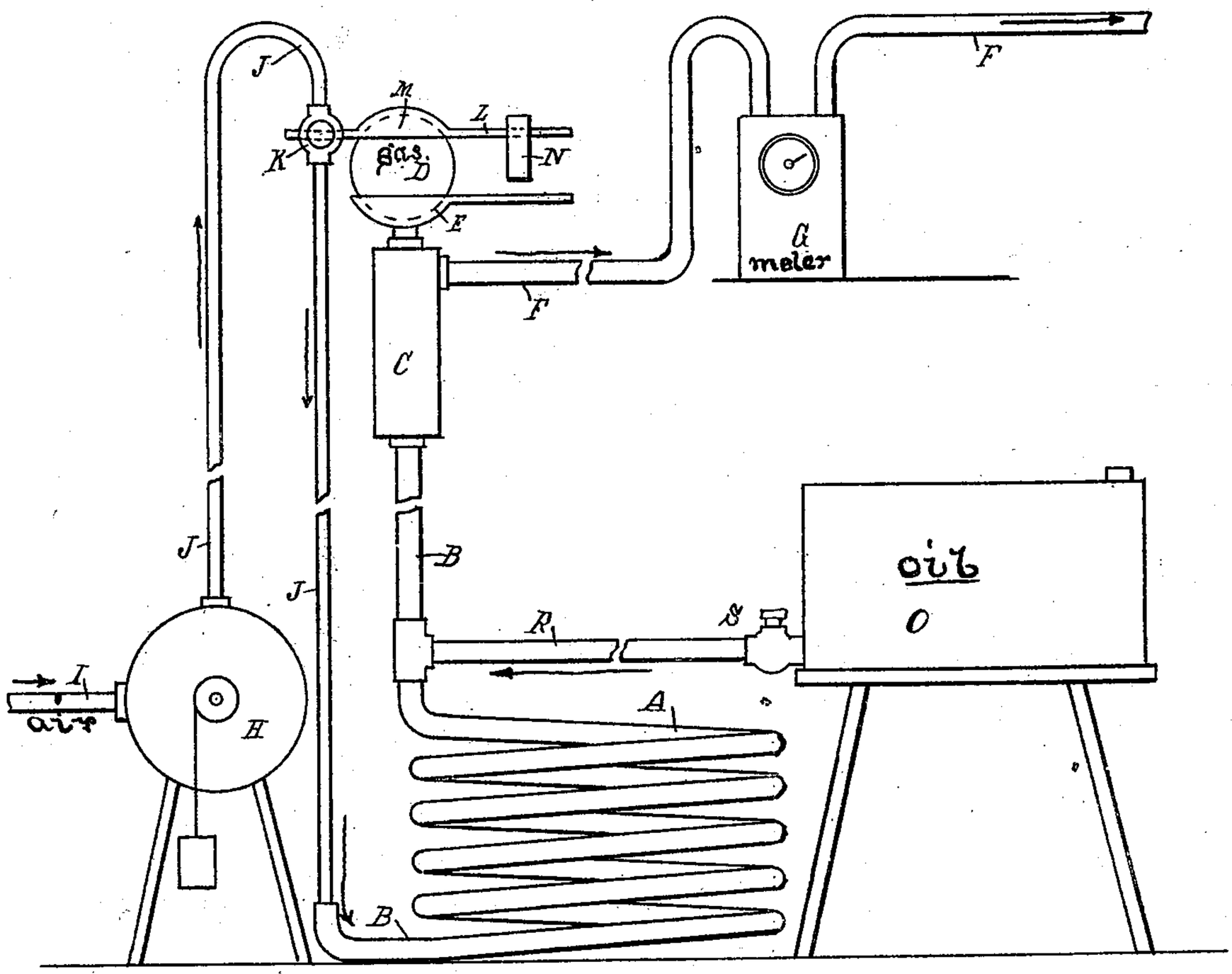
(No Model.)

E. A. SMITH.

CARBURETOR.

No. 502,781. Patented Aug. 8, 1893.



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EDWARD A. SMITH, OF HAMILTON, OHIO.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 502,781, dated August 8, 1893.

Application filed March 30, 1893. Serial No. 468,310. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. SMITH, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

My invention relates to that class of gas generators wherein air is carbureted by contact with hydro-carbon or gasoline, and the objects of my improvements are to carburet the air only as it is used,—to dispense with the holder wherein the manufactured gas is usually stored,—to keep the air in contact with the gasoline through a longer distance, and to automatically expose a constant amount of gasoline to the action of the air without regard to the quantity stored in the tank. These objects are obtained in the following described manner, as illustrated by the accompanying drawing, in which an elevation is shown of the various parts in their relative positions.

