

No. 675,556.

Patented June 4, 1901.

A. CLARKSON.  
ATOMIZER.

(Application filed Aug. 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.

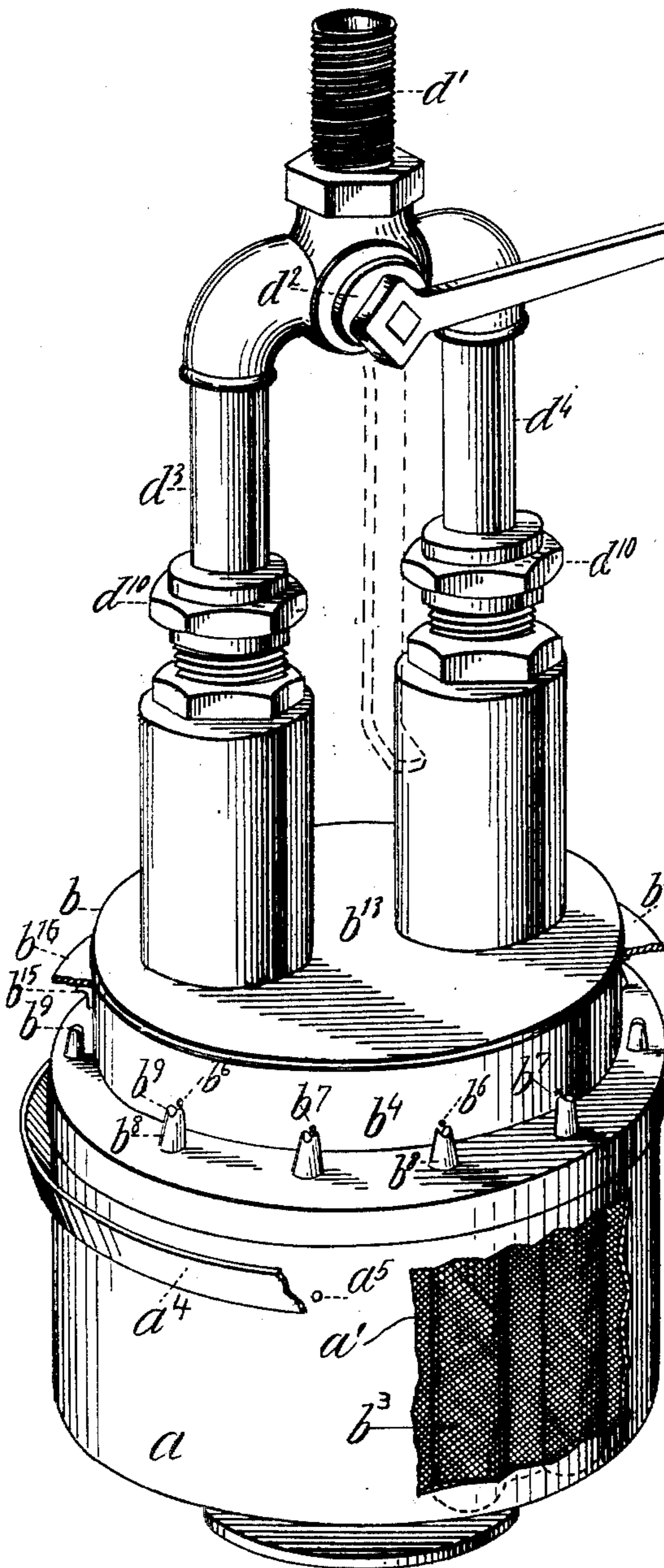


Fig. 1.

