

(No Model.)

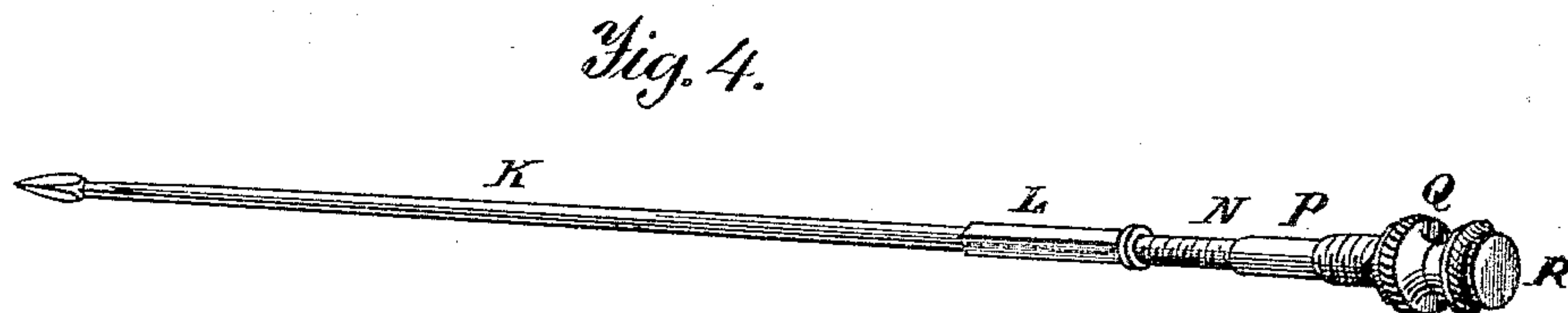
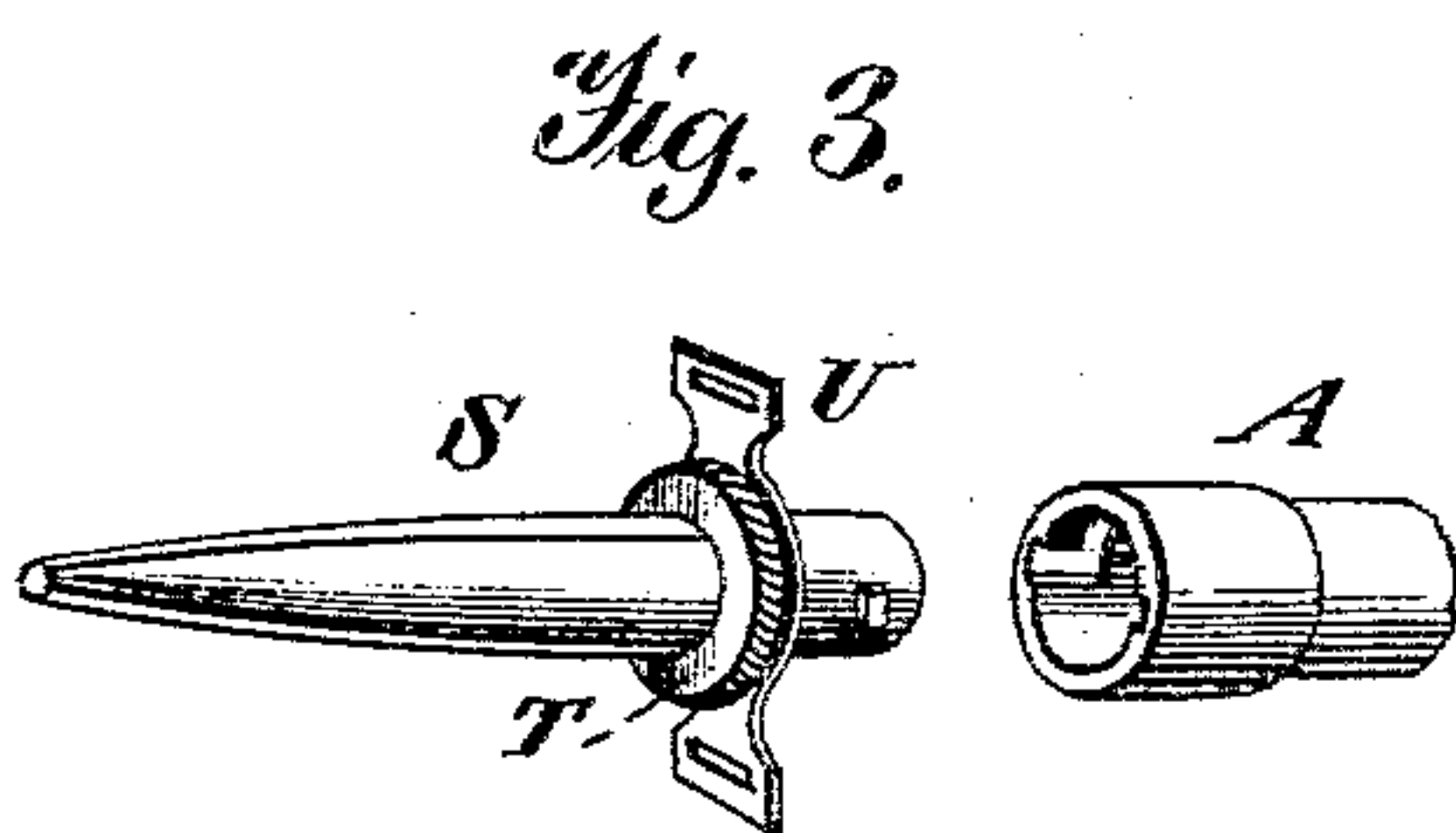
