No. 855,582. PATENTED JUNE 4, 1907.

J. A. MILLER.

SPEED CONTROLLING MECHANISM FOR EXPLOSIVE MOTORS.

APPLICATION FILED JUNE 6, 1906.

3 SHEETS-SHEET 1.

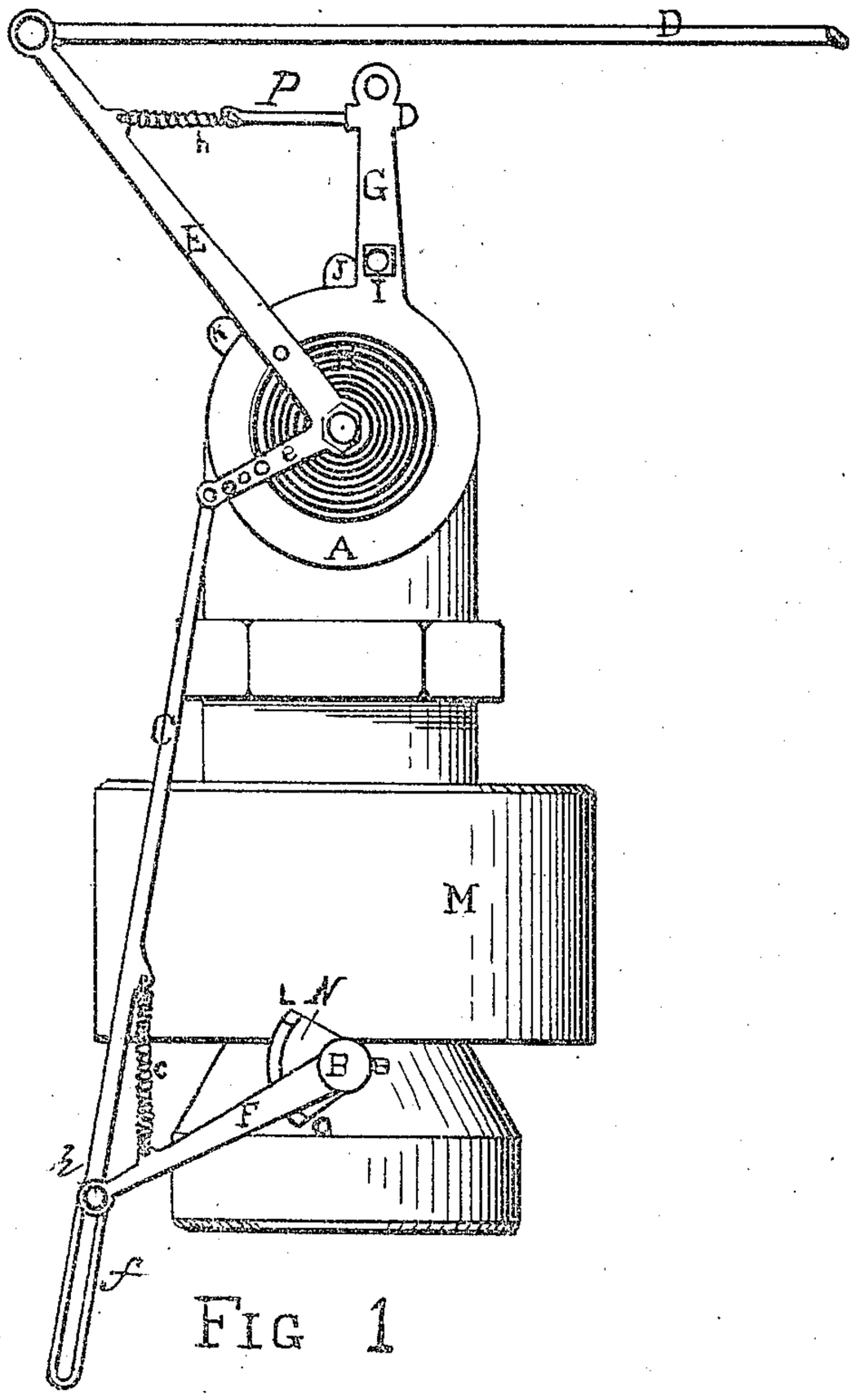

FIG 1

WITNESSES.

