P. GIFFARD.

Vaporizer.

No. 211,234. Patented Jan. 7, 1879.

FIG. 5

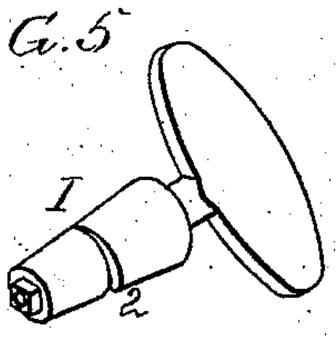

FIG. 1.

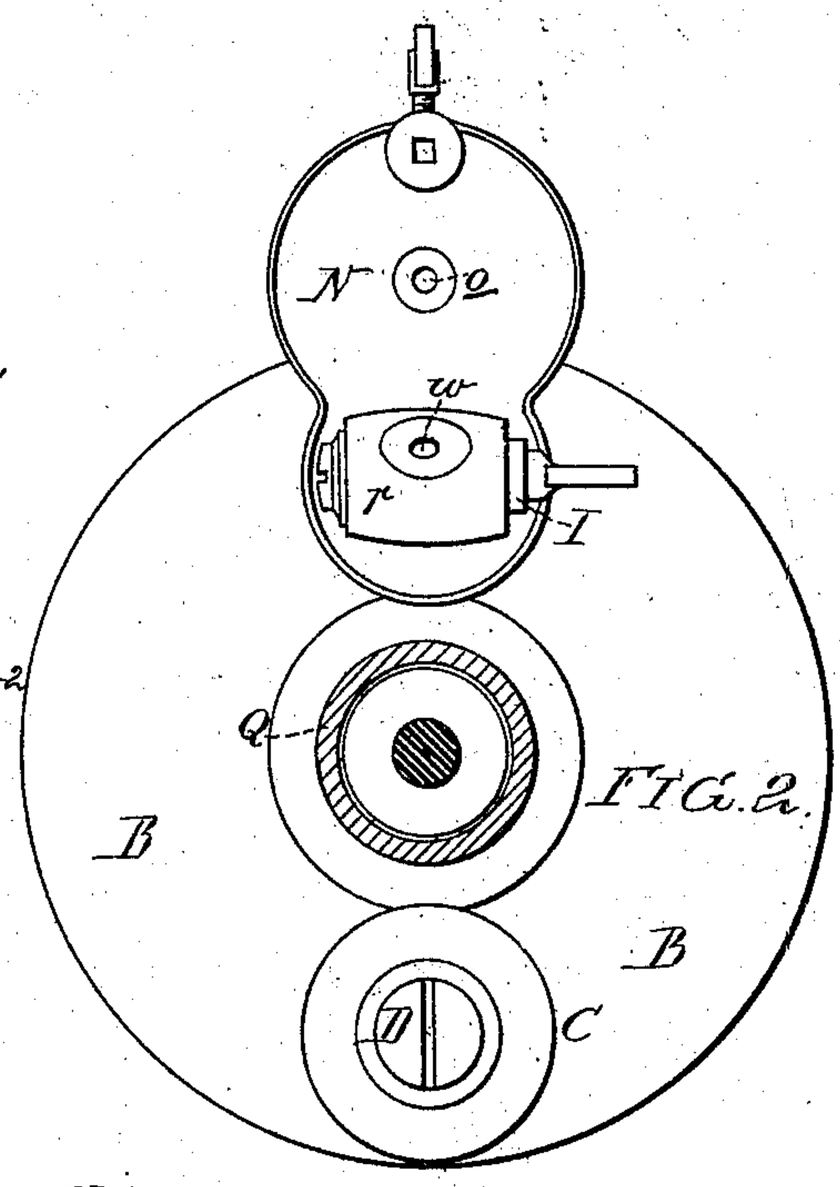

FIG. 2.

FIG. 3.

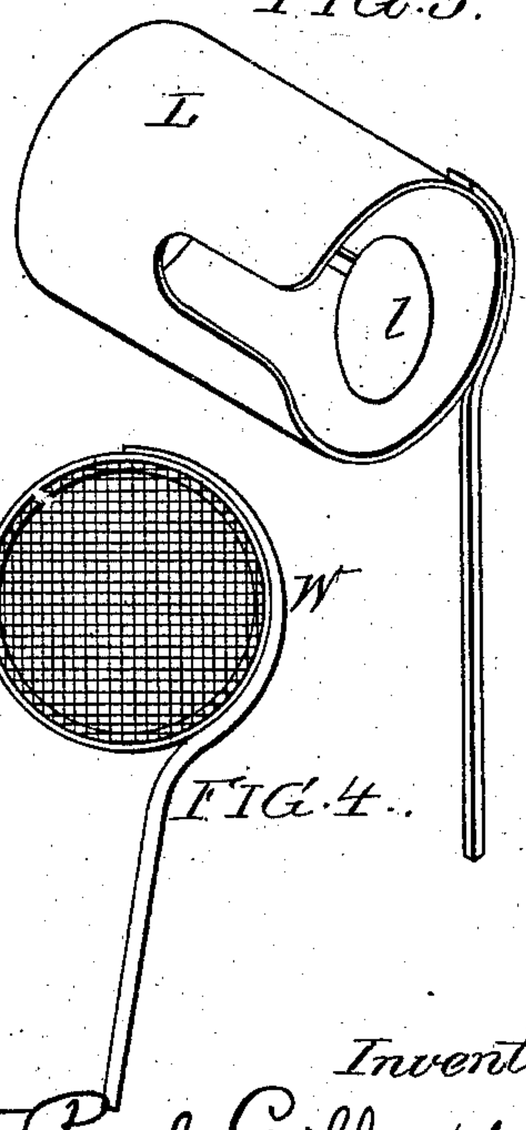

FIG. 4.

