

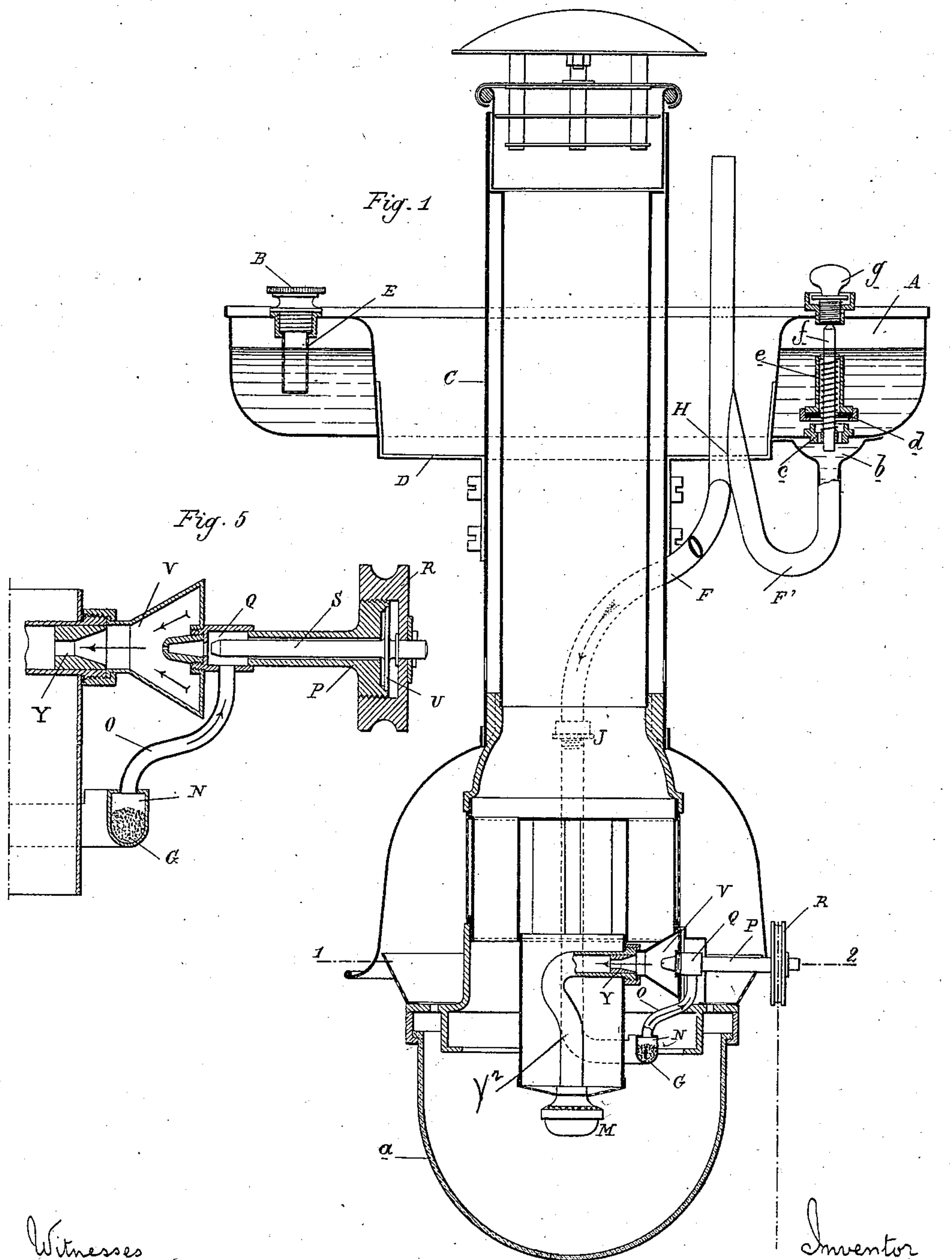
(No Model.)

3 Sheets—Sheet 1.


R. A. POITRIMOL.
HYDROCARBON BURNER.

No. 557,225.

Patented Mar. 31, 1896.



