

S. B. DARWIN.
Improvement in Apparatus for the Manufacture
of Coal Gas.

No. 123,682.

Patented Feb. 13, 1872.

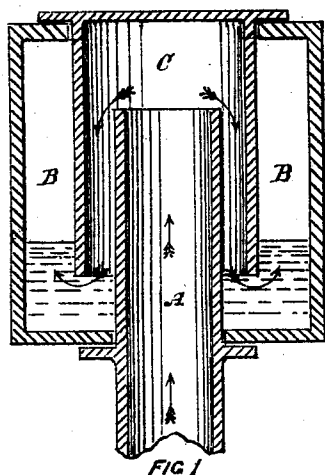


FIG 1

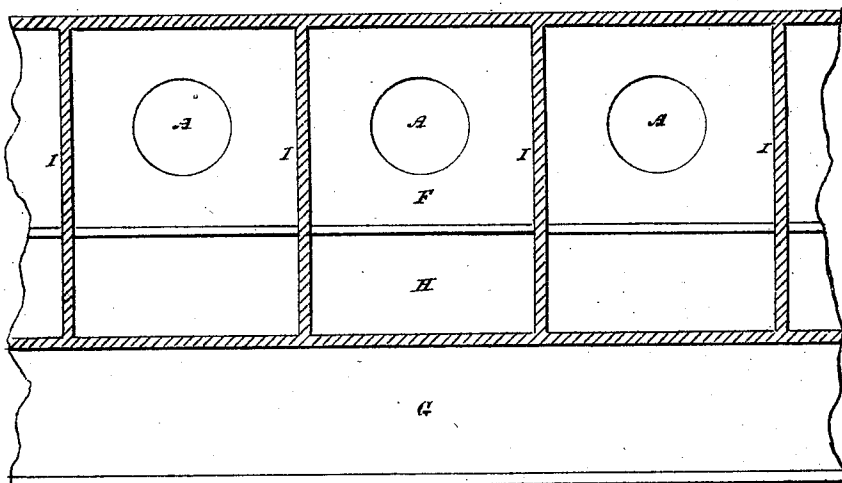


FIG 2

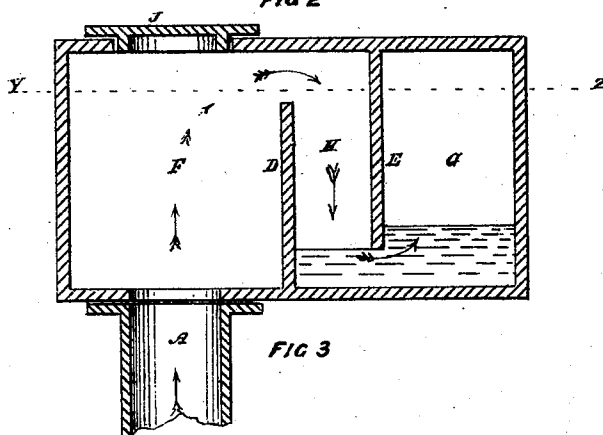


FIG 3

Witnesses.

Alfred Walker
William Stephens.

Scale 1/2 in. to a foot.

Samuel Brothers Darwin

UNITED STATES PATENT OFFICE.

SAMUEL BROTHERS DARWIN, OF SHREWSBURY, ENGLAND.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF COAL-GAS.

Specification forming part of Letters Patent No. 123,682, dated February 13, 1872.

To all whom it may concern:

Be it known that I, SAMUEL BROTHERS DARWIN, of Shrewsbury, in the county of Salop, England, have invented certain new and useful "Improvements in Apparatus used in the Manufacture of Gas;" and I do hereby declare that the following is a full and exact description thereof, regard being had to the accompanying drawing and to the letters of reference marked thereon.

The object of this invention is to prevent the choking of the ascension-pipes leading from the retorts to the hydraulic main; to afford a ready means for cleaning them out should they be accidentally stopped; and to relieve the retorts from irregular or undue pressure during the process of distillation.

For these purposes, the ascension-pipe A, in Figure 1, which is a transverse sectional elevation of the arrangement, instead of terminating in an H and dip pipe, is attached to and enters through and rises some distance above the bottom of the hydraulic main B, which may be fitted in either of the two following ways: First, by placing over and around the ascension-pipe A, within the hydraulic, a short dip-pipe, C. This dip-pipe is of a larger diameter than the ascension-pipe, and reaches from the top of the hydraulic, where it is fastened, to some distance below the top edge of the ascension-pipe. Secondly, by constructing the hydraulic main (as shown in Fig. 2, which is a sectional plan through Y Z of Fig. 3, the latter being a transverse sectional elevation of the same,) with two longitudinal division-plates, one plate, D, which may be called the rising plate, being fastened to the bottom and reaching to within a few inches of the top; while the other division-plate, E, which may be called the dip-plate, is fastened to the top and extends downward to within a few inches of the bottom. The hydraulic is thus divided longitudinally into two compartments, F and G, the space H between the two division-plates serving as a channel of communication from one to the other. Between the orifices in the bottom of the hydraulic, where the ascension-pipes enter, transverse division-plates I, Fig. 2, are fastened, extending from top to bottom, and from one side of the hydraulic main to the dip-plate E. In the top of the hydraulic main, and directly over the entrance of the ascension-pipes, (whichever of the two preceding arrangements of hy-

draulic main is adopted,) orifices are made, of sufficient size to allow of suitable instruments being readily introduced for the purpose of clearing the ascension if it should become necessary. When the retorts are in action, these orifices are closed by a suitable lid, plate, or plug, J. Water or other liquid is admitted in such quantity as to form a seal between the two longitudinal compartments of the hydraulic main, or between the dip and ascension pipes.

The gas formed in the retort passes up the ascension-pipe and under the edge of the dip-pipe into the upper part of the hydraulic, in the first arrangement of the said hydraulic, and thence to a counterbalanced gas-holder; and in the second arrangement the gas passes up the ascension-pipe into the front compartment of the hydraulic, over the rising plate, and beneath the dip-plate into the back longitudinal compartment of the hydraulic, and from thence to a counterbalanced gas-holder, which is used for the purpose of reducing the pressure on the retorts to a minimum, the exhauster being employed in both these arrangements to draw the gas from the holder and force it through the different apparatus necessary for its complete manufacture. Any ordinary counterbalanced gas-holder and exhauster will answer the purpose; it is therefore unnecessary to illustrate them in the accompanying drawing.

By these means, the liability to produce a vacuum in the hydraulic, and the probability of making bad gas in consequence, is greatly diminished, while the facilities offered for clearing the ascension-pipes constitute a great improvement upon the present system.

I claim—

1. The removable short dip-pipe C, having a larger diameter than the ascension-pipe A, and surrounding the same, and resting on the top of the hydraulic main, and extending down below the tops of the ascension-pipe, as set forth, whereby choking of the ascension-pipes is prevented, and undue pressure of the retorts avoided.

2. The interposition of a counterbalanced gas-holder between the hydraulic main and the exhauster.

SAMUEL BROTHERS DARWIN.

Witnesses:

ALFRED WALKER,
WILLIAM STEPHENS.