

W. S. Thomas,
Breast Pump.

No. 3,809.

Patented Mar. 16, 1862.

Fig. 2.



Fig. 1.

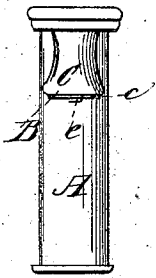


Fig. 3.

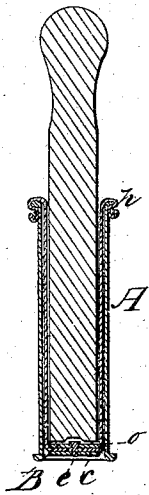


Fig. 6.

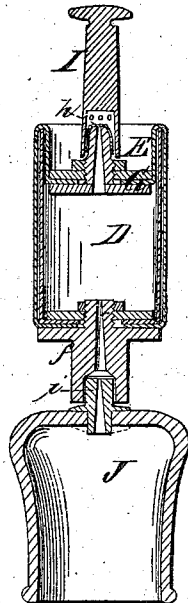


Fig. 5.

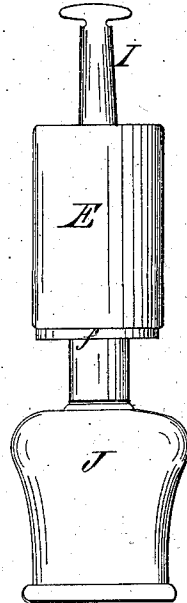
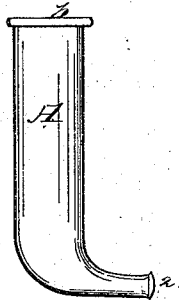


Fig. 4.



UNITED STATES PATENT OFFICE.

WM. S. THOMAS, OF NORWICH, NEW YORK.

CUPPING AND BREAST GLASSES.

Specification of Letters Patent No. 8,809, dated March 16, 1852.

To all whom it may concern:

Be it known that I, WILLIAM S. THOMAS, of Norwich, in the county of Chenango and State of New York, have invented a new and useful Improvement in Exhausting Apparatus Particularly Applicable to Surgical Purposes; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 is an elevation of one of my artificial leeches, Fig. 2 is an elevation of the plunger thereof, and Fig. 3 is a vertical section of the leech ready for application; Fig. 4 is an elevation of the body of a leech of different form, and Figs. 5 and 6 represent respectively an elevation and section of one of my improved cupping-glasses with the exhausting apparatus applied thereto.

My invention consists in connecting the piston of an exhausting apparatus with the barrel thereof by means of an elastic tube which not only packs the piston but also acts as a spring to draw the piston toward that end of the barrel to which the elastic tube is made fast.

The leech represented in the accompanying drawings is composed of a body or cylinder A, a piston B, and an elastic packing tube C.

The body (A) is formed of a piece of glass tube, the size of which is regulated by the amount of blood to be extracted; it may be of any convenient form to adapt it to the part of the human body to which it is to be applied. The body of the leech represented at Figs. 1 and 3 is a plain cylinder, that represented at Fig. 4 is a plain cylinder terminating in a narrow mouth *a*, which is connected with the body by a neck bent at right angles with the cylinder. In all cases the upper extremity of the body should have a lip *b* formed upon it to which the elastic tube can be attached, and the cylindrical body of the leech should be sufficiently long to permit a free movement of the piston. The latter consists of two disks of metal *c o* which are connected by a screw *e*, by means of which the two disks can be firmly drawn toward each other; it is of somewhat less diameter than the interior of the body to permit it to move freely therein. The piston is connected with the upper end of the leech body by an elastic tube C. The one

extremity of this tube is turned over the lip at the upper extremity of the body of the leech and is secured thereto by a cord. The other extremity of the tube is crimped in between the two disks of the piston and is made fast thereto by tightening the piston screw. The leech when completed has the form represented at Fig. 1.

