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(54) TRANSCERVICAL FALLOPIAN TUBE OCCLUSION DEVICES AND THEIR DELIVERY

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Publication Classification

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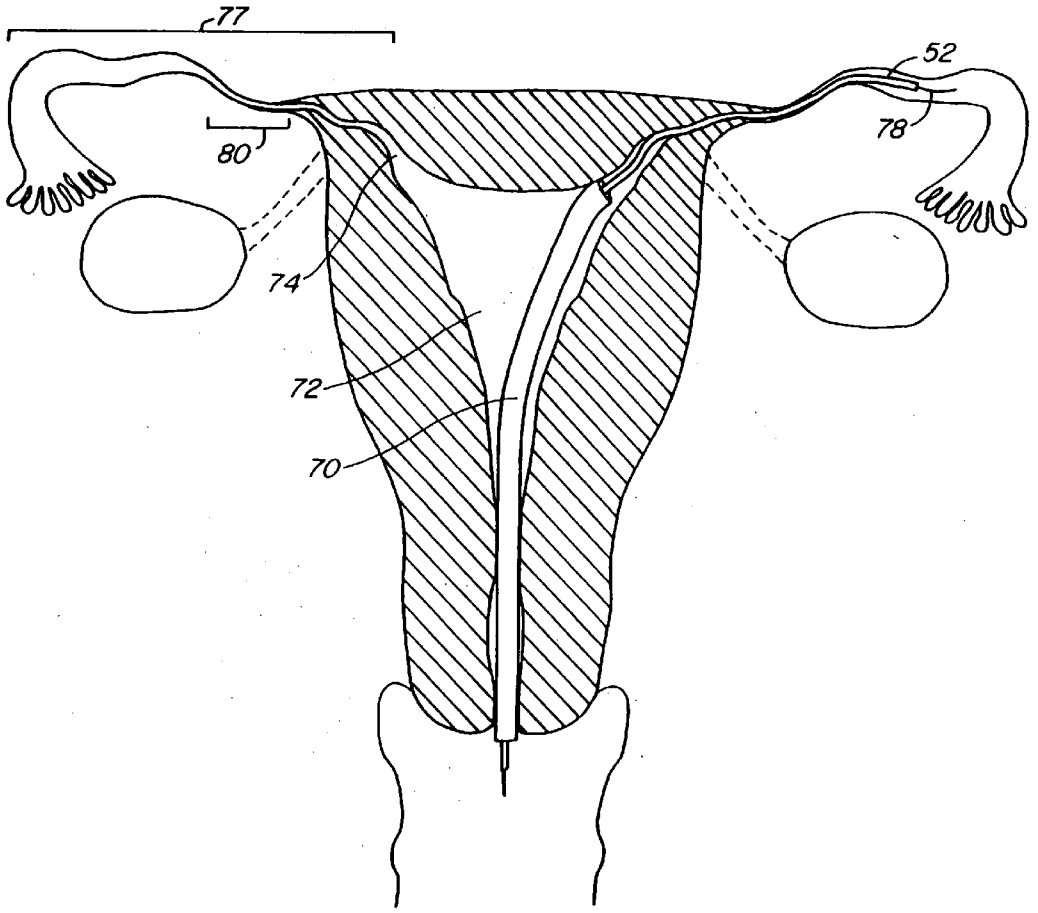
(57) ABSTRACT

The invention provides intrafallopian devices and non-surgical methods for their placement to prevent conception. The efficacy of the device is enhanced by forming the structure at least in part from copper or a copper alloy. The device is anchored within the fallopian tube by imposing a secondary shape on a resilient structure, the secondary shape having a larger cross-section than the fallopian tube. The resilient structure is restrained in a straight configuration and transcervically inserted within the fallopian tube, where it is released. The resilient structure is then restrained by the walls of the fallopian tube, imposing anchoring forces as it tries to resume the secondary shape.



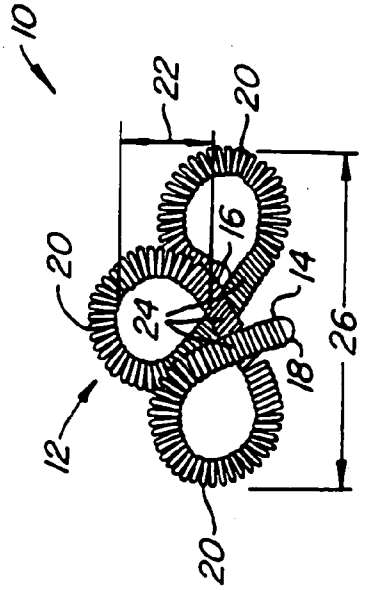


FIG. 1.

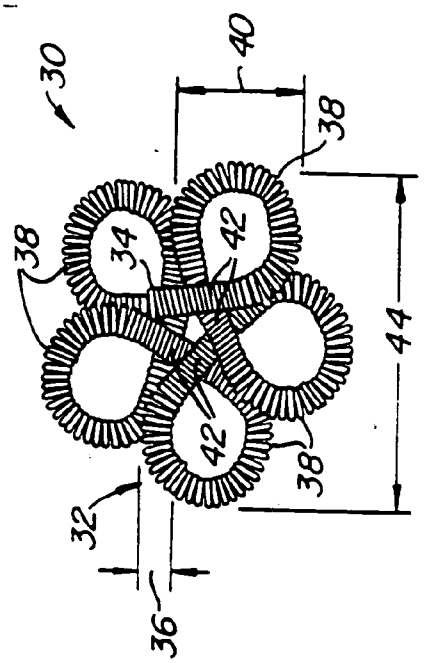


FIG. 2.