In the drawing, A represents the carburetor, which consists of gas pipe B coiled in the form of a vertical helix. The top end of said pipe terminates in a vertical direction from the carburetor in chamber C which is formed by an enlargement of pipe B. Collapsible bag D, communicates with said chamber, and is supported by concave pan or washer E. Pipe F leads from the chamber to meter G and thence distributes the gas to the burners.

H represents an air compressor usually operated by a weight, and provided with air inlet I. Pipe J conveys the air from the compressor through the lower end of pipe B to the carburetor. Said pipe passes near bag D and is provided with valve or cock K, which regulates the flow or pressure of the air through said pipe. Said valve is operated by a vertical movement of lever L connected thereto which extends in a horizontal direction over and beyond the top of bag D, on which it is supported by means of the inverted concave washer M. Said lever may be graduated, and is provided with a sliding weight N which causes the lever to descend and open the valve, when not held up by the expansion of the bag. A projection on pan E under lever L intercepts weight N in its descent.

O represents an air tight tank, or receptacle for the gasoline. Pipe R conveys the gasoline from the bottom of the tank to the carburetor, and is provided with cock S.

In operation the tank is located slightly higher than the carburetor, to permit the gasoline to flow by gravity through pipe R to the carburetor, until it reaches the same level in the vertical part of pipe B that exists inside the tank. There being no pressure within chamber C, bag D collapses, and weight N has caused lever N to descend and open valve K. The compressed air now passes from compressor H through pipe J to the bottom of the carburetor, and in contact with the gasoline therein, through which it percolates slowly to chamber C and by expanding bag D raises lever L and closes valve K. The air in chamber C is now thoroughly carbureted by its passing through the gasoline in the carburetor, and is conveyed through pipe F and the meter to the burners. Its consumption reduces the pressure in the chamber and the bag—which is preferably spherical in form—until the weight causes the lever to descend and open the valve for the admittance of more air to the carburetor. When the pressure of the gas increases, the bag expands and forces the lever upward which closes the valve and stops further increase of pressure. In this manner the pressure of the gas is automatically regulated, and continued substantially constant, regardless of number of burners in use, or the quantity of gas being consumed. The pressure however may be varied by sliding the weight farther out or in, on the lever until it requires more or less pressure in the bag to raise it. The level of the gasoline in pipe B varies in extent only equal to the depth of the tank, which is purposely constructed shallow. This small variation in the distance of the gasoline through which the air passes in being carbureted, is unnoticeable, and the air is passed through substantially the same distance of gasoline whether the tank is full or empty. As the tank becomes empty, air finds its way therein from pipe B through pipe R, and keeps the pressure in the tank equal to that in the chamber.

In filling the tank, stop cocks S should be closed, to prevent the escape of the gas from pipe B.

The compressor may contain air under a

high pressure, when valve N will permit only a sufficient amount to pass to keep up the desired lower pressure at the burners.

Valve N may be constructed to automatically reduce the pressure from the conpressor, without being operated by the expansion of the bag. The compressor however may be adapted to automatically sustain the low pressure suited to the burners. In this case the valve may be dispensed with, together with the bag and the chamber. The use of either the bag or the chamber, or both, is preferable, by reason of the greater elasticity of the larger body of gas contained therein, tending to counteract any possible sudden fluctuations of pressure, and to keep the pressure at the burners more steady, and constant.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a gas generator, the combination with a substantially U shaped coiled pipe, both ends of which extend above the coil and one end provided with a shallow oil supply adapted to keep both ends of the pipe filled with oil level with the surface of the oil within the supply, whereby the air is carbureted by its passage through a volume or body of oil, of an air compressor and a regulator connected with the inlet of the pipe for admitting air into the coiled portion of the pipe, and mechanism connected with the outlet of the pipe and with the regulator of the inlet pipe, whereby the admission of the air is governed by the escape of the gas.

2. In a gas generator, the combination, with a coiled pipe, each end of which is extended substantially parallel one with the other, and one of them is provided with a chamber and is connected with a gas outlet, and the other one is connected with an air supply and is provided with a valve, a concaved pan on the top of the chamber provided with an extension, a lever connected with the valve and extended over the chamber and provided with an inverted concaved portion, a collapsible bag between the two concaved portions and communicating with the interior of the chamber, a weight on the lever, adapted to engage with the extended portion of the pan, and an oil supply connected with the pipe between the chamber and the coil.

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