2 Sheets—Sheet 1.

G. RAMSDELL.

Apparatus for the Manufacture of Wood and Oil Gas.

No. 224,845. **Patented Feb. 24. 1880.**

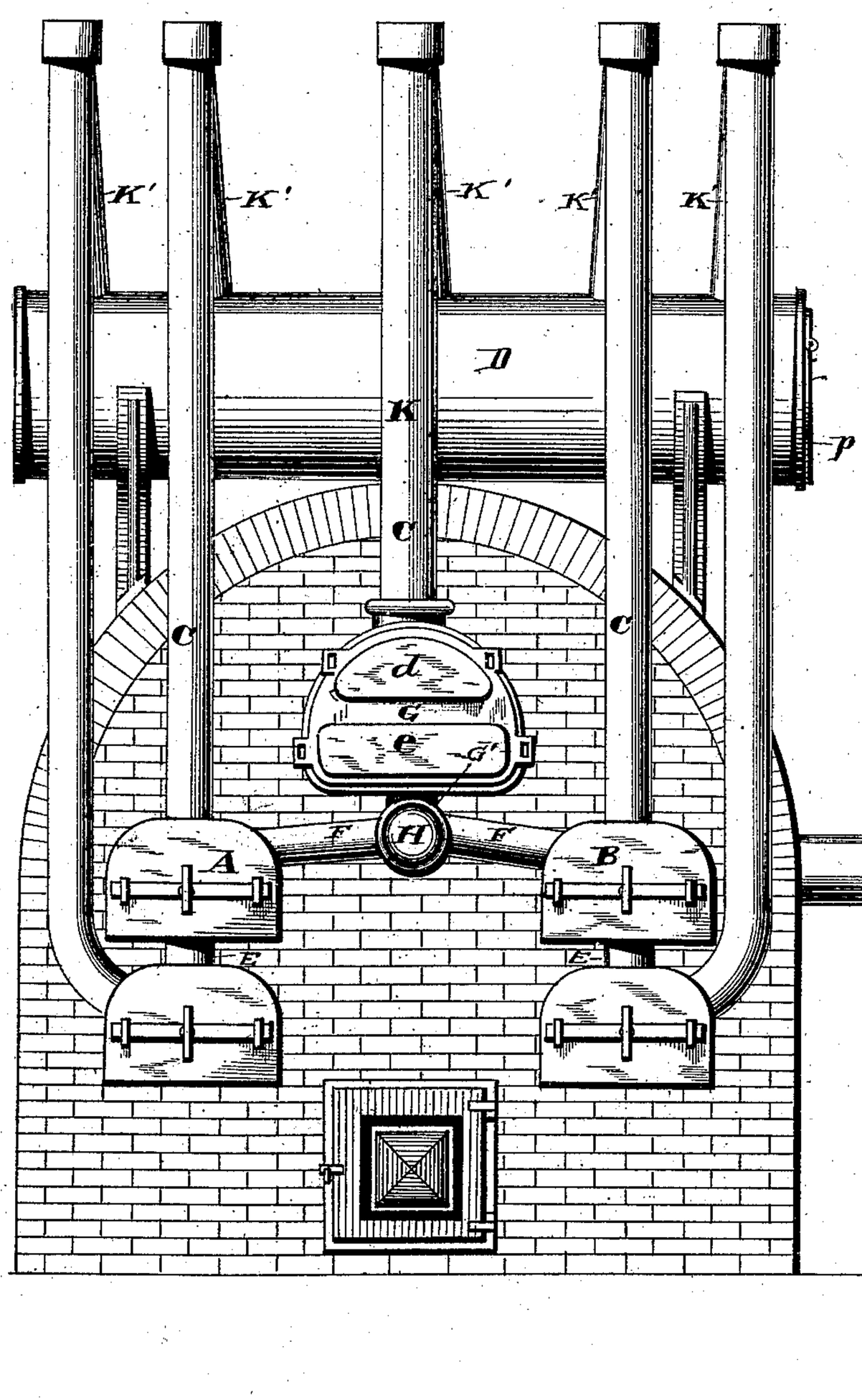
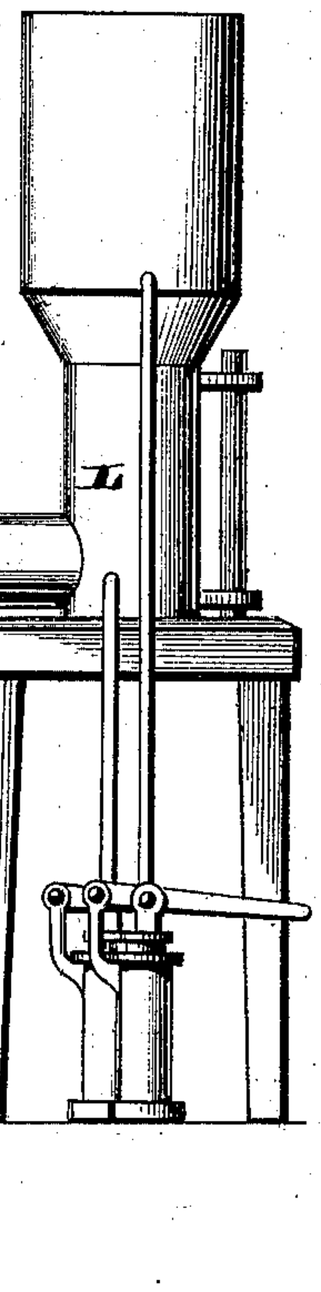


