907,881.

F. C. REINEKING.

CARBURETER.

APPLICATION FILED JAN. 28, 1908.

Patented Dec. 29, 1908.

2 SHEETS—SHEET 1.

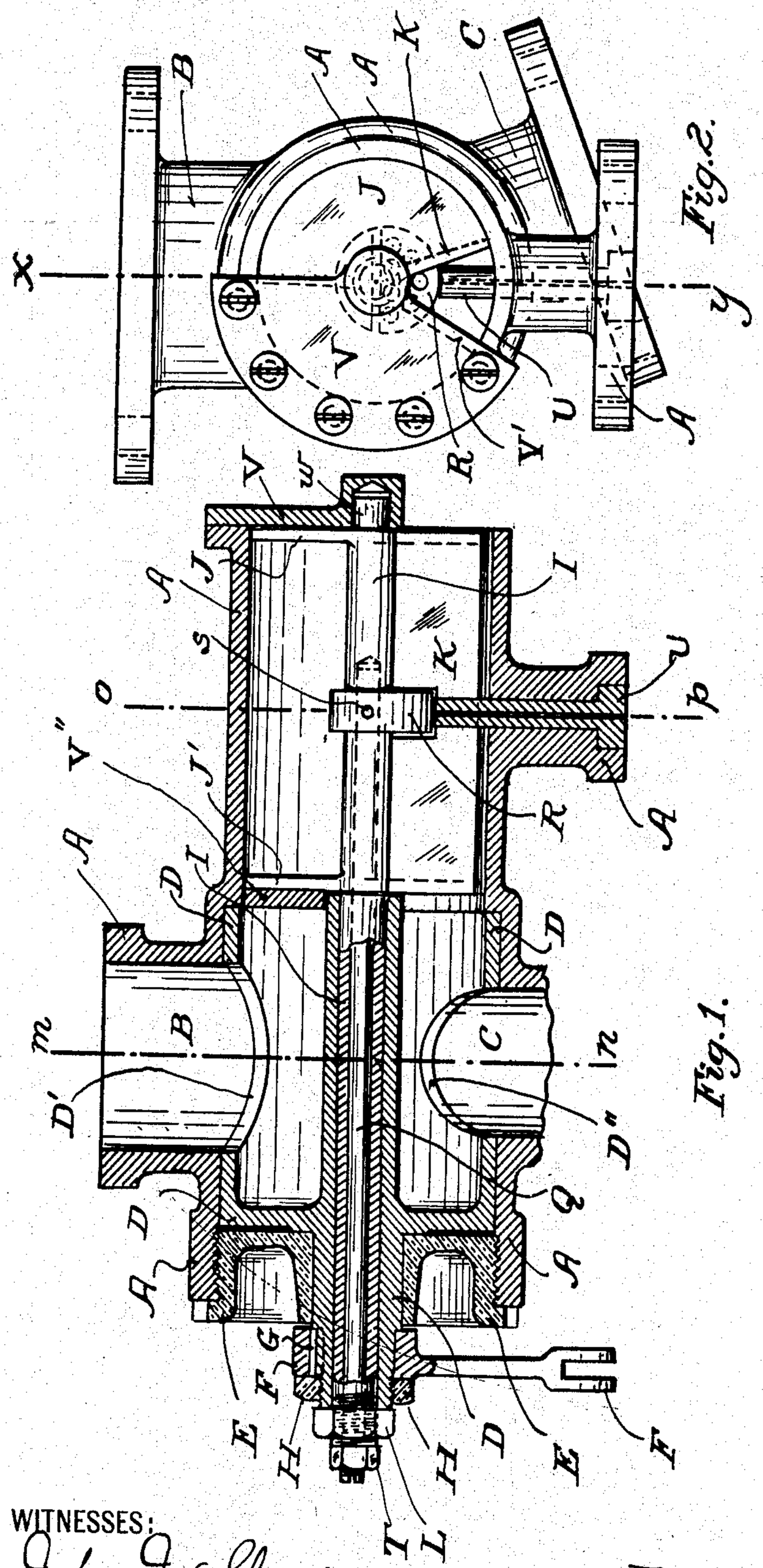

Fig. 1.

