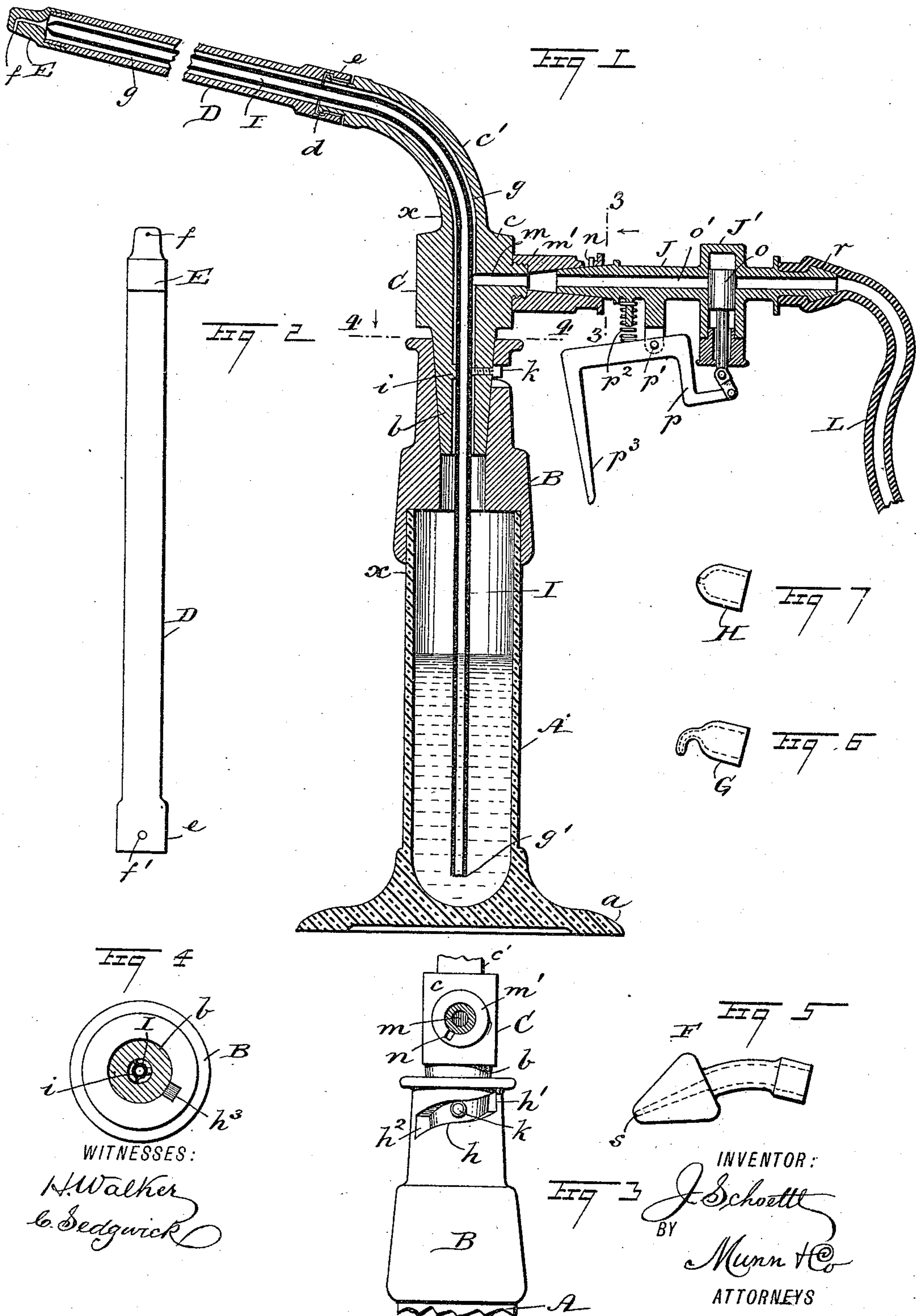


(No Model.)

J. SCHOETTL.
ATOMIZER.

No. 442,785.

Patented Dec. 16. 1890.



UNITED STATES PATENT OFFICE.

JOSEF SCHOETTL, OF BROOKLYN, NEW YORK.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 442,785, dated December 16, 1890.

