

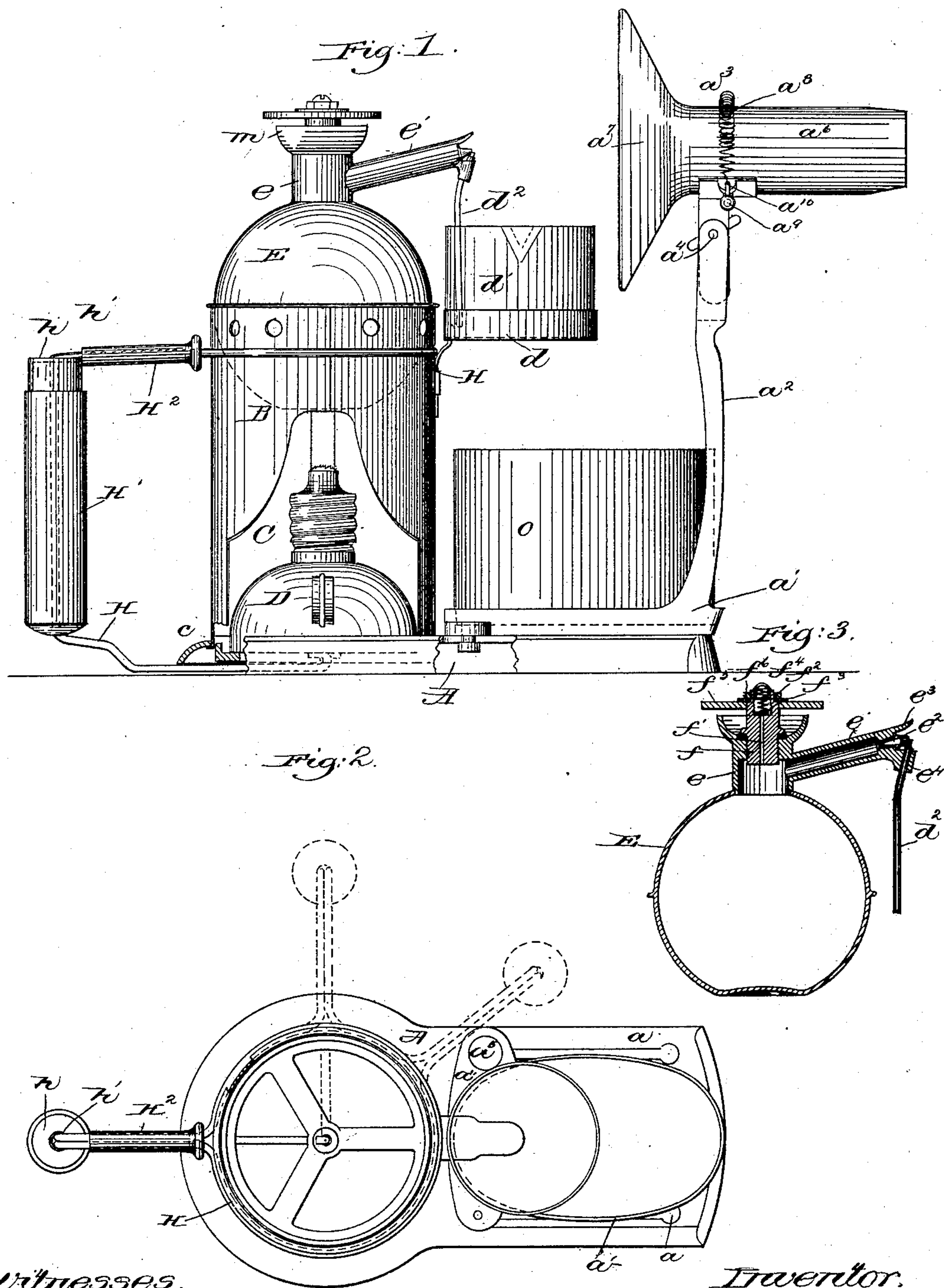
(No Model.)

A. M. SHURTLEFF.

ATOMIZER.

No. 338,367.

Patented Mar. 23, 1886.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 338,367, dated March 23, 1886.

Application filed December 14, 1885. Serial No. 185,603. (No model.)