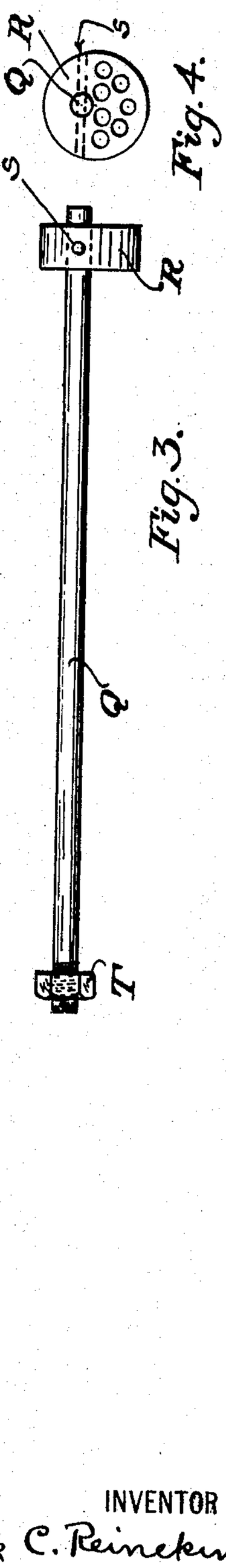

Fig. 3.

Fig. 4.

Fig. 2.

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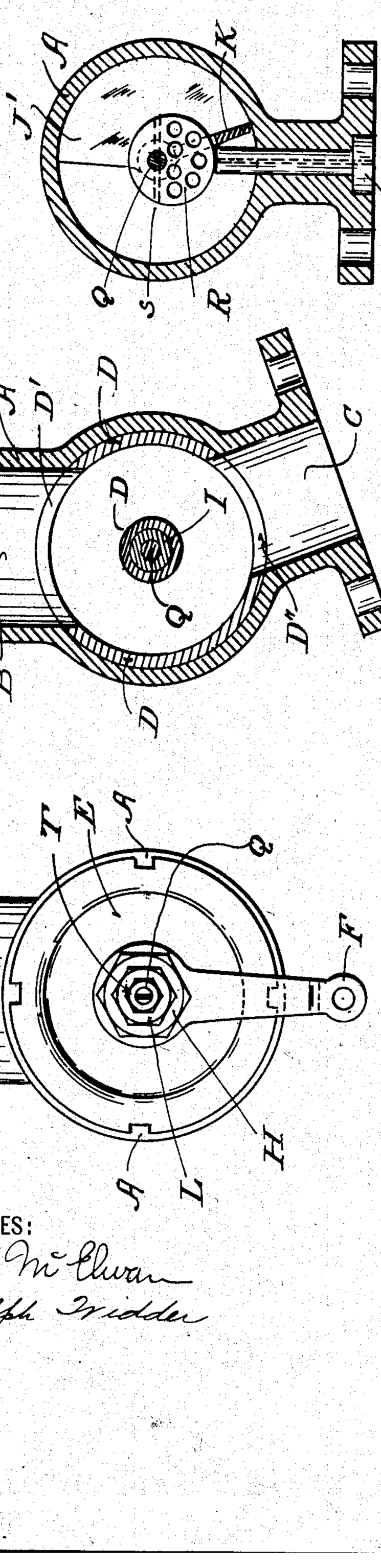

Fig. 7.

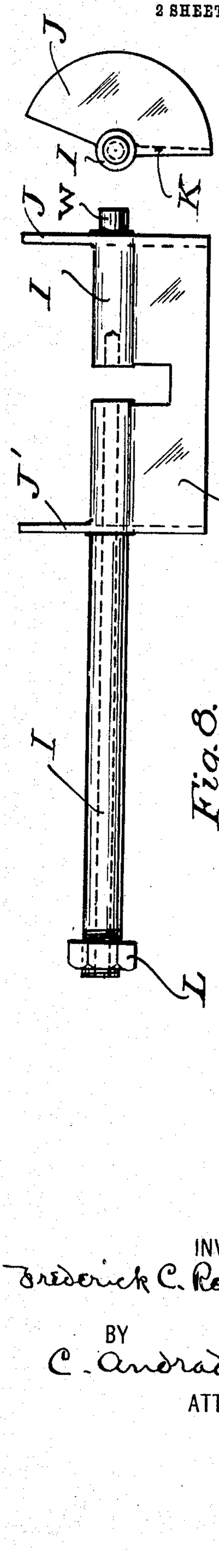

Fig. 8.

