

No. 713,166.

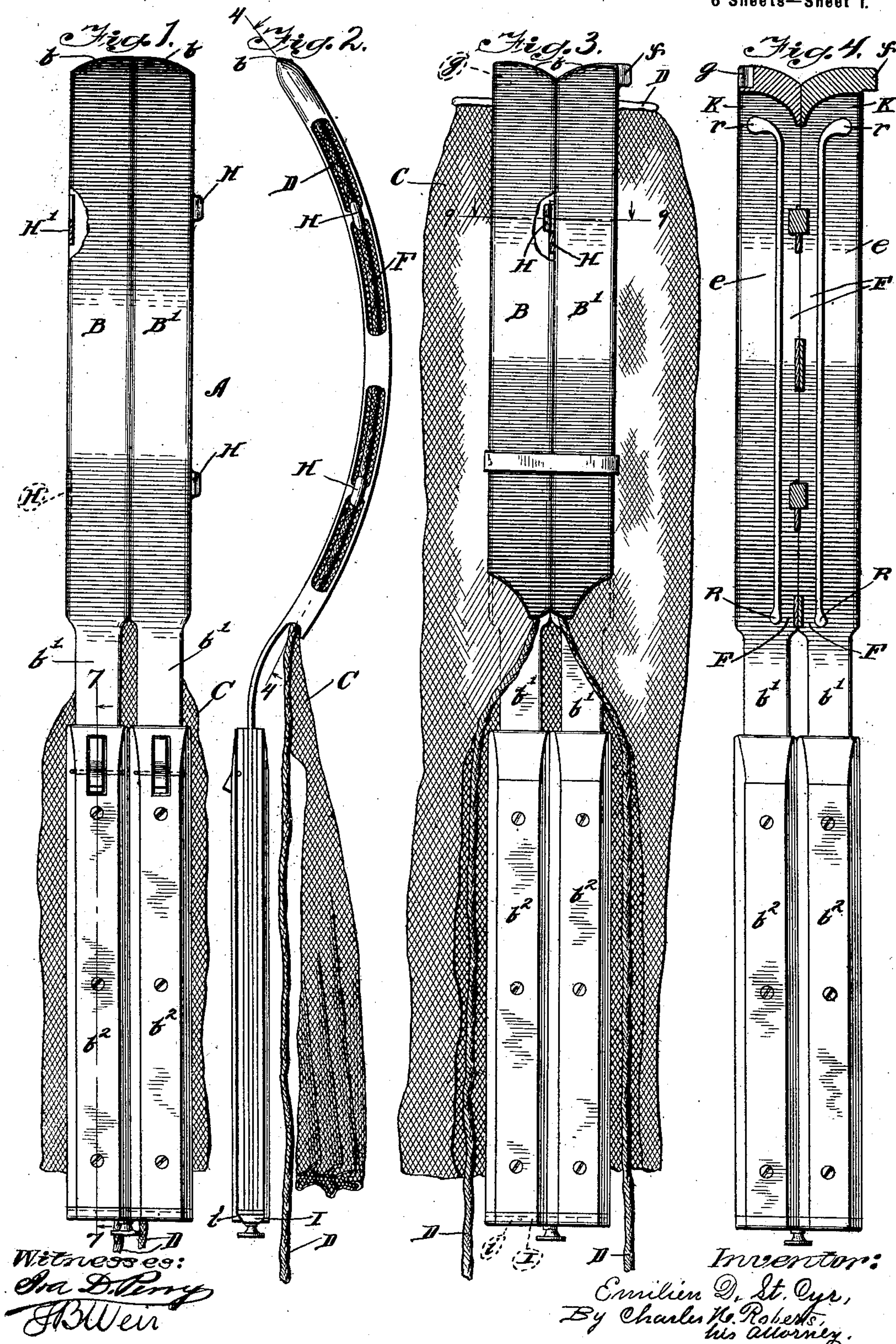
Patented Nov. 11, 1902.

E. D. ST. CYR.  
OBSTETRICAL TRACTOR.

(Application filed Nov. 29, 1901.)

(No Model.)