*To all whom it may concern:*

Be it known that I, ASAHEL M. SHURTLEFF, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Atomizers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of that class of atomizers wherein steam generated in a boiler by the application of heat serves as the atomizing-blast, which passes at a right or acute angle across the orifice of a suction-tube, the lower end of which is immersed in any suitable medicated or other liquid, dispersing the latter, reducing it to a spray, and driving it through a suitable shield having flaring and cylindrical portions, thereby directing the spray to any local part desired.

In the apparatus commonly in use the boiler in which the steam is generated is placed in a suitable stand, and is provided with a safety-valve and an outlet-tube, through which latter the steam nominally passes, the component parts of the entire apparatus being mounted upon a base-plate, and a suitable handle being supplied by which the entire apparatus may be carried.

In accordance with this invention, a frame or stand is provided in which the boiler is placed, said frame or stand being secured to the base-plate so as to be adjustable. The boiler at its top is provided with an open-ended neck, from the side of which leads an outlet-tube, in the open end of which is placed the usual nozzle, and about the nozzle a projection extends to protect the same, and below the nozzle a suitable ear depends, to which is secured the suction-tube, the lower end of which is immersed in the medicated or other liquid to be atomized, the said neck, outlet-tube, nozzle-protector, and ear being all made in one piece. The neck at its upper end is made flaring to form a funnel to facilitate the introduction of fluid to the boiler, and a safety-valve is placed in the open end of the said neck, and a cross-piece, made of suitable material—such, for instance, as leatheroid, hard rubber, or similar material, which is substantially a non-conductor of heat—is secured thereto, by which, when desired, to remove the valve, the said cross-piece also serving the

purpose of a handle by which to raise the boiler.

The entire apparatus is supplied with a handle pivoted, respectively, to the base-plate and to the frame or stand, and the base-plate is cut away for a short distance, so that the said handle may rotate a part of a revolution, in order that it may be placed in line with the shield, or at an angle thereto—as, for instance, a right or acute angle—such construction and adjustment of the handle greatly strengthening the apparatus, enabling it to be handled with greater steadiness and to be used in any position. The said handle has mounted upon it a hand-piece having a notched ferrule, the wire composing the handle entering the said notch, that the apparatus when carried about cannot swing upon the hand-piece. The said handle also has a hand-piece contiguous to the frame or stand, which prevents the hand of the operator from coming in contact with said frame.

The invention consists in the combination of the various parts to be hereinafter pointed out.

Figure 1 shows in side elevation an atomizer constructed in accordance with this invention; Fig. 2, a top view thereof, the boiler, its attachments, the vessel containing the medicated or other liquid, and the shield with a portion of its carrier being omitted, and Fig. 3 a vertical section of the boiler and its attachments.

The base-plate A is slotted at *a a* to form guides for an adjustable shield-carrier, *a'*, having an upright, *a<sup>2</sup>*, which latter supports an adjustable shield, *a<sup>3</sup>*, suitable adjusting-screws, *a<sup>4</sup> a<sup>5</sup>*, being supplied to respectively regulate the adjustment of the shield and its carrier. The shield *a<sup>3</sup>* consists of the cylindrical portion *a<sup>6</sup>* and the flaring portion *a<sup>7</sup>*, and is held in position upon the adjustable devices connected with the upright *a<sup>2</sup>* by a spiral spring, *a<sup>8</sup>*, rigidly connected at one side of the cylindrical portion to the adjustable devices holding it, then passing over the said cylindrical portion, and being secured by a knob, *a<sup>9</sup>*, attached to the free end thereof, which passes beneath a slotted ear, *a<sup>10</sup>*, the wire of the spring entering the slot, thus firmly holding the shield by an elastic device which is capable of retaining shields of various sizes.

To the base-plate A is attached a frame or



shell, B, in which the boiler sets. The frame B is open at one side, as at C, through which opening a suitable lamp, D, may be passed, that it may rest within the frame or shell B.

5 A bracket,  $d$ , is removably attached to the frame or shell B, which supports a vessel,  $d'$ , the latter containing any suitable medicated or other liquid, the said vessel, as will be seen in Fig. 1, being adjacent to the shield or funnel  $a^3$ .

10 In the top portion or open end of the frame B a spherical boiler, E, is placed, having secured at its top portion a tubular neck,  $e$ , (see Fig. 3,) having an outlet tube,  $e'$ , leading from the side of the said neck. A nozzle,  $e^2$ , is screwed into the open end of the tube  $e'$ , which is protected by a projection,  $e^3$ , extending from the said tube  $e'$ , while below the said nozzle  $e^2$  a suitable ear,  $e^4$ , integral with the tube  $e'$ , supports a suction-tube,  $d^2$ , the upper end or nozzle of which lies adjacent but at a right or acute angle to the nozzle  $e^2$ , the lower or free end of the said suction-tube entering the vessel  $d'$ . The neck has a funnel,  $m$ , to aid in introducing liquid to the boiler.