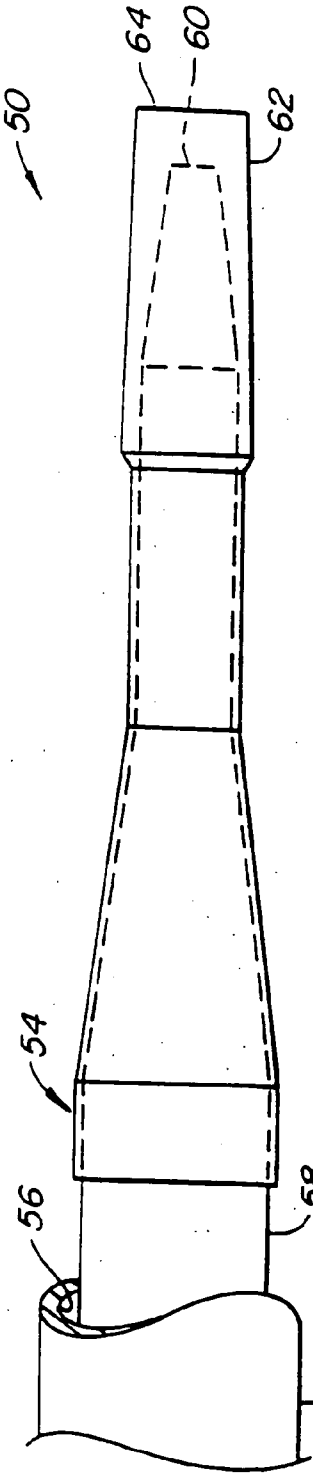


FIG. 3.

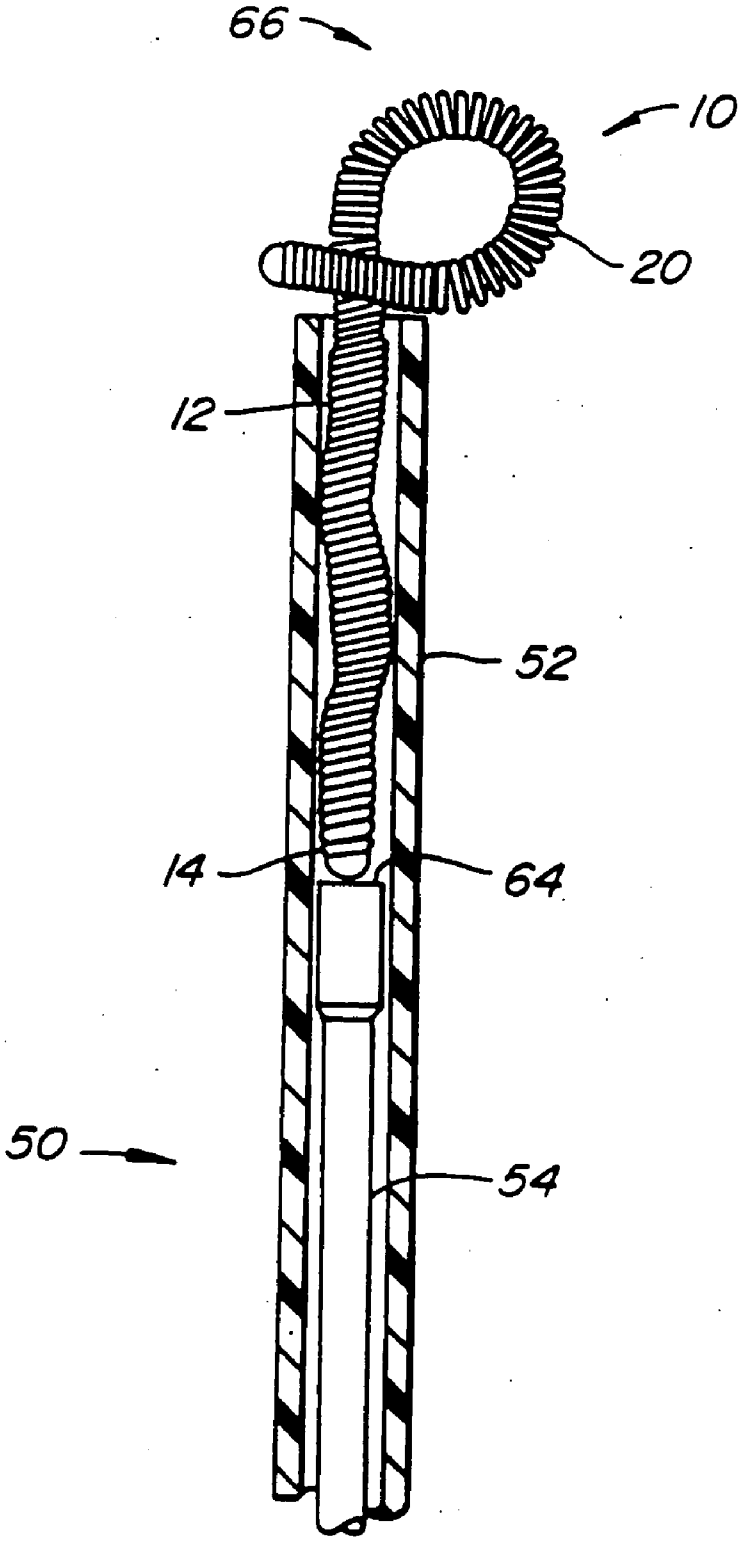


FIG. 4.