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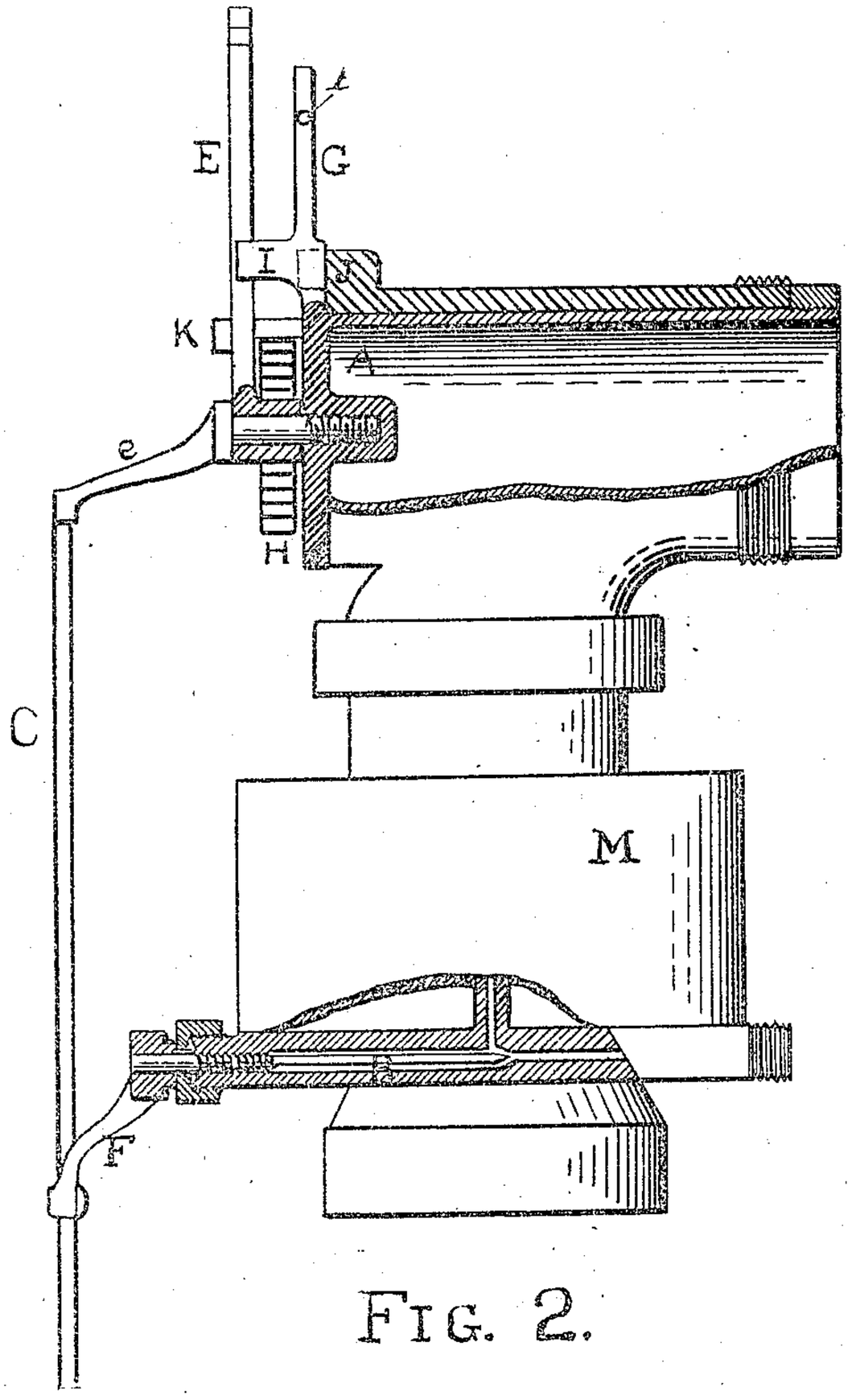

FIG. 2.