Witnesses
J. van Oldenveel
Otto Munk

Inventor
Rene Augustin Goitrimol
by 
Attorneys

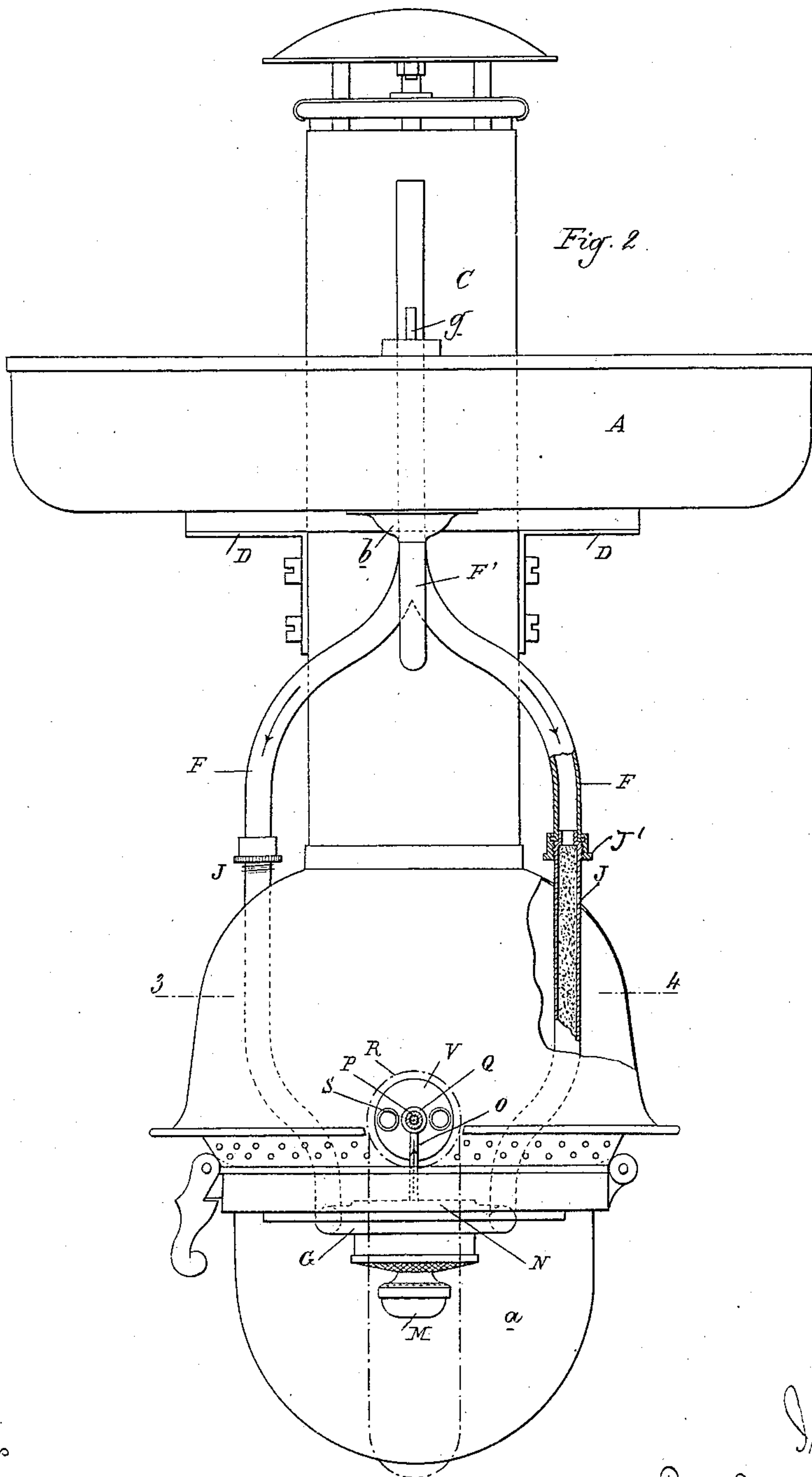
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Witnesses
H. van Oldenmeel

Otto Munk

Inventor
René Augustin Poitrimol
by *[Signature]*
Attorneys

(No Model.)

