

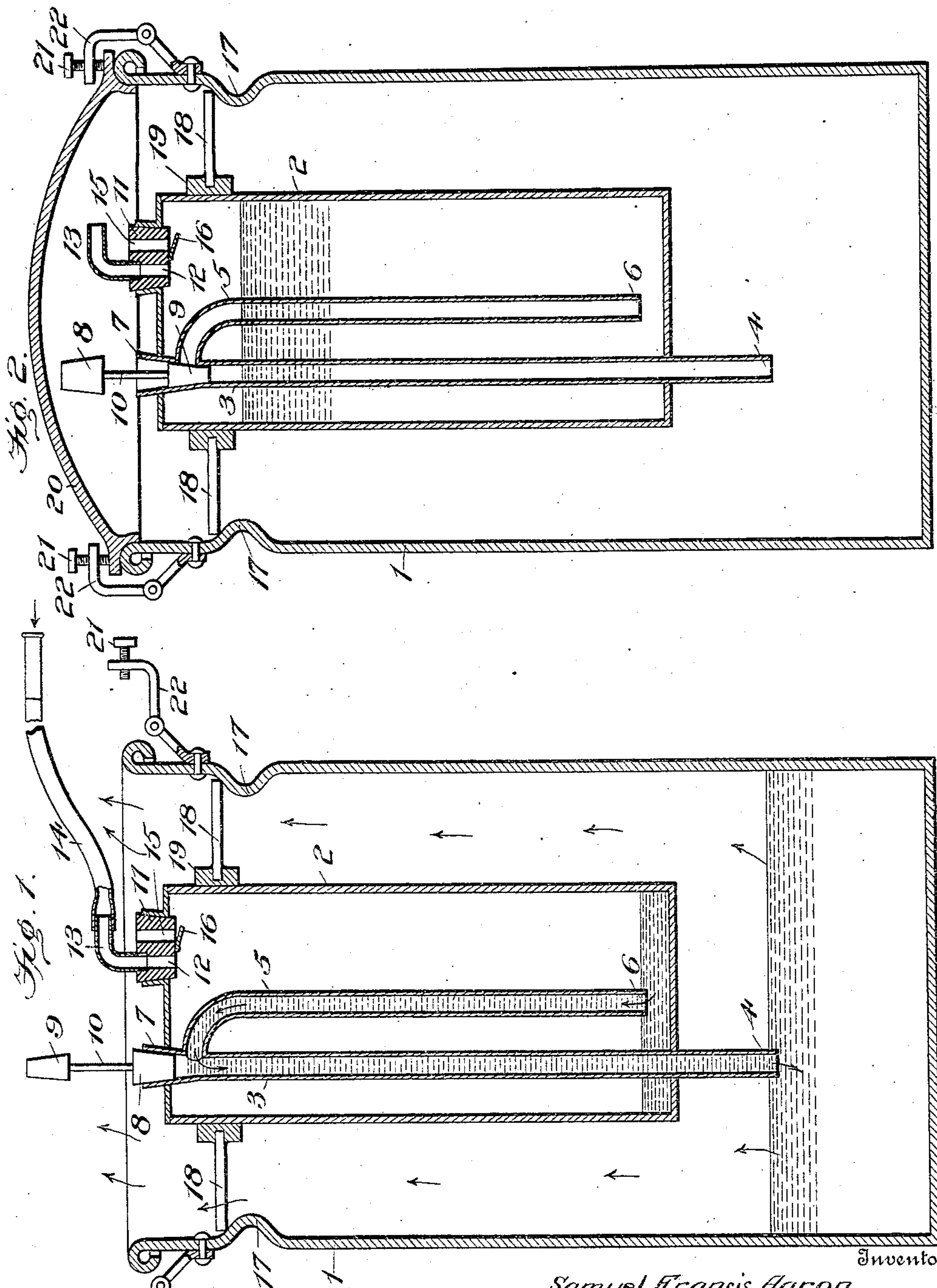
No. 854,682.

PATENTED MAY 21, 1907.

S. F. AARON & S. H. HAMILTON.

SIPHON FEED GAS GENERATOR.

APPLICATION FILED NOV. 9, 1906.



Witnesses
Edwin L. Bradford
Anne B. Johnson

Inventors
Samuel Francis Aaron
Samuel Herbert Hamilton

By

Johnson & Johnson
Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL FRANCIS AARON AND SAMUEL HARBERT HAMILTON, OF PHILADELPHIA, PENNSYLVANIA; SAID AARON ASSIGNOR TO THE SCIENTIFIC PRESERVATION COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF WEST VIRGINIA.

