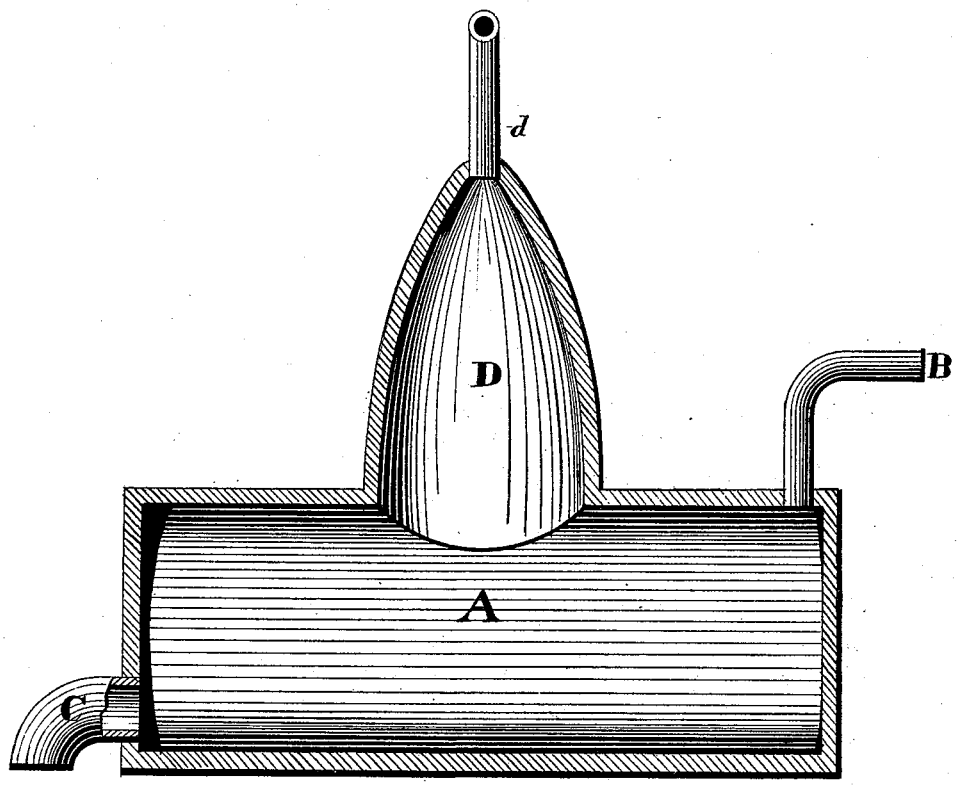
G. W. TODD.

GAS RETORT.

No. 188,553. Patented March 20, 1877.



WITNESSES

Ed. F. Nottingham

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UNITED STATES PATENT OFFICE.

GEORGE W. TODD, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF, T. F. GRUBBS, AND JOE T. SPEER, ALL OF SAME PLACE.

IMPROVEMENT IN GAS-RETORTS.

Specification forming part of Letters Patent No. **188,553**, dated March 20, 1877; application filed December 14, 1876.

To all whom it may concern:

Be it known that I, GEORGE W. TODD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Retorts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in retorts for manufacturing illuminating-gas, and is designed to afford a simple and economical mechanical apparatus for the destructive distillation of oil or other liquid hydrocarbonaceous matter.

My object is to make the retort of such a shape that the volatile matter thus distilled may rise from the body of the liquid into a receptacle above the main portion of the retort, and thus find a temporary receiver, in which it is held until discharged by the exit-pipe into the water-main or other connecting apparatus, the purpose to be effected being the better and more perfect separation of the tar and other substances obnoxious to a clear and good article of gas.

The drawings represent a longitudinal central section of a retort embodying my invention, in which the letter A designates the cylinder or barrel of the retort, which may be of any suitable size, and made of clay, iron, or other usual material. It is provided at the upper horizontal portion of one end extremity with a feed-pipe, D, and at the lower vertical portion of the opposite end extremity with the tar-discharge exit C.

These pipes, together with the gas-pipe *d* in the central upper portion or apex of the dome D, form no essential part of my invention, and may be made of size corresponding to the relative dimension of the main cylinder-body A, and as separate or made in the same piece with their respectively connecting parts. The dome D, placed centrally over the upper horizontal portion of the cylinder A, has free interior connection with the latter at their plane of junction, and is coniform or dome-shaped, having base engagement with the cylinder, and extending vertically upward at right angles to the same, with a constantly-decreasing or inwardly-projecting side.

It is preferably formed as part of, and in fixed connection with, the cylinder, though it would not be a departure from my invention if the two were made distinct, and thus adapted to be easily transported or in other manner handled. It is provided at its top or apex with the gas-exit conduit before mentioned, and, if desirable, I may coat or cover this dome, together with the cylindrical portion of the retort, with a refractory compound, consisting of the admixture of fire-clay and asbestus.

This coating of the dome, however, is optional, and not essential to my retort; but in all cases I prefer to protect the horizontal cylinder with this fire-proof composition, and thus either the entire retort cylinder and dome may be rendered refractory, or only the cylinder, which is necessarily exposed to a much greater intensity of heat from direct furnace contact.

It will be understood that the oil is fed into the cylinder by the pipe B, and upon suitable distillation of the same the tar, and other objectionable mineral products which constitute the solid residuum of the process, will escape through the discharge C, the gas flowing upward into the central dome as it disengages and flies off from the liquid body, where it is further subjected to the heating action of the retort before it finally passes out through upper exit *d*.

This retention of the gas in the retort so far removed from the oil both serves to more exhaustively distill the same, and also furnishes a temporary receiver, which affords advantages in the better production of the resulting gas. The central location of the dome and its connection with the cylindrical body, as described, all render it serviceable in the good and economical manufacture of the illuminating-gas.

Heretofore, among other ways, gas has been made in a double-chambered retort, which generates the gas-vapor in the lower chamber, and then passes it into an upper chamber,

where it is converted into permanent gas by being passed through a cellular packing; but

What I claim as new, and desire to secure by Letters Patent, is—

The retort constructed with a lower horizontal cylindrical chamber and an upper dome-shaped chamber, the two having uninterrupted interior communication, while the lower chamber is provided with an upper oil-feed pipe and a lower tar-discharge pipe, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 11th day of December, 1876.

GEORGE W. TODD. [L. S.]

Witnesses:

C. SHALER,

WILLIAM F. ROBB.