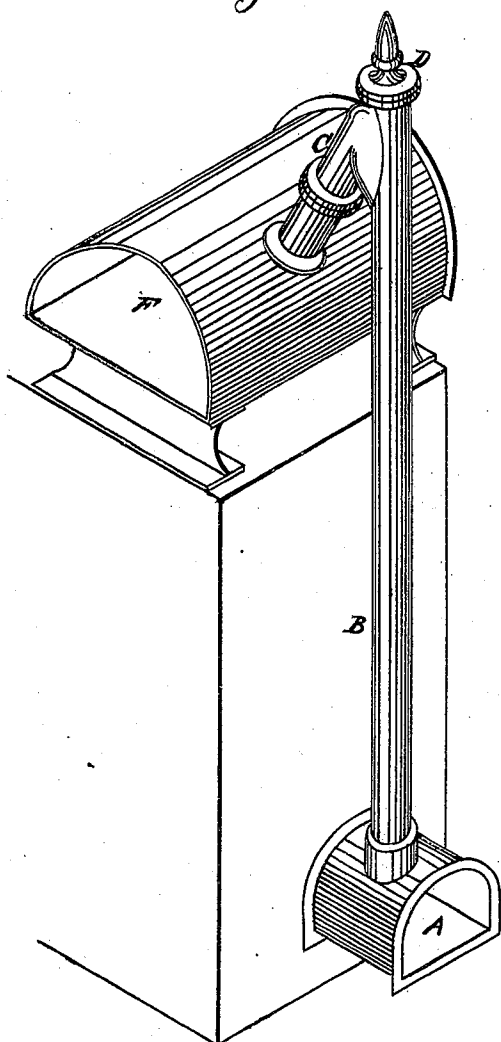


**J. R. SMEDBERG.**  
**Hydraulic Main and Retort Connections for**  
**Gas-Woks.**

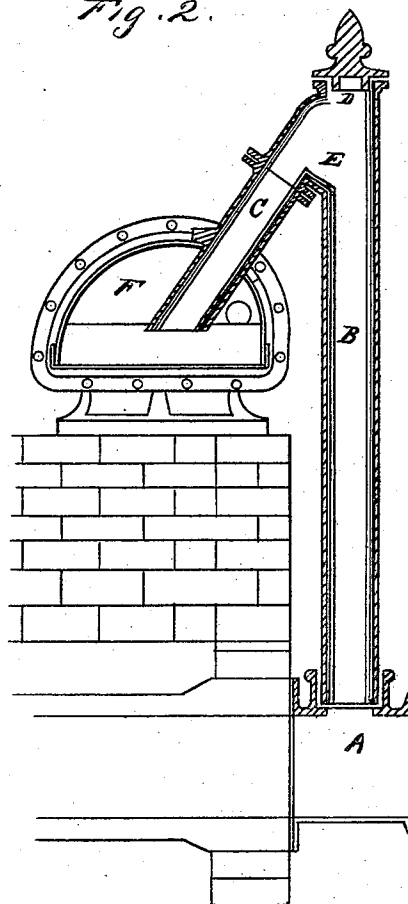
No.148,332.

Patented March 10, 1874.

*Fig. 1.*



*Fig. 2.*



**Witnesses**  
*John L. Borne*  
*C. M. Richardson*

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# UNITED STATES PATENT OFFICE.

JAMES R. SMEDBERG, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN HYDRAULIC MAIN AND RETORT CONNECTIONS FOR GAS-WORKS.

Specification forming part of Letters Patent No. **148,332**, dated March 10, 1874; application filed September 1, 1873.

### *To all whom it may concern:*

Be it known that I, JAMES R. SMEDBERG, of San Francisco city and county, State of California, have invented a Hydraulic Main and Retort Connection; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to an improved hydraulic main and retort connection for gas-works; and it consists, first, in a novel construction of the hydraulic main, by which I am enabled to secure a more effective operation and a clearer flow of the gas, with less liability to clog by an accumulation of tar. My invention further consists in the construction and union of the stand and dip pipes connecting the retort with the hydraulic main, and the construction is such that any luting which may fall into the pipes will be conveyed directly to the retort-mouth, where it can be easily removed.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my device. Fig. 2 is a sectional elevation.

A is one retort of a bench, this being sufficient to explain my invention. The stand-pipe B arises from the arch of the mouth-piece of the retort, and through this and the bridge-pipes the gas flows to the vertical dip-pipe in the ordinary method of construction. This necessitates the employment of two or even three plugs for the purpose of cleaning out the pipes, and freeing them from coagulated tar, &c.

My improvement consists in uniting the dip-pipe C directly with the stand-pipe, giving it such an angle from the vertical as shall be best suited to the amount of back pressure. This I have found to be about thirty-three (33) degrees for American gas-works, which have low back pressures.

At the top of the stand-pipe is the plug D, which is directly in the axis of the pipe, and also in such a relative position to the dip-pipe that when the plug is removed both pipes can be readily cleaned from the same opening.

A fruitful source of trouble in the old form was the clogging of the dip-pipe where it opened into the hydraulic main, and this was greatly augmented by the unavoidable dropping of waste luting from the plugs, this luting gradually building up a mound by accretion and the addition of coagulated tar. This is avoided in my device, partly by the shape of the hydraulic main, to be hereafter described, and partly by the construction of the dip-pipe and stand-pipe with the one plug, D.

An angle, E, is made where the dip-pipe joins the stand-pipe, and this insures the delivery of all the waste luting directly to the retort-mouth, from which it is easily removed at the time of discharging. The hydraulic main F is formed as a semi-ellipse, in section, the flat side being down, and this gives me several advantages, one of which is stiffness with lighter metal.

By the use of the flat bottom, the gas, as it flows from the angularly-placed dip-pipe, will sweep away the coagulated and ropy tar, thus lessening the chance of clogging. Another advantage gained is in having a tar-surface which increases with any back pressure thrown upon it, thus lessening the vertical depression of the tar-surface corresponding to a given column of tar thrown up the dip-pipe.

The whole device is much cheaper, fully one-third lighter, and, as shown above, much more efficient.

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

1. The hydraulic main F, constructed with its vertical sectional line semi-elliptical and a flat bottom, as set forth, so that its width shall increase below the tar level, as and for the purpose set forth.

2. In combination, with the stand-pipe B, the angularly-placed dip-pipe C, when constructed with the incline E, substantially as and for the purpose herein described.

In witness whereof I hereunto set my hand and seal.

JAMES R. SMEDBERG. [L. s.]

Witnesses:

JOHN L. BOONE,  
C. M. RICHARDSON.