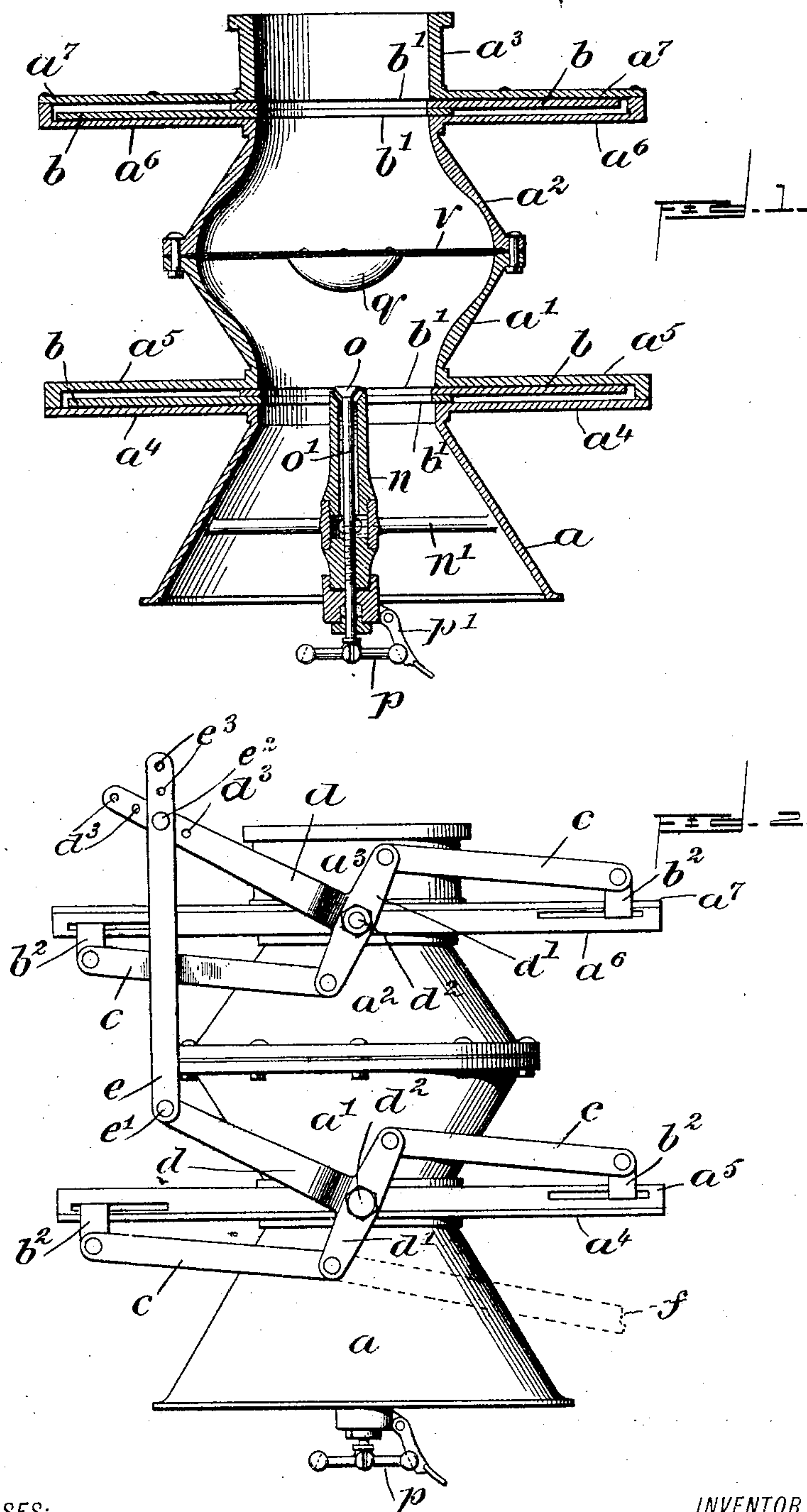


O. MINTON.
CARBURETER FOR GAS ENGINES.

APPLICATION FILED JUNE 29, