

(No Model.)

W. B. FRINK.

APPARATUS FOR THE MANUFACTURE OF OIL GAS.

No. 423,044.

Patented Mar. 11, 1890.

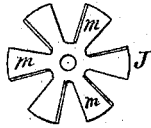
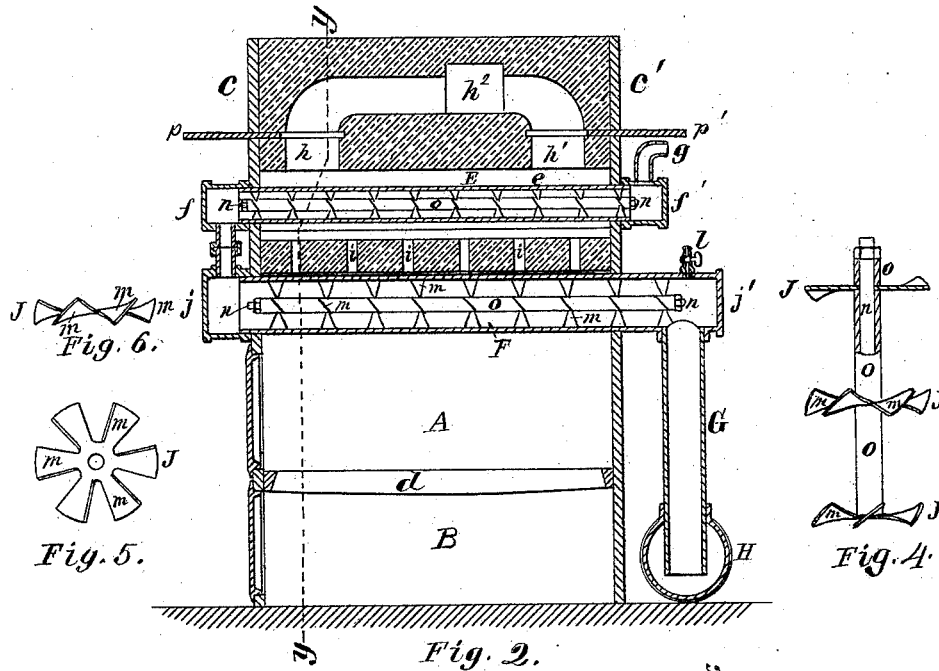


Fig. 5.

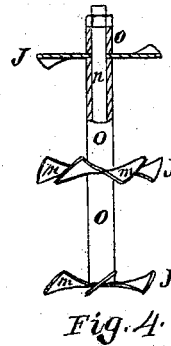


Fig. 4.

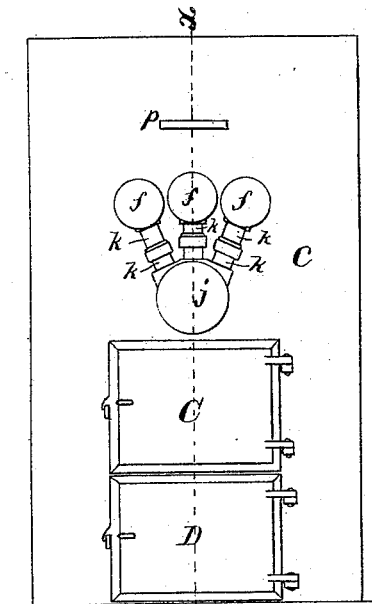


Fig. 1.

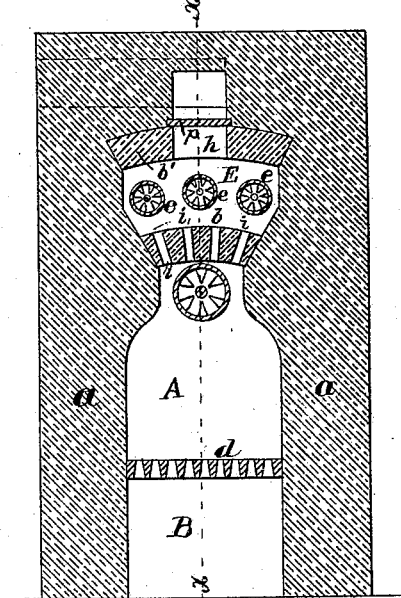


Fig. 3.

Witnesses.

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by N. C. Lombard  
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# UNITED STATES PATENT OFFICE.

WILLIAM B. FRINK, OF REVERE, ASSIGNOR OF ONE-HALF TO WILLIAM STIRLING, OF WATERTOWN, MASSACHUSETTS.

## APPARATUS FOR THE MANUFACTURE OF OIL-GAS.

SPECIFICATION forming part of Letters Patent No. 423,044, dated March 11, 1890.

Application filed August 28, 1889. Serial No. 322,187. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. FRINK, of Revere, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for the Manufacture of Oil-Gas, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to apparatus for manufacturing gaseous fuel or illuminating-gas from petroleum, mineral fat, and other oils; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the drawings and to the claims to be hereinafter given.

