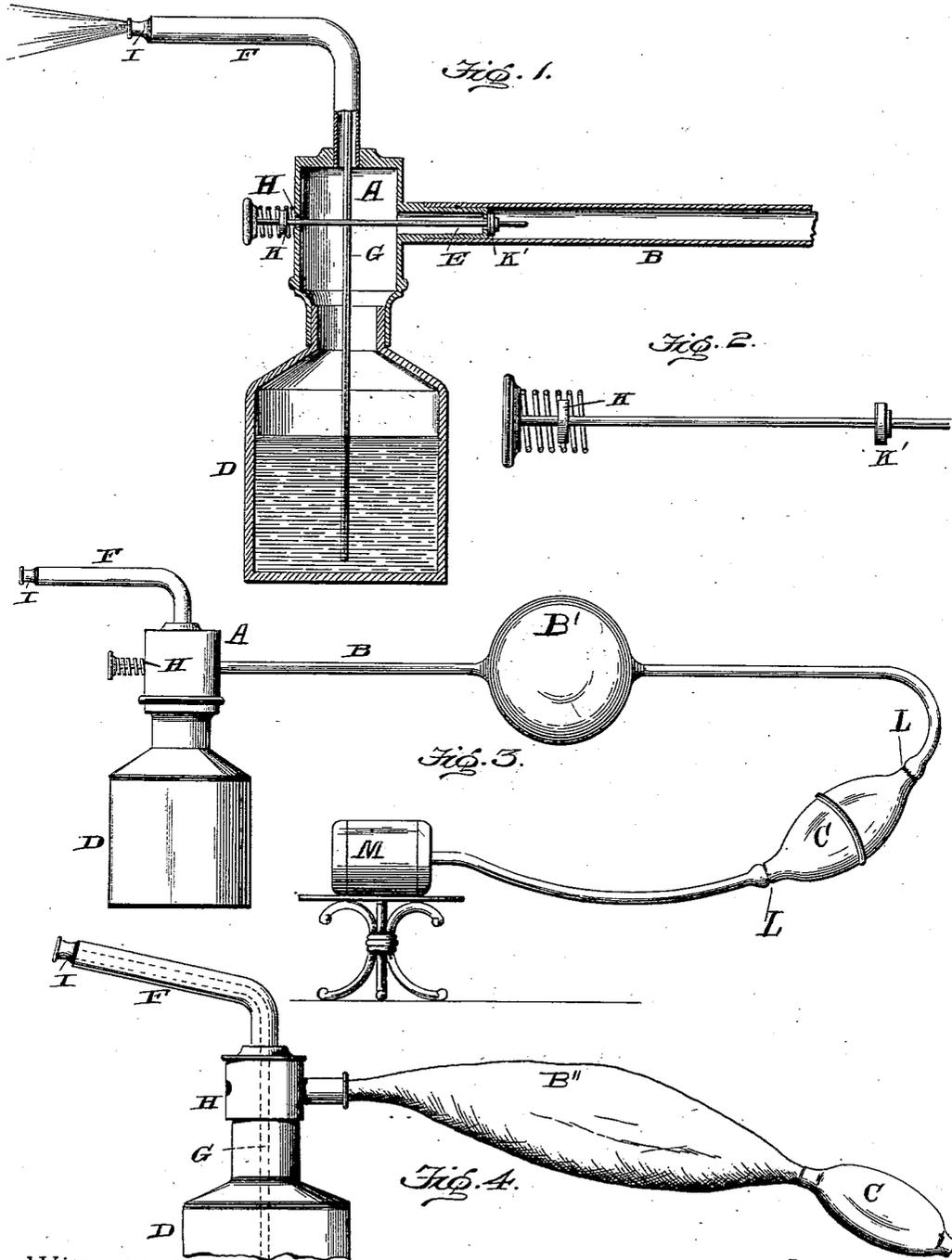


(No Model.)

H. R. MILLS.
ATOMIZER.

No. 560,225.

Patented May 19, 1896.



Witnesses:

Wm. C. Cashlee
J. N. Woodbury

Inventor.

Hiram T. Mills.

—BY—*L. B. Woodbury*
Attorney.

UNITED STATES PATENT OFFICE.

HIRAM R. MILLS, OF PORT HURON, MICHIGAN.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 560,225, dated May 19, 1896.

Application filed July 24, 1894. Renewed January 11, 1896. Serial No. 575,178. (No model.)

