

C. TRUMAN.
 SPRAYING DEVICE.
 APPLICATION FILED APR. 20, 1908.

905,250.

Patented Dec. 1, 1908.

Fig. 1.

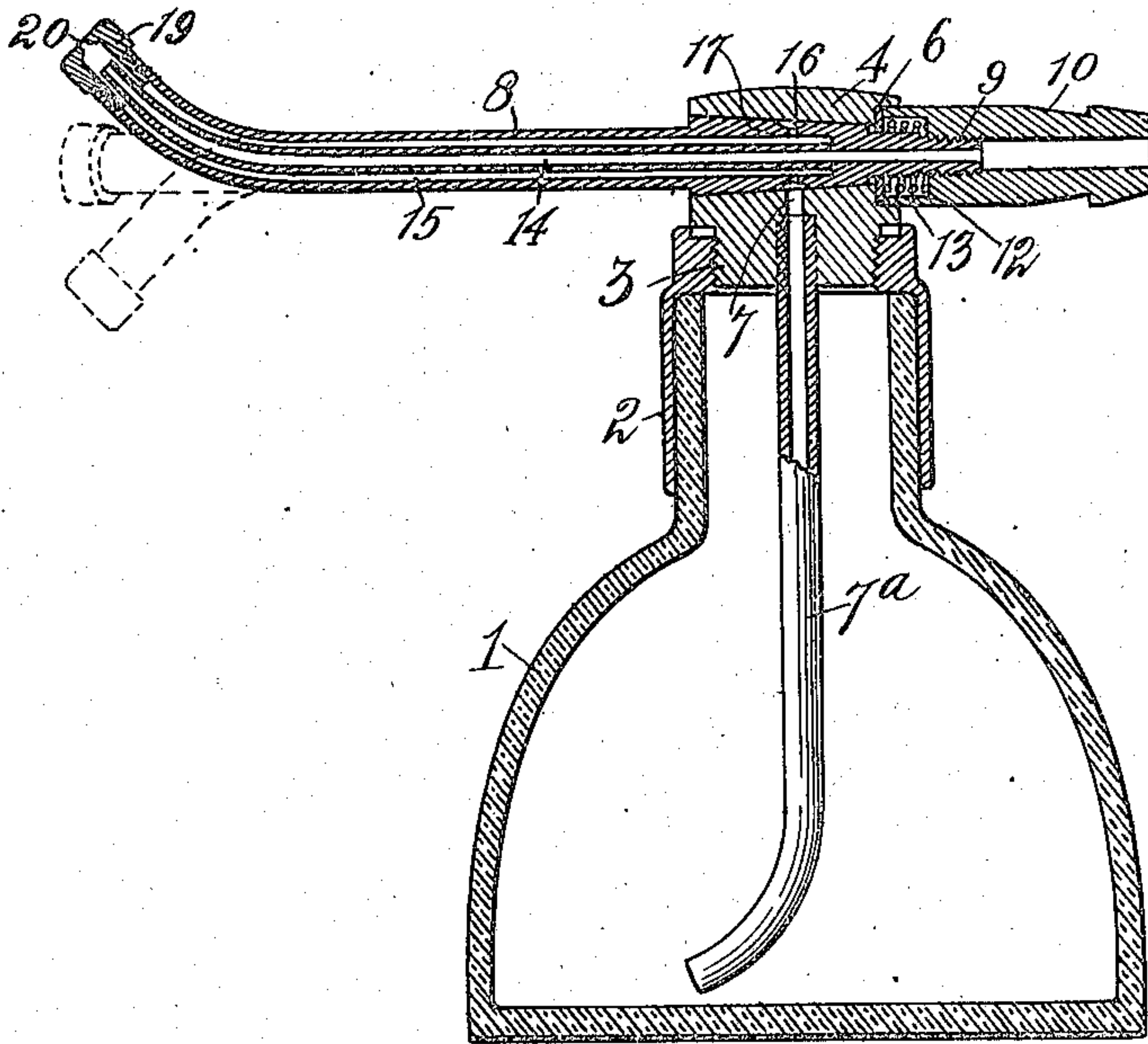


Fig. 2.

