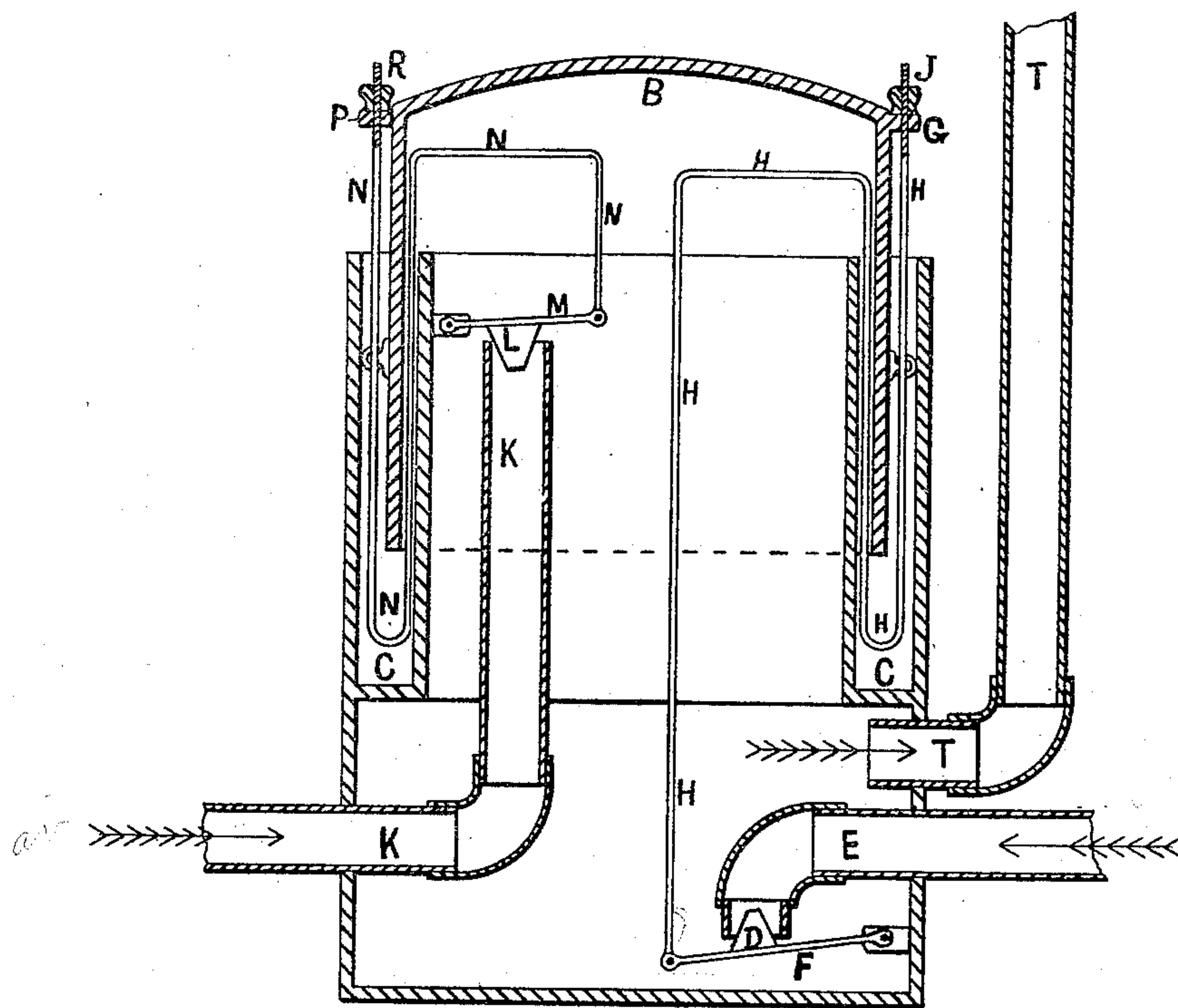


(No Model.)

C. W. SOULE.  
CARBURETED GAS REGULATOR.

No. 245,981.

Patented Aug. 23, 1881.



Witnesses;

*H. G. Manning*

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# UNITED STATES PATENT OFFICE.

CHARLES W. SOULE, OF BOSTON, MASSACHUSETTS.

## CARBURETED-GAS REGULATOR.

SPECIFICATION forming part of Letters Patent No. 245,981, dated August 23, 1881.

Application filed May 31, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. SOULE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and  
5 useful Improvements in Carbureted-Gas Regulators, of which the following is a specification.

This invention relates to apparatus for regulating the component parts of gas produced from the vapor of light hydrocarbon oil and  
10 air for illuminating purposes; and the objects of the invention are to provide automatic adjusting-valves to regulate the proper proportions of gas and common air in the illuminating-fluids supplied to the burners under varying pressures, so as to maintain a uniform light, whether  
15 few or many burners are in use.