3 Sheets—Sheet 3.

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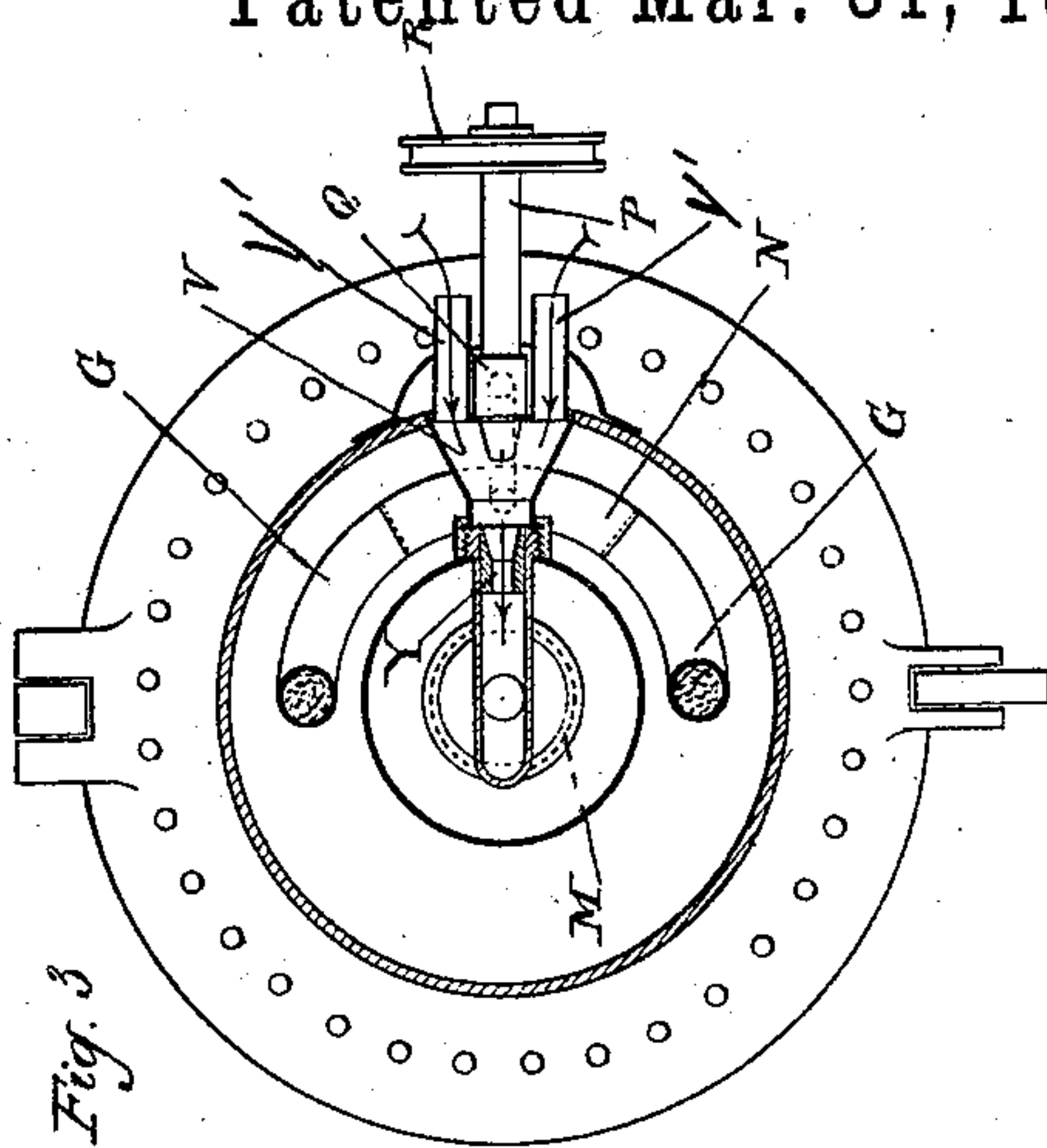


