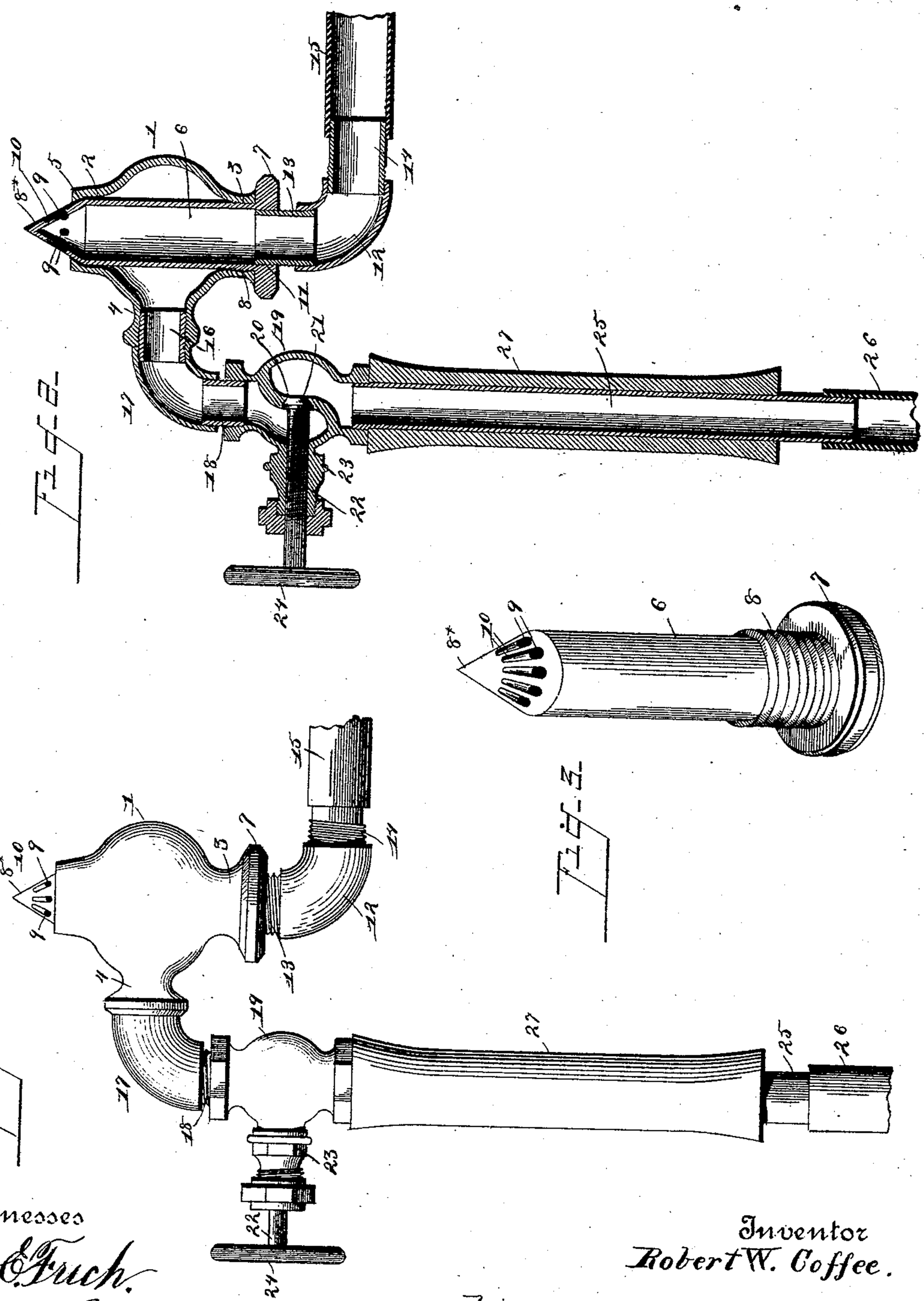
(No Model.)

R. W. COFFEE.

ATOMIZER.

No. 437,569. Patented Sept. 30, 1890.



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UNITED STATES PATENT OFFICE.

ROBERT W. COFFEE, OF BEDFORD CITY, VIRGINIA.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 437,569, dated September 30, 1890.

Application filed March 18, 1890. Serial No. 344,393. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. COFFEE, a citizen of the United States, residing at Bedford City, in the county of Bedford and State of Virginia, have invented a new and useful Atomizer, of which the following is a specification.

This invention has relation to atomizers; and among the objects in view is to provide a suitable atomizer to thoroughly atomize water by the use of steam, said atomizer being adapted for use as an ordinary hand-hose, whereby the vapor may be directed to any suitable point in a compartment in which it is used.

Other objects and advantages of the invention, together with the novel features thereof, will hereinafter appear, and be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of an atomizer constructed in accordance with my invention. Fig. 2 is a central longitudinal section. Fig. 3 is a detail in perspective of the atomizing chamber or tip.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I employ a globular steam-chamber 1, swelled at its center and provided at one side with an annular steam-discharge 2 and at its opposite side with a threaded opening 3, and intermediate the two diametrically-opposite openings 2 and 3 there is provided a threaded neck or opening 4. The opening 2 has its inner surface reduced to form an inclined seat 5.