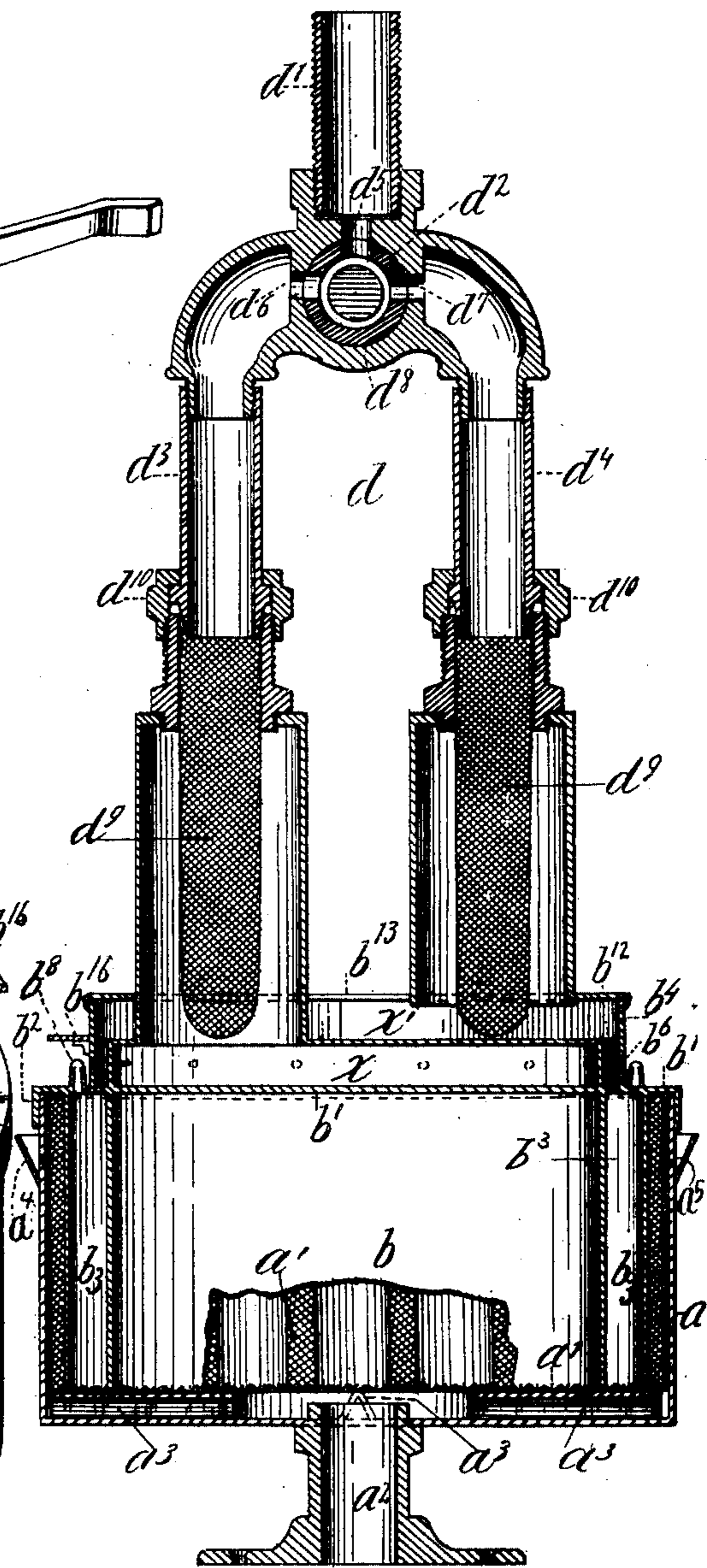


Fig. 2.

Witnesses:  
Charles F. Richardson  
E. A. Allen

Inventor:  
A. Clarkson  
by his attorney,  
Edward S. Beach

No. 675,556.

A. CLARKSON.  
ATOMIZER.

Patented June 4, 1901.

(No Model.)

(Application filed Aug. 8, 1900.)