To all whom it may concern:

Be it known that I, HIRAM R. MILLS, a citizen of the United States, residing at Port Huron, in the county of St. Clair and State of Michigan, 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.

The object of this invention is to form an improved apparatus for spraying and the application of vapor, gases, and medicated or purified air for physicians', dentists', surgeons', and other uses, with certain desirable features therein.

The invention consists in forming such apparatus with the several features and in some of the details, substantially as set forth hereinafter, and as illustrated in the drawings, in which—

Figure 1 illustrates the apparatus in use. Figs. 2 and 3 illustrate details. Fig. 4 illustrates a modified form.

A vessel or bottle D, adapted to be held in the hand for use and to hold the spray fluid, is provided with a head H, fitting into it securely as a stopper, and having an inlet and an outlet pipe or tube EF. The outlet-tube F is made flexible, so as to be bent to adapt it to the use in each special case, or it may be made of a permanent special form to suit a class of cases, and has on its outer end a spray-tip I, adapted to the use desired, in spraying or otherwise. This tube connects with the bottom of the vessel D by pipe G, arranged to carry up and supply the fluid to the spray. The inlet-pipe E is arranged to admit air or gas, as the case may be, under pressure to force out the fluid to form the spray, and a hole H is provided in the head A, adapted to be closed by the finger or a valve K, operated by the finger, when the apparatus is held in the hand in making the application of the spray in use. This is arranged so that as the operator wishes he can stop the spray suddenly or at once by merely relaxing his finger, so as to let the air escape by hole H instead of forcing it out by pipe F, and so he can renew the spray by merely pressing again with his finger on hole H or valve K, so as to stop the escape of the air. This valve

K gives the operator control of the force of the spray by closing the opening H more or less tightly, according to the force of spray desired from moment to moment as the operator sees the need or occasion in the application of medicated spray or vapor by the nose or mouth or otherwise, or the application of sterilizing-spray in surgical operations or treatment, and enables him to use the highest art of trained eye and hand, with one hand free for other use, without having his attention distracted from the work. It provides a cut-off entirely automatic to stop the spray the instant the operator's hold relaxes whether from intention or otherwise, thus enabling him to devote his whole attention to whatever requires it instantly without disturbing the conditions by too much or by mis-directed spray, or by dropping the apparatus when necessary or accidentally. The valve K is mounted on a stem which passes in through hole H, so that when pressed in by the finger it closes the hole securely and opens the inlet-valve K at the same time, so as to securely force the air to pass out by the spray-tube I. A valve at K' on the inner end of this stem is arranged to fit a seat in pipe E, so as to close that pipe at a point where contracted therefor and cause the air when allowed to escape at H to automatically stop its passage by closing this valve K and thus save loss of air, gas, or vapor, when desired. This valve-stem is provided with a coiled wire spring or other spring, arranged to tend to keep valve K open and valve K' closed, except when held by the operator's finger for use. The inlet-pipe E is continued by a pipe B to any desired distance to connect with an air-forcing bulb C or an air-pump adapted to be used with the hand or foot or an air-receiver.

The bulb C has valves L L at each side, each opening only to let air pass inward. The pipe B has a section of elastic pipe B, as in Fig. 4, or an elastic bulb B instead, as in Fig. 3, arranged to expand and receive a considerable quantity of air or gas under pressure and give it off in use with little change of pressure or attention for a considerable period, so as to form a portable apparatus for use at the bedside or wherever needed. The pipe B is, when desired, connected to a reservoir M of pure or medicated air or to the air

out of doors, for the purpose of securing perfect control of the air which is used and to avoid injecting vitiated air into a person's lungs or throat.

5 I claim—

1. In an atomizer an automatic cut-off combined therewith consisting of double sliding valves K, K', mounted on a single rod E, a coiled wire or other spring, a thumb piece or
10 lever, working through an air chamber or cylinder perforated on either side or end, having an air-inlet and so placed that in connection with an air condenser or cylinder the perforation on the receiving side closes automatic-
15 ally and is opened by pressure on the thumb piece or lever.

2. In an atomizer a reservoir-bottle having a spray-tube and an air-inlet tube, and an air-outlet H, located separate from the spray-outlet and provided with an automatic cut-off located in position relative to the position of a hand holding the bottle so that it may be operated by a finger of such hand to shut off or turn on the spray by opening or closing such air-outlet. 20 25

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

HIRAM R. MILLS.

Witnesses:

WM. STEPHENSON,
JNO. M. GLEASON.