(Model.)

S. W. BEALL.

COMBINED ATOMIZER AND SYRINGE.

No. 248,983. Patented Nov. 1, 1881.

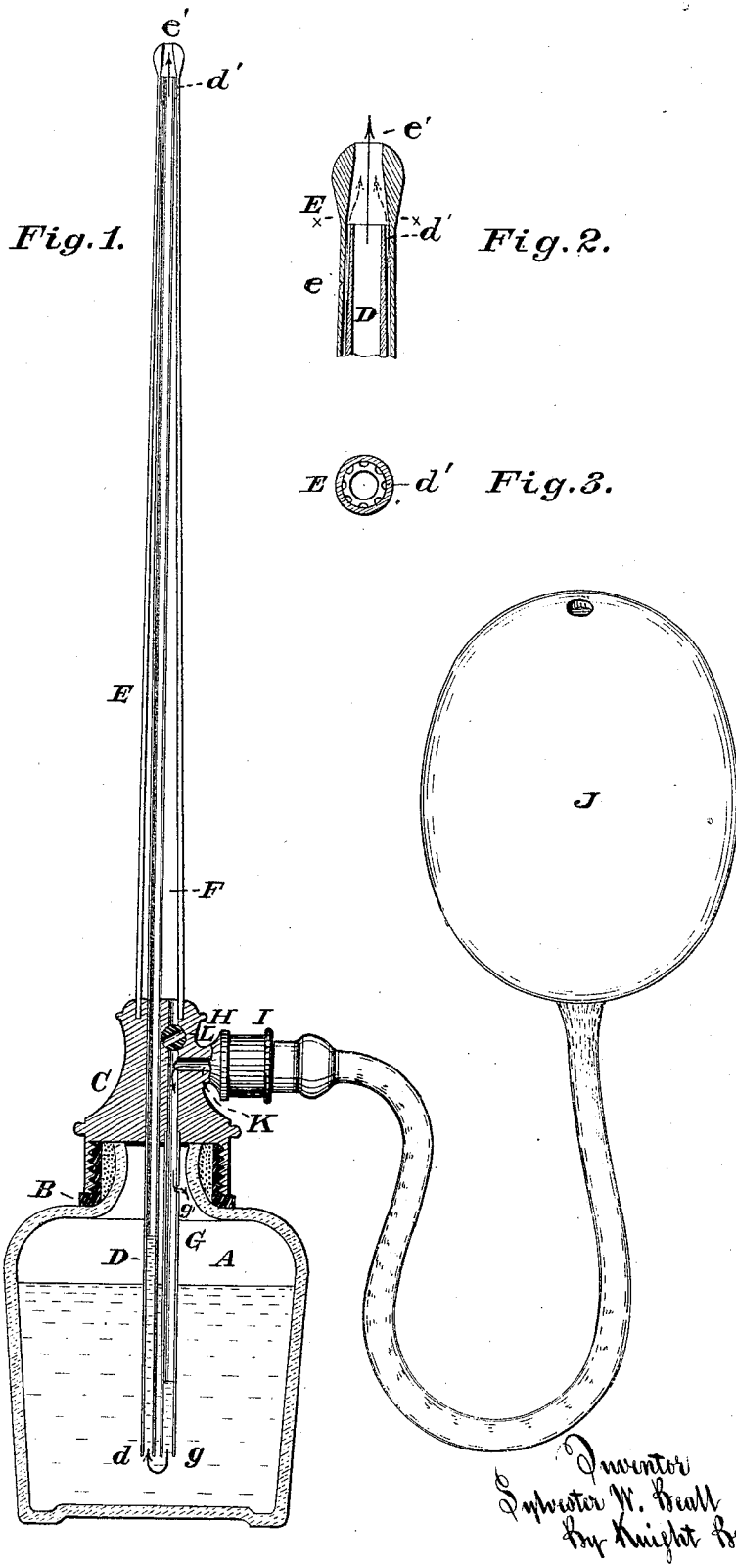


Fig. 1.

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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COMBINED ATOMIZER AND SYRINGE.

SPECIFICATION forming part of Letters Patent No. 248,983, dated November 1, 1881.

Application filed June 20, 1881. (Model.)