Fig. 6.

Fig. 5.

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CARBURETER.

No. 907,881. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed January 28, 1908. Serial No. 413,027.

To all whom it may concern:

Be it known that I, FREDERICK C. REINEKING, a citizen of the United States, residing at 208 East Sixty-third street, in the city and county of New York and State of New York, have invented a new and useful Improvement in Carbureters, of which the following is a specification.

My invention relates to an improvement in carbureters; and the objects of my invention are; first; to provide a carbureter which shall be automatic for all speeds and for all conditions of load on the engine; second; to provide a carbureter which will permit of greater flexibility in the throttle control of explosive hydrocarbon motors than has been possible prior to my invention; third; to provide a carbureter which will mechanically regulate the gasolene supply automatically at varying speeds of the engine; fourth; to provide a carbureter which will mechanically regulate the gasolene supply and the air supply automatically and concurrently at varying speeds of the engine. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section elevation of my device taken in the plane *x*, *y* (Fig. 2); Fig. 2 is an end view of my device at the shutter end; Fig. 3 is a side view of the cam rod and gasolene control cam; Fig. 4 is an end view of the gasolene control cam; Fig. 5 is an end view of my device at the throttle end; Fig. 6 is a transverse section of my device taken in the plane *m n* (Fig. 1); Fig. 7 is a transverse section of my device taken in the plane *o p* (Fig. 1); Fig. 8 is a side view of the air control shutter; Fig. 9 is an end view of the air control shutter.

Similar letters refer to similar parts throughout the several views.

Fig. 1 is a longitudinal section elevation of my device taken in the plane *x y* (Fig. 2). A is an outer casing. B is a passage in A leading to the intake valve or port of the engine. C is a passage in A which may be used for attaching a reed air intake regulator, or other form of air intake regulator. This passage C, and the regulator to be attached thereto, is not an essential part of my invention, but is shown simply for purpose of illustration. In fact, the passage C might be entirely omitted from my device at the user's option. D is a hollow drum free to rotate within the casing A. The drum D has a hole D′ to throttle the passage B, and another hole D″ to throttle the passage C. E is a screw plug to hold the drum D in place. F is an arm keyed to the drum D by the key G and held in place by the nut H. I is a tube free to rotate within the central core of the drum D, and integral with the tube I are the transverse shutters J J′ and the longitudinal shutter K (see also Figs. 8 and 9). L is a nut on the end of the tube I. Q is a rod free to rotate within the tube I. Pinned to the rod Q is an eccentric cam R. S is the pin. T is a nut on the end of the rod Q. U is the gasolene feed tube. V is a transverse diaphragm at the end of the casing A. V″ is a transverse diaphragm integral with the longitudinal diaphragm V′ (see Fig. 2) and covering the same sector of arc as the diaphragm V. *w* is a pin in the end of the tube I rotating in the bearing formed by the center of the diaphargm V.

Fig. 2 is an end view of my device at the shutter end. A is the outer casing. B is the engine feed passage. C is the auxiliary air passage (if any). J is the transverse diaphragm at the end of the tube I (Figs. 1, 8 and 9). K is the longitudinal diaphragm integral with J and I (Figs. 1, 8 and 9). R is the eccentric cam. U is the gasolene feed tube. V is the transverse diaphragm at the end of the casing A. V′ is a longitudinal diaphragm integral with V and V″ (Fig. 1). The longitudinal diaphragm V′ extends in width from the casing A to the tube I, and in length from the transverse diaphragm V to the transverse diaphragm V″. The transverse diaphragm V′ is fixed with reference to the casing A. The transverse diaphragm V′ is not fastened to the tube I but leaves the tube I free to rotate axially.

