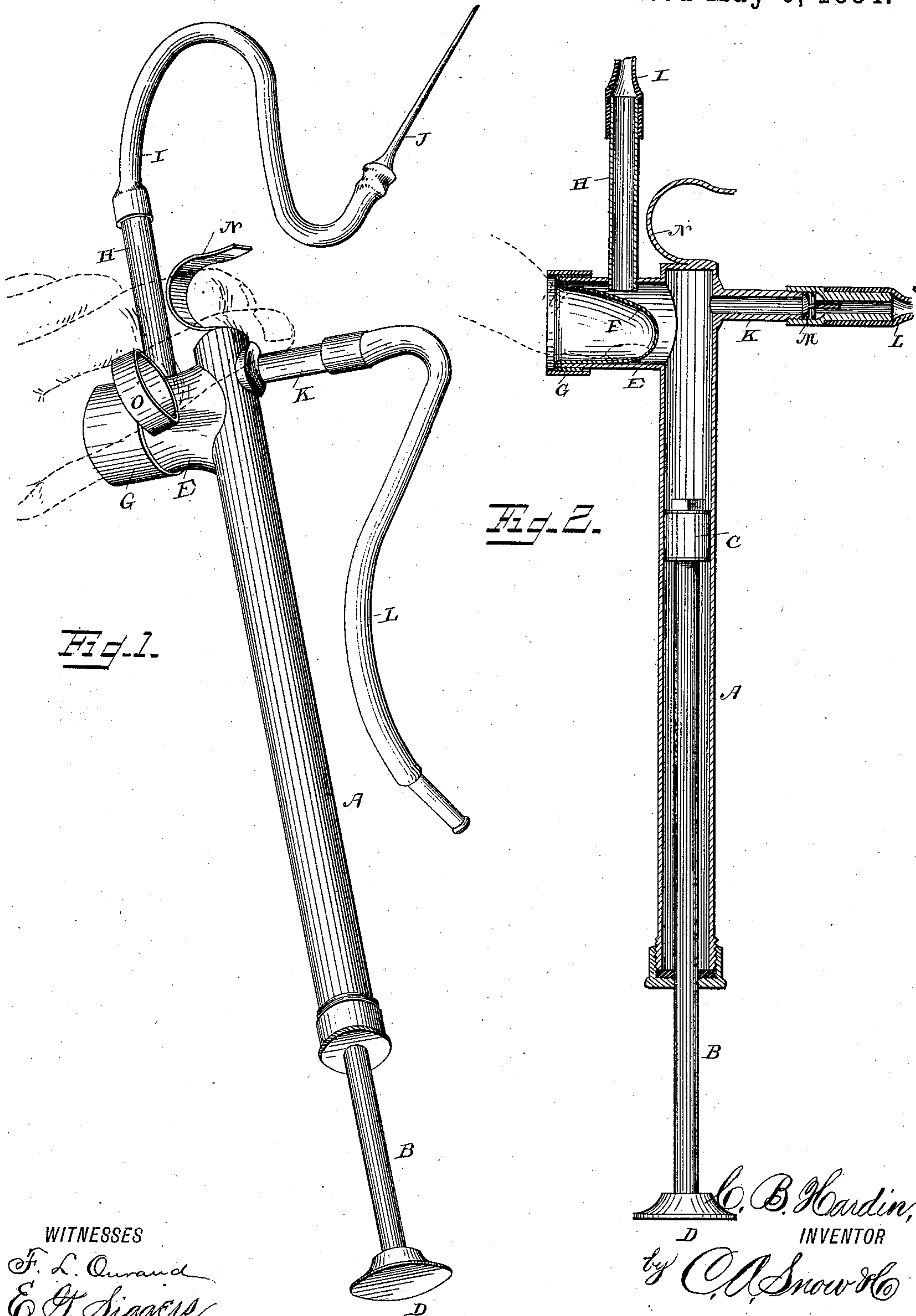


(No Model.)

C. B. HARDIN.
SURGICAL ASPIRATOR.

No. 297,989.

Patented May 6, 1884.



WITNESSES
F. L. Curand
E. G. Siggers.

C. B. Hardin,
INVENTOR
by C. A. Snow & Co
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES BUCKNER HARDIN, OF INDEPENDENCE, MISSOURI, ASSIGNOR OF TWO-THIRDS TO JESSE W. CLEMENTS AND JOHN W. CLEMENTS, BOTH OF SAME PLACE.

SURGICAL ASPIRATOR.

SPECIFICATION forming part of Letters Patent No. 297,989, dated May 6, 1884.

Application filed December 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. HARDIN, a citizen of the United States, residing at Independence, in the county of Jackson and State of Missouri, have invented a new and useful Surgical Instrument, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to aspirators, or that class of devices which are employed in drawing off the purulent matter from wounds, abscesses, &c., and for detecting the character of collections of matter under the skin, to assist the surgeon in determining as to the usefulness of more important operations; and it has for its object to simplify the construction and make it more convenient and effective in use.

It is well known that the aspirators in use consist of so many parts, in order to render them perfectly safe, as to place them beyond the means of many surgeons, and contain a variety of valves and stop-cocks, which, by constant use, manifest a weakness in working perfectly.

To obviate this disadvantage and attain the aforesaid objects, the said invention consists in providing a valve adapted to close the end of the receiving or trocar pipe, said valve being operated by the free movement of the thumb or finger.

It also consists in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved aspirator. Fig. 2 is a longitudinal sectional view of the same.

Like letters refer to corresponding parts in both figures.

