

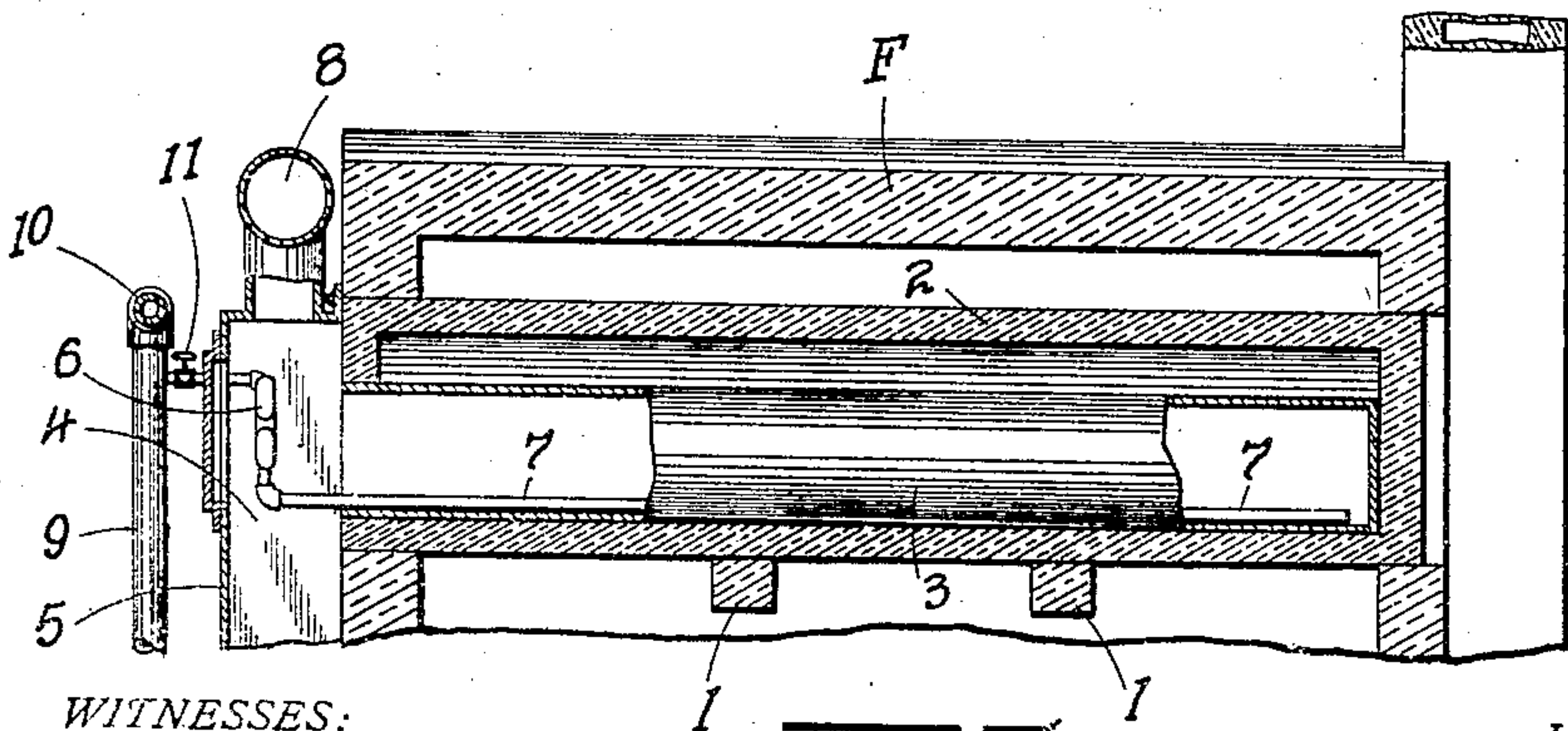
