

No. 716,757.

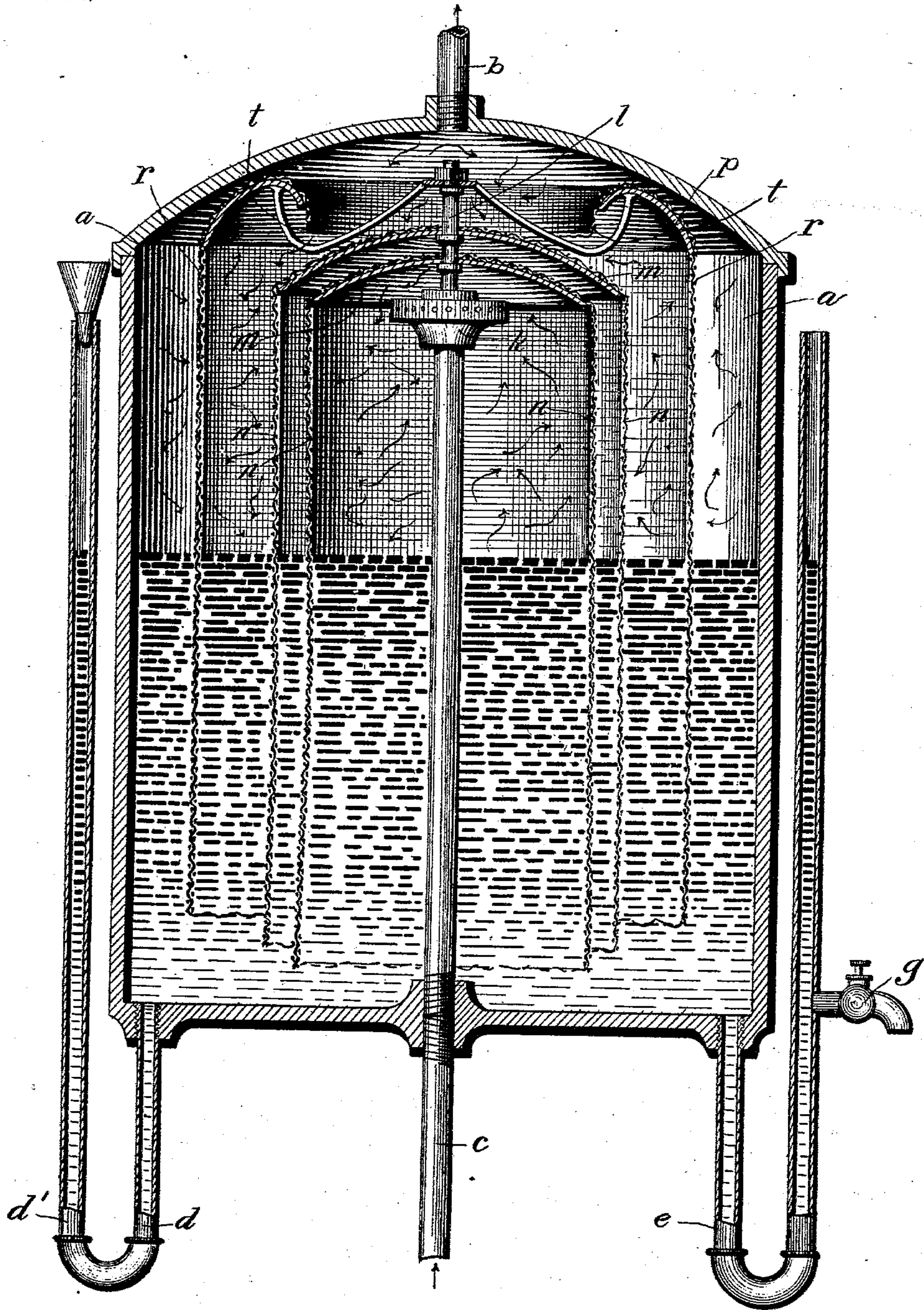
Patented Dec. 23, 1902.

W. J. RENWICK & J. HEATON.

GAS PURIFIER.

(Application filed Feb. 25, 1902.)

(No Model.)



Witnesses:

H. A. Boswell.
George M. Anderson.

Inventors-
Joseph Heaton
Ward J. Renwick,

By

G. M. Anderson
their Attorney.

UNITED STATES PATENT OFFICE.

WARD J. RENWICK AND JOSEPH HEATON, OF AUBURN, MAINE.

GAS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 716,757, dated December 23, 1902.

Application filed February 25, 1902. Serial No. 95,638. (No model.)

To all whom it may concern:

Be it known that we, WARD JAMES RENWICK, a citizen of the United States, and JOSEPH HEATON, a subject of the King of Great Britain, both residents of Auburn, in the county of Androscoggin and State of Maine, have made a certain new and useful Invention in Gas-Purifiers; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The drawing is a central vertical section through our invention.

