F. P. BERGH.

ATOMIZER.

APPLICATION FILED APR. 8, 1913.

1,129,540. Patented Feb. 23, 1915.

Fig. 1.

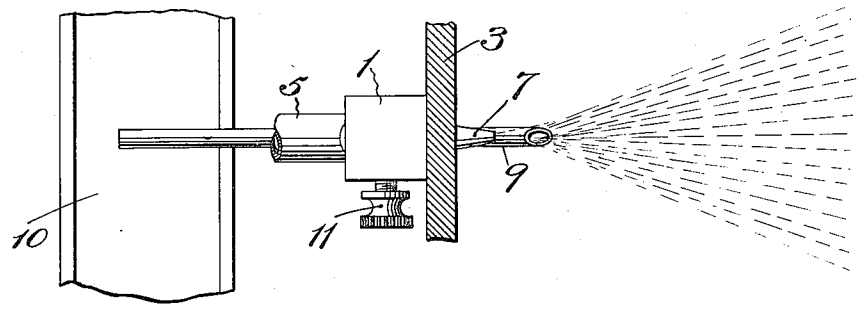


Fig. 2.

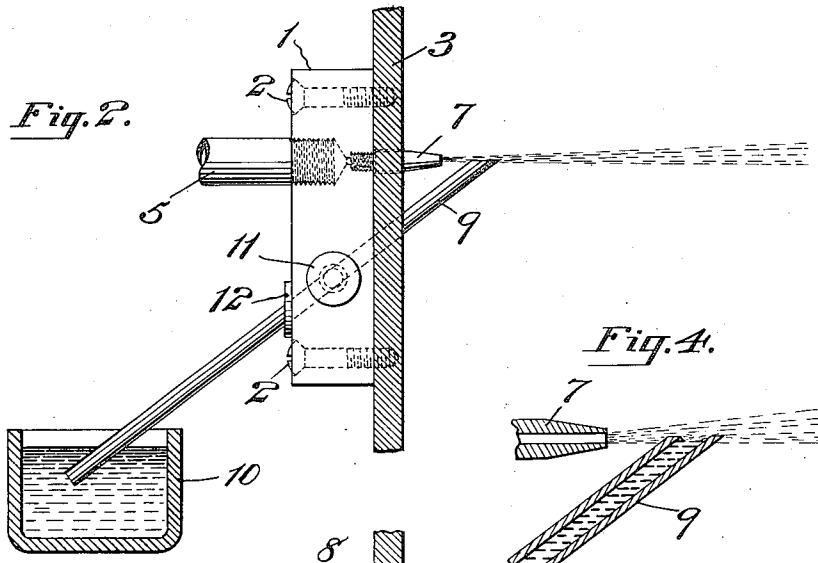
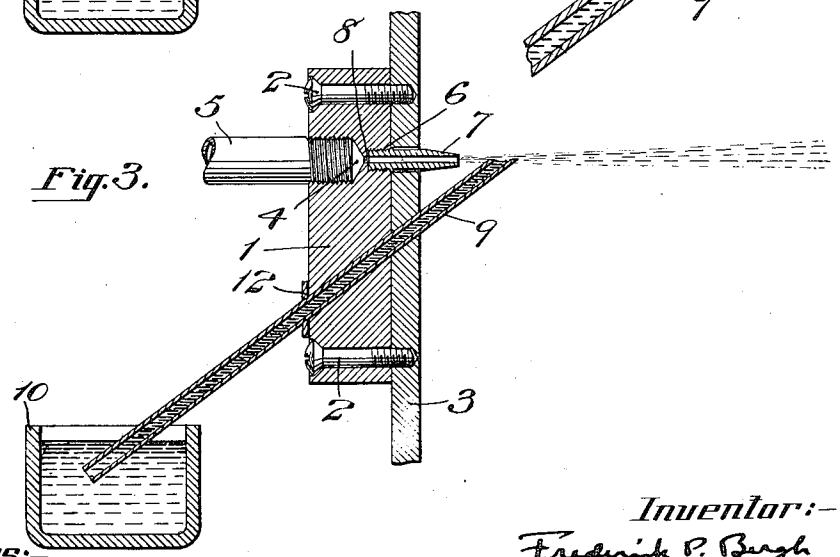


Fig. 4.

Fig. 3.



Witnesses:-
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UNITED STATES PATENT OFFICE.

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ATOMIZER.

1,129,540. Specification of Letters Patent. Patented Feb. 23, 1915.

Application filed April 8, 1913. Serial No. 759,698.

To all whom it may concern:

Be it known that I, FREDERICK P. BERGH, a citizen of the United States, and resident of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Atomizers, of which the following is a specification.

