United States Patent [19]

Bliss

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[54] **VASECTOMY PROSTHESIS**

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[52] **U.S. Cl.** ..... **128/346,** 128/325, 24/81 SC

[51] **Int. Cl.** **A61b 17/08**

[58] **Field of Search** ..... 128/1 R, 325, 326, 128/334 R, 346, 337; 24/81 A, 81 SC, 81 DM; 339/29; 174/272; 3/1; 32/14 E

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[57] **ABSTRACT**

The device comprises a pair of cuffs which are permanently interconnected by means of a filament of body implantable material which is adapted to support and maintain the cuffs in axially spaced alignment, thereby positioning and maintaining the severed ends of the vas deferens in spaced relationship whereby to prevent anastomosis while maintaining the said severed ends in spaced juxtaposition in the event that, at some future time, the patient would want a vasovasostomy performed, that is, have the vasectomy operation reversed.

7 Claims, 6 Drawing Figures

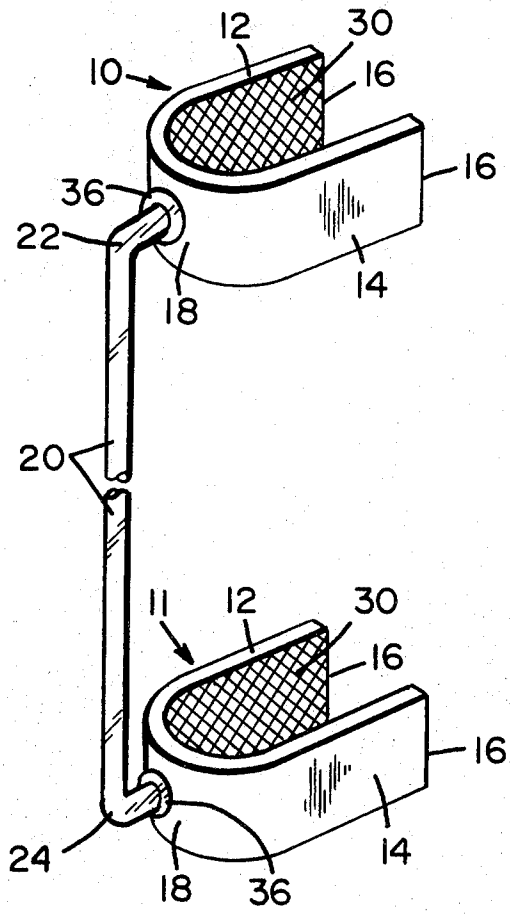


FIG-1

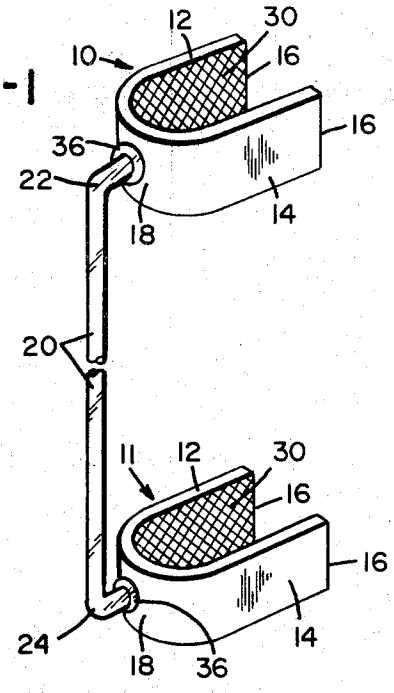
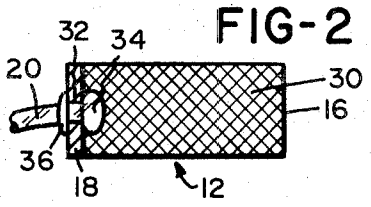


FIG-2



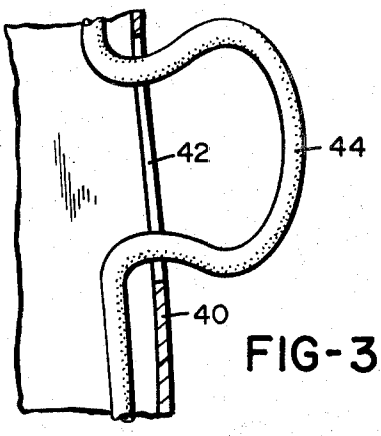
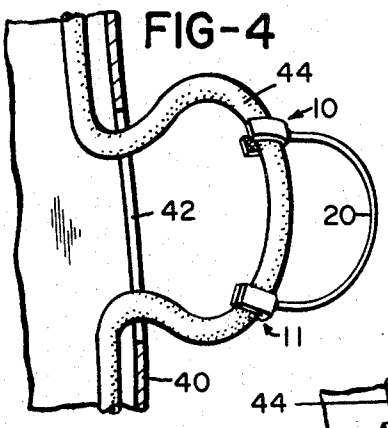


