(No Model.)

F. F. BOURDIL.

APPARATUS FOR ATOMIZING OR PULVERIZING LIQUIDS.

No. 501,178. Patented July 11, 1893.

FIG. 1.

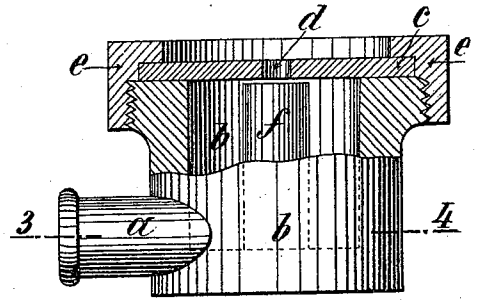
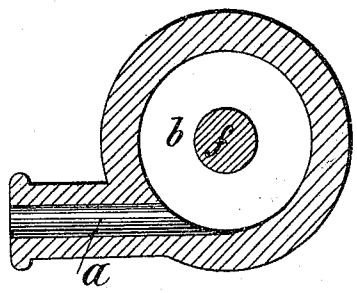


FIG. 2.



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UNITED STATES PATENT OFFICE.

FRANÇOIS FERNAND BOURDIL, OF PARIS, FRANCE.

APPARATUS FOR ATOMIZING OR PULVERIZING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 501,178, dated July 11, 1893.

Application filed July 25, 1892. Serial No. 441,137. (No model.) Patented in France April 27, 1891, No. 213,054.

To all whom it may concern:

Be it known that I, FRANÇOIS FERNAND BOURDIL, of the city of Paris, France, have invented Improvements in Apparatus for Atomizing or Pulverizing Liquids, (for which I have obtained Letters Patent in France for fifteen years, dated April 27, 1891, No. 213,054,) of which the following is a full, clear, and exact description.

My invention relates to an improved apparatus for atomizing or pulverizing liquids in which the pulverized jet is projected through an aperture made in a resilient or flexible diaphragm. By the substitution of a resilient or flexible diaphragm for the rigid diaphragm ordinarily employed, the frequent choking to which such atomizers are subject when the liquid contains solid matters in suspension or is of a more or less thick consistency, is entirely avoided.

Reference is to be had to the accompanying drawings, forming part of this specification.

Figure 1 is a part sectional elevation and Fig. 2 a horizontal section on line 3—4, of my improved atomizer.

The same letters of reference denote like parts in all the figures.

The liquid to be atomized is forced by means of a pump or other suitable means through the pipe *a* into the box or chamber *b* which is preferably made cylindrical, as shown. The box is closed at top by a diaphragm *c* of india-rubber or other sufficiently elastic material having a central hole *d* for the discharge of the pulverized liquid said diaphragm being secured by a screw-threaded ring *e* or other suitable means. A pillar *f* is fixed centrally in the box *b* upon which the diaphragm rests so as to act as a valve, the diaphragm rising sufficiently to give passage to the pulverized liquid, the liquid pulverized by the gyratory movement which it acquires in box *b* escaping at orifice *d* in the form of a conical jet. The elasticity of the diaphragm prevents choking and also renders unnecessary the employment of the needle or equivalent device hitherto used in a similar atomizer provided with a thin perforated metal disk. Moreover, in this arrangement the diaphragm *c* acts as a valve in conjunction with the pillar *f* at each return stroke of the pump by which the atomizer is supplied. The check valve generally employed in apparatus of this kind can be dispensed with.

The method of producing the pulverization of the liquid may be varied without in any way departing from the invention which is based essentially on the employment of an elastic in lieu of a rigid diaphragm.

My improved apparatus may be employed for atomizing and distributing all kinds of liquids for any purpose, including for instance those applied to agricultural or industrial uses.

I claim—

In a liquid atomizer or pulverizer, the combination of an apertured flexible diaphragm *c*, *d*, with vertical pillar *f*, wholly beneath the diaphragm, box *b* and inlet *a* for the liquid, substantially as described and for the purpose specified.

The foregoing specification of my improvements in apparatus for atomizing or pulverizing liquids signed by me this 9th day of July, 1892.

FRANÇOIS FERNAND BOURDIL.

Witnesses:
ROBT. M. HOOPER,
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