Fig. 3

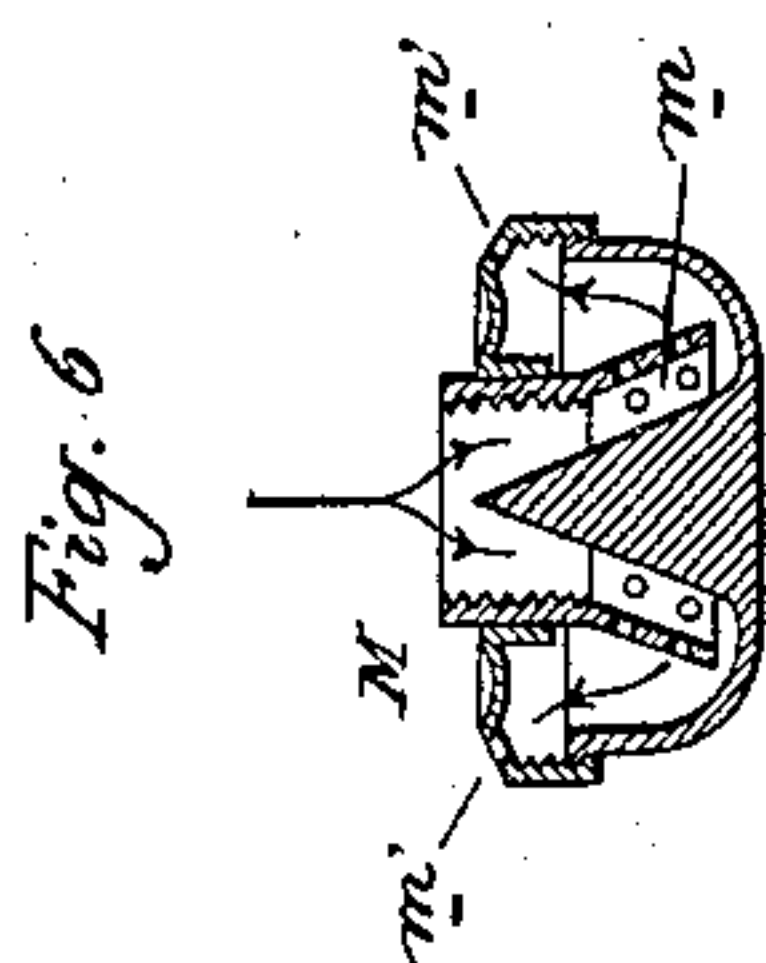


Fig. 6

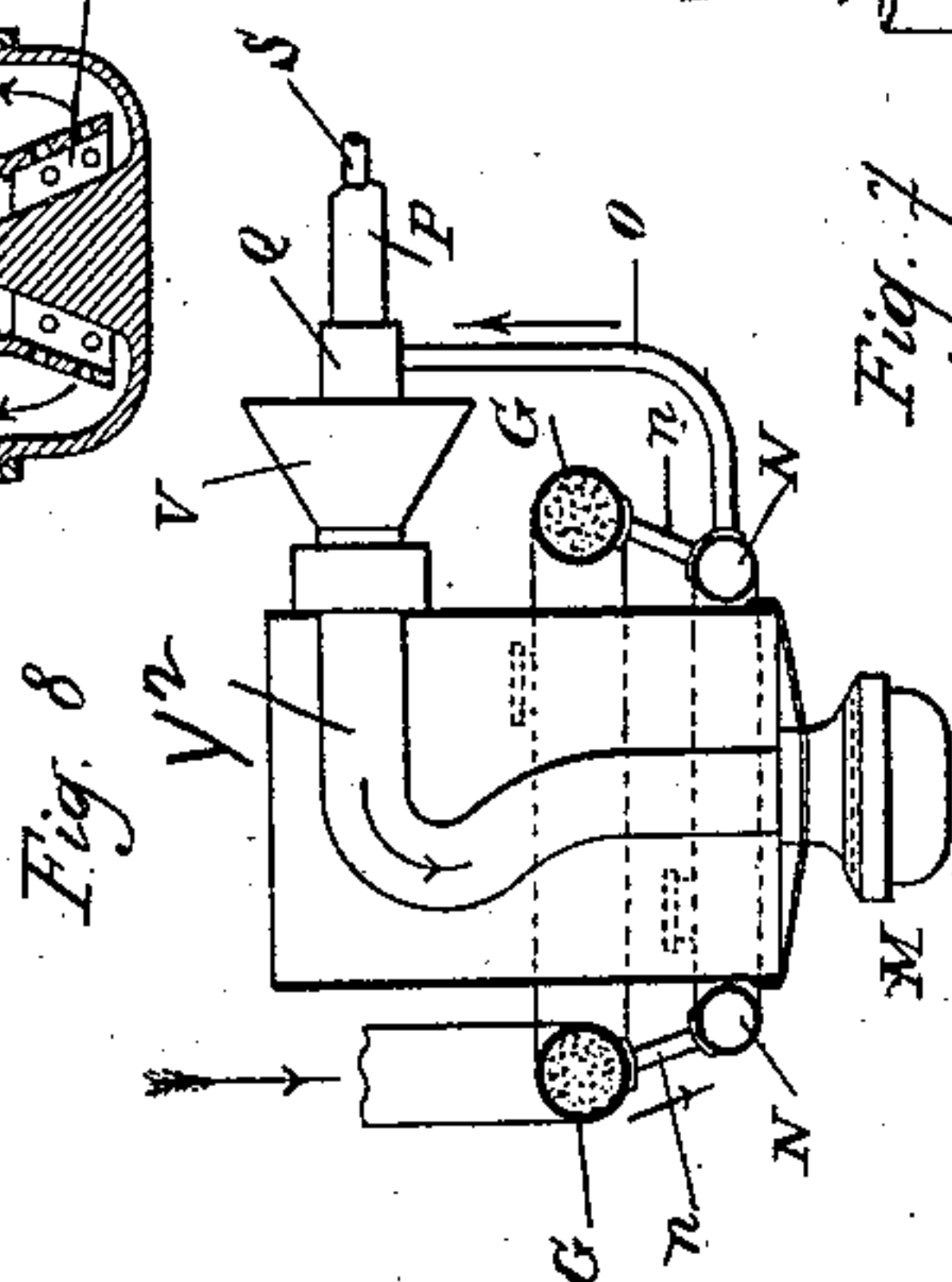


Fig. 8

