

(No Model.)

F. C. HAWKES.
VAPORIZER.

No. 416,913.

Patented Dec. 10, 1889.

Fig III,

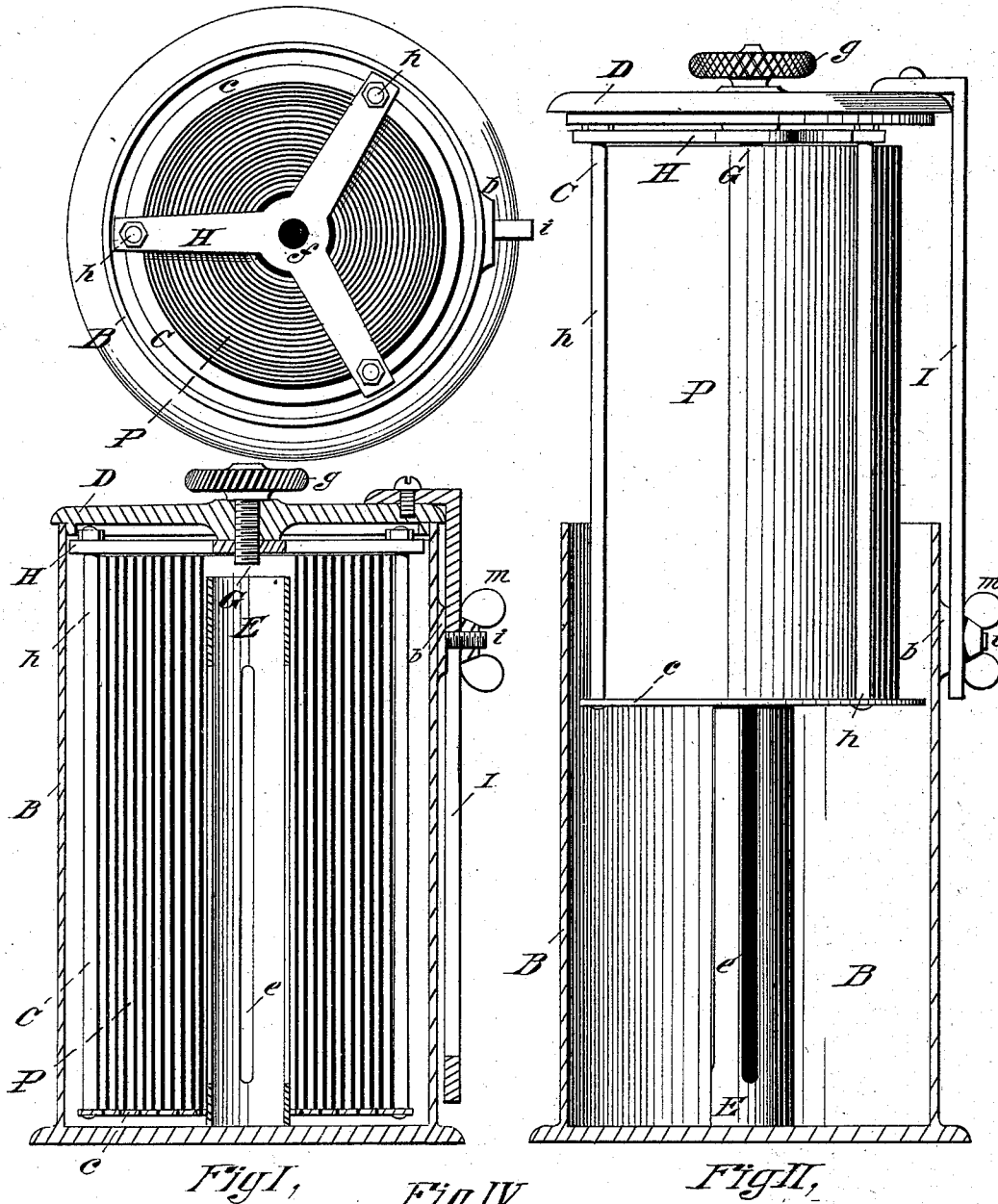


Fig I,

Fig IV

Fig II,

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UNITED STATES PATENT OFFICE.

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VAPORIZER.

SPECIFICATION forming part of Letters Patent No. 416,913, dated December 10, 1889.

Application filed June 17, 1889. Serial No. 314,605. (No model.)