Referring to the drawings, A designates the cylinder, having a piston, B, moving therein, and carrying a tightly-fitting plunger, C, a handle, D, being formed on the end of the piston for convenience in operation. A pipe, E, is attached to the upper end of the cylinder at one side, and extends outwardly at right an-

gles thereto, a rubber valve, F, being secured to the end of pipe E by a cap, G, said valve being adapted to be pressed inward through the pipe by the thumb or finger of the operator, and to move outward, as desired, in the manner hereinafter set forth. A projecting metallic tubular extension, H, extends from the front face of pipe E in the same line of direction as the cylinder A, a rubber tube, I, generally designated as the "receiving" or "trocar" tube, being attached to the tubular extension, and having the usual needle, J, secured to its outer end. A tubular extension, K, projects from the side of the cylinder opposite to the pipe E, a rubber conducting-tube, L, being attached to the extension, and connecting with a bottle or other vessel for the reception of the withdrawn fluid. A spring-pressed valve, M, is arranged in the end of the extension K, and is adapted to be operated by the movement of the piston to allow the passage of the withdrawn fluid to pass through the conducting-tube. A hook, N, is secured to the end of the cylinder, and a ring, O, is attached to the upper face of pipe E, the hook and ring being arranged to receive the fingers of the operator when the device is in use.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the annexed drawings.

The needle is introduced into the wound or abscess, the thumb of the operator resting upon the safety-valve, which is in its extended position, and by drawing the piston of the cylinder outward the purulent matter from the wound is caused to be drawn through the receiving-tube into the cylinder. The thumb of the operator is then caused to force the valve within the pipe E and close the inner end of the receiving-tube, the piston then being forced inward to drive the purulent matter through the conducting-tube, the spring-pressed valve M opening by the pressure from the operation of the piston, and permitting the escape of the matter into a bottle or other receptacle.

It will be seen that when the piston is operated to withdraw the purulent matter from

the morbid cavity through the receiving-tube and into the cylinder, the safety-valve is in its distended position, in which position it readily permits the free passage of the same into the cylinder; but when the piston is operated to force the said matter through the conducting-tube, the said valve is pressed inward, the thumb of the operator closing the inner end of the receiving-tube, and preventing the return of the matter through the said tube, and also acting to prevent the admission of air into the morbid cavity.

In preparing my device I have devised the improved safety-valve above described, the thumb being alternatively placed over and taken away from the mouth of the receiving-tube.

The aforesaid hinge motion of the thumb when working the piston in operating the instrument constitutes the feature of my invention, and acts to form a safety-valve, as will be seen.

In operating the piston to drive the purulent matter through the conducting-tube, it is absolutely necessary to hold the thumb or finger of the operator over the mouth or inner end of the receiving-tube, else the small amount of air within the cylinder will escape into the morbid cavity. To provide against this admission of air is one of the objects of my valve, and by acting according to the above description, any one familiar with surgery would provide against making this mistake.

The spring-pressed valve M must be very exact, and while it does not require any considerable amount of pressure to work it, at the same time it should be sufficiently strong to neatly close the opening in the conducting-pipe on drawing the piston outward; but this valve may be dispensed with by an assistant to the operator closing the end of the conducting-tube by external pressure, then, as the piston is driven back, releasing the pressure to admit the full flow of liquid.

The hooks and rings on the exterior face of the instrument may be changed at will, to suit the fancy and convenience of the operator.

In operating my device it is not necessary to withdraw the receiving or trocar pipe from the wound at each complete operation of the piston, and thus pain to the patient will be lessened.

By attaching the needle to the conducting-pipe when depleting, instead of to the receiving-pipe, a sac can be injected with equal effectiveness upon introduction of the needle into the sac and the receiving-tube into the fluid desired to be used. Thus the surgeon can employ the instrument for depleting and

repleting purposes with equal ease and success.

The action of the valve is positive and is in no danger of working out of order, and it possesses other advantages of minor consideration.

It will be apparent that I may dispense with the use of the pipe E and enlarge the cylinder so as to receive the flexible valve, the receiving-tube being attached to the end of the cylinder. In this manner I considerably simplify the parts, so as to reduce the cost, and yet the device will be capable of performing the necessary functions. These and other modifications may be resorted to without departing from the spirit or scope of my invention.

Having described my invention, I claim as new—

1. In a surgical instrument, the combination, with the piston and cylinder, of receiving and conducting tubes connecting with the cylinder, and a rubber flexible safety-valve arranged within the cylinder and adapted to be operated by the hand to close the mouth or inner end of the receiving-tube, as and for the purpose set forth.

2. In a surgical instrument, the combination, with the piston and cylinder, of the conducting and receiving tubes attached to the cylinder, a pipe also attached to the cylinder adjacent to the receiving-tube, and a safety-valve secured within the pipe, and adapted to be operated by the thumb or finger of the operator to close the mouth or inner end of the receiving-tube, for the purpose set forth.

3. In a surgical instrument, a cylinder having a piston working therein, in combination with receiving and conducting tubes, a valve adapted to be operated by the thumb or finger of the operator to close the mouth or inner end of the receiving-tube, and a valve arranged in the conducting-tube and adapted to automatically open by the operation of the piston, as set forth.

4. In a surgical instrument, the cylinder A, having piston B, carrying a plunger, C, in combination with conducting-tube L, pipe E, cap G, valve F, receiving-tube I, and hooks and rings N O, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHARLES BUCKNER HARDIN.

Witnesses:

W. S. PEACE,
BARCLAY MEADOR.