SIPHON-FEED GAS-GENERATOR.

No. 854,682.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed November 9, 1906. Serial No. 342,637.

To all whom it may concern:

Be it known that we, SAMUEL FRANCIS AARON and SAMUEL HARBERT HAMILTON, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Siphon-Feed Gas-Generators; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

For disinfecting and fumigating purposes we have produced a gas generating device having a siphon feed and in the claims appended hereto we will point out the parts and combinations of parts which constitute our improvements in connection with the accompanying drawing, in which,

Figure 1 is a vertical section of a gas generating device embodying our invention, showing the siphon-feed as operative and the device in condition for use. Fig. 2 is an identical view showing the siphon-feed as inoperative and the device in the condition in which it is charged and closed to render it portable.

Our invention is designed for use as a fumigator for woolens, furs, carpets, etc., and for destroying moths, insect pests and vermin and for which purposes a poisonous gas is generated and delivered without pressure or force from the generator into a disinfecting air tight closure or room and for this purpose the device is charged, closed and rendered portable for carriage to the closure in which it is to be opened and used and the articles to be treated being contained within this closure.

The generator device consists of two members a jar 1 of acid proof material such as heavy sheet iron coated thickly with shellac and asphaltum varnish and open at the top for containing a chemical in liquid form; and a smaller closed receptacle 2, suspended or supported within the jar, preferably of lead but it may be of glass, or of enameled ware for containing a chemical preferably in liquid form. A siphon is contained within the inner vessel, and has its long leg 3, passing through the top and the bottom thereof and

is open at both ends, its lower end 4, opening into the jar; and its short leg 5, opening into the long leg near the top of the vessel and opening therein near its bottom at 6, whereby the chemical liquid in the inner receptacle is siphoned into the jar and combining with the chemical therein causes the generation of gas within the jar when the device is in use. The upper end 7, of the long leg of the siphon passes through and opens at the top of its containing vessel for the purpose of receiving a stopper 8, for closing this end of the siphon when the siphon is operating. This upper open end of the siphon also affords access into the siphon for the insertion of a stopper 9, for closing the short leg at its junction with the long leg to close the siphoning tube when the device is not operating and for the convenient insertion of the stopper and its proper sealing action the upper end of the siphon leg is preferably made flaring. For this purpose I prefer to use a double ended stopper, both stoppers preferably of rubber connected by a stem 10, of a material not affected by the chemical, the stopper 8, being adapted for closing the open end of the siphon when the device is in use and the stopper 9, adapts it for insertion into the long leg to close the opening of the short leg at its junction with the long leg when the device is not in use, only one stopper being used at a time by reversing their positions. But obviously a single or separate stoppers may be used for their separate purposes.

The top of the inner receptacle is provided with a necked opening closed by a suitable stopper 11, having two openings one 12, of which has a connected tube 13, from which a piece of hose 14, leads by which air may be blown or forced into the receptacle upon the surface of the chemical liquid therein for the purpose of starting the siphon. For this purpose the air need only be forced in for a few moments and by acting on the surface of the liquid chemical causes it to be forced up into and through the short leg of the siphon into the long leg from which it drops and mixes with the chemical in the jar. The siphon having been started the feed is continued by a normal external air pressure by means of a second opening 15, in the stopper, which however, must be closed during the

time that the forced air pressure is maintained in the space above the liquid, and for this purpose a valve 16, is carried at the inner end of the stopper in position to open inward and to close this normal air inlet to cause the air pressure to have its full displacing effect on the liquid. When such air pressure is stopped this valve is caused to open to render active the normal air pressure through the stopper opening 15, to continue the siphon feed. We prefer to form the wall of the jar near its upper open end with a circumferential crimp so as to form an inward standing shoulder 17, on which to suspend the inner receptacle by means of radial arms 18, the ends of which rest on the shoulder and project from a ring 19, which is preferably of lead and fastened to the receptacle. The chemical is supplied in the jar through its upper open end; and the chemical is supplied in the inner receptacle through the opening which is closed by the stopper which has the air starting opening.

