No. 649,324. Patented May 8, 1900.

VEUVE L. LONGUEMARE.

CARBURETER FOR EXPLOSIVE ENGINES.

(Application filed Nov. 7, 1899.)

(No Model.)

FIG. 1.

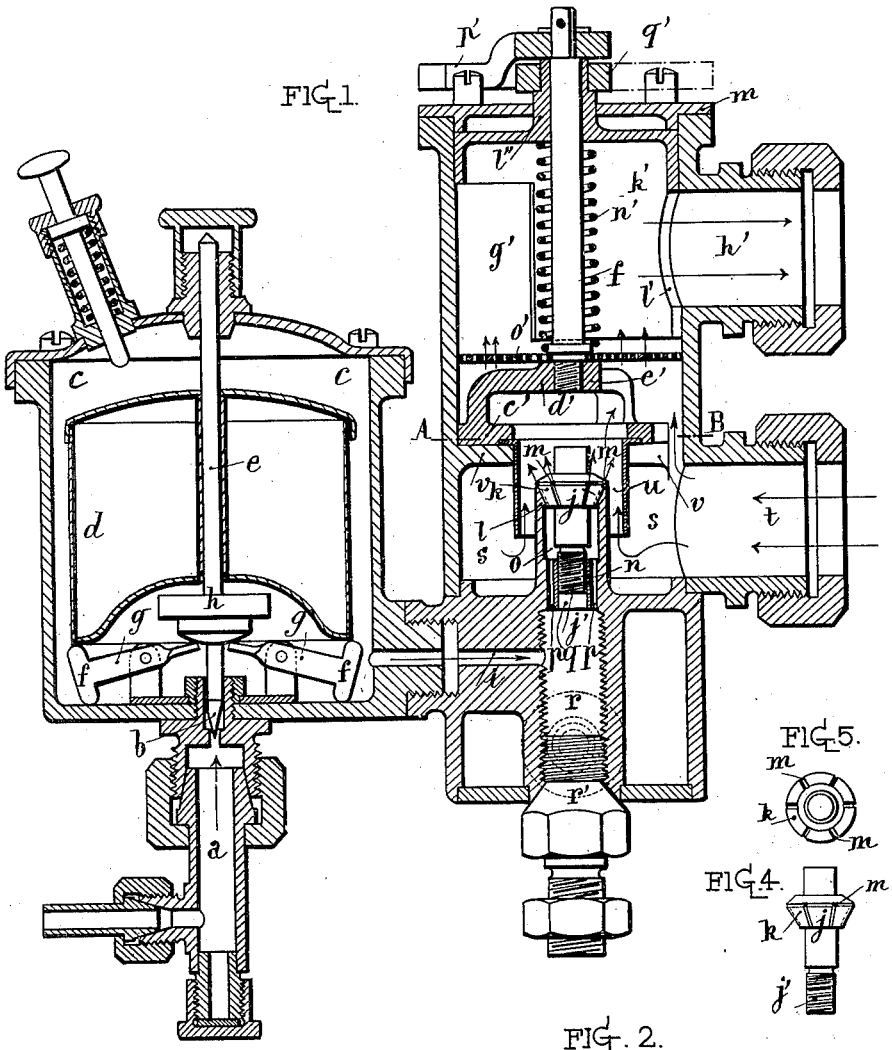


FIG. 5.

FIG. 4.

FIG. 2.

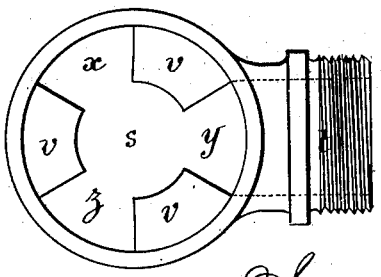
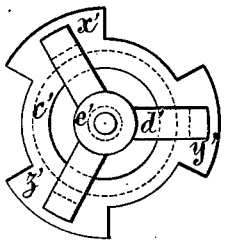


FIG. 3.