Application filed October 22, 1890. Serial No. 368,937. (No model.)

To all whom it may concern:

Be it known that I, JOSEF SCHOETTL, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Atomizer, of which the following is a full, clear, and exact description.

This invention relates to an improvement in atomizers which are employed to spray medicinal liquid preparations within the head and throat of those afflicted with disease that is located therein, the objects being to provide a compact convenient device of the character named, which may be readily separated into its component parts, and quickly assembled as a complete instrument.

To these ends my invention consists in certain features of construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation in section of the device with one form of spray-nozzle attached and a flexible hose connected thereto and broken. Fig. 2 is an exterior detached and enlarged view of a revoluble spray-pipe, which is a portion of the device. Fig. 3 is a side elevation of the upper portion of the atomizer broken away at the points $x x$ in Fig. 1, and also in section on the line 3 3 in said figure, viewed in the direction of an arrow near said section-line. Fig. 4 is a plan view, in section, taken on line 4 4 in Fig. 1; and Figs. 5, 6, and 7 are detached views of different styles of spraying-nozzles which may be used in connection with the atomizer.

The chamber A, wherein the liquid medication is held, is preferably made of glass in cylindrical form, having a radial flanged enlargement a upon its lower end of sufficient weight and dimensions to retain the device in an upright position, forming a base therefor.

Upon the upper portion of the chamber A the cap-piece B is secured. Said piece is preferably made of hard rubber, and, as shown, consists of a cylindrical shell, the body of which is longitudinally perforated and reamed from above to afford a conical socket-aper-

ture wherein the tapered plug end b of the coupling-head C is fitted, and forms a gas and water tight joint therewith when secured in place, as will be described. The lower end of the cap-piece is counterbored to receive the upper end of the glass chamber A, to which it is firmly secured by cement or other means.

Upon the enlarged portion c of the coupling-head C an integral, tubular, laterally-curved neck c' is formed, the bore of which is an extension of the axial bore of the plug portion b . The upper end portion of the neck c' is reduced diametrically, leaving a radial flange or rib d projected laterally at the terminal of the neck, which rib is adapted to engage an annular groove formed in the socket end e of the spray-pipe D, which pipe is a cylindrical extension of the neck c' , and by its manner of connection therewith is permitted to have a revoluble movement, while a tight joint is provided at the point of attachment.

The outer end of the spray-pipe D is exteriorly threaded to receive any of the spray-nozzles E F G H. The nozzle E (shown in position on the spray-pipe) is adapted to discharge a fine stream from its side near the end, as shown at f in Figs. 1 and 2, which nozzle will be further described, and the others also. The axial bore of the spray-pipe D is preferably made equal in diameter with that of the neck c' and plug b , and within these parts a tube I, of hard rubber or other similar material which may be bent when warmed, is introduced, the neck and inserted tube being straight when made and bent to project laterally after the tube is in place. The outer diameter of the tube I is such that an annular channel g will be produced around the body, and its length is proportioned to the dimensions of the parts it is inserted within, so that its lower end g' will be close to the bottom of the chamber A and the upper end adjacent to the inner end of the nozzle, which may be placed on the outer end of the spray-pipe D.

An important feature of the device consists in the cam-lock provided to attach the coupling-head C to the cap-piece B, which is

comprised of a curved and downwardly-inclined slot h , formed in the wall of the cap-piece, which slot extends from a point h' near the upper edge of the piece B, to a point h^2 below, as shown in Fig. 3, the upper terminal of the slot being intersected by a vertical groove formed on the inner surface of the cap-piece wall and shown at h^3 in Fig. 4.

Within the bore of the coupling-head C a projecting ledge i is formed on the side, which ledge is made to bear against the tube I and hold it concentric with the bore of the head and its depending plug end b . A small screw-bolt k , of hard rubber or other suitable material, is inserted in a tapped perforation formed in the wall of the plug end b opposite the ledge i , which bolt, by its impinging contact with the tube I, serves to retain said tube in place concentric with the parts it is located within, and its projecting portion is adapted to engage the edges of the cam-slot h , so as to draw the plug b into close contact with the cap-piece B if the coupling-head is revolvably moved in one direction and release the coupling-head if it is turned in an opposite direction.

