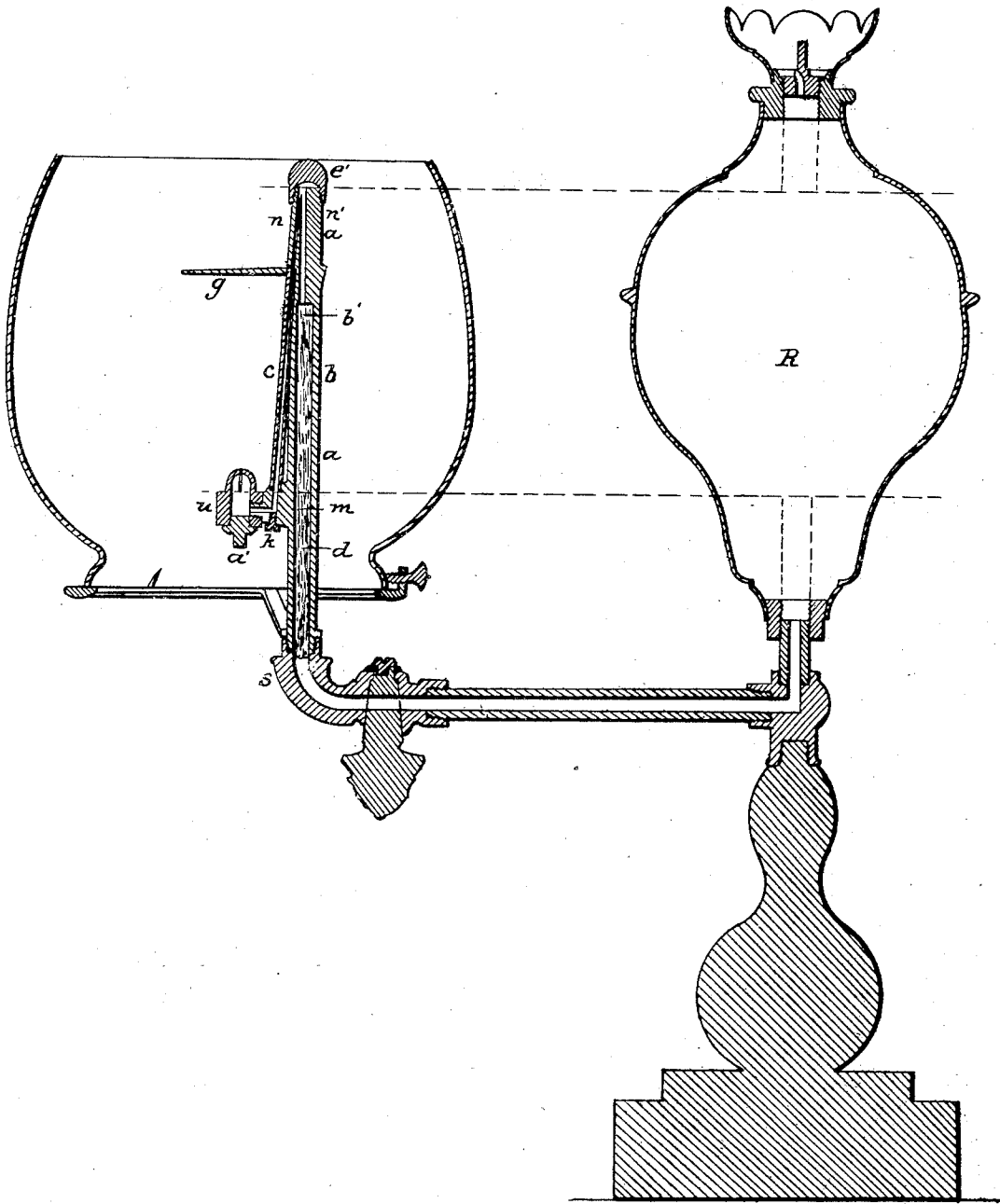


H. JOHNSON.  
Vapor Burner.

No. 30,578.

Patented Nov. 6. 1860.



Witnesses:  
*Chas. F. Rice*  
*Wm. H. Cannon*

Inventor:  
*Henry Johnson*

# UNITED STATES PATENT OFFICE.

HENRY JOHNSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

## VAPOR-BURNER.

Specification of Letters Patent No. 30,578, dated November 6, 1860.

*To all whom it may concern:*

Be it known that I, HENRY JOHNSON, of Washington, District of Columbia, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the usual manner of making, modifying, and using the same.

My invention consists in certain improvements in self-generating gas apparatus described and represented as follows.