This invention relates to atomizers and has for its object the provision of a device of this character which will be of high efficiency, very free from clogging, which may be used for atomizing either neutral or acid substances and which may be readily removed or adjusted from the exterior of the chamber in which the precipitated material is deposited, without interrupting the process.

Another object is to provide certain improvements in the construction, form and arrangement of the several parts whereby the above mentioned objects may be effectively carried out.

Previous to my invention, considerable difficulty has been experienced in the use of atomizers owing to the tendency of the material to collect at the spray nozzle and eventually clog the same. This clogging has either required the use of complicated apparatus for cleaning the nozzle or the interruption of the process for a considerable period of time while the operator entered the chamber in which the material is being precipitated and cleaned the nozzle. By my invention I not only promote the efficiency of the spraying arrangement and prevent the likelihood of the stoppage of the nozzle, but I also provide means for conveniently adjusting or removing the nozzle for rapidly cleaning or changing the nozzle from outside the chamber, and hence obviate any disturbance of the process.

A practical embodiment of the invention is represented in the accompanying drawings in which,

Figure 1 represents a top plan view of the atomizer, Fig. 2 represents a side view of the same, Fig. 3 a vertical central section thereof, and Fig. 4 an enlarged detail section of the spray nozzle and air tip.

The assembly block, or means for supporting the air tip and spray nozzle in juxtaposition, is denoted by 1, and it may be provided with suitable screws 2 for conveniently securing it to the wall 3 of the chamber (not shown) which receives the precipitated material. This assembly block 1 is provided with a horizontally disposed interiorly screw-threaded recess 4, fitted to receive the exteriorly screw-threaded end of a tube 5 connected with a source of compressed air or other suitable power supply not shown. The assembly block is also provided with another and smaller interiorly screw-threaded recess 6, concentrically disposed with respect to the recess 4, and adapted to receive the exteriorly screw-threaded rear end of an air tip 7. The recesses 4 and 6 communicate through a constricted passage 8 in the block 1, concentric with the said recesses. The assembly block 1 also has an angularly disposed hole extending therethrough and arranged to snugly receive a feed or spray nozzle 9; the rear end of the said feed or nozzle being adapted for submersion in the liquid to be atomized, which is conventionally represented in the drawings as contained in the trough 10. The feed or nozzle 9 is tubular in form and its mouth is formed by cutting the tube obliquely to the axis thereof, as clearly shown in Figs. 2, 3 and 4. A set screw 11 is fitted in the assembly block 1, and its inner end is adapted to engage the feed or nozzle 9 for securing the same in any desired adjustment. The said feed or nozzle may also be provided with a suitable guard 12 secured thereto for preventing it from being forced too far into the chamber, and to insure that the mouth is up. It will be noted that the wall 3 of the chamber is provided with suitable openings for permitting the air tip 7 and spray nozzle 9 to be projected into the interior of the said chamber.

By setting the air tip in a horizontal position and the feed or spray nozzle at an acute angle thereto, I prevent the dribbling of the nozzle which would result in the accumulation of a deposit at the mouth thereof, owing to the wiping effect which is obtained by the contact of the air with the nozzle when the two are so relatively disposed. This improved effect is heightened by making the main passage of the feed or spray nozzle 9 at an acute angle to the horizontal while the mouth of the nozzle is in a horizontal position. Furthermore, by having the mouth greater in area than the cross section of the main passage in the feed or nozzle 9, and particularly by producing this structure in the manner shown, I almost positively prevent the possibility of unsatisfactory operation owing to drib-

bling and also obtain an atomized spray of a substantially flat and flaring configuration, which I have found to be much more efficient than the usual conical configuration of the atomized spray which results from the operation of previous forms of atomizer.

It will be noted, as particularly shown in Fig. 4, that this form of nozzle supplies a relatively enlarged and flat basin (so to speak) of the liquid, and that the air scoops down into this basin as well as around the edges of the mouth, thus insuring that the spray will go off in a substantially flat fan-like form of uniform composition.

It will be seen that my invention provides for the convenient assembly of the feed or spray nozzle, in order to provide nozzles of different material in atomizing different substances. For example, to provide material which will resist the action of say, sulfuric acid when atomizing that substance and provide a nozzle of some other suitable material when atomizing milk.

I desire to have it understood that various changes may be resorted to in the form, construction and arrangement of the several parts of my atomizer without departing from the spirit and scope of my invention and hence I do not limit myself strictly to the form herein shown and described, but

What I claim is:

In combination with a receiving chamber, an atomizer provided with a horizontally disposed adjustable air tip, and a spray nozzle arranged at an acute angle to said air tip and adapted to be adjusted or removed from outside the receiving chamber, said spray nozzle having an elongated mouth with its longitudinal axis parallel to the axis of the air tip.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this fifth day of April 1913.

FREDERICK P. BERGH.

Witnesses:

F. GEORGE BARRY,

OTTO W. HOLMGREN.