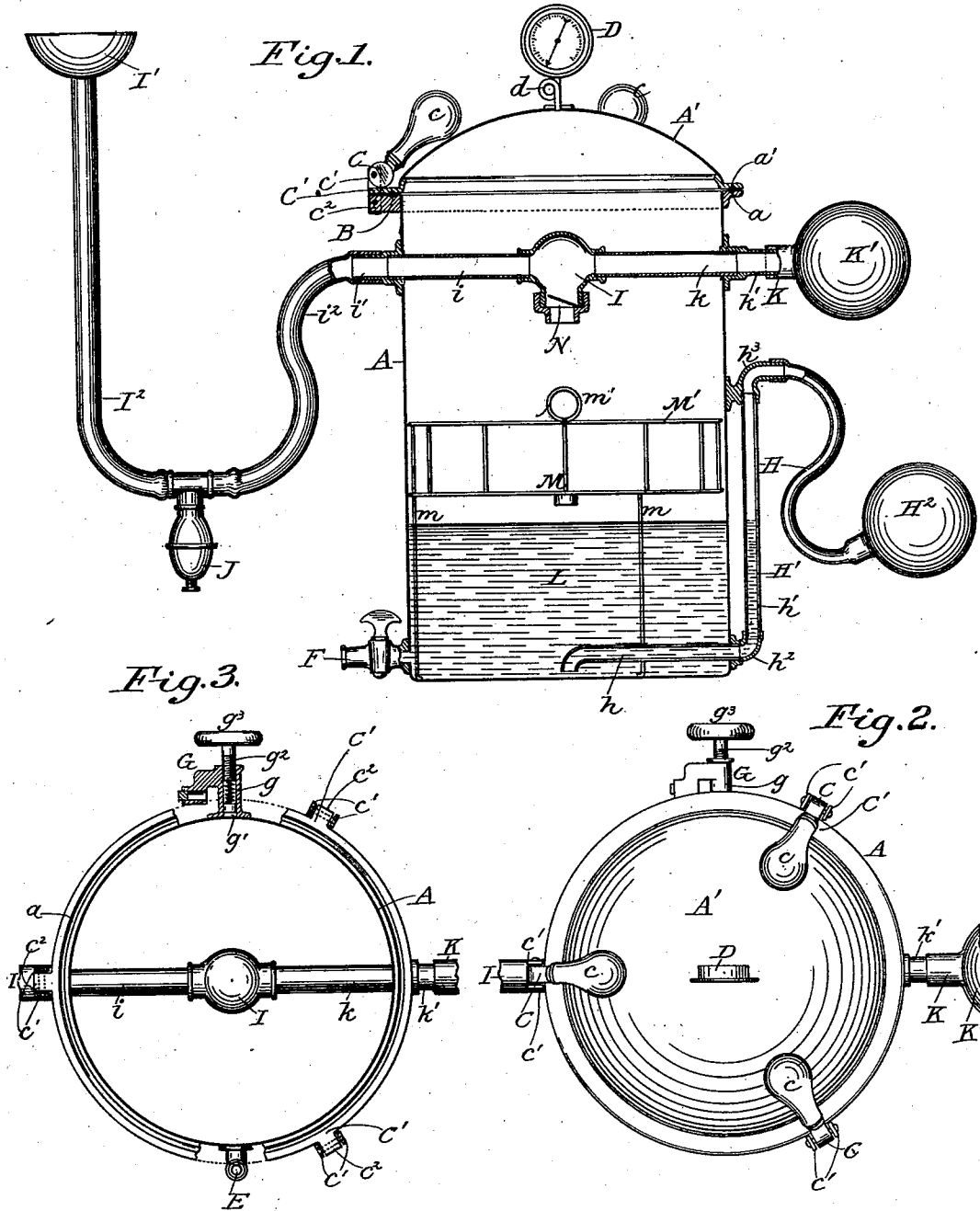


(No Model.)

E. MADDEN.
APPARATUS FOR INHALING VAPORS.

No. 513,804.

Patented Jan. 30, 1894.



Witnesses.

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APPARATUS FOR INHALING VAPORS.

SPECIFICATION forming part of Letters Patent No. 513,804, dated January 30, 1894.

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To all whom it may concern:

Be it known that I, EDWARD MADDEN, a citizen of the United States, residing at Amsterdam, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Apparatus for Inhaling Vapors; and I 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.

My invention relates to an apparatus by which medicated vapors may be generated and delivered to the user, and it consists in the combination of devices and elements hereinafter described and specifically set forth in the claims.