6 Sheets—Sheet I.



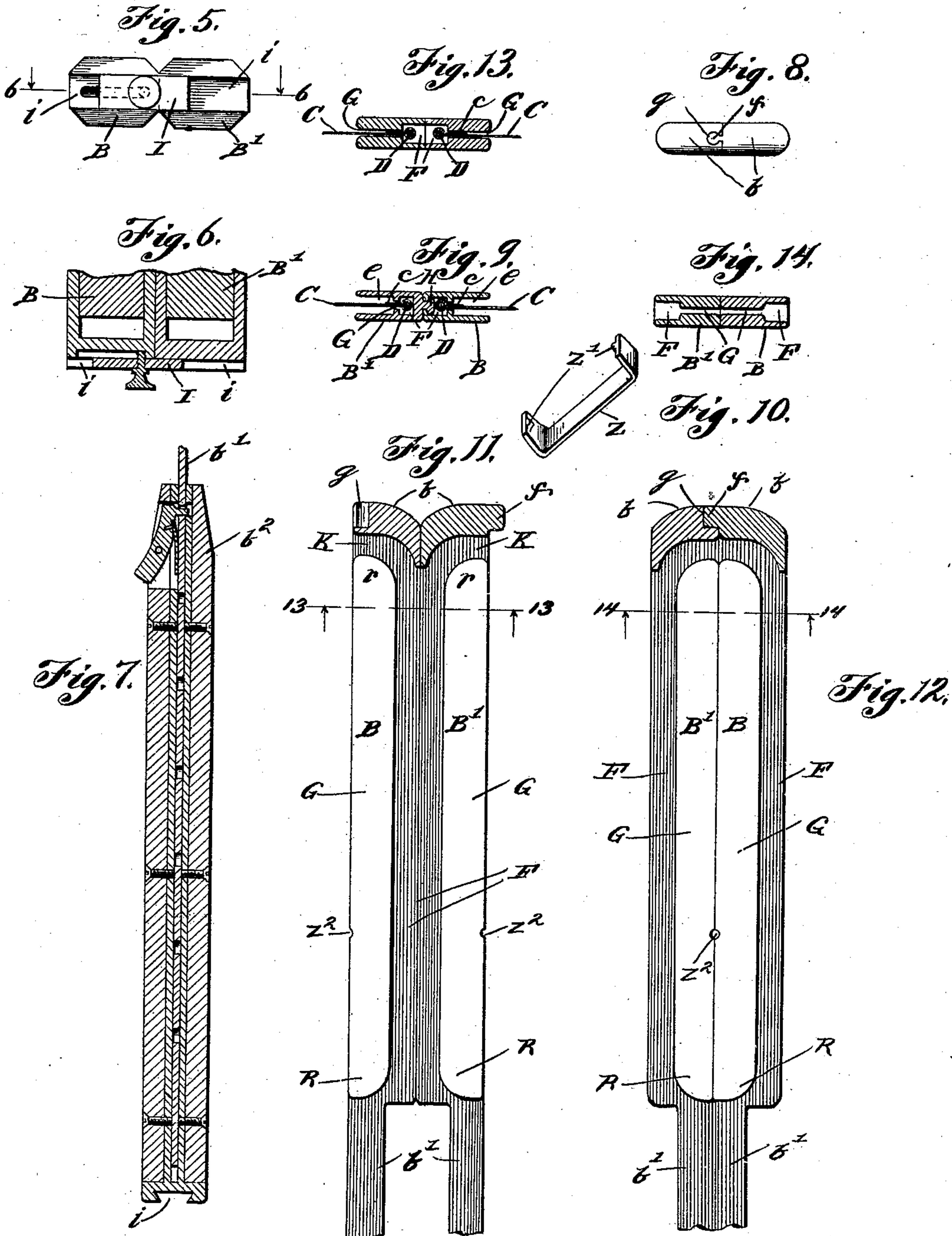


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(Application filed Nov. 29, 1901.)

(No Model.)

6 Sheets—Sheet 2.



Witnesses:  
J. D. Perry  
W. Weir

Inventor:  
Emilium D. St. Cyr,  
By Charles H. Roberts,  
his attorney



No. 713,166.

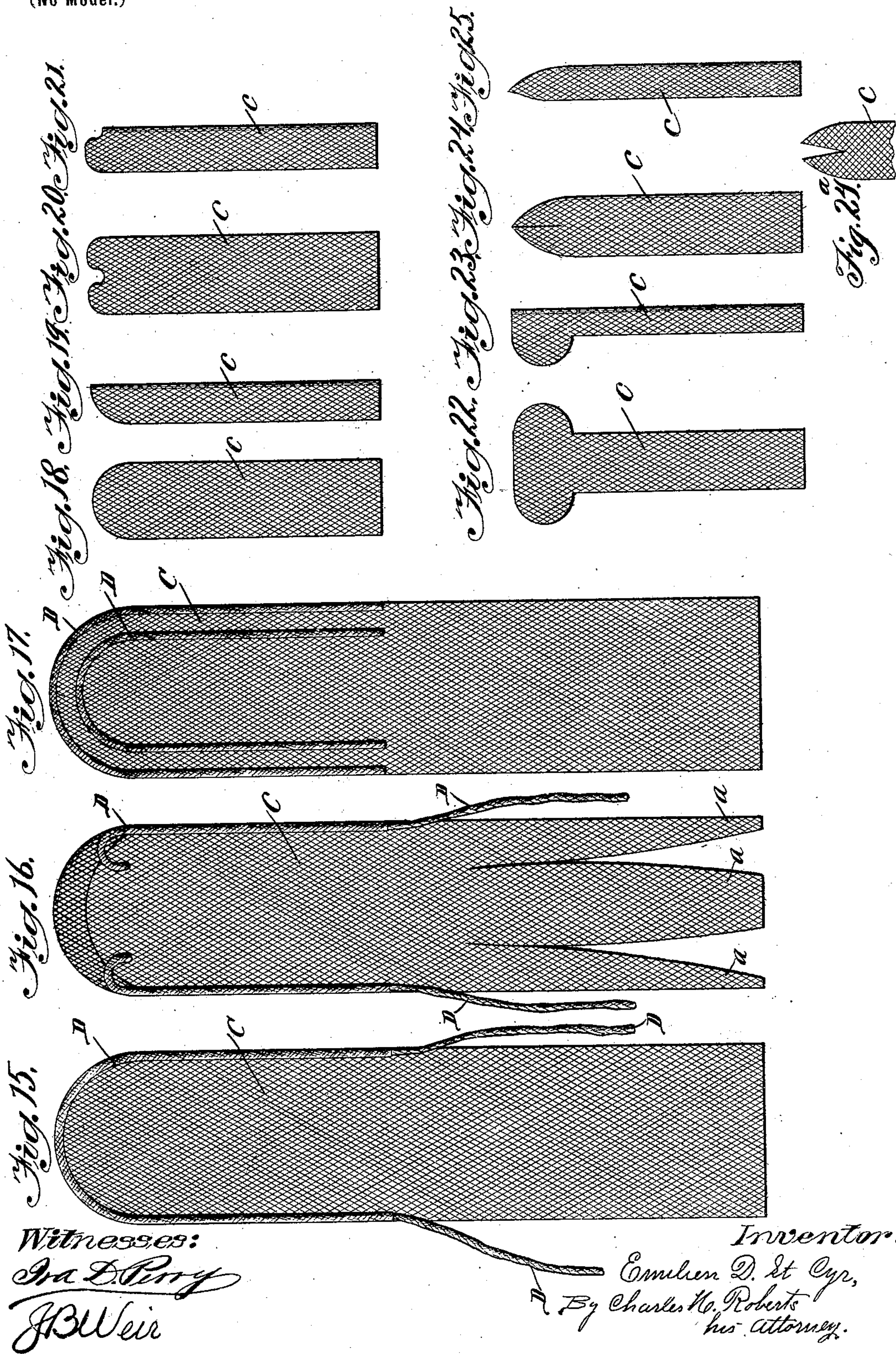
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6 Sheets—Sheet 3.





