

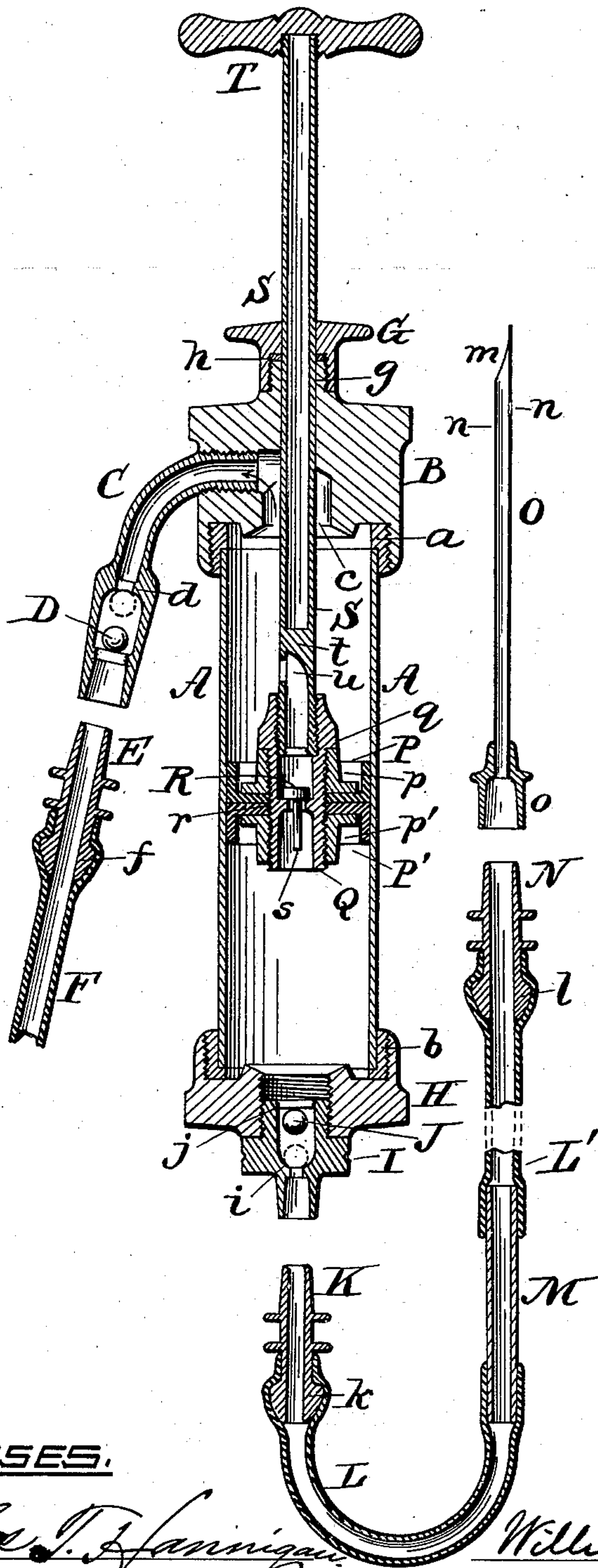
No. 657,440.

Patented Sept. 4, 1900.

W. J. McCaw.
ASPIRATOR.

(Application filed July 2, 1900.)

(No Model.)



WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM J. MCCAWE, OF PROVIDENCE, RHODE ISLAND.

ASPIRATOR.

SPECIFICATION forming part of Letters Patent No. 657,440, dated September 4, 1900.

Application filed July 2, 1900. Serial No. 22,322. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. MCCAWE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Aspirators, of which the following is a specification, reference being had therein to the accompanying drawing, which is a central longitudinal section of said invention.

My invention relates to that class of surgical instruments known as "aspirators" and used to draw from the human body effused and purulent liquids or fluids which are the result of disease.

My invention consists in the novel construction and combination of the several elements hereinafter particularly described, and specifically set forth in the claim.

In the drawing, A represents a tube or barrel, preferably made of glass, in order that the contents of the same may be readily seen. At each end of said tube is an annulus or ring, preferably made of hard india-rubber, vulcanized or otherwise secured to the tube A and provided with exterior screw-threads, as seen at *a* and *b*.

B is a headpiece having a central aperture through it and made with a concentric chamber *c* in its lower part, which chamber has a passage or bore extending therefrom through one side and furnished with an interior screw-thread. In said passage or bore, which extends from the chamber *c*, is fitted a curved discharge-pipe C by means of screw-threads thereon, as shown. The discharge-pipe C at its outer end is enlarged and has an interior valve-seat *d*, with a central opening therein, and also a screw-bridge *e*, and in the space between said seat *d* and bridge *e* is placed a ball D. A centrally-bored coupling-piece E fits into the open end of the discharge-pipe C, and on said piece E is a knob *f* to allow the rubber pipe F to be secured thereon.

The headpiece B has a central concentric neck *g*, whose exterior surface is screw-threaded. A centrally-bored cap G, screw-threaded on its inner surfaces, fits upon the neck *g* of the headpiece B. A packing-ring *h*, of felt or other suitable material, is held by the cap G upon the top edge of the neck *g* of the headpiece B.