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

L. Sanford Hambley
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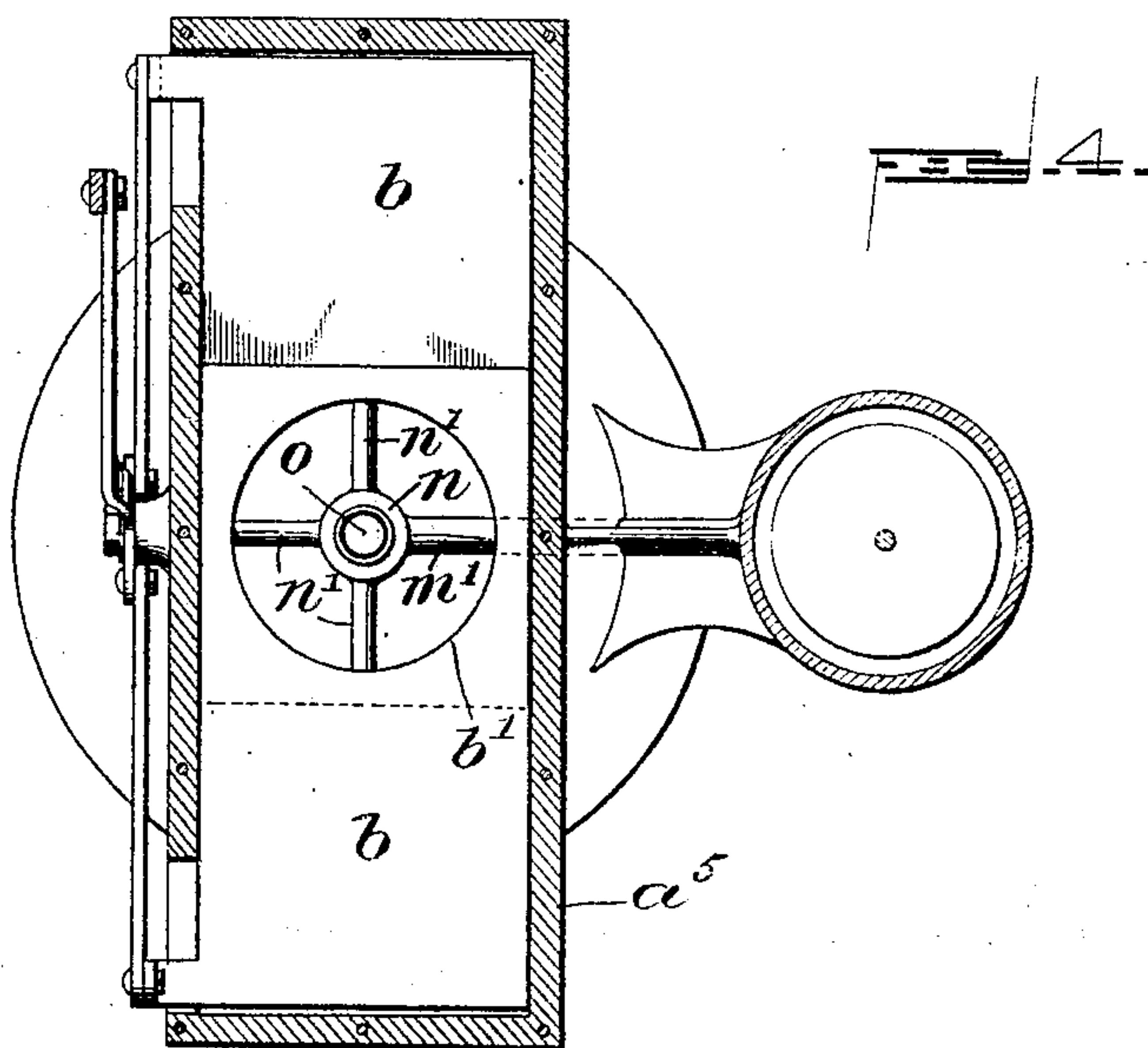
