

H. G. Ludlow,

Manf. Gas.

No. 107,208.

Patented Sept. 6. 1870.

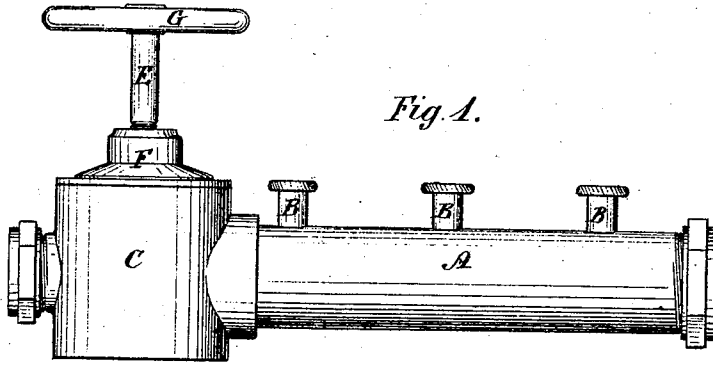


Fig. 1.

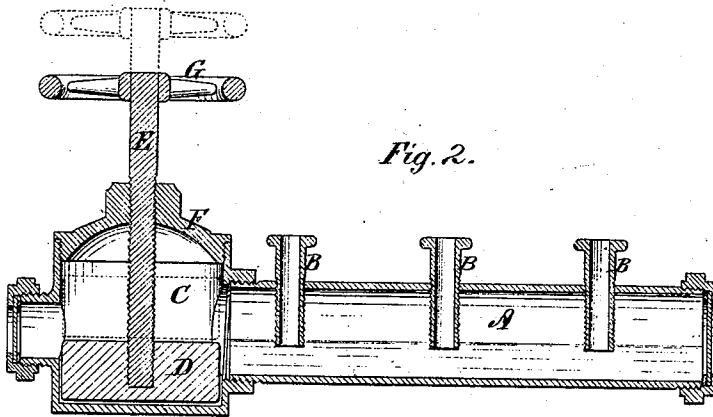


Fig. 2.

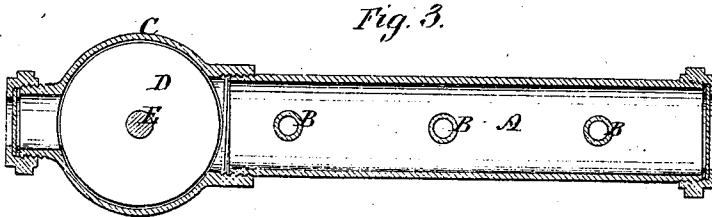


Fig. 3.

Witnesses.

Geo. H. Pearson.

J. A. Clarke.

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Henry G. Ludlow, Inventor.

By his Attorneys,

Wofferman & Johnson.

United States Patent Office.

HENRY G. LUDLOW, OF TROY, NEW YORK.

Letters Patent No. 107,208, dated September 6, 1870.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY G. LUDLOW, of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Apparatus for the Manufacture of Illuminating-Gas; and I do hereby declare that the following is a full, clear, and exact description of its construction and mode of operation, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing which makes part of this specification, and in which—

Figure 1 represents an elevation of the hydraulic main, and a portion of its dip-pipes, of a gas apparatus, embracing my improvements;

Figure 2 represents a vertical section; and

Figure 3, a horizontal section of the same.

My invention relates to a method of relieving the retorts of pressure in the manufacture of gas; and

It consists in alternately raising and lowering the level of the same body of water or tar, or both, in the hydraulic main for the purpose of sealing and unsealing the dip-pipes in the operation of charging or withdrawing the charge from the retorts without changing or removing the sealing-fluid from said main, thereby using the same fluid continuously and dispensing with the necessity of having to draw it therefrom or to replenish the main with fresh water every time the dip-pipes are sealed to charge or to withdraw the charge of the retorts. Moreover, by thus using the same body of fluid as the sealing and unsealing medium, the tar which is formed from the coal and passes into the main with the gas, finally takes the place of the water or other fluid used at the commencement of the operation, and thus the roasting process is made the means of producing and supplying the sealing-fluid in the main, because the tar will accumulate in the main and take the place of the water as it decreases, (by evaporation or otherwise,) and will be supplied and maintained always in sufficient quantity to have an inflow and an outflow in the same main to produce the desired effect without removing it therefrom or increasing its bulk by outward supply.