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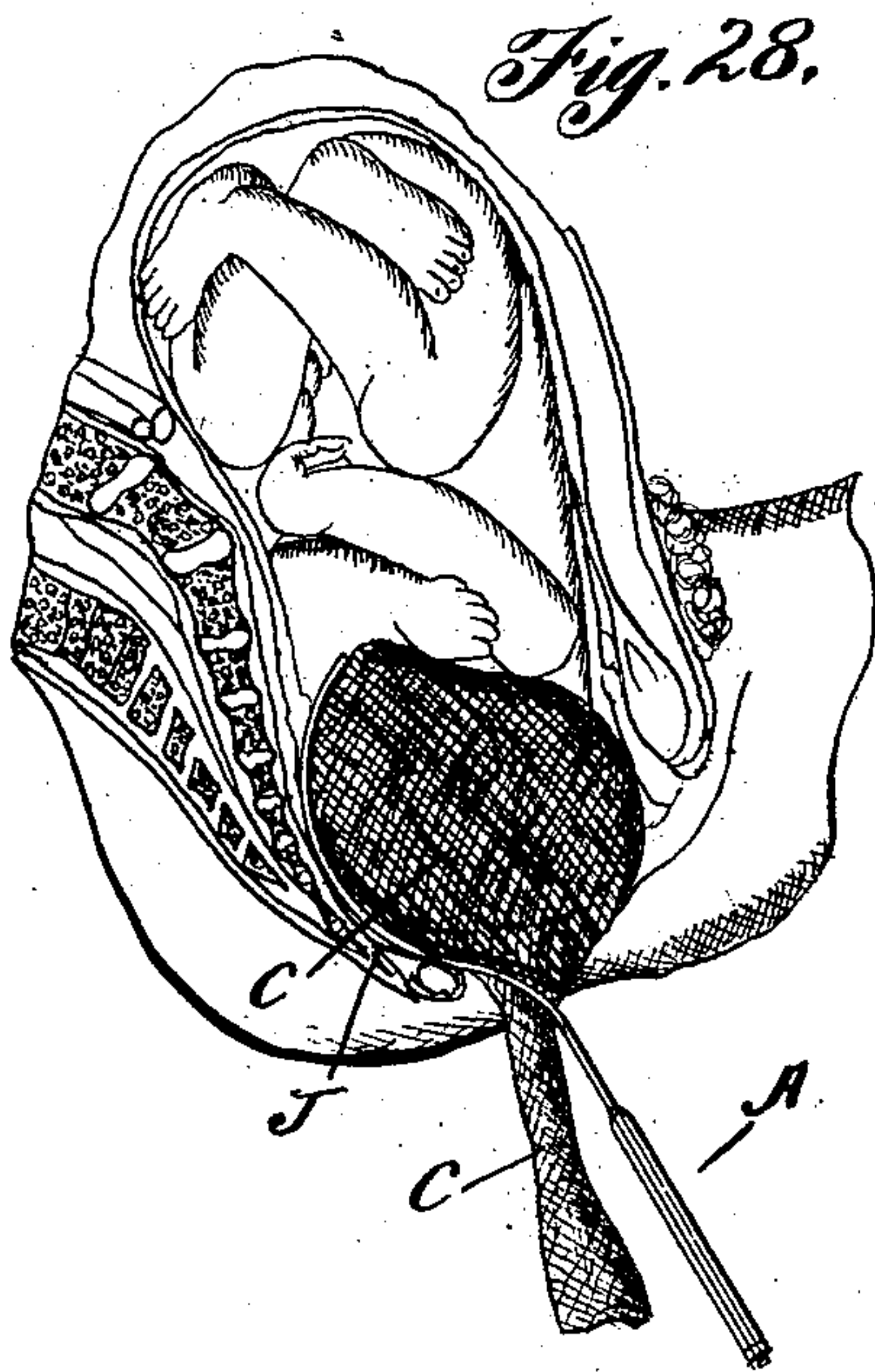
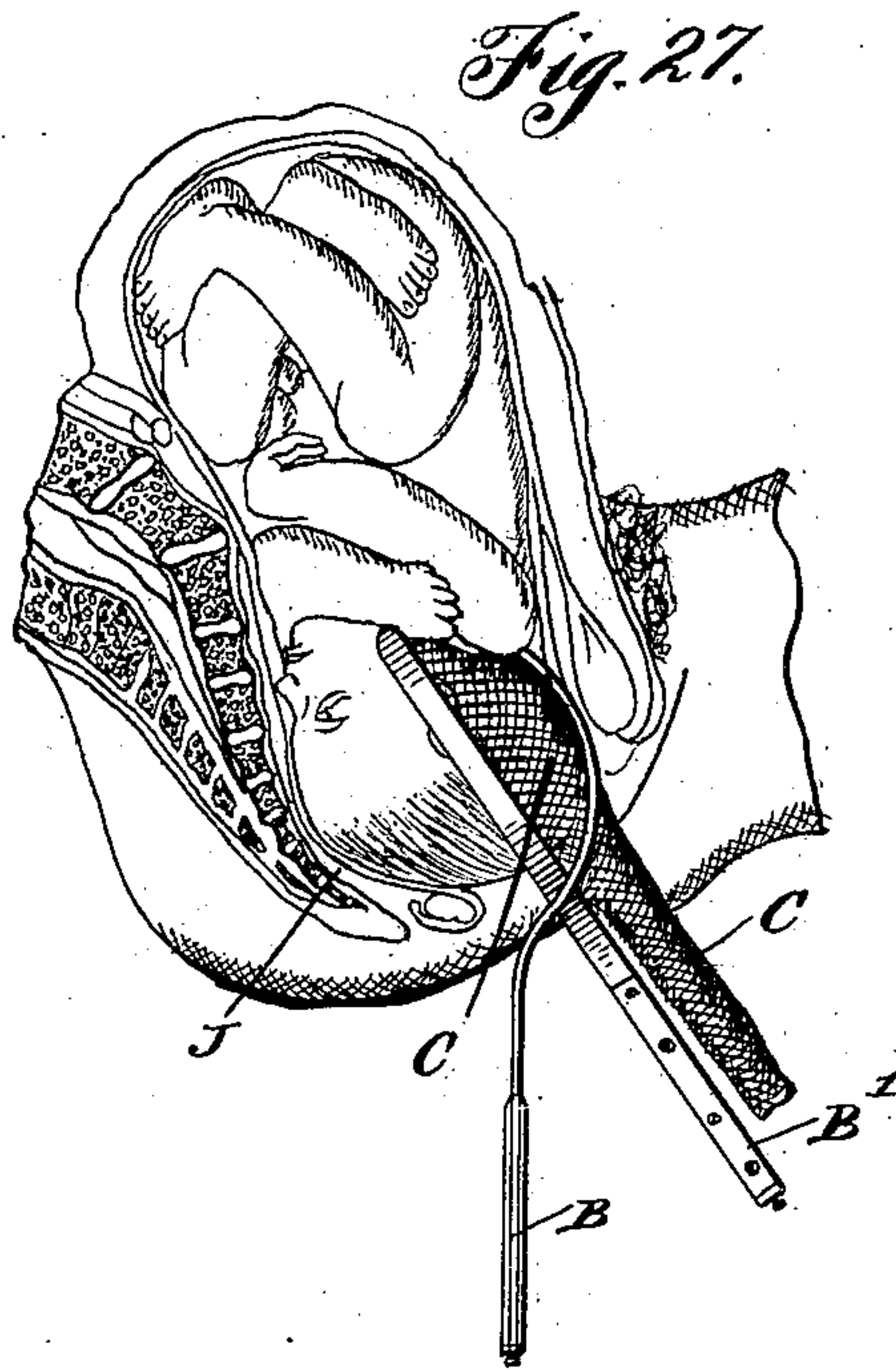
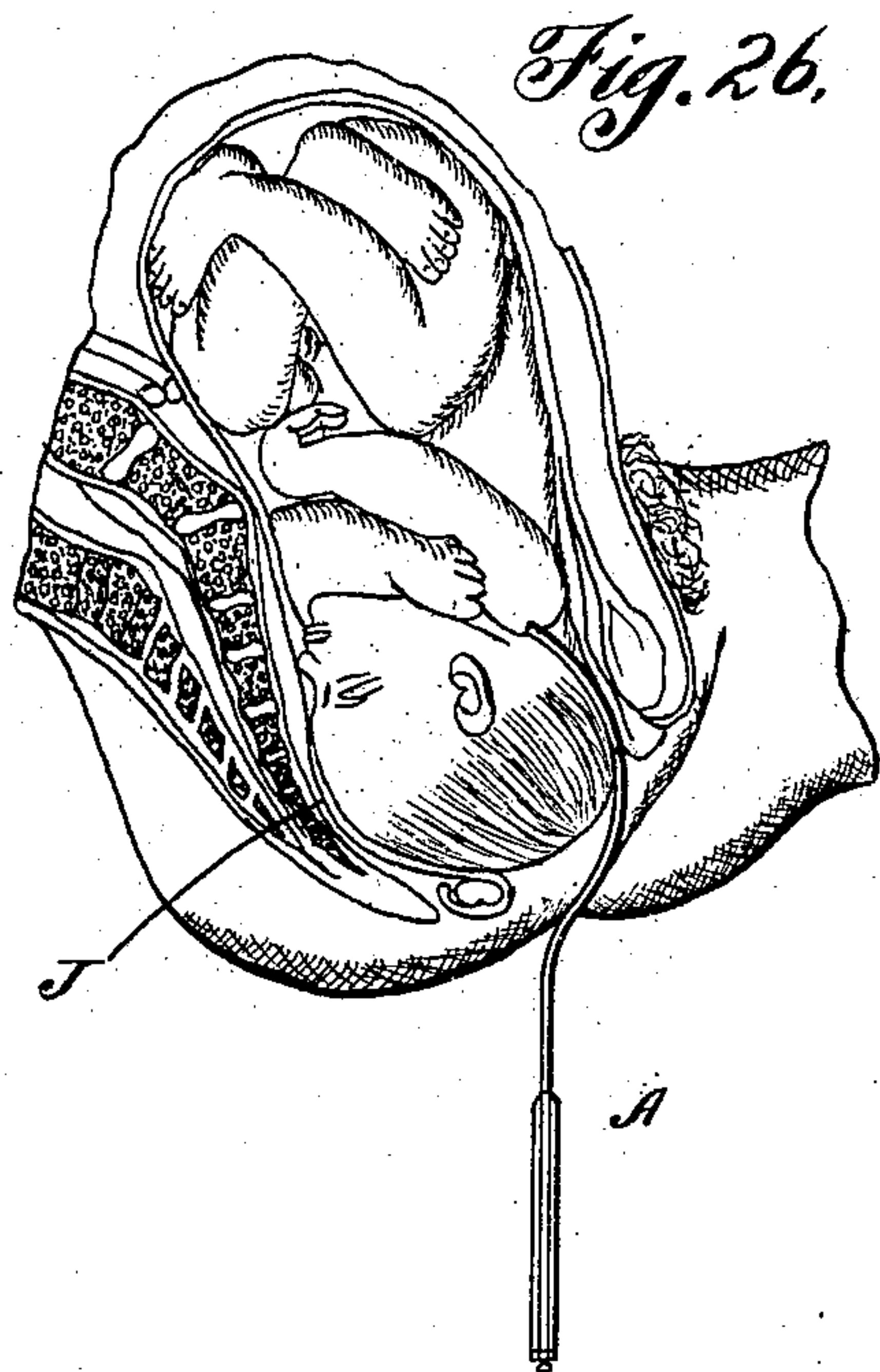
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(No Model.)

