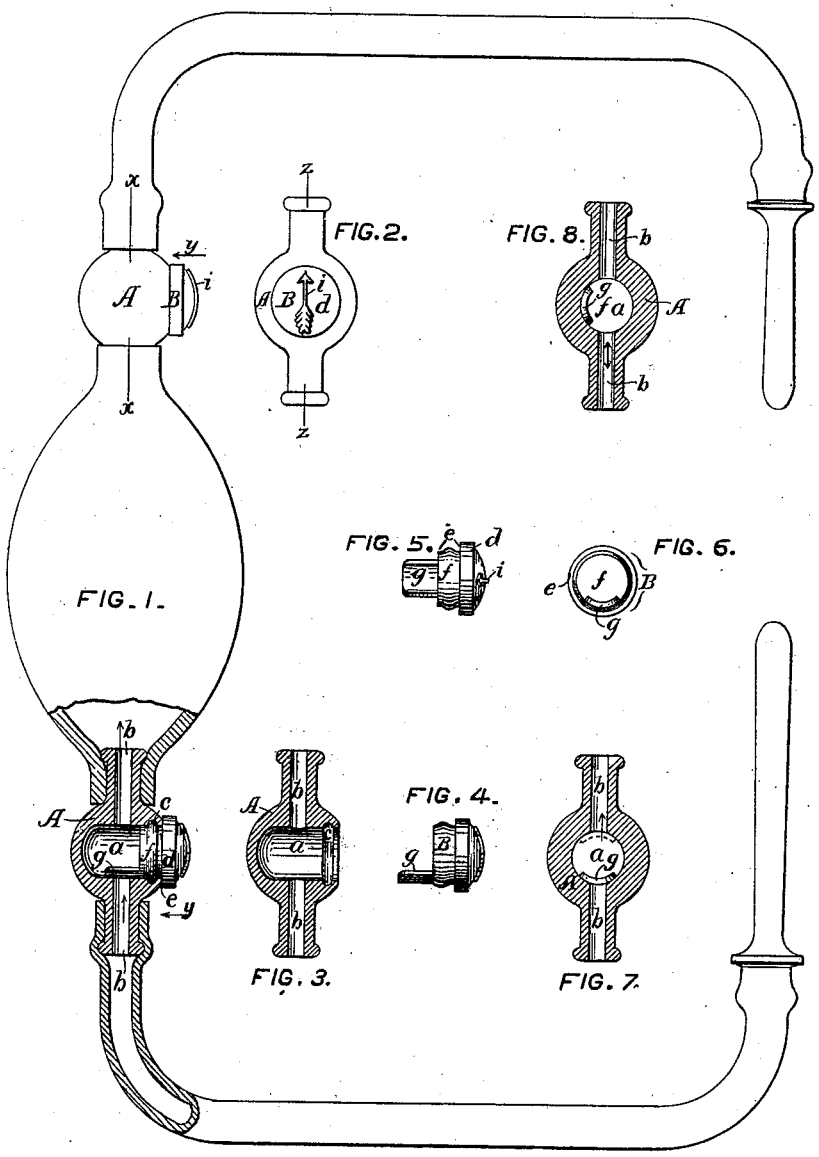
S. PETERS.
Syringes.

No. 204,912. Patented June 18, 1878.



WITNESSES:

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IMPROVEMENT IN SYRINGES.

Specification forming part of Letters Patent No. **204,912**, dated June 18, 1878; application filed March 25, 1878.

To all whom it may concern:

Be it known that I, SAMUEL PETERS, of Cohoes, in the county of Albany and State of New York, have invented a new and useful Improvement in Soft-Rubber-Bulb Syringes, adapting them to be used as syringe, aspirator, and siphon, as desired, which improvement is fully set forth in the following specification and drawings, in which—

Figure 1 is an elevation of ordinary bulb-syringe, with one of the valves in section through line *z z*, Fig. 2; Fig. 2, a view of valve-box detached and viewed in direction of arrow, Fig. 1; Fig. 3, section of valve-box, as seen in Fig. 1, but with valve-cork removed; Fig. 4, view of valve-cork in same position as shown in Fig. 1, and removed; Fig. 5, view of valve-cork at right angles to that shown in Fig. 4; Fig. 6, inner end view of the valve-cork; Fig. 7, section of valve-box in direction of *x x*, Fig. 1; Fig. 8, similar section of valve-box, showing position of valve when device is employed as siphon.

