(No Model.)

C. GAUTHIER.

ATOMIZER.

No. 386,121. Patented July 17, 1888.

Fig. 1.

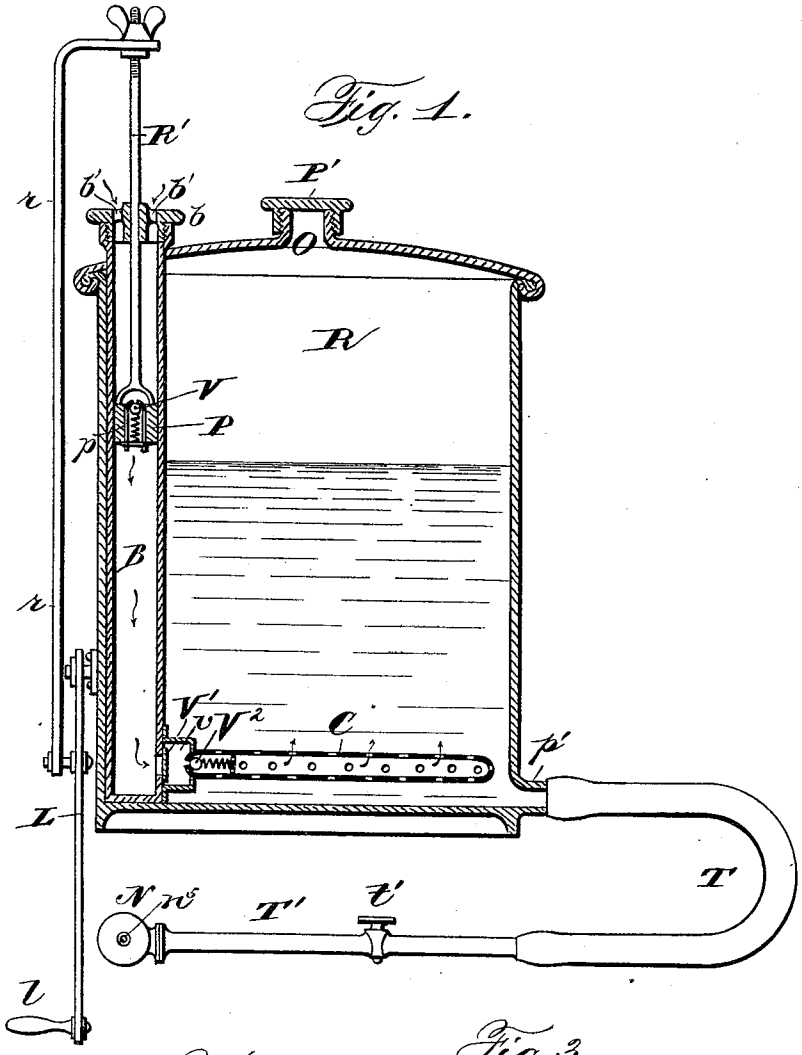


Fig. 2.

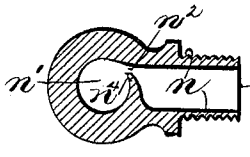
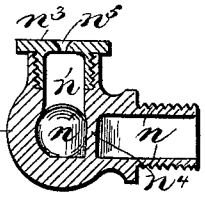


Fig. 3.



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UNITED STATES PATENT OFFICE.

CLEMENT GAUTHIER, OF MARSAS, NEAR CAVIGNAC, GIRONDE, FRANCE.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 386,121, dated July 17, 1888.

Application filed November 22, 1887. Serial No. 255,856. (No model.) Patented in France April 23, 1887, No. 182,978.

To all whom it may concern:

Be it known that I, CLEMENT GAUTHIER, a citizen of the French Republic, residing at Marsas, in the French Republic, have invented certain new and useful Improvements in Atomizers, (for which I have obtained Letters Patent in France, dated April 23, 1887, No. 182,978;) and I do hereby declare that the following is a full, clear, and exact description of the same.

Referring to the drawings, Figure 1 is a vertical transverse section of my improved atomizer; and Figs. 2 and 3 are horizontal and vertical sections, respectively, of the atomizing-nozzle.

