

(No Model.)

E. R. COOK.  
CARBURETOR.

No. 531,780.

Patented Jan. 1, 1895.

Fig. 1.

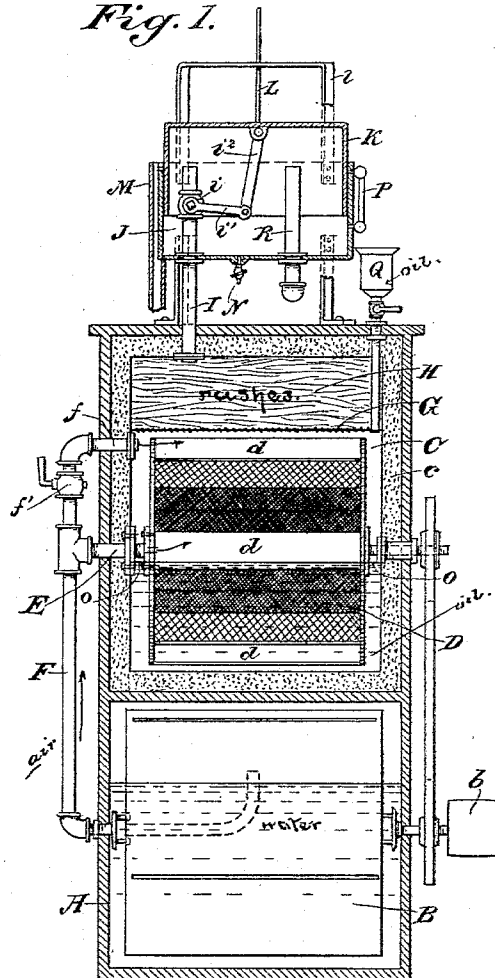
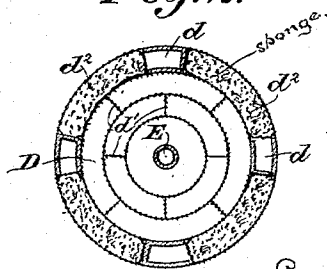


Fig. 2.



Witnesses,  
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attys

# UNITED STATES PATENT OFFICE.

EDMOND RANDOLPH COOK, OF SACRAMENTO, CALIFORNIA, ASSIGNOR  
OF ONE-HALF TO WARREN F. DREW AND MOSES M. DREW, OF SAME  
PLACE.

## CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 531,780, dated January 1, 1895.

Application filed April 25, 1894. Serial No. 509,000. (No model.)

*To all whom it may concern:*

Be it known that I, EDMOND RANDOLPH Cook, a citizen of the United States, residing at Sacramento, county of Sacramento, State of California, have invented an Improvement in Carburetors; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the general class of gas generators or machines, and it consists in the constructions and combinations of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a vertical section of my gas machine. Fig. 2 is a cross section of reel D.

A is the outer shell, in the lower portion of which is an ordinary cylinder air pump represented by B, and adapted to be driven by means of a weight suspended from drum *b*. In the upper portion of the shell is a vessel C in which the oil is contained and the gas is generated. This is separated from the shell by a circumscribing layer *c* of packing which may be of any suitable non-conducting material, preferably an asbestos packing which will render the machine fire-proof and at the same time will so harden as to resist the tendency of the walls of the vessel C to bulge out and in under varying pressure.

Mounted and adapted to rotate within the oil vessel C is a reel D composed of concentric cylindrical screens, and tight end heads. There may be as many of these screens as may be desired. They are separated from each other and the whole reel is supported upon end journals to one of which the power to rotate the reel is applied by any suitable means, as, for example, by the belt and pulleys here shown. The other journal E is hollow and opens inwardly into the reel center, and at its outer end it communicates with the air pipe F from the air pump B below. The lower half, approximately, of the reel is immersed in the body of oil, the level of which is represented by the line *o-o*.

The operation of the machine as far as described is as follows: As the reel revolves and dips into the oil, the meshes of the screens

become full and carry up with them the oil, thus exposing an extensive surface to the action of the air which, being admitted to the center of the reel, is forced outwardly into contact with the down dripping oil and the portion yet clinging in the meshes. This action of the air on the oil is equal and thorough and by reason of the reel rotating and dipping into the oil, the latter is kept of uniform quality and the resultant gas is uniform.