WITNESSES

INVENTOR

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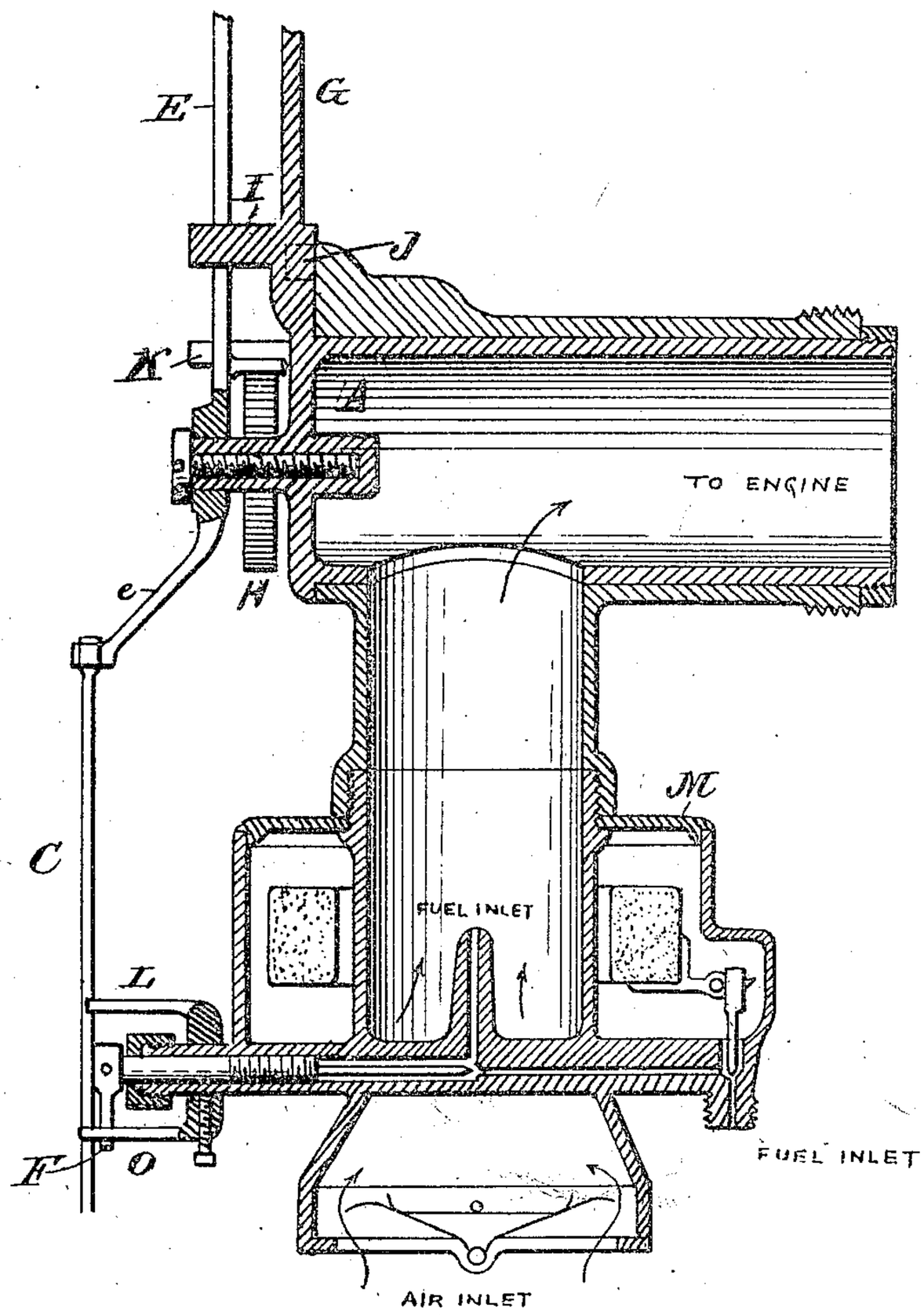

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN A. MILLER, OF TARRYTOWN, NEW YORK.