The invention relates to apparatus for subdividing liquids ejected from a nozzle so as to be delivered therefrom in the form of fine spray or mist, and commonly known as "atomizers;" and it relates more especially to that class of atomizers used in spraying plants to rid them of fungi or animalculæ, a solid being usually combined with the liquid or held in solution thereby.

One of the objects of my invention is to provide an apparatus of sufficient capacity for use by gardeners either in hot-houses or out of doors.

The invention has for its further object to provide means for preventing the subsidence or settling of the solid matter mixed with or held in suspension in the liquid.

The further object of my invention is to impart to the liquid a gyratory motion in the atomizing-nozzle, for the purpose of more effectually subdividing the same on issuing from said nozzle.

To these ends the invention consists in structural features and combinations of parts, substantially as hereinafter fully described, and as set forth in the claims.

In the drawings, R indicates the reservoir for the liquid to be atomized, which should be sufficiently strong to resist the pressure necessary to the ejection and atomizing of the liquid. The reservoir is provided at its top with a charging-orifice, O, closed by a screw-plug, P', and at the bottom with a discharge-pipe, p', to which is connected a flexible tube, T, provided with the discharge-tube T', that terminates in the atomizing-nozzle N. The discharge-tube is provided with a stop-cock, t', for obvious purposes. The nozzle N consists of a tubular coupling-shank, n, adapted to be screwed into the discharge-tube T', and of a barrel, n', formed at right angles to the tubular shank, and whose inner vertical wall, n^4, projects across the bore of said shank, so as to form a narrow opening or slit, n^2, to one side of said bore. The lower part of the bore of the barrel is enlarged and more or less spherical, as at n^5, the object of this construction being to impart to the fluid a gyratory or circular motion in the barrel before said fluid reaches the exit-orifice, to more effectually atomize the same by centrifugal force as it issues from the nozzle. To the upper end of the barrel n' is screwed the perforated cap n^3, the perforation n^5 of which is made tapering inwardly.

Within the reservoir R is arranged a pump-barrel, B, in which operates a piston, P, whose rod R' extends through the cap b of the barrel and is connected with a rod, r. The latter rod is connected to one arm of an angle or bell-crank lever, L, whose other longer arm is provided with a handle, l, and by means of which the piston P is reciprocated in the pump-barrel. The cap b has air-ports b', and in the piston is a valve-casing, p, containing a spring-actuated ball-valve, V, opening inwardly. Near the lower end of the pump-barrel is formed a valved port, whose valve V' opens inwardly into a valve-casing, v, to which is secured a pipe, C, provided with numerous perforations. In the end of the pipe leading into the valve-casing v is arranged a spring-actuated ball-valve, V^2, that also opens inwardly. By means of the pump air is forced into the receiver through the pipe C and compressed in the said receiver to the desired degree, the stop-cock in the discharge pipe or tube T' being of course closed during the operation of compression.

The object of forcing the air into the reservoir or receiver through a perforated pipe located nearly at the bottom thereof and extending across the reservoir is to thoroughly agitate the liquid, and thereby prevent the subsidence or settling of any solid matter held in suspension in the liquid.

A coil of pipes may be employed, if desired, and said perforated pipe may be dispensed with when liquids are used without an admix-

ture of a solid or when liquids are used holding a solid in solution.

Instead of the ball-valve V in the piston, any other well-known construction of valve may be employed, and instead of locating the air-pump within the reservoir said pump may be attached thereto in any desired manner, or the pump may form an independent part of the reservoir.

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

1. In an atomizer, the combination, with a fluid-reservoir, an atomizing-nozzle connected therewith, and a valve in the connection between the nozzle and reservoir, of an air-pump located within the reservoir, a perforated pipe arranged in the lower portion of the reservoir in proximity to the bottom thereof, and communicating at one end with the discharge-port of the pump, a back-pressure valve for closing the end of said perforated pipe, and a like valve for said discharge-port of the pump, all arranged for co-operation substantially as and for the purpose specified.

2. The herein-described atomizing-nozzle N, having a vertical wall or partition, n^4, interposed in its passage between its inlet and discharge ends to form a narrow opening, n^2, and the spherical enlargement n^5, formed in said passage between the wall n^4 and the discharge-orifice of the nozzle, as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of October, 1887.

CLEMENT GAUTHIER.

Witnesses:

CAMILLE CHARROPPIN,

JOSEPH PETKOWSKI.