Heretofore in illuminating with this "gasoline-gas," which is commonly produced by forcing or blowing air through a carburetor wherein  
20 hydrocarbon-oil vapor mingles with the air, forming gasoline-gas, it, as it comes from the carburetor, is generally too rich in carbon to be burned economically or to produce the best illuminating effect, and therefore requires  
25 dilution with common air. This dilution has heretofore been effected by an air-supply pipe leading directly from the air-pump or blower to the pipe that conducts the gasoline-gas to the burners, and has been regulated in its volume by hand manipulation, which rendered the  
30 same very unsatisfactory, as in supplying the proper proportions of gas and common air to one hundred burners at the required pressure, if a large proportion of them were extinguished,  
35 the pressure upon the remainder would be too great. This defect or objection I overcome by the construction, combination, and arrangement of variable automatic adjustable valves with the gas-inlet pipe and the common-air-inlet  
40 pipe, which valves are connected to hinged arms, and said arms are independently connected with the top of the regulator, which is free to rise and fall under the varying pressure of the gas within the regulator, whereby the  
45 vertical movement of top of the regulator is made to automatically open the gasoline-gas valve more or less and proportionably close the common-air valve, or vice versa.

I am aware that apparatus heretofore has  
50 been employed to accomplish like results by means of levers having adjustable fulcrums and attached to stop-cocks or plugs by con-

necting-rods, so as to open or close more or less the ports formed in the air and gas conducting pipes by the vertical movement of the  
55 diaphragm arranged to rise and fall by the varying pressure of the gas within such apparatus; but as such mechanism must necessarily be complicated and expensive and liable to be disarranged and rendered inoperative, my  
60 invention is designed to overcome these and other objections.

The figure in the drawing represents a vertical central section of a carbureted-gas regulator.  
65

A represents a tank or vessel in which the carbureted gas and air are mixed; and in order that the varying pressure may be regulated, I provide the same with an adjustable top portion, B, as heretofore. This top portion is in  
70 the form of a smaller inverted vessel, its rim or edge of the mouth being received within an annular channel, C, provided around the interior of the top portion or mouth of the outer vessel, A, and supplied with water, glycerine,  
75 or other suitable liquid to form a seal against the escape of gas therefrom, the carbureted gas being conducted therein from a carburetor by means of the pipe E, the inner end of which is curved downward, and the passage of the  
80 gas therefrom is automatically regulated by the action of the conical valve D, attached to the pivoted arm F, which is pivoted at its movable end to the lower end of the vertical operating-rod H, which passes upward above the  
85 top, mouth, or channel C of the said vessel A, and is bent at right angles and passes downward within said channel, and thence beneath the lower edge of the said adjustable top portion, B, where it is bent so as to return upward  
90 through said channel C, and connected with a projection or ear, G, and is provided with a screw-thread and thumb-nut, J, so as to permit the relative positions of the valve and its seat or end of said pipe E and the said adjustable top portion, B, to be regulated or adjusted  
95 through the means of said bent rod H and its thumb-nut resting upon the projection of the automatic adjustable top portion, B, whereby the vertical movement of the said top portion  
100 is made to automatically adjust said valve D.

K represents an air-inlet pipe, the top or open end of which extends upward to a point near the top of the vessel A, and is provided



with a conical valve, L, attached to the piv-  
oted arm M, the movable end of which is piv-  
oted to the bent rod N, which likewise passes  
downward through said channel, and thence  
5 upward to the top portion, where it is connect-  
ed to a projection, P, and provided with a  
screw-thread and thumb-nut, R, whereby the  
valve of the air-tube may be adjusted and regu-  
lated so as to admit more or less air therein,  
10 as occasion may require, and when left the  
vertical movement of the said top portion, B,  
will automatically regulate the quantity of air  
as the pressure within the regulator increases  
and diminishes. By this simple, inexpensive,  
15 variable adjustable device the proper propor-  
tions of carbureted gas and common air are  
regulated automatically, so as to produce a  
uniform light at all times at the burners con-  
nected with the exit-pipe T, as heretofore.

Having thus described my invention, what 20  
I claim is—

In combination with the vessel A, having  
an annular channel, C, and adjustable top por-  
tion, B, and provided with gas-inlet pipe E and  
air-inlet pipe K and exit-pipe T, the conical 25  
valves D and L, arms F and M, and connect-  
ing adjustable bent rods H and N, whereby  
said valves may be variably adjusted and au-  
tomatically actuated by the vertical movement  
of the said top portion, substantially as de- 30  
scribed and shown, as and for the purposes set  
forth.

CHARLES W. SOULE.

Witnesses:

SYLVENUS WALKER,  
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