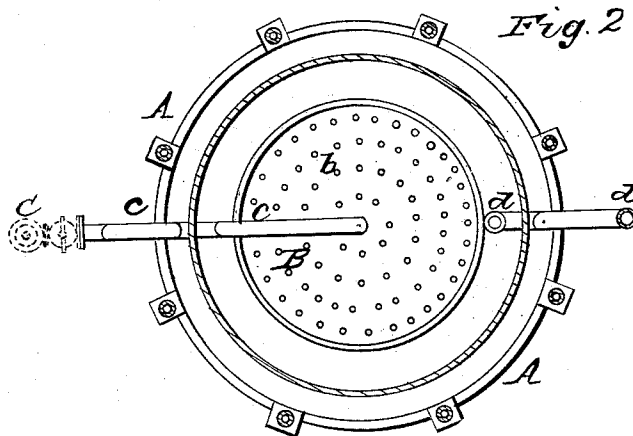
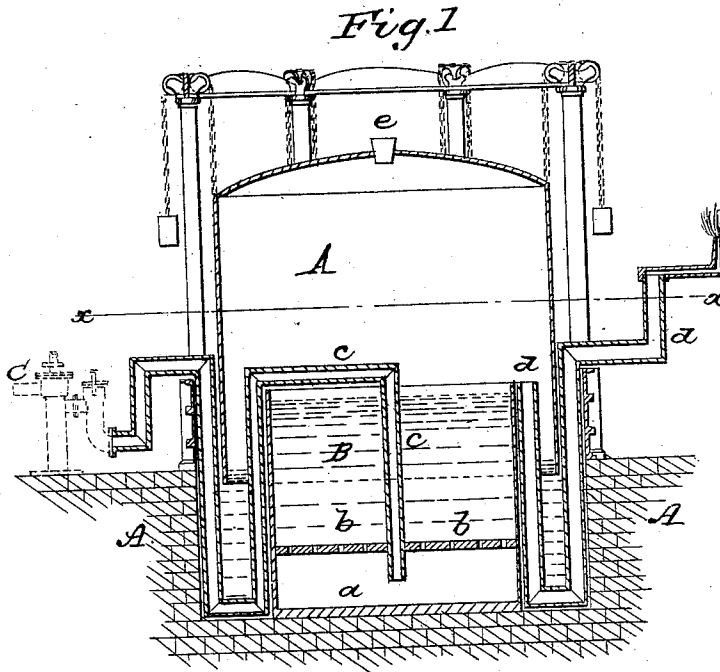


A. C. RAND.

Apparatus for Carbureting Air.

No. 62,364.

Patented Feb. 26, 1867.



Witnesses  
Alex. F. Roberts  
J. A. Service

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# UNITED STATES PATENT OFFICE.

ALONZO C. RAND, OF UNION MILLS, PENNSYLVANIA.

## IMPROVEMENT IN APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 62,364, dated February 26, 1867.

*To all whom it may concern:*

Be it known that I, A. C. RAND, of Union Mills, Erie county, Pennsylvania, have invented a new and Improved Method of Making Illuminating-Gas; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to make illuminating-gas from benzine and other hydrocarbon liquids by a very simple and compact apparatus, and in such a manner that no fire or other expensive process is employed.

The invention consists in the use of a tank, which is arranged inside of a gasometer of usual construction, said tank being almost filled with the hydrocarbon from which the gas is to be made. A perforated false bottom is arranged within the tank, so that a jet of air forced into the lower chamber of the tank will be divided into a number of small streams of air, which pass up through the benzine into the meter, whence the air may be drawn off at will.

By passing through the liquid, the air will have become sufficiently carbureted to be used as illuminating-gas; but if that is not the case, it may be either passed through the same tank again, or through another such apparatus, until it is sufficiently charged with carbon to answer the aforesaid purposes.

The said air may be forced into the tank by means of pumps or other apparatus, which may be so arranged that the air may, after having once passed through the hydrocarbon, be conveyed through said pump or other apparatus to the tank once more. It may also, for certain kinds of hydrocarbon liquid, be found desirable to pass a current of heated air into the tank.

In the annexed drawing my invention is illustrated, Figure 1 being a vertical sectional view of my improved apparatus; and Fig. 2, a horizontal sectional view of the same, taken on the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A A is a gasometer of usual description and construction. Within the same is arranged a stationary cylindrical tank, B, made of iron or any other suitable material. The same is provided with a solid bottom, *a*, and

with a false bottom, *b*, which is perforated, as shown in the drawings. A stream of air is forced into the lower compartment of the tank B through a tube, *c*, by means of a pump, C, or any other suitable apparatus. The air, while passing up through the benzine which is held in the tank B, is divided into small streams by means of the false bottom *b*, or by a rose attached to the end of the tube *c*, or by any other suitable apparatus, so that the air may be completely exposed to the liquid, being thereby enabled to absorb the largest possible quantity of carbon.

The air, when sufficiently carbureted by having been passed through one or more of these tanks, or repeatedly through the same tank, may be drawn off through a pipe, *d*, whence it may be conducted to proper burners for illuminating or heating purposes.

The tank B is placed within the gasometer A A at such a depth below the frost-point that the temperature of the water surrounding the said tank shall be uniform, thus keeping the temperature of the hydrocarbon uniform, preventing the vapors which may be generated at a low temperature condensing in the pipes leading to the burners.

The tank B is filled by pouring the liquid into it through a hole, *e*, arranged in top of the meter, said hole being closed air-tight when the tank is filled.

The liquid, when treated long enough, so that it does not give off any more carbon, is removed, and is an excellent illuminating-oil, of superior quality, as the lighter, dangerous portions are removed.

It will be noticed that this apparatus is not at all dangerous, no fire being used in connection with it, and all explosive materials being held in close iron vessels.

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

Placing the tank B, surrounded by water, within the gasometer A A in the earth below the frost-point, so that the vapors shall be generated at a low temperature, thereby preventing their condensation in the pipes leading to the burners, as herein set forth.

The above specification of my invention signed by me this 2d day of January, 1867.

ALONZO C. RAND.

Witnesses:

WM. F. McNAMARA,  
ALEX. F. ROBERTS.