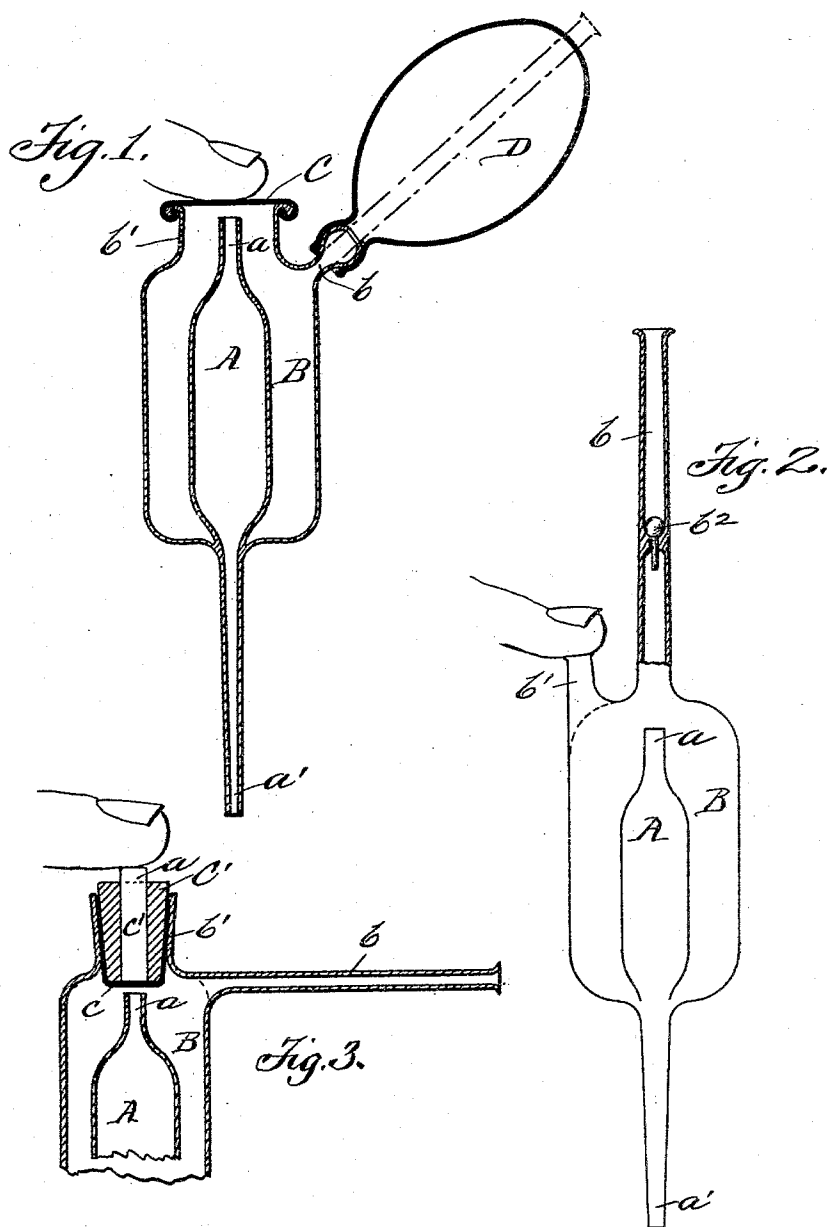


(No Model.)

P. M. SHARPLES.
PIPETTE.

No. 553,044.

Patented Jan. 14, 1896.



Witnesses:

David Levan
Wm Keely

Philip M. Sharples
Inventor.
By *[Signature]*
Attorney.

UNITED STATES PATENT OFFICE.

PHILIP M. SHARPLES, OF WEST CHESTER, PENNSYLVANIA.

PIPETTE.

SPECIFICATION forming part of Letters Patent No. 553,044, dated January 14, 1896.

Application filed December 4, 1894. Renewed December 13, 1895. Serial No. 572,045. (No model.)