The objects of my invention are, first, to produce an apparatus which may be used at will for generating and delivering to a patient medicated vapors; and second, to provide specific combinations of devices and parts by which my improvements may be embodied in an apparatus, for use in families, for generating medicated vapors for invalids and others. I attain these objects by an apparatus containing the means illustrated in the accompanying drawings in which—

Figure 1 is a sectional elevation of an apparatus containing the essential features in this invention. Fig. 2 is a view of the same from above. Fig. 3 is a view taken at the rim of the vessel.

The same letters of reference refer to similar parts throughout the several views.

In the drawings A represents a vessel which forms the body of this apparatus, which vessel may be made of any suitable material, and of strength sufficient to resist a pressure from vapors or steam which may be obtained under a temperature ranging from 120° Fahrenheit to 230°, more or less, as the nature of the medicated vapors or the articles to be sterilized and medicated may require. Although the body A may be made of any material for resisting pressure, yet its interior surface is to be of such character as not to be effected by the medical agent or article to be contained within its chamber when subjected to heat; and although this surface may be produced by coating the interior surfaces with

metals which will resist the action of such agents or articles when heated, yet I prefer to form the several walls of the same of aluminum which will be light in weight, strong, clean, and not liable to be affected by substances which may be heated therein.

A' is the cover of the same, preferably made of the same material as the said vessel, and having similar condition of interior surfaces.

B is a gasket of any suitable material, and preferably of commercially pure rubber. This gasket may be of any suitable form in its cross direction and is seated partly in an annular groove *a*, provided in the upper rim of vessel A, and partly in a similar groove *a'* provided in the rim of cover A', as illustrated in Figs. 1 and 3.

Although any well known devices, as bolts or screws, may be employed for holding the cover A' pressed down tightly on the sealing gasket, to render the union of the cover with the body steam tight, yet I prefer to use two or more cams C, provided each with a handle *c* made of a suitable heat non-conducting material for such purpose. These cams C are each pivoted with the free end of a suitable link *c'* which is itself pivoted with an ear or lug *c²* fixed to the rim of the body so as to serve as a means for carrying the cam C in situation for exerting a pressure on the upper side of the gasket rim seat C' of the cover A' when the handle is in position shown by full lines in Fig. 1, and release the said seat or said cover from such pressure or holding with vessel A, when said handle and cam are turned to position of dotted lines in Fig. 1.

D is a suitable steam gage communicating with the chamber of the vessel by a suitable siphon form tube *d* passing through the wall of the cover A' to said chamber.

E is a thermometer suitably incased within a slotted tube, for its protection from accident, and with its bulb contained within the unslotted end portion of the said tube to receive the heat of the chamber of the vessel A, at a low point in the same, and preferably near the bottom of the vessel.

F is a suitable cock by which the liquid contents of the vessel may be drawn away at will.

G is a whistle and exhaust valve, combined, which may be set for any desired degree of pressure under which operations are to be had, and may be made to indicate, by its sound, the pressure, and control the pressure necessary to be employed in such operation with the respective medical agents or articles as may be contained within the apparatus. This whistle and exhaust valve may be of any suitable form of construction, yet it preferably consists of a tube *g*, communicating through the wall of the vessel A to the chamber of the same, and provided with a small blow hole *g'*, and a screw threaded valve closing stem *g*² provided with a suitable finger wheel *g*³ for operating said stem as may be required, for opening or closing the vent in part or whole.

H is an agitator operated by the alternate intake and expulsions of the liquid contained within the lower portions of the chamber of the vessel A. This agitator may be of any suitable form of construction, by means of which an operator may draw into its liquid receiving tube *h* a quantity of the liquid L, and forcibly expel the same.

My preferred form of agitator H is shown to consist of the interior liquid receiving tube *h*, having its mouth end preferably turned to face the bottom of the vessel, and the exterior tube *H'* communicating with a compressor which may be made in the form of a cylinder and piston, yet preferably in the form of an elastic compression bulb or ball *H*² which may be readily operated by the hand as in atomizers. Although the exterior tube *h'* may be made wholly of metal, yet I preferably form it from a glass tube *h'* suitably secured in a steam tight manner with metallic connections, as *h*², connecting it with the interior receiving tube *h*, and *h*³ connecting it with the compressor. By alternate compressions and expansions of the compressor *H*², the liquid L, in the chamber of the vessel A, may be thoroughly agitated, and powders, salts, and other medical substances be prevented from settling to the bottom of the chamber of said vessel, but will be stirred about in the liquid until dissolved.

