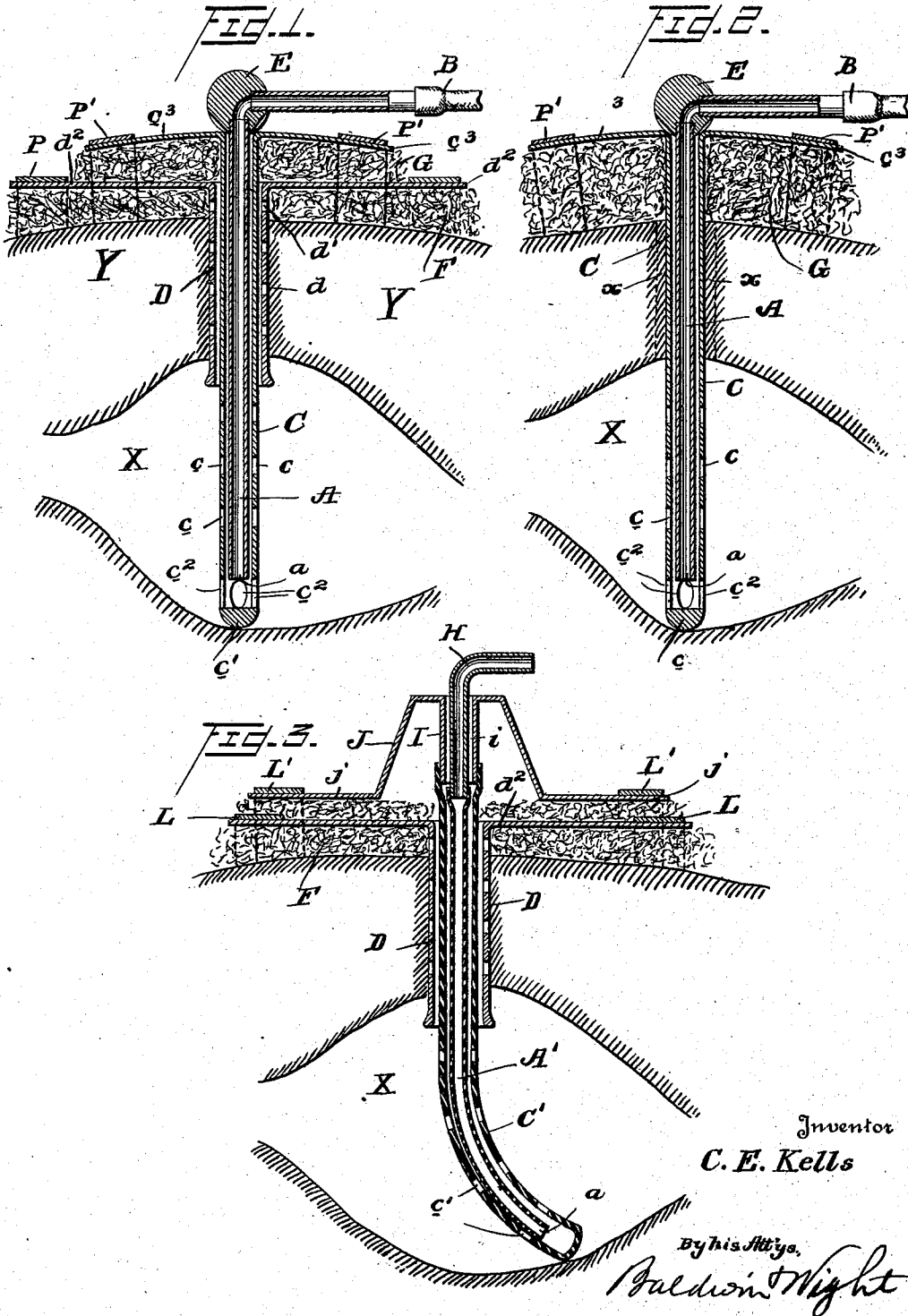


C. E. KELLS.
SURGICAL TIP.
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Inventor
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By his Attys,
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UNITED STATES PATENT OFFICE.

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SURGICAL TIP.

1,188,180.

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To all whom it may concern:

Be it known that I, CHARLES EDMUND KELLS, a citizen of the United States, residing in New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Surgical Tips, of which the following is a specification.

This invention relates to what are known as "tips" which are used in surgical operations for aspirating or draining wounds or cavities. Experience has demonstrated that the tips usually employed are extremely irritating to the patients and it often happens that they are closed by reason of the collapsing of the walls of the cavity in which they are inserted which causes pain and suspends the operation.

According to my invention I provide a tip of such construction that these objections are overcome.

My improved tip comprises a sheath or cannula which partially incloses a perforated tube adapted to extend to the inner walls of the cavity and which incloses another tube through which the fluid is discharged from the cavity. The sheath or cannula is adapted to extend only a short distance into the wound and its inner diameter is greater than the exterior diameter of the inner perforated tube, which latter tube is of somewhat greater diameter than the drainage or discharge tube, the arrangement being such that a suction may be maintained through the discharge tube which induces air from outside the wound to enter through the perforated tube and thus prevent the formation of a vacuum in the cavity. The detail of construction will be hereinafter more fully described.