6 represents the cylindrical atomizing tube or tip, which is mounted within the globular chamber 1 and provided at its rear end with a circular base 7, above which there is formed a series of screw-threads 8, which mesh with similar threads formed upon the inner surface of the opening 3, the base 7 snugly fitting against the rear end or mouth of the opening, and the opposite end of the tube 6 is conical and agrees in shape with the inner annular surface or wall 5.

The cone-shaped end 8* of the atomizer is provided with an annular series of orifices 9, the exterior of the atomizer being provided with a series of tapered and converging grooves 10, leading from each of the orifices to the apex of the cone.

The base 7 of the atomizing-tube is provided with a threaded opening 11, and is connected to an elbow-pipe 12 by a threaded collar or coupling 13. The opposite end of the elbow 12 is similarly connected by a coupling 14 to a flexible tube or hose 15, connected at its opposite end with any suitable water-supply. (Not shown.)

The neck 4 of the chamber 1 is by a coupling 16 connected to the end of an elbow-section 17, and the lower end of said section is by a coupling 18 connected to one end of a valve-chamber 19, having a valve-seat 20, in which operates a valve-plug 21, affixed to the inner end of a threaded valve-stem 22, mounted for movement in a guide 23, and provided at its outer end with an operating-wheel 24. To the opposite end of the valve-chamber there is connected a rigid pipe-section 25, the opposite end of which connects with a flexible hose-section 26.

Surrounding the pipe-section 25 is a wooden hand-hold 27, or, if desired, said hand-hold may be constructed of any other suitable heat-non-conducting material.

The device is grasped by the hand of the operator, and may thus be conveniently directed in any desired direction. The pipe 26 is connected with any suitable steam-supply, and by operating the valve 24 so as to be withdrawn from its seat a supply of steam passes through the pipe 26 and the valve into the globular chamber 1, and is discharged in an annular jet from the space formed by the conical seat 5 of said chamber and the conical tip at the end of the atomizing-tube, said jet following the contour of the tip and causing a vacuum within the tip and the water-supply pipe. This draws water from the supply and from the perforations or orifices 9 and thoroughly vaporizes the same, thus impregnating the steam with its moisture.

The efficiency of this device will be readily apparent, and also its simplicity of construction and cheapness. It is also apparent that by proper manipulation of the valve the quantity of steam may be carefully regulated, so as to practice economy in this respect.

The atomizer herein described is particularly adapted for use in ordering tobacco, wherein it is necessary that an exceedingly-heavy steam be discharged, and also that the

same be freed as much as possible from its caloric properties. The object of thus reducing the temperature of the steam when used in ordering tobacco is to prevent, as far as possible, any heating of the leaf, which, as is well known among those conversant with ordering tobacco, causes a closing of the cellular tissue of the tobacco, and thus prevents the same from thoroughly absorbing the moisture within the drying-chamber. It is therefore highly desirable to discharge an exceedingly-heavy vapor and at the same time a comparatively cool one, which I accomplish by the invention hereinbefore set forth.

It is apparent that by operating the circular base 7 of the atomizing-tube the steam-jet may be regulated, in that I may enlarge or ensmall the annular space surrounding the tip 8.

Having thus described my invention, what I claim is—

1. In an atomizer, the combination, with a globular steam-chamber 1, provided with a discharge-opening 2 and with a water-inlet 3 and with a steam-inlet 4, of a steam-pipe connected with a steam-inlet, an atomizing-cylinder mounted in the chamber and having a perforated discharge end projecting beyond the discharge end of the chamber, and a water-supply pipe connected with said cylinder, substantially as specified.

2. In an atomizer, the combination, with the chamber 1, having the conical opening 2, of the cylinder 6, mounted in the chamber and having the conical tip 8*, mounted in the opening 5 and provided with a series of orifices 9, each having a groove 10 disposed toward the apex of the cone of the tip, substantially as specified.

3. In an atomizer, the combination, with the globular chamber 1, having the diametrically-opposite openings 2 and 3, the former reduced, as at 5, and between said openings provided with the neck 4, of the cylinder 6, having the reduced conical tip 8*, perforated, as at 9, and mounted in the chamber, the elbow-section 12 and sleeve 13, connecting the same with the cylinder, the flexible water-pipe 15 and the coupling 14, connecting the same with the elbow-section, the elbow-section 17 and its coupling 16, for connecting the same with the neck 4, the steam valve-chamber 19, having a valve, and the coupling 18, for connecting the elbow-section and chamber, the rigid tube 25, connected with the chamber, the flexible tube 26, leading from any steam-supply connected with the rigid tube, and the heat-non-conducting hand-hold 27, mounted on the tube 25, substantially as specified.

4. In an atomizer, the combination, with a globular steam-chamber 1, provided at one end with a conical discharge-opening 2 and at its other end with a water-inlet 3, and between the two with a steam-inlet 4, of an atomizing-cylinder 6, mounted in the steam-chamber and having a perforated conical end 8* inserted through the conical opening 2 in the chamber and projecting beyond the same, and having its rear end mounted in the water-inlet 3 of the chamber, a water-supply pipe connected therewith, and a steam-pipe connected with the steam-inlet 4 of the chamber, said conical end of the atomizer-cylinder having a series of grooves 10 leading from the perforations toward the apex of the cone, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ROBERT W. COFFEE.

Witnesses:
J. H. SIGGERS,
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