of the elbow and cylindrical in its bore. An aperture *f*¹ is provided in the face of the nut *f*, and a shoulder *f*² to engage the outer face of the split ring *g*. This arrangement avoids screw threads on the induction pipe as it will be obvious that by suitably rotating the nut *f*, the split ring is pressed into the coned mouth of the elbow and is thereby contracted onto the induction pipe. The carbureter can also be quickly attached or detached. The mixing chamber has two outstanding circumferential projections *a*¹ formed upon it one above and one below the elbow; these prevent axial relative movement between the elbow and the mixing chamber. The top edge of the latter is turned over to form a locking means for the cap of the chamber but will be described more particularly in connection with the valve structure.

At the top part of the mixing chamber are disposed the valve controlling means comprising two sheet metal control members *h*, *j*, arranged side by side to slide longitudinally and independently within the mixing chamber. The valve *h* for the left half of the mixing chamber regulates the supplementary uncarbureted air port *b*, while the member *j* on the right controls the mixture outlet port *c*. These valves are preferably semi-cylindrical or segmental and are open at the top,

but closed at the bottom by transverse partitions h , h' . Resting on the partitions h , h' and arranged between the side walls of the hollow sliding valves are coiled compression take off springs l , l' with their upper extremities abutting against the inner face of the removable cap on top of the chamber. About the middle of the partitions h , h' of the valves h and j are axially arranged nipples m , m' , soldered to the end of the flexible inextensible members n , n' forming actuating means for the valve, a flexible incompressible casing o surrounding each inextensible member n , n' .

Each incompressible casing o is anchored in an adjustable stop p screwed into a tapped bush q Fig. 9. This bush has two radial slots q^1 in its periphery which extend the greater part of its length. The thread in the bush is slightly smaller in diameter at the part q^2 cut by the slots q^1 than at the upper unslotted part, while the thread on the periphery of the screwed stop p is of uniform diameter. When the stop is screwed into the bush, the slotted part of the latter is able to expand and exert a contractile effort on the stop. The latter is thus frictionally retained in the desired position without a locknut. The bush is fixed to the cap r by collars q^3 , q^4 near the one end of the bush, one of the collars being at the upper face and the other at the lower. That part of the bush extremity shown by the dotted lines in Fig. 9 is formed parallel and is inserted in an aperture r^1 in the cap r , being then turned or beaded over to form the upper collar q^4 . The cap r is pressed up from sheet metal and has its upper face perforated with two circular apertures r^1 to accommodate the bushes q . Two ledges r^2 formed on the lower face each extend through a quarter of a circle and are separated by interspaces r^3 also extending through a quarter of a circle. Said cap fits the top of the mixing chamber. The latter has its upper marginal edge turned over to form a flange a^2 , the said flange not being continuous but interrupted by interspaces a^3 similar in extent to those in the cap. The upper faces of the ledges r^2 engage the lower face of the flange a^2 , when *in situ*. It will be readily understood that the cap, valves and appurtenant parts can be collectively removed from the mixing chamber by simply rotating the cap through a quarter of a revolution and withdrawing it. By a reverse process these parts can be attached, the ledges r^2 engaging the flange a^2 .

The mixing chamber at its lower part is attached to a platform s circular in plan and having a boss s^1 for entrance of liquid fuel. Encircling the mixing chamber and contacting the periphery thereof is a split ring t similar to the one g in the coned mouth of the elbow except that it is formed

of two cones base to base, that is the section is an isosceles triangle with the base as bore. The lower conical face t^1 of the split ring t fits into a coned recess in the platform while its upper conical face t^2 is engaged by the conical interior of a nut u . The nut u is screw threaded on its periphery u^1 to engage a tapped recess in the platform immediately above the coned recess. To release the mixing chamber from the platform the nut u is rotated through a small angle to allow the split ring t to expand. By the double cone a contractile grip is exerted along the entire lateral bore of the ring.

The nozzle v from which the liquid fuel is sprayed has a conical seat v^1 which prevents the fuel from escaping. The lower part of the nozzle has a depending stem v^2 which is encircled by a coiled compression spring v^3 bearing against a removable cap w^1 at its lower side and pressing the conical part v^1 of the nozzle into petrol tight contact with its seat. x is a fiber joint washer. By this construction the nozzle may be moved without disturbing the fuel connections. Vertical holes w in the mixing chamber platform allow the main air supply to enter and pass through the choke tube y .

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A carbureter comprising a mixing chamber having inlet and outlet ports, two independently movable hollow valve members arranged side by side to slide longitudinally within the mixing chamber and control said ports, each of said valve members having an open end, and compression springs contained in said hollow valve members extending through said open ends to bear against the mixing chamber.

2. In a carbureter, the combination of a mixing chamber having an inlet port and an outlet port, sliding semi-cylindrical members controlling said ports, a quickly detachable cap affixed to the top of said chamber, a split collar encircling said chamber and having a coned periphery, a platform having a coned mouth and means for contracting the split collar to grip said chamber.

3. In a carbureter, the combination of a mixing chamber having an inlet port and an outlet port, sliding semi-cylindrical members controlling said ports, a quickly detachable cap affixed to the top of said chamber, an elbow connection for egress from said chamber, a split collar having a coned periphery adapted to fit into the coned mouth of said elbow connection, and means for pressing said collar into said mouth.

4. In a carbureter, the combination of a mixing chamber having an inlet port and an outlet port sliding semi-cylindrical members controlling said ports, a quickly de-

5. detachable cap affixed to the top of said chamber, a tapped bush secured to said cap, and a stop screwed therein said bush being of slightly smaller bore than the external diameter of the stop.

10 5. In a carbureter the combination of a mixing chamber having an inlet port for the air and an outlet port for the mixture of air and gas, and two sliding semi-cylindrical members arranged in the mixing chamber side by side to control said ports.

15 6. A carbureter comprising a mixing chamber having inlet and outlet ports, a removable cap for the mixing chamber, two independently movable hollow valve mem-

bers arranged side by side to slide longitudinally within the mixing chamber and control said ports, the end of each of said valve members adjacent to said cap being open, and compression springs contained in said hollow valve members extending through said open ends to bear against said cap.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

C. BROWN.

Witnesses:

ROWLAND L. GOOLD,
WILLIAM A. DAVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."