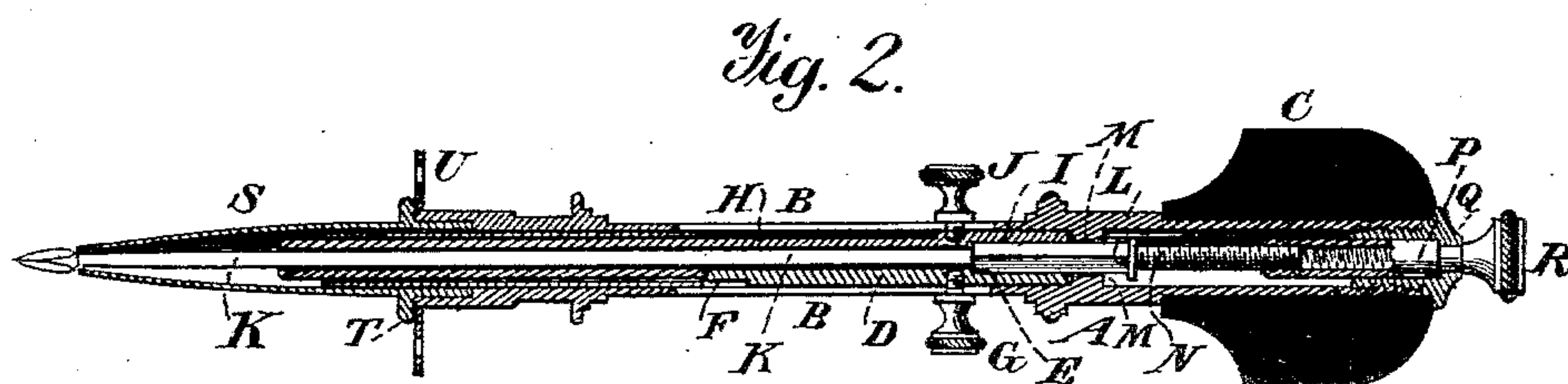
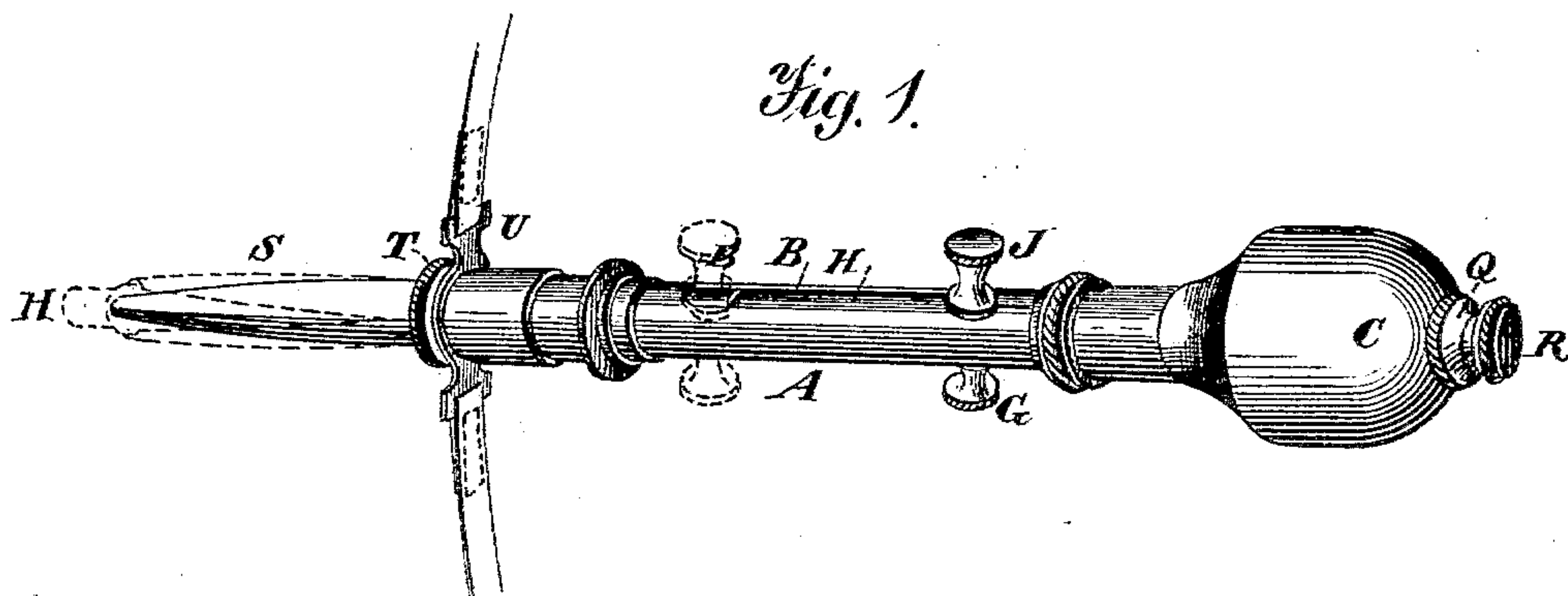
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D. L. RUSSELL.