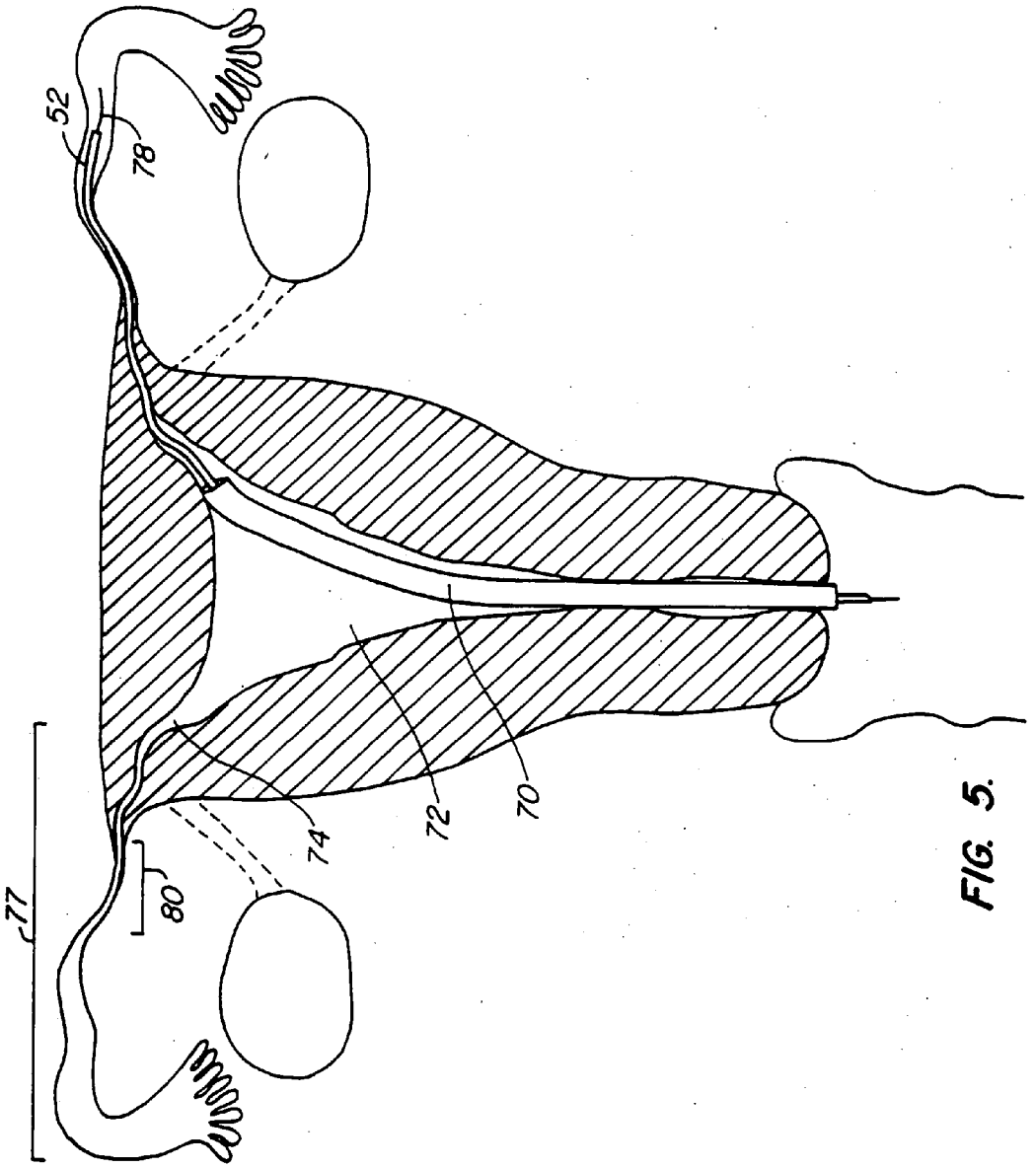


FIG. 5.