The coupling-head C is laterally apertured at m to axially penetrate a threaded nipple formed on the exterior of the head, whereon the union thimble m' is screwed, said thimble having a reamed inner wall, which is engaged by the conical end portion of a valve-body J, that has a cam-locking device formed between it and the thimble at n , which is similar in construction to that which connects the coupling-head C with the cap-piece B.

The valve-gate o is a cylindrical plug that slides in a transverse cylindrical chamber J' , formed in the body J, and is longitudinally moved to open the passage o' , which extends through the body J, by a bent lever p , that is fulcrumed at p' on a limb which projects from the valve-body, the valve-gate o being held normally in closed adjustment by a spring p^2 .

Upon the outer end of the valve-body J a conical enlargement r is formed, which is inserted in the end portion of a flexible hose L, that is shown broken, but in service is prolonged sufficiently to couple it to an air or gas holder, (not shown,) which may be of any approved form in which compressed air is stored or gas generated, as is usual in this class of atomizers.

In operating with this improved device the chamber A is charged with any tincture or solution that is to be applied to the bronchial or nasal passages, which is done by disconnecting the head C, the flaring mouth of the cap-piece B facilitating the introduction of the liquid medicament, and when the chamber is charged the upper portion of the instrument may be quickly connected to the chamber A by the interlocking action of the

cam-slot h and bolt-head k , when the plug b is inserted and partially rotated within the cap-piece.

If it is desired to spray the passages leading upwardly from the root of the tongue behind the palate, the small laterally-perforated nozzle E is used, which has its aperture f in longitudinal alignment with an indicating-spot f' , that is placed on the spray-pipe D near its inner end, that is engaged with the neck c' , so that if the spray-pipe is turned to locate the spot f' on the top of the device the fine-spray aperture f will be in position to project a spray upwardly. The pipe D is now inserted within the mouth of the subject to be operated upon until the nozzle is in proper position, when the lever p is pressed upon at p^3 , which will open the gate-valve o and permit gas or compressed air to flow into the coupling-head, and thence downwardly to press upon the liquid in the chamber A, and also through the annular passage around the tube I toward its extremity near the nozzle E, thus creating a vacuum in the upper part of said tube and projecting in a fine spray the liquid raised in the tube, a change of position of the spot f' directing the spray laterally or downwardly, if desired.

The nozzle F (shown in Fig. 5) is adapted to engage the nostrils successively when attached to the pipe D and inject a fine spray through its aperture s .

The small cap-nozzles G and H (shown in Figs. 6 and 7) are modifications of the nozzles E and F and are used in like manner.

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

1. An atomizer having its liquid-holding chamber connected to the spraying device by a cam-lock that is vertically and laterally adjustable, substantially as set forth.

2. An atomizer having its spray-pipe secured to a neck-piece on a coupling-head by a rib-and-groove connection which will permit the spray-pipe and its nozzle to be rotated on the neck-piece, substantially as set forth.

3. An atomizer having an internal liquid-raising tube held concentric within a spray-pipe, coupling-head, and liquid-chamber by a lateral ledge formed in the bore of the coupling-head, and a screw-bolt that forms the locking-pin for a cam-lock between the coupling-head and an attached cap-piece on the liquid-holding chamber, substantially as set forth.

4. In an atomizer, the combination, with a liquid-chamber having an integral heavy base, and a cylindrical cap-piece secured on the liquid-chamber, of a coupling-head having a depending taper plug which engages the flaring axially-apertured cap-piece, and a locking-pin or bolt-head projected from the plug of the coupling-head and adapted to interlock

with a diagonally-descending cam-slot cut in the wall of the cap-piece, substantially as set forth.

5 5. The combination, with a coupling-head which connects the spray-pipe of an atomizer with its liquid-holding chamber, of a laterally-attached thimble having a flaring longitudinal aperture in it, and a pressure-valve that

has the end of its body tapered to fit the flaring aperture and is locked thereto by a pin- 10 and-slot connection, substantially as set forth.

JOSEF SCHOETTLE.

Witnesses:

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HERMAN ZWINSCKER.