2 Sheets—Sheet 2.

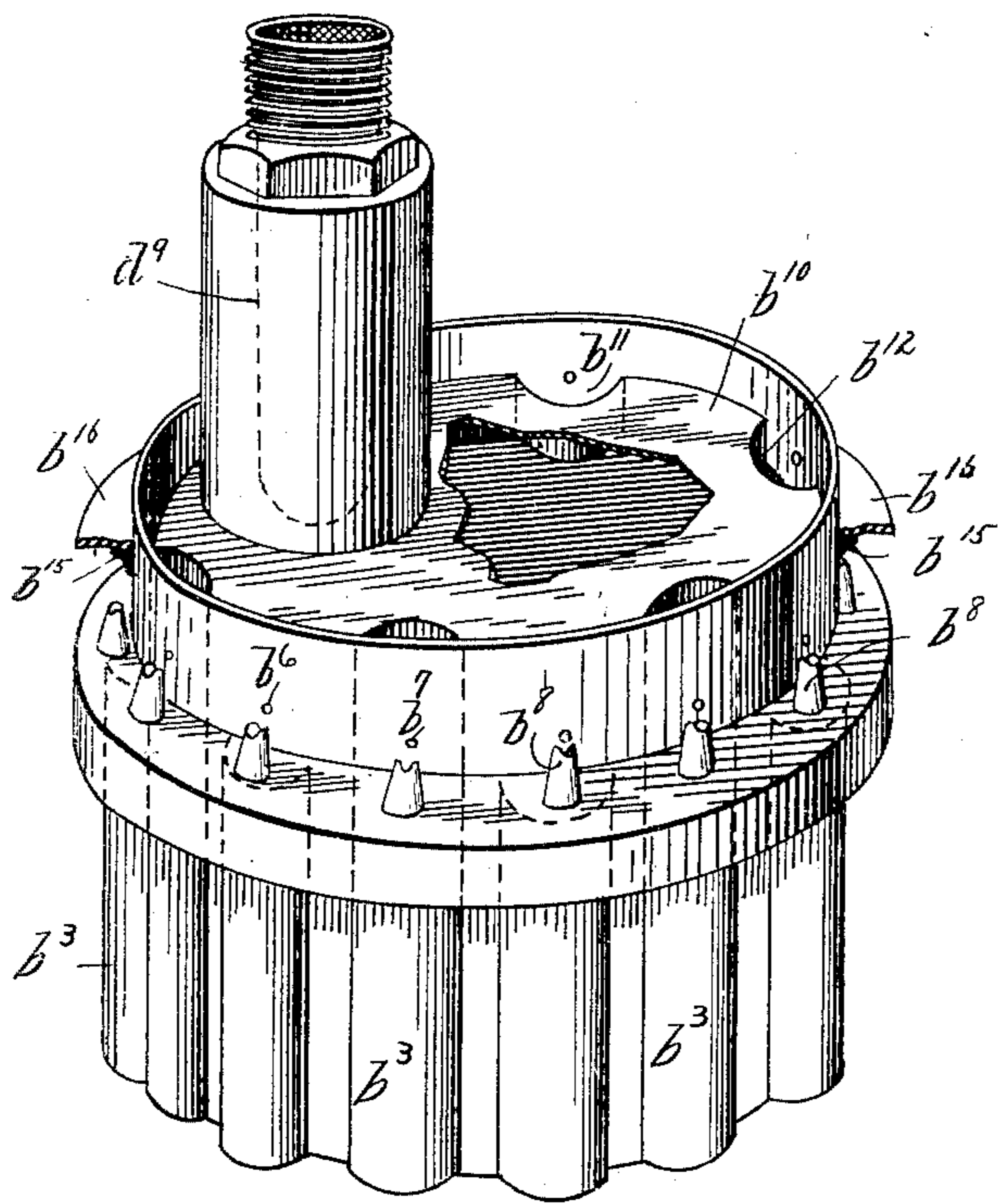


Fig. 3.

Witnesses:  
Charles F. Richardson  
E. A. Allen.

Inventor:  
A. Clarkson  
by his attorney  
Edmund S. Beach

# UNITED STATES PATENT OFFICE.

ALFRED CLARKSON, OF FALL RIVER, MASSACHUSETTS.

## ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 675,556, dated June 4, 1901.

Application filed August 8, 1900. Serial No. 26,220. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED CLARKSON, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Atomizers, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective of my improved atomizer, the water-receptacle, drip-trough, and ring thereof being broken away more clearly to show the arrangement of parts. Fig. 2 is a vertical section of said atomizer.

The shell is broken away to show the screen contained in the water-receptacle. Fig. 3 is a perspective view of the shell, its water-nozzles, air-chamber, and air-conduit leading thereto. The interior of said chamber is shown through its broken top.

The object of my invention is to produce an improved apparatus for increasing the moisture in the air of rooms.

My invention consists of a cheap and simple atomizer, the whole or one or more predetermined portions of which may be operated, as desired.

My improved atomizer is especially useful for increasing and maintaining the desired degree of humidity in rooms where spinning, carding, and weaving cotton and other fabrics is conducted; but it may be used for many other purposes.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle,  $a$  is the water-receptacle, and  $a'$  a strainer which covers the bottom and sides of the receptacle  $a$ , of which  $a^2$  is the water-inlet. Inlet  $a^2$  is adapted in any suitable manner for attachment to a water-conduit, as heretofore; the bottom of the strainer in the present form of my atomizer resting on supports  $a^3$  in the bottom of receptacle  $a$ .

Within strainer  $a'$  I place a shell  $b$ , having an outwardly-projecting flanged top  $b'$ , the inwardly-bent peripheral margin  $b^2$  of which fits tightly on the brim of receptacle  $a$ , thus forming a tight cover for the water-receptacle.

Shell  $b$  is preferably made annular and is provided with a series of shells  $b^3$  on its outer side. The inner ends of the shells  $b^3$  are open

toward strainer  $a'$  and their outer ends are provided with water-outlets, described below. Each shell  $b^3$  forms with the side wall of shell  $b$ , to which it is joined, a water-passage from the receptacle to the outside air. In the outer side of the top  $b'$  there is formed a compartmental turret  $b^4$ , which may have as many air-compartments  $x x'$  as desired.