6 Sheets—Sheet 4.



Witnesses:  
*Dr. D. Perry*  
*J. B. Weir*

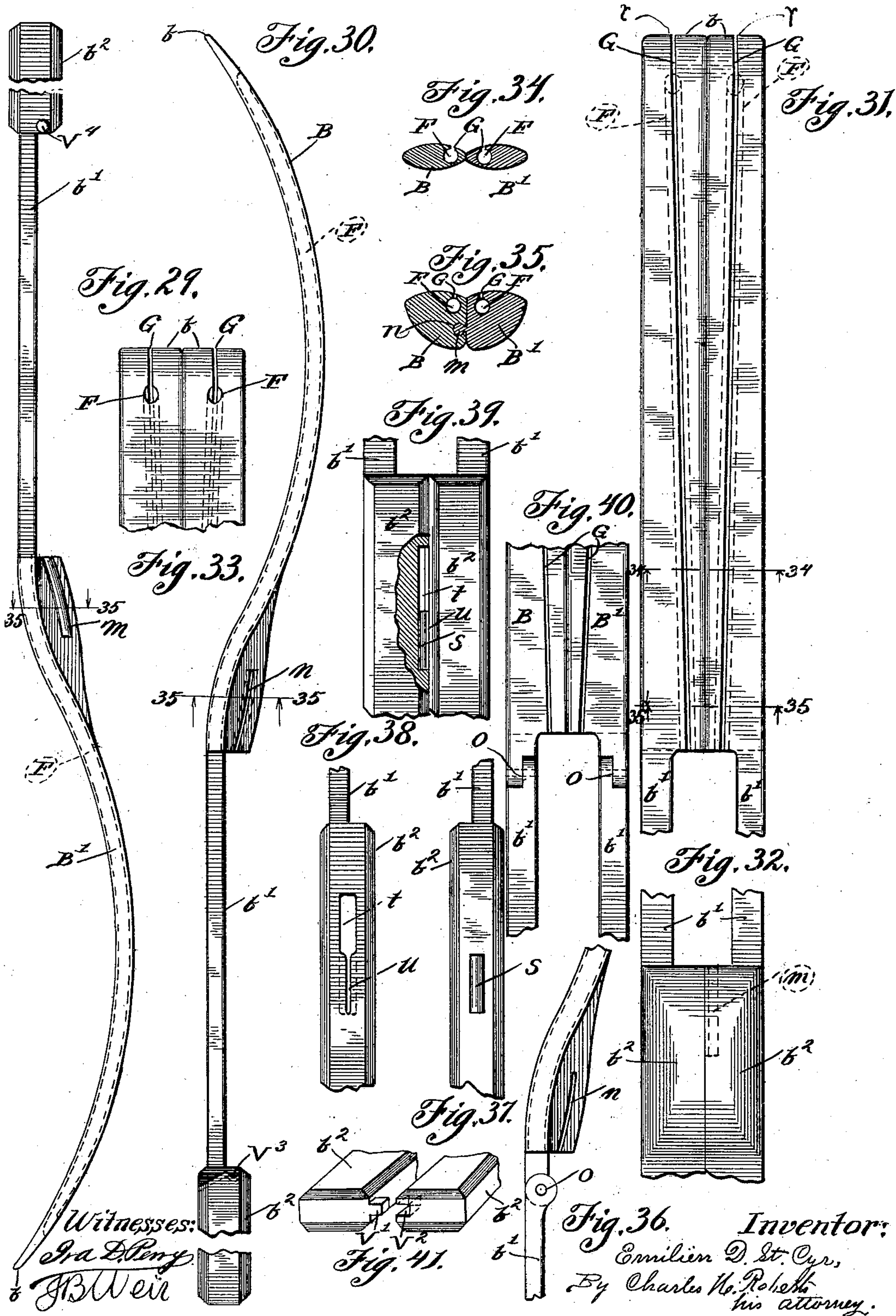
Inventor:  
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By *Charles H. Roberts,*  
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OBSTETRICAL TRACTOR.

