M. P. COONS.

Making Oil Gas.

No. 57,682. Patented Sept. 4, 1866.

Fig. 1.

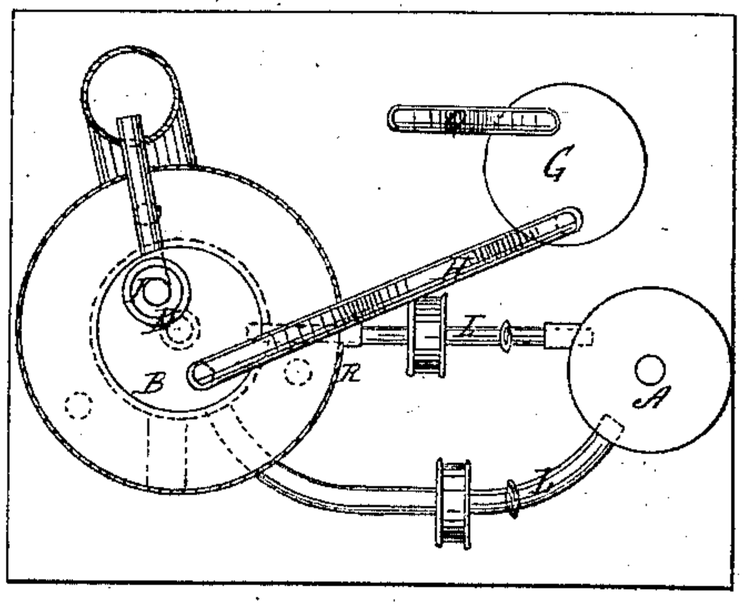


Fig. 2.

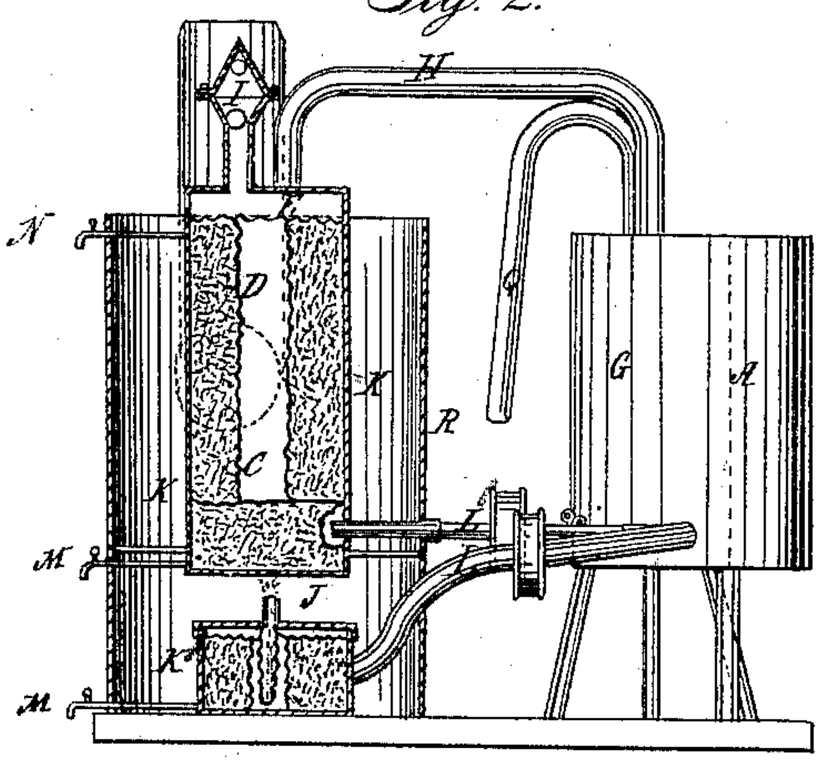


Fig. 4.

