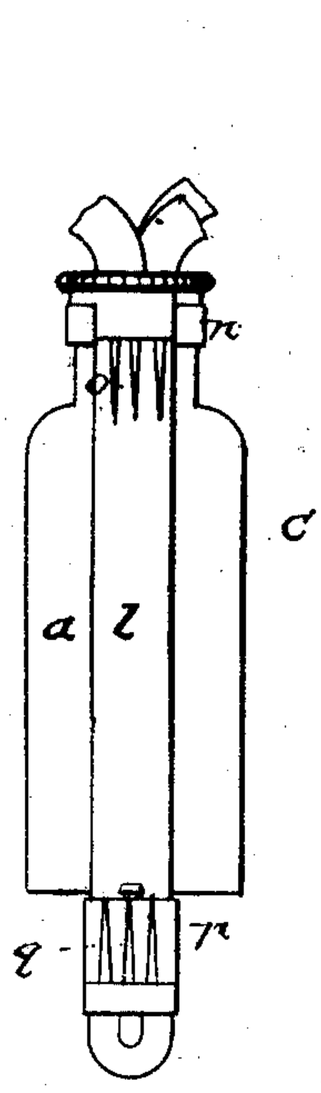
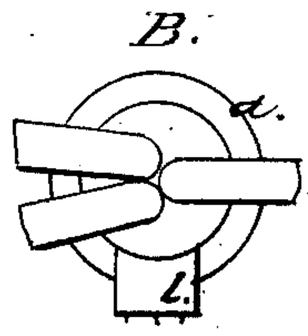
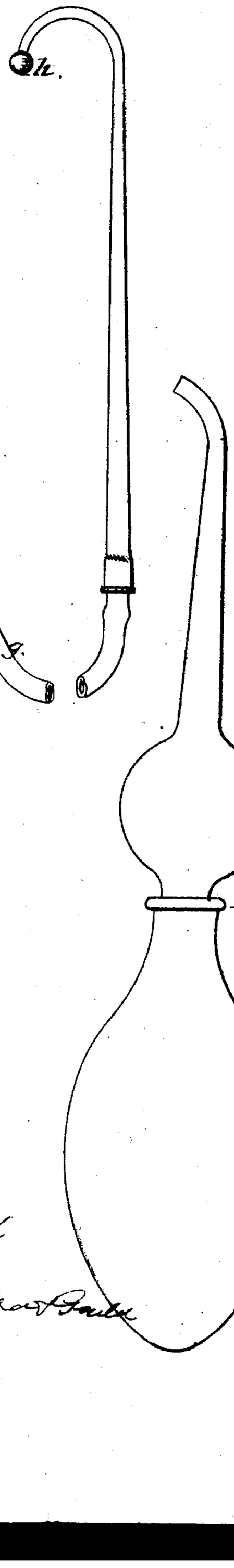
A. M. Shurtleff.

Saliva-Pump.

No. 76257 Patented Mar. 31, 1868.







Attest;
S. B. Ridder
M. W. Fosthingham

A. M. Shurtleff
by his Attys
Crosby Halsted & Gaskell

United States Patent Office.

A. M. SHURTLEFF, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 76,257, *dated March* 31, 1868.

IMPROVEMENT IN SALIVA-PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, A. M. SHURTLEFF, of Boston, in the county of Suffolk, and State of Massachusetts, have invented an Improved Saliva-Pump; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The invention relates particularly to such construction of a saliva-pump, for use in dental surgery, as shall adapt the vessel which serves both as the exhaust-chamber to draw down the saliva, and as a receptacle for the saliva, to attachment to the dentist's chair or other article of furniture, or wall, or fixture.

The drawings represent, at A, B, and C, a saliva-pump embodying my improvements. A shows a side view of the pump, attached to the back of a dentist's chair; B shows a plan of the saliva-vessel; C, a rear view of the same.

The ordinary saliva-pump is shown at D, it being composed simply of an elastic valveless bulb, attached to a glass tube having a small bulbous chamber, the saliva being drawn into this chamber by expansion of the elastic bulb, and the instrument being immediately removed from the mouth for expulsion of the saliva into any convenient receptacle, by contraction of the elastic bulb.

