A. P. PITKIN.

Gas Retort.

No. 34,773. Patented March 25, 1862.

Fig. 1

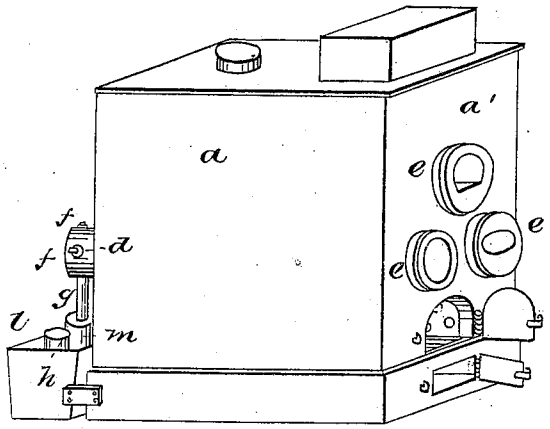


Fig. 2. a

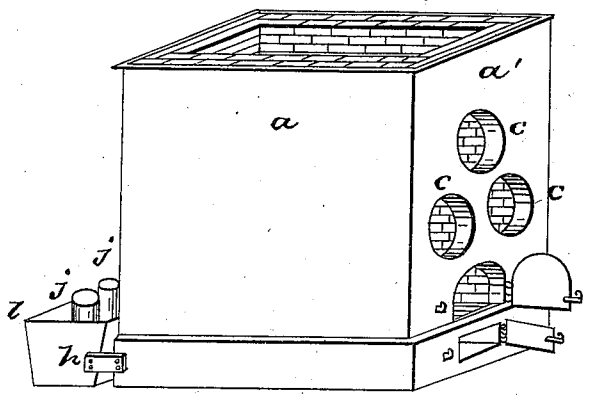


Fig. 3

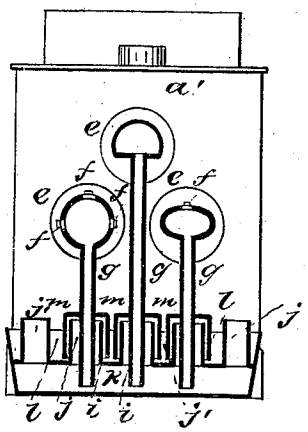


Fig. 4.

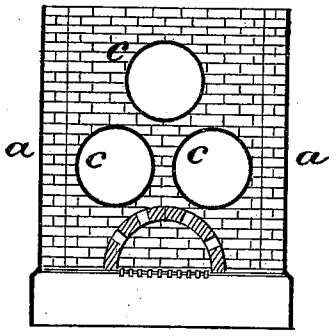


Fig. 6.

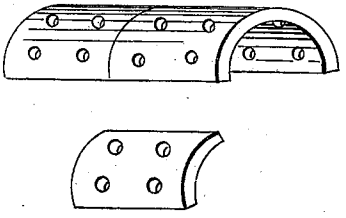
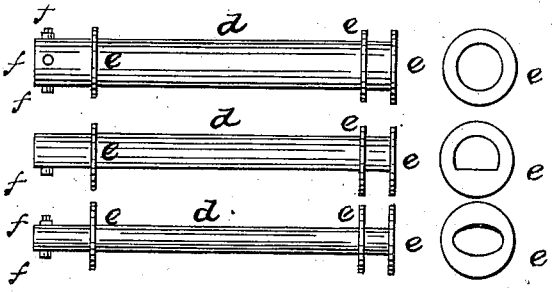


Fig. 5.



Witnesses:

Helen Grant

Mary Grant

Inventor.

A. P. Pitkin

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ALBERT P. PITKIN, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. **34,773**, dated March 25, 1862.

To all whom it may concern:

Be it known that I, ALBERT P. PITKIN, of Hartford, county of Hartford, and State of Connecticut, have invented a certain new and useful Improvement in Gas Apparatus; and I do hereby declare that the same is described and represented in the following specification and drawings.

To enable others skilled in the art to make and use the said improvement, I will proceed to describe its construction and operation, referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this improvement consists—

First, in making the front and back plates thereof with one or more collars, shaped cylindrical or otherwise, (and enough larger than the retorts to admit of its being removed bodily through said collars, however much it may expand from use,) cast or made onto the said plates and projecting inward the depth or width of the brick-work, first, for holding up the retort; second, for the retort to slide back and forth in when expanding and contracting, and, thirdly, to obviate the necessity of removing and replacing the fire-brick when turning over the retorts, as in the old way, where there are no collars and the brick-work is laid up around the retort, and, further, to prevent the brick-work adhering to the retort, thereby facilitating the turning over of the retort when necessary to use another side.