The object of my invention is to arrange the common soft-rubber-bulb syringe so that it may be readily converted into an aspirator or siphon, as desired; also to simplify the whole by forming the valve-box in one piece instead of two, (as done heretofore,) thereby avoiding screw-threads, that are liable to become corroded or otherwise adherent, rendering the cleaning of the instrument often difficult or impossible; and, further, the small metallic valves, which are so liable to be lost or to become adherent, and thus inoperative, are discarded. Again, the valves hitherto employed in such instruments, having a sensible gravity or weight, work imperfectly in an inverted position, they falling in the wrong direction, which fault my device overcomes.

My invention is applicable to all soft-rubber-bulb syringes of the class that contain two valves, afferent and efferent; also, stomach-pumps, &c., as is described as follows:

The box or connection A, that contains the valve-chamber, (a form of the box is shown in Figs. 1, 2, 3, 7, 8,) is constructed in one piece, and symmetrical, so far as the tubes or openings are concerned, one end to fit properly one of the tubes, the other the aperture in the bulb or tube leading to the bulb, the whole, of course, tubular.

The central portion of the said box is enlarged and may be spherical, as shown, or in the form of a cube, or otherwise. In the enlarged portion is formed a circular opening, *a*, the valve-chamber proper at right angles to the long axis of the box A, and extending nearly through to the opposite side, so that the valve-chamber *a* and the longitudinal opening *b b* intersect. The valve-chamber is made circular, so that the current of the fluid may be changed without removing the valve, and thus admitting air by simply turning the cork on its own axis.

The diameter of this valve-chamber is slightly increased near the outer extremity, as shown at *c*, to receive the shoulder *f* in the valve-cork B, to be presently described, and thus keep the latter secure in its place.

The valve-cork B is constructed of some pliable material, preferably of soft rubber, of the size of the valve-chamber, with a head, *d*, and a shoulder, *f*, as shown, the length of the body of the cork *e*, Fig. 5, exclusive of the head *d*, to be slightly less than the distance from the outer end of the valve-chamber to the center or longitudinal opening *b b*. Appended to the body of the cork is a thin sheet, *g*, of the same material, or any other that is suitable, in width about one-third the circumference of the body of the cork, in length about equal to the body. This appendage forms the valve proper. This valve-cork can be, as is evident, removed, and replaced or turned round, at pleasure, without removing.

An arrow, *i*, on the head of the cork serves to indicate the direction of the current when in use.

In operating this instrument the arrows on the corks are pointed in the direction in which the fluid is to be thrown. At each compression of the bulb the rear or afferent valve is forced against the rear opening, thus preventing regurgitation of the fluid. At the same time the forward valve is forced open and the fluid unobstructed in its forward movement. When the bulb is relaxed a reverse action in the valves occurs, and the bulb is filled, ready for another compression, &c. By turning the corks half-way round and pointing the arrows in the opposite direction, as shown by the dotted lines, Fig. 7, the fluid is forced backward, and the instrument acts as an aspirator. Thus

both operations alternately may be performed in washing out the stomach in case of poisoning, the instrument serving as an efficient and improved stomach-pump. The same operation may be accomplished with this instrument for the bladder or other cavity.

By turning the arrows across the box, or transversely, as shown at *g*, Fig. 8, the valves are rendered inoperative, and the whole instrument becomes a continuous tube or siphon, an injection performed, and the fluid withdrawn at pleasure, and thus a cavity washed out by raising or lowering the outer or movable end of the instrument, keeping it, of course, connected with the fluid-supply, as is well known.

I claim—

A soft-rubber syringe-bulb, provided at either end—that is, at inlet and outlet—with the valve-chamber A and the valve-cork B, with its valve-extensions *g* at right angles to the long axis of the valve-box, all as and for the purpose described.

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