The invention relates to apparatus for purifying gas; and it consists in the novel construction and combinations of devices, as hereinafter set forth.

The object of the invention is mainly to provide means for effectively removing impurities from acetylene gas without changing the gas-pressure.

In the accompanying drawing, the letter *a* designates the gas-purifying tank, in which is placed the purifying solution, above which the gas is collected, passing off from the top of the chamber by the distributing-pipe *b*. *c* is the gas-inlet pipe from the generator, this pipe extending up centrally in the tank to a point above the level of the surface of the chemical solution. Connected to the bottom of the tank is a U-form pipe *d*, having an upward extension *d'*, forming a water seal. Also connected to the bottom of the tank is a U-form pipe *e*, also having an upward extension and forming a water seal. The latter pipe is provided with a draw-off cock *g*, which is on the level of the bottom of the tank and serves to empty the same. The chemical solution is supplied to the tank through the pipe *d*, and the operations of drawing off and supplying the solution are accomplished without interfering with the gasway or gas-pressure or allowing unpurified gas to pass through the machine or producing an external gasway.

k represents the canopy-top or head of the inlet-pipe *c*, supported upon the same and having openings in its side or base portion

for the passage of the gas from said pipe. This canopy-top is preferably of convex form and is provided with a supporting-rod or upper extension *l*, terminating short of the cover of the tank, and on which are carried a series of two or more supporting disks or plates *m m*, spreading at different heights above and over the canopy-top *k* and parallel thereto. The plates or supports *m m* are located at different heights and are of gradually-increasing diameters, the lower plate *m* being of greater diameter than the canopy *k* and the plate above it of greater diameter than the plate below it. The plates *m m* are removable from the supporting-rod *l*, which should be provided with supporting projections or collars, and these plates, as well as the top *k*, are designed to carry the removable mantles *n n n*, which are of some textile or porous material usually having a strong affinity for the chemical solution in the tank below, into which the lower edges of the mantles dip. In this manner the mantles form a central and concentric gas-chambers having porous or capillary walls.

Above the series of mantles *n n* is located an annular convex bearing *p*, which carries a drip-mantle *r*, which extends from its contact with the solution up over the annular bearing and depends by its free end *t* over the upper mantle *n*, it being designed that the solution carried up by the mantle *r* through its capillary action shall drip upon the upper mantle *n*. By the action of this drip-mantle it is designed to aid in securing a constant change or movement of the chemical solution in the mantles *n*. The mantles being constantly saturated with the solution purify the gas passing through them, taking up the impurities, which are in turn washed down and fall to the bottom of the tank.

In this apparatus the impure solution can be removed from the tank and the tank cleaned without breaking the water seal. So, also, the replenishment of the solution can be effected without breaking the water seal of the supply-pipe. The operation of the purifying-mantles does not alter the gas-pressure. The mantles are constantly saturated by the solution, and the gas in passing through these mantles from chamber to chamber leaves its impurities on said mantles, from which the

impurities are washed down by the solution to the bottom of the tank. When the draw-off cock is opened to clean the tank and all the solution which can pass out has run off, 5 there will still be a water seal in the supply-pipe and a water seal on the draw-off pipe, and in this manner it is designed to avoid an external gasway. The purifying-tank can be emptied and refilled without interfering with 10 the passage of the gas through the tank.

Any suitable purifying solution may be used in the tank; but we prefer to use a solution composed of potassium or sodium hydroxid of varying strength to suit the carbid 15 capacity of the machine.

Having described this invention, what we claim, and desire to secure by Letters Patent, is—

1. In gas-purifying apparatus, the closed 20 tank, the inner mantle therein, and the outer mantle, having a depending upper end portion for discharge upon said inner mantle, substantially as specified.

2. In gas-purifying apparatus, the closed 25 tank, the gas-inlet pipe extending through the

bottom of said tank, and having a canopy or enlarged perforated head at its upper end, and an upper extension, the plates having a removable connection with said extension, the upper said plate having a skeleton-form 30 center, the removable mantles supported from said plates, the supply-pipe having a trap or water-seal connection with the tank, and the discharge-pipe having a similar connection with the tank, substantially as specified. 35

3. In gas-purifying apparatus, the tank, the gas-inlet pipe extending upwardly, and having a perforated gas-discharge portion or head, and an upper extension having supporting-collars, the removable supports resting 40 upon said collars, and the removable mantles resting upon said supports, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

WARD J. RENWICK.
JOSEPH HEATON.

Witnesses:

JAMES A. PULSIFER,
FOREST E. LUDDEN.