

Jan. 20, 1970

W. M. KORTUM

3,490,456

INTRAUTERINE CATHETER ANCHOR

Filed April 14, 1967

Fig. 1.

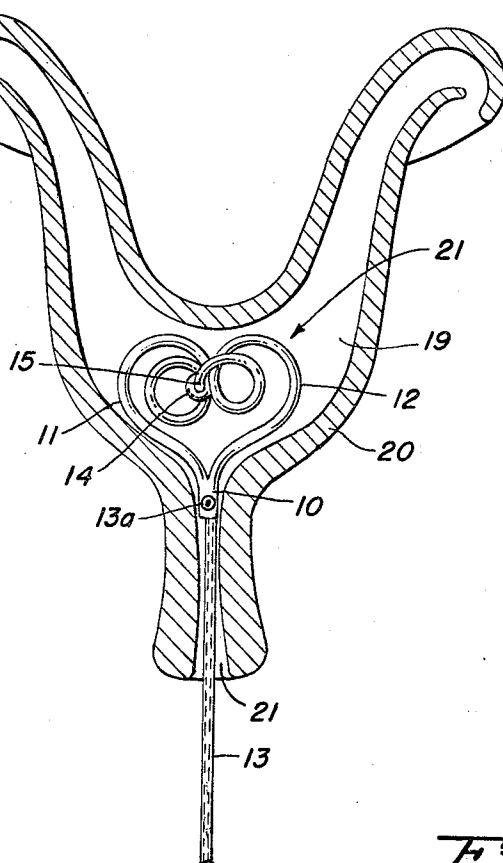


Fig. 3.

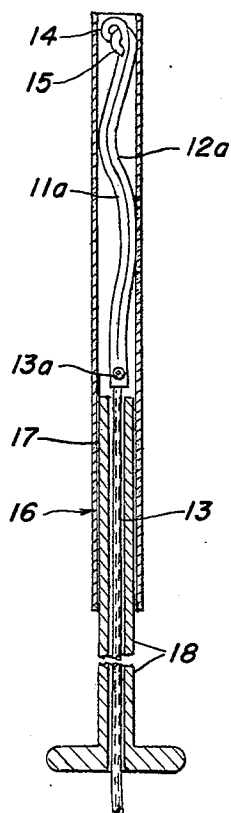


Fig. 2.

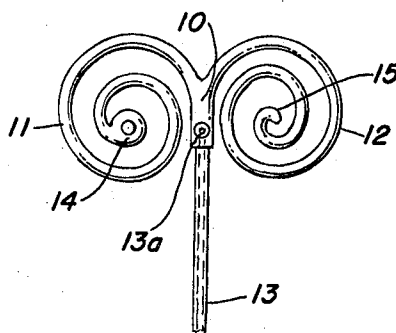
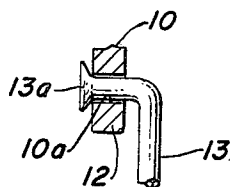


Fig. 4.



INVENTOR
WILLIAM M. KORTUM
BY
J. E. Traluceo
ATTORNEY

1

2

3,490,456

INTRAUTERINE CATHETER ANCHOR

William M. Kortum, 180 Ely Road,

Petaluma, Calif. 94952

Filed Apr. 14, 1967, Ser. No. 630,906

Int. Cl. A61m 25/02; A61f 5/46

U.S. Cl. 128—348

4 Claims

ABSTRACT OF THE DISCLOSURE

The disclosure relates to an intrauterine anchor for retaining an end of a catheter inside the uterus of an animal; said anchor comprising resilient spiral coils extending in opposite directions from a straight shank to which a catheter may be connected, and means to connect the coils together in three dimensional form within the uterus of an animal whereby expulsion of the anchor by the animal is avoided.

This invention relates to intrauterine devices, and more particularly to a flexible duplex spiral coil mechanism for retaining one end of a catheter inside the uterus of an animal for purposes of artificial insemination, drainage or applying medicament periodically.

The present invention provides an intrauterine device for retaining an end of a catheter inside the uterus of an animal so medicament or other fluids may be injected periodically, such device having two similarly shaped resilient spiral coils, which when the device is released from an inserting tool inside the uterus, become intertwined to provide an anchor element having a three dimensional form to normally avoid the expulsion thereof by the animal.

An object of the present invention is to provide an intra-uterine device of the kind characterized which embodies similarly shaped resilient spiral coils extending in opposite directions in a common plane from a central member to which an end of a catheter is secured, the inner free ends of the spiral coil being connected one to another when the device is loaded into an end of a tubular inserting tool, and such spiral coils being adapted to automatically assume an intertwined relationship when the device is released from the inserting tool inside the animal's uterus, thereby providing a three dimensional anchor element for an end of the catheter to normally avoid the expulsion thereof by the animal, whereby the unattached end of the catheter may extend externally to facilitate the injection periodically of medicament or other fluids.

Other and further objects of my invention will be indicated in the appended claims or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application, I have elected to show herein certain forms and details of a device for retaining an end of a catheter or flexible tube inside the uterus of an animal which is representative of my invention; it is to be understood, however, that the embodiment of my invention herein shown and described is for purposes of illustration only and that therefore, it is not to be regarded as exhaustive of the variations of the invention in the art.