I is a vapor receiver made with a funnel shape form, and located in the upper portion of the chamber of the vessel A, and about central in the same. The vapor receiver communicates with the mouth piece *I'* by means of a suitable tube *I*². The said receiver *I*, mouth piece *I'*, and tube *I*², are made of any suitable material which will not be effected by the vapors generated within the vessel A. The section *i* of the tube *I*² is made capable of being detached, at will, from a suitable coupling *i'* secured in the side wall of the vessel A, and section *i*² may be of any suitable, flexible tubing, and connected at one end with coupling *i'*, and by its other end with the mouth piece *I'*. The section *i*² of the tube *I*², is preferably provided with a drip receptacle J, for receiving the liquid from

condensation of the vapors in said tube *I*², which tube may be of such length as may be required to allow the mouth piece *I'* to reach an individual for his use.

K is a vapor syringe composed in one part of the tube *k*, arranged with its discharge end within the mouth of the vapor receiver *I*, and about opposite the tube *I*² leading from the center of the same, and in another part of the compressor *K'* which is operated by hand for compressing the same at short intervals. The tube *k* of this vapor syringe is made of any suitable material, and is removable, at will, by unscrewing the tube from the coupling piece *k'*.

M is an openwork platform suitably supported, and preferably by legs *m m* from the bottom of the vessel A. This platform is removable at will, for convenience of cleaning, and is shown to be provided with a lifting handle *m'* suitably secured to said platform. This platform M may be provided with a guard rail *M'* suitably supported above it for holding bottles or jars from shifting in either direction.

Materials for medicating the vapors are placed on the platform M and held in condition to be heated by the vapor from the liquid L below, and also have their contents heated to such a temperature as the thermometer or steam gage may indicate, when the combined steam whistle and exhaust valve, being set to blow off at the temperature indicated, will prevent the pressure and temperature of the liquor and vapor therefrom rising above that preferred to be used.

When the apparatus is to be employed to medicate vapors to be inhaled by an individual, the medicated liquid contained wholly in the liquid L, or wholly in one or more vessels, or partly in the liquid, and partly in vessels will, when suitably heated, produce the desired kind of vapor which may be inhaled, by an individual, when applying the mouth piece *I'* over his mouth; when at each inspiration of the individual, the vapor will be inhaled. By operating the vapor syringe K, at the time of each inspiration of the individual, a larger quantity of medicated vapor may be inhaled.

This apparatus is adapted for use in families, and hospitals, and may be readily operated at will. When operated, heat is to be applied to the bottom vessel A, by means of a lamp, gas-jet, or any suitable stove or heater.

The inhaler *I'* is to be applied to the mouth of the patient, when the syringe *K'* will be operated with a greater or less rapidity or force, and the vapor will be alternately drawn into the syringe, and be then expelled into the mouth of the inhaling tube for passage to the mouth of the patient.

Having described my invention, what I claim is—

1. In an apparatus for medicating vapors and articles, the combination with a steam tight vessel for containing liquids to be heated,

of a vapor receiver situated in the upper end portion of the chamber of said vessel, a mouth piece and a tube communicating from said vapor receiver to said mouth piece, and a vapor syringe having its discharge end communicating with the said vapor receiver, with its compressor exterior to said vessel, substantially as and for the purposes set forth.

2. In an apparatus for medicating vapors and articles, the combination with a steam tight vessel A, provided with a cover; an agitator, operated at will, for agitating the liquid near the bottom of said vessel, a combined steam whistle and exhaust, communicating with the upper portion of the chamber of the said vessel, a vapor receiver situated within the said upper portion of said chamber and communicating, by means of a suitable tube, with a mouth piece; a vapor syringe, operated at will, and discharging into the said vapor receiver; and a receptacle in the course of the tube, between the vapor receiver and

mouth piece, substantially as and for the purposes set forth.

3. In an apparatus for medicating vapors or articles, the combination with vessel A, of a vapor receiver I, situated within said vessel, and secured to it a pipe which is connected with a mouth piece I', a valve syringe, having its discharge end communicating with the vapor receiver, a platform for supporting medicating articles, a combined steam whistle and exhaust vent, and a device to indicate the temperature of the liquid within the said vessel, substantially as and for the purposes set forth.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

EDWARD MADDEN.

Witnesses:

A. SELKIRK, Jr.,
CHARLES SELKIRK.