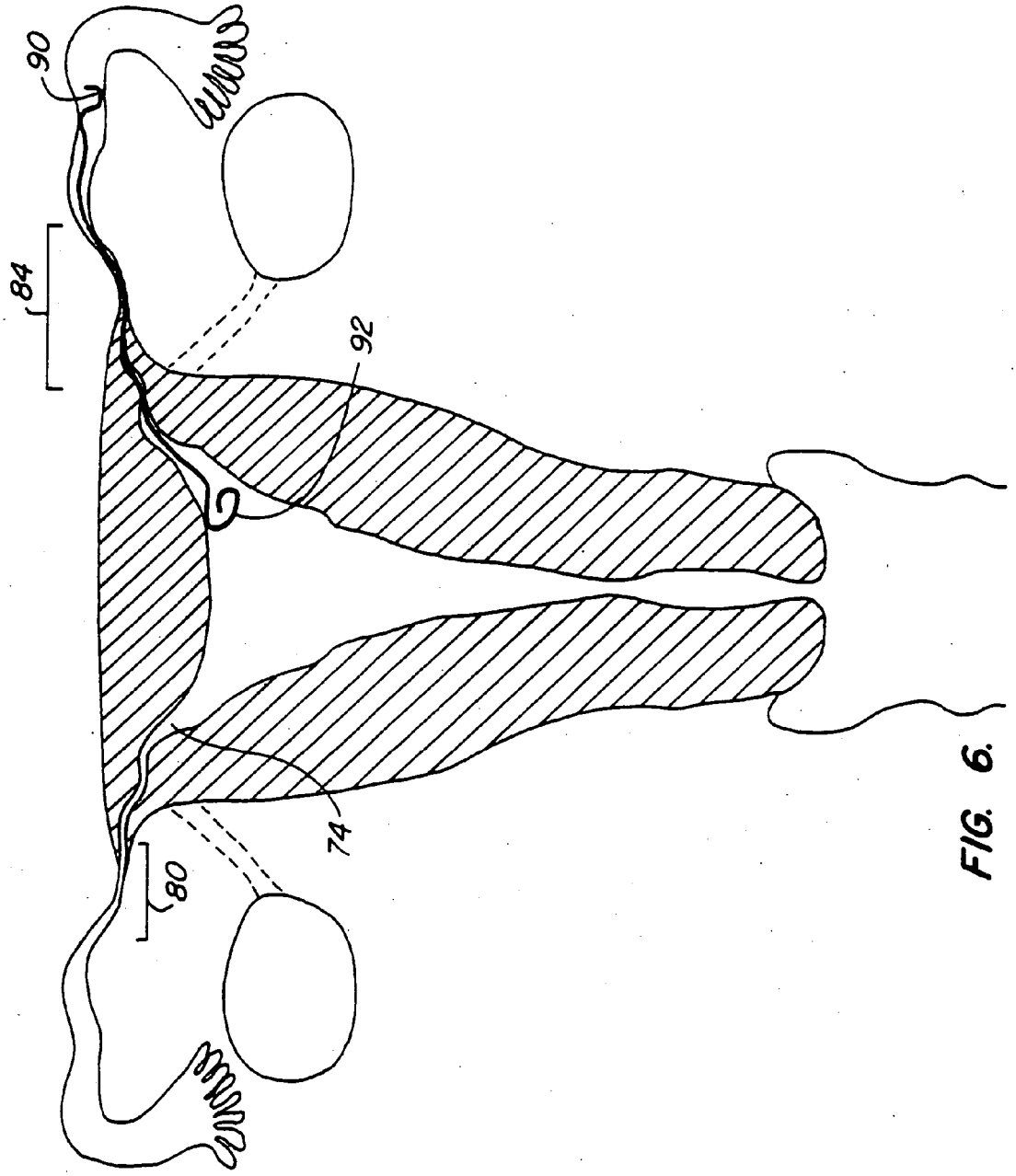


FIG. 6.

TRANSCERVICAL FALLOPIAN TUBE OCCLUSION DEVICES AND THEIR DELIVERY

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This application is a continuation of, and claims the benefit of priority from U.S. patent application Ser. No. 09/591,874 (Attorney Docket No. 016355-002420US), filed Jun. 12, 2000, which is a continuation of, and claims the benefit of priority from U.S. patent application Ser. No. 08/474,779 (Attorney Docket No. 016355-002400US), filed Jun. 7, 1995, the full disclosures of which are incorporated herein by reference.

STATEMENT AS TO RIGHTS TO INVENTIONS MADE UNDER FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] NOT APPLICABLE

REFERENCE TO A "SEQUENCE LISTING," A TABLE, OR A COMPUTER PROGRAM LISTING APPENDIX SUBMITTED ON A COMPACT DISK.

[0003] NOT APPLICABLE

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention

[0005] The present invention relates generally to contraception, and more particularly to intrafallopian contraceptive devices and nonsurgical methods for their delivery.

[0006] Worldwide demand exists for safe, effective methods of both contraception and permanent sterilization. Although a variety of contraception and sterilization methods are available, all of the existing methods have limitations and disadvantages. Thus, the need for additional safe, low cost, reliable methods of contraception and permanent sterilization, both in developed and less developed countries, is widely recognized.

[0007] Many presently available contraception methods require significant user involvement, and user non-compliance results in quite high rates of failure. While the theoretical effectiveness of existing contraceptives, including barrier methods and hormonal therapies, is well established, overcoming user noncompliance to improve overall efficacy has proven difficult.

[0008] One form of contraception which is less susceptible to user noncompliance is the intrauterine device (IUD). IUDs have been found to have higher rates of reliability, and are effective for a longer period of time, than most other commercially available contraceptives. Unfortunately, IUDs are also associated with serious infectious complications. For this reason, the use of IUDs within the United States has decreased dramatically. Additionally, IUDs are subject to unplanned expulsion, and must be removed due to excessive pain or bleeding in a percentage of cases, further reducing the acceptance of the IUD as a contraceptive method. Interestingly, the efficacy of copper IUDs appears to be higher than that of non-metallic IUDs. The reason for this has not been fully explained.

[0009] Commercially available options for permanent sterilization include fallopian tube ligation and vasectomy. These methods are surgical, are difficult to reverse, and are not available to many people in the world. It is common knowledge that fertilization occurs in the fallopian tubes where the sperm and ovum meet. Tubal ligation avoids this by complete occlusion of the fallopian tubes.

[0010] It has previously been proposed to reversibly occlude the fallopian tubes, for example, by in vitro formation of an elastomeric plug, or otherwise anchoring a device on either side of the narrowest region of fallopian tube, called the "isthmus." Such fallopian tube occlusion methods appear promising; however, an unacceptably high percentage of the non-surgical devices proposed to date have become dislodged during previous studies. Even where non-surgical intrafallopian devices have remained in place, they have been found to be only moderately effective at preventing conception.

[0011] For these reasons, it would be desirable to provide effective, reliable intrafallopian devices for contraception and sterilization. It would be particularly desirable to provide highly effective intrafallopian devices which did not require surgery for placement. It would be especially desirable if such devices and methods allowed easy placement of the device, but were less susceptible to being dislodged than previously proposed non-surgical intrafallopian devices.

[0012] 2. Description of the Related Art

[0013] The experimental use of a stainless steel intrafallopian device is described in Transcatheter Tubal Sterilization in Rabbits, Penny L. Ross, RT 29 "Investigative Radiology", pp. 570-573 (1994). The experimental use of an electrolytically pure copper wire as a surgical contraceptive intrafallopian device in rats was described in "Antifertility Effect of an Intrafallopian Tubal Copper Device", D. N. Gupta, 14 Indian Journal of Experimental Biology, pp. 316-319 (May 1976).

[0014] U.K. Patent Application Pub. No. 2,211,095 describes a uterine screw plug for blocking the fallopian tube. European Patent Application Pub. No. 0,010,812 describes a device for placement in the oviducts having enlargements at either end for anchoring the device. The same device appears to be described in Netherlands Patent No. 7,810,696.

