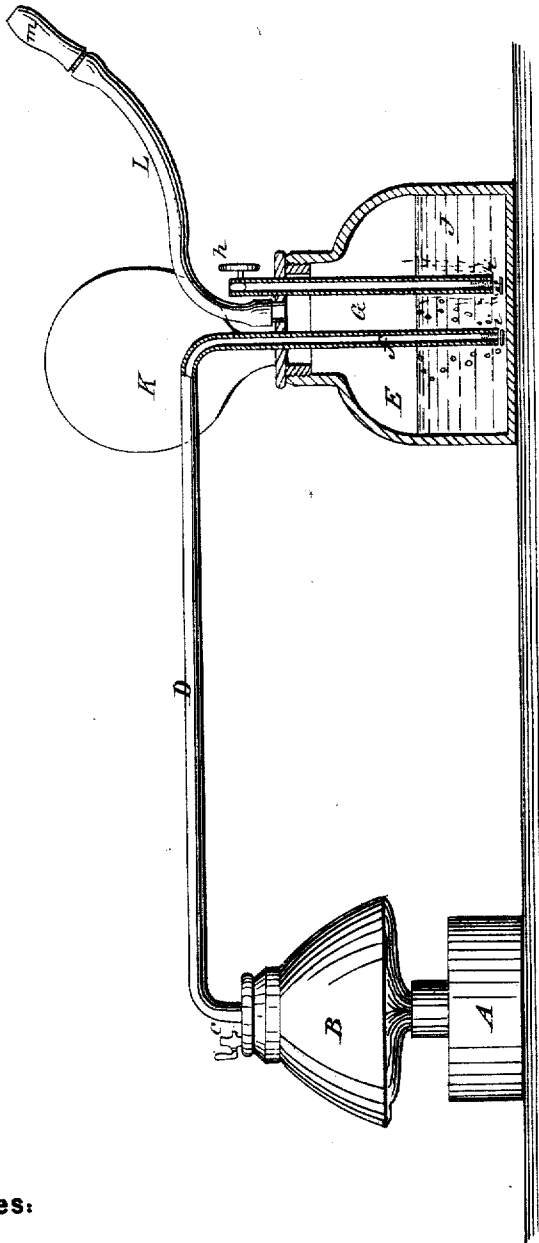


T. F. FRANK.

Apparatus for Inhaling Oxygen.

No. 59,000.

Patented Oct. 23, 1866.



Witnesses:

Jay Heyatt.

James Calkins.

Inventor:

Thos F. Frank
by J. Mason & Co.,
Attys

UNITED STATES PATENT OFFICE.

THEODORE F. FRANK, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF
AND DAVID P. BENSON.

IMPROVED APPARATUS FOR INHALING GASES.

Specification forming part of Letters Patent No. 59,000, dated October 23, 1896.

To all whom it may concern:

Be it known that I, THEODORE F. FRANK, of the city of Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Apparatus for Generating and Inhaling Vital Oxygen; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, making part of this specification.

My improvement is designed more especially for the inhalation of oxygen gas where the admixture therewith of a certain amount of air to dilute the same is required before it is inspired; and the invention consists in the special arrangement of the parts, for the purpose and in the manner hereinafter specified.

In the drawing, A represents a lamp; B, a retort for generating the gas, provided with a stop-cock, *c*, and a pipe, D, leading therefrom to the receiver E, of any suitable construction, where it is bent downward, passing through the cover, terminating near the bottom, as shown at *f*.

G is an induction air-pipe, provided with a stop-cock, *h*, at its upper end, for regulating the amount of air introduced, which also terminates near the bottom of E. The air and gas tubes G and *f* have each a valve, *i* *i'*, at their lower ends, of suitable construction to close the tubes, except when there is a downward pressure of the air or gas, being shown as operated by a small coiled spring. The use of these valves is to prevent the entrance of the water or other liquid, J, with which the receiver is partially filled, which might otherwise occur from the pressure of the gas upon the surface of the liquid, or, in the case of the tube *f*, from the partial vacuum formed by the cooling and condensation of the gas within the retort when the lamp is extinguished.

K is a gas bag or reservoir, of elastic substance—as india-rubber—connected with the top of receiver E, into which the gas passes and accumulates till desired for inhalation.

L is a flexible inhaling-tube attached to and opening into the upper portion of the vessel E.

Where the gas is manufactured in large quantities and collected in a gasometer, the pipe D may connect therewith instead of with the retort B.

The operation of my improvement is as follows: The necessary gas being supplied by the retort B, or from a gasometer or other source, passing down the tube *f*, escapes by opening the valve *i* into the liquid J, whence, diffusing itself, it rises through the same into the space above cooled and purified, and from thence flows into the bag or holder K. The stop-cock *h* being opened to a greater or less extent, as required, the patient begins to inhale through the tube L, the suction thereby produced causing an influx and descent of air through pipe G, whence, escaping at the bottom, it rises through the liquid in a manner similar to the gas through pipe *f*, where it mixes with and properly dilutes the gas or vapor before it enters into the lungs.

The bag K is designed to be used more particularly with the retort B, so as to form a reservoir, into which the gas, when not being inhaled, can collect, the elasticity of which allows a greater or less expansion, so as to furnish a supply when the gas is inhaled faster than it is being generated.

The stem to which the pipe L is attached may be closed in any way desired when the gas is not being inhaled, in which case, there being no draft down tube G, the valve *i'* closes and prevents the pressure of the gas upon the surface of the liquid J from forcing the latter up the same.

When the lamp A is extinguished, causing a condensation of the gas and the formation of a partial vacuum in the retort and tube D, the valve *i* at the bottom of the tube *f* closes and prevents the entrance of the liquid, which would otherwise ascend the pipe and flow into the retort to restore the equilibrium.

It is evident that my apparatus is equally adapted to inhalation of any gas or mixture of gases or vapors; and the liquid J may be varied, so as to operate as a cooler, a purifier, or a medicator, or all combined, as the different circumstances may require. The difference in the nature of diseases, their different stages, and the age, strength, and constitution of different persons are circumstances which go to show the importance of some proper means for regulating at will the strength or degree of dilution of the gas or vapor inhaled. The proper dilution of oxygen gas

with air before its inhalation is absolutely essential to its beneficial use. This I readily accomplish, as has been seen, by the employment of the air-tube G and its valve and regulating-cock *h*.

My apparatus is easily adapted to the inhalation of a mixture of gases or vapors by simply duplicating or multiplying the tubes *f* and retorts or other means for supplying the required gas.

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

The above-described apparatus for generat-

ing and inhaling vital oxygen, consisting of the generator B, receiver E, provided with the expanding bag K, induction gas and air-tubes *f* G, with their valves *i* *i'*, stop-cock *h*, and inhaling-tube L, combined, arranged, and operating substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THEODORE F. FRANK.

Witnesses:

JAY HYATT,

D. P. BENSEN.