SPEED-CONTROLLING MECHANISM FOR EXPLOSIVE-MOTORS.

No. 855,582. Specification of Letters Patent. Patented June 4, 1907.

Application filed June 6, 1906. Serial No. 320,446

To all whom it may concern:

Be it known that I, JOHN A. MILLER, a citizen of the United States, residing at Tarrytown, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Speed-Controlling Mechanism for Explosive-Motors, of which the following is a specification.

My invention relates to improvements in speed controlling mechanism for explosive motors.

It has primarily for its object to automatically control the proportionate mixing of the air and gasolene, whereby initially the quantity and strength of the mixture shall be the minimum, just ample to furnish the force or power necessary to run the unloaded motor at the relatively lowest rate of speed; to provide for increasing the motive force or power, first, by furnishing an increased supply or quantity of air, the supply of gasolene not being increased; and to provide for further increasing the motive power or force by increasing the supply of gasolene to the maximum supply of air to the motor. Generally stated hese objects are attained by the employment of certain instrumentalities effective for making connection between the lever of the throttle-valve of a carbureter of the float-feed type and a lever on the valve controlling the gasolene-supply to the jet or spray nozzle of the carbureter, substantially as hereinafter more fully disclosed and specifically pointed out by the claims.

In the accompanying drawing illustrating the preferred embodiment of my invention—Figure 1 is a side elevation thereof, and Fig. 2 is a broken sectional and side elevation of the same. Fig. 3 is a vertical section at right-angles to Fig. 1.

In carrying out my invention, I suitably connect the bell crank lever E of the throttle-valve A of a carbureter and the lever F of the valve B controlling the supply of gasolene to the jet or spray nozzle of said carbureter, all of practically the construction disclosed, by means of a rod, or like means, C having its upper end pivotally connected to a short outstanding arm *e* of the lever E, approximately at a right-angle to the latter, and having an elongated slot *f* in its lower end-portion receiving a pin or stud *h* projecting from, and forming a slidable connection with the outer end of said gasolene-valve lever F. The lever E is subjected to the action of a preferably helical or coiled spring H, having one end connected to said lever and its other end suitably secured to a fixed point, said action of spring having the effect to automatically move said lever, with the throttle-valve as to cause the latter to occupy its maximum open position. This movement of the lever E is controlled by a projection or stud K upon the valve-casing, standing in the path of the movement of said lever. The lever F has its said outer end initially or normally retained at the upper end of the slot *f* of the rod C by means of a spring *c* connected to said rod and said lever at its respective ends. Also, said lever is controlled or limited in its movement by two projections or stops L, O at the divergent ends of a quadrant N fixed with relation to the fulcrum of said lever.

The throttle-valve E is under the control of the engine-governor, or that of the hand, through the rod D connected to said lever and actuated from either of the latter. The throttle-valve A has an integral arm G normally or initially standing perfectly vertical, said arm and the throttle-valve lever E being connected together by a rod P and a spring *n*, the latter being directly attached to said lever and said rod being fixed to said arm and to said spring, the function of which will be presently apparent. Said throttle-valve arm G has extending laterally therefrom at its base, a projection or stud I in the path of the movement of the lever E and projecting from the valve-casing is a stud J adapted to control the reverse movement of the arm G, *i. e.* from right to left.