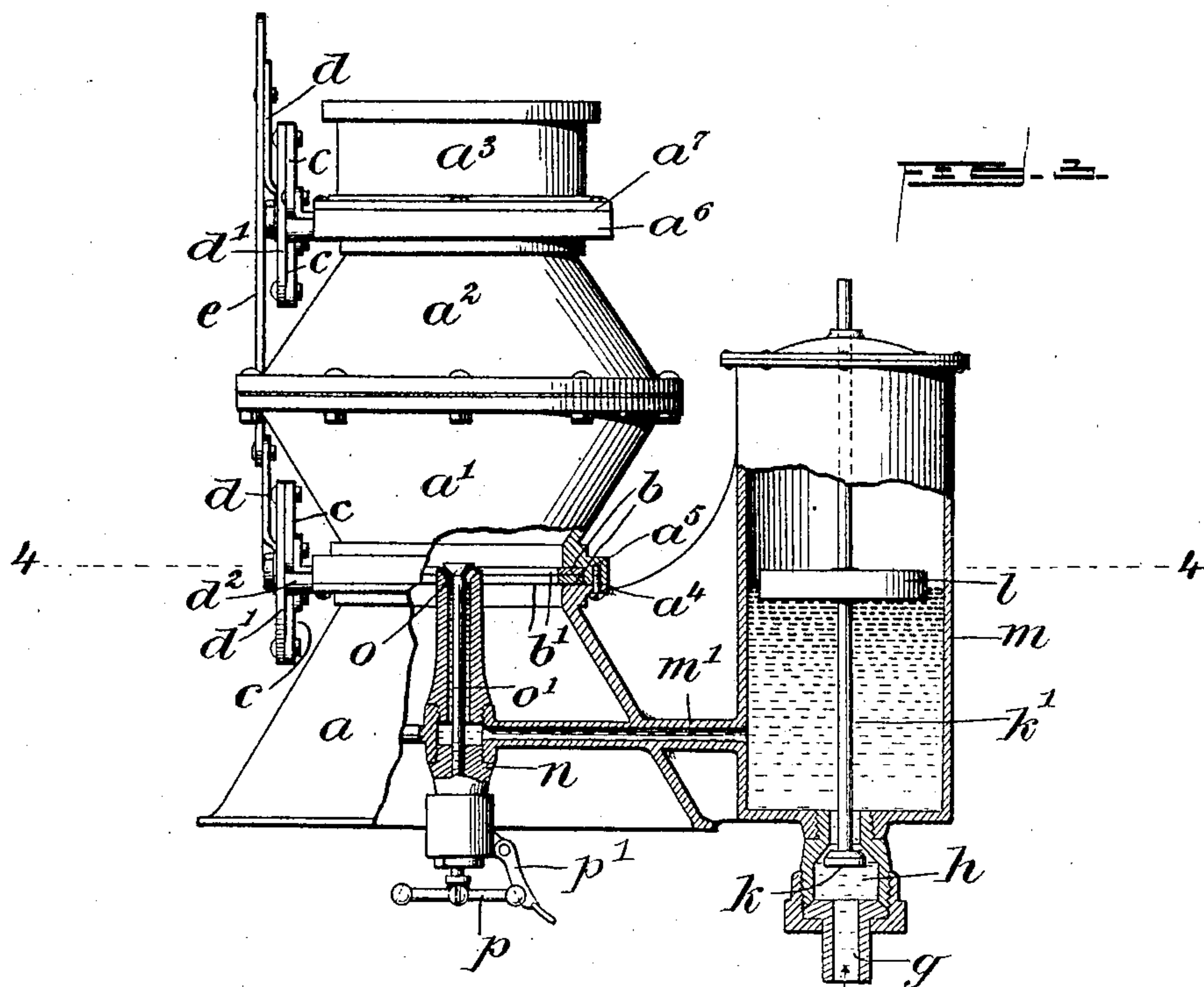
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3 SHEETS—SHEET 2.