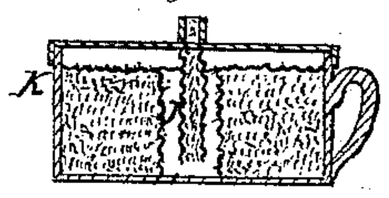
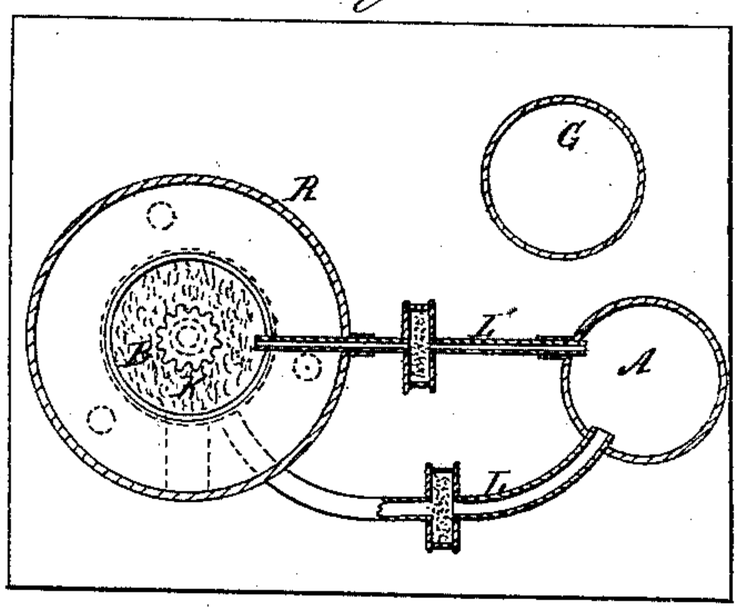


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

MATTHIAS P. COONS, OF BROOKLYN, NEW YORK.

IMPROVED APPARATUS FOR GENERATING GAS.

Specification forming part of Letters Patent No. **57,682**, dated September 4, 1866.

To all whom it may concern:

Be it known that I, MATTHIAS P. COONS, of the city of Brooklyn, county of Kings and State of New York, have invented a new and useful improvement in apparatus or machine for generating gas from all classes of inflammable combustible oils originating from mineral oils or mineral coals by means of destructive distillation or by a process of forced evaporation, and, in connection therewith, also an apparatus or lamp by which the same fluid is used to create the required degree of heat for the purpose above named and for other purposes, and which fluid may be used for said purposes with safety and at far less expense than any other material now known, which I denominate a "a self-regulating non-explosive fluid-gas apparatus"; and I do hereby declare that the following is a true and exact description of the construction of the apparatus and the operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a top view of the apparatus in its combination. Fig. 2 represents a sectional elevation of the same. Fig. 3 represents a horizontal section. Fig. 4 represents a vertical section of the fuel apparatus or lamp.

For the purpose of making use of highly-inflammable or any hydrocarbon liquid, whatever may be the degree of gravity, I provide a metallic tank or vessel, made for the purpose perfectly air-tight, of the required capacity for containing the required fluid, as represented by letter A. At a suitable distance from this tank or vessel a retort is placed, also of the required size and form marked B. Within this is a wire sieve or a perforated plate fitting the inside of the retort, which is secured at a proportionate distance from the bottom of the retort, having a space between the sieve-plate C and bottom of the retort, upon which rests a circular cylinder, which is also a sieve or screen, which extends vertically to within a proportionate distance from the upper head of the retort. This cylinder (marked D) is about one-eighth of the diameter of the inside of the retort. Directly over this cylinder another wire sieve is placed, marked E.

In the upper head of the retort are two holes, in one of which a tube is inserted for the purpose of conducting the gas into the cooling-tank G by means of the tube H. In the other hole is inserted a bullet-valve, inclosed within a conical-formed enlargement of the tube, as represented, letter I, from which the tube is extended into the chimney or water-tank, as desired, by which means all surplus gas accumulating in the retort escapes, thereby rendering explosion impossible, by means of this self-acting safety-valve, and which also controls the pressure of the flow of gas by its own gravity.

