

No. 720,863.

PATENTED FEB. 17, 1903.

J. WALDMAN.
ATOMIZER.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

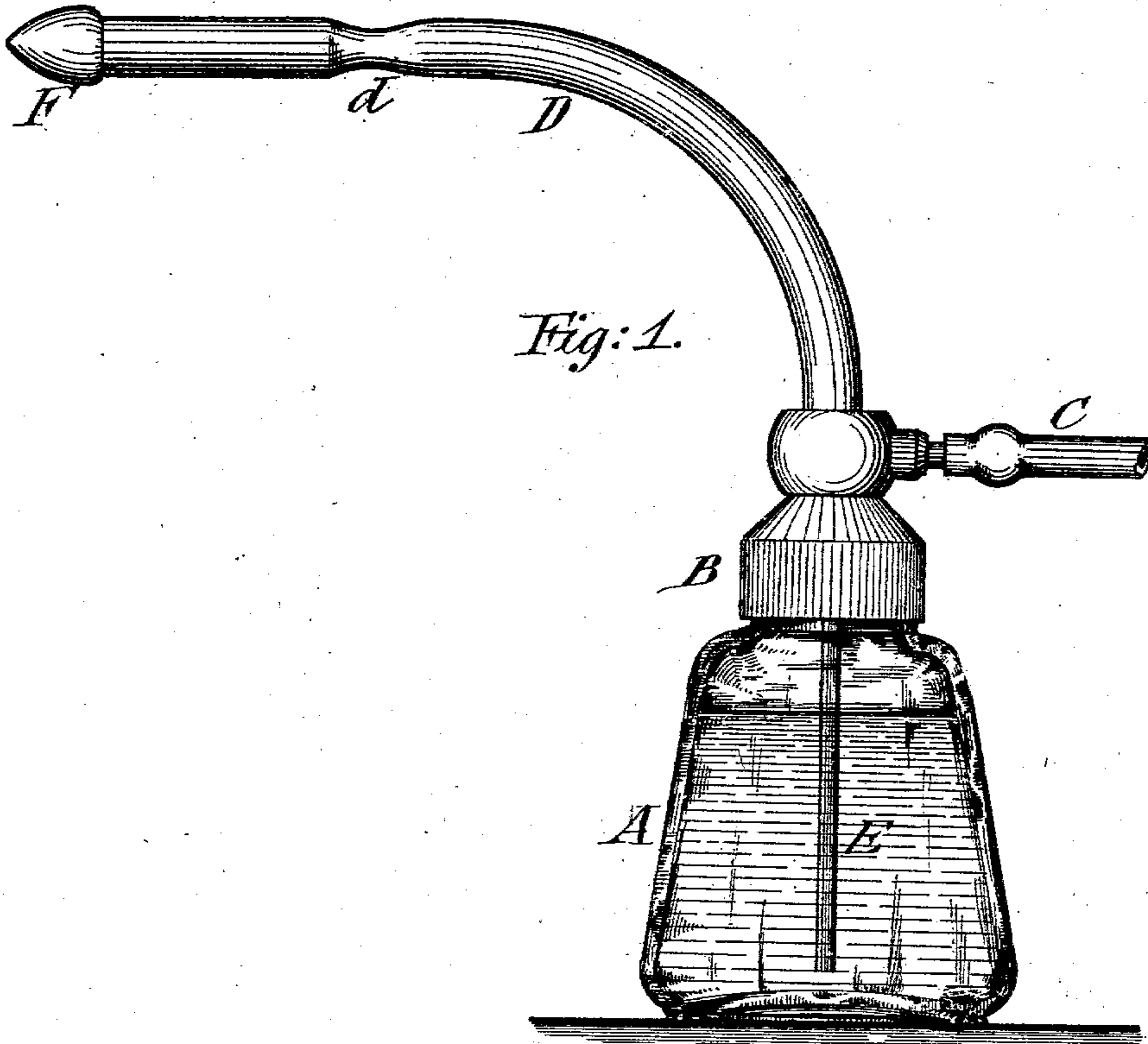


Fig: 1.

