

No. 612,158.

Patented Oct. 11, 1898.

M. L. COOPER.  
CONTINUOUS HOT AIR SYRINGE AND VAPORIZER.

(Application filed Mar. 10, 1898.)

(No Model.)

Fig. 1.

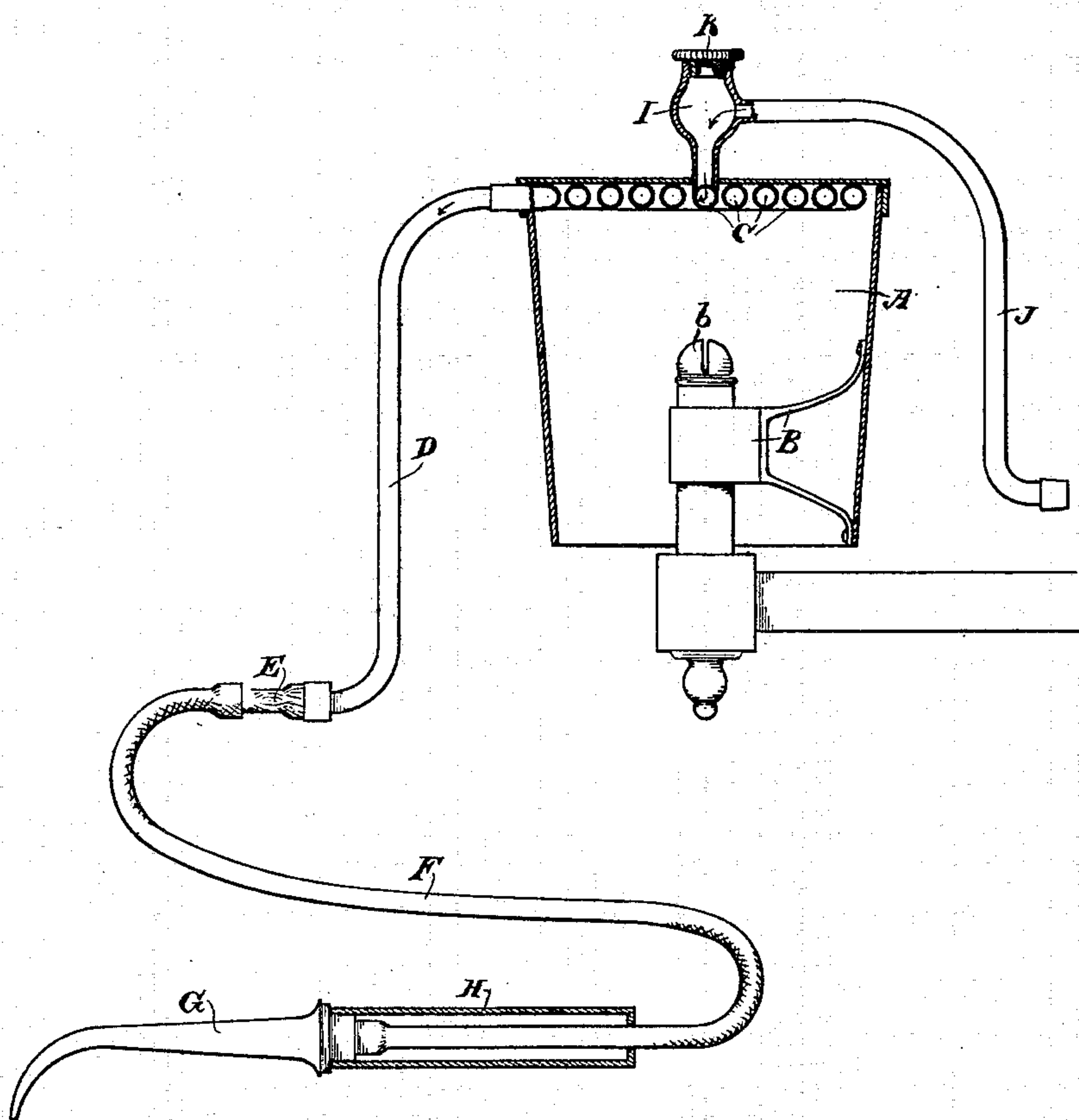
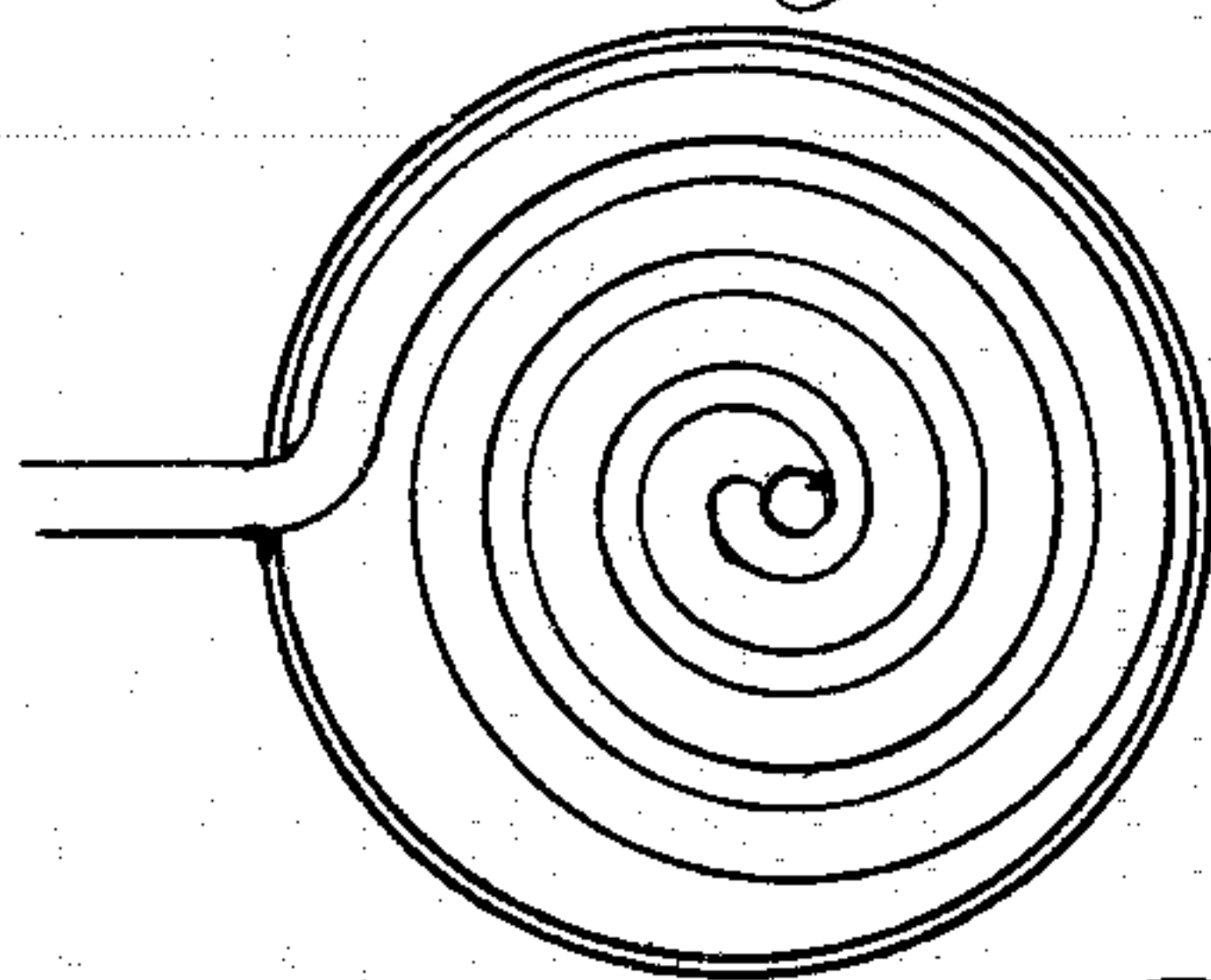