[0015] The use of tubal occlusion devices is described in "Hysteroscopic Oviduct Blocking With Formed-in-Place Silicone Rubber Plugs", Robert A. Erb, Ph.D., et al., The Journal of Reproductive Medicine, pp. 65-68 (August 1979). A formed-in-place elastomeric tubal occlusion device is described in U.S. Pat. No. 3,805,767, issued to Erb. U.S. Pat. No. 5,065,751, issued to Wolf, describes a method and apparatus for reversibly occluding a biological tube. U.S. Pat. No. 4,612,924, issued to Cimber, describes an intrauterine contraceptive device which seals the mouths of the fallopian tubes.

[0016] German Patent No. 28 03 685, issued to Brundin, describes a device for plugging a body duct with a device which swells when in contact with a body fluid.

[0017] Alternative contraceptive devices are disclosed in copending U.S. patent application Ser. No. 08/475,252, filed Jun. 7, 1995, the full disclosure of which is herein incorporated by reference.

SUMMARY OF THE INVENTION

[0018] The present invention provides intrafallopian devices and methods for their placement to prevent conception. The intrafallopian devices of the present invention are transcervically delivered, resiliently anchored structures which are formed at least in part from copper to provide long term contraception, or alternatively permanent sterilization, without the need for surgical procedures or the increased bleeding, pain, and risks of infection associated with intrauterine devices (IUDs).

[0019] The use of copper in the intrafallopian device of the present invention improves its efficacy as a contraceptive method. Devices formed from plastically deformable materials, however, are less readily restrained in the fallopian tube. Apparently, the large variation in the actual shape and dimensions of fallopian tubes does not provide reliable anchoring for a pre-formed deformable intrafallopian device. The intrafallopian device of the present invention therefore comprises a resilient structure, usually a metallic coil, which includes a copper alloy, a copper plating, or copper fibers, ideally comprising an alloy including at least 75% copper. The coil material typically includes beryllium, zinc, stainless steel, platinum, a shape memory alloy such as Nitinol™, or the like. Preferably, the coil is composed of an alloy of beryllium and copper. Although the present device will generally result in occlusion, it need not completely occlude the fallopian tube to prevent the meeting of the sperm and ovum. Instead, the presence of the copper on the resilient structure is sufficient to provide effective contraception.

[0020] Conveniently, the present invention further comprises non-surgical placement of such intrafallopian devices by transcervical introduction. The resilient structure is restrainable in a straight configuration, e.g., by inserting the device within a catheter, greatly facilitating and reducing the risks of introduction. Thus, the cost and dangers associated with existing surgical contraceptive and sterilization procedures are avoided.

[0021] In a first aspect, a contraceptive intrafallopian device according to the present invention comprises a resilient structure having a proximal end and a distal end. The resilient structure comprises copper, and is biased to form at least one bend near the proximal end of the primary coil. Similarly, the resilient structure is also biased to form at least one bend near its distal end. These proximal and distal bends define an isthmus-traversing region therebetween. Preferably, the isthmus-traversing region also includes at least one bend, thereby helping to anchor the coil within the fallopian tube.

[0022] Generally, the resilient structure of the present intrafallopian device will be formed as a primary coil. To help restrain the coil within the fallopian tube, fibers are attached to some embodiments of the coil, the fibers optionally comprising a polyester material such as Rayon™, Dacron™, or the like. Alternatively, copper fibers may be used to increase the exposed copper surface area, the copper fibers generally having a diameter on the order of 0.001 inches.

[0023] The bends of the present intrafallopian device are generally formed as a secondary shape imposed on a primary coil. The primary coil is most easily formed as a straight cylindrical coil. The secondary shape will be imposed on the primary coil by bending, optionally heat treating the primary coil while bent. The individual bends may take a wide variety of forms, including sinusoidal curves, the individual loops of a continuous secondary coil, or the like. However, the secondary shape generally defines an overall width which is larger than the fallopian tube, so that the tubal wall restrains the resilient structure when it is released.

[0024] Preferably, each of the bends of the present intrafallopian device forms a loop in the primary coil when in a relaxed state. Ideally, the loops are separated by straight sections of coil. The alternating of loops with straight sections of coil forms a large diameter "flower coil," which provides a large relaxed overall width, and also features bends of tight radius, both of which promote retention. Conveniently, the primary coil generally has a diameter less than that of the fallopian tube, and can be restrained in a straight configuration for placement within the fallopian tube, typically by inserting the primary coil within a delivery catheter.

[0025] In another aspect, a contraceptive intrafallopian device according to the present invention comprises a resilient primary coil having a primary coil diameter. The primary coil comprises copper, and forms a secondary shape when in a relaxed state. The secondary shape defines a plurality of bends and an overall width which is larger than the primary coil diameter. Thus the primary coil can be easily anchored in a fallopian tube which is smaller in diameter than the secondary shape. Preferably, the present device reacts with a force sufficient to prevent axial movement of the device within the fallopian tube when restrained in a lumen having a diameter in the range between 0.5 mm and 3 mm. The actual anchoring force will depend on the shape of the coil and the modulus of elasticity of the material used.

[0026] In yet another aspect, a intrafallopian contraceptive delivery system according to the present invention comprises an elongate body in which the resilient primary coil described above is slidably disposed. A shaft is also slidably disposed within the elongate body and is located proximally of the primary coil. The distal end of the shaft includes a coil interface surface, while the elongate body restrains the primary coil in a straight configuration.

[0027] Preferably, a bend in the isthmus-traversing region of the present intrafallopian device, together with the proximal and distal anchor bends, restrains the resilient structure within the isthmus of the fallopian tube. The distal anchor is inserted into the ampulla, distal of the isthmus, while the proximal anchor is located in the ostium, proximal of the isthmus. Unintended movement of the device is further avoided by locating the isthmus-traversing region within the isthmus to resiliently impose anchoring forces against the tubal wall.