(Application filed Nov. 29, 1901.)

(No Model.)

6 Sheets—Sheet 5.





No. 713,166.

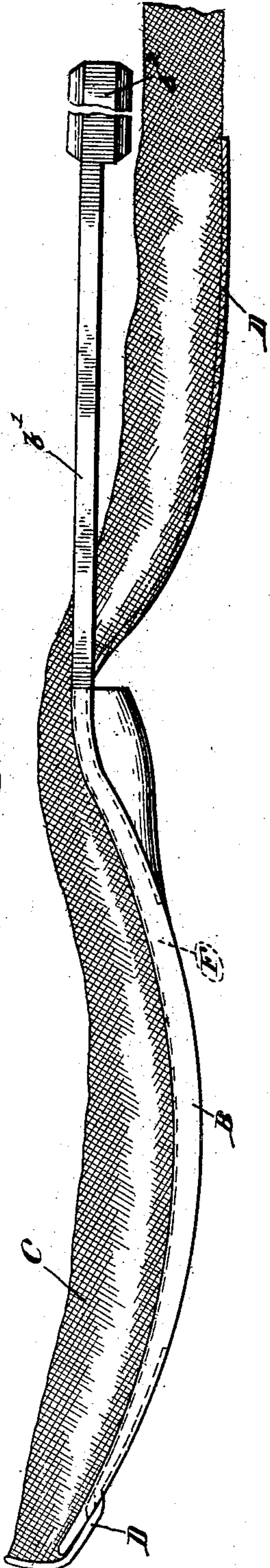
Patented Nov. 11, 1902.

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OBSTETRICAL TRACTOR.  
(Application filed Nov. 29, 1901.)

(No Model.)

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Fig. 42.



Witnesses:  
Chas. D. Perry  
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Fig. 43.

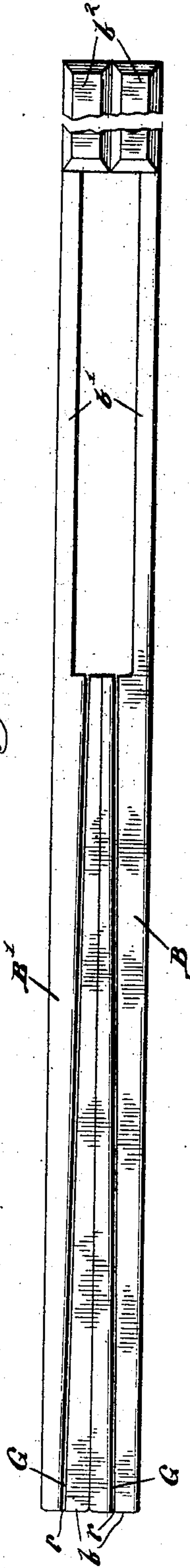


Fig. 44.

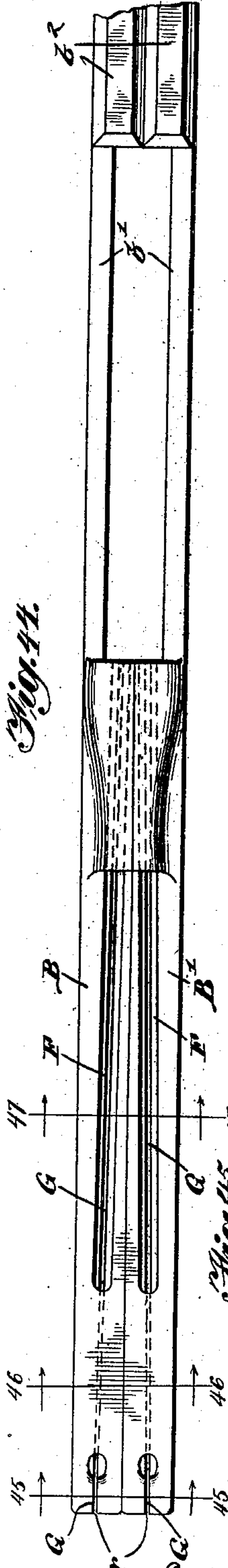


Fig. 47.



Fig. 46.

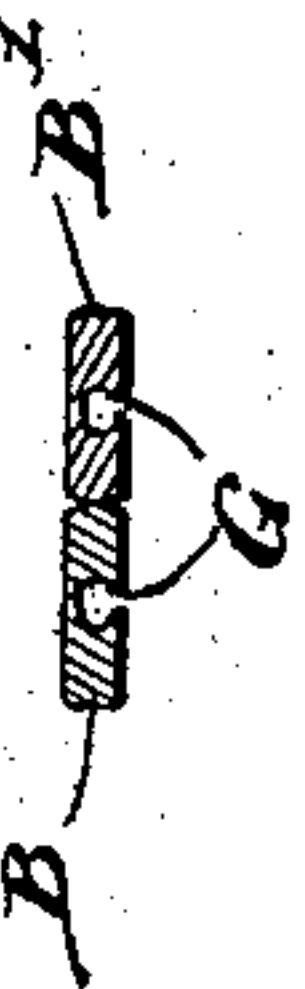
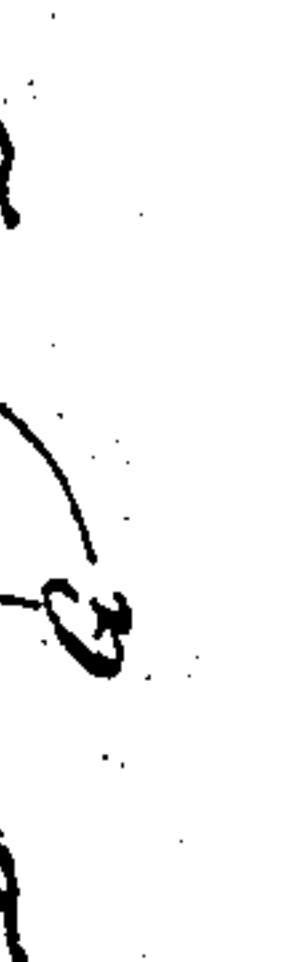


Fig. 45.



Inventor:

Emilien D. St. Cyr,  
By Charles H. Roberts  
his attorney



# UNITED STATES PATENT OFFICE.

EMILIEN D. ST. CYR, OF CHICAGO, ILLINOIS.