To all whom it may concern:

Be it known that I, PHILIP M. SHARPLES, a citizen of the United States, residing at West Chester, county of Chester, State of Pennsylvania, have invented certain Improvements in Pipettes, of which the following is a specification.

My invention relates to measuring devices which are especially adapted for rapidly and accurately measuring uniform quantities of liquids.

In a pending application of David T. Sharples, Serial No. 487,086, filed October 3, 1893, is shown and described an automatic pipette comprising a measuring-tube having one of its open ends arranged in communication with an air-tight overflow-chamber having a pump connection by means of which suction is exerted through said overflow-chamber to fill the measuring-tube to overflowing and thereafter hold the measured liquid until the same is discharged by the reversal of the pump action. The main object of my invention is to provide a device of this kind having means separate from the pump connection, whereby to hold or release the measured liquids.

The invention is described in connection with the accompanying drawings and is specifically pointed out in the claims.

Figure 1 illustrates a pipette embodying my invention in its simplest form. Fig. 2 shows a modified arrangement, and Fig. 3 a different form of stopper-valve applicable to the construction shown in Fig. 1.

A represents a measuring-tube having openings *a* and *a'*, and of any desired capacity.

B is an overflow-chamber inclosing the open end *a* of the measuring-tube. This overflow-vessel is provided with a pump connection *b* and with an open neck *b'*. In Fig. 1 this neck *b'* is tightly closed by a stopper C in the form of a flexible disk of rubber or other suitable material, and the open end *a* of the measuring-tube is extended into such proximity to the disk as to permit the latter to be depressed into contact with it so as to seal the opening *a*. The pump connection *b* may be provided with a flexible bulb D, in which case the device is operated by first compressing this, then inserting the opening *a'* of the measuring-tube in the liquid, releasing the bulb to fill the tube, and as soon as the

latter overflows at *a* depressing the stopper-valve C to close the tube, and thus securely hold the liquid until it is conveyed to the delivery-point, when the valve C is raised and the liquid released; or the pump connection may be extended, as indicated in dotted lines, and the mouth of the operator applied thereto as a means of exhausting the air from the overflow-chamber, the suction being stopped as soon as the overflow appears and the stopper-valve simultaneously closed. The disk C is preferably made of moderately-heavy rubber, sufficiently stiff to prevent its being drawn to its seat upon the measuring-tube by the suction exerted through the pump connection, the pressure of the operator's finger being preferably utilized to effect this closing of the tube and the elasticity of the disk serving to open it when released.

In the modified construction shown in Fig. 2 the pump connection *b* is provided with a check-valve *b²* and the open neck *b'* of the overflow-vessel is closed by the operator while the liquid is being drawn into the tube by suction at *b*. When the liquid overflows the tube at *a* the suction is stopped, and the check-valve drops to its seat, and the measured liquid is held until released by uncovering the opening *b'*.

In the modified form of stopper-valve shown in Fig. 3 a hollow stopper C' is employed in connection with a flexible valve *c*, and a button *c'* for seating the same upon the end of the measuring-tube.

Having thus fully described my invention in connection with several of many modifications which may be devised, I do not desire to limit myself to the specific construction shown, but

What I claim is—

1. A measuring device for liquids comprising a measuring tube open at two points, an overflow chamber arranged in communication with one of said openings, a pump connection to said overflow chamber, and means separate from said pump connection adapted to operate upon said overflow opening of the measuring tube to hold or discharge the liquid therein, substantially as set forth.

2. A measuring device for liquids comprising a measuring tube open at two points, an overflow chamber arranged in communica-

tion with one of said openings, a pump connection to said overflow chamber, and a valve seating directly upon said communicating opening of the measuring tube to hold or release the contents thereof, substantially as set forth.

3. A measuring device for liquids comprising a measuring tube open at two points, an overflow chamber arranged in communication with one of said openings and provided with an open neck and a separate pump con-

nection, and a stopper valve fitted to said neck and adapted to open or close said communicating opening of the measuring tube, substantially as set forth. 15

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

PHILIP M. SHARPLES.

Witnesses:

ADDA E. WORRALL,
WM. S. WINDLE.