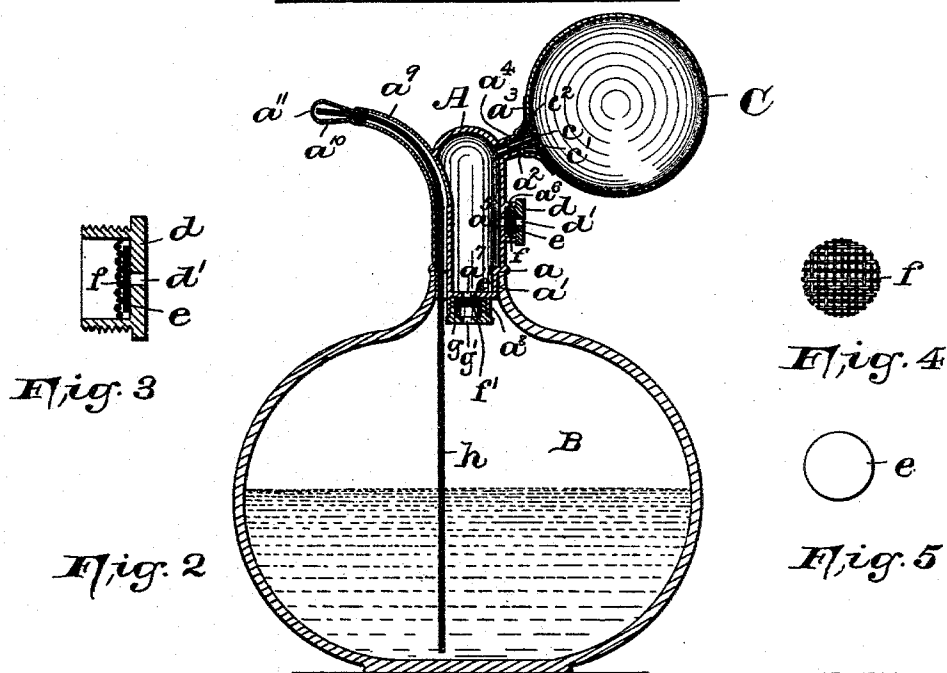
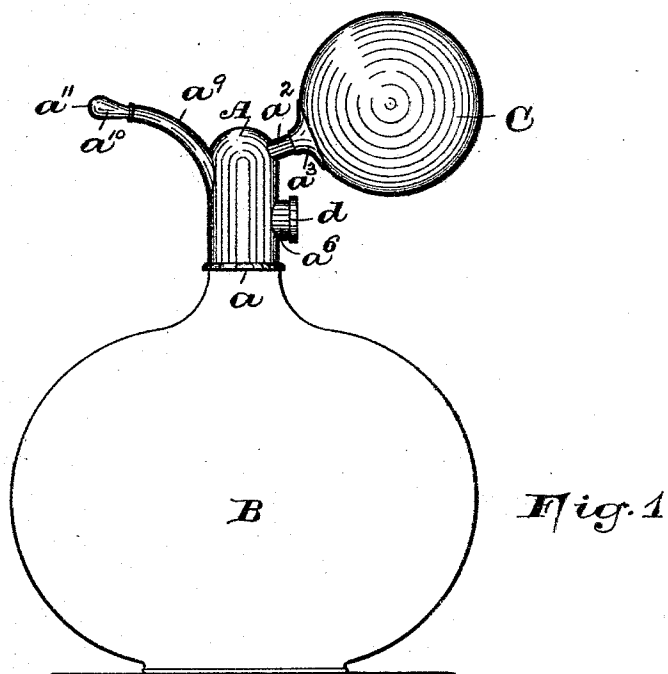


(No Model.)

J. H. SCHARLING.
ATOMIZER.

No. 515,504.

Patented Feb. 27, 1894.



WITNESSES:

9. Basil Hooper
Wm. H. Campfield, Jr.

INVENTOR:

John H. Scharling.

BY *Fred C. Fraentzel*, ATT'Y.

UNITED STATES PATENT OFFICE.

JOHN H. SCHARLING, OF NEWARK, NEW JERSEY.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 515,504, dated February 27, 1894.

Application filed March 29, 1893. Serial No. 468,136. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SCHARLING, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Atomizers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form part of this specification.

My invention has reference to improvements in atomizers, and the invention has for its object to provide an atomizer, on the neck of the bottle of which is secured a non-compressible air-chamber provided with valves, and the spray-tube or nozzle, and communicating with said chamber is a compressible bulb or ball, in which, however, all valves are dispensed with.

The invention therefore consists in the atomizer herein set forth, as a new article of manufacture, and also in certain novel arrangements and combinations of parts, such as will be hereinafter more fully set forth, and finally embodied in the clauses of the claim.

The present invention is illustrated in the accompanying sheet of drawings, in which similar letters of reference are employed to indicate corresponding parts in each of the several views.