25 As will be seen on referring to Fig. 3, the neck  $e$ , outlet-tube  $e'$ , nozzle-protector  $e^3$ , funnel, and ear or support  $e^4$ , are all cast in a single piece, which materially cheapens its construction, and being without joints all leakage is prevented. In the upper open end of the neck  $e$  a safety-valve is placed, consisting of a screw-plug,  $f$ , bored centrally, as at  $f'$ , and socketed at its upper end, as at  $f^2$ , to receive a spring-controlled valve,  $f^3$ , retained in position by a screw,  $f^4$ , which latter is also bored centrally. A strip or cross-piece,  $f^5$ , is placed upon the plug  $f$ , consisting of material which is a non-conductor of heat, and said cross-piece is retained in position by a suitable nut,  $f^6$ . This strip or cross-piece  $f^5$  thus serves to remove the plug  $f$  by rotating it, and also serves as a handle by which to remove the boiler E from its frame B.

45 The operation is substantially as usual—viz., the steam generated in the boiler E by application of heat passes out through the outer tube,  $e'$ , and its nozzle  $e^2$ , and passing directly over the orifice of the suction-tube  $d^2$ , thereby raises the liquid from the vessel  $d'$ , dispersing it and reducing it to a spray which is driven through the shield or funnel  $a^3$ . That portion of the liquid and vapor not passing through the shield or funnel drips from the flaring portion thereof into the drip-cup O, resting in the base portion of the shield-carrier. The apparatus is supplied with a handle, H, one end of which is passed around the frame B, while its opposite end is pivoted to the base portion A beneath the lamp D, and the said base portion is cut away for a short distance on its under side, that the said handle, pivoted, as described, may turn a partial revolution, as shown in full and dotted lines, Fig. 2, and be retained at any intermediate point for convenience in

holding, or that it may be made compact for packing purposes. The handle H, which is preferably composed of stiff wire, is provided with hand-pieces  $H'$   $H^2$ , the hand-piece  $H'$  70 having its ferrule  $h$  cut away, as at  $h'$ , so that the wire or handle may enter such cut-away portion and thereby prevent the hand-piece from rotating upon the wire, and which thus prevents the apparatus from swinging loosely upon the hand-piece while being carried, while the hand-piece  $H^2$  prevents the hand from coming in contact with the boiler-frame.

By the many improved details of construction above set forth an atomizer may be easily 80 and cheaply constructed, and is very durable, there being no joints to leak, &c., and the hot boiler may be removed at any time without the aid of supplemental devices.

I claim— 85

1. In an atomizer, the combination, with the boiler and its safety-valve located in the top portion thereof, of a substantially non-heat-conducting strip or cross-piece, as described, connected with the safety-valve by 90 which it is removed, all substantially as set forth.

2. In an atomizer, the frame or stand combined with a handle, both ends of which are pivoted to turn about a center of motion coincident to the center of the frame, substantially as described. 95

3. In an atomizer, the combination, with the base-plate A and stand B, of a handle, H, one end of which passes around the stand B, while its opposite end is pivoted to the base-plate A, the latter having a recess cut in its under side in which the handle moves, substantially as and for the purpose described. 100

4. In an atomizer, the combination, with the boiler E, of the following elements all made in a single piece, viz: the neck  $e$ , the outlet-tube  $e'$ , nozzle-protector  $e^3$ , and ear or support  $e^4$ , all substantially as described. 105

5. In an atomizer, the combination, with the boiler E, of the following elements all made in a single piece, viz: the neck  $e$ , its funnel, the outlet-tube  $e'$ , nozzle-protector  $e^3$ , and ear or support  $e^4$ , all substantially as described. 110

6. In an atomizer, the combination, with the boiler E, of the following elements all made in a single piece, viz: the neck  $e$ , its outlet-tube  $e'$ , and ear or support  $e^4$ , all substantially as described. 115

7. In an atomizer, the combination, with the frame or stand, of a handle, H, connected therewith, the said handle having the hand-pieces  $H'$  and  $H^2$ , to operate substantially as described. 120

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 125

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Witnesses:

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B. J. NOYES.