No. 669,976. Patented Mar. 19, 1901.

J. J. BOWKER.

UTERINE DRAINAGE TUBE.

(Application filed July 26, 1900.)

(No Model.)

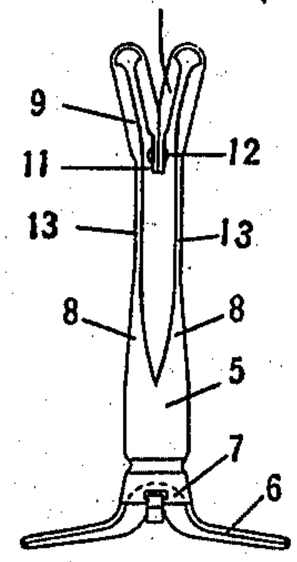

FIG. 1.

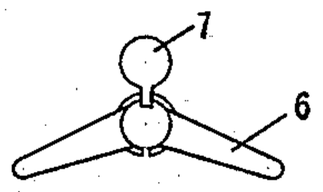

FIG. 4.

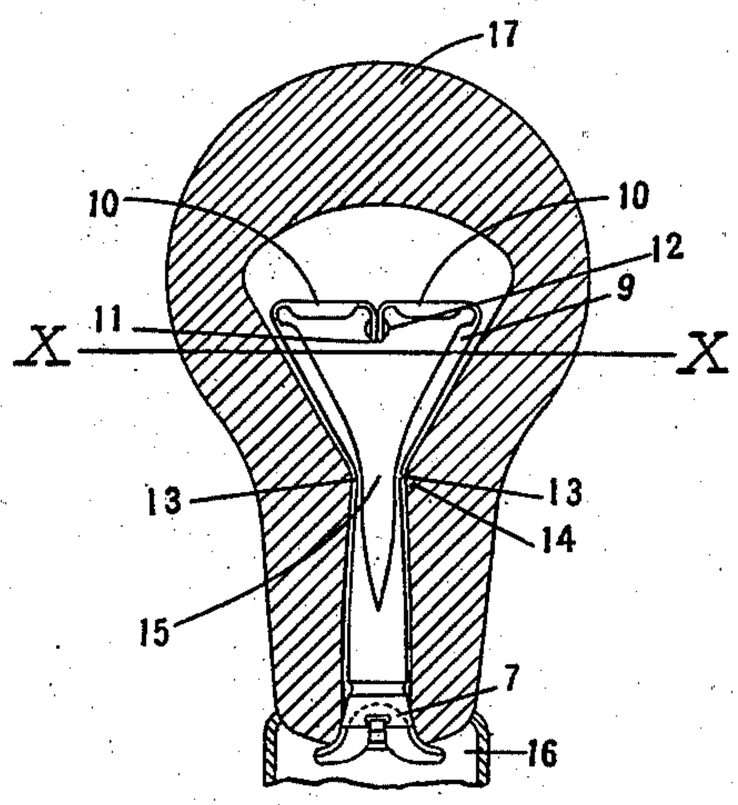

FIG. 2.

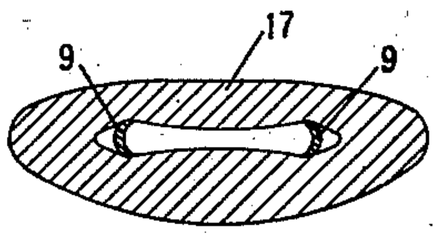

FIG. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES J. BOWKER, OF LAOTTO, INDIANA.

UTERINE DRAINAGE-TUBE.

SPECIFICATION forming part of Letters Patent No. 669,976, dated March 19, 1901.

Application filed July 26, 1900. Serial No. 24,882. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. BOWKER, a citizen of the United States, residing at Laotto, in the county of Noble and State of Indiana, have invented a new and useful Uterine Drainage-Tube, of which the following is a specification.

My invention relates to improvements in drainage-tubes of the class named which are designed to remain in place, so that effete and noxious matters may continually pass out of the womb or uterus while in use; and the objects of my improvement are, first, to provide a drainage-tube which can be so adjusted to the parts that it may be worn continually with ease and comfort and without irritation of the parts or replacement for two or three months or more; second, to provide a closure to the outer end of the tube to prevent the entrance of air and fluids, which shall act automatically when the user or patient is in a recumbent position; third, to provide a drainage-tube with means to conduct the fluids and noxious matters to the tube, and, fourth, to provide such a construction that the uterus may conveniently be irrigated without dilation and the fluids and noxious matters readily escape through the tube by gravity at all times without any contraction or movement of the uterus, thereby avoiding uterine colic, securing a complete restoration of a flexed uterus, and relieving painful menstruation; and the invention consists in the construction and novel combination of the parts hereinafter described, pointed out in the appended claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a front view of my device with the supporting-arms in position for insertion into the uterus. Fig. 2 is a view of my device in place in the uterus, which is shown with part of the vagina in section. Fig. 3 is a cross-section of Fig. 2, taken on the line $x\,x$, showing the cavity of the uterus and the manner of drainage along the supporting-arms; and Fig. 4 is an end view of the lower end of the tube, showing a hinged lid or valve to close it and also means to prevent its further passage into the uterus.

Similar numerals of reference refer to similar parts throughout the several views.

The tube 5 is metallic, preferably of aluminium, and of suitable dimensions, usually about one-fourth of an inch in diameter, and not long enough to reach the internal os of the uterus when in position. It is preferably prevented from any upward movement when in place by the laterally-extended ears or projections 6, which impinge against the external os of the uterus. The lower end or mouth of this tube is also provided with a valve 7, preferably in form of a hinged lid, so arranged that it drops into place, closing the mouth of the tube 5 by gravity when the user or patient is in a recumbent position, the function of this valve 7 being to prevent the passage of the fluids into the uterus when the vagina is irrigated and in some cases to also exclude the air, which it does when closed.