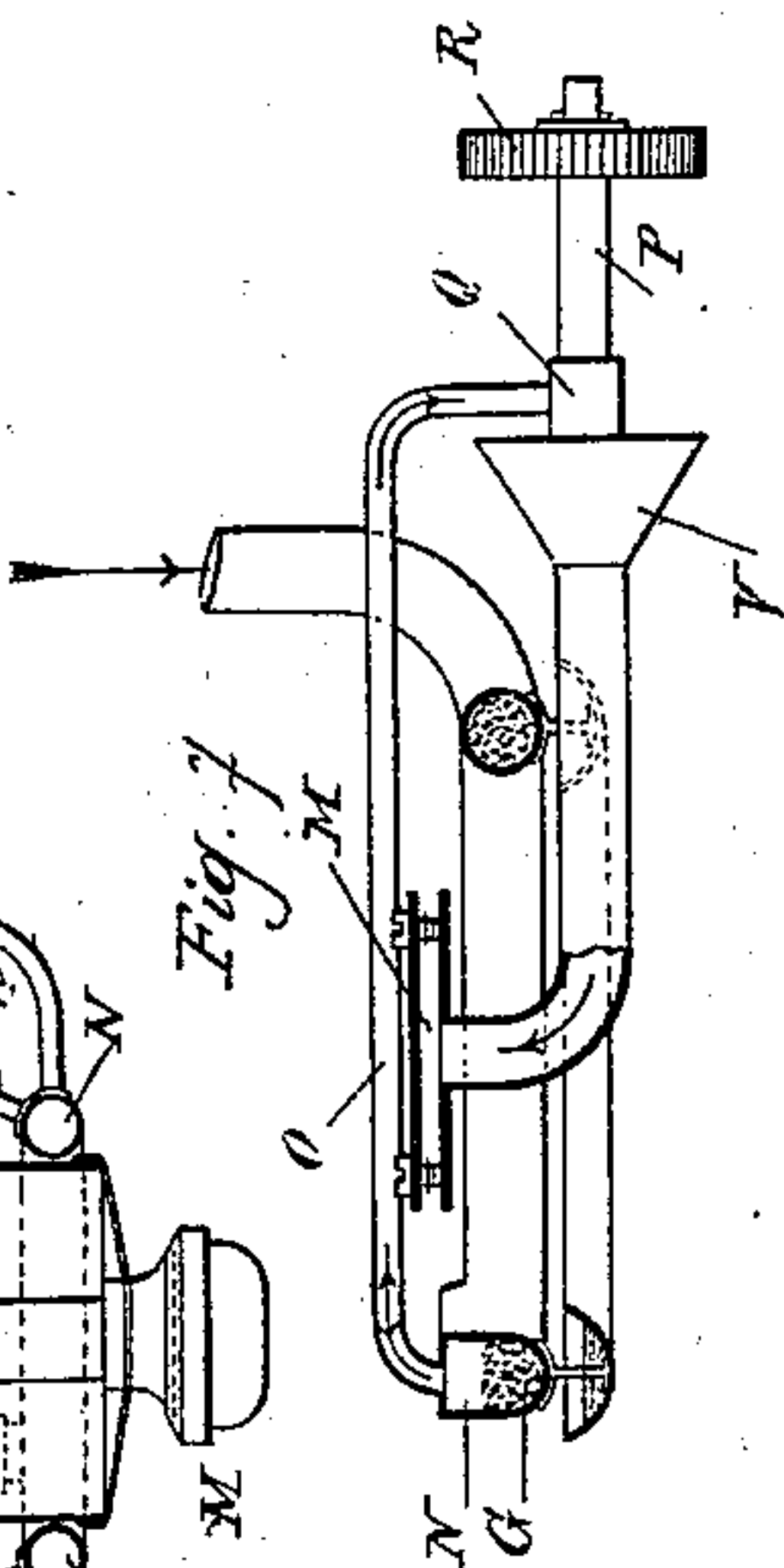


Fig. 7

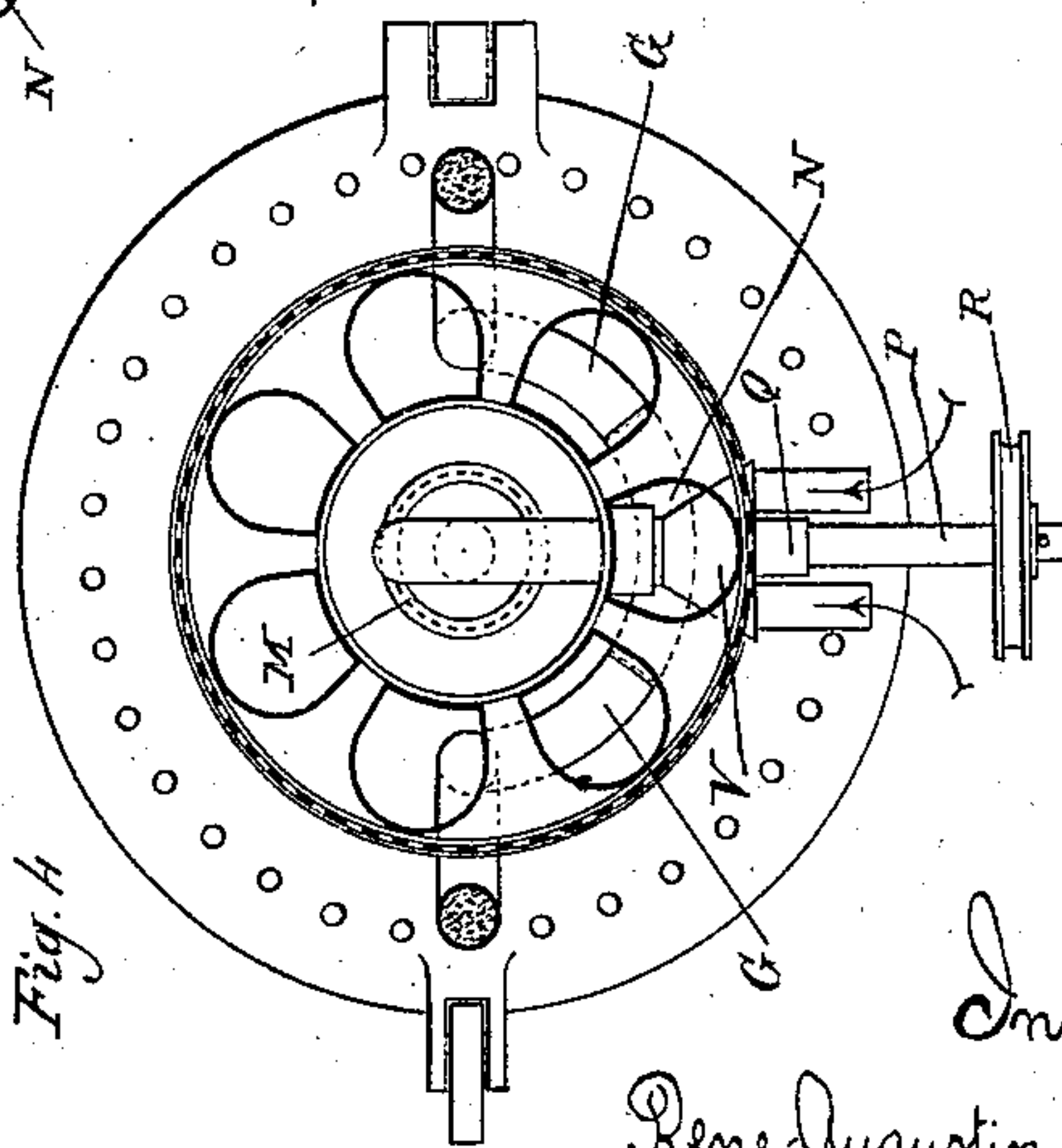


Fig. 4

Witnesses

L. van Oldenbeek

Otto Munk

Inventor
Rene Augustin Poitrimol

by *Heuvelink*
Attorneys

UNITED STATES PATENT OFFICE.

