G. DOUTY.

SEAL FOR DIP PIPE IN GAS WORKS.

No. 111,440. Patented Jan. 31, 1871.

Fig. 1.

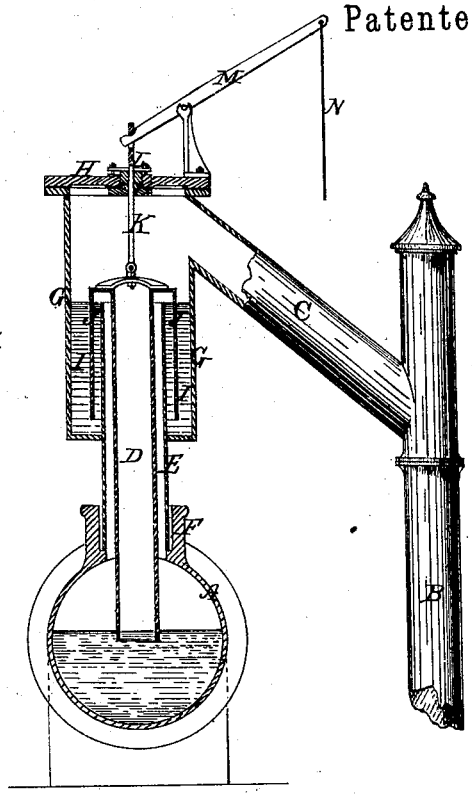
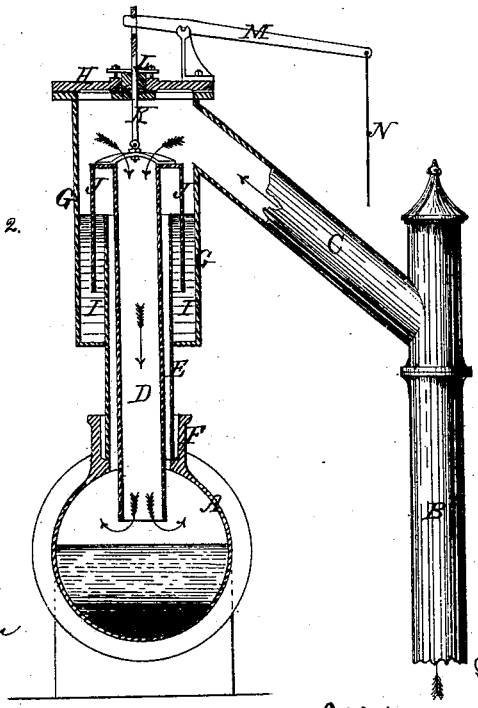


Fig. 2.



Witnesses.
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Letters Patent No. 111,440, dated January 31, 1871.

IMPROVEMENT IN SEALS FOR DIP-PIPES IN GAS-WORKS.

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

I, GRAFTON DOUTY, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Hydraulic Seals for Apparatus for Manufacturing Illuminating-Gas, of which the following is a specification.

In the manufacture of illuminating-gas it is of great importance to prevent the formation of carbon in the retort, caused by the back pressure produced therein in charging and withdrawing the charge therefrom.

It is the object of my invention to provide safe and convenient means to avoid this objection in gas-works; and

It consists in combining with a movable dip-pipe an upper sealing-vessel or reservoir for the purpose of obtaining a sealed joint for the upper end of the dip-pipe, whether the latter be sealed or unsealed, with the retort.

The accompanying drawing represents vertical sections of an hydraulic main, showing one of the movable dip-pipes in the position which it occupies in relation to the hydraulic main and upper seal when sealed and unsealed with said main.

As my invention relates to the means of sealing and unsealing the dip-pipes of gas-works, only so much of the apparatus as illustrates this feature is represented in the drawing, in which—

A is the hydraulic main, connected with the retort by the stand-pipe B and bridge C, in any suitable manner.

The bridge C is not connected to the dip-pipe, but communicates with a vessel or chamber, which also communicates with the main, and within which the communicating dip-pipe D is arranged. This chamber is cast or otherwise formed in two sections, one within the other.

The inner one, E, is connected to the hydraulic main by a stuffing-box, F, and the outer one, G, forms a part of the inner one E, and is closed by a cap-plate, H, packed in any suitable manner.

The inner pipe or chamber E extends into the outer one, and, being of less diameter, forms an annular chamber, I, which is in constant communication with the hydraulic main and the retort. This annular chamber is kept constantly filled with the drip or tar flowing with the gas from the retort, the surplus of which overflows and passes into the main through the inner pipe or chamber E.

The upper end of the dip-pipe D is provided with an inverted cup, J, which, projecting always below the surface of the tar or water in said annular chamber I, forms a perpetual seal to the upper end of the dip-pipe, whether its lower end be sealed or unsealed with the hydraulic main.

The distinguishing feature, therefore, of my invention consists of a liquid-seal for the upper end of a movable dip-pipe, whether produced by the annular chamber I or by a reservoir of any construction or arrangement in communication with the hydraulic main.

The dip-pipe is open at both ends and extends within the hydraulic main and the upper sealing-chamber, and is suspended, by a connecting-rod, K, passing through a stuffing-box, L, in the cap-plate H of the reservoir, and connected to a lever, M, pivoted to a standard on said cap, and controlled by a connecting-rod, N, (which may be hooked to the stand-pipe,) by which the dip-pipe D is raised and lowered to seal and unseal the main, and limited in such movement.

In Figure 1 of the drawing the main is represented as sealed, and in Figure 2 as unsealed, in both of which positions its upper end is represented as being sealed by the upper reservoir.

The dip-pipe, while serving as the means for opening communication between the retort and hydraulic main, also serves as the means for cutting off such communication, and in this way furnishes a simple and safe method of controlling the communication of the retort with the apparatus in charging and withdrawing the charge therefrom in the manufacture of gas, and thus relieves the retort of the cause which, in a short time, produces its destruction.

The upper sealing-chamber may be supplied with water in any convenient manner, or may receive its supply of tar from the retort. In the latter case it will be self-supplying, and thus render attention unnecessary.

The hydraulic main is kept supplied with sufficient water or tar to allow the dip-pipes to be submerged therein, when down, when the doors of the retort are open to withdraw or charge the retort; and the movement of the dip-pipes to unseal the hydraulic main is effected without the least binding or liability to clog or stick by the accumulation of gum or tar thereon, thus rendering their adjustment perfectly easy at all times.

The weight of the dip-pipe effects its descent to seal the main when the connecting-rod N is unhooked.

Having described my invention,

I claim—

1. In hydraulic seals for gas-works, a movable dip-pipe, D, having a liquid-seal for both its upper and lower ends, as described.

2. A movable dip-pipe, D, for sealing and unsealing the hydraulic main A of gas-works, having a perpetual liquid seal at its upper end.

3. A liquid-seal for the upper end of a movable dip-pipe, supplied with such sealing-element by the escaning tar from the retort, as described.

4. The inverted cup J of a movable dip-pipe, D, in combination with the sealing-chamber I and the hydraulic main, with which said chamber communicates, as described.

5. The combination of the upper liquid-seal and hydraulic main with a movable dip-pipe or pipes and a gas-retort, as described.

In testimony whereof I have hereunto signed my name.

GRAFTON DOUTY

Witnesses:
W. H. MILLER,
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