To all whom it may concern:

Be it known that I, FRED. C. HAWKES, a citizen of the United States, residing at Springfield, Hampden county, State of Massachusetts, have invented a new and useful Vaporizer, of which the following is a specification.

My improvements relate to that class of apparatus designed to contain a volatile fluid and control the escape of the vapor therefrom; and it consists in an improved medium for absorbing the fluid and improved mechanism for recharging said medium and for adjustably projecting it into the air to hasten evaporation therefrom.

My invention is fully illustrated in the accompanying drawings, in which—

Figure I is a vertical central section of my vaporizer in a closed position. Fig. II is a partial central section of the device in an operative position, and Fig. III is a top plan view with the cover removed. Fig. IV is a section of a modification, showing washers instead of concentric rings.

In the drawings, B is a jar or can.

D is a cover completely closing the can when in the position shown in Fig. I.

C is a cage formed of a disk bottom *c*, united to a top H by side bars *h*, the design of the cage being to give free access of any fluid in the can B to the absorbent held by said cage, and to that end the bottom *c* may be perforated, as shown in Fig. I, or may be simply a cross-head, as in the top H.

Rising centrally from the bottom of can B and extending nearly to the top of the can is a tubular guide and receiver E, hollow and provided with orifices *e*, communicating with the body of the can. The bottom *c* of cage C has a central hole therein, permitting it to pass over the tube E. The cage C is suspended from the top D by a screw G, passing through the center of the top and through the screw-hole *f* in top H. The screw, provided with a suitable handle *g*, by filling hole *f* and drawing together corresponding surfaces of tops H and D, practically makes the cover of the can and the cage one, so that when the can is tightly closed to shut off evaporation the cage extends down into the can nearly to its bottom, and so that if the cover

D is raised the cage C will follow it, guided in the can by the tube E.

From the top of cover D and fixed thereto extends a slotted bar I, outside of the can and parallel thereto, having through its slot a screw *i* from a stud *b* on the can, and having a thumb-nut *m*, by means of which the bar I may be bound at any point of its length to the outside of the can.

I have found by experiment that the mineral asbestos, having a large power of absorbing, has that capacity largely increased by being in the form of sheets in close contact, and that, after having its pores or the interstices between the surfaces of its sheets clogged in the course of time by a residuum from the volatile fluid used, it can be in the form in which I use it placed in the most intense heat to burn out every foreign material in it without changing its shape, so that after having been purified by the fire the built-up mass of asbestos can be returned to its place in the cage above described, to be so used indefinitely.

In the drawings a web of closely-wound asbestos is shown confined in the cage C in the form of a roll P, having a central orifice large enough to pass easily over the tube E, though the roll may be built up, if desired, by a series of washers W to cause the laminations to be on a plane at right angles to that shown.

When it is desired to fill the can, the screw G is removed entirely to leave a free passage to the mouth of the tube E, or, being unscrewed from the top H of the cage, the top D is removed to leave the can and the contents as shown in Fig. III. It will be seen that the screw G, being run out of the top H of the cage, the cover D can be elevated to any height to permit evaporation from the contents of the can, the cage remaining therein; but I make no claim to any method of evaporating by an adjustable open mouth, the principle of my invention, apart from the peculiar absorbent, consisting in the elevation entirely clear of the walls of the can of a saturated absorbent, to regulate the rapidity of the evaporation by the surface exposed.

By means of the elevating-cage a surplus

of fluid may be retained in the can, into which the asbestos may be lowered from time to time to be resaturated.

Now, having described my invention, what I claim is—

1. The within-described improvements in vaporizers, consisting of the combination, with an inclosing-can, of a removable cage fitting loosely therein and a packing of asbestos held by said cage and arranged therein in layers to adapt it to be removed and replaced in the same form.

2. In a vaporizer, the combination of the inclosing-case, a cover therefor, a cage attached to said cover, and a porous body within and connected to the cover by said cage, and a bar

attached to the cover and adjustably secured to the exterior of the case, whereby the cover and porous body may be more or less elevated, substantially as described.

3. The combination, with an inclosing-can, of a central guiding-tube E, provided with perforations, a cage C, packed with absorbent material and inclosing tube E, cover D, having removable screw G, uniting it to top H of the cage, and bar I, fast to cover D and sliding under the clamp-nut *m*, all operating as and for the purpose set forth.

FRED. C. HAWKES.

Witnesses:

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