In the present form of the apparatus the turret has two air-compartments, the inner one being marked  $x$  and the outer one  $x'$ . Each air-compartment is formed with a suitable number of air-exits, in this case through the side wall of the turret, and each air-exit is in such relation to a water-nozzle that when air under proper pressure is forced through an air-exit past the water-nozzle a rarefaction of air takes place at that point, so that water is sucked up and sprayed into the room. The air-exits from the air compartment or chamber  $x$  are marked  $b^6$  and those for chamber  $x'$  are marked  $b^7$ . The water-nozzles  $b^8$  are mounted on top  $b'$  and their upper ends are inwardly notched at  $b^9$  in line with the air-currents from air-exits. In its present form the turret is provided with its plurality of independent air-compartments by means of a transverse partition  $b^{10}$ , which in this case has edge recesses  $b^{11}$  and inwardly-extending side walls  $b^{12}$ , that form a tight joint at their juncture with the flanged top  $b'$  of shell  $b$ . Partition  $b^{10}$  forms a tight joint with the side wall of the turret and is part way between the shell-top  $b'$  and turret-top  $b^{13}$ , thus forming the two independent air-compartments.

Air is supplied to each chamber  $x x'$  of the turret by a suitable air-feeder  $d$ , adapted for connection with a conduit that supplies the air-blast and having a many-way valve which controls the inlet of air to the feeder  $d$ , which is provided with an independent air-conduit for each air-chamber. As the present form of apparatus has only two air-chambers  $x x'$ , the feeder is made with only two air-conduits on the turret side of the valve; but if the turret were made with, say, three or four more independent air-chambers, then the feeder would be provided with three or four more air-conduits on the turret side of its valve, which would be formed with a corresponding number of ways.

In its present form feeder  $d$  has an air-inlet

$d'$  for connection with a source of air-supply, this inlet being controlled by a three-way valve  $d^2$ . On the turret side of valve  $d^2$  feeder  $d$  is provided with two air-conduits  $d^3 d^4$ , conduit  $d^3$  communicating with air-chamber  $x$  and conduit  $d^4$  communicating with chamber  $x'$ . When valve  $d^2$  is in the position shown in Figs. 1 and 2, its way  $d^5$  communicates with inlet  $d'$ , its way  $d^6$  with conduit  $d^3$ , and its way  $d^7$  with conduit  $d^4$ , so that air is simultaneously supplied to the air-chambers  $x$  and  $x'$  and all the atomizing-tubes and air-exits brought into simultaneous use; but by turning the valve  $d^2$  ninety degrees into the position shown by the dotted valve-handle in Fig. 1 the valveway  $d^6$  will communicate with inlet  $d'$ , valveway  $d^5$  with conduit  $d^4$ , and valveway  $d^7$  will be closed by its passage against an imperforate part of the valve-seat  $d^8$ . Consequently by such an adjustment of the valve the air-chamber  $x$  will cease to supply air to the vaporizing-tubes opposite its air-exits, while chamber  $x'$  will alone supply air to the vaporizing-tubes opposite its air-exits.

Each conduit  $d^3$  and  $d^4$  is preferably provided with a screen  $d^9$ , so that dust and dirt may not be carried through the chambers to clog the air-exits thereof, and it is convenient to form each conduit of two members, which are united by a movable coupling  $d^{10}$ .

To catch the drip of water which may collect about the nozzles, I provide a trough  $a^4$ , having holes leading back into the water-receptacle  $a$ . Over and above the nozzles is a removable ring  $b^{16}$ , resting on lugs  $b^{15}$ . It partially protects the nozzles from dust collecting thereon and prevents the possibility of water being thrown out into the room.

By making the various parts detachable one from another, as set forth, the apparatus may be readily cleaned.

I find that the most satisfactory results are obtained by having the air-supply at a pressure varying from twenty to twenty-five pounds, that a relative humidity, say, of seventy-five, which is the best for weaving, spinning, and carding of cotton, can be quickly created and maintained, and that by screening both water and air there is no clogging of the nozzles and air-exits and the moisture and air thrown into the room are freed from impurities deleterious to the health of its occupants.

What I claim is—

1. The combination, in an atomizer, of a water-receptacle having a plurality of atomizer-nozzles with a plurality of independent air-chambers secured to a cover tightly covering said receptacle, each air-chamber having an air-exit in atomizing relation to an atomizer-nozzle; a plurality of air-conduits, one for each air-chamber; an air-supply-conduit connection formed with a valve-seat and connecting said air-conduits; and a many-way valve in said conduit connection, all operating so the apparatus, as a whole, may be wholly or partially operative, as desired.