## OBSTETRICAL TRACTOR.

SPECIFICATION forming part of Letters Patent No. 713,166, dated November 11, 1902.

Application filed November 29, 1901. Serial No. 83,952. (No model.)

*To all whom it may concern:*

Be it known that I, EMILIEN D. ST. CYR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Obstetrical Tractor, of which the following is a specification.

My invention relates to female surgery; and the object of my improvement is an obstetrical tractor for the delivery of women in childbirth which has all the advantages of the strongest obstetrical forceps with none of their disadvantages and which has the further advantage of preparing the way of the infant lodged in the maternal avenue by molding the head to conform to the passage and of opening the passage and at the same time protecting the perineum from rupture. I attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my instrument complete as in the first position and with the cloth fabric in the pockets. The blades are shown locked preparatory to insertion. The outer surface of the left-hand blade is broken away to disclose a lock for the second position. Fig. 2 is a side view of the same, showing the curve of the blades and the cord-bordered net and fabric. Fig. 3 is a plan of the reverse side of the instrument shown at Fig. 1 in the position it assumes after the circumvolution of the blades, the net being paid out and in a full or bag-like condition and its forward margin constricted. Fig. 4 is a plan of the blades in their position as in Fig. 3 and with the top or cover of the blades removed to expose the interior. Fig. 5 is an end view of the handle shown in Fig. 1. Figs. 6 and 7 are sections of the same. Fig. 8 is an end view of the forward end of the same blades looking toward the handle and showing the end lock used in the first position. Fig. 9 is a section on the line 9 9 of Fig. 3. Fig. 10 is an additional clamp which may be used in reinforcing the lock in the second position. Figs. 11 and 12 show the blades formed without the pocket for the net and adapted for another form of handle, and Fig. 13 is a section on the line 13 13 of Fig. 11 as the same would be if the corded net were inserted. Fig. 14 is a section on the line 14 14 of Fig. 12. Figs. 15 to 25, inclusive, represent shapes of

the cloth form, while Figs. 26, 27, and 28 illustrate the application of my device. Figs. 29 to 41, inclusive, illustrate another form of my blades or applicators in which the pocket for the net is omitted and the slot is on the top of the blades. Figs. 29 and 30 represent the male and female sections of said other forms of blades with locks for the second position. Fig. 31 is a broken plan of the same, taken on the concave side, showing the slot G extended to the end of the blades or needles. Fig. 32 is a view of the thickened portion of the blades, taken on the reverse side from the view Fig. 31. Fig. 33 is a view of part of the end of the blades, taken on the reverse side from that shown by Fig. 31. It shows the opening of the eyes F F. Fig. 34 is a section on line 34 34 of Fig. 31. Fig. 35 is a section through both blades at 35 35 on Figs. 29 and 30, showing a lock *m n* and the eye or canal F. Figs. 36 and 40 are portions showing the jointed handle for use in the high operation. Figs. 37 and 38 are broken portions of the handle, showing a lock for the first position when taken by this form of the blades. Fig. 39 shows a portion of the handle of this form of applicator, with a margin of one broken away to expose the lock. Fig. 41 shows another form of supplemental end lock to be used with the form in Figs. 29 and 30, in which the parts *v' v<sup>2</sup>* take the place of *v<sup>4</sup>* and *v<sup>3</sup>* of said figures. Fig. 41 also illustrates the slight separation by springing a part of the handles necessary to unlock the instrument. Fig. 42 is a side elevation of the instrument shown at Fig. 31 and shows the net when not carried in a pocket. Fig. 43 is a front plan, and Fig. 44 a rear plan, of the same, both with the net omitted. Fig. 45 is a section on the line 45 45 of Fig. 44. Fig. 46 is a section on the line 46 46 of Fig. 44, and Fig. 47 is a section on line 47 47 of Fig. 44.

Similar letters refer to similar parts throughout the several views.

I have called this instrument, which I have used with success, an "obstetrical tractor." It is composed of a net (silk or cotton or other fabric) and two blades somewhat of the shape of those of the said forceps, containing in their interior the loose border of the silk net in such a fashion that by making the circuit of the head with these blades the head is caught



in the net, the blades are locked, and traction is exerted on the net and not on the blades, as is the case with the obstetrical forceps, as well as the cause of their dangerous effects. The pressure is thereby diffused over the whole surface of the head and renders injury impossible, as will soon be seen, although conserving the possibility of exerting the force of traction to any degree which the case may demand. To explain the principle clearly, I will state the following fact, unnoticed by most of us, but occurring daily: We have all experienced the difficulty of taking off the sleeve of a tightly-fitting and tightly woven or knitted undergarment when pulling from the cuff and have felt at that moment that our arm was being dislocated, but that the pressure exerted by the contracted fabric upon the arm was not painful at the point of traction, but only at the socket of the arm, if long continued. The reason is simply that the pressure is widely and equally diffused, while the traction is concentrated at one point. The principle employed in this instrument suggests this: a strong silk cable is by my device attached to the head of the child, its method of attachment being so diffused as to permit us to use any amount of traction which the case may require without any possibility of injury to the mother or the child.

I can now best illustrate the instrument and give the *raison d'être* of its different parts by referring to differently-marked parts of the drawings of the instrument itself and explaining their use.

The instrument is very simple and uncomplicated. To obtain the easy and proper application of the net over the presenting head, to have it properly secured and under control and be able to take away the blades at the will of the operator are the problems to be solved and which are executed by this instrument.

*The net.*—The net or fabric C may be made from a girl's or miss's stocking of ordinary size (cotton or silk) or other preferably contractible and dilatable fabric. The foot is cut off, the leg is slitted its whole length, and a strong non-elastic tape or cord (silk or cotton) is fixed at its upper end, the ends of the cord being preferably free. That is all—a ten-cent stocking and a piece of strong tape or cord. The whole is prepared and treated like our surgical antiseptic gauze dressing.

In the instrument A the metal or rigid portion is composed of two blades B B', each having an operating extremity *b*, a shaft *b'*, and a handle *b*<sup>2</sup>.

Each operating extremity has the cephalic curve of the ordinary obstetrical forceps, and they are six and one-half inches in length. They are provided with an internal cavity *e e* for the purpose of receiving each one-half of the upper extremity of the net, allowing it thus to unfold from its center during the application. A groove or longitudinal canal or

eye F in each carrying needle or blade is for the purpose of receiving the thickened border or cord of the net. It communicates with cavities *e e* by a very narrow slit G, making it thus possible to remove both blades from the net and vagina at the will of the operator. The small bulbous lobe *f* is for the purpose of locking the blades together when it is sunk into socket *g*. By thus consolidating both blades together their introduction is made easy. The small bulbous lobe H, when sunk into socket H', is for the purpose of locking the instrument after the complete circuit of the head has been accomplished by the blade, thus securing the strong union of the net at the sacral curve J. Both these locks are supplemented by the slide I, moving in the dove-tail groove *i i*, which when passed over the ends of both handles, as in Fig. 5, locks them from moving endwise. Openings *k k* of the eye are for the exit of the cord or tape of the net. The shafts *b' b'* are made strong and have the proper curve to render as easy as possible the circumvolution of the operating blade extremities B B' around the head. They each form one piece with each operating extremity. The shafts may be extensible, as shown at Fig. 7, and may be jointed for the high operation, as shown at Figs. 36 and 40. The cord is threaded into the carrying-needle or flattened blade, as shown in Figs. 2, 3, 9, and 13.