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## CONTINUOUS HOT-AIR SYRINGE AND VAPORIZER.

SPECIFICATION forming part of Letters Patent No. 612,158, dated October 11, 1898.

Application filed March 10, 1898. Serial No. 673,320. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN L. COOPER, a citizen of the United States, residing at Modesto, county of Stanislaus, State of California, have invented an Improvement in Continuous Hot-Air Syringes and Vaporizers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus for the production of a continuous stream of hot air, which is especially designed for oral, nasal, and aural uses.

It consists of the parts and the construction and combination of parts hereinafter described and claimed.

Figure 1 is a sectional view of my device. Fig. 2 is a bottom view of the casing-cover, showing the coil.

The object of this invention is to provide an apparatus which is especially useful in the production of heated air, either plain, medicated, or charged with any vapor which it may be desired to employ in the treatment of the mouth, nose, or ear and to furnish a graduated supply thereof through a suitable non-conducting passage and tip or nozzle through which it may be applied.

Various forms of the device may be employed. In the present case I have shown an open-bottomed casing A, having fixed within it a socket B, which adapts it to be easily fitted over any suitable heat-producing burner b, such as gas, alcohol, Bunsen, or other desirable form. In the upper part of this chamber is a hollow coil C, which practically fills the top of the chamber and is exposed to the heat of the burner below. From the outer end of this coil a pipe D passes and is fitted into the wooden or other non-conducting piece E. To this piece is connected a flexible hose F, and this hose is connected with a tip or nozzle G, through which the heat is to be applied. This tip or nozzle may be made of hard rubber or other suitable material, preferably a non-conductor, so that the heated air may be directed from it upon the part to which it is desired to apply it.

Considerable difficulty is experienced in preventing a rapid cooling, especially where the air must be conducted for some distance. I have found the flexible rubber tube to be a very good non-conductor of heat.

In order to properly handle the device, I have shown an exterior cylinder H, into one

end of which the flexible rubber tube enters, this end being closed about the tube, so as to leave just room enough for it to pass into the interior of the cylindrical chamber. The opposite end of the chamber H is fitted snugly to a projection from the nozzle G, which serves as a sort of stopper when fitted into the end of the part H. This part H is of sufficiently larger diameter than the tube, so that it need not come in actual contact with it, and forms a convenient handle for the operator. It incidentally also serves as a non-conductor or jacket to prevent the escape of heat from the tube and as a protection for the hands of the operator. It may be made of any suitable material for the purpose. The inner end of the heating-coil is here shown extended upwardly through the center of the casing A and opening into a chamber I. The supply-pipe J also opens into this chamber, and any desired source of air-pressure, such as a bellows or other air-forcing mechanism, either hand or foot, or other power may be employed. This chamber I may either serve to direct a body of plain heated air into the heating-coil C or it may be adapted to contain alcohol or any substance which it is desired to vaporize, so that the vapor can be applied to the desired part. It is provided with a screw or other part K, which allows access to the interior to supply its contents from time to time.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In an apparatus of the character described, an open-bottomed casing having a socket fixed therein adapted to fit and be supported from a burner, a heater in the upper part of the chamber above the burner, a discharge-pipe connecting with said heater and having a flexible conducting-pipe, a discharge-nozzle, a handle-piece through which the flexible pipe passes, an air-supply pipe and a chamber interposed between the supply-pipe and the discharge and having a screw-plug closing its upper end.

In witness whereof I have hereunto set my hand.

MARTIN L. COOPER.

Witnesses:

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