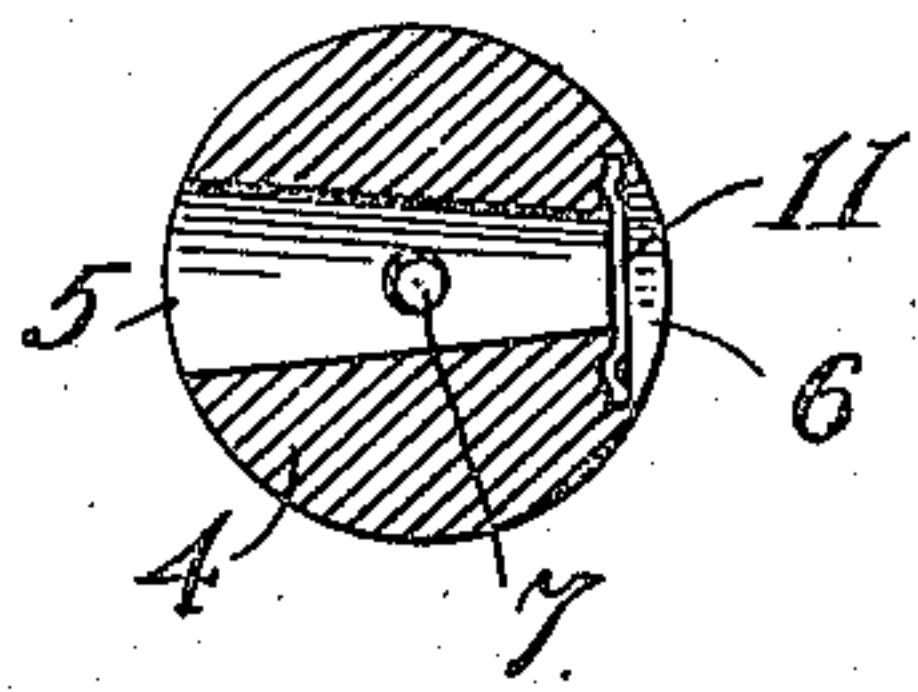


Fig. 3.

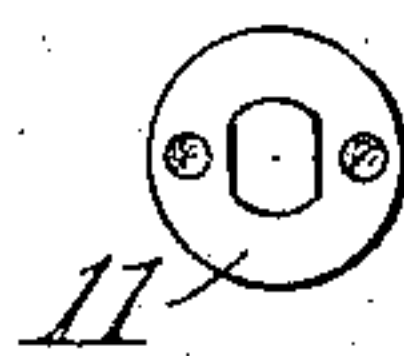
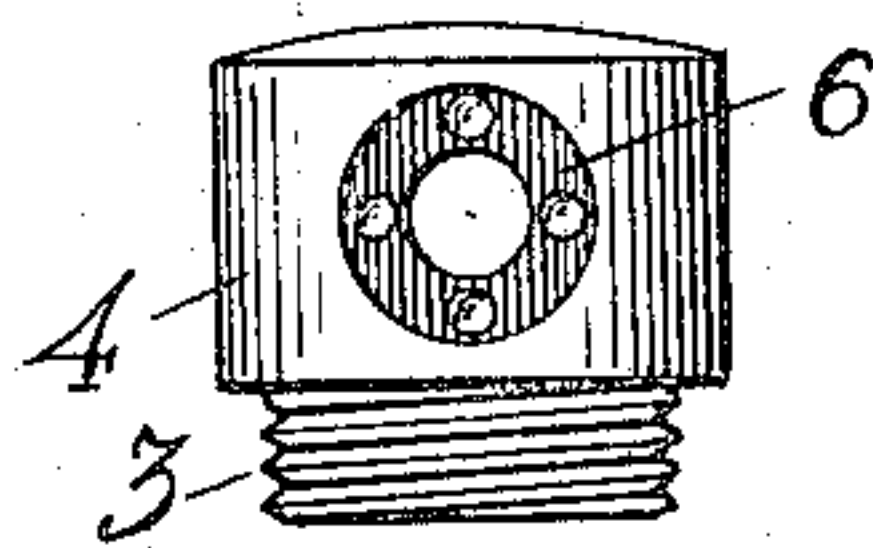


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SPRAYING DEVICE.

No. 905,250.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed April 20, 1908. Serial No. 428,235.

To all whom it may concern:

Be it known that I, CHARLES TRUMAN, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Spraying Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to instruments for spraying liquids or powders,—commonly called atomizers,—and its object is to furnish a device which shall, when liquids are employed, produce a fine vapor-like spray without any drops coming from the nozzle as occurs with most atomizers.

My device is also designed to furnish an axially revoluble nozzle having a curved end by means of which the spray may be directed upwardly, downwardly, sidewise, or straight forward without tilting the bottle or vessel which contains the substance to be sprayed.

My invention is also designed to furnish a nozzle and nozzle-tube which may be revolved with the air-compressor bulb independently of the head of the bottle and without tilting the bottle.

My invention further relates to novel and efficient means for obtaining a tight joint between the head of the atomizer and the axially revoluble spraying-tubes.

I attain these objects by means of the devices and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which,—

Figure 1 is a central vertical sectional elevation of my device, in which the dotted lines illustrate some of the positions which the spraying-tube may be caused to assume; (Fig. 2, a transverse sectional plan view of the head of my device through the center of the spraying-tube opening, with such tube removed; Fig. 3, a plan of the washer hereinafter referred to, and Fig. 4, an elevation of the head of my device detached and seen from the right in Fig. 1.