FIG-3

FIG-4



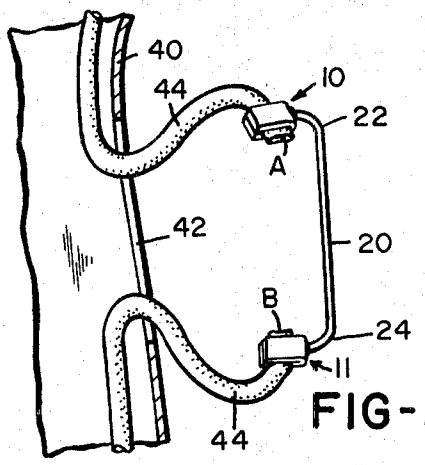
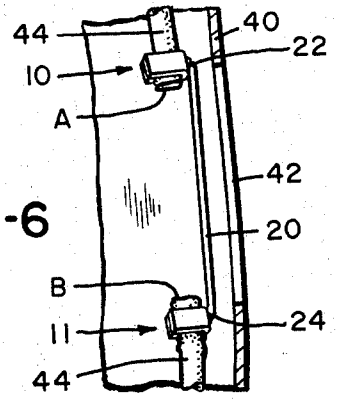


FIG-5

FIG-6



VASECTOMY PROSTHESIS

BACKGROUND OF THE INVENTION

Heretofore in vasectomy operations short lengths of vas deferens have been removed after which the exposed ends or stumps have been ligated and sutured in an effort to ensure a fascial compartmental separation to prevent anastomosis or recanalization.

In other instances the stumps are coagulated with electrocaurtery, and in other instances clips have been applied to the stumps for closing them by crushing, after which the stumps are inserted into the scrotum, which is then suitably sutured for completing the vasectomy operation.

Heretofore when the ends of the severed vas deferens was replaced in the scrotum the lower portion of the vas deferens would drop downwardly into the lower portion of the scrotum thereby making its recovery difficult, if not impossible, in the event that a vasovasostomy should be desired.

SUMMARY OF THE INVENTION

The device herein disclosed comprises a pair of cuffs preferably of surgical steel which are adapted to be crimped or clamped onto the vas deferens at spaced intervals for thereby positively closing off the sperm passage of the vas deferens. Each of the cuffs are permanently interconnected by means of a spreader filament of Teflon, silicone, stainless steel or other "body implantable" material. The filament is formed in such a way as to normally dispose each of the cuffs in spaced, axial alignment in such a manner that the severed ends of the vas deferens will be disposed in substantial, axially aligned relationship, after the vas deferens has been reinserted into the scrotum at the conclusion of a vasectomy operation.

An important feature of the present invention resides in the fact that whereas the characteristics of the spreader filament are such as to normally dispose the clips in axial, spaced relationship, the filament is nevertheless, sufficiently resilient to enable it to be distorted or bent, by the surgeon, while performing a vasectomy operation.

The cuffs, being of surgical stainless steel, are readily seen on X-ray or fluoroscope screen thereby enabling the surgeon to determine the exact and precise location of the severed ends of the vas deferens in the event that the patient should desire that his vasectomy operation be reversed, that is, that a vasovasostomy be performed.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view on a greatly enlarged scale of the vasectomy cuff assembly of the present invention.

FIG. **2** is a sectional view illustrating the manner in which the filament is secured to a cuff.

FIGS. **3, 4, 5** and **6** disclose various steps of a vasectomy procedure utilizing the cuff assembly of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The numerals **10** and **11** denote a pair of U-shaped cuffs fabricated from body implantable surgical stainless steel, comprising a pair of side walls or legs **12** and **14**, each of which terminate in laterally spaced free

ends **16**. The integral intermediate, U-shaped portion **18** is interconnected by means of an elongate filament **20** of spring-like implantable material, such as Teflon, silicone, stainless steel or the like, which has been provided with substantially right angle bends at **22** and **24** for normally disposing each of the cuffs in axial spaced relationship. Preferably, the inner surface of legs **12** and **14** are knurled or otherwise roughened as at **30** for enhancing the gripping characteristics of the cuff legs.