*The operation.*—The blades, with net attached, are aseptized by boiling. They are then locked at *f*, *g*, and I, lubricated, introduced below the pubes, unlocked, circumvolved, preferably individually and one at a time, as shown in Fig. 27, to the sacrum J, again locked at H, H', and I, and thus secured. The tape is secured, if desired, restricting the outer border D. Traction is then exerted at will on the net. No traction should be made on the blades. When the head has reached the perineum, the blades can be taken out, if desired, by simply pulling on them. The principle of force employed is the elasticity which a woven, knitted, or otherwise elastic fabric possesses when pulled upon, and thus contracted, as shown by the illustration of the close-fitting knitted or woven undergarment taken off by pulling at the cuff. The pressure exerted is so diffused as not to be painful, although sufficient to adhere to the arm, and increases as the pulling increases. To make these necessary conditions always present, I have conceived the method of constricting the further border of the net above the greater diameter of the head, thus surely preventing all slipping. The net passes through the slots G G, which hold it firmly by its cord or anchor D, this border being made thick, so that it will not pass through the slit G. The border is preferably non-elastic. It does not stretch like the tissue or fabric composing the net. The upper part of the border (that which stays outside of the slit and goes around the head of the child at



the constriction of the net) may be flat. It also should be non-elastic. Indeed, the forward edge of the net itself may when stretched until sufficiently non-elastic be used as the non-elastic part when employed with a cord or anchor on either side; but as one important feature of my device is that this net should not be capable of removal without the removal of the instrument or blades the cords used should then have an inward curve, making a cul-de-sac or pocket, as shown in Fig. 16, to receive the shoulder *r* of the border of the slot. The borders or cord D on the other side of the slot may be made thick, round, square, or any shape, providing they run easily through the longitudinal eye F and are thick enough not to go through the slots G. By this arrangement it is seen that the operator has perfect control over the easy application of the net, its size, its adherence, its union, the direction of traction necessary in any given case, and over the extraction of the instrument, (either the applying-blades B B' alone or both applicator and net.) It will be clearly seen that the traction is made only on the soft evenly-contracting fabric of the net C. It will be seen that by pulling on the inelastic non-resilient non-tensile border D of the net from the outside world perfect control is obtained over the most internal parts of the net through the shoulders *r r* of the slot G and the openings *k* of the longitudinal eye F above the greater convexity of the head. It will also be seen that it is not necessary to pull directly on the non-elastic border of the net to obtain the constriction necessary. Simply holding the net steady and pushing on the applying-blades are sufficient to accomplish the same result.

It is apparent that by having the thickened border D continued down the net as this border emerges in the outside world at the end of the slot the net can be made to suit any size of head from the size of a child's fist to the size of an adult head. It will be further seen that the applying-blades can be removed at will, as by pulling on them they slip off the net C and are extracted, nothing holding them. They hold the net, but the net does not hold them.

It is observed that when the applying-blades are removed then only the net can be removed, not before. Thus without the blades, if the net is not removed, delivery can be helped or not, as the attendant may deem best to help or retard it. On account of the head being at the perineum he may want to prevent it from coming too fast, so that no tear will occur at the outlet.

It will be seen that the simple and cheap construction of the net—a piece of cloth with a thickened border—makes it possible to use it in but one case, and then discard it. It is prepared antiseptically as we do our antiseptic gauzes in surgery—in fact, resembles the latter very much.

It will be readily apparent as a most im-

portant factor that by pulling on the net with any force in any case such traction will not increase the constriction of the upper border of the net as it passes above the greater convexity of the head of the child. To accomplish this constriction, two methods only can be employed, and they are to push on the applying-blades, holding the non-elastic border of the net steady, or to hold the applying-blades steady and pull on the non-elastic border of the net. The pulling of the net alone does not increase or diminish that constriction any more than in the whole net, which of course contracts some, but evenly in all directions, a fact which makes this method of delivery most acceptable, as by diffusing at the point of attachment to the child the great force which is so often necessary in the delivery of the child from its mother the dangers of fatal injury are lessened to their minimum, and still we have a strong cable attached to the head.

It is apparent that many forms of net, as well as many forms of applicators, can be devised; but the important elements of my device are the strong elastic fabric or net for inclosing the head and diffusing the applied force, applicators for applying the same, a running or shifting anchorage on the blades or applicators for the sides of the fabric, a constricting cord, tape, or border operating through eyes or over shoulders, and a slot through which the fabric may run as the attached cord is spread over the shoulders of the slots or eyes.

It is possible that an imperfect result may be obtained by the use of the cord-carriers and cord alone, and the instrument may be so made; but an entirely beneficial result cannot thus be obtained. It will be seen that the applying-blades should preferably conform in shape to the mother's parts as well as to the child's head, and that the slot may be placed longitudinally in any part of the applying-blades—at its top, bottom, or sides.

The eyes may be transverse rather than longitudinal, as shown at K of Fig. 4. It will be further observed that the net offers no obstruction to its own introduction, nor to that of the applying-blade, for it is concealed within the applying-blades in a cavity therein, or it may be spread smoothly on the concave surface of the blades and moistened before its introduction by a process of sterilization.

It will be seen that the application of my device is made easy, as the net and cord slide guarded and protected in a slot G and groove F, which also guard the mother's parts from their contact, and as the blades are much smaller than those of the obstetrical forceps which are applied to the same parts for the same purpose. Again, in the maternal chamber the long diameter is from side to side and the short diameter from front to rear. The obstetrical-forceps in its action molds or crushes the infant's head the reverse way from



this natural dimension, making its long diameter from front to rear and its short diameter from side to side, while my device molds the head and parts in the natural dimension. It will also be seen that the distant flat non-elastic border of the net upon traction at the near end has not the effect to crush the head of the child at all, but only to hold the head, slipping slightly to the point of too-great diameter for it to slip any more.

It will be observed that the applying-blades come with the head as well as with the net, and that the relative position of the net and blades is not changed at the point of constriction by simple traction on the net alone.

It will be seen, as shown at Fig. 28, that the stretched net when pulled upon for extraction of the head forms a conical-shaped protrusion, having its base at the circular border of the presenting head and its apex at the hand of the operator, forming thus a soft wedge-like shape, helping in dilating and preparing the maternal parts for the passage of the coming head of the child without possible danger of injury.

