

(Model.)

M. MATTSON.
ATOMIZER.

No. 263,553.

Patented Aug. 29, 1882.

Fig. 2.

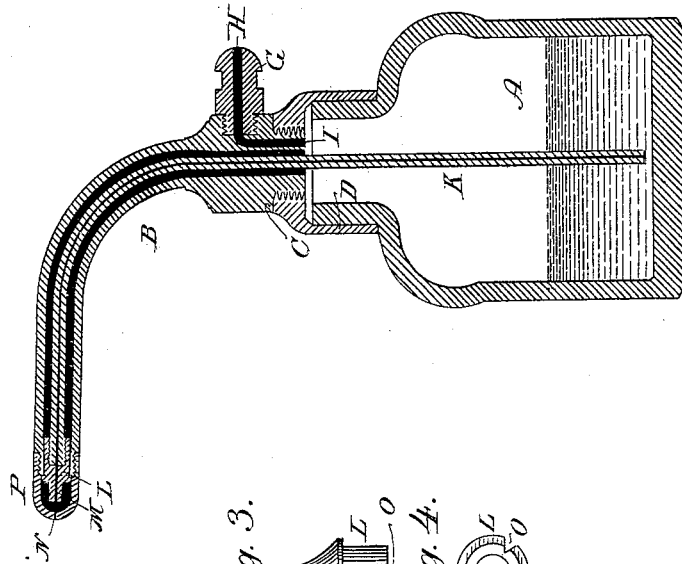


Fig. 3.

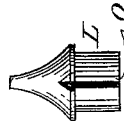
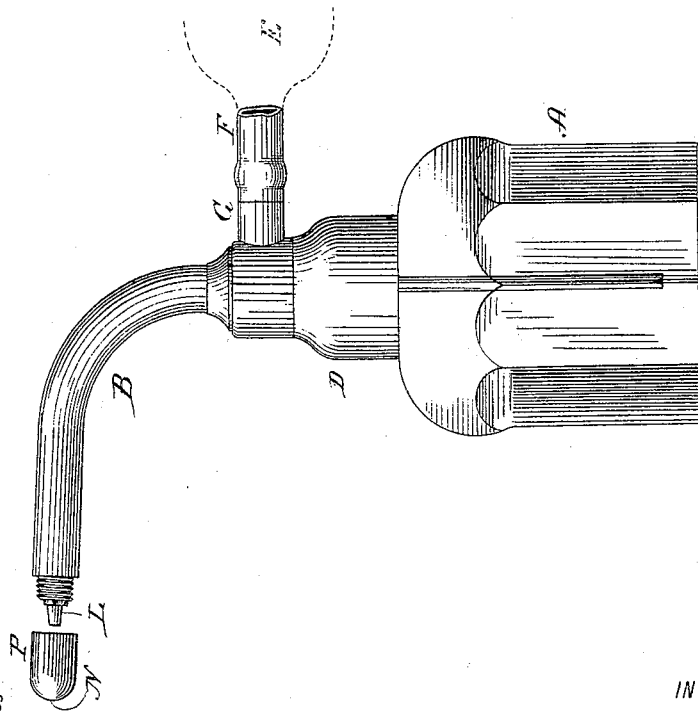


Fig. 4.



Fig. 1.



WITNESSES

Wm A. Skinkle
Ernest Abshagen

INVENTOR

Morris Mattson

By his Attorneys

Baldwin, Hopkins & Fyfe

UNITED STATES PATENT OFFICE.

MORRIS MATTSON, OF NEW YORK, N. Y.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 263,553, dated August 29, 1882.

Application filed April 29, 1882. (Model.)

To all whom it may concern:

Be it known that I, MORRIS MATTSON, a citizen of the United States, residing in the city, county, and State of New York, have invented an Improved Atomizer, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to atomizers in which air is forced by means of a single hollow compressible bulb and suitable tubes into a vessel containing liquid to be atomized, from which vessel air and liquid are discharged, forming ultimately a fine spray.

The object of my improvement is to produce a cheap, simple, and efficient atomizer, which will create a gentle continuous spray in contradistinction to an explosive intermittent discharge. This object I accomplish by a particular organization of elements individually well known in atomizers, which organization constitutes my improvement, and is accurately defined in my claim, so as to distinguish it from other organizations found in atomizers.

In the accompanying drawings, representing my improved atomizer, Figure 1 is an elevation of my atomizer. Fig. 2 is a vertical central section of the same. Fig. 3 is a side view of the liquid-tube nozzle, and Fig. 4 is a cross-section of the same.