Fig. 3 is a side view of the cam rod Q and the gasolene control cam R. S is the pin which fastens Q to R. T is the nut on the end of Q.

Fig. 4 is an end view of the gasolene control cam R. Q is the cam rod, and S is the pin.

Fig. 5 is an end view of my device at the throttle end. A is the casing. B is the engine feed passage. E is the screw plug in the end of A. F is the arm keyed to the drum D (see Fig. 1). H is the nut on the end of casing A. L is the nut on the end of the tube I I (Fig. 1). T is the nut on the end of the rod Q.

Fig. 6 is a transverse section of my device

taken in the plane M N (Fig. 1). A is the outer casing. B is the engine feed passage. C is the auxiliary air intake passage (if any). D is the drum and core inside of A. D′ and D″ are the valve ports in D. I is the tube. Q is the cam rod.

Fig. 7 is a transverse section of my device taken in the plane *o p* (Fig. 1). A is the outer casing. J′ is the transverse diaphragm integral with the longitudinal diaphragm K. R is the eccentric cam. S is the pin which holds R to the rod Q. U is the gasolene feed tube.

Fig. 8 is a side view of the air control shutter, of which I is the tube, K the longitudinal diaphragm integral with I, and J J′ are the transverse diaphragms integral with I and K. W is the pin in the end of I. L is the nut on the end of the tube I. The purpose of representing a portion of the figure as cut away is to more clearly show the construction.

Fig. 9 is an end view of the air control shutter, of which I is the tube, J is the transverse diaphragm, and K is the longitudinal diaphragm.

The operation of the device is as follows: The suction of the engine creates a partial vacuum in B. Omitting C (which forms no essential part of my invention as already stated) the only way to relieve the partial vacuum in B, is for air to enter the aperture between the longitudinal diaphragm K and V′ (Fig. 2). The air rushing in through this aperture atomizes the gasolene which flows from the top of the nipple U. (The level of gasolene in the nipple U is maintained by a float chamber of the ordinary type or other appropriate means). When the nut L is set up tight it jams the structure IIJKJ′ against the right hand end of the core of the drum D and locks the structure IIJKJ′ to the drum D. Upon loosening the nut L, the structure IIJKJ′ may be rotated axially with reference to the drum D. That is to say by loosening the nut L, it is possible to admit different quantities of air past the gasolene nipple U for any given position of the throttle port D′. And in like manner, by loosening the nut T, it is possible to rotate the cam R with reference to the shutter IIJKJ′, and thus create a larger or smaller space between the top of the gasolene nipple U and the cam R, and thus accelerate or retard the flow of the gasolene, for any given position of the shutter IIJKJ′.

By experiment, the operator is enabled to determine just what relative positions of the throttle drum D, of the shutter IIJKJ′ and of the gasolene control cam R will give the best results. Having determined these relative positions, the operator by tightening the nuts L and T locks the throttle drum D, the shutter IIJKJ′ and the cam device Q R into one rigid whole. Thereafter a simple movement of the throttle lever F will simultaneously and automatically close the throttle valve, decrease the amount of air admitted to the device and check the flow of gasolene; and a contrary simple movement of the throttle lever will simultaneously and automatically open the throttle valve, increase the amount of air admitted to the device, and accelerate the flow of gasolene.

It may be stated as a general guide to the operation of the device that when the throttle valve is closed or nearly so, the cam R should be near to the nipple U and the air space between the diaphragms K V′ should be at a minimum or nearly so.

I claim as my invention:

In a carbureter, in combination, a throttle valve, an air supply passage composed of fixed and movable shutters, the movable shutter rotating with the throttle valve about a tube as a common longitudinal axis, a lock nut on the end of said tube adjustably locking said movable shutter to the throttle valve, a rod within said tube and axially concentric with said tube, a gasolene flow control member rigidly fixed to said rod and eccentric with reference to the axis of said rod, said gasolene flow control member being directly in front of the orifice of the gasolene tube, said rod and eccentric member rotating about the longitudinal axis of the rod with the throttle valve, a lock nut on the end of said rod adjustably locking said rod and eccentric member to the movable shutter and to the throttle valve.

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