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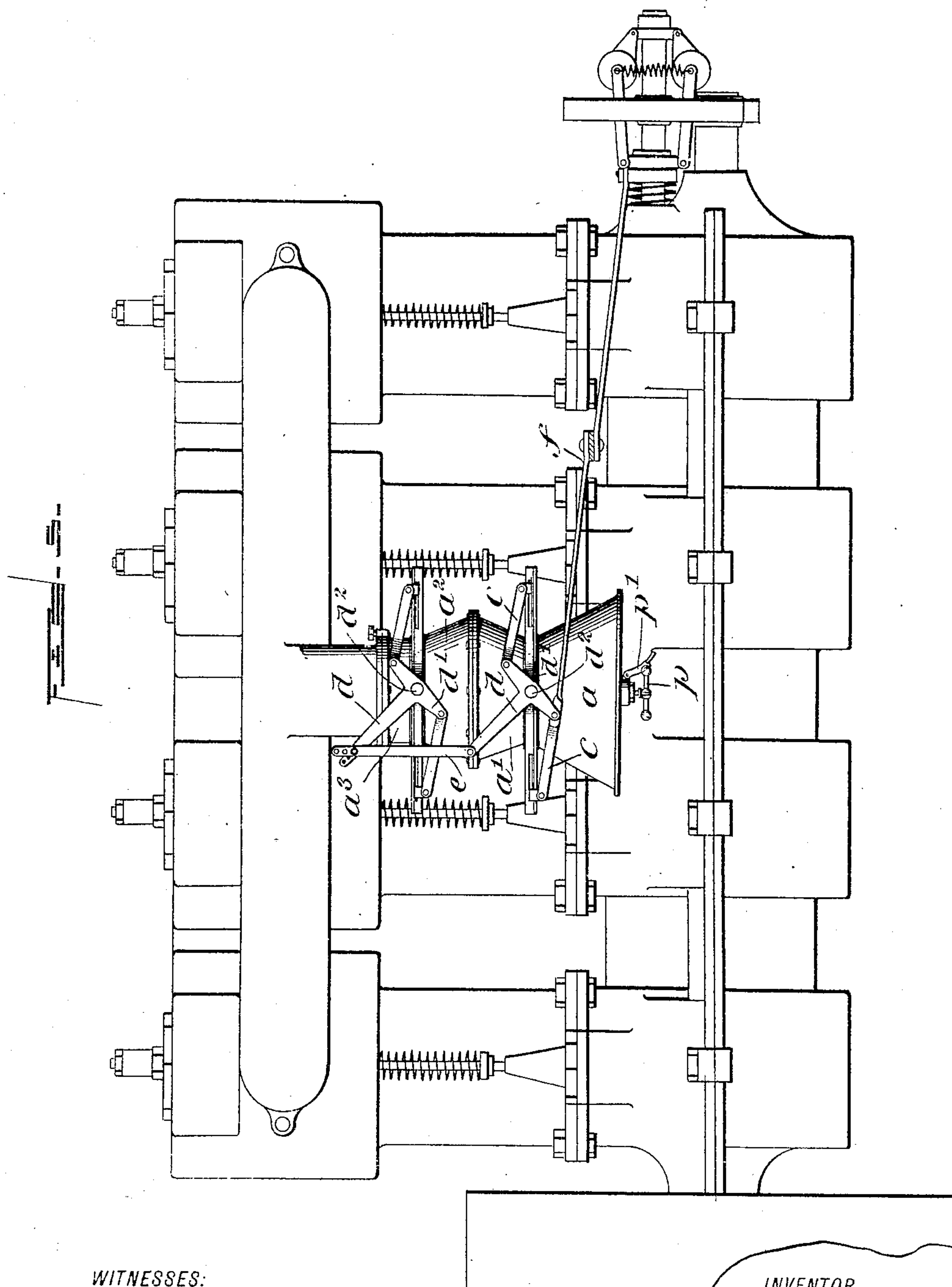
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UNITED STATES PATENT OFFICE.