Referring to the letters upon the drawings, A indicates a vessel partly filled with liquid to be converted into spray. This vessel is closed by any suitable stopper, but preferably one, as shown in the drawings, consisting of a screw-threaded enlarged end of a spraying-tube, B, provided with a shoulder, C. This threaded tube may be of hard rubber or metal, and the screw-threaded form of stopper may be employed whenever the vessel is composed of hard rubber, metal, or any other material well adapted to the formation of a screw-thread within its neck. When, however, the vessel is of glass I employ a stopper suitably packed within the neck of the vessel and provided with suitable passages for the inlet air-tube and spray-tube, or else a screw-threaded cap, D, tightly secured over the bottle-neck.

E indicates a collapsible or compressible bulb of ordinary construction, (not fully shown,) which is provided with suitable inlet-valves

and with a flexible air-tube, as usual. This air-tube F is connected in any usual way with a short tube, G, preferably screw threaded, as shown, and secured within a screw-threaded aperture in the enlarged end of the spray-tube B.

H indicates an air-passage through the center of the short tube G, communicating with another passage, I, within the enlarged end of the spray-tube, and leading into the interior of the vessel A. This is the air-inlet passage, and should be large enough so that when the bulb is compressed a considerable volume of air will be rapidly forced into the vessel above the liquid to be sprayed.

K indicates a tube extending down into the vessel A, below the surface of the liquid and nearly to the bottom of the vessel. It may extend to the bottom and be notched, as shown, to admit liquid. The upper end of this tube occupies the interior of the spray-tube, and its outer end is preferably supported by a plug or nozzle, L, provided with shoulders, so as to fit into and bear against the outer end of the spray-tube, with its central opening, M, in line with the spray-aperture N, as plainly indicated in the drawings. This plug is provided with one or more grooves, O, in its sides for admitting the air from the vessel coming through the spray-tube into the cap P of the spray-tube, where it mingles with the liquid discharged from the tube K, and then passes out through the spraying-aperture N in a continuous stream whenever the compressible bulb is operated properly in the ordinary manner.

It will be observed that the inlet air-passage extends through the stopper, so that the air forced into the vessel by the bulb is projected downward upon the surface of the liquid contained in the vessel, and then escapes in an opposite direction through the spray-tube, the air space or reservoir of the vessel above the liquid serving as a condenser or chamber for compressed air.

As the aperture N in the spray-tube is much smaller than the inlet air-passage, and as the central opening of the tube K is also much smaller than the air-inlet passage, the escape of spray through the opening N must necessarily be in smaller volume than the volume of air forced into the vessel through the inlet-

passage. The result is that the escape of air through the spraying-aperture will be comparatively slow, and while it is forced into the vessel by sudden intermittent impulses it will
5 flow out continuously in a stream on account of the accumulation of compressed air in the vessel over the liquid. The compressed air there will act with a substantially constant force upon the surface of the liquid and drive it
10 also out of the tube K in a continuous flow. The result is that a continuous unintermittent spray of intermingled air and liquid is discharged from the aperture N without the ordinary more complicated appliances by which
15 only such a result has heretofore been accomplished.

I am well aware that a constant spray has been produced before, as is illustrated, for example, in the United States Patent No. 190,789,
20 where a separate air-compressor and a reservoir or accumulator are employed to force air continuously into a liquid-containing vessel; but this apparatus is much more complicated, expensive, and difficult to handle than mine,
25 and is entirely different.

I am also aware of the construction shown in United States Patents Nos. 143,070, 171,637, and 186,208, respectively showing certain improvements in atomizers; but none of these
30 patents describes or illustrates an atomizer for producing a continuous flow of spray. On the contrary, each one provides for an intermittent discharge of spray, and this difference in result is due to the differences in the combinations and arrangements of parts going to make
35 up the atomizers. Substantially the same is true of United States Patent No. 225,056 for a spray-dampener.

I am also aware of the improved catarrh apparatus shown in United States Patent No. 40 218,164, which, while by some of its adjustments it seems to be adapted to produce a continuous stream of liquid it nowhere discloses the combination and arrangement of parts
45 adapted to produce a continuous spray of mingled air and liquid such as I claim. Therefore I disclaim the peculiar construction and combinations of parts described and illustrated in the said patents, and confine myself to my
50 own peculiar construction and combination as above described and as accurately defined in my claim.

I claim as of my invention—

The combination, in an atomizer substantially as above set forth, of the single bulb
55 provided with ordinary bulb-valve mechanism, the air-inlet tubes or passages extending into the vessel over the liquid and delivering all the air there, the liquid-vessel and its stopper,
60 the spray-tube separate from the air-inlet passage, and with its opening end smaller than the air-inlet passage, and the liquid-outlet tube K, also having an orifice smaller than the air-inlet
65 passage and extending nearly to the bottom of the vessel, all arranged as described, so that the air being all forced intermittently into the
70 vessel above the liquid is accumulated and compressed, whereby it exerts a continuous force upon the outflowing air and liquid and produces a continuous flow of spray, as described.

MORRIS MATTSON.

Witnesses:

J. FRED DOTY,
CHARLES CLAUSER.