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UNITED STATES PATENT OFFICE.

VEUVE LÉON LONGUEMARE, OF PARIS, FRANCE.

CARBURETER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 649,324, dated May 8, 1900.

Application filed November 7, 1899. Serial No. 735,172. (No model.)

To all whom it may concern:

Be it known that I, VEUVE LÉON LONGUEMARE, a citizen of the French Republic, residing at 12 Rue du Buisson, St. Louis, Paris, France, have invented certain new and useful Improvements in or Relating to Carbureters, (for which I have made application for Letters Patent in Great Britain under No. 16,080, dated August 5, 1899, and in Belgium, dated August 4, 1899,) of which the following is a specification.

The improved carbureter forming the subject of this invention is, speaking generally, applicable to motors worked by the ignition and explosion of a mixture of any suitable liquid hydrocarbon, mineral essence, petroleum, or the like with air.

The device is represented, by way of example, in the accompanying drawings, in which—

Figure 1 shows the whole apparatus in vertical section. Fig. 2 is a partial sectional horizontal plan on the line A B of Fig. 1, showing especially the seat of the valve for regulating the admission of air. Fig. 3 is a detail view showing the said air-feed-regulating valve in plan. Figs. 4 and 5 show in elevation and inverted plan, respectively, the mechanism for the distribution of the liquid hydrocarbon, petroleum, or essence.

The apparatus works with a constant level of liquid hydrocarbon, which latter is admitted through a conduit *a*, with a regulating needle-valve *b*, to the reservoir *c*. On the vertical spindle *e* of said valve is mounted, guided, and operates a float *d*. When the normal level of hydrocarbon in the reservoir *c* falls, the float *d* will bear upon ears or projections *f*, formed at the outer ends of levers *g*, pivotally mounted at the bottom of the reservoir *c*, the inner ends of which levers are so combined with a plate or part *h* on the spindle *e* of the needle-valve *b* as to lift the said spindle, and consequently its valve *b*, to the extent to which the level has fallen, whereas when the level is maintained at its normal height the float *d* releases the levers *g*, which then allow the spindle *e* and its valve *b* to redescend to the position in which the valve cuts off the supply of liquid hydrocarbon.

To the reservoir *c* is connected the body of the carbureter proper by a conduit *i*, admitting the hydrocarbon below the distributing or feed nozzle *j*, which is formed of a truncated conical part *k*, adjusted upon a seat *l*, provided for this purpose and furnished with grooves *m*, sufficiently large to allow the hydrocarbon to pass under the effect of the suction of the motor. The nozzle or valve *j* is fixed to or formed on a stem *j'*, which is screwed into the bottom part of a bearing or tubular part *n* and which comprises below the said nozzle a chamber *o* for the admission of the hydrocarbon, the upper level of which corresponds to the normal level which the hydrocarbon should occupy in the apparatus, and consequently in the feeding-reservoir *c*. The said chamber *o* communicates by conduits *p*, arranged concentrically around the socket *q* for the stem *j'*, with an under chamber *r*, communicating with the inlet-conduit *i*, the lower part of the chamber *r* being closed by a screw-stopper *r'* and serving for the discharge or emptying of the apparatus. The tubular bearing *n* of the nozzle *j* is surrounded by an annular chamber *s*, communicating with a conduit *t* for the admission of air, and which air passing along in the direction indicated by the arrows is directed so as to pass upward around the said nozzle *j* by an annular sleeve or guide *u*, surrounding the bearing *n* at a suitable height and distance, it being supported upon an annular horizontal partition *v*, formed in the body of the apparatus at the height of the upper wall or portion of the air-admission conduit *t*. This partition *v* (shown in Fig. 2 in detail) has segmental openings or recesses *x y z*, so as to form passages placing the whole air-chamber *s* in communication with that part of the body of the apparatus which lies above the nozzle *j*. In combination with the partition *v* a valve of the kind represented in detail in Fig. 3 is arranged and applied thereon. The said valve is circular and is so cut as to form sectors *x' y' z'*, corresponding with the openings *x y z* of the partition *v*, and serving thus, according to the relative position of these parts, to regulate the extent of their opening or closing relatively to the upper part of the apparatus, according as a more or less large quantity of additional air is to be supplied. The valve *c'* is provided with three arms *d'* and a central socket *e'*, into which screws the