Like parts are represented by corresponding numerals throughout the drawings.

In the drawings, 1 is a bottle over the top of which is slipped a sleeve 2 having at top a reduced threaded opening 3 into which is screwed the threaded bottom portion of the head 4. Horizontally through the head is a tapered or slightly conical passage 5 the smaller end of the passage being counter-bored, as at 6. Vertically through the lower part of the head is a passage 7 connected with a tube 7^a leading from the interior of the bottle near its bottom and in communication with the passage 5.

8 is a tube formed at one end with a taper to fit the tapered opening 5 and curved at its other end at any desired degree of curvature. If preferred, however, the curved part may, instead, be formed straight. The inner extremity of the tube 8 extends through and beyond the opening 5 and this extremity is reduced in diameter and externally threaded, as at 9, to receive the internally threaded bore of a tube-section 10 adapted for connection with any suitable source of compressed air, such, for instance, as the common rubber hand-bulb. In the counter-bore 6 is a washer 11 against which the inner end of the tube-section 10 abuts. The inner end of the bore of the tube-section 10 is counter-bored, as at 12, and in the recess thus formed is a coiled spring 13 one end of which rests against the washer and the thrust of which is against the inner shoulder of the section 10 and which tends to draw the tapered portion of the tube 8 into the corresponding conical bore 5.

Within the bore of the tube 8 is a smaller tube 14, straight or curved to conform to the outer tube and concentric therewith there being between the two concentric tubes an annular liquid duct 15. The bore of the inner tube is, at its inner end, in communication with the central bore of the outer tube and forms a continuous air-passage through the tube-section 10 and the inner tube 14.

Formed circumferentially around the tube 8 is a channel or groove 16 in the same plane as and in communication with the passage 7. Through the wall of the tapered portion of the tube 8 and leading from the bottom of the groove 16 is formed a series of apertures 17 the arrangement being such that the pas-

sage 7 is, through the circumferential channel 16 and the apertures 17, in constant communication with the annular liquid-passage 15, regardless of the axial rotation of tubes 8—14.

The outer extremity of the tube 8 is internally threaded to take the externally threaded reduced portion of the chambered tip 19. The point of the tube 14 projects into the cavity of the tip and the outlet of the air-tube coincides exactly with the reduced aperture 20 through which the liquid is ejected in the form of spray.

The parts of my device being assembled as described, it will be seen that the tube 8—10 is revoluble axially in its tapered bearing 5; that the spring 13 holds the head 4 and the revoluble tube in close contact forming a joint through which liquid cannot escape, and that no matter which way the nozzle is caused to point the bottle may be kept in upright position. It will also be understood that the expulsion of air from the chamber of the nozzle-tip tends to cause a vacuum which forces the liquid from the bottle to the chamber of the nozzle-tip from whence the liquid is driven mingled with the air-jet in the form of vapor.

Having described my invention, what I claim and desire to secure by Letters Patent is,—

1. In a device of the described character, a head adapted for connection with a container for liquids and having transversely therethrough a tapered aperture, having also a duct in communication with the container and with said aperture, a tube having a tapered portion which fits and is axially revoluble in said tapered openings, an air-tube disposed longitudinally within the tube first mentioned there being between said two tubes an annular passage in communication with said duct.

2. In a device of the described character, a container for the material to be sprayed, a head for the container, concentric tubes revolvably supported transversely of said head

there being between said two tubes an annular passage in communication with the chamber of the container, and means for connecting the inner tube with an air-supply.

3. In a device of the described character, two concentric tubes curved at their outer ends and having between them an annular passage, a head in which said tubes are axially revoluble, means for supplying a liquid to the annular passage, and means for connecting the inner tube with an air-supply.

4. In a device of the described character, a head adapted for connection with a container for liquids and having transversely therethrough a tapered aperture, a tube having a tapered portion which revolvably fits into the tapered aperture, a spring interposed between the head and the tube and which draws the tapered portion of the tube into the tapered aperture, and a tube concentric with the tube first mentioned,—one of the tubes being adapted for connection with a liquid supply and the other tube being adapted for connection with an air-supply.

5. In a device of the described character, a head adapted for connection with a container for liquids and having transversely therethrough a tapered opening, having also a duct in communication with said opening and adapted for connection with the chamber of such container, a tube having a tapered portion which fits and is axially revoluble in said tapered opening, said tapered portion of said tube having a circumferential groove which coincides with said duct, and a concentric tube within the tube first mentioned, there being an annular passage between said two tubes and there being one or more apertures leading from said circumferential groove to said annular passage.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES TRUMAN.

Witnesses:

CLEM V. WAGNER,
ALMON HALL.