The siphon-containing receptacle can be lifted out of the jar and charged with the chemical, the blow tube stopper put in place and the duplex stopper closing the siphon so that it cannot be accidentally started. In this condition the device is ready for use when placed in an air tight closure, by removing the stopper to open the siphon, closing the upper open end of the long leg of the siphon and starting the siphon by the blow tube when the generated gas will freely pass up around the inner receptacle and out of the open end of the jar into the air in the closure to effect the fumigation of its contents. But to render the device safely handled by carriage a lid 20, is provided for closing the jar by a suitable air tight joint a convenient construction for which is made by forming the upper edge of the jar with a convex roll or bead on which the lid is seated and securing the lid thereon by clamp screws 21, carried by brackets 22, hinged to the outer wall of the jar. When the lid is closed the blow-hose 14, is removed and is connected to the stopper when the lid is removed at the place where the device is to be used. The starting blow-hose is provided as it gives the advantage of allowing the operator to withdraw at a safe distance from the device to blow through the tube and the operator need not therefore be within the closure to be fumigated in starting the device.

While we do not wish to be confined to any particular character of gas, or to any particular chemicals because they may be varied according to conditions, yet as to the character of the gas it may be carbonic acid, hydrocyanic acid, hydrochloric acid or a mixture of these gases. Or the gas may be bromin, chlorin, or some related poisonous gas which it would be dangerous to inhale. To give an example of the chemical liquid and the chem-

ical employed and supposing that it is required to fumigate for disease and stench, the inner receptacle would be supplied with some dilute acid liquor, for example, hydrochloric acid, and the jar supplied with some chemical that would evolve,—say chlorin (as chlorinated lime) when the acid came in contact with the gas producing chemical. In this operation the liquid chemical from the inner receptacle when united with the chemical in the jar forms a chemical combination and gives off or generates a poisonous gas which is fatal to animal, insect, or germ life and is caused to pass freely and without pressure from said jar into a closure, house, ship or cellar which obviously must be air tight and in which the generator is placed with the cap removed so that the gas does not collect under pressure in the generating jar but it is passed therefrom into the air in the fumigating closure. Instead of the duplex stopper obviously a single stopper may be used, but I prefer the separate stoppers because they are more certain in their functions.

We claim:

1. In a gas generator, a jar open at its top, a closed receptacle within said jar, a siphon within the closed receptacle having its long leg open at the top of the closed receptacle and its lower end opening into the jar, a stopper for closing the upper open end of the siphon when the device is in use, and a stopper for stopping the siphoning action when the device is not in use, and means adapted to establish gaseous pressure within the closed receptacle for starting the siphon by introducing air under pressure into said receptacle from an external source, whereby a chemical is fed from the closed vessel into a chemical in the jar.

2. In a gas generator, a jar open at its top, a closed receptacle within said jar, a siphon within the closed receptacle having the upper end of its long leg open at the top of the closed receptacle, and its lower end opening into the jar, the short leg connected with and opening into the long leg near its upper open end, a stopper adapted to close the upper open end of the siphon when the siphon is in use, and a stopper for stopping the siphoning action when the device is not in use, and means adapted to establish gaseous pressure within the closed receptacle for starting the siphon by introducing air under pressure into said receptacle from an external source, whereby a chemical is fed from the closed vessel into a chemical in the jar.

3. In a gas generator, a jar open at its top, and adapted to contain a chemical, a closed receptacle within said jar and adapted to contain a chemical, a siphon within the closed receptacle having the lower end of its long leg opening into the jar, its upper end passing through the top thereof and open, the short leg connected with and opening

into the long leg near its upper open end, and a pair of stoppers connected in separated relation one adapted to close the communication between the short and the long legs, the other adapted to close the upper open end of the long leg, and means adapted to establish gaseous pressure within the closed receptacle for starting the siphon by introducing air under pressure into said receptacle from an external source.

4. In a gas generator, a jar open at its upper end and having an annular interior wall crimped shoulder, a closed receptacle suspended upon said shoulder, a siphon within the closed receptacle having the lower end of its long leg opening into the jar, its upper end passing through the top of said receptacle and open, the short leg connected with and opening into the long leg near its upper open

end, a stopper for closing the upper open end of the siphon when the device is in use, and a stopper for stopping the siphoning action when the device is not in use, means adapted to establish gaseous pressure within the closed receptacle for starting the siphon by introducing air under pressure into said receptacle from an external source, and a removable cover whereby to close and seal the open end of the jar to render the device safely portable.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL FRANCIS AARON.

SAMUEL HARBERT HAMILTON.

Witnesses:

H. MERWIN ALLEN,
FRANK R. BUCHANAN.