OGDEN MINTON, OF NEW YORK, N. Y.

CARBURETER FOR GAS-ENGINES.

No. 804,025.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed June 29, 1904. Serial No. 214,616.

To all whom it may concern:

Be it known that I, OGDEN MINTON, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Carbureter for Gas-Engines, of which the following is a full, clear, and exact description.

My invention relates to a device for mixing air and a combustible fuel for gas-engines, although it may be used for other purposes; and the principal object of the invention is to provide for regulating the mixture of air and fuel to be admitted, and also the quantity.

Further objects will appear in the course of the subjoined description, and the scope of the invention will be defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional view of a preferred form of my invention. Fig. 2 is a longitudinal elevation thereof. Fig. 3 is an end elevation showing portions in section. Fig. 4 is a sectional view on the line 4 4 of Fig. 3; and Fig. 5 is a side elevation of a gas-engine, showing a manner in which my invention may be applied thereto.

The carbureter, as shown in the drawings, comprises four shells a , a' , a^2 , and a^3 . Each of these shells is preferably made in a separate casting, and the two middle ones a' and a^2 are preferably of the same form and have an expanded portion near the surfaces, where they come in contact with each other. Each one of the shells is provided with a projecting casing a^4 , a^5 , a^6 , and a^7 . These casings are designed to contain the valves b . As shown, there are two of these valves, each comprising a pair of plates and each plate being provided with an opening b' , which when the plates are in extended position register with each other and form the maximum opening for the passage of air. When it is desired to decrease the size of the opening, the plates are moved inwardly, so as to cover a portion of each of the openings b' .

Each of the plates is provided with a projection b^2 , which extends from the casing in which the plate is contained and is connected with a link c . These links are pivotally connected with bell-cranks d , which have oppositely-extending projections d' and are piv-

oted to the device at the points d^2 . The main portions of the connections d are pivotally connected together near their outer ends by means of a link e and pins e' and e^2 . In order to provide for adjustment to secure the proper relation between the openings in the two valves, one of the connections d is provided with a series of perforations d^3 , by which the end of the link e may be connected at different points e^3 . It will be obvious that upon the oscillation of either of the bell-cranks d both of them will be operated and both of the valves will be simultaneously opened or closed.

In order to provide for automatically operating the valves from the engine itself and securing their proper movements, a link f (shown in dotted lines in Fig. 2) may be connected to one of the bell-cranks from a moving part of the engine.

For the introduction of the vaporizing liquid an inlet g , Fig. 3, is provided, having a chamber h for the reception of the liquid fuel. k is a valve for controlling the opening in said chamber, and it is provided with a valve-stem k' and a float l , these parts being contained in a float-chamber m . The outlet m' of the receptacle extends to a casing n , the outlet of which is provided with a regulating-valve o and a valve-stem o' , designed to be adjusted by means of a handle p and held in adjustable position by an arm p' .

q is a baffle-plate suspended over the outlet of the casing n and supported by a foraminous partition v , which may be made of one or more sheets of wire-cloth.

In carbureters as heretofore constructed the slowing down of the engine causes less air to be drawn in and with less speed. This causes a bad or incorrect mixture of the fuel and air to be introduced into the engine. An important object of my invention is to avoid this objection.

The carbureter should be set with both valves open. Upon the engine being started the valve o can be regulated, by means of the handle p , until the engine can be made to go no faster. It will be obvious by manipulating this handle that the valve can be set so as to produce the proper mixture of air and gas when both valves are open. The upper valve is then almost closed by placing the plates b so that the openings b' practically overlap each other. The pin e^2 is then removed from the holes d^3 and e^3 , and the lower valve b is adjusted until the best results are obtained—that is,

until the engine operates at the greatest speed. The pin should then be so placed in the holes $d^3 e^3$ that the valves are closed, as described, and the adjustment is made permanent. It will thus be seen that the device is so set that when the upper valve is entirely closed the lower valve will be so set as to produce the best results, and the same is true when the upper valve is entirely open, the valve o being also so set as to produce the proper mixture in both positions of the valves b .

Upon the introduction of sufficient liquid fuel through the inlet g it will flow through the tube m' into the casing n , and when the engine runs it takes air up through the carbureter at a high rate of speed through the valve-openings $b' b'$. The air will rush past the valve o and will cause the liquid fuel to be atomized. The vapor will be taken up with the air and introduced into the engine, coming into contact with the baffle-plate q and passing through the partition v , so that it will be thoroughly mixed.

The adjustment of the valves cause the atomization of the fuel to take place even when the engine is working at a low speed, because, although a small amount of air is drawn in, the space through which it enters is restricted. This causes the flow of air past the valve o to be maintained at a set speed, and when required it will give the same mixture for any speed the engine may attain. By closing these valves the speed of the engine may be reduced.

The float l is so located that when sufficient fuel has been introduced to cause it to rise nearly to the opening in the top of the receptacle m the float will be sufficiently elevated to close the valve h . The valve will remain closed until the level of the liquid is reduced sufficiently to open it. This will provide for an automatic regulation of the fuel.