The accompanying drawing represents the hydraulic main of a gas apparatus to which my improvement is applied, and, as the retorts and their connection with the main may be of any suitable construction and arrangement, the representation and description of the entire apparatus are not deemed necessary to enable a skillful artisan to apply my improvement.

The hydraulic main A and its dip-pipes, B, are constructed and connected with the retorts, so as to communicate with each other in the usual manner.

The relieving-apparatus consists of a chamber or section, C, connected with the main and forming part thereof, within which a plunger, D, is arranged, so as

to be elevated and depressed. This auxiliary chamber C, for convenience, may be arranged at one end of the main, so as to form a continuation thereof, or may be inserted at one or more points in the main, or it may be arranged at the side and communicate therewith by branch pipes and the plunger D made to work in said chamber, so as to increase or diminish the height of the liquid in the main.

In the example shown, this is accomplished by a screw-stem, E, to which the plunger is attached, and, as the screw-stem passes through a female screw in the screw-cap F of the chamber C, it is obvious that turning a hand-wheel, G, of the stem E to the right, will cause the plunger to displace the liquid in the chamber in a proportion equal to its area and cause it to flow into the main and rise above the dip-pipes, so as to submerge and seal their open ends, and thus cut off communication between the main and the open air when the lids of the retorts are removed, and upon turning the handle to the left the plunger will be withdrawn, as shown by dotted lines in fig. 2, and the liquid will flow back again into the chamber and occupy the space vacated by the plunger and bring its level below the ends of the dip-pipes, thus opening communication with the retorts to allow the gas to pass more freely into the main. In this way the same body of the fluid in the main is used over and over again for the purpose of sealing and unsealing the dip-pipes, and, as this is done by the alternate projection or immersion and withdrawal of a body into and from said fluid, very little time is lost in making this change; and, moreover, the use of the same body of liquid to produce different levels in its bulk in relation to the dip-pipes, saves much time which would be occupied in drawing off and replenishing the liquid to accomplish this result, besides being much surer in its operation, there being no small valves or vents to be obstructed.

In filling the hydraulic main to commence making gas, the plunger is lowered to the bottom of the chamber and the water is introduced until the lower ends of the dip-pipes are submerged to the proper depth. The retorts are then charged with coal and closed, when the plunger is withdrawn and the dip-pipes uncovered, and, communication with the retorts being free, the pressure therein is relieved and the gas and tar pass into the main as fast as formed from the coal or coke. This communication, while relieving the pressure, prevents, to a great extent, the formation of fixed carbon in the retorts. The plunger may be operated by a lever or other suitable means. The gas passes out of the main by a supply-pipe in the usual manner. The surplus tar from the retorts will pass out of the main through outlets provided for that purpose in any convenient manner.

I am aware of George A. McIllhenny's patent of

June 18th, 1867, for preventing the formation of carbon in the retorts in the process of manufacturing illuminating-gas, and for sealing and unsealing the dip-pipes, and therefore do not claim said invention.

Having described my invention,

I claim—

1. The fluid in the main caused to maintain different levels therein for the purpose of sealing and unsealing the dip-pipes by means of a plunger, or its equivalent, projected into or against the body of the fluid and withdrawn therefrom, as herein described.

2. In combination with the hydraulic main A of a gas-manufacturing apparatus, an auxiliary receiving

and displacing chamber, C, for the fluid in said main, and a plunger, D, or other device operating as herein described.

3. In a hydraulic main, A, having sealing and unsealing dip-pipes, B, using the same body of liquid continuously to seal and unseal said pipes for the purpose described, without drawing off said liquid from the main or replenishing it to accomplish such result, as described.

In testimony whereof I have hereunto set my hand.
Witnesses: HENRY G. LUDLOW.

M. D. SCHOONMAKER,
CHAS. H. HARTNEY.