TRACHEOTOME.

No. 300,285.

Patented June 10, 1884.



Witnesses.
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2 Sheets—Sheet 2.

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Fig. 5.

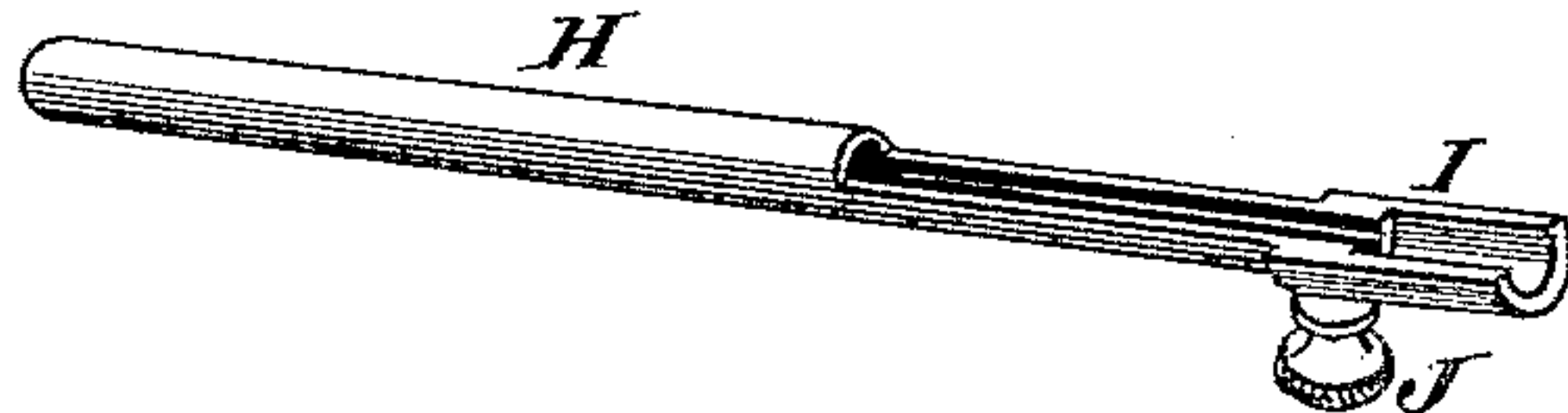


Fig. 6.

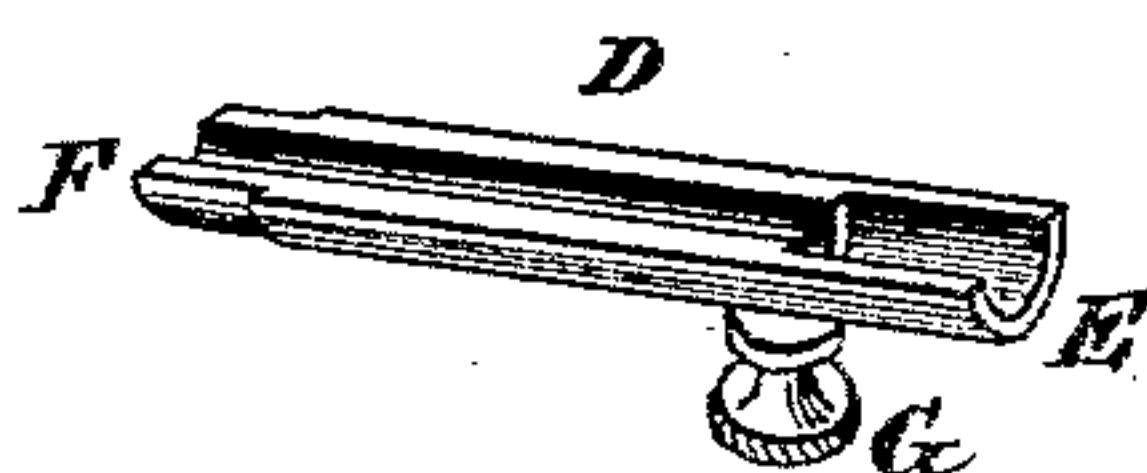


Fig. 7.