To all whom it may concern:

Be it known that I, SYLVESTER W. BEALL, of Troy, Miami county, Ohio, have invented a new and useful Combined Syringe and Atomizer, of which the following is a specification.

My invention relates to a new and useful instrument capable of employment either as a syringe or as an atomizer, and having special applicability for use with vaseline and like oleaginous and viscid liquids, either by spraying such liquid or by ejecting it in form of a solid stream.

In the accompanying drawings, Figure 1 is an axial section of a combined syringe and atomizer embodying my invention. Fig. 2 is an axial section, to a larger scale, of the delivery end of the duplex nozzle. Fig. 3 is a transverse section on the line *x x*.

A represents a bottle, preferably of glass, which constitutes the fount or containing-vessel for whatever solution, liquid, or medicament is employed. To said fount is cemented a metallic neck, B, which is screw-threaded for attachment of a cap, C. The cap C is traversed longitudinally by a tube, D, whose open inner end, *d*, penetrates nearly to the fount-floor, and the periphery of whose similarly open outer end has longitudinal grooves *d'*. That portion of the tube D that is outside of the cap C is surrounded by a tapering nozzle, E, which from its junction with said cap, where it is of considerably larger diameter than tube D, extends to a slight distance beyond the delivery of said tube.

The annular interstice F, between tube D and inclosing nozzle E, communicates with the interior of the bottle, near the floor of the same, by means of duct G, whose lower end, *g*, is open for that purpose.

Projecting laterally from cap C is a screw-threaded neck, H, for attachment of a correspondingly screw-threaded nipple, I, to which is secured any suitable pneumatic pump or bulb, J.

A valve-guarded passage, K, admits air from bulb into duct G, but prevents its return.

The duplex nozzle D E is preferably composed of copper or other material whose ductile properties are such as to permit it to be bent without injury to whatever curve may be best suited for the viscera to be treated, and which possesses at the same time sufficient rigidity to retain whatever form is given to it.

A cock, L, provided at that part of the duct G which is above its junction with the passage K, enables the operator to either close communication between said passage and the annular interstice F, as shown in the figure, or to permit a portion of the blast to escape upward into said interstice, and by issuing at the grooves *d'* to spray or atomize the liquid that is at the same instant escaping from the central tube D.

In addition to the above, my instrument preferably contains a minute orifice, *g'*, in duct G, which allows an escape of blast-air above the liquid sufficient to equalize the pressure and prevent a too-excessive ebullition.

One or more nicks, *e*, may be formed in the nozzle-side, to guide the operator's finger in penetrating important internal viscera, such as the uterus or the bladder.

The operation is as follows: For syringe purposes the cock L is closed, as shown in the drawings, so as to direct the entire blast downward into the fount. Of this blast, a small portion passes, as already explained, through orifice *g'* into that part of the fount-space which is above the liquid. The main portion of the blast, escaping at the extreme open end *g* into the liquid, operates to agitate it, and while in the resultant mobile and broken condition to drive it into the similarly-submerged inlet *d* of the tube D, whence it escapes at *e'*.

For spraying purposes the cock L is opened so as to permit a portion of the blast to escape into the interstice F, whence it issues through ventages *d'* and operates to spray or atomize the liquid that is at the same instant discharging at the central orifice. These changes are made without removing the instrument or substitution or attachment of any new member. Of two or more like founts charged with different liquids, one may be quickly substituted for another, if desired.

I claim as new and of my invention—

1. The combination of the nested tubes D and E, their interstice F, the blast-duct G, that communicates above with said interstice, below with the fount-chamber, and intermediately

with the blast-inlet, and the cock L, located above the junction of said inlet, for optional communication between said inlet and said interstice, substantially as and for the purpose designated.

2. In combination with an ejection-nozzle that communicates with the lower portion of the fount-chamber, the blast-duct G, having a minute orifice, *g'*, that discharges a portion of its blast into the upper part of said chamber, and a larger orifice, *g*, that discharges the principal portion of the blast into the body of the liquid, substantially as set forth.

In testimony of which invention I hereunto set my hand.

S. W. BEALL.

Attest:
GEO. H. KNIGHT,
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