In order to increase the capacity of the reel for exposing the oil to the air, I secure along the inner surface of the outermost screen one or more cups or buckets *d*, and between the other screens I secure radial division plates *d'*. Now, as the reel rotates, the buckets *d* dip up the oil and carrying it to the top, finally spill it out over the inner screens, so that it saturates them and flows constantly centrally, being directed equally by the plates *d'*, and meets the outflowing air whereby it is vaporized. Increased results in this respect may also be had by filling in the spaces between the buckets *d* with sponge or hemp packing, or other suitable substance, such as I have here indicated at *d*<sup>2</sup>. Both the packing and the cups or buckets serve as carriers to elevate and drop the oil.

Above the reel, in the upper portion of the oil vessel C, is a screen G between which and the top of the vessel is a drying packing H of suitable nature, such, for example, as the dried stems of tules or other reeds or rushes.

Into the upper portion of vessel C, just below the screen G, a branch pipe *f* of the air pipe F enters, said branch pipe being controlled by a cock *f'*. By properly manipulating this cock, sufficient air may be introduced to the gas to further lighten and dry it as may be necessary. The gas is thoroughly dried by passing through packing H, and it is thence conducted by a pipe I into the gasometer or regulator. This consists of the usual telescopic vessels, namely: the upright vessel J containing water and the vessel K inverted in it and weighted as usual. In the pipe I is a cock *i* operated by a lever *i'* to which is connected a link *i*<sup>2</sup>, the upper end of which is connected with the top center of inverted vessel K.

The regulation is effected as follows: Suppose a given pressure in the regulator. Upon lighting say, one burner, a given amount of gas being consumed, the pressure in the regulator is relieved but lightly and the vessel K descending but little will, through the link  $i^2$  and lever  $i'$ , open the cock  $i$  but little, and only sufficient gas will be admitted to restore and maintain the pressure. But now suppose twenty burners be lighted. Then the pressure being relieved to a greater extent, the vessel K will descend farther and will open the cock  $i$  wider which will admit gas sufficiently to restore and maintain the normal pressure. The main operating weight is, of course, sufficient to always restore the pressure, and to cause the pump to maintain it. Thus the machine is automatic in its regulation and maintenance of a uniform pressure irrespective of the volume consumed.

L is a guide stem of vessel K, which works up through a suitable guide bail  $l$ .

M is an overflow pipe from the vessel J to carry off any water spilled or splashed from said vessel.

N is a drip valve from vessel J. P is a gage for said vessel.

Q is the oil supply hopper to vessel C.

R is the service pipe from the gasometer.

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

1. In a gas machine the combination, of an air pump, the oil vessel above the same, and the rotating screen reel in said vessel, said reel being composed of concentric cylindrical screens separated from each other, the outermost screen being provided with cups or buckets for elevating the oil, and the other screens having radial division plates so arranged that the plates of one of such screens occupy positions intermediate of the adjacent plates of the next screen whereby the oil discharged from the cups or buckets of the outermost screen discharges upon the radial plates of the other screens and is directed centrally

to meet the air current, substantially as herein described.

2. In a gas machine, the combination, of an air pump, the oil vessel above the same, and the rotating screen reel in said vessel, said reel consisting of an outer screen having cups or buckets, a packing in the spaces of the screen between the buckets, concentric inner screens each having radial division plates arranged out of line with each other for directing the oil centrally in the path of the air current.

3. In a gas machine, the combination, of an air pump, the oil vessel above the same, the rotating screen reel composed of an outer screen with cups or buckets and concentric inner screens with radial division plates so disposed that those of one screen are out of line with those of the adjacent screen whereby the oil discharged from the cups or buckets of the outer screen is directed centrally, said reel having end journals one of which is hollow and opens inwardly into the reel center, and has its outer end in communication with the air pipe from the air pump below, substantially as herein described.

4. In a gas machine, the combination, of an outer shell, an oil vessel in the upper portion of the same, a screen reel within the oil vessel and composed of an outer screen with its cups or buckets, and concentric inner screens with radial division plates, an air pump in the lower portion of the shell, an air pipe therefrom having a cock-controlled branch  $f$  leading into the upper part of the oil vessel whereby air may be introduced to the gas to lighten and dry it, and a hollow journal for the reel having one end in communication with the main air pipe and the opposite end opening into the center of the reel.

In witness whereof I have hereunto set my hand.

EDMOND RANDOLPH COOK.

Witnesses:

D. E. ALEXANDER,  
B. N. BUGBEY.