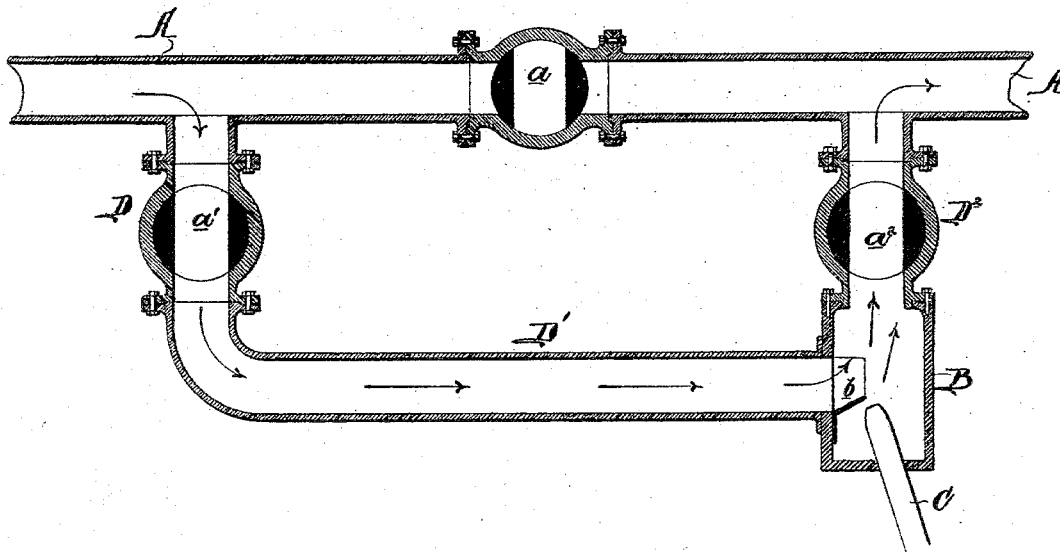


SAMUEL TRUMBORE.

Improvement in Apparatus for Exhausting Gas from Retorts.

No. 115,788.

Patented June 6, 1871.



WITNESSES {

*John Parker*  
*Geo. B. Harding*

*S. Trumbore*  
*by his Attor*  
*Howard Austin*

# UNITED STATES PATENT OFFICE.

SAMUEL TRUMBORE, OF EASTON, PENNSYLVANIA.

## IMPROVEMENT IN APPARATUS FOR EXHAUSTING GAS FROM RETORTS.

Specification forming part of Letters Patent No. 115,788, dated June 6, 1871.

I, SAMUEL TRUMBORE, of Easton, county of Northampton, State of Pennsylvania, have invented certain Improvements in Exhausting Gas from Retorts, of which the following is a specification:

### *Nature and Object of the Invention.*

My invention relates to the exhausting of gas from gas-retorts by means of steam-jets; and consists in obtaining the desired result by the use of simple and comparatively inexpensive devices, too fully described hereafter to need preliminary explanation.

The figure in the accompanying drawing represents a sectional view of my improved exhaustor for gas apparatus.

The exhaustor is connected as usual to a pipe, A, communicating with the retorts, and is intended for the same purpose as ordinary exhaustors—namely, to induce a current of gas through the said pipe A from the retorts, and thus reduce or remove the pressure of the gas from the latter. The exhaustor consists of a simple box or case, B, into which is introduced the end of a steam-pipe or nozzle, C, the said box communicating freely with the main pipe A at two points through pipes D, D<sup>1</sup>, and D<sup>2</sup>, arranged as clearly shown in the drawing. The main pipe A has a valve, *a*, which is closed when the exhaustor is in operation, and the pipes D and D<sup>2</sup> are also provided with valves *a*<sup>1</sup> and *a*<sup>2</sup>, which are opened when the valve *a* is closed.

The jet of steam from the nozzle C strikes the edge of an inclined lip, *b*, arranged within the exhaustor, and is spread by the same throughout the latter as it passes in the direction of the arrows toward the pipe D<sup>2</sup>. A partial vacuum is thus produced and maintained within the exhaustor, which induces a current of gas in the direction of the arrows through the main pipe A, and through the pipes D, D<sup>1</sup>,

and D<sup>2</sup>, and the exhaustor, the gas being thus withdrawn from the retorts and the pressure removed from the same.

If the exhaustor should become injured or inoperative from any cause the valves *a*<sup>1</sup> and *a*<sup>2</sup> can be closed and the valve *a* opened, in order to permit the gas to pass directly through the main pipe A; and the exhaustor is provided with a cap or plate which can be detached when it is necessary to obtain access to the interior of the same for purposes of repairs, &c.

I prefer to employ the lip or plate *b* in connection with the steam-jet, but good results can be obtained by the use of the jet alone. The box or casing might also in some cases be dispensed with, and the nozzle C be merely introduced into one of the pipes between the valves *a*<sup>1</sup> and *a*<sup>2</sup>, or directly into the pipe A.

My improved exhaustor is simpler in construction, cheaper, and more reliable and uniform in its operation than the pumps and other exhaustors in common use, and it will be seen that, as it is arranged within the pipes leading from the retort, it will not be disarranged by the removal of the retort for repairs or renewal.

### *Claims.*

1. The combination of the exhaust-pipe of a retort and a steam-pipe, *c*, arranged as specified.
2. The lip or plate *b*, arranged within the exhaustor in respect to the steam-pipe or nozzle C, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL TRUMBORE.

Witnesses:

W. H. HILDEBRAND,  
WM. H. CORNELL.