[0028] In a still further aspect, an intrafallopian contraceptive method according to the principles of the present invention comprises restraining a resilient structure in a straight configuration and transcervically inserting the resilient structure into a fallopian tube. The resilient structure is affixed within the isthmus by releasing a bent isthmus-traversing region. The bend of the isthmus-traversing region exerts a force against the wall of the fallopian tube, anchor-

ing the device within the isthmus. Preferably, a distal anchor on the resilient structure is released distally of the isthmus, and a proximal anchor is released proximally of the isthmus, the distal and proximal anchors generally formed from bends in the resilient structure. Optionally, an electric current is applied through the resilient structure to the fallopian tube, thereby effecting permanent sterilization.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] **FIG. 1** illustrates a first embodiment of a contraceptive intrafallopian device according to the present invention having a single distal anchor loop, a single proximal anchor loop, and an isthmus-traversing region having a single loop for anchoring the device within the fallopian tube.

[0030] **FIG. 2** illustrates an alternative embodiment of a contraceptive intrafallopian device according to the present invention having a plurality of loops which may act as proximal, distal, or lumen anchors.

[0031] **FIG. 3** illustrates the distal portion of a delivery catheter for placement of a contraceptive intrafallopian device according to the present invention.

[0032] **FIG. 4** illustrates the contraceptive intrafallopian device of **FIG. 1** partially released from the delivery catheter of **FIG. 3**.

[0033] **FIGS. 5 and 6** illustrate a contraceptive method using an intrafallopian device according to the principles of the present invention.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

[0034] The present invention encompasses a contraceptive intrafallopian device which can alternatively be used as both a permanent and a reversible means of contraception. The present contraceptive methods and devices minimize the danger of non-use which has limited the efficacy of prior art contraceptive techniques. Moreover, the location of the present devices within the fallopian tubes provides a reduced risk of the infectious complications, increased bleeding, and pelvic pain associated with intrauterine devices (IUDs). Furthermore, the location and the novel shape of the present intrafallopian device provides significant advantages over IUDs, which have been found to be susceptible to unplanned expulsion and removal due to excessive pain and bleeding. The present invention takes advantage of the increase in effectiveness associated with copper IUDs, providing a resilient structure including copper which may be transcervically positioned without the need for surgery.

[0035] Although the present contraceptive method may be included within a group of contraceptive techniques generally referred to as fallopian tube occlusion methods, the present invention does not necessarily rely solely on blocking the fallopian tube to prevent fertilization. Instead, contraception is apparently provided by disrupting of ovum transport, the process of fertilization, and/or cleavage of the ovum. While the effect that copper has on these processes is not fully understood, it does appear that copper intrafallopian devices offer potentially significant increases in effectiveness over intrafallopian devices formed of other materials. Optionally, the present invention further encompasses devices which promote tissue growth within the tube to induce tubal occlusion, further inhibiting conception.

[0036] The present invention is anchored within the isthmus of the fallopian tube, overcoming the unintended expulsion of the device and the resulting failure of the contraceptive method. Such intrafallopian device expulsion has been the single greatest factor limiting the efficacy of easily positioned intrafallopian contraceptive techniques.

[0037] The present intrafallopian devices are generally elongate resilient structures pre-formed into secondary shapes. These secondary shapes will bias the resilient structure so as to provide strong forces against the lumen wall of the fallopian tube. Clearly, the secondary shape must have a larger outer diameter than the inner diameter of the fallopian tube.

[0038] Conveniently, the present resilient structures are insertable into a catheter, the catheter wall restraining the resilient structure in a straight configuration. As the resilient structure has an outer diameter when in the straight configuration which is less than the inner diameter of the fallopian tube, the catheter containing the present intrafallopian device is easily transcervically introduced. Moreover, the device is readily removed by snaring the resilient structure near the proximal end and pulling proximally on the resilient structure, thereby straightening the resilient structure and allowing it to be withdrawn without injuring the fallopian tube. Alternatively, an electrical current is applied to the device after it is at least partially releasing the fallopian tube, providing permanent sterilization.

[0039] Referring now to **FIG. 1, a** first embodiment of the present contraceptive intrafallopian device **10** is formed from a resilient primary coil **12**. Primary coil **12** is most easily originally formed as a straight cylindrical coil or spring, preferably having an outer diameter in the range from 0.2 mm to 5 mm, and having a length in the range from 20 mm to 150 mm. Ideally, primary coil **12** has an outer diameter in the range from 0.4 mm to 2 mm and a length in the range from 30 mm to 70 mm. The straight primary coil may then be bent into a variety of secondary shapes.

[0040] The primary coil **12** of intrafallopian device **10** includes a proximal end **14** and a distal end **16**. Between these ends, three loops **20** are formed, each having an inner diameter **22**. Located between loops **20** are straight sections **24**, which increase the overall cross-section of the intrafallopian device to an overall width **26**. Preferably, inner diameter **22** is in the range from 2 mm to 10 mm, while overall width **26** is at least 6 mm, ideally being in the range from 8 mm to 40 mm. Distal and proximal ends **14, 16** each include an atraumatic endcap **18** to prevent injury to the fallopian tube.

[0041] Preferably, primary coil **12** is formed from a beryllium copper alloy wire. Beryllium copper provides the resilience necessary to avoid expulsion of the device, and also provides the increased effectiveness of a copper contraceptive intrafallopian device. Alternatively, primary coil **12** is formed from a resilient metal, such as stainless steel, platinum, a shape memory alloy, or the like. If such materials are used, primary coil **12** is preferably plated with copper or a copper alloy or otherwise has copper attached.