It is apparent that the shafts can be made flexible to assist in the application of the net, especially for the high operation. They may even be made jointed, as illustrated in Figs. 36 and 40, so that the operating extremity of the instrument may be placed at any angle desired for the proper application of the net around the head of the child. Of course they should not be flexible edgewise, for in that direction the applicator should be rigid.

It can easily be seen that the locks to lock the instrument for entrance and again after application for exit can be placed in a variety of positions—for example, at the internal edge of each operating extremity of the applicator when the two blades are brought together after the circumvolution of the head of the child of course they must be free from all sharp or abrupt surfaces. They may also be placed in the concavity present on the under surface of the instrument at the point of union between the operating extremities and the shaft of the instrument. It may be made a common clamp holding the rigid blades together, and thus locking them securely, or it may be any sort of a lock that will effect the purpose of securing the blades. The clamp shown at Fig. 10 is an additional lock which may be used after the second position has been attained.

It will be seen that the perfect continuity of the surface of the net cannot take off or tear off the child's ears or nose or disfigure him for life, as do the forceps by their fenester or any instrument which would not have a continuous surface.

It is apparent that the thick border of the net may be made in different ways. For instance, it can be made thicker in two parallel borders, the metal forming the slot passing between the two, as shown in Fig. 17.

It is obvious that by having the cavity between each blade contain each half of the net and each half of the tape or thickened border the application (the spreading of the net over the child's head) offers no friction, no resistance, as the net and border unfold themselves from the cavities in which they are placed without resistance and as rapidly as the case requires—that is, as rapidly as the blades are circumvolved around the head of the child. My device, however, may be used without the pockets for the net, the net being free; but I prefer its carriage in pockets or in the concave of the blades. It may be left entirely free outside the blades.

My device can also be operated without the use of the longitudinal eye F by carrying the cloth in a similarly-slotted applicator, the slot having shoulders by which the cord or thickened edge of the cloth may be pressed inward and controlled, as shown from F to G in Fig. 33, which slot may be extended down the instrument.

It will be seen that in applying the net at the symphysis pubis with the applying-blades it is not necessary to circumvolve deeply with the blades of the instrument all inserted as far as they will go. All that is necessary is to introduce the net with the aid of the blade for a distance sufficient so that the net will be placed and left over a part of the convexity of the child's head, where it will not slip off, and then by continuing the circumvolution, not deeply, all around the head until the sacrum is reached. Then they must be introduced deeply, as hereinbefore directed. (In this locality there is always considerable space.) Then, the blades being situated deeply and the point of resistance (exit and resistance of the net) being at their extreme end, by pulling on the non-elastic border of the net the upper part of the net, which was not deeply applied at first, will thus be brought down in position over the head of the child in its proper place, just as well as if the head had been circumvolved deeply the whole length of the blades.

It will be seen that the net can be given a variety of shapes, as shown in Figs. 15 to 25, inclusive, Figs. 19, 21, 23, and 25 showing the forms 18, 20, 22, and 24 when folded together.

It is obvious that the border of the net can be lined with a tape c, besides containing a round cord D, producing the thickening, the smooth surface of the tape allowing the net more surely to slide easily in the slot and render the border stronger, as shown in Figs. 9 and 14. It can also be placed between the two cords or thickened border, as illustrated previously. It will also be seen that the blades, being at the perineum, which is sometimes expanded to paper-like thinness, affords a means to protect that part to prevent its tearing, for being much smaller than the blades of the forceps they take but very



little room and can be made to offer a firm resistance to the advancing head. They have the proper flat surface and curve to rotate the head upward instead of downward toward the perineum, as nature often does with injurious consequences. It does away with that bagging condition which takes place at the perineum and is so often the cause of the most severe tears.

It will be seen that the sliding of the net through either of the slots is at the command of the operator, for by pressing on one blade during circumvolution the net can be made to slide in that blade alone at the will of the operator by holding the non-elastic border of the net where it emerges from the other blade.

It is apparent that the net or fabric used may be of any material that has the necessary pliability or elasticity. It is also obvious that the cord D has two functions—namely, that of serving as an anchorage for the sliding fabric C to prevent it from passing through the slots G and also that of constricting the forward border of the fabric or net. When the forward or constricted portion is a tape or the stretched margin of the net itself, it is constricted in the same way as when the cord is carried entirely around the head.

While any suitable cloth forms may be used, I prefer that shown in Figs. 24, 24<sup>A</sup>, and 25, to form which a V-shaped portion may be cut from a form, as in Fig. 24<sup>A</sup>, and the notch closed, making a slightly-bagging somewhat dome-shaped net, as is shown in Fig. 24, and when folded together, as shown at Fig. 25. In this form the cord in the two approaching forward edges is found to run smoothly as the application is made, and the form is adapted to fit the head.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an obstetrical tractor, a form of elastic cloth provided with a running side anchorage to inserting-blades, substantially as described.

2. In an obstetrical tractor, a form of cloth having a marginal thickening, said marginal thickening being movable and being guarded while moving by an enveloping sheath, substantially as described and shown.

3. In an obstetrical tractor, a tractor form of elastic material adapted to be contracted by longitudinal stretching of the form and thus to confer a diffused pressure upon the

head, and means to apply the form to the head, substantially as described.

4. In an obstetrical tractor a slotted blade, having front and rear walls, the front walls of said slot being free and the slot open, and the rear walls of said slot being partially connected, substantially as described and shown.

5. An obstetrical tractor comprising a form of cloth, and a blade with a pocket in the blade to receive the cloth, substantially as described.

6. An obstetrical tractor having a form of cloth, a pair of applying-blades with cavities to receive and guard the cloth and lateral anchorage of the cloth upon the blades, substantially as described.

7. In an obstetrical tractor, a carrying-blade provided with a longitudinal eye for carrying the edge of a thick-edged fabric; and with a slot opening into the longitudinal eye to allow the fabric to run with the edge, substantially as described and shown.

8. An obstetrical tractor comprising a pair of blades carrying a form of elastic fabric, substantially as described and shown.

9. In an obstetrical tractor, a pair of applying-blades adapted to be locked together in a first and second position, a pliable fabric attached to and adapted to be carried by the blades and circumvolutured about the head of the infant, and locks for the first and second positions.

10. In an obstetrical tractor a pair of independently-operative applying-blades having a slot adapted to receive a form of pliable fabric and hold it in an extended position, substantially as described.

11. In an obstetrical tractor having springing blades B B', a lock composed of a lobe and socket, and means to prevent longitudinal movement of the locked blades, substantially as described and shown.

12. In an obstetrical tractor having blades B B', a lock composed of a lobe and socket, and means to prevent longitudinal movement of the locked blades, substantially as described and shown.

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

EMILIEN D. ST. CYR.

Witnesses:

ALBERT F. OHLERICH,  
FREDERICK H. CASHAW.