When the parts are in the position indicated in the drawings, the throttle-valve A is in its maximum open position, so retained by the action of the springs H and *n*, connecting with the lever E and arm G, and the gasolene valve B is likewise in its maximum open position, being so held through the lever F, rod C and the arm *e* of the lever E, the movement of the lever F being limited or controlled by the stop or lug O at this time. The carbureter is now furnishing the maximum quantity of the richest mixture. Desiring to have the same quantity of mixture, but with less gasolene, the bell-crank lever E is now moved, by suitably actuating the rod D, from left to right until said lever is brought into contact with the stud or projection I upon the throttle-valve arm G. The gasolene valve B in the meantime is also moved through the connection therebetween and the throttle-valve as aforesaid, the move-

ment of said gasolene valve being restricted at this time by the stop L, thus providing for adjusting it for the delivery of the minimum quantity of gasolene. The carbureter is now supplying the greatest quantity of the weakest mixture. Noting the position of the lever F, it will be seen that its further movement by any additional movement of the lever E from left to right, will be prevented by reason of its engagement with the stop L as aforesaid, yet the slot and stud connection between said levers will allow of such movement of the lever E independently of the lever F the purpose of which will appear later. The further movement of the throttle-valve A by continued pulling upon the lever E through the rod D will cause it, by its engagement with the stud I of the throttle-valve arm G, to move said throttle-valve to its minimum open position. The carbureter is at this time supplying the smallest quantity of the weakest mixture. Assuming that the carbureter is in closed condition, the lever E at that time standing in its extreme right-hand position, movement of the rod D from right to left, first allows the throttle-valve A to open to its maximum position as determined or controlled by the stop J engaging the arm G of said valve, and further movement in the same direction of said rod D will allow the gasolene valve B to move to its maximum open position, as controlled by the stops K and O engaging the levers E and F respectively, as will be apparent.

I claim—

1. Apparatus of the character described, employing a carbureter having its throttle-valve provided with an actuating lever adapted to have independent movement thereof and its gasolene jetting or spraying valve provided with an actuating lever, means effecting connection between said levers, and means adapted to retain said gasolene spraying valve at its minimum open position and the throttle-valve at its maximum open position synchronously.

2. A carbureter having a throttle-valve provided with a lever for its actuation and with a gasolene spraying valve also equipped with an actuating lever, and a rod-connection between said levers, fixed to said throttle-valve lever and having a slot and stud connection with said gasolene spraying valve lever, and means for connecting the latter lever, independently of said slot and stud connection, to said throttle-valve lever.

3. A carbureter having a throttle-valve provided with a fixed upstanding arm carrying a stud or stop, a bell-crank lever applied to said valve and having connection with said arm, a gasolene spraying valve having an actuating lever, and a rod fixed at one end to said bell-crank lever and having a slidable connection with the gasolene valve actuating lever, a spring connection between said rod and said gasolene-valve actuating lever, means for controlling or restricting the movement or strokes of said levers.

4. A carbureter having a throttle-valve provided with a fixed upstanding arm equipped with a lateral stud or stop, a lever for actuating said throttle-valve adapted to have engagement with said lateral stud or stop, means of connection between said upstanding arm and said lever, stops arranged for restricting the movements of said arm and said lever as said throttle-valve is moved to its open position, a gasolene spraying valve having an actuating lever, means for limiting the movement of the latter, and means effecting yielding connection between said levers.

5. A carbureter, employing a throttle-valve provided with a fixed upstanding arm, a lever for actuating said valve, means effecting spring-connection between said arm and lever, said lever having attached thereto a spring for its retention in initial position, a gasolene spraying valve, a rod-connection between said levers, the gasolene-valve actuating lever having a spring connection with said rod and said rod having also a slot and stud connection with the latter lever, and means for limiting the movements of said levers.

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

JOHN A. MILLER.

Witnesses:

SETH BIRD,

CLARENCE S. DAVISON.