[0042] To further reduce the possibility of expulsion of intrafallopian device **10**, fibers are optionally carried on

primary coil **12**. The fibers may be short individual fibers, or may alternatively be wound into primary coil **12**. Preferably, the fibers comprise copper, thereby increasing the total copper surface area. Such copper fibers are preferably bonded to primary coil **12** with solder, brazing, a polymeric adhesive, or the like. Alternatively, polyester fibers such as Dacron™, Rayon™, or the like, are bonded to the surface of primary coil **12** using a polymeric adhesive. The polyester fibers promote increased tissue growth around the coil, thus further reducing the possibility of expulsion of the device from the fallopian tube.

[**0043**] A secondary shape has been superimposed on the primary coil to form intrafallopian device **10**, the secondary shape comprising loops **20** separated by straight sections **24**. This secondary shape is herein referred to as a "flower coil." The flower coil shape is particularly advantageous in that outer diameter **26** is substantially larger than the primary coil diameter, while the individual loops **20** have relatively small inner diameters **22** which will maintain the largest possible anchoring force against the fallopian tube. Minimizing inner diameter **22** also ensures that anchoring force is applied within the fallopian tube, despite the curvature of the fallopian tube.

[**0044**] Referring now to **FIG. 2**, an alternative embodiment of the present contraceptive intrafallopian device **30** includes additional loops to ensure anchoring of the device within the fallopian tube. Alternative embodiment **30** is formed from an elongate primary coil **32** having a proximal end **34** and a distal end (not shown). Elongate primary coil **32** has an outer diameter **36** which is smaller than the isthmus of the fallopian tube, allowing the straightened intrafallopian device to be inserted easily. Elongate primary coil **32** has been bent to form a secondary shape including a larger number of loops **38** than the embodiment of **FIG. 1**. Loops **38** have an outer diameter **40** which is larger than the inner diameter of the fallopian tube, preventing loops **38** from assuming their relaxed shape. Loops **38** are again separated by straight sections **42** of elongate primary coil **32**, increasing the overall intrafallopian device diameter **44**.

[**0045**] In both embodiments of the present intrafallopian device **10**, **30**, at least one loop adjacent to the proximal end is disposed proximally of the narrowest portion of the fallopian tube, referred to as the isthmus. Similarly, at least one loop of the intrafallopian device is disposed distally of the isthmus. These proximal and distal loops act as anchors, helping to prevent proximal or distal movement of the intrafallopian device. In the embodiment of **FIG. 2**, at least one loop is also disposed adjacent to the isthmus of the fallopian tube, further helping to prevent unintentional expulsion.

[**0046**] Alternative intrafallopian device **30** may be positioned with multiple loops acting as proximal or distal anchors, or may alternatively have all but the proximal and distal anchor loops disposed along the fallopian tube to act as anchors within the lumen of that body. Advantageously, the embodiment of **FIG. 2** is therefore less sensitive to variations in total fallopian tube length.

[**0047**] Referring now to **FIG. 3, a** delivery catheter for the present intrafallopian device comprises an elongate body **52** and a shaft **54**. Elongate body **52** includes a lumen **56** in which shaft **54** is disposed, shaft **54** being slidable in the axial direction. Shaft **54** includes a core **58** having a tapered distal end **60**, allowing the device to navigate through tortuous bends while retaining the column strength required to advance the device. Core **58** extends proximally through elongate body **52**, and is capable of transferring compressive forces through the elongate body. Core **58** is typically formed from stainless steel, a stainless alloy, or the like. Disposed over distal end **60** of core **58** is pusher cap **62**. Pusher cap **62** provides a low friction, deformable end piece having a distal coil interface surface **64**. Pusher cap **62** is preferably formed of a low friction polymer such as PTFE, or the like.

[**0048**] Intrafallopian delivery catheter **50** receives the present intrafallopian device within the distal end of lumen **56** of elongate body **52**. Lumen **56** has an inner diameter which is slightly larger than outer diameter **36** of the primary coil. The present intrafallopian device is therefore straightened to a straight configuration as it is loaded proximally into the distal end of lumen **56**. Elongate body **52** is sufficiently strong to restrain the primary coil in the straight configuration, but must remain sufficiently flexible to allow maneuvering within the body lumen. Elongate body **52** is preferably formed from an inelastic, flexible material such as polyurethane, PET, or the like.

[**0049**] Referring now to **FIG. 4**, intrafallopian device **10** is released from delivery catheter **50** within the fallopian tube by holding shaft **54** while proximally withdrawing elongate body **52**. Distal coil interface surface **64** engages the proximal end **14** of primary coil **12**. Initially, primary coil **12** is restrained in a straight configuration by elongate body **52**. As elongate body **52** is withdrawn, primary coil **12** is released. When primary coil **12** is unrestrained it forms loop **20**; when released within the fallopian tube it will generally be restrained by the tubal wall in a configuration between straight and the relaxed secondary shape. Preferably, the first loop released will form a distal anchor bend **66**. Subsequent loops will bias primary coil **12** against the fallopian tube, and form a proximal anchor bend, in that order.

[**0050**] Use of the present contraceptive intrafallopian device will be described with reference to **FIGS. 5 and 6**. A uterine introducer cannula **70** is inserted transcervically through a uterus **72** to the region of an ostium **74**. Elongate body **52** is then extended distally from cannula **70** into a fallopian tube **77**, preferably guided under fluoroscopy. Alternatively, a hysteroscope may be used in place of cannula **70**. Elongate body **52** is maneuvered using a guide wire **78** past an isthmus **80**.

[**0051**] After elongate body **52** extends past isthmus **80**, guide wire **78** is removed. An intrafallopian device according to the present invention is inserted in the proximal end of elongate body **52**, the intrafallopian device being restrained in a straight configuration by the elongate body. The device is advanced distally using shaft **54**, the shaft and elongate body forming delivery catheter **50** (**FIG. 3**). Delivery catheter **50** is axially positioned so that at least one loop of the intrafallopian device is within a target region **84** adjacent to isthmus **80**. Preferably, at least one loop is distal of target region **84**, and at least one loop is proximal of target region **84** to form the distal and proximal anchor bends of the implanted intrafallopian device.

