

Sept. 16, 1969

R. R. ROBINSON

3,467,088

INTRAUTERINE DEVICE INSERTER

Filed Dec. 22, 1966

