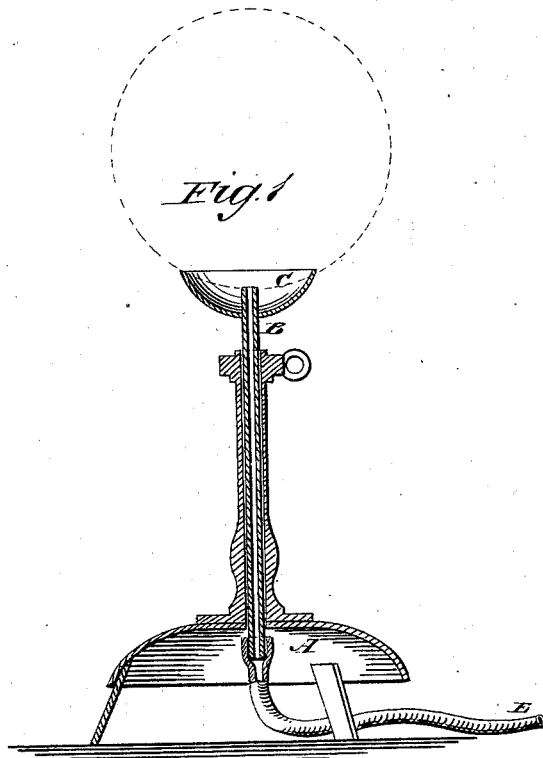


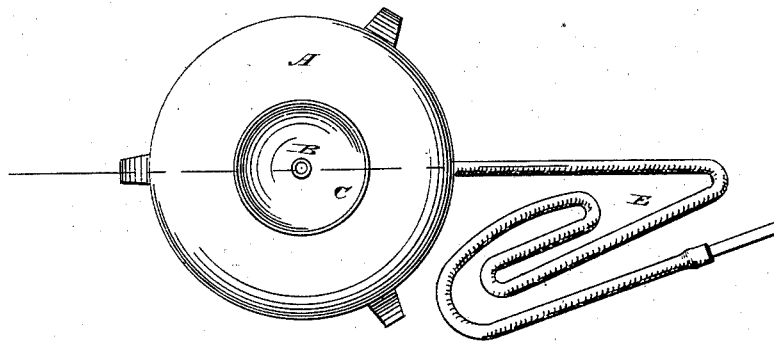
D. GREENWALT.  
Bubble Blowing Apparatus.

No. 216,176.

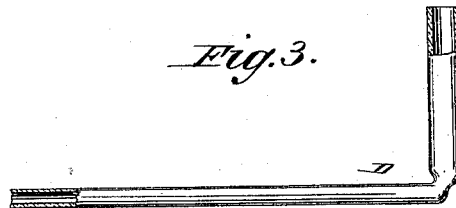
Patented June 3, 1879.



*Fig. 2.*



*Fig. 3.*



WITNESSES:

*F. M. Arnold.*  
*C. Seagrove.*

INVENTOR:

*D. Greenwalt*

BY

*Mum Co.*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

DANIEL GREENWALT, OF MILLERSVILLE, PENNSYLVANIA.

## IMPROVEMENT IN BUBBLE-BLOWING APPARATUS.

Specification forming part of Letters Patent No. **216,176**, dated June 3, 1879; application filed April 4, 1879.

*To all whom it may concern:*

Be it known that I, DANIEL GREENWALT, of Millersville, in the county of Lancaster and State of Pennsylvania, have invented a new and Improved Bubble-Blower, of which the following is a specification.

Figure 1 is a sectional elevation of the device. Fig. 2 is a plan of the same. Fig. 3 is a view of the glass tube, partly in section, used in operating the device.

Similar letters of reference indicate corresponding parts.

The object of this invention is a device that may be used as a philosophical instrument, or for blowing soap-bubbles.

The invention consists of the stand A, sliding in the upright tube of which is the tube B, about whose upper extremity is centrally fastened the cup C.

D is a bent tube, preferably of glass, that may be used in connection with the device. E is a flexible tube that may also be sometimes used with advantage.

The device may be operated by pouring into the cup C enough strong soap-suds—soap and water—with a little glycerine added, if desirable, to fill the cup nearly to the top of the tube B. Then, if one dips the larger end of the tube D into the contents of the cup and blows through it, a bubble will be formed over the end of the tube B. The tube D may then be withdrawn and the size of the bubble be diminished by sucking through the tube E that is attached to the lower end of B, or be increased by blowing through it.

With the solution in the cup, as before stated, bubbles may be formed by placing the end of the tube D down over the orifice of the tube B, and then blowing through the tube B

or its attachment E; but the better way is to start the bubble with the tube D.

The value of this device as a toy can be easily understood and appreciated by the young and the old; but it is of still greater value in certain scientific investigations and pursuits. Wishing to experiment on the explosion of gases one can form the bubbles in one of the ways indicated, and then introduce the gas into it through the tube E.

The solution remaining in the cup and floating or supporting the bubble makes it more lasting than it would be were it supported on a dry surface.

All the childish and all the philosophical experiments that can be made with soap-bubbles can be better made with this device than with any other with which I am acquainted.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The within-described device for blowing bubbles consisting of stand A, provided with a hollow standard, and the sliding tube B, and the cup C, secured centrally to the said sliding tube near its upper end, substantially as herein shown and described.

2. In combination with the stand A, tube B, and cup C, the auxiliary tubes D and E, substantially as herein shown and described.

3. A bubble-blower with a cup for holding the bubble solution centrally secured around the blowing-tube near one end of it, substantially as herein shown and described.

DANIEL GREENWALT.

Witnesses:

ABRAHAM D. HOSTETTER,  
A. B. LEVENITE.