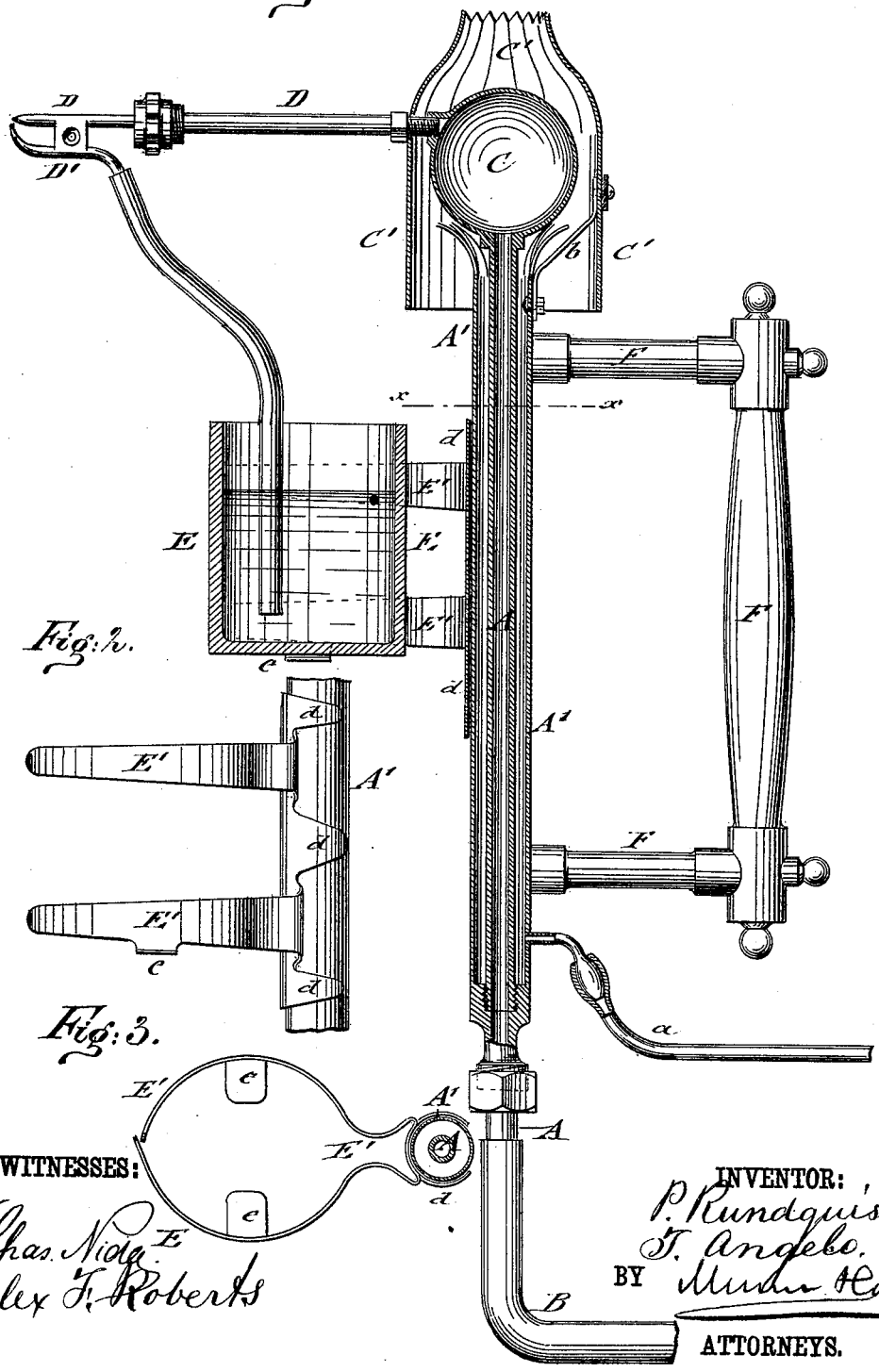
P. RUNDQUIST & T. ANGELO.

Steam Atomizer.

No. 197,057. Patented Nov. 13, 1877.

Fig: 1.



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PETER RUNDQUIST AND THEODORE ANGELO, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-ATOMIZERS.

Specification forming part of Letters Patent No. **197,057**, dated November 13, 1877; application filed October 9, 1877.