RENÉ AUGUSTIN POITRIMOL, OF PARIS, FRANCE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 557,225, dated March 31, 1896.

Application filed May 4, 1895. Serial No. 548,139. (No model.) Patented in France September 26, 1894, No. 241,666; in Belgium March 22, 1895, No. 114,708; in England March 26, 1895, No. 6,245; in Italy March 26, 1895, No. 38,581/392; in Spain May 28, 1895, No. 17,187; in Hungary September 5, 1895, No. 3,570, and in Austria November 18, 1895, No. 45/4,332.

To all whom it may concern:

Be it known that I, RENÉ AUGUSTIN POITRIMOL, a citizen of the French Republic, residing at Paris, in the Department of the Seine, France, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

The invention has been patented in the following countries: France, No. 241,666, dated September 26, 1894; Belgium, No. 114,708, dated March 22, 1895; Great Britain, No. 6,245, dated March 26, 1895; Italy, No. 38,581/392, dated March 26, 1895; Spain, No. 17,187, dated May 28, 1895; Austria, No. 45/4,332, dated November 18, 1895, and Hungary, No. 3,570, dated September 5, 1895.

The invention which is the subject of the present application is a generator and hydrocarbon-burner. Heretofore I have noticed that in such burners where the liquid was fed under pressure of vapors or gas the feed was very irregular, that they burned up slowly, that they fouled, producing smoke which was difficult to regulate, and, finally, that the flames of the fire-boxes, influenced by the entrance of drops of the liquid into the boiler, had no fixedness. To obviate these difficulties is the object of my invention.

In the accompanying drawings, Figure 1 shows the invention as applied to a lamp. Fig. 2 is an elevation of the lamp. Figs. 3 and 4 represent two horizontal cross-sections made according to lines 1, 2, 3, and 4 of Figs. 1 and 2. Figs. 5 and 6 show views of the different details of the apparatus. Fig. 7 shows an arrangement of the system as applied to a heating apparatus. Fig. 8 shows a variation in the arrangement of the boiler.

The petroleum-reservoir A is provided with an opening for filling, with plug B. This reservoir is supported from the flue C at a proper height by insulating-supports D. A strainer or basket E is provided under the plug B. Two tubes extend from the receiver G, as shown at F F, and these connect with the reservoir through a tube F'. The tubes F F are connected at H with a single tube in communication with the atmospheric pressure through its upper part. The feeding-tube is

connected at J' in an absolutely tight manner with the tube J, which is the prolongation of receiver G and can very easily be disconnected. The interior of the tube J and the receiver G is entirely or partly filled with one or more materials of any kind, spongy or capillary, which will be easy to replace, through which is filtered and flows softly the combustible liquid.

The receiver wherein the vapors of the oils or hydrocarbons are produced is formed of a tube G immediately above the burner. The receiver and its joint, or any of these two parts of the boiler, can be entirely or partly filled with any spongy or capillary substance, or can be arranged to form capillary attraction. A space N for the reduction to gas of the oils by overheating is provided below the junction of the tube O through which the gas flows to the burner M.

In Fig. 1 the chamber N is provided in the upper part of the tube. In the variation shown in Fig. 8 this chamber N is shaped like a crown and is placed below the receiver G, to which it is joined by one or more tubes n.

The tube O, Fig. 1, placed above the collector N, leads the vapors reduced to gas to an injector Y, which is provided with one or more escape-holes Y', Fig. 3, after which the gas is mixed under pressure of the ambient air, which they prime before entering the drain Y², leading them to the tip of the burner in shape of gas or carbureted air.

A valve regulates the exit of the vapors reduced to gas by the injector before their mixture with the air.