Second. In making the retorts with one or more flanges or rings, shaped cylindrical or otherwise, (and of sufficient diameter to fill the collars,) cast or put into the retorts, first, for the purpose of filling the collars and holding up the retorts, and for the purpose of allowing any shaped retort, whether round, oval, or D shape, being placed in the same machine by simply having the external shape of the flange or ring of each retort of the same size and shape; thirdly, to prevent the general deformity of the retort (by expansion from use) interfering with its removal, and, further, in connecting the retort with the condenser or cooler by means of a sealed or liquid joint, thereby allowing the expansion and contraction of each retort (as one may heat more than the others) without interfering or causing any other retort to leak in the connecting-joint to the condenser, as is the case where a number of retorts are firmly fastened to the condenser, and, further, the facility with which each joint is broken to remove or turn over a retort to be burned on another side without any gas escaping, even when the other retorts are in use.

In the accompanying drawings, Figure 1 shows a perspective view of the machine complete. Fig. 2 shows a perspective view with the top plate and the retorts removed therefrom, showing the brick-work and the collars projecting inward from the plate to the inner surface of the brick-work. Fig. 3 shows the back side of the machine with the condenser or cooler attached thereto. Fig. 4 is a sectional view showing the sides and end walls of brick-work built up inside of the plates or case and around the said collars formed on the front and back plates, also the grates and the arch fire-brick over the grates. Fig. 5 shows the retorts made round, oval, or D shape, with their flanges *e*. Fig. 6 shows the arch fire-brick.

The body of this machine is formed of four metallic plates *a*. The front and back plates *a'* are provided with proper collar-openings *c* to receive and hold the retorts *b*, and are to be made of sufficient depth or projection inward from the plate to receive the width of the brick used for bricking up or lining up on the inside and around the said collars *c* formed on the plates *a'*.

d are the retorts, made round, oval, or D shape, or they may be made any other desired shape, having flanges or rings *e*, made cylindrical shape or otherwise, and of sufficient diameter to nearly fill up the collar-openings *c*, made for holding up the retorts *d*, and to allow of any shape retorts being used, and to allow for the bulging or springing of the retorts from the effect of heat, &c.

f are bosses made on and near the ends of the retorts to receive the conducting-tube *g*, which conducts the gas from the retort into the condenser or cooler.

h is the condenser or cooler, made with flaring sides (not necessarily) and flat bottom, and at about mid-height therein is made a division-plate *i*, with tubes *j* elevated from the plates *i* (and over the openings in said plates) more or less in height, as desired, so that the chamber or lower compartment *k* will be air or gas tight when the upper ends of the tubes *j* are closed, and the upper compartment *l* is

to be made a water-seal up to the top edge thereof.

The conductor-tubes *g* are provided with reversed cups *m*, so that when the lower end of the conductor-tubes *g* is placed down through the tube *j* into the lower compartment of said cooler and the reversed cups *m* thereon is placed over the tube *j* and nearly resting on the middle plate *i* the upper end of the tube *g* can be readily screwed into one of the bosses *f* and the upper compartment filled (or nearly so) with liquid, forming what I call a "water-seal" or "liquid joint." Thus it will be seen that the retorts may be quickly and easily removed and replaced by simply disconnecting the conductor-tube *g* from the end of the retort and another retort replaced therefor in a very short space of time; and, further, so that the gas, when made and conducted into the cooler, may also be conducted away therefrom into the reservoir (through the tubes *j'* by reversed cup *m* and tube *g* in the same way it is conducted into the condenser) without the use of any packing to secure the conducting-tubes to the cooler or condenser or to prevent the gas escaping therefrom.

The advantages claimed to be derived from the use of this improvement are, first, the facility with which a set of retorts may be removed and replaced, the whole being done in less than one hour without even waiting for the machine to cool, thereby greatly lessening the liability to be out of gas; second, the cheapness with which the change is made, the necessity of employing a mason being entirely obviated; thirdly, the ease with which an old retort is removed from the works after being greatly expanded or bulged by use, without even removing a brick or part of works, the collars being sufficiently large to admit of its being removed. The remaining portion of the work is executed much in the ordinary way.

I have endeavored to show the nature, construction, and advantage to be derived by the use of this improvement to enable a person skilled to make and use the same.

What I claim, therefore, and desire to secure by Letters Patent, is—

1. Making the front or back plate (one or both) with one or more collars *c* cast or put onto them, cylindrical shape or otherwise, and sufficiently large to admit of the retorts being removed when bulged or expanded from use, substantially as described.

2. Making the retorts *d* with one or more flanges or rings *e* cast or put onto them, cylindrical shape or otherwise, and sufficiently large to fill the collars on the plate *a'*.

3. Forming an expansion-joint for retorts by means of a liquid joint on the condenser or cooler, substantially as shown and described.

In witness whereof I have hereunto set my hand and seal this 31st day of January, 1862.

A. P. PITKIN. [L. S.]

Witnesses:

HELEN GRANT,

MARY GRANT.