[**0052**] Once delivery catheter **50** is properly positioned, elongate body **52** may be axially withdrawn. Shaft **54** axially

restrains the intrafallopian device at the target location during withdrawal of elongate body **52**, as described regarding **FIG. 4**. As the distal end of the primary coil is released, the distal loop forms a distal anchor bend **90**. Similarly, the proximal loop forms a proximal anchor bend **92**. Intermediate loops are restrained within the narrow target region **84**, exerting substantial anchoring forces against the walls of the fallopian tube. As seen in **FIG. 6**, the loops need not assume their relaxed form to provide effective distal or proximal anchors.

[**0053**] The present invention further encompasses permanent sterilization by passing a current through the shaft to the intrafallopian device after elongate body **52** has been partially withdrawn, but before the intrafallopian device is fully released. Fallopian tube tissue in contact with the intrafallopian device is desiccated, and thus attached to the present intrafallopian device. This action also causes permanent tubal damage, leading to the formation of scar tissue which encapsulates the intrafallopian device and causes permanent occlusion of the tubal lumen. Clearly, the resilient member/shaft interface must be conductive to allow the present non-surgical method of permanent sterilization.

[**0054**] In conclusion, the present invention provides a contraceptive intrafallopian device which may be positioned without surgery. While the above is a complete description of the preferred embodiments of the invention, various alternatives, modifications, and equivalents may be used. For example, a wide variety of secondary shapes, including open loops, continuous bends, sinusoidal curves, or the like, may be imposed on the primary coil. Therefore, the above description should not be taken as limiting the scope of the invention, which is defined instead solely by the appended claims.

What is claimed is:

1. A contraceptive delivery system comprising:

an elongate body having a proximal end, a distal end, and a delivery lumen, the distal end configured for advancement into an ostium of a fallopian tube;

a shaft slidably disposed within the delivery lumen of the elongate body; and

a resilient contraceptive device loadable within the delivery lumen of the distal end of the elongate body, the contraceptive device biased to anchor the contraceptive device within the fallopian tube upon release from the delivery lumen by retraction of the elongate body relative to the shaft; and

fibers disposed along the contraceptive device, the fibers configured to assist in anchoring the contraceptive device within the fallopian tube.

2. A system as in claim 1, wherein the contraceptive device comprises a coil having a proximal end and distal end and biased to form at least one bend therebetween, the at least one bend comprising at least one proximal anchor bend near the proximal end of the coil and at least one distal anchor bend near the distal end of the coil.

3. A system as in claim 2, wherein the coil includes an isthmus-traversing region between the at least one proximal anchor bend and the at least one distal anchor bend, the length of the isthmus-traversing region sized to traverse an isthmus within the fallopian tube.

4. A system as in claim 3, wherein the isthmus-traversing region includes a bend to assist in anchoring within the isthmus.

5. A system as in claim 1, wherein the fibers comprise a polyester material.

6. A system as in claim 1, wherein the fibers comprise copper.

7. A system as in claim 6, wherein each fiber has a diameter of approximately 0.001 inches.

8. A system as in claim 1, wherein the contraceptive device comprises beryllium, zinc, stainless steel, platinum, or a shape memory alloy.

9. A system as in claim 1, wherein the shaft includes a core having a tapered distal end, the core configured to retain column strength during advancement of the elongate body into the ostium of the fallopian tube.

10. A system as in claim 9, wherein the core comprises stainless steel or a stainless alloy.

11. A system as in claim 9, wherein the shaft includes a pusher cap over the distal end of the core, the pusher cap including a distal contraceptive device interface surface configured to engage the contraceptive device to maintain position of the contraceptive device during retraction of the elongate body.

12. A system as in claim 11, wherein the pusher cap comprises a low friction polymer.

13. An intrafallopian contraceptive method comprising;

providing contraceptive delivery system comprising

an elongate body having a proximal end, a distal end, and a delivery lumen, and

a shaft slidably disposed within the delivery lumen of the elongate body, and

a resilient contraceptive device loaded within the delivery lumen of the distal end of the elongate body, the contraceptive device biased to anchor the contraceptive device within a fallopian tube upon release from the delivery lumen, and

fibers disposed along the contraceptive device, the fibers configured to assist in anchoring the coil within the fallopian tube;

inserting the distal end of the elongate body within an ostium of the fallopian tube; and

retracting the elongate body relative to the shaft, wherein such retraction releases the contraceptive device allowing anchoring of the contraceptive device within the fallopian tube.

14. A method as in claim 13, wherein the contraceptive device comprises a coil including a proximal end and a distal end and biased to form at least one bend therebetween, the at least one bend comprising at least one proximal anchor bend near the proximal end of the coil and at least one distal anchor near the distal end of the coil, and wherein retracting includes releasing the at least one distal anchor bend at a first location within the fallopian tube and then releasing the at least one proximal anchor bend at a second location proximal to the first location.

15. A method as in claim 14, wherein the first location includes an ampulla of the fallopian tube and the second location includes the ostium of the fallopian tube.

16. A method as in claim 15, wherein the coil includes an isthmus-traversing region between the at least one proximal

anchor bend and the at least one distal anchor bend, the isthmus-traversing region including a bend, and wherein retracting includes releasing the isthmus-traversing region within as isthmus between the ampulla and ostium so that the bend assists in anchoring within the isthmus.

17. The method of claim 13, further comprising loading the resilient contraceptive device within the delivery lumen of the distal end of the elongate body.

18. The method of claim 13, further comprising maintaining position of the shaft relative to the fallopian tube during retraction of the elongate body.

19. The method of claim 13, further comprising removing the elongate body and shaft from the fallopian tube and leaving the contraceptive device anchored within the fallopian tube.

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