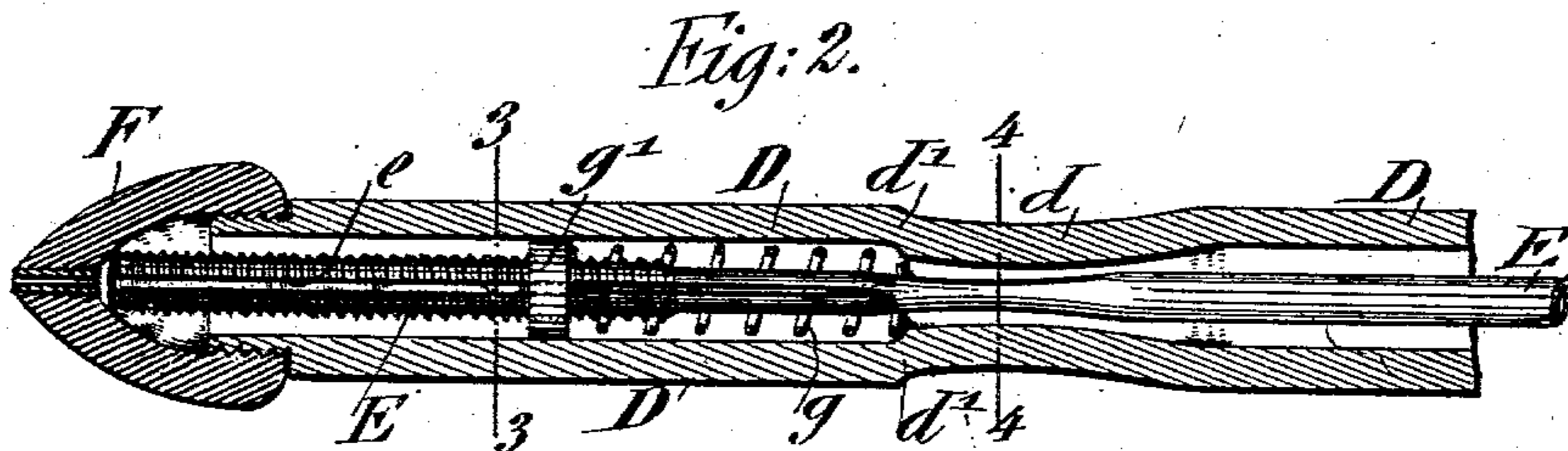


Fig: 2.

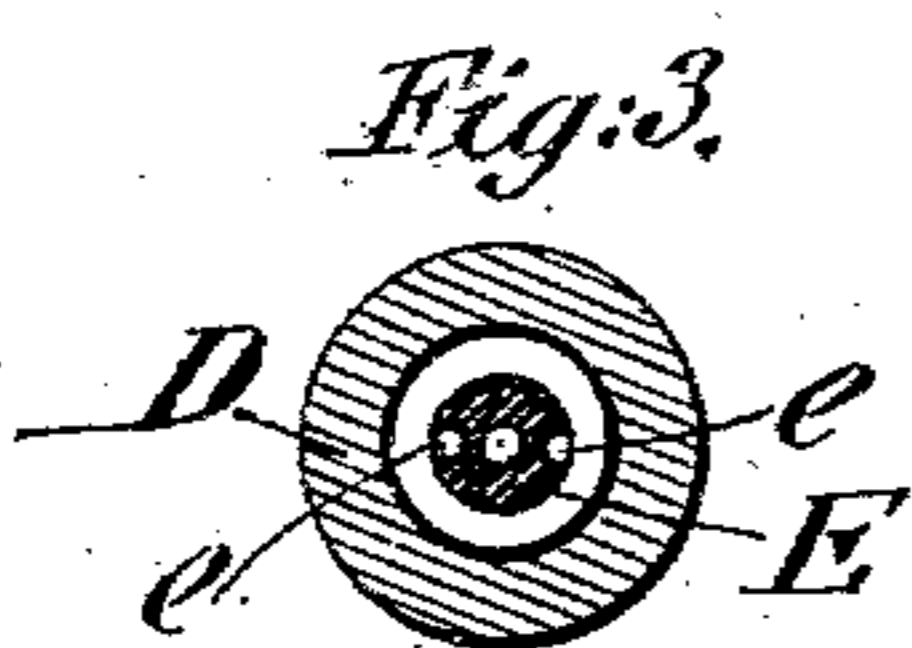


Fig: 3.



Fig: 4.