To all whom it may concern:

Be it known that we, PETER RUNDQUIST and THEODORE ANGELO, of the city, county, and State of New York, have invented a new and Improved Steam-Atomizer, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional side elevation of our improved steam-atomizer for surgical purposes; and Figs. 2 and 3 are, respectively, a side view and horizontal section on line *x x*, Fig. 1, of the clamping-springs for supporting the vessel containing the medicinal liquid.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved apparatus or steam-atomizer for impregnating the air with antiseptic vapors, to be used in hospitals during surgical operations, the disinfecting-spray being directed on the parts to be operated upon, to exclude the air therefrom, and place them in a better condition for healing.

The invention consists of a steam-supply tube and superheating-vessel with atomizing-tube, the steam-supply tube being surrounded by a gas-tube that is opened below the superheating-vessel for heating the same.

A chimney incloses the superheater, and brings the flame in contact with the entire surface of the same.

The vessel with antiseptic liquid is supported on adjustable spring clamps or brackets of the main pipe, and connected by a flexible tube with the spray-tube for raising and dissipating the liquid, in the usual manner.

Referring to the drawings, A represents the steam-supply pipe, which is connected by a flexible tube, B, to any suitable steam-generator in hospitals, preferably with the steam-boilers of the building, so that steam may be obtained at any moment.

The steam-pipe A is provided, at the upper end, with a superheating-vessel, C, of spherical or other shape, that is rigidly secured to the steam-pipe.

The atomizing-tube D extends from the superheater C at right angles to the steam-pipe A, and terminates, in the customary manner, above a spray-tube, D′, that is connected with the vessel or cup E, containing the antiseptic or other medicinal liquid.

The steam-pipe A is surrounded by an exterior tube, A′, that is connected at the lower part, by a short branch pipe and flexible tube, *a*, with the gas-bracket, to supply gas, when the cock is turned on, to the space formed between the steam-pipe A and exterior tube A′.

The upper end of the exterior gas-tube A′ is split, and curved outwardly below the superheater C, so that by lighting the gas a sufficient quantity of air may be supplied to the same. The steam in the vessel C is superheated by the gas-flame, and thereby forced in perfectly dry state, under considerable pressure, through the orifice of the atomizing-tube.

A cylindrical chimney, C′, is attached to an arm, *b*, of the outer gas-tube A′, the chimney incasing the superheating-vessel, and being contracted at the upper end, as shown in Fig. 1. This chimney keeps up a sufficient air-supply to the flame, and serves mainly for the purpose of lapping the flame around the superheating-vessel, so that the heat acts evenly on every part of the spherical vessel, and changes the steam, that has become saturated by being conducted to some distance from its point of generation, into superheated steam of high pressure.

The superheating of the steam forms the essential feature of our atomizer, as thereby any interruption in the continuity of the spray by the spouting of the atomizing-tube, owing to the condensed steam, is completely avoided, and a uniform, powerful, and continuous spray obtained as long as the apparatus is used.

To the outer gas-tube is attached a handle, F, by which the atomizer is held by the assistant, and the spray directed to the parts operated upon or taken off, as required.

The vessel or cup E, containing the medicinal liquid, is supported on spring-clamps E′, that are applied to the outer gas-tube A′ by an encircling spring-tube or spring-bands, *d*, as shown in Figs. 2 and 3, so that the spring-clamps may be readily adjusted higher or lower on the outer tube, as required.

The lower spring-clamp E′ has inwardly-bent lugs or seats *e*, on which the vessel is supported when placed in position between the clamps.

The regularity of the working of our steam-atomizer, together with the great simplicity

and facility of its application, renders the same very advantageous for hospitals, to be used during surgical operations, or for disinfecting or other purposes.

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

1. In a steam-atomizer, the combination of a steam-supply pipe, having superheating-vessel and atomizing-tube, with an exterior gas-supply tube, forming a burner below the superheating-vessel, substantially as and for the purpose set forth.

2. In a steam-atomizer, the interior steam-supply pipe, having superheating-vessel with atomizing-tube, in combination with an exterior gas-tube, forming a burner below superheating-vessel, and with a chimney inclosing the superheater, substantially in the manner and for the purpose set forth.

3. In a steam-atomizer, the combination of the interior steam-pipe, having superheating-vessel with atomizing-tube at upper end, with an exterior gas-pipe, forming burner below superheater, and having a supporting-handle attached thereto for directing the spray, substantially as set forth.

4. In a steam-atomizer, the combination of interior steam-pipe and exterior gas-tube, having supporting-handle, with spring-clamps applied adjustably to the exterior tube, and having rests for the vessel or cup containing the medicinal liquid, substantially as described.

5. In a steam-atomizer, a superheating-vessel interposed between the steam-supply pipe and atomizing-tube, in combination with a heating device for changing the saturated steam into dry steam of high pressure, substantially as set forth.

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Witnesses:
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