Directly beneath the bottom of the retort the lamp, Fig. 4, is placed, and used as a fire-chamber. This apparatus or lamp, Fig. 4, the internal arrangement of which is the same as that of the retort B, except that an additional wire-sieve tube of a proportionate less size than the wire cylinder is attached to the cover or cap of lamp, which has a corresponding hole or aperture, and which tube I denominate the "wick-tube," is of sufficient length to reach near the bottom of the lamp, as shown by the letter J, above which a burner-tube is affixed, connecting with the wick-tube, and the flow of gas is regulated in any approved method. The spaces between the outside cylinder sieves and the inside of the retort B, which spaces are marked K, are filled with some non-combustible and fluid-absorbing material; but by practical experiments I find that a mineral substance known as "asbestus" is the most fluid-absorbing and non-combustible, as well as non-destructive, now known to me, and also capable of absorbing and retaining a greater proportionate quantity of the fluid required, being saturated by capillary attraction, and therefore prefer that article than any other now known. Therefore I fill the vacant parts (marked K) with pulverized asbestus; and also the wick-tube J is filled with the same material, reaching from the bottom to the point of ignition.

By practical tests made by me it is known that asbestus used for the purposes stated will remain in good order and will not require renewing. Many other substances may be advantageously used having smaller attractive qualities, among which are pumice-stone, filtrating sand, wave-cleaned beach sand, sponge,

&c.; but for brevity I use the word "asbestus."

For the purpose of saturating the asbestus with the required fluid I connect the tank A with the retort B and lamp, Fig. 4, by means of the tubes marked L L, each of which has a barrel or drum attached, and also with stop-cocks, or, in other words, an enlargement of the tubes of any definite size, each end of which is supplied with a wire sieve, and the inside spaces are also filled with asbestus, through which the fluid must filtrate before entering into the retort or lamp, thereby preventing any direct flow of fluid or any degree of heat communicating with the tank holding the fluid.

For the purpose of preventing a surplus quantity of fluid within the retort or lamp a stop-cock is inserted at or near the bottom of each, by which means all the fluid not absorbed by the asbestus is drawn off, leaving only the quantity held in saturation, which cocks are marked M M. Also another stop-cock is inserted at or near the upper surface of the asbestus in the retort, for the purpose of indicating a surplus quantity of fluid. These stop-cocks (marked N N) are left open while the fluid is permitted to flow into the retort.

The tube marked H represents the tube conducting the gas generated into the water-tank P.

The letter Q represents the tube conducting the gas to any desired point, whether into a gasometer, or it may be attached to a service or distributing pipe directly from the water-tank.

By practical tests I have discovered that it requires but a fractional part of the gas generated by this process to supply the required heat for generating the required supply, and by which process a continuous flow of gas is obtained after the first emission of gas generated by means of the lamp. For this purpose I attach a tube, S, to the tube Q, or it may be attached to any part of the service-pipe or gasometer, and conduct the same into the fire-chamber under the retort, and lead it either into or over the lamp, having suitable tip or burner attached, and being also supplied with the required stop-cock.

Thus it will be seen that when no gasometer is used it becomes necessary to commence the generation of gas by means of the lamp at each time gas is required; but in case a gasometer is used a sufficient quantity of gas may be retained for the commencement of operations, and thus dispense with use of the lamp indefinitely after the first operation.

The letter R represents the outside casing or stove inclosing the retort, which is of sufficient dimensions to leave ample space around the retort and lamp for the emission or condensation of smoke which may arise from burning the fluid, which case or stove is represented by letter R.

It will be seen that the wire-sieve wick-tube J within the cylinder D does not come in contact with any substance or fluid whatever, the fluid being by saturation held in the asbestus surrounding the wire-sieve cylinder, the fluid being extremely volatile, and the vapor is attracted by the ignition at the burning-tube, and which creates the required heat for the decomposition or forced evaporation; and it will also be seen that by the combination and arrangement of the tubes L L the supply of fluid may be a continuous flow and the quantity required by the application of graduating stop-cocks.

Having thus described the nature of my invention and its practical operation, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The internal arrangement of the retort B with the cylinder D and in the lamp, Fig. 4, the wick-tube J, and also the connecting-tubes, as arranged (marked L L.)

2. The tube S, in the manner and for the purpose set forth and described.

3. The application of the safety-valve I, for the purpose and in the manner described, and, in combination therewith, the application of the stop-cock in the manner and for the purpose described.

4. Generating gas from combustible fluids by introducing the same into a generating-retort by capillary attraction, for the purpose and in the manner herein set forth and described.

MATTHIAS P. COONS.

Witnesses:
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