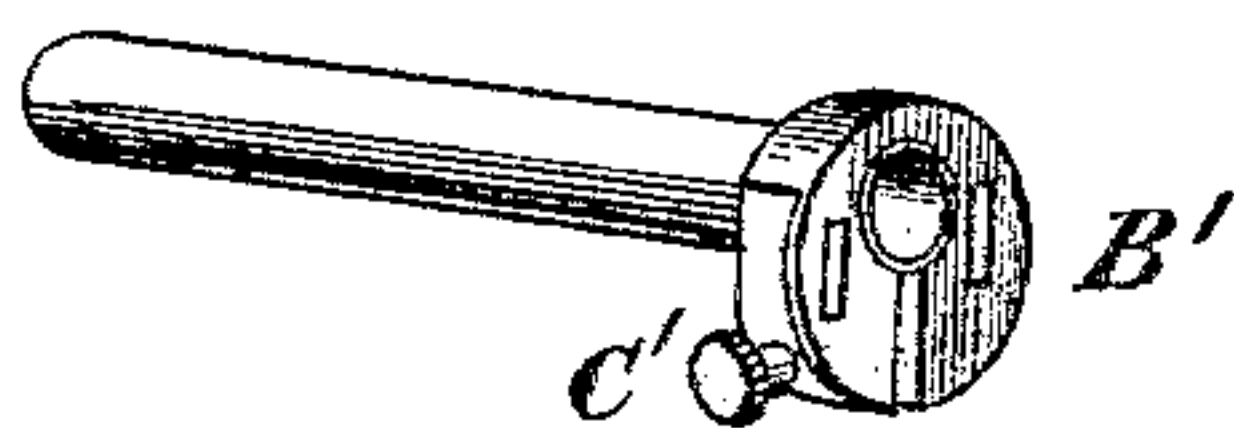
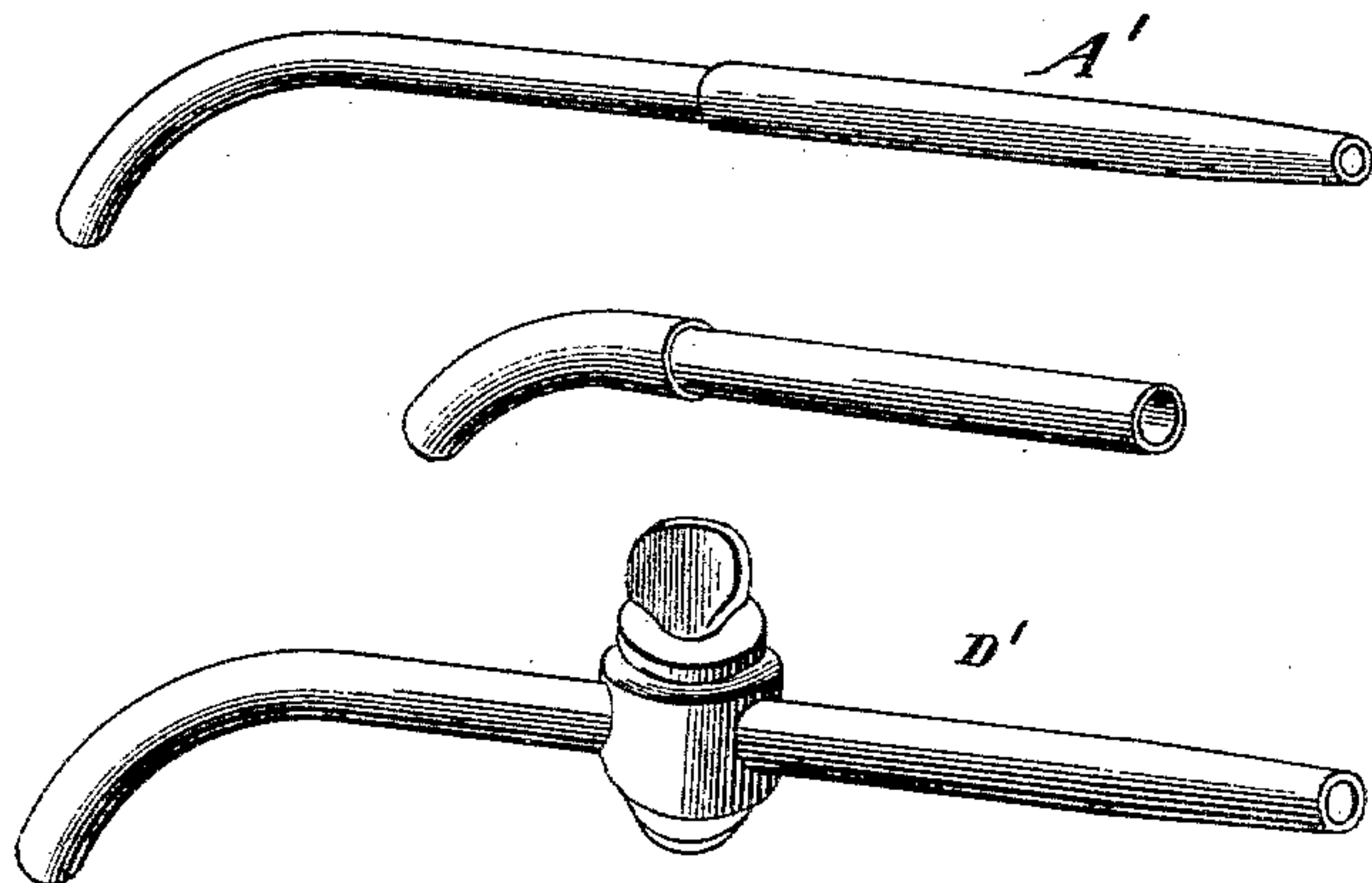