The upper part of the tube 5 is provided with arms 8, which extend to and beyond the internal os of the uterus. They are made thin and narrow for a short distance where they pass said internal os, so as to form the flexible parts 13, having two functions—first, the quality of being easily bent into the form shown in Fig. 2 and remaining in such form until manipulated by the operator, and, second, to assist in holding the device in place by their connection with the supporting-arms 9, attached to the upper ends, without irritating the internal os. This will more fully appear in the description of the mode of operation and is regarded as a new feature in the construction of drainage-tubes of this class. To the upper ends of the arms 8 are attached the supporting-arms 9. They extend up into the cavity of the uterus, forming stay-pieces, and preferably about two-thirds of its length and are preferably provided with open ducts on their inner sides for drainage and are of such construction as to slightly distend the parallel walls of the cavity. I have constructed such ducts by making said arms concavo-convex, as shown in cross-section in Fig. 3, but do not confine myself to that particular construction. The tubes 5, arms 8, and supporting-arms 9 are preferably made integrally, as shown. I also provide means to expand or spread the supporting-arms 9 when they are sufficiently entered into the cavity of the uterus. Any suitable means for such purpose may be used. I prefer the construction illustrated in the drawings,

which consists of two brace-arms 10, provided with downward extensions 11, the ends of which are rigidly attached to each other in vertical position, preferably by a rivet 12. Both ends of these brace-arms 10 are attached, preferably integrally, respectively to their extensions 11 and to the upper ends of the supporting-arms by a thin and narrow strip 14, which can be easily bent to form, so to speak, "flexible joints" at said points of connection, whereby means are provided to expand or close the supporting-arms 9, as shown in Figs. 1 and 2. The mode of operation for this purpose consists in grasping the riveted ends of the extensions 11 with a suitable instrument passed up through the tube 5 and by thrusting up or drawing down said ends elevate or depress them into the desired positions, thereby expanding or drawing together the supporting-arms 9, so that they assume the positions shown in Figs. 1 and 2, as may be desired. In Fig. 1 the device is in position for insertion. In Fig. 2 the supporting-arms are expanded or spread so as to conform to and lie along the edges of the uterine cavity and support the device in place.

The mode of operation is as follows: The device closed, as shown in Fig. 1, is easily passed without pain into the uterine cavity 15 a suitable distance, so that the flexible parts 13 shall be partly in the internal os and partly in the cavity 15. This is preferably determined by the impinging of the ears 8 against the external os 16 by construction. When so introduced, the internal os will, because of the irritation of such introduction, strongly contract, thereby compressing slightly the parts 13. While so contracted the operator passes up through the tube 5 a suitable instrument and by it pushes up the riveted extensions 11, thereby spreading the supporting-arms 9 until they assume the positions shown in Fig. 2 and as described *supra*, the flexible parts 13 being bent thereby just above the internal os. The operating instrument is then withdrawn and the contraction of the internal os speedily subsides, the parts receding slightly. This action and the slight compression of the parts 13, as described *supra*, combine to provide a loose and easy fitting of the parts 13 in that place without any irritating contact. This result and the easy and non-irritating adjustment of the supporting-arms 9, fitting the uterine cavity with only a slight distension of its parallel walls, as shown in Fig. 3, are not attained by any uterine drainage-tube or device of which I have any knowledge. Such construction provides means for a complete drainage of the cavity without any irritation or undue contact-pressure against sensitive parts and is perfectly held in place. Some of my patients have worn it for three months without replacement and without discomfort. The use of the valve or hinged lid 7 readily appears from the description. While the device is in place it affords at all times free access to the uterine cavity and the treatment of intra-uterine diseases is made simple and convenient.

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

1. A uterine drainage-tube consisting of the tube 5 provided with ears, the arms 8 connected to said tube and provided with the flexible parts 13, the supporting-arms 9 connected with the flexible parts 13 and provided with open internal drainage-ducts, the brace-arms 10 having the downward extensions 11, narrow strips or portions connecting and forming flexible joints to the brace-arms and downward extensions 11 and also to the brace-arms and supporting-arms respectively, and a valve for the lower end of said tube.

2. In a uterine drainage-tube, a short tube, as 5, provided with arms extending upward, the arms being provided with flexible parts at the place of passage through the ostium internum, extensions thereto forming supporting-arms, as 9, provided with open internal drainage-ducts, and adapted to slightly distend the parallel walls of the uterine cavity, means to aid in spreading the upper ends of the supporting-arms and hold them in place, and a valve for the outer end of said short tube.

3. In a uterine drainage-tube, a tube having its upper ends provided with two arms tapering from its sides to a narrow and thin construction so as to be easily bent as described at the place of passage through the ostium internum, and from thence further extended to form supporting-arms provided with means adapting them to be spread within the walls of the uterine cavity, and a valve for the outer end of said tube.

4. In a uterine drainage-tube, a tube provided with arms adapted to be extended into the uterine cavity, the parts passing the ostium internum being made flexible, and means attached to said arms adapted to aid in spreading them and to hold them in place.

5. In a uterine drainage-tube, a short metallic tube provided at one end with two arms adapted to be extended into the uterine cavity and also to be expanded or spread therein so as to form supports for the tube and also slightly distend the parallel walls of the uterus, and so constructed as to have a narrow and thin portion at the place of passage through the ostium internum which may be easily bent as described and means attached to said arms adapted to aid in spreading them and to hold them in place.

In witness whereof I hereunto set my hand and seal, this 19th day of January, A. D. 1900, in the presence of two witnesses.

JAMES J. BOWKER. [L. S.]

Witnesses:
R. E. THAIN,
H. A. HARTMAN.