J. DITTMAR.

DIP-PIPES FOR GAS APPARATUS.

No. 191,121. Patented May 22, 1877.

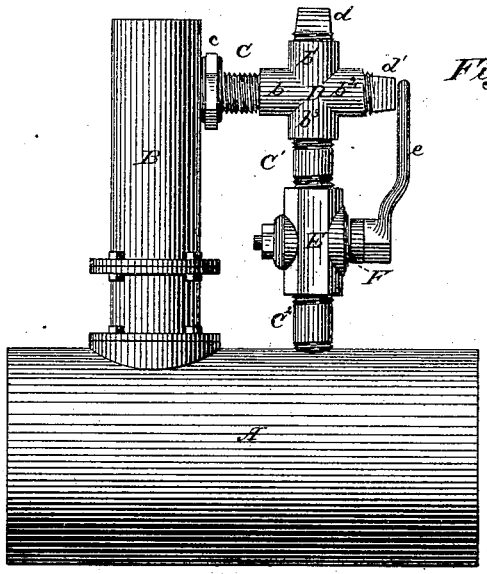
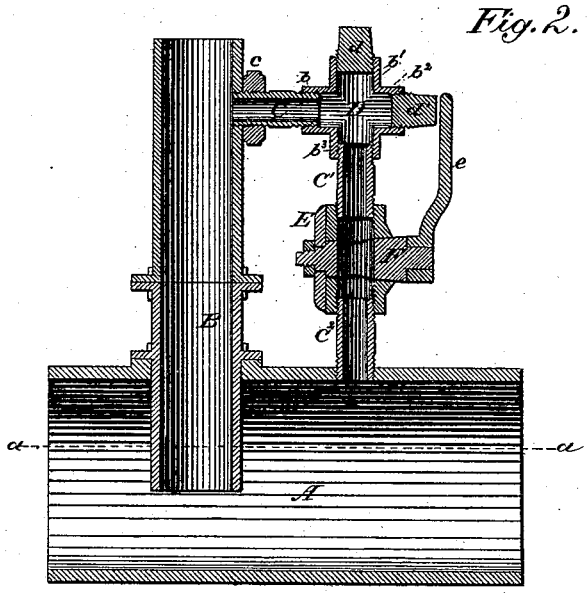


Fig. 1.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JUSTUS DITTMAR, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN DIP-PIPES FOR GAS APPARATUS.

Specification forming part of Letters Patent No. **191,121**, dated May 22, 1877; application filed April 9, 1877.

To all whom it may concern:

Be it known that I, JUSTUS DITTMAR, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Improvement in Dip-Pipes for Gas Apparatus; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is the avoidance of back pressure in the retorts for the manufacture of illuminating-gas; and the invention which I have made consists in a peculiar "by-pass," having a cut-off leading from the dip-pipe into the hydraulic main, constructed, arranged, and operated as hereinafter more minutely explained.

In order that those skilled in the art may know how to make and use my improvement, I now proceed to describe the same, having reference to the drawings, in which—

Figure 1 is an elevation, showing a portion of a hydraulic main with my by-pass in position; and Fig. 2 a central vertical section of the same.

Like letters denote the same parts in each figure.

A represents the hydraulic main, (the water-line in which is denoted by *a*,) into which the dip-pipe B enters, in the usual way, and extends below the water-line, as is also usual. Into the dip-pipe there is tapped a small pipe, C, having screw-threads upon its exterior, and extending out about a couple of inches at right angles, and entering, with a screw-thread, a cruciform shell or coupling, D, having four arms, b b^1 b^2 b^3, each extending a short distance from the center. The outer end of the pipe C enters the arm b, and the inner end enters the dip-pipe, and is further secured therein by a jam-nut, *c*. The ends of the arms b^1 b^2 are each closed by a screw-plug, d d', and another short pipe, C^1, screwed into the arm b^3, and therefore stands in a vertical position. The lower end of this pipe C^1 is screwed into the top of a shell or coupling, E, and still another short pipe, C^2, extends from the bottom of the shell, and is screwed into the same and into the hydraulic main, passing only through the exterior of the same. In this shell E is placed an ordinary round waycock, F, having a lever-handle, *e*, adapted to be worked by wires or other suitable connections from the floor of the retort-house.

In operation the gas, when passing off from the retorts through the ordinary stand and bridge pipe into the dip-pipe B, will not pass down the said pipe and through the water, but will enter the open passage in the by-pass, composed of the pipes C C^1 C^2 and their intermediate connections, and out of the hydraulic main above the surface of the water contained in it.

In the ordinary construction the back pressure of the gas from the holder comes within the hydraulic main, and fills the same, and there checks and holds in suspense or equilibrium the gas coming out of the retorts, wherefore such out-coming gas cannot escape fully from the retorts, and deposits in the form of hard carbon upon their interiors.

By my construction the back pressure is unable to enter such hydraulic main, because there is within the same a positive, direct, and strong current of heated gas unimpeded by the water-seal, which enters by the by-pass, and passes through the hydraulic main above the water, and prevents the back-pressure gas from entering the hydraulic main, and, of course, from impeding the flow of gas from the retorts.

It is understood that in the foregoing operation the cock F is placed so as not to obstruct the passage of gas through the by-pass. Whenever it is necessary to draw the charges from the retorts and recharge them, the cock F is turned so as to cut off the passage in the by-pass. The back pressure at this period, when there is no outward gas-pressure, would be forced to fill the hydraulic main under considerable pressure, and to penetrate the water-seal, which affords a sufficient resistance, and practically, in the few minutes which serve for drawing the charges and in recharging, could not get down into the retorts. When the retorts are recharged and the lids put on, then the cock F is turned so as to open the by-pass, and allow the current of hot gas to flow, without interruption, into the hydraulic main.

I am aware that efforts have been made to

use by-passes in nearly the same position, and for the same purpose, and that several Letters Patent of the United States have been granted thereon. These inventions, so far as I am informed, have never come into practical use, for the reason, as I believe, that the by-passes were made nearly, or quite, as large as the dip-pipes, and because there was no practical way of keeping them from filling up with the various annoying residue resulting from gas distillation. I have made my by-pass very small, having invented means for keeping the same clean in a very convenient way, viz: by means of the screw-plugs *d d'*, which being removed there is a straight direct passage, of uniform size in one direction, into the dip-pipe, and a similar straight passage into the hydraulic main.

By making the by-pass very small, (and I have found by practical use that if the interior diameter of the by-pass is one-third of the interior diameter of the dip-pipe it is sufficient,) the ascending currents of gas from the retorts are forced into the by-pass under a greater pressure, and issue out of the same into the hydraulic main in a much stronger current, and the danger of filling up is obviated by the convenient means for getting at the interior of each part of the by-pass.

There are practical results of great importance arising from my particular construction, among which may be enumerated the cheapness of the device, the ease with which it may be adapted to existing gas apparatus without disturbing the same in position, the ease with which it may be repaired, and, finally, in its compactness.

Having thus described my improvement and some of its advantages, what I claim as new therein, and my own invention, is—

The by-pass described, with a horizontal and a vertical portion, each portion provided with screw-plugs, substantially as and for the purposes set forth.

This specification signed and witnessed this 4th day of April, 1877.

JUSTUS DITTMAR.

Witnesses:

R. N. DYER,

S. W. SEELY.