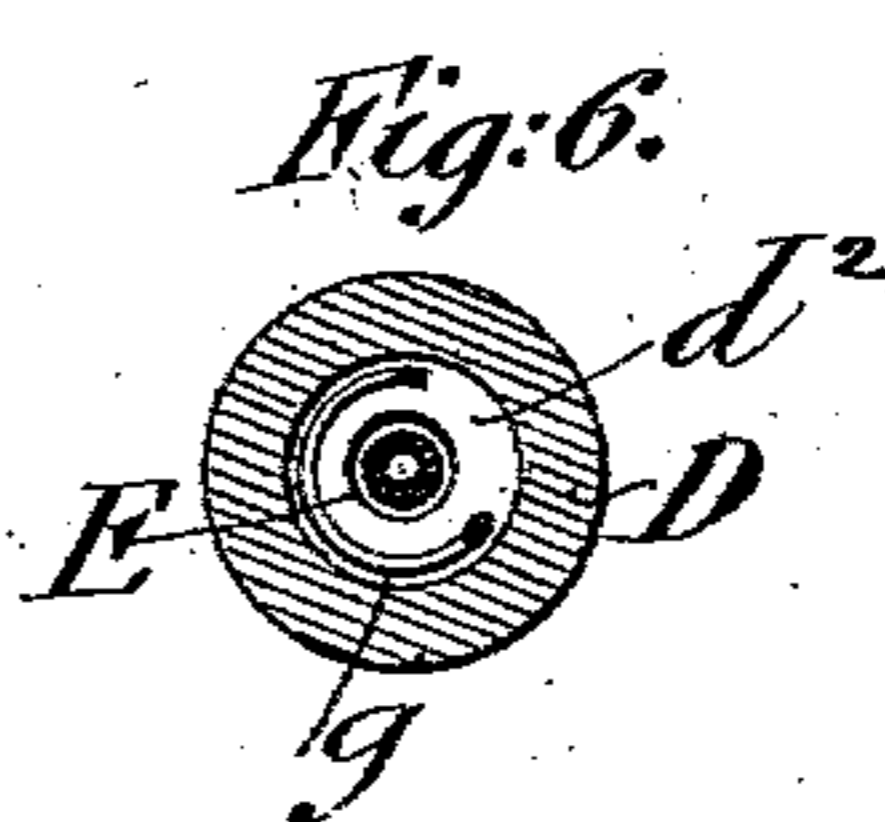


Fig: 6.

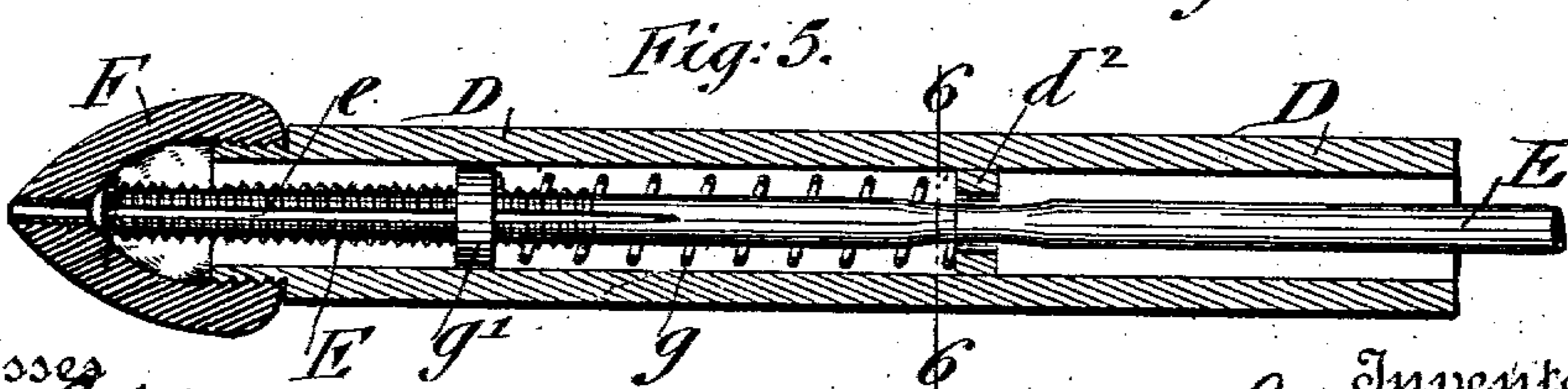


Fig: 5.

Witnesses
Henry J. Schubert.
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Inventor
Jacob Waldman
By his Attorney
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UNITED STATES PATENT OFFICE.

JACOB WALDMAN, OF NEW YORK, N. Y., ASSIGNOR TO ELLIS & GOLTERMANN, OF NEW YORK, N. Y., A FIRM.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 720,863, dated February 17, 1903.

Application filed August 2, 1902. Serial No. 118,095. (No model.)

To all whom it may concern:

Be it known that I, JACOB WALDMAN, a citizen of the United States, residing in New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Atomizers, of which the following is a specification.

In assembling the suction and air tubes and the nozzles for atomizers preparatory to shipping the same considerable time is lost in adjusting the delivery ends of the suction and air tubes relatively to the nozzles, as each atomizer has to be separately adjusted, so as to produce the proper atomizing action. This takes up considerable time and extra labor in assembling and fitting the parts. Various attempts have been made to overcome this objection and to supply an atomizer in which the parts can be assembled without extra work in fitting the same, but without success.