Fig. 1.



WITNESSES

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2 Sheets—Sheet 2.

G. RAMSDELL.

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No. 224,845. **Patented Feb. 24, 1880.**

Fig. 2.

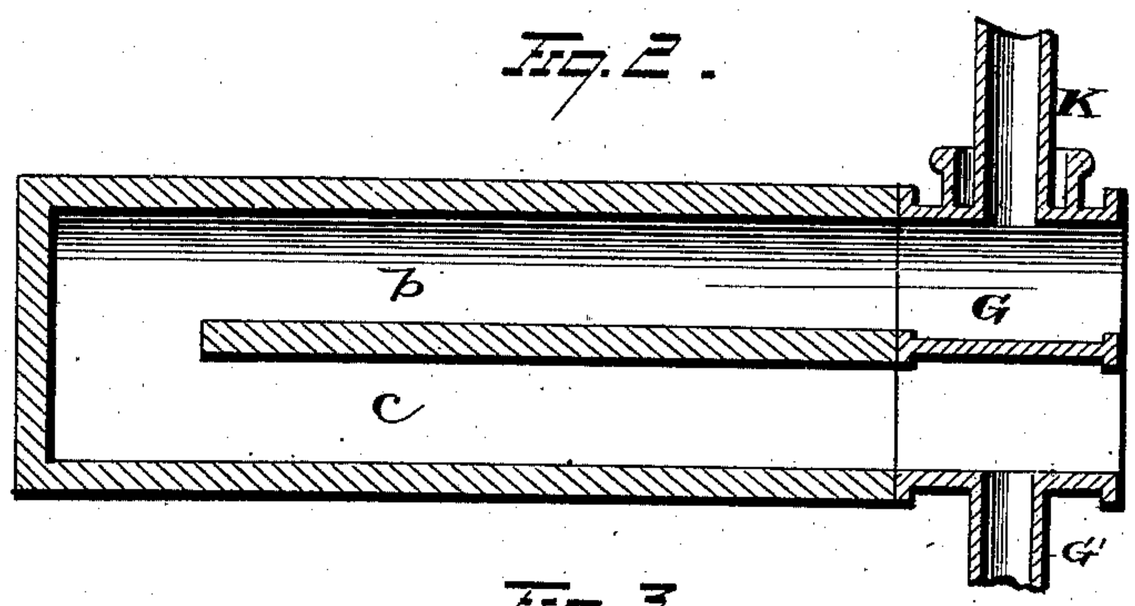


Fig. 3.