In the accompanying drawing, Figure 1 is a sectional view of my improved surgical tip and illustrates how it is used. Fig. 2 is a similar view showing how the parts are disposed when the outer sheath or cannula is withdrawn from the wound. Fig. 3 illustrates a modification.

The inner or drainage tube A is open at its lower end a and at its upper end it is connected to a tube B connected with any suitable apparatus for producing a partial vacuum or suction. The inner tube A is surrounded by a tube C of somewhat larger diameter and which is provided with perforations c . This tube has a closed rounded

end c' and is formed with inlet openings c^2 near its lower rounded end. It will be observed that the tube A extends nearly to the bottom of the tube C but terminates just above the openings c^2 . The tube C is in turn surrounded by a sheath or cannula D which may be imperforate or it may be perforated as indicated at d , it is however provided with perforations d' outside the wound.

X indicates the cavity into which the tip is inserted and Y indicates the outer surface of the patient.

The cannula D is formed with a laterally projecting flange d^2 and the tube C is formed with a flange c^3 . The tube A at its upper end is connected with a support E which may be in the form of a ball resting on the top of the tube C and limiting the downward movement of the tube A in the tube C. When the tip is applied the cannula D is first inserted through the wound and made to project a short distance into the cavity X. In order to hold the cannula properly in position cotton or other suitable material F is interposed between the flange d^2 and the surface Y and the cannula may be held in place by adhesive tape P. When the cannula is positioned the tube C is inserted in such manner that its lower rounded end c' will just barely touch the inner wall of the cavity X, or preferably will be positioned a short distance from the walls of the cavity. This position may be regulated and fixed by means of cotton or other suitable material G interposed between the flanges c^3 and d^2 and the tube C may be held in place by adhesive tape P'. When the cannula and the tube C are properly positioned the discharge tube A is inserted and then if the suction apparatus be started fluids will be drawn from the cavity through the opening c^2 and through the tube A. At the same time air will be drawn into the cavity from outside the wound between the tubes A and C and will pass out through the openings c , thus preventing the formation of a vacuum in the cavity which would cause its walls to collapse. Air may also enter between the tube C and the cannula D.

The apparatus, constructed in this way, may be used a proper length of time and then as the wound begins to heal the cannula D may be withdrawn and only the tubes

A and C employed in the manner indicated in Fig. 2. In this figure the letter *x* indicates parts of the wound which have healed. Tubes of various sizes may be employed according to the nature of the cavity treated and as the wound further heals smaller tubes may be used in place of those shown in Fig. 2, but of the same general construction.

I have demonstrated by several operations that a tip constructed in the manner before described operates with much better results than those heretofore used. They drain the cavities more effectively and with much less pain to the patient.

In Fig. 3 I have shown a modification. The cannula D is similar to that before described. In this case the tubes A' and C' are made of rubber or other flexible material. The cannula is positioned by cotton or similar material F in the manner indicated. The tube A' is connected with a metal elbow H which may in turn be connected with vacuum-producing apparatus. The tube C' is connected with a sleeve I larger in diameter than the elbow H leaving a space *i* for the entrance of air between the tubes A' and C'. The sleeve I is connected to a frame J of suitable construction which supports it. In this case also air may pass by way of the sleeve and between the tubes A' and C' to the cavity X and prevent the walls of the cavity from collapsing. The cannula may be held in place by a piece of tape L applied to the flange *z*² and to the body of the patient. The tube C' may in like manner be held in place by the sleeve I, the frame J and tape L' applied to the flanges *j* of the frame J and to the body of the patient.

The tip shown in Fig. 3, it will be observed, embodies some of the characteristics of that shown in Figs. 1 and 2.

I claim as my invention:

1. A surgical tip comprising an inner discharge tube, a tube surrounding the discharge tube having an air inlet and having also perforations in it for the passage of air from its interior to the cavity being treated, and a cannula surrounding said tubes.

2. A surgical tip, comprising a tube having a rounded end adapted to enter a cavity and provided with entrance openings near its inner end and provided also with other openings for the passage of air to the cavity, a discharge tube within said first mentioned tube and terminating near the entrance openings thereof, and means for supporting said inner tube in said outer tube.

3. A surgical tip, comprising an inner discharge tube, a surrounding tube of larger diameter having inlet openings for the passage of fluid from the cavity to the discharge tube and having also openings for the passage of air from the interior of the tube to the cavity and a cannula surrounding said tubes but separable therefrom.

4. A surgical tip, comprising an inner discharge tube, a surrounding tube of larger diameter separable from the discharge tube and provided on its outer end with a flange and having at its inner end inlet openings for permitting fluid to pass from the cavity to the discharge tube and a sheath surrounding the tubes, separable therefrom and having at its outer end a laterally projecting flange.

In testimony whereof, I have hereunto subscribed my name.

CHARLES EDMUND KELLS.

Witnesses:

RAYMOND CURREN,
C. C. COLESON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."