My invention is designed to supply an atomizer in which the parts can be assembled directly in such a manner that they will work uniformly and produce an effective atomizing action without any special adjustment and in which the parts, in case they should not function properly, can be readily readjusted without returning the same to the factory; and for this purpose the invention consists of an atomizer the suction-tube of which is provided at the delivery end adjacent to the nozzle with an adjustable collar and a helical spring interposed between said collar and an interior shoulder or collar of the air-tube, said suction-tube being provided with longitudinal channels at the delivery end to permit the passage of the air below the adjustable collar of the suction-tube to the nozzle, while the spring retains the proper position of the suction-tube relatively to the nozzle, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved atomizer. Fig. 2 is a vertical longitudinal section through the delivery end of the air and suction tubes, drawn on a larger scale. Figs. 3 and 4 are vertical transverse sections respectively on lines 3 3 and 4 4, Fig. 2. Fig. 5 is also a vertical longitudinal section through the delivery end of the air and suction tubes,

showing a modified construction of the same; and Fig. 6 is a vertical transverse section on line 6 6, Fig. 5.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a liquid vessel provided with the usual head B, to which the tube C from the pressure-bulb is attached. The upper end of the head supports the air-tube D, which is bent in suitable manner and to the delivery end of which the nozzle F is screwed. Through the interior of the air-tube D extends the suction-tube E, which is made of smaller diameter than the air-tube and which extends in downward direction through the liquid vessel A to a point near the bottom of the same. The air is supplied through the tube C and passes not only over the surface of the liquid in the liquid vessel A, but also passes simultaneously in the space between the air-tube D and suction-tube E to the nozzle, the suction of air raising the liquid from the vessel through the tube and producing the atomizing or spraying of the same when delivered through the nozzle F. The nozzle F is screwed onto the exteriorly-threaded end of the air-tube, as shown clearly in Figs. 2 and 5.

The air-tube D is provided at a suitable distance from the nozzle F with a contraction d , formed either by bending inwardly the air-tube at this point, so as to form a shoulder d' at the interior of the same, as shown in Fig. 2, or a collar d^2 is inserted into the air-tube without contracting, as shown in Fig. 5, and attached to the same by cementing or otherwise. This shoulder serves as an abutment for one end of a helical spring g , the opposite end of which rests against an adjustable collar g' , that is placed on the exteriorly-threaded delivery end of the suction-tube E, as shown clearly in Figs. 2 and 3. The collar g' is adjusted on the threaded end of the suction-tube so that the spring g is set to proper tension and holds thereby the delivery end of the suction-tube in contact with the inner surface of the nozzle F. When the spring is set to proper tension, this contact is always retained, so that the proper atomizing or spraying action of the liquid is produced without any further adjustment of the

parts in assembling them. The delivery end of the suction-tube is provided with a number of longitudinal grooves or channels *e*, which permit the air to pass interiorly of the adjustable collar *g'* to the opening of the nozzle, so that the required supply of air for atomizing action is obtained. It is preferable to reduce somewhat the thickness of the suction-tube *E*, either at the point where the air-tube is contracted, as shown in Fig. 2, or at the throat or contraction formed by the collar, as shown in Fig. 5, so that the easy suction of the air for the atomizing action takes place through the contracted part of the air-tube. The tension of the spring holds the suction-tube always in proper relative position to the nozzle, said tension being readily adjusted from time to time by screwing the adjustable collar *g'* toward the contracted portion or throat to cause the spring to become somewhat depressed, and thereby set to the required tension, so that in assembling the parts no further adjustment is necessary, as the spring will always place the delivery end of the suction-tube in proper position to the nozzle and delivery end of the air-tube, thus saving considerable time and labor in assembling the parts so as to produce the proper atomizing action and rendering it unnecessary to return the atomizer to the factory to be readjusted.

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

1. In an atomizer, the combination of an air-tube provided with a contraction or throat near its delivery end, a nozzle on the delivery end of the air-tube, a suction-tube in the air-tube provided with exterior longitudinal

grooves or channels on its delivery end, a collar on the delivery end of the suction-tube, and a helical spring between said collar and the contraction or throat of the air-tube, substantially as set forth.

2. In an atomizer, the combination of an air-tube provided with a nozzle at the delivery end of the same and a contraction or throat at some distance from said nozzle, a suction-tube passing through the air-tube and provided with an exteriorly-threaded delivery end and longitudinal grooves or channels in said end, an adjustable collar on the threaded end of the suction-tube, said collar fitting into the air-tube, and a helical spring around the suction-tube between said collars, substantially as set forth.

3. In an atomizer, the combination of an air-tube provided with a contraction or throat at some distance from its delivery end, a nozzle screwed on said delivery end, a suction-tube in said air-tube provided with a contraction at the contraction or throat of the air-tube, the outer or delivery end of the suction-tube being provided with an exterior screw-thread and longitudinal grooves or channels, an adjustable collar placed on the threaded end and fitting into the air-tube, and a helical spring interposed between said collar and the contraction or throat of the air-tube, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JACOB WALDMAN.

Witnesses:

PAUL GOEPEL,
C. BRADWAY.