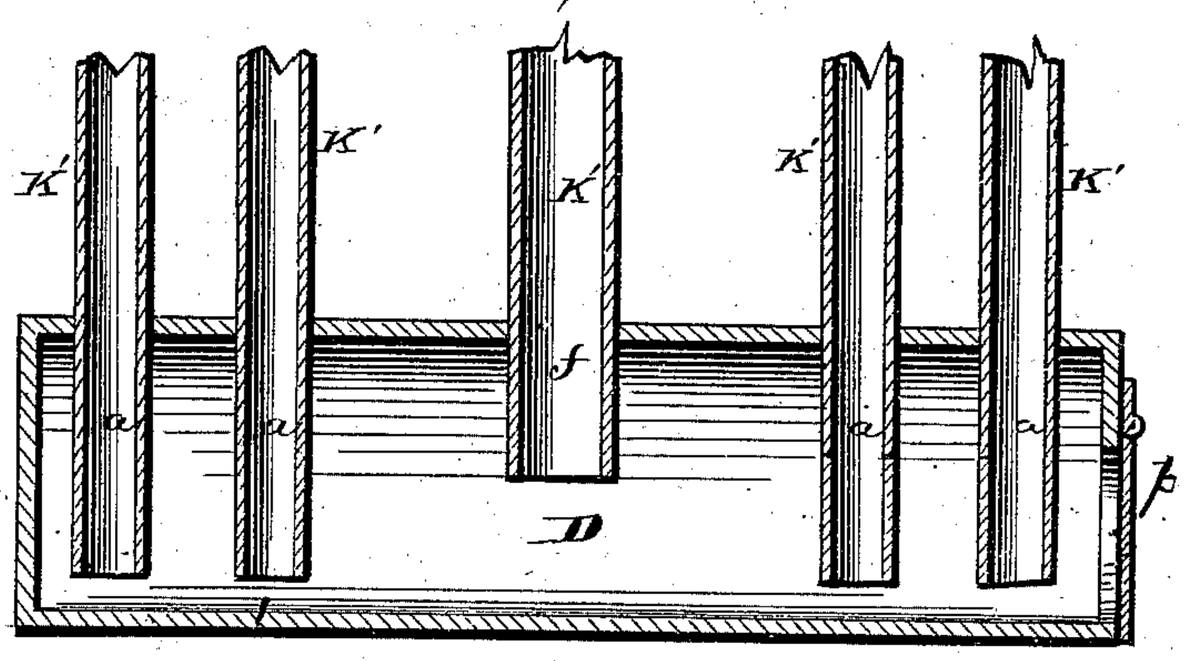


Fig. 4.