Figure 1 of the drawings is a front elevation of a gas-generator embodying my invention. Fig. 2 is a vertical longitudinal section on line *xx* on Figs. 1 and 3. Fig. 3 is a vertical transverse section on line *yy* on Fig. 2. Fig. 4 is a sectional elevation of a portion of one of the current-breakers to be placed within the cylindrical retorts, and Figs. 5 and 6 are respectively a plan and an elevation of one of the fan-like plates of which the current-breakers are made up.

In the drawings, A is the fire-pot of a furnace, composed of the brick side walls *aa*, the brick arches *b* and *b'*, and the metal front and back plates *c* and *c'*, respectively.

B is the ash-pit, *d* the fire-grate, C the fire-pot door, and D the ash-pit door.

Within the chamber E between the arches *b* and *b'* are placed a plurality of cylinders or pipes *ee*, which project through the front and rear plates *c* and *c'* and have their ends closed by the fittings *f* and *f'*, as shown. The fittings *f'* at the rear end of said pipes have each connected thereto an oil-supply pipe *g*, through which oil is introduced to the interiors of said pipes, where it is vaporized by the action of the hot gases or products of combustion which pass through the chamber E on their way to the flues *h* or *h'*, and *h*<sup>2</sup>, leading to the chimney. (Not shown.) The products of combustion reach the chamber E by passing through a series of small openings *i*, formed in the arch or crown *b* of the fire-pot A, as shown in Figs. 2 and 3.

Just below the arch or crown *b* the fire-pot

or furnace is contracted in width nearly one-half, and in this contracted space is placed the cylindrical pipe F, having an area in cross-section equal to the aggregate areas of the pipes *ee* and projecting through the front and rear plates *c* and *c'* and having its ends closed by the fittings *j* and *j'*. The several fittings *j* on the front ends of the pipes *ee* are connected to the fitting *j* on the front end of the pipe F by the pipes *kk*, screwed into said fittings and connected by union-couplings, as shown in Figs. 1 and 2. The fitting *j'* on the rear ends of the pipe F has screwed into its lower side the pendent pipe G, the lower end of which extends into and below the center of the horizontal pipe H, which is filled about half full of water, as indicated in Fig. 2, through which water all the gas generated in the retorts passes to reach the upper part of the pipe H, from which it escapes through the pipe I to the washer. (Not shown in the drawings.) The fitting *j'* has also inserted in its upper side a test-cock *l*, by means of which the condition of the gas in the retort F may be readily ascertained.

In each of the pipes *ee* and F is placed a current-breaker composed of a series of fan-like plates J, of sheet metal, each having a series of blades *m* radiating from a common center, and each blade being twisted, so as to form a section of a spiral, as shown in Fig. 6, and a central hole to receive a clamping-bolt *n*, and a series of short sleeves or tubes *o* placed upon said clamping-bolt, one between each two of said fan-plates, as shown in Fig. 4.

The furnace is provided with two smoke-flues *h* and *h'*, the former opening therefrom near its front end and the latter near its rear end, and both leading to and uniting in the flue *h*<sup>2</sup>, which leads to the chimney.

The flues *h* and *h'* are provided with dampers *p* and *p'*, respectively, by which said flues may be closed at will and by a proper manipulation of which the products of combustion may be all made to pass through either one or the other of said flues or a part through each, thus rendering it practical to regulate the heating of the retorts so as to heat all parts alike.

Another advantage of this invention is that the construction of the current-breakers ren-

ders them more easily removable for cleaning when they become gummed up.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

5 1. In an apparatus for generating gas, the combination of a fire-pot or combustion-chamber contracted in width at its upper part, a single retort placed in said contracted portion of said combustion-chamber, a second  
10 chamber above said combustion-chamber, a perforated arch between said chambers, a plurality of retorts placed in said upper chamber, means for introducing oil to said retorts at one end, and pipes connecting each of said  
15 upper retorts at their other ends to the single retort in the main combustion-chamber.

2. In combination with the retorts of a gas-generating apparatus, a current-breaker placed in one or all of said retorts, composed  
20 of a central rod or bolt, a series of removable plates of sheet metal, each divided into a series of radial blades the peripheral ends of which are oblique to the axis of the bolt, thimbles or sleeves fitted upon said rod be-

tween said plates, and nuts on the ends of said 25 rod to clamp the whole together.

3. In an apparatus for generating gas from oil or kindred material, the combination of the combustion-chamber A, provided with the perforated arch *b*, the chamber E, a plurality 30 of retorts *ee*, located in the chamber E, a single retort F, located just below arch *b*, all of said retorts extending through and projecting beyond the front and rear walls of the furnace, pipes connecting the front ends of 35 the pipes *e* to retort F, the hydraulic main H, and the pipe G, connecting the rear end of the retort F and said main H, substantially as described.

In testimony whereof I have signed my 40 name to this specification, in the presence of two subscribing witnesses, on this 26th day of August, A. D. 1889.

WILLIAM B. FRINK.

Witnesses:

N. C. LOMBARD,

WALTER E. LOMBARD.