It will be understood that I do not wish to be limited to the particular embodiment of my invention which I have illustrated in the drawings and described, as many modifications may be made therein without departing from the spirit of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A carbureter for gas-engines, comprising a body having a passage therethrough, two pairs of valves in said passage, each comprising two sliding plates having an opening, the openings in the two plates of each pair being adapted to register with each other, and means for admitting fuel to the passage between said pair of plates through the openings in one of the pairs and at a point adjacent to that pair.

2. A carbureter for gas-engines, comprising a body having a passage therethrough provided with a flaring mouth at the inlet portion and an enlarged central portion, an air-valve located between said flaring mouth and said enlarged portion, a valve located at the other

end of said enlarged portion, means for simultaneously operating said valves, means for admitting fuel to said passage, and means in said enlarged portion for intimately mixing air and fuel.

3. A carbureter for gas-engines, comprising a body having a passage therethrough, two pairs of valves in said passage each comprising two sliding plates having an opening therein, the openings in the two plates of each pair being adapted to register with each other, means for admitting fuel to the passage between said pairs of valves, a foraminous screen extending across the passage between the valves, and a baffle-plate attached to said screen.

4. A carbureter for gas-engines, comprising a body having a passage therethrough, two pairs of valves in said passage, each comprising two reciprocating plates having an opening therein, the openings in the two plates of each pair being adapted to register with each other, and a fuel-inlet adjacent to one of said valves.

5. A carbureter for gas-engines, comprising a body having a continuous passage therethrough, a plurality of valves in said passage, each of said valves comprising a pair of plates having openings adapted to be brought into registration with each other, casings attached to said body for containing said plates, means for introducing fuel between the valves, and means for simultaneously operating said plates; comprising a link connected to each plate, a pair of bell-cranks each connected to two of said links, and a link pivotally connected to one of said bell-cranks and adjustably connected to the other.

6. A carbureter for gas-engines, comprising a body having a passage therethrough provided with an inlet at one end and an outlet at the other, a valve near said inlet, and a second valve near said outlet, each of said valves comprising two sliding plates each having an opening therein, the openings of the two plates of each valve being adapted to register with each other, means for simultaneously operating said valves, and means for introducing fuel at a point between them.

7. A carbureter for gas-engines, having a passage for air and gas, a plurality of valves in said passage, each of said valves comprising a pair of plates having openings adapted to be brought into registration with each other, a casing attached to said body for containing the plates, means for introducing fuel at a point between said valves, means for regulating the amount of fuel introduced, and means for simultaneously operating said plates, comprising a link connected to each plate, a pair of bell-cranks each connected to two of said links, and a link connected to both of said bell-cranks, the connection between the link and one of the bell-cranks being adjustable.

8. The combination of a carbureter for gas-

engines, comprising a body having a passage provided with a flaring mouth and an enlarged central portion, a valve between said mouth and enlarged portion, with means for introducing vaporizable fuel, comprising a casing having an outlet located in said passage above the flaring mouth and valve, and a feed device for the fluid, comprising a tank having an inlet, a valve for the inlet, and automatic means for controlling the valve.

9. The combination of a carbureter for gas-engines, comprising a series of shells having a continuous passage therethrough, said passage being provided with a flaring mouth at the inlet end and an enlarged central portion, a valve between said mouth and enlarged portion, a valve at the other end of said enlarged portion, said valves each comprising a pair of reciprocable plates having openings adapted to be brought into registration with each other, means for simultaneously reciprocating the plates of both valves, comprising a link connected to each plate, a double bell-crank

having oppositely-extending arms pivotally connected to the two links of each valve, each of said bell-cranks having an arm projecting at an angle from the first-mentioned arms, a link connecting said arms and adjustably connected to one of them, a foraminous plate in said enlarged portion and provided with a convex baffle-plate for intimately mixing air with fuel, a tube extending into said flaring end and through the openings in the plates of the valve located at the end of said flaring end, a valve in said tube, a tank, an inlet-valve for said tank, a float in the tank connected with said inlet-valve, and a tube connecting said tank with said first-mentioned tube.

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

OGDEN MINTON.

Witnesses:

FRANCIS L. MINTON,
THOS. C. CRAIL.