In the accompanying drawing:

FIG. 1 is a diagrammatic sectional view of an animal's uterus showing the intrauterine device of the present invention positioned therein with one end of a catheter connected thereto and the other end extending externally through the cervical canal;

FIG. 2 is a plan view of the intrauterine device;

FIG. 3 is a longitudinal sectional view of the forward end portion of an inserting tool, showing the intrauterine device loaded therein, preparatory to its being inserted into the uterus of an animal; and

FIG. 4 is a detailed sectional view, on an enlarged scale, showing the arrangement for connecting the catheter to the intrauterine device.

The intrauterine device embodying the present invention comprises a centrally disposed shank 10 and a pair of similarly shaped spiral coils 11 and 12 extending outwardly in opposite directions from the upper end of the shank. The shank 10 is formed with an opening 10a to receive an end of a catheter or tube 13 having an enlarged end as at 13a of greater width than the diameter of such opening to prevent the detachment of the catheter from the shank. The coils 11 and 12 are integral with the shank 10 and are formed from a resilient inert substance such as polyethylene plastic material, and while the coils are normally positioned in a common plane, each may be lengthened into an elongated substantially straight strand by the application of suitable pressures. One of the coils at the free end thereof, say coil 11, is formed with a small loop or eye 14 to receive the free end 15 of the other coil 12 to connect such free ends together preparatory to the loading of the device into an end of an inserting tool 16. The tool 16 comprises an outer substantially rigid tube 17 and an inner tubular plunger 18 which slidably fits within the outer tube. The intrauterine device may be loaded into the forward end of the outer tube 17 by first extending the catheter 13 rearwardly through the openings in the outer tube and the plunger 18 and then pulling the device rearwardly by means of the catheter until such device is loaded into the forward end portion of the outer tube, as shown in FIG. 3. The size of the outer tube is such that coils 11 and 12 are contacted by the forward end of such tube and are thereby straightened somewhat as the device is pulled rearwardly. The opening in the inner tubular plunger 18 is sufficiently large to receive the catheter 13 but of smaller diameter than the width of the shank 10, thereby making it feasible to expel the intrauterine device from the outer tube 17 by manually projecting the plunger forwardly against the shank.

In placing the intrauterine device inside the cavity 19 of the uterus 20 of an animal, the forward end portion of the outer tube 17 with the said device loaded therein is inserted through the cervical canal 21 and into the cavity. Upon projecting the plunger 18 forwardly the intrauterine device is expelled from the outer tube 17 of the inserting tool into the cavity 19 of the uterus. When the intrauterine device is loaded into the inserting tool suitable pressures are applied to the spiral coils 11 and 12 to temporarily deform them and change their shape to elongated strands 11a and 12a, which by reason of their inherent resiliency, tend to resume their original shapes. Thus, when the intrauterine device is released from the inserting tool 16 and discharged into the cavity 19 of the uterus, the strands 11a and 12a being no longer confined within the outer tube 17 of the tool partially revert to their original spiral forms, but being connected at their ends 14 and 15, and thus being unable to assume such original forms, the strands become intertwined to form a three dimensional intrauterine device 21 (FIG. 1) which will be retained in the uterus to securely hold an end of the catheter 13 in a position to permit the injection of medicament or other fluid into the uterus periodically through the catheter. It is to be understood that the catheter is an elongated tube preferably made from a suitable plastic material, such tube being adapted to convey medicament or other fluids into the uterus and to drain fluids therefrom.

3

What I claim is:

1. An anchor to retain an end of a catheter inside an animal's uterus made from resilient plastic material comprising

- (A) a shank,
- (B) spiral coils connected to and extending in opposite directions from the shank,
- (C) means to connect and intertwine the free ends of the coils together; and
- (D) means to connect an end of a catheter to the shank.

2. A device to retain an end of a catheter inside an animal's uterus according to claim 1 wherein the shank is formed with an opening to receive an end of the catheter.

3. An anchor for retaining an end of a catheter inside an animal's uterus according to claim 1 wherein the spiral coils are disposed in a common plane, and wherein the connected and intertwined free ends of the spiral coils are outside of said common plane to render the anchor three dimensional and to prevent self-expulsion thereof from the uterus.

4. An anchor to retain an end of a catheter inside an animal's uterus wherein the means to connect ends of

4

the coils together made from resilient plastic material comprising:

- (A) a shank,
- (B) spiral coils connected to and extending in opposite directions from the shank,
- (C) means to connect and intertwine the free ends of the coils together; said means comprising an eye on an end of one of the spiral coils to receive an end of the other coil; and
- (D) means to connect an end of a catheter to the shank.

References Cited**UNITED STATES PATENTS**

1,348,728	8/1920	Martocci	128—131 X
2,553,428	5/1951	Sokolik	128—131
2,896,614	7/1959	Schmitt et al.	128—131
3,291,125	12/1966	Robinson	128—130
3,312,215	4/1967	Silber	128—131
3,374,788	3/1968	Rosenthal	128—130

DALTON L. TRULUCK, Primary Examiner

U.S. Cl. X.R.

128—130