I further describe an apparatus for regulating, which is composed of a tight chamber Q, Fig. 5, wherein, under the action of the button R, operates a shaft S. The conic part of this shaft obstructs more or less the hole leading to the chamber V. To the chamber Q is soldered or screwed a metal box P, into which passes the shaft S, crossing a flexible metal diaphragm U, which is brazed by its borders to the partitions of the box. This disk is made to maintain the vapors which escape from beneath the movable shaft S and is formed in a shape of an absolutely tight

joint, permitting through the flexibility of its center the small necessitous movements of the shaft S. The rotary movements of the button R may be produced in any way, either
 5 by hand or by means of a small chain passing through a channel situated about the periphery of this button.

The vapors reduced to gas escape under pressure into a box V, provided with open-
 10 ings through which the ambient air is introduced. The mixture of the vapors reduced to gas with air is then automatically made in the drain Y², which afterward leads the gas of the carbureted hot air to the burner M.

15 In the burner M is an interior cone surrounded by a small pierced funnel *m*, which sifts the gas before its arrival at the holes *m'*, through which it exits and which retains the dust and the impurities which may have en-
 20 tered the channel of the apparatus.

At the bottom of the reservoir a hole for cleansing is made, and I place under the hole a small funnel connected with the tube F'. A valve-seat pierced with holes *c* is soldered
 25 above the hole, and a closure *d* is held above the valve *e*. A spindle *f* extends through the closure. Above the spindle *f* is a screw-cap *g*, which permits the lowering of the spindle of the closure and also the closing of the
 30 opening in the seat.

To light the apparatus, it is necessary to see that the shaft S closes well the chamber Q and that the screw-cap be screwed down to avoid any dropping of liquid. The glass *a* be-
 35 ing opened an amianthus plug moistened in alcohol or essence is applied beneath the receiver G, burning for several moments. Any other means for initial heating may be employed. The screw-cap *g* is then unscrewed
 40 to let the liquid into the receiver G and nearly at the same moment shaft S is turned by means of cap R. The vapors then come out and precipitate into the injector in priming the ambient air and the gas of the hot car-
 45 bureted air passes through the holes of burner M and takes fire by contact with the flame of the amianthus plug used for the initial heating. The tip of the burner M will then heat the receiver G. The glass *a* is closed and the
 50 exit of vapors regulated by means of screw-cap R to assure the regular function of every organ of the apparatus and to obtain a perfect combustion. A high intensity of light is thus obtained during several minutes, when all the
 55 inner partitions of the lamp, heated greatly by the products of the combustion, permit the air surrounding the external parts to attain

a high temperature before reaching the flame of the burner.

It will be sufficient to change the form and 60 the place of the burner, as indicated in Fig. 7, to obtain a perfect heating apparatus.

It is possible to vary by means of the regulation and feed the proportions of the mixture of the vapors with the air and then to pro- 65 duce white flames with great lighting power or blue flames with great heating capacity. Finally, in varying also the dimensions of the apparatus and the volume of the spongy and capillary materials, the number of the feed- 70 ing-tubes and that of other pieces, the form and place of the boiler itself, one can use oils or hydrocarbons of any thickness.

What I claim is—

1. In combination, the central tube, the 75 burner at the lower end thereof, the conduit leading to the burner vertically and extending laterally through the central tube, the funnel-shaped casing into which the conduit leads, the generator extending about the cen- 80 tral tube above the burner and below the funnel-shaped casing, the valve and its spindle controlling the inlet of gas to the funnel-shaped casing and the burner-conduit, and the conduit extending up from the generator 85 to the funnel-shaped casing, substantially as described.

2. In combination, the burner, the reservoir, the gas-generator in the form of a tube curving about the axial line of the burner and 90 in a horizontal plane immediately above the burner, a horizontally-disposed valve between the burner the gas-generator and the conduit from the valve to the generator and the conduit from the valve to the gas-burner, said 95 conduits extending vertically from the valve, substantially as described.

3. In combination, the burner, the gas-generator in the form of a segment of a circle immediately above the burner, a reservoir, the 100 connections from the reservoir to the ends of the segment, a horizontally-disposed valve above the plane of the burner and gas-generator, the pipe *o* leading from the gas-generator up to the valve and the pipe Y² lead- 105 ing from the valve down to the burner, substantially as described.

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

RENÉ AUGUSTIN POITRIMOL.

Witnesses:

CLYDE SHROPSHIRE,
 JULES FAYOLLET.