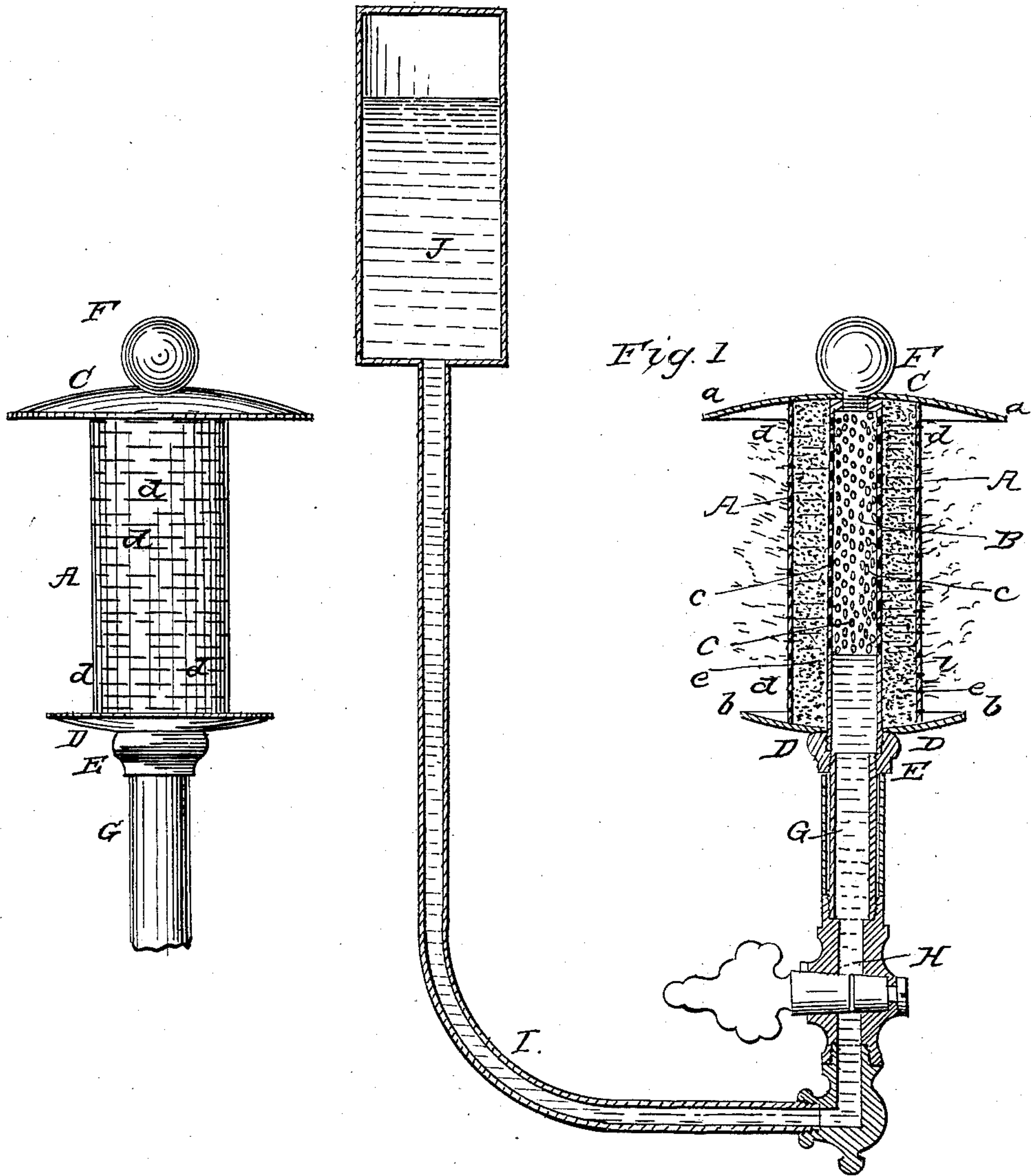


R. R. LEWIS.

Vapor Stove.

No. 31,466.

Patented Feb. 19, 1861.



Witnesses
Lewis A. Tucker
James Land

Inventor
Rufus R. Lewis

UNITED STATES PATENT OFFICE.

RUSSEL R. LEWIS, OF NEW YORK, N. Y.

VAPOR-BURNER FOR HEATING, &c.