Upon the lower end of the tube A and fitting by means of screw-threads, as shown, is the end piece H, having a central concentric and screw-threaded bore. In said bore is secured a valve-block I, with a central aperture through it and provided with a valve-seat *i* and having a screw-bridge *j* secured therein. In the space between the seat *i* and bridge *j* is a ball J. A coupling-piece K, having a knob *k* and centrally bored, fits into the lower open end of the valve-block I, and a rubber pipe L fits on said coupling-piece. A glass tube M connects two sections L L' of the rubber pipe and enables the operator to see the character of the liquid flowing through the pipe.

N is a coupling-piece, centrally bored and furnished with a knob *l*, upon which the end of the rubber tube L' is secured.

O is a hollow needle having a sharp open beveled end, as shown at *m*, and holes *n* through its sides. This needle is held and secured in a thimble *o*, into whose open end the end of the coupling-piece N is inserted.

In the tube or barrel A a piston is movable, which is made, preferably, in two parts P P', of leather or other suitable material, which is kept soft with oil, vaseline, or other lubricant. These parts P P' are held together by the flanged collars or rings *p p'*, screw-threaded on their interior surfaces. A sleeve or tube Q, having an exterior screw-thread, engages with said rings or collars *p p'* and has a shoulder *q* by which it abuts the top edge of the ring or collar *p*. In this sleeve or tube Q is a valve-seat *r*, with a central perforation, and a valve R, having a stem *s*, operates therein, the stem passing down through said perforation, as shown. A hollow piston-rod S, having a screw-thread at its lower end, is secured to the upper part of the sleeve or tube Q. Said rod S has an interior block or partition *t* and just below the same an orifice or opening *u*. The piston-rod S passes through the central apertures of the headpiece B and cap G and through the packing-ring *h*. A handle T is secured upon the outer end of the piston-rod S.

In operating with this instrument the needle O is thrust into the sac or cavity in the body which is to be drained, and the piston-rod S is drawn out by the handle T, thereby

moving the piston P P' up toward the head-
 piece B. The suction thus caused draws the
 effused fluid or purulent matter from the
 body into the hollow needle O, through the
 5 open end *m* and holes *n* thereof, and the same
 passes through the rubber tubes L L' into the
 aspirator, the ball-valve J being lifted from
 its seat *i* in the valve-block I. The fluid or
 liquid passes into the tube or barrel A below
 10 the piston P'. When the piston-rod S is
 moved in the reverse direction by pushing
 the handle T inwardly, the suction caused
 thereby in the upper part of the tube or bar-
 rel A above the piston P draws the ball-valve
 15 D into its seat *d* in the pipe C. As the pis-
 ton P P' descends the fluid contents of the
 tube or barrel A below the piston P' pass up
 through the sleeve or tube Q, lifting the valve
 R from its seat, and enter the lower end of
 20 the hollow piston-rod S, thence flowing out
 of the hole *u* of said rod and into the upper
 portion of the tube or barrel A above the pis-
 ton P. The piston P P' is then at the bot-
 tom of the tube or barrel A and the diseased
 25 fluids are in said tube, but above the piston.
 Now when the piston-rod S next is drawn up
 by the handle T the fluid contents of the up-
 per portion of said tube or barrel A are lift-
 ed up by the piston and flow out through the
 30 chamber *c* in the headpiece B and through
 the discharge-pipe C (causing the ball-valve
 D to be unseated) and then through the rub-
 ber tube F into a pail or other receptacle.
 While the rising piston is thus emptying the
 35 upper portion of the tube or barrel A, it is
 by its suction drawing more of the fluid or
 matter into the lower portion of said tube or
 barrel beneath the piston through the needle
 O and pipe L L', as before described. The
 40 operation is continued as long as is necessary.

By means of the packing-ring *h* there is a
 tight connection between the neck *g* of the
 headpiece B and the cap G, thus preventing
 any escape of the fluid contents up through
 45 the central aperture of said cap, where the
 piston-rod S moves, and the valve D prevents

any drawing back of the fluid through the
 pipes F C when a suction is created in the
 upper portion of the tube or barrel A by the
 descent of the piston-rod and piston. 50

I claim as a novel and useful invention
 and desire to secure by Letters Patent—

The improved aspirator herein described,
 consisting of the combination of a tubular
 barrel having a centrally-bored headpiece 55
 secured thereon, which is provided with a
 chamber in its lower portion and with a
 passage therefrom through its side, a cen-
 trally-bored end piece secured on said tubu-
 lar barrel at its opposite end, a centrally- 60
 perforated cap fitting on said headpiece,
 a centrally-perforated packing held be-
 tween said cap and headpiece, a piston in
 said tubular barrel with a sleeve or tube
 passing centrally through it, a valve and a 65
 valve-seat in said sleeve or tube, a piston-rod
 attached to said piston and passing through
 the central bores of said headpiece and cap
 and having its lower end hollow and opening
 into said sleeve or tube and provided with an 70
 aperture through one side thereof, a handle
 upon the outer end of the piston-rod, a cen-
 trally-perforated valve-block secured in the
 bore of said end piece and having therein a
 valve-seat, a valve in said valve-block, a dis- 75
 charge-pipe fitting in the side passage of the
 headpiece, a valve-seat in said discharge-pipe
 and a valve therein, a rubber tube with a
 coupling-piece connecting it to said discharge-
 pipe, a rubber tube and a coupling-piece 80
 connecting it to said valve-block, a hollow
 needle with holes in its sides, a thimble in
 which said needle is mounted and a coupling-
 piece connecting the thimble to the last-
 named rubber tube, substantially as specified. 85

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

WILLIAM J. McCAW.

Witnesses:

ANNIE E. PERCE,
 WARREN R. PERCE.