With particular reference to FIG. **2**, it will be noted that filament **20** has been permanently secured to the intermediate or U-shaped portion **18** of the cuff by inserting an end of the filament through an opening **32** after which the filament is suitably deformed as at **34** and **36** at opposite ends of opening **32** for permanently securing the filament end relative to the U-shaped portion **18** of the cuff.

With reference now to FIGS. **3-6**, the numeral **40** diagramatically illustrates the scrotum wall having an incision **42** therein through which the vas deferens **44** has been withdrawn in a substantially loop shaped condition, using conventional techniques.

In FIG. **4** it will be noted that the spaced legs of cuff **10** have been inserted over a portion of the vas deferens whereas the legs of cuff **11** have been crimped, by means of a suitable tool not illustrated, for completely closing the sperm opening within the vas deferens. It will be understood that the legs of cuff **10** will also be compressed similar to the legs of cuff **11** for thereby permanently and positively preventing the passage of sperm through the vas deferens.

It will be noted that the inherent resilient characteristics of filament **20** enables it to bend as illustrated in FIG. **4** during application of the cuffs to the vas deferens.

After cuffs **10** and **11** have been clamped onto the vas deferens, the surgeon will remove a portion by severing the ends as at A and B of FIG. **5**, and when said ends have been severed, filament **20** will regain its initial position for disposing cuff **10** and **11** in axially spaced relationship. After the severed vas deferens has been returned through incision **42** into the scrotum the ends A and B of the vas deferens will be located in the axially aligned relationship illustrated in FIG. **6**. It will be noted that those portions of the vas deferens below end B will be, at all times, supported within the scrotum in substantially the same relationship which existed prior to the operation.

If at some future date the patient should desire to have a vasovasostomy performed, the surgeon will be able to readily locate cuffs **10** and **11** by means of X-ray and hence ends or stumps A and B of the severed vas deferens. The surgeon will be able to make an incision in the scrotum through which the cuff assembly and the adjacent ends of the vas deferens can be withdrawn for enabling the surgeon to proceed with the vasovasostomy operation.

In those instances in which the resilient spreader filament **20** comprises Teflon, silicone, or the like, uniformly satisfactory results have been obtained in those instances in which the filament, including bends **22** and **24** have been molded. Springability, viz, ability of the filament to be curved, as in FIG. **4**, from its initial position of FIG. **1** and then return to its straightened position of FIGS. **5** and **6** is an important characteristic of the filament.

The cuff assembly of FIG. **1** is greatly enlarged, it being noted that excellent results have been obtained in those instances in which the dimensions of the cuffs are 1/16 inch wide by .020 inch thick by .150 inch long with the iside diameter of end **18** being 3/32 inch, the cuffs being fabricated from **316** L stainless steel, tanalium, vitallium or other body implantable material capable of being crimped as in FIGS. **4–6.** The length of the filament being in the neighborhood of .75 inch.

It should, of course, be understood that the cuffs are available in other sizes to facilitate the different anatomical sizes of the vas deferens encountered in different patients.

What is claimed is:

1. A vasectomy prosthesis comprising a pair of substantially U-shaped cuffs, the spacing of the legs of the U-shaped cuffs being dimensioned to receive a Vas deferens and thereafter to be crimped therearound to close off the sperm passage, and a resilient spreader filament permanently interconnecting said cuffs in normally axially spaced relationship said filament being adapted to maintain the adjacent, spaced, severed ends

of a Vas deferens in substantially axial spaced relationship for precluding recanalization.

2. A prosthesis as called for in claim **1,** wherein the filament is provided with a substantially right angle bend adjacent its connection with each of said cuffs.

3. A prosthesis as called for in claim **1,** wherein portions of the inner surface of the legs of each U-shaped cuff are roughened.

4. A prosthesis as called for in claim **1,** wherein the cuffs are fabricated from "body implantable" stainless steel, or the like.

5. A prosthesis as called for in claim **1,** wherein the filament is fabricated from "body implantable" Teflon, silicone, or the like.

6. A prosthesis as called for in claim **1,** wherein the filament is fabricated from "body implantable" stainless steel or the like.

7. A prosthesis as called for in claim **1,** wherein the filament is attached to the intermediate, rounded portion of each U-shaped cuff at a location remote from the free outer ends of the legs thereof.

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