In said drawings, Figure 1 is a side view of an atomizer embodying my invention. Fig. 2 is a vertical section of the same. Fig. 3 is an enlarged vertical section of one of the valves employed. Fig. 4 is a view of a sieve or screen employed in the valves, and Fig. 5 is a plan of the rubber disk used in the present form of valve.

As indicated in the herein-above described views, B is an atomizer, which may be of any suitable form and construction, and may be made, either of glass or metal.

A is a non-compressible cap forming an air-chamber, which cap is provided with a shoulder a and a screw-threaded portion a' by means of which the cap can be detachably secured in the neck of the bottle or atomizer B. Said cap A, which is preferably of metal, may

be cast in halves and soldered or secured together to form the said chamber, or it may be made in any other well-known manner. At or near the top of said cap A, I have formed a tubular projection a^2 , which terminates in an ornamental enlargement a^3 , and is screw-threaded on the inside, as at A^4 . A rubber or other flexible bulb or ball C provided with a tube c having a shoulder or flange c' on the inner side of said bulb or ball and provided with a screw-thread c^2 , is screwed into the tubular projection a^2 , as will be clearly seen from Fig. 2. Of course any other well-known means may be employed for securing the bulb or ball to said cap A, the purpose being to establish a communication between the air chamber formed by said cap A and the compressible bulb or ball C. In the side of said cap A, is an inlet valve. Said valve is arranged over an opening or hole a^5 and consists of a screw-threaded valve chamber d , which is screwed into the tubular enlargement a^6 surrounding said hole a^5 . Said valve-chamber d is provided with a hole or vent d' and directly over said vent d' is a rubber disk e and arranged behind the same is a circular piece of wire netting or a sieve f . The screw-threaded portion a' secured in the neck of the bottle B, is provided with a hole a^7 and surrounding the same is a tubular enlargement a^8 , which is screw-threaded on the inside and has screwed therein a valve chamber g provided with a vent g' . Against the hole a^7 I have arranged a rubber disk e' and behind said disk is a circular piece of wire netting or a sieve f' .

Of course it will be evident that any other well-known forms of valves may be used in place of those shown in Fig. 2, and I therefore do not limit my invention to the exact form of valves shown. At one side of said cap A is a bent tube a^9 , which extends down into the chamber formed by said cap A and forms part of the same, and has on its free end a nozzle or sprayer a^{10} . Within said tube a^9 and terminating directly in front of an opening a^{11} in said nozzle a^{10} is a small piece of tubing h , held in position by said nozzle or sprayer a^{10} , the opposite end of said tube h extending down into the liquid in the bottle B, as will be clearly seen from Fig. 2.

When the bulb or ball C is compressed, the

air in the cap A shuts the valve disk *e* against the hole *a*⁵ and thereby closes the valve, while the valve disk *e*' is forced away from the hole *a*⁷, whereby the air in the bottle is compressed and forces the liquid through the tube *h* into the nozzle *a*¹⁰ and out of the opening *a*¹¹. At the same time some of the air is forced through the tube *a*⁹ and out of the opening *a*¹¹ which causes the liquid to spray, instead of passing therefrom in a steady stream, as will be evident. As soon as the bulb or ball is released by the operator, the valve disk *e*' is forced against the hole *a*⁷ which closes the valve, while the suction caused by the expanding of the bulb or ball C, forces the rubber disk *e* away from the hole *a*⁵, and allowing an ingress of air, to again fill the ball or bulb. Thus it will be seen that the back pressure in the bottle B closes the valve connected therewith while the valve in the cap A is opened to fill the chamber and the ball C.

Having thus described my invention, what I claim is—

- 25 1. In an atomizer, in combination, a cap A forming an air chamber, a screw-threaded and tubular projection *a*⁶ on the side of said cap, a valve plate *d* secured in said projection and a valve therein, a screw-threaded and tubu-

lar projection *a*⁸ in the bottom of said cap, 30 and a valve in said projection, a tubular projection *a*² in the upper portion of said cap, a flexible air bulb or ball secured to said projection *a*², and a tube *a*⁹ provided with a nozzle, said tube *a*⁹ forming part of said cap, substantially as and for the purposes set forth. 35

2. In an atomizer, in combination, a cap A forming an air chamber, a screw threaded and tubular projection *a*⁶ in the side of the cap, a valve plate *d* secured in said projection and a valve therein, a screw threaded and tubular projection *a*⁸ in the bottom of said cap, and a valve in said projection, a tubular projection *a*² in the upper portion of said cap, a flexible air bulb or ball secured to said projection *a*², and a tube *a*⁹ provided with a nozzle, said tube *a*⁹ forming part of said cap, a bottle B to which said cap is secured, and a spray tube *h* arranged in said tube *a*⁹ extending into said bottle, all arranged substantially as and for the purposes set forth. 50

In testimony that I claim the invention set forth above I have hereunto set my hand this 27th day of March, 1893.

JOHN H. SCHARLING.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.