lower end of a vertical rod f', arranged in the upper part of the apparatus, which upper part constitutes a chamber g', in which the explosion mixture is formed and with which communicates a conduit h' for the admission of the said mixture to the motor, the said mixture passing in the direction indicated by the arrows.

Within the cylindrical chamber g' is adjusted and operates in combination with the conduit h' a valve k' with an opening l', so arranged as to correspond with that of the conduit h', the section of which can thus by adjusting said valve k' be regulated—that is to say, be increased or diminished at will for regulating the speed of the motor. The valve k', moreover, permits of completely closing the conduit h' when the motor is to be stopped.

The valve k' is mounted on the rod or spindle f' of the valve c' by means of its central socket l'', which extends through the center of the cover m', closing the upper part of the chamber g'. A spring n' is provided upon the spindle f' in such a manner as to apply the valve c' against its seat v. A perforated plate o' assists in producing an intimate mixture of the hydrocarbon and the air admitted below the latter, the said vapor and air being caused to traverse the perforated plate together before entering the chamber g' and conduit h', through which the explosive mixture passes to the motor.

The valves k' and c' are respectively controlled from the exterior of the apparatus by the aid of small arms p' q', the arm p' being mounted on the spindle f' of the valve c' and the arms q' being mounted on the socket l' of the valve k'. These arms, connected by rods to operating-handles arranged at any suitable points, permit of the free and easy control of the valves c' and k', thus insuring the proper proportions of air for forming the explosive mixture and the suitable conditions for the admission of the said mixture to the motor.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A carbureter operating with a constant level of carbureting fluid comprising a supply-nozzle for the introduction of the liquid hydrocarbon, petroleum, essence or the like to the mixing-chamber, two valves, one applied to the air-chamber surrounding the supply-nozzle and pressed to its seat by a spring and serving to effect the regulation of the air-supply to the hydrocarbon, the other valve being arranged in the mixing-chamber in order to control the size of opening to the conduit for conveying the said mixture to the motor; the said valves being mounted, one rigidly and the other loosely, upon one and the same spindle, and being separated by a perforated plate to insure an intimate mixture between the hydrocarbon vapors and the air; and means for actuating said valves from the exterior of the apparatus substantially as described.

2. In a carbureter of the character described, the combination with a supply-nozzle for the introduction of the liquid hydrocarbon, or the like, to the mixing-chamber, two valves, one applied to the air-chamber surrounding the supply-nozzle and adapted to regulate the air-supply to the hydrocarbon, the other valve being arranged in the mixing-chamber and controlling the size of opening to the conduit for conveying the mixture to the motor, a spindle upon which the valves are mounted, one rigidly and the other loosely, and means for actuating said valves from the exterior of the apparatus.

3. In a carbureter of the character described, the combination with a hydrocarbon supply-nozzle, of an air-guide arranged around said nozzle, a partition having segmental openings arranged above the hydrocarbon-supply nozzle, a valve adapted to cooperate with said partition and having segmental portions corresponding with the openings in the partition, a rotatable spindle attached to the valve, a conduit to lead the explosive mixture to the motor, and a tubular valve loosely mounted upon the said spindle and adapted to be rotated and control the supply of explosive mixture to the conduit.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

VEUVE LÉON LONGUEMARE.

Witnesses:
LOUIS GULLIGAN,
J. ALLISON BOWEN.