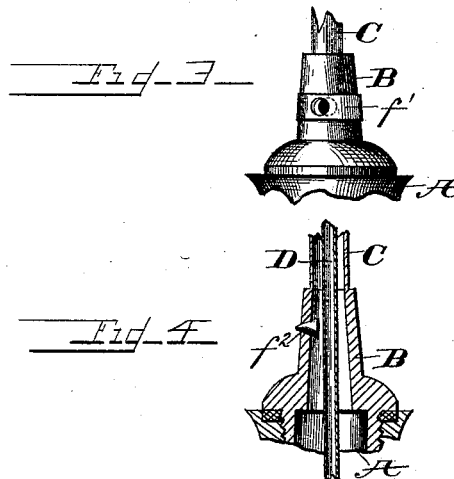
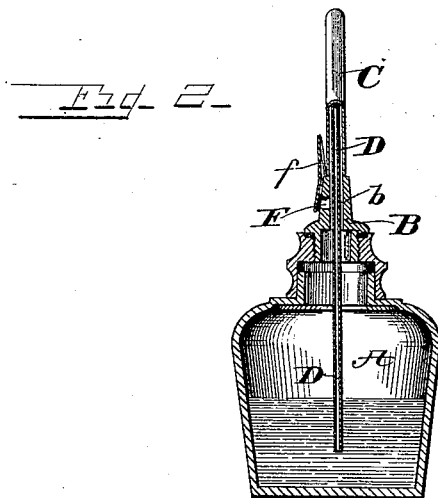
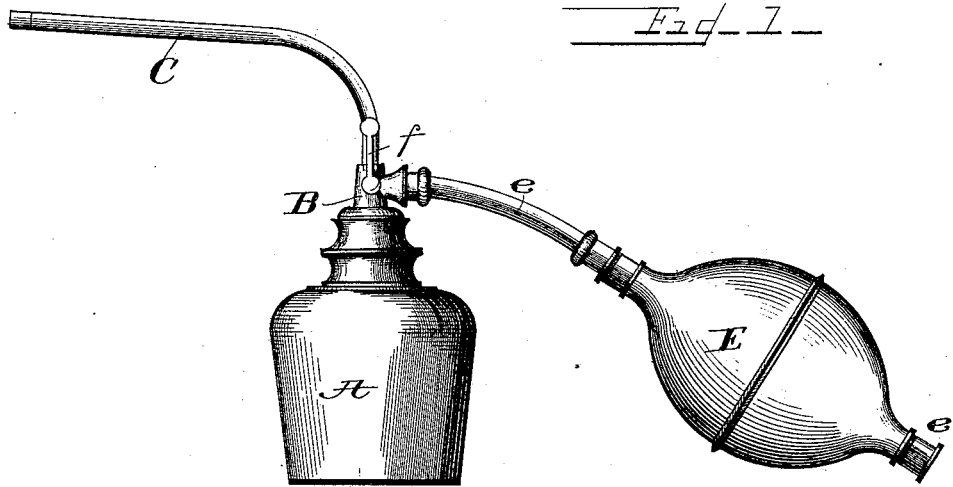


(No Model.)

A. H. BROWN.  
ATOMIZER.

No. 454,709.

Patented June 23, 1891.



Witnesses

*J. W. Tautschmidt,*  
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*Whitaker & Brown*

# UNITED STATES PATENT OFFICE.

ARTHUR HOLMES BROWN, OF AUBURN, NEW YORK.

## ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 454,709, dated June 23, 1891.

Application filed April 5, 1889. Serial No. 306,065. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR HOLMES BROWN, a citizen of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Atomizers; and I do hereby 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.

My invention relates to atomizers, and more particularly to that class in which a continuous spray is produced; and it has for its object to provide a means whereby the spray may be stopped or checked at any moment or allowed to remain continuous, as desired.

I have illustrated several forms in which I have contemplated embodying my invention in the accompanying drawings, and said invention is fully disclosed in the following specification and claim.

In the drawings, Figure 1 is a side elevation of an improved atomizer embodying my invention. Fig. 2 is a sectional view of the same. Fig. 3 is a partial view showing slightly-modified construction. Fig. 4 is a partial sectional view of still another construction.