Saliva-pumps, however, have been variously modified, and United States Letters Patent, No. 50,461 and No. 71,799, have been granted for modified forms of these pumps, so made as to render them continuous in their action, the mouth-tube being kept in the mouth as long as it may be necessary to draw saliva therefrom; the latter patent having been granted to me.

In my present invention, I employ a bottle or similar vessel, *a*, having connected to its top a flexible pipe, *b*, having an elastic bulb, *c*, in which are two valves, *d e*, the valve *d* controlling an opening, *f*, from one end of the bulb, and the valve *e* the opening of the bulb into the pipe *b*.

When the bulb is compressed, air is expelled from it through the opening *f*, (the valve *e* closing,) and when the bulb expands, the valve *d* closes, and the bulb draws air from the vessel *a*, (the valve *e* opening,) thus exhausting air from the vessel *a*.

A flexible pipe, *g*, leads from vessel *a*, this pipe having the mouth-pipe *h* at its end, and having projecting into the vessel a metal tube, *i*, both flexible pipes being connected with the vessel *a* at its top, through the cap, stopper, or cover thereof.

As air is exhausted from the vessel *a* by the action of the bulb *c*, the saliva is drawn down through the mouth-tube and pipe *g*, to fill the vacuum, and drops into the vessel *a*.

The vessel *a*, I attach to the chair *k*, or to some other stationary object or surface, such attachment being preferably made by means of a plate or bar, *l*, connected to the neck of vessel *a*, by a loose-joint pin, *m*, and ring *n*, and having at one end stationary teeth *o*, and at its opposite end a slide, *p*, carrying teeth *q*, the teeth *o* being inserted into the cloth, leather, or other upholstery of the chair, and the teeth of slide *p* being then driven into the same material, the slide being slid towards the teeth *o*, and being clamped in position by a screw, *r*.

The fastening-device is preferably made a part of the apparatus, as seen in the drawing, thus rendering the instrument free to be attached to any suitable surface.

To enable the vessel *a* to be discharged of its contents when necessary, I attach a third pipe, *s*, thereto, this pipe having a cock, *t*, and leading to a sink or other place of deposit.

When the vessel is to be emptied, it may be turned upside down, and the cock *t* being then opened, the fluid runs off through pipe *s* by gravity. I prefer, however, to discharge the vessel *a* as follows: The end of the pipe *s* attached to the vessel *a* extends down into the same, and nearly to its bottom, as seen at A, and the pump-bulb *c* has at each end a coupling-screw, *u*, for connecting it to the pipe *b*. As the bulb is worked to draw the saliva from the mouth, the valve next to the pipe *b* opens, when the bulb expands, (after being contracted by hand,) and the opposite valve closes, thus causing the saliva to be drawn down pipe *g*, and to flow into vessel *a*, as before described.

When the vessel *a* is to be discharged, the bulb is unscrewed from pipe *b*, and reversed or screwed at its

opposite end to said pipe *b*. As the bulb now expands, it draws air through its outer valve, and when it is contracted, this air is forced into the vessel *a*, and by its pressure expels the fluid through the let-off pipe *s*, the cock *t* being opened for this purpose.

When the pump is in operation, the cock must be closed, so that air may be exhausted from the vessel *a*, to cause the saliva to run through pipe *g* from the mouth.

In working elastic bulbs by hand, the disagreeable odor of the rubber compound is communicated to the hand of the operator, such odor being very unpleasant, especially where the hand is to be used in any way about a person's face. To obviate this, I cover such bulb with a close-woven cloth or other coat, *v*, which keeps the hand from contact with the rubber compound, and does not in the least impair the efficiency of the bulb or pump, or increase the difficulty of working it.

I claim combining with the saliva-vessel or chamber, a device for attaching it to a chair or other surface, substantially as described.

I also claim, in combination with the vessel *a*, and its flexible pipes and mouth-piece and pump-bulb, the let-off pipe *r*, substantially as described.

I also claim combining with pipes *s* and *b* and vessel *a*, the reversible bulb *c*, or reversible valves for drawing the saliva into vessel *a*, or for expelling it therefrom, substantially as set forth.

I also claim covering an elastic pump-bulb with a close-woven or equivalent covering, substantially as shown and described.

A. M. SHURTLEFF.

Witnesses:

J. B. CROSBY,

FRANCIS GOULD.