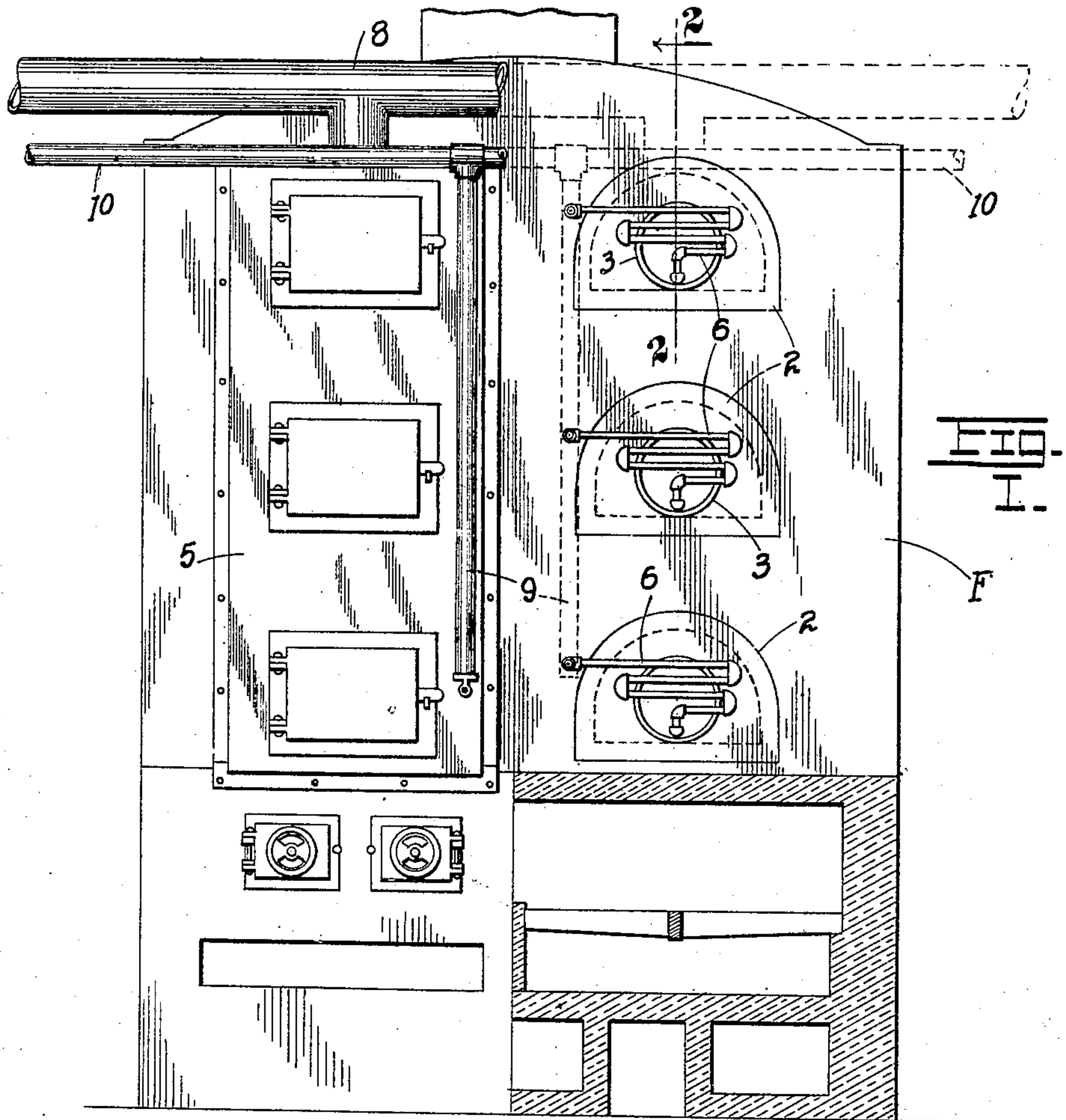
No. 832,131.