Specification of Letters Patent No. 31,466, dated February 19, 1861.

To all whom it may concern:

Be it known that I, RUSSEL R. LEWIS, of the city, county, and State of New York, have invented a new and Improved Vapor-
5 Burner for Heating Purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification,
10 in which—

Figure 1 is a vertical central section of the burner and the supplying reservoir. Fig. 2 is an outside view of the burner.

Similar letters of reference indicate corresponding parts in both figures.

My improved burner is intended for burning the vapor of alcohol or other volatile hydro-carbon liquid, but more especially of alcohol, for cooking or other heating purposes.
20

It consists of an inner perforated tube, and an outer perforated tube, of metal, having between them an annular space filled with emery or other granulated mineral
25 matter of sufficiently indestructible character to bear a red or nearly red heat without injury, and having a broad disk or flange at each end. The burner thus constructed is arranged in an upright position and the alcohol or other fluid being supplied from
30 a fountain or reservoir to the lower end of the inner tube, is evaporated and its vapor is consumed on the surface of the outer tube, and between the flanges or disks.

35 To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A is the outer tube, and B, the inner tube. C is a disk covering the upper ends of said
40 tubes and forming a wide flange *a, a*, around the exterior of the outer tube.

D is a disk having a central opening for the lower part of the inner tube and fitting to the bottom of the outer tube around the
45 exterior of which it forms a flange *b, b*.

The disks C, and D, are made concave on the sides which face each other, viz: the lower side of C, and the upper side of D. The inner tube B, has its lower part which
50 projects through the disk C, screwed for the reception of a screw socket E, which forms a bearing for the disk D, and the said tube

has screwed into its upper end a screw F, which passes through the center of the disk C, and confines the tubes and disks tightly
55 together and keeps the tubes concentric with each other.

The inner tube B, has numerous perforations *c, c*, commencing at a short distance from the bottom and being continued nearly
60 to the top; and the outer tube A, has numerous slits *d, d*, running partly around it; such perforations and slits being small or narrow enough to prevent the escape of the grains of the coarse emery, or other granu-
65 lated mineral matter with which the space *e, e*, between the tubes A, B, and disks C, D, is filled. Various matters might be used to fill the said space, as granulated free-stone, pumice-stone, asbestos, or fire-brick, any of
70 which will constitute a heat reserving medium of an indestructible character, as well as serve to distribute the vapor, that it may issue uniformly over the whole surface of
75 the outer tube A.

The tubes A, B, and disks C, D, may be made of copper, iron, or any other metal that will stand the heat.

G is a pipe screwing into the socket E, and thereby connected with the inner tube
80 B, of the burner, said pipe being connected by a cock H, with a pipe I, which is connected with the fountain or reservoir J, the said cock being so constructed as to allow the fluid to pass it in small quantities only.
85

The operation of the burner is as follows: The reservoir J, having been supplied with alcohol or other fluid, the burner is heated by applying around it a metallic sponge, that has been saturated with alcohol, and ignited,
90 and the cock H, is opened to allow the fluid to rise into the tube B, through whose perforations *c*, it escapes among the granulated material in the space *e, e*, and the inner tube B, has become thoroughly heated the alcohol
95 is evaporated in the said tube, and the vapor passing through the interstices of the granulated material, is heated to a high degree before issuing from the slits *d, d*, and in this way a very perfect combustion is obtained,
100 and a very intense heat. The vapor being distributed over a large surface does not give a very long flame, but the flame that is given is thrown out in a horizontal direc-

tion by the flanges *b*, *b*, and *a*, *a*, more especially by the latter, which prevents its tendency to shoot upward. The supply of fluid to the burner is regulated according to the
5 heat required, by means of the cock H.

This burner may be employed in stoves for cooking or heating purposes, and may also be employed in many arts in which a convenient heating apparatus is desirable. It
10 may be used for burning ordinary illuminating gas for heating purposes, the service or supply pipe, in such case, being connected with the cock H.

I do not claim broadly the use of granu-

lated mineral matters in gas and vapor burn- 15
ers, but

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

The burner composed of the inner and outer perforated tubes A, B, the disks *a*, *a*, 20 and the granulated mineral filling in the annular space between said tubes; the whole combined substantially as and for the purpose herein specified.

RUSSEL R. LEWIS.

Witnesses:

LEWIS A. TUCKER,

JAMES LAIRD.