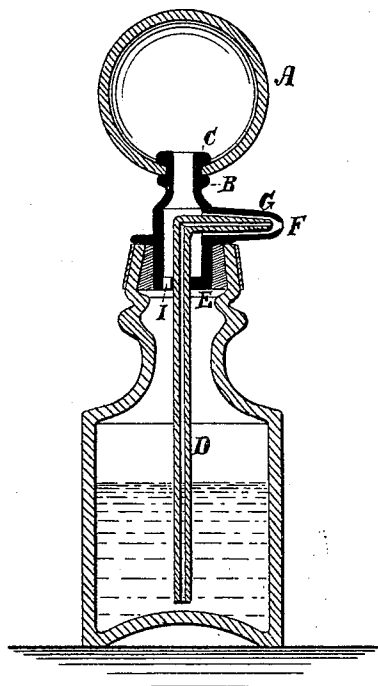


J. N. GERARD.
Atomizers or Vaporizers.

No. 143,070.

Patented September 23, 1873.



Witnesses:

A. Bennekenhoff.
Salguier

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UNITED STATES PATENT OFFICE.

JOHN N. GERARD, OF NEW YORK, N. Y.

IMPROVEMENT IN ATOMIZERS OR VAPORIZERS.

Specification forming part of Letters Patent No. **143,070**, dated September 23, 1873; application filed August 4, 1873.

To all whom it may concern:

Be it known that I, JOHN N. GERARD, of the city, county, and State of New York, have invented a new and Improved Vaporizer, of which the following is a specification:

I propose to arrange the air-jet nozzle so as to surround the liquid-jet nozzle and discharge an annular jet of air upon the jet of liquid as the latter emerges from the nozzle, the air-jet being caused by the contraction of its nozzle to converge and impinge upon the liquid-jet, and then continue in the same direction with the liquid-jet, and thus break it up into spray or vapor much more effectually than can be done by the small cross-jet of the ordinary arrangement, which must, of necessity, be so small as to penetrate the liquid-jet, and thus lacks in volume, so as to be of no effect after the impact, while in my arrangement the action is continued after the contact of the two jets.

The large orifice which I am enabled to have at the nozzle of the air-pipe affords ample ingress to the air, so that I do not require to employ an air-valve to the collapsible bulb, which I use for forcing the air. The air-space in the bulb is connected with the interior of the vessel containing the liquid, so that the pressure exerted on the air to force it out also acts on the liquid to expel it.

The more powerful and efficient action due to my arrangement allows of making the bulb much smaller than it has been found necessary to make them heretofore, thus enabling me to make much neater and cheaper vaporizers than those at present in use.

The drawing is a sectional elevation of a vaporizer according to my contrivance.

A is the hollow collapsible bulb, which, by preference, I make in cylindrical form, and attach to the top of the hollow bottle-stopper B by stretching the mouth of the bulb over the top into the groove C. D is the pipe, rising up from near the bottom of the bottle through the bottom E of the stopper, extending by a bend through the side of the stopper, and terminating in a small nozzle, F. G is the nozzle for the air; it projects from the side of the stopper, surrounds the nozzle F, and terminates slightly beyond the latter, with a contraction arranged to cause the air-jet to converge upon the liquid-jet at a point a little in advance of the two nozzles, so as to vaporize the liquid in the most effectual manner. I is the passage from the hollow stopper into the bottle below, to admit the air for forcing out the liquid.

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

1. The combination in a vaporizer of an air-nozzle surrounding the liquid-nozzle and arranged to concentrate the air-blast upon the liquid-jet, in the manner described.

2. The collapsible bulb attached to the hollow stopper by stretching the mouth over the head into the groove C, substantially as specified.

3. A vaporizer having the air-inlet at the ejecting-nozzle so as to dispense with the inlet-valve, substantially as specified.

JOHN N. GERARD.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.