PATENTED OCT. 2, 1906.

M. J. KEOUGH.

RETORT.

APPLICATION FILED APR. 9, 1906.



WITNESSES:

P. J. Gawn
M. D. Whitcomb

FIG. 2.

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RETORT.

No. 832,131.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed April 9, 1906. Serial No. 310,760.

To all whom it may concern:

Be it known that I, MICHAEL J. KEOUGH, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Retorts, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in gas-retorts; and it consists in the novel construction of retort more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a furnace with front wall partly removed, showing a battery or bench of retorts; and Fig. 2 is a vertical longitudinal section on the line 2 2 of Fig. 1, taken through one of the retorts.

The present invention has relation to retorts designed for the manufacture of fixed gas from crude oil or petroleum, and has for its object the construction of a retort in which the fixing of the gas may be accomplished with a minimum loss of the carbon which enters as a constituent element into the composition of the gas, the saving of carbon thus resulting in increased candle-power for the gas.

A further object is to avoid the evil consequences of a deposit of carbon on the inner surfaces of the retorts, thereby dispensing with the necessity of cleaning the retort, and thus saving time and reducing the running expenses of the plant to a minimum.

A further object is to economize fuel, produce a more even and constant temperature within the retort, and hence a more uniform product, and to improve the general method of gas manufacture, all as will more fully hereinafter appear from a detailed description of the invention, which is as follows:

Referring to the drawings, F represents an ordinary coal-burning furnace of any approved design and construction, but forming no part of the present invention. Disposed lengthwise of the furnace on suitable arches or brick beams 1 is a battery or bench of clay retorts 2 2, substantially semicylindrical in cross-section. Inserted through an opening in the front wall of each retort 2 and resting on the bottom thereof is an inner supplemental retort 3, composed of a cylindrical

metal pipe closed at its rear end, the front end of the pipe opening into a heating-chamber 4 common to all the retorts of the battery, said chamber being formed by a cast or boiler iron front 5, added to the brickwork of the furnace. In the chamber 4 in front of each retort is a pipe-coil 6, said coil terminating in a discharge-pipe 7, disposed along the bottom of the retort 3 and discharging the crude oil thereinto in a thin stream, the oil being converted and fixed into gas as fast as it is discharged into the retort 3, the gas escaping into the chamber 4 and thence into the exit-flue 8 to any point of consumption or storage-tank. The coils 6 take their supply from the branches 9 of the main feed-pipe 10, leading to any source of supply. (Not shown.) Each coil 6 is provided with a valve 11 for turning on or shutting off the supply of oil, as the occasion demands. The oil in the coils 6 is partially vaporized and its temperature raised by the heat of the escaping currents of fixed gas passing through the heating-chamber 4, so that the process of ultimate fixing of the gas within the retort 3 takes place with greater rapidity than would otherwise be the case.

It will be seen that the inner or supplemental retort 3 is separated from the walls of the outer retort 2 by a dead-air space, the air acting as a sort of a blanket between the highly-heated walls of the outer retort and the metal walls of the pipe 3. The air being a poor conductor of heat serves to prevent a too-sudden fixing of the gas, a result always attended by an elimination of carbon from the oil or from the gas at the moment of its formation. Where clay retorts are used, the carbon forms a deposit or incrustation on the inner surface of the retort, and the retort must be shut down until the incrustation is removed, which often consumes much time and labor. With the use of my supplemental iron retort all the carbon enters as a constituent or element into the fixed gas generated from the oil, the increased percentage of the carbon element increasing the candle-power of the gas from thirty to fifty per cent. The air mantle or blanket surrounding the iron retort prevents a too-sudden fixing of the gas, giving the carbon element opportunity to enter into the composition of the final product instead of precipitating as a deposit on the inner walls of the retort. With my present

invention no deposit of carbon takes place in the pipe 3, and when the latter deteriorates a new pipe may be inserted inside of two hours.

Having described my invention, what I claim is—

1. In combination with an outer retort of refractory material or clay, an inner metal tubular member closed at the rear and open at its front end, confined within the outer retort and separated from the peripheral walls of the latter by a dead-air space, means for conveying the material to be treated into the inner member, the products of distillation escaping through the front end of the metal tubular member, a chamber receiving the products discharged from said metal member, and means for heating the walls of the outer retort, substantially as set forth.

2. In combination with an outer retort of refractory material or clay, an inner metal tubular member closed at its rear end, the opposite open end being passed through the front wall of the outer retort, means for introducing the charge into the inner metal tu-

bular member, the products of distillation escaping through the front open end of the tubular member, a chamber receiving the products discharged from said metal member, and means for heating the outer retort, substantially as set forth.

3. In combination with a retort comprising an outer shell or retort, an inner tubular metal shell, the latter being spaced from the walls of the outer shell and having a discharge-opening at one end, a heating-chamber located in front of the open end of the inner shell, a coil located in the chamber and conducting the oil therethrough to the inner shell, and a discharge-pipe forming a continuation of the coil and extending into the inner metal shell and discharging the oil into said inner shell, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL J. KEOUGH.

Witnesses:

EMIL STAREK,

MARY D. WHITCOMB.