The apparatus is designed for the burning of gas or vapor generated from the burning fluid known in commerce as spirit gas, or ethereal oil. The employment of this fluid in the various forms of self-generating apparatus hitherto known, has been attended with a considerable difficulty in preventing leakage. The reservoir has been elevated above the burner, so as to force the fluid through the packing in the generator by hydrostatic pressure and from the limp character of this fluid it has been found very difficult to get a stop cock for regulating the flow of the fluid, that was proof against leakage. The stop cock in common use for coal gas burners has been found entirely inadequate to such purpose, the pressure of the fluid frequently causing a troublesome leak. By the improvement about to be described I am enabled to dispense with the elevated reservoir, use the common stop cocks without leak and at the same time get a steady and brilliant light, and a more convenient and less expensive form of apparatus.

*a* is the generator consisting of two straight pipes *b* and *c*, the pipe *b*, containing the wick packing and *c* conveying the vapor or gas. The wicking *d* fills pipe *b* to the point *b'* when the pipe contracts to a smaller bore until it meets the passage into pipe *c* at the top as shown in the drawings, the two pipes *b* and *c* connecting in the screw cap *e'*. It will be seen that the passages of the pipes *b* and *c* terminate at the top nearly in conjunction so that they are covered and brought into connection readily through the cavity or space seen in the drawings on the under portion of the screw cap, thus insuring a perfectly tight and simple mode of uniting and opening

the pipes *b* and *c* for cleaning them and other purposes. The prolonged contracted part of the pipe *b*, in conjunction with the corresponding portion of the gas-pipe *c*, I call the elevator. This elevator or elevated gas conductor *n, n'* should always be so high that its upper end will be above the level of the fluid in the reservoir, so as to prevent an overflow of fluid to the burner. The pipe *c*, which according to my patent of 12th April, 1859, sustained the burner independent of the fluid pipe *b*, is now made to pass through a projection or lug piece *m* on pipe *b*, to which piece also the burner *u* is attached. The burner is provided with a separate screw plug *a'* for removal when it is to be cleaned. This construction has a three-fold advantage viz: It makes a firm support for the burner which it lacked before; it admits of cleaning the pipe *c* with greater facility and at the same time serves to convey heat from the burner direct to the packing tube *b* in conjunction with the generator *g* over the flame. The two pipes or passages *b* and *c* may be made in one solid piece if desired. The lower end of pipe *c* is closed by a plug *k* and when the cap *e'* is removed a wire or string is readily passed through its whole length and the pipe cleaned with great facility, and when the pipe *b* is unscrewed from *s*, it may be cleaned in like manner. These passages are apt to get foul and this has hitherto been a serious objection to this apparatus on account of the difficulty of cleaning them. By having them so as to be opened at each end the cleaning is easily effected.

The most important part of my improvement relates to the relative position of the reservoir and the elevator. Instead of elevating the reservoir *R* above the gas generator and the elevator I place it so that the upper part of the reservoir shall be near a level with the upper part of the gas pipe or elevator and so little above the top of the wicking that after burning for a time the fluid in the reservoir will be below this point. The lower part of the reservoir is about on a level with the burner, the two levels being indicated by red lines *x, x'*. From this arrangement it will be seen that the fluid which passes by the lowest point viz. the level of the burner is there heated and partially vaporized thus materially aiding the work of the generator or heater above the flame.

110

The material features of this arrangement are that the reservoir should be such that the lowest point of the fluid should be at or about the level of the burner and the highest point below the level of the top of the generator or gas pipes, thereby always insuring a sufficiency of pressure and yet not so much as to require any extra care to prevent overflow and leakage. The reservoirs in this class of generators are usually so high that the lowest point of the fluid is above the top of the wick packing. I am aware that reservoirs for lamps of various kinds have been placed on a level with the top of their wicks and also entirely beneath the burner, but am not aware that in any instance such a position of the fluid reservoir has been combined with a gas or vapor burner with an elevated wick and elevated gas pipes placed above the burner and regulated by a stop cock as in my improvement. Therefore what I claim as my invention

and improvement in the self generating gas or vapor burners is—

1. So placing the reservoir or fountain in relation to the burner, that the lowest point of the fluid shall be at or about the level of the burner, and the highest point below the level of the top of the generator or gas pipes  $b, c$  in the manner and for the purposes herein set forth.

2. Covering the upper ends of the gas pipes  $b$  and  $c$  by the screw cap  $e'$  constructed, as set forth so as to embrace the open ends of these pipes in one open common cavity in the cap and screw over them in the manner set forth.

3. The elevated conductor  $n, n'$ , rising above the highest level of the fluid in the fountain as set forth.

HENRY JOHNSON.

Witnesses:

CHAS. G. PAGE,

WM. H. HARRISON.