In order to use leeches of this description a plunger (Fig. 2) is provided, whose diameter is slightly less than that of the piston. When the leech is to be applied the plunger is inserted in the upper end of the leech, and is pressed down forcibly until the elastic tube is extended and the several parts of the implement occupy the positions in which they are respectively represented in Fig. 5. This movement of the plunger is conveniently effected by gripping the upper extremity of the leech between the first and second fingers of the hand, and by applying the thumb of the same hand to the upper end of the plunger. When the leech is thus extended, it is applied to the human body, the skin of which has previously been cut by a proper instrument; in applying the leech, its lower end is pressed against the skin and the pressure of the thumb upon the plunger is relaxed. As the pressure is relaxed the elastic tube, tending to contract to its original dimensions, draws the piston with it, and thus creates a partial vacuum in the leech and sucks the blood into it. As soon as the leech is fast, the operator removes the plunger which may be used to apply other leeches while the first is filling with blood.

It will be perceived that the suction of the blood is dependent upon the perfectness of the vacuum in the leech and the elasticity of the tube. If the blood is to be sucked rapidly the piston is depressed to its lowest limit in the body of the leech, to expel the greatest quantity of air, and to form the best vacuum which the instrument is capable of producing. If on the other hand the blood is to be drawn gently, the piston is not depressed to its full extent, and consequently a quantity of air is left in the body of the leech, which expanding as the tube collapses impairs the vacuum and diminishes the suction.

My invention is applicable to cupping pumps and to other exhausting apparatus as well as to that I have above described. One such application is represented in Figs.

5 and 6. In this example the body of the pump is a plain cylinder D which is screwed upon a disk bottom piece *f*, in such manner as to grip one extremity of the elastic tube
 5 E between the two. The elastic tube is extended over the outside of the cylinder to its upper extremity and is then made fast to the piston G. The piston is formed of two disks between which the extremity of
 10 the elastic tube is firmly gripped; it is also fitted with a discharge valve formed by simply binding a strip of oil silk *h* over the valve orifice. The piston is depressed in the barrel by means of a thumb plunger
 15 I whose lower extremity is socketed to fit upon the valve nipple and is perforated to permit the free passage of the air discharged by the valve orifice. The bottom piece of the pump has an adjustage upon it which
 20 is ground to fit a valve nipple *i* secured to the head of the cupping glass J.

The valve nipples of all the cupping glasses are of the same size, so that the same pump may be applied to them indifferently;
 25 and the valve nipple is fitted with an oil silk valve *n* of the same construction as that of the pump piston.

When this apparatus is applied to the human body the exhaustion of the cupping
 30 glass is effected by alternately pressing the thumb plunger and permitting it to rise by the elastic force of the elastic tube. When the piston is depressed by pressure upon the thumb plunger, the air in the
 35 pump barrel is forced out through the valve orifice in the piston, and when the pressure is released, the tube by its elastic force draws the piston outward and thus sucks the air from the cupping glass through the valve
 40 orifice in the head thereof.

The examples I have represented and described are sufficient to elucidate the nature

of my invention and the versatility of its application. Many other applications of it might be specified, but it is believed that
 45 those herein described are sufficient to enable mechanics skilled in the art to which my invention pertains to apply it to special cases.

The material I have found best suited for
 50 the formation of the elastic tube is the article generally known as vulcanized india-rubber. My invention is peculiarly applicable to leeching and cupping as from the nature of the elastic tube it does not tend
 55 to contract with a sudden movement; hence the suction is gentle and gradual, and the apparatus in this respect simulates in its operation the action of natural leech. There is also another advantage which is of great
 60 importance in such an instrument, viz, the facility with which it can be cleaned and repaired and the absence of any oily or fatty matter which has heretofore been required
 65 to make the pistons of exhausting apparatus move air tight in their barrels. Exhausting apparatus upon this plan can be constructed at small expense as the boring of the barrel is not required and the cost
 70 of fitting up the apparatus is much less than those hitherto constructed.

What I claim as my invention and desire to secure by Letters Patent is—

The improved exhausting apparatus herein described for surgical and other purposes, said apparatus consisting of a combination of a tubular spring piston with a barrel substantially as herein set forth.
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In testimony whereof I have hereunto subscribed my name.

WILLIAM S. THOMAS.

Witnesses:

ARBA K. MAYNARD,

EDWARD S. RENNICK.