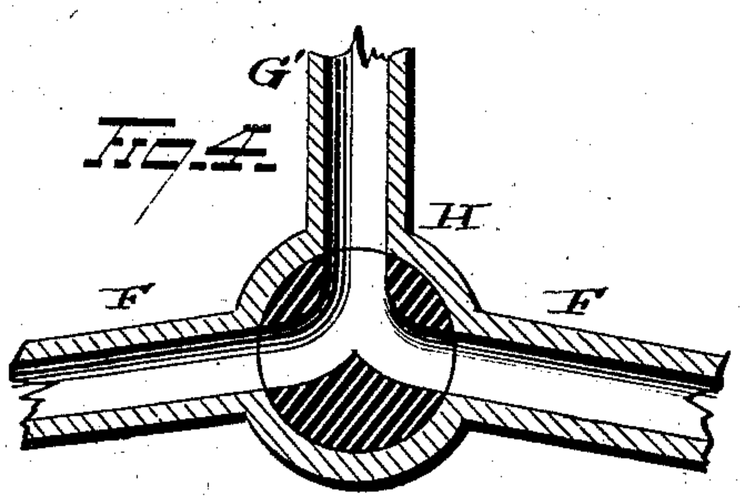
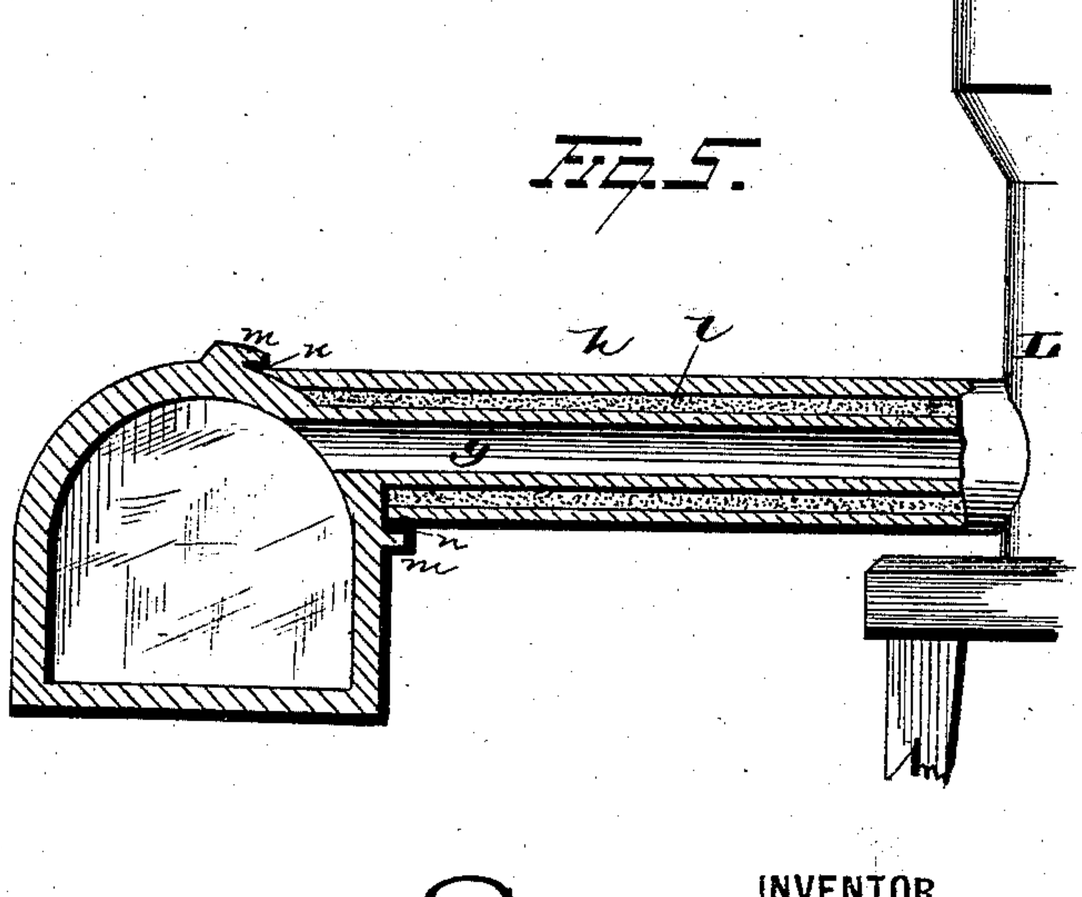


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE RAMSDELL, OF OSWEGO, NEW YORK.

APPARATUS FOR THE MANUFACTURE OF WOOD AND OIL GAS.

SPECIFICATION forming part of Letters Patent No. 224,845, dated February 24, 1880.

Application filed November 26, 1879.

To all whom it may concern:

Be it known that I, GEORGE RAMSDELL, of Oswego, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Manufacture of Gas; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in apparatus for the manufacture of wood and oil gas for illuminating and heating purposes.

The invention consists, first, in the combination, with generating-retorts, stand-pipes, and dip-pipes, which latter extend a considerable distance into the hydraulic main, of a superheating-retort connected by intermediate pipes with the generating-retorts, a stand-pipe, and a dip-pipe, which latter extends a less distance into the hydraulic main than do the dip-pipes of the generating-retorts; second, in the combination, with an air-pressure feed-tank and an oil-retort, of a connecting-pipe provided with an inclosing-pipe and an annular packing of asbestus interposed between the two pipes.