In the employment of continuous-spray atomizers much inconvenience is experienced from the fact that after the bulb or air-forcing device is released the pressure of air in the air-chamber will cause the spray to continue for a considerable time. This causes necessarily a considerable waste of the medicinal or other liquid employed in the device, and in using the atomizer for spraying the interior of the throat or head and removing the same a portion of the liquid will be sprayed upon the face or clothing of the user. It is also frequently the case that medicinal liquids are employed which must be used in exceedingly small quantities, and the use of a greater quantity would seriously injure the parts treated. In this case it is extremely difficult to cause cessation of the spray before too great an excess of liquid has been forced out.

By my invention these defects and disadvantages are obviated and a construction provided by which the spray is made continuous

when the device is in use, but may be instantly stopped at any moment without stopping the action of the air-forcing device by providing an exhaust-aperture and valve communicating with the air-chamber, which may be opened and the air permitted to escape, thus effectually checking the operation of the spray.

In the drawings, A represents a suitable receptacle for holding liquid, provided with a stopper B, which may be secured to the receptacle by any suitable means. The stopper B is provided with a passage *b*, extending through the same, and its upper extremity is provided with a spraying-tube C of any suitable form, constructed according to the purpose for which it is designed, the extremity of said tube being provided with a small aperture. A pipe D passes from the lower portion of the receptacle A through the stopper B and the pipe C terminating adjacent to the opening in the end of the tube C. The stopper is also provided with means for attaching a tube *e* from a bulb or other air-forcing device E, which is provided with an air-inlet and valve *e'* of ordinary construction. The air-pipe *e* communicates with the passage *b*, so that the air forced into the device by the bulb E creates an air-pressure in the receptacle A in the air-space above the liquid, which forces the liquid up through the tube D to the orifice, and at the same time the air will pass out through the tube C, around the tube D, and force the liquid at the extremity of tube D out through the aperture in tube C in the form of a fine spray. The air in the air-chamber above the liquid will be compressed and stored by the action of the air-forcing device and a continuous spray will thereby be produced.

In the wall of the stopper B is an exhaust-aperture F, which communicates with the air-chamber above the liquid through the passage *b*. This aperture may, however, be located at any convenient point between the air-inlet and air-outlet of the atomizer, as upon some portion of pipe *e*, bulb E, pipe C, or it may be located in the wall of the reservoir A, if found convenient. This aperture may be of any suitable size which will insure the instan-

taneous release of all the air forced into the air-passage by the air-forcing device, and I may provide it with a suitable valve, as shown in Figs. 1, 2, 3, and 4.

5 In Figs. 1 and 2 I have shown a valve consisting of a plate *f*, pivoted in suitable ears and having a spring engaging the same, the portion engaging the aperture F being provided with suitable packing to render the  
10 said valve air-tight.

In Fig. 4 I have shown the stopper B provided with a collar *f'*, mounted upon the same, or in a groove surrounding the said stopper. This collar is provided with an aperture  
15 adapted to register with the aperture F when the collar is turned and open the same. When the collar *f* is turned, so as to bring a solid portion over the aperture F, said aperture will be closed.

20 Instead of the collar *f'*, I may employ a band of rubber, which will fit in a groove and cover the aperture F. In this case the rubber may be rolled under the finger when it is desired to open the valve.

25 In Fig. 5 I have shown a valve comprising a cone-shaped plug *f*<sup>2</sup>, engaging the aperture F and having its apex extending through the same. The pressure of the air in the air-chamber will keep the valve normally closed; but a pressure upon the apex of the cone will  
30 release the air.

I may employ any form of valve which is found most convenient or desirable, or I may

dispense with the valve and use the plain opening shown in Fig. 3, if I desire.

35 The operation of the device is apparent from the drawings and the foregoing description. The bulb or other air-forcing device is operated and a continuous spray is produced as long as the aperture F is closed; but upon  
40 opening the valve all the air at once escapes through the aperture F and the spray is instantly stopped, preventing soiling of the face and clothes, avoiding waste of liquid, and enabling the flow of spray to be instantly con-  
45 trolled.

I am aware that an opening without a valve has been used to effect the results herein recited. Such a construction I do not claim.

What I claim, and desire to secure by Letters Patent, is—

An atomizer having a discharge-nozzle, air-supplying devices provided with an air-inlet, an exhaust-aperture communicating with the  
55 outer air between the air-inlet and the discharge-nozzle, and a valve for said aperture, whereby the instantaneous discharge of the air within the device is secured, substantially as described.

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

ARTHUR HOLMES BROWN.

Witnesses:

W. M. BRINKERHOFF,  
G. B. LONGSTREET.