2. The combination in an atomizer of a water-receptacle having a feed-water inlet; a removable cover tightly covering said receptacle; a plurality of nozzles secured to said cover, the nozzle-pipes extending through said cover down into the water-receptacle, while their mouths open into the atmosphere; an air-chamber, whose bottom is formed by said cover, said air-chamber having air-exits in atomizing relation to the mouths of said nozzles; an air-supply conduit leading to said chamber; and a valve in said air-conduit.

3. The combination in an atomizer of a water-receptacle; a removable cover tightly covering said receptacle; a plurality of nozzles, secured to said cover, the nozzle-pipes extending through said cover and down into the water-receptacle, the mouths of said nozzles opening into the atmosphere; a plurality of air-chambers formed in a turret secured to the top of said cover; air-exits in each chamber in atomizing relation with their respective nozzles; an air-conduit for each air-chamber; an air-supply conduit, provided with a many-way valve, and connecting each air-conduit; all operating so that one or more air-chambers with their respective nozzles may be operated.

4. The combination in an atomizer of a water-receptacle; a removable cover tightly covering said receptacle; a plurality of nozzles secured to said cover, the nozzle-pipes extending through and down into the water-receptacle, the mouths of said nozzles opening into the atmosphere; two air-chambers, formed by an annular ring or turret secured to the top of said cover, and having a turret-top and a transverse partition tightly joined to the wall of said turret; air-exits in each chamber in atomizing relation with their respective nozzles; an air-conduit secured to said transverse partition and opening into the first or lower air-chamber; a second air-conduit secured to the cap forming the top of the second or top air-chamber, and opening into said chamber; a conduit connection formed with a valve-seat and connecting said air-conduits, and a three-way valve in said conduit connection, all operating so the apparatus as a whole may be wholly or partially operative, as desired.

5. The combination, in an atomizer, of a water-receptacle; means to screen the water supplied thereto; a plurality of atomizer-nozzles; a plurality of independent air-chambers secured to a cover tightly covering said receptacle, each air-chamber having an air-exit in atomizing relation to an atomizer-nozzle; a plurality of air-conduits, one for each chamber; means to screen the air supplied to the air-exits; an air-supply-conduit connection formed with a valve-seat and connecting said air-conduits; and a many-way valve in said conduit connection, all operating so the apparatus as a whole may be wholly or partially operative as desired.

6. The combination in an atomizer, of a wa-

ter-receptacle having a feed-water inlet; a removable cover tightly covering said receptacle; a plurality of nozzles secured to said cover, the nozzle-pipes extending through  
 5 said cover down into the water-receptacle, while their mouths open into the atmosphere; an air-chamber having air-exits in atomizing relation to the mouths of said nozzles; an air-supply conduit leading to said chamber; a  
 10 valve in said conduit; means to screen the air supplied to the air-exits, and means to screen the water supplied to the water-nozzles.

7. The combination in an atomizer of a water-receptacle; means to screen the water  
 15 supplied to water-nozzles; a removable cover tightly covering said receptacle; a plurality of nozzles, secured to said cover, the nozzle-pipes extending through said cover and down into the water-receptacle, the mouths of said  
 20 nozzles opening into the atmosphere; a plurality of air-chambers formed in a turret secured to the top of said cover; air-exits in each air-chamber in atomizing relation with their respective nozzles; an air-conduit for  
 25 each air-chamber; means to screen the air supplied to the air-exits; an air-supply conduit, provided with a many-way valve, and connecting each air-conduit, all operating so that one or more air-chambers with their re-  
 30 spective nozzles may be operated.

8. The combination in an atomizer of a wa-

ter-receptacle; means to screen the water supplied to the water-nozzles; a removable cover tightly covering said receptacle; a plurality of nozzles secured to said cover, the  
 35 nozzle-pipes extending through and down into the water-receptacle, the mouths of said nozzles opening into the atmosphere; two air-chambers, formed by an annular ring or turret secured to the top of said cover, and hav-  
 40 ing a turret-top and a transverse partition tightly joined to the wall of said turret; air-exits in each chamber in atomizing relation with their respective nozzles; an air-conduit secured to said transverse partition and open-  
 45 ing into the first or lower air-chamber; a second air-conduit secured to the cap forming the top of the second or top air-chamber, and opening into said chamber; means to screen the air supplied to the air-exits; a conduit  
 50 connection formed with a valve-seat and connecting said air-conduits, and a three-way valve in said conduit connection, all operating so the apparatus as a whole may be wholly  
 55 or partially operative, as desired.

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

ALFRED CLARKSON.

Witnesses:

CHARLES F. RICHARDSON,  
 ALFRED G. TURNER.