Referring to the drawings, Figure 1 is a view, in front elevation, of a bench of retorts embodying my improvements. Fig. 2 is a detail view, in vertical longitudinal section, of the superheating-retort. Fig. 3 is a similar view of the hydraulic main. Fig. 4 is a detail sectional view of the three-way valve and its connecting parts. Fig. 5 is a detail sectional view, representing the feed-pipe in its connection with the oil-generating retort.

The bench may be made with any desired number of wood and oil retorts.

The wood and oil retorts A and B are respectively provided with stand-pipes C, having heavy seals *a* in their connection with the hydraulic main D. The lower retorts connect, by short intermediate pipes, E, with the upper retorts, and the latter respectively communicate with the two converging pipes F. The superheating-retort G communicates with a pipe, G′, which connects with said converging pipes. A three-way valve, H, located at the junction of the three pipes, controls the connection of the superheating-retort with the gas-generating retorts.

By these means the gas can be independently shut off from either side while charging the gas-generating retorts; or the gas can be shut off from the superheating-retort and be conducted up through stand-pipes C while carbon is being burned out of the superheating-retort; or the gas can be shut off from either side while carbon is being burned out of the generating-retorts on the opposite side. At the same time gas from the generating-retorts which are not being burned out can be passed up into the superheating-retort. This latter retort is formed with upper and lower horizontal compartments, *b c*, respectively provided with doors *d e*. The wood-gas and oil-vapor, being united in the lower compartment, pass rearward through the latter, thence into the upper compartment and forward, to be discharged as a fixed gas into the stand-pipe K. This stand-pipe is provided with a light seal, *f*, in its connection with the hydraulic main. The difference between this latter seal and seals *a* is such that the gas or vapor from their respective generating-retorts is prevented from passing through stand-pipes C, while the three-way valve permits free passage into the superheating-retort. The stand-pipes are made vertical in order to obviate, in large measure, the tendency to clog and obstruct these passages, caused by depositions of carbon.

Dip-pipes K′ connect directly with their respective stand-pipes and extend in lateral inclination therefrom to the hydraulic main. These dip-pipes are made straight, thereby preventing the deposit of carbon therein, and also permitting them to be readily cleaned. The dip-pipe which connects with the stand-pipe of the superheating-retort extends down into the hydraulic main a less distance than do the dip-pipes which connect with the stand-pipes of the generating-retorts. This results in producing the light and heavy seals previously referred to.

To clean the stand-pipe of the superheating-retort, the door of the upper compartment is opened and a rod is passed up into the stand-pipe.

The oil-gas-generating retort is connected with the air-pressure feed-tank L by an intermediate pipe, *g*, connecting with its rear upper portion. An inclosing-pipe, *h*, surrounds this connecting-pipe, and an annular packing of asbestus, *l*, is interposed between the two pipes. The oil-conducting pipe is in this manner protected from the heat, and also is prevented from having deposits of carbon accumulated therein. This oil-pipe passes from the retort up through the arch to the oil-tank, and may be provided with valve mechanism. The inclosing-pipe *h* is seated on the oil-retort within a ring-setting, *m*, and packing *n* secures it in position.

The air-pressure feed-tank connects with a suitable oil-pump and air-pump.

The hydraulic main is provided with a door, *p*, at the lower portion of one end, for purpose of readily cleaning the main.

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

1. The combination, with generating-retorts, stand-pipes, and dip-pipes, which latter extend a considerable distance into the hydraulic main, of a superheating-retort connected by intermediate pipes with the generating-retorts, a stand-pipe, and a dip-pipe, which latter extends a less distance into the hydraulic main than do the dip-pipes of the generating-retorts, substantially as set forth.

2. The combination, with an air-pressure feed-tank and an oil-retort, of a connecting-pipe provided with an inclosing-pipe and an annular packing of asbestus interposed between the two pipes, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of October, 1879.

GEORGE RAMSDELL.

Witnesses:
HARRY LENON,
MARTIN OMELIA.