Witnesses,
Harry Howson Jr.
Harry A. Crawford

Inventor,
Paul Giffard
by his Attorneys
Howson and Son

UNITED STATES PATENT OFFICE.

PAUL GIFFARD, OF PARIS, FRANCE.

IMPROVEMENT IN VAPORIZERS.

Specification forming part of Letters Patent No. **211,234**, dated January 7, 1879; application filed August 24, 1878.

To all whom it may concern:

Be it known that I, PAUL GIFFARD, of Paris, Republic of France, have invented certain Improvements in Instruments for Atomizing Liquids; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of the instrument; Fig. 2, a sectional plan on the line 1 2; and Figs. 3, 4, and 5, detached views of parts of the instrument.

This invention relates to atomizing instruments, such as are used for disinfecting rooms, or for administering medicines by inhalation, or other purposes, the improvements relating especially to that class of instruments in which a liquid-reservoir and a pressure-pump are employed.

The main object of the invention is to so construct and arrange the parts as to produce a compact, self-contained, and portable instrument, from which a continuous, steady, and widely-diffused spray may be obtained with comparatively slight exertion.

A is a reservoir, preferably made of metal, and capable of resisting the desired air-pressure, a cover, B, being screwed or otherwise secured to the upper edge of the reservoir. On this cover is a device which serves the twofold purpose of a stopper and a safety-valve, by which the pressure in the reservoir is restricted. This device consists of the tubular stud *a*, screwed tight into the cover, and having at its top the annular seat of the valve D, the stem of the latter being guided by a cap, C, which is screwed onto the stud, and contains the valve and a spring, F, for depressing the same. On unscrewing and detaching the cap it will carry with it the valve, leaving the opening in the stud exposed for the passage through it of the liquid, with which the reservoir must be replenished from time to time.

The portion of the valve which bears on the seat consists of a washer, of leather or rubber, H, securely set into a recess in the metal portion of the valve, thereby insuring the close fitting of the same.

To a hollow stud screwed into the cover B is connected, by means of a screw-coupling, J, the tube P, with which communicates the pipe K, extending downward nearly to the bottom of the reservoir.

On the top of the tube P is the atomizing-cock, consisting of a socket, *r*, having an orifice, *w*, through which as much of the fluid is discharged as the conical plug I, adapted to the socket, will permit. This plug has not a hole through it, as in the plug of an ordinary faucet, but a graduated groove, 2, (best observed in the perspective view, Fig. 5,) is cut in the circumference of the plug—that is, a groove widest and deepest where it communicates with the interior of the tube P, and gradually decreasing in size, and vanishing as it approaches the orifice *w* in the socket *r*.

By this arrangement I am enabled to obtain a very delicate adjustment of the communication between the interior of the tube P and the said orifice *w*, and to regulate the jet escaping from the orifice with great nicety.

When the pump described hereinafter is operated, a jet of spray will be forcibly ejected from the orifice, and will be widely disseminated.

I sometimes combine with the atomizing-cock a convex plate, *l*, for the jet to strike against, Figs. 1 and 3, or in place of the plate a disk, W, of wire-gauze, Fig. 4, to insure a more thorough dissemination of the spray, and the plate or disk may be contained within an adjustable cylinder, L, and such liquid as may drip from the same is caught by a disk, N, and conveyed therefrom through a waste-pipe, *o*, into any suitable receptacle prior to being returned to the reservoir.

An air-pump forms part of the instrument, this pump consisting of a barrel, Q, with a piston similar to that for which Letters Patent No. 122,825, July 16, 1872, were granted to me, the piston-rod being guided by a perforated cap, *p'*, secured to the top of the barrel, and the top of the rod being furnished with a suitable operating handle or knob, *t*. Into the bottom of the barrel is screwed a plug, V, having a small central opening communicating with the chamber containing the foot-valve X, in which is set a ring, of leather or rubber, adapted to the seat within the valve-chamber, against which the valve is pressed by the spiral spring *x*.

The valve is sufficiently loose in the chamber, and the valve-stem sufficiently loose in its guide, to permit the free passage of the compressed air into the reservoir.

The reservoir may be enameled, tinned, or otherwise protected on its inner surface, to resist the injurious action of any fluids of a corrosive character which may be used.

Two or more atomizing-cocks may be used in connection with one reservoir, and the temperature of the liquid in this reservoir may be regulated by placing the said reservoir in water heated to the degree desired.

I claim as my invention—

1. The combination of the reservoir A, the pump Q, the valve X, the pipe K, tube P, and atomizing-cock I, all arranged substantially as described, so as to form a self-contained portable apparatus for atomizing liquids by the direct pressure of air, as set forth.

2. The within-described atomizing-cock, consisting of a socket, *r*, communicating with the reservoir, and having an orifice, *r*, and a plug, I, having a graduated groove, 2, all being combined substantially as set forth.

3. The combination of the atomizing-cock with an abutment plate or disk, against which the stream is projected, as set forth.

4. The combination of the atomizing-cock with the abutment plate or disk and cylinder L, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL GIFFARD.

Witnesses:
A. DENOYSON,
G. PASCAL.