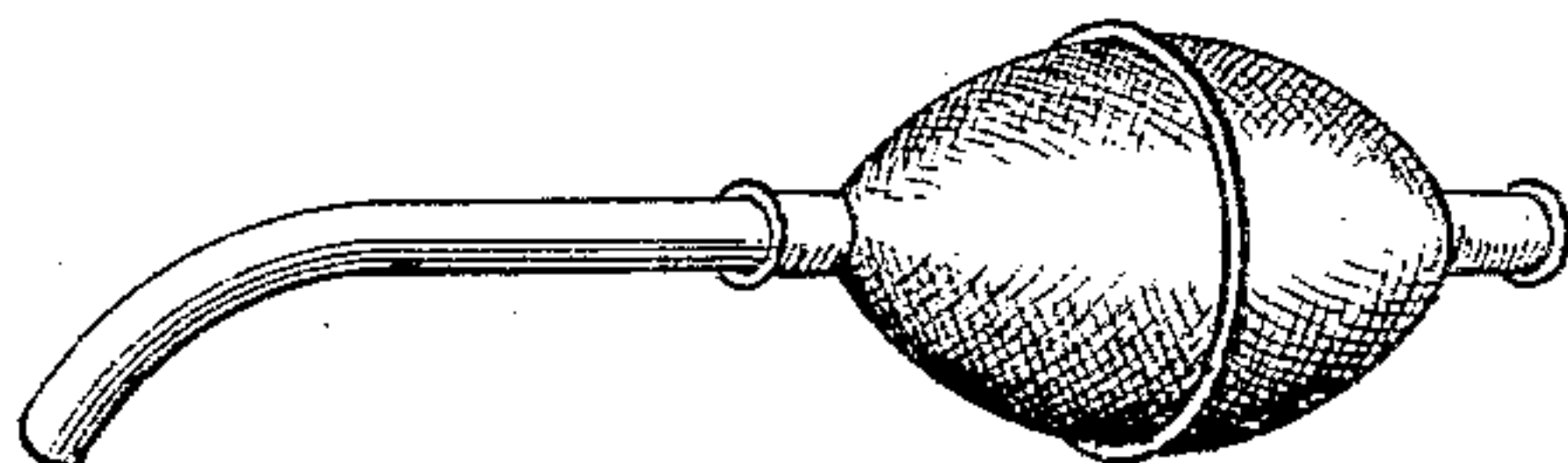


Fig. 8.



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UNITED STATES PATENT OFFICE.

DENNIS LINCOLN RUSSELL, OF PRAIRIE CITY, ASSIGNOR OF ONE-HALF TO
J. LA F. KING, OF SPRINGFIELD, ILLINOIS.

TRACHEOTOME.

SPECIFICATION forming part of Letters Patent No. 300,285, dated June 10, 1884.

Application filed March 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, DENNIS L. RUSSELL, a citizen of the United States, residing at Prairie City, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Tracheotomes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

15 This invention relates to certain improvements in surgical instruments; and it consists, essentially, in an improved instrument for the operation of bronchotomy, tracheotomy, and other kindred operations, and is designed to
20 provide an instrument whereby an incision may be made in the trachea or other portion of the body, and the said incision enlarged and kept suitably distended during the primary operation and subsequent treatment, as more
25 fully hereinafter specified.

My invention is specially designed to furnish an instrument by means of which the operation of tracheotomy in croup and diphtheria may be speedily and bloodlessly accomplished;
30 and to this end it consists in a combination of devices, as illustrated in the accompanying specification.

In the said drawings, Figure 1 represents a side elevation of my improved instrument, the
35 dotted lines showing the conical point distended; Fig. 2, a longitudinal vertical sectional view of the same; Fig. 3, a detached view of an expanding conical point forming part of the improved instrument; Fig. 4, a detached
40 view of the stilette; Fig. 5, a detached perspective view of the inner dilating-tube; Fig. 6, a detached view of the cannula-projecting semi-tubular section; Fig. 7, a detached
45 perspective view of the cannula or cleansing tube and tape-clamp, and Fig. 8 detached views of attachments to be employed in connection with the improved instrument.

The letter A indicates a tube or shell, which may be constructed of metal or any other suitable material, and which is provided with di-
50 ametrical slots B, of equal length, for the pur-

pose hereinafter specified. The said tube is provided with a firmly-affixed head, C, which serves as a handle by which the instrument may be held while being manipulated. 55

The letter D indicates a semi-tubular section which is located in the tube A, and adapted to slide longitudinally therein, the said section at its rear end being provided with an internal shoulder, E, and at its forward end with
60 an external shoulder, F, for the purpose more fully hereinafter described. The said section is provided with a set-screw, G, by means of which it may be reciprocated in the outer tube. Within the outer tube is also arranged a di- 65
lator or sound, H, which consists of a tube of suitable length, the forward end of which projects beyond the forward end of the tube A, as shown. The inner end for a suitable distance is half cut away, so as to leave a semi- 70
tubular portion corresponding to the semi-tubular section before mentioned, and at the extreme rear of the said dilator H it is provided with a half-collar, I, rigidly secured, which fills the space in the outer tube and
75 serves to guide the said dilator or sound truly in its longitudinal movement, to be more fully hereinafter specified. The said dilator or sound is provided with a thumb-screw, J, extending through one of the slots in the outer
80 tube, by means of which it may be moved back and forth in order to be properly manipulated. Through the internal tube extends a stilette, K, which consists of a metallic rod of such
85 length that it can be passed entirely through the outer tube and expansible cone and projected beyond the end of said cone a suitable length, as desired. The forward end of said
90 bar is formed or provided with a triangular lancet, the salient angles of which serve to distend the parts of the conical dilator or tris-
litted cone when the stilette is forced through its tube to perform the initial puncture through the trachea. The most important feature of
95 this lancet is that the said angles thereof, with their re-entering facets, form a peculiar cutting-instrument, which makes an incision radiating in three directions from the central longitudinal line of puncture, thus permitting
100 the incision to be readily enlarged or dilated by the subsequent operation of the parts of the instrument without unnecessary pain or

loss of blood. The said rod or bar is provided near the rear end with a polygonal slide or guide, L, which fits and is adapted to work longitudinally in a similarly-shaped recess, M, in the rear part of the outer tube, A, in such manner as not to turn therein. The rear end of the rod is formed or provided with a screw, N, which engages with the internal threads of a short tube, P, which extends through an externally-screw-threaded screw-plug, Q, which is screwed into the end of the knob or handle of the instrument. The said tube P is free to turn in the screw-plug Q, and is provided with a milled head, R, by which it may be turned to adjust the stilette by thrusting the said stilette forward or withdrawing it.

The letter S indicates the tri-slitted cone or dilator, which connects by means of a bayonet or other detachable joint with the forward end of the outer tube, A, in such manner that it may be easily detached by a slight movement of the outer tube at the proper time, as more fully hereinafter set forth. The said cone, near its base, is provided with a milled collar, T, by means of which it may be conveniently manipulated, and with lateral arms, U, having tape-loops, through which tapes may be passed to hold the cone in position with its inclosed tube when inserted in the trachea, as more fully hereinafter set forth.

The operation of my invention will be readily understood in connection with the above description.

To prepare the instrument for use, the tube desired to be used is placed within the forward end of the instrument around the tube. The tri-slitted cone is then secured by its bayonet or other joint to the forward end of the outer tube or main portion of the instrument. The stilette is then forced out beyond the point of the cone by means of the screw and its milled head, before mentioned. The instrument being thus prepared, the head of the patient is turned to the right and well extended, (the operator standing at the left,) the trachea, with its covering, is grasped by the thumb and forefinger of the left hand, and by the right hand the stilette, followed by the cone, is made to pierce the wall of the trachea, passing the point through the skin at the lower margin of the cricoid cartilage, (pointing downward at an angle of about forty-five degrees,) entering the trachea back of the isthmus of the thyroid gland. The inner tube (sound) is then pushed forward by its thumb-screw at the side of the instrument, expanding the cone in part, regulating its depth, and preventing the cannula, when forced down, from striking the posterior wall of the trachea. The cannula is then pushed forward by means of the semi-tubular section before mentioned, distending the cone into a cylinder and fully dilating the incision. Then by a slight movement of the instrument the cone is detached, leaving it with the inclosed cannula in the incision. The tapes may then be attached to the cone, securing the same with the inclosed cannula in place. In case the

cannula is to be left in the incision, the tapering end of the long tube A' is inserted in its outer end, and the cone is drawn back over it, leaving the cannula in the incision. A tape-clamp, B', is then attached to the cannula and secured by means of a set-screw, C', and the cleansing-tube D' inserted.

To use as a trocar, the loose tube is removed, the stilette is protruded, the cavity is punctured, and the cone is partially dilated. The instrument is then removed, leaving the cone in the cavity, and any desired tube may be inserted to evacuate the cavity. To exhaust the cavity a rubber hose is attached to the bent end of the long tube, the hose is filled with water, the puncture is made with the instrument, as a trocar, the instrument removed, the tube inserted in the cone, and the cavity evacuated by an exhaust-instrument of any description. When evacuated, the tube is withdrawn with the point attached.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A tracheotome or other similar instrument consisting of an outer tube, a dilating detachable cone, and a stilette or lancet formed with salient angles and re-entering facets, whereby it is adapted to form a radiating incision, which can be readily dilated, expanded, substantially as specified.

2. A tracheotome or other similar instrument consisting of a main tube, a detachable dilating-cone, a lancet or stilette, and means for dilating said cone, whereby the incision made by the lancet or other puncturing instrument may be readily expanded, substantially as specified.

3. A tracheotome or other similar instrument consisting of a main tube, a detachable dilating-cone and stilette, and a longitudinal dilating-tube surrounding the stilette, and provided with a thumb-button extending through a slot at one side of the main tube, whereby it may be projected to partially dilate the cone and expand the incision made by the instrument, substantially as and for the purposes specified.

4. The combination, with the main tube of the instrument, the stilette, dilating-tube and dilating-cone, of the semi-tubular shouldered section adapted to project the cannula into the detachable cone and leave it there, substantially as specified.

5. The combination, in a tracheotome, of the main tube, the dilating-cone, the stilette having a rectangular guide, and left-hand screw near its rear end, the handle or head and screw-plug, and the milled head attached to the stilette, whereby the thrust of the same may be regulated, substantially as specified.

6. The combination, with the detachable cone, of the cannula adapted to be carried by the semi-tubular shouldered section and introduced into the incision in the trachea with said cone, so as to keep the same distended while in position, substantially as specified.

7. The combination, in a tracheotome, of the cannula adapted to be inserted in a distended incision in the trachea by the dilating-cone, the exhaust-tube whereby said cannula may
5 be deposited in the incision, and the tape-clamp adapted to be secured to said tube, substantially as and for the purpose specified.

8. The combination, in a tracheotome, of the main tube, the dilating or sound tube, the
10 stilette and the dilating-cone, having lateral

arms, and tape-loops, whereby said cone may be held in place in the incision in the trachea, substantially as specified.

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

DENNIS LINCOLN RUSSELL.

Witnesses:

ISAAC WEAVER,
HESLIP PHILLIPS.