(No Model.)

N. DU BRUL.

ATOMIZER.

No. 591,745. Patented Oct. 12, 1897.

Fig. 1.

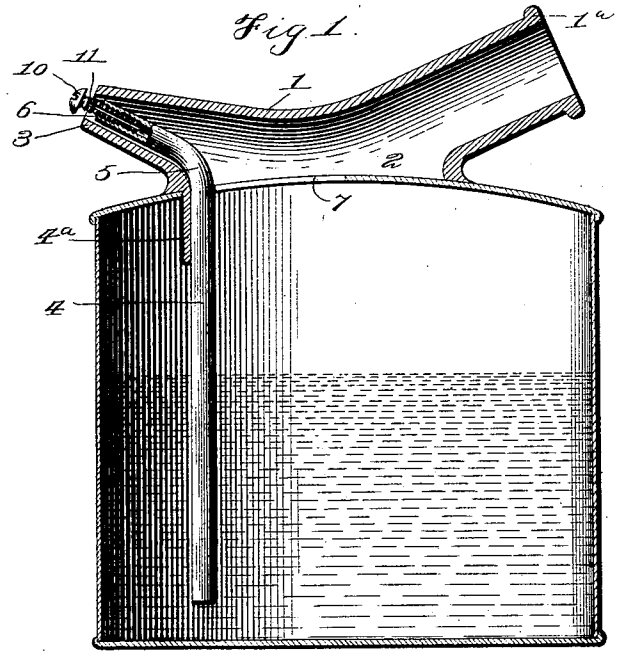


Fig. 2.

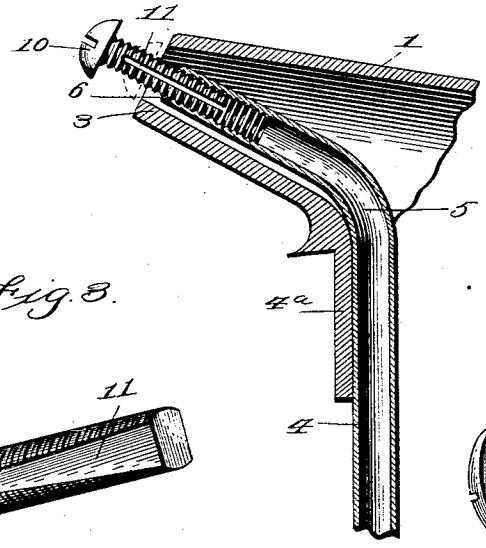


Fig. 3.

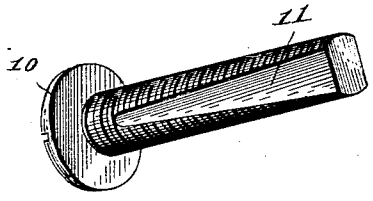
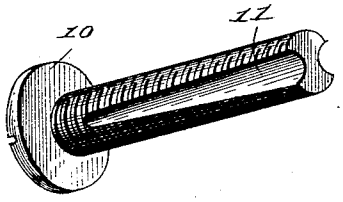


Fig. 4.



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ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 591,745, dated October 12, 1897.

Application filed April 23, 1896. Serial No. 588,775. (No model.)

To all whom it may concern:

Be it known that I, NAPOLEON DU BRUL, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sprayers, of which the following is a specification.

My invention relates to those devices which when combined with an appropriate liquid-receptacle will serve to introduce thereto air under pressure and cause the liquid to be discharged from the receptacle and delivered in a finely-divided state or spray.

The first part of my invention consists in novel features of construction of the discharge-nozzle whereby the liquid withdrawn from the receptacle and the conversion of the same into spray can be regulated at will.

The second part of my invention relates to the particular construction of the receptacle and spraying attachment.

In such devices as now constructed it is customary to have an air-pressure tube leading to the blast-nozzle and also communicating with the liquid-receptacle, so that in addition to the suction caused by the air-blast around the end of the liquid-tube the liquid is also assisted in escaping by air-pressure which accumulates in the receptacle. This development of pressure within the receptacle results from the inability of air to escape through the restricted nozzle as fast as it is delivered into the air-pressure tube, and it will often happen that the amount of liquid expelled is in excess of the atomizing capacity of the air-blast and is consequently precipitated in large drops, so as to defeat the object of the device. My invention overcomes this defect by providing means for graduating the opening through which the liquid escapes, thus not only preventing the delivery of too much liquid, but developing greater air-pressure at the blast-nozzle and consequently more complete vaporization of the liquid which escapes. This means for graduating the escape-opening also incidentally acts as a spreader for the spray, and it consists of a screw inserted in the discharge end of the liquid-tube and having a portion of its length slitted, flattened, or otherwise cut away, so as to leave a passage or passages past the screw, and said screw may be adjusted to expose more or less of the cut-away portion outside the tube and correspondingly regulate the capacity of the escape-opening. The head of the screw coöperates with the outer surrounding portion of the blast-nozzle to produce a spreading effect, which is likewise regulated by movement of the screw.

The second part of my invention consists in making the spraying attachment in the form of a tube having on one side an integral open base for mounting it over an opening in the top of the receptacle, so as to communicate pressure thereto, the liquid-tube being held in fixed relation with the tube, projecting down into the receptacle and terminating at the blast-nozzle formed on one end of the tube.

In the accompanying drawings, Figure 1 is a vertical section of a receptacle and spraying attachment constructed in accordance with my invention. Fig. 2 is an enlarged detail view of the blast-nozzle. Figs. 3 and 4 are modifications.

1 represents a blast-tube formed on one side with the open base 2 and at one end with an upwardly-projecting nozzle 3, and 4 is the pendent liquid-tube, which is held in fixed relation to the tube by projection 4^a, to which it may be soldered, projects into the receptacle by an angular bend 5, and terminates at 6 in proper relation to the nozzle 3 to cause the suction effect for producing spray.

7 is an opening in the receptacle through which air is communicated to said receptacle. Air delivered into the tube 1 is obstructed in its escape through the narrow passage between the end 6 of the tube 4 and the nozzle 3, and pressure is thus developed on the surface of liquid in the receptacle. Unless the parts are very nicely graduated this pressure on the liquid will be a little excessive and this will cause the discharge of more liquid than can be taken up and vaporized by the escaping air. To overcome the difficulty named, I employ a screw 10 in the escape end of the tube 4 and cut into said screw a kerf, Fig. 2, or flattened portion, Fig. 3, or groove, Fig. 4, so as to form by-passes 11 in such a manner as to restrict the amount of liquid passing out. Then by changing the projection of the screw more or less of the by-passes 11 are exposed and the capac-

ity of the liquid-outlet is regulated at will to avoid the ill effect of too much pressure in the receptacle. In the same way the head of the screw may be moved toward or away from the blast-nozzle and the spreading effect regulated at will, the head of the screw providing a cap for the nozzle.

When constructed as herein described, the air-pressure or blast tube 1 is adapted to receive a flexible pipe or other connection with any suitable air-forcing device, or its upwardly-projecting end 1^a serves as a convenient mouthpiece for blowing into the sprayer.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

A sprayer comprising a suitable receptacle having an opening 7, the blast-tube 1 formed with an open base 2, with an upwardly-projecting mouthpiece 1^a, with an upwardly-projecting nozzle 3 and with a downwardly-extending projection 4^a the pendent liquid-tube 4 having a bend 5 and secured to the projection so as to have its upper end 6 adjacent to the outer end of the nozzle, and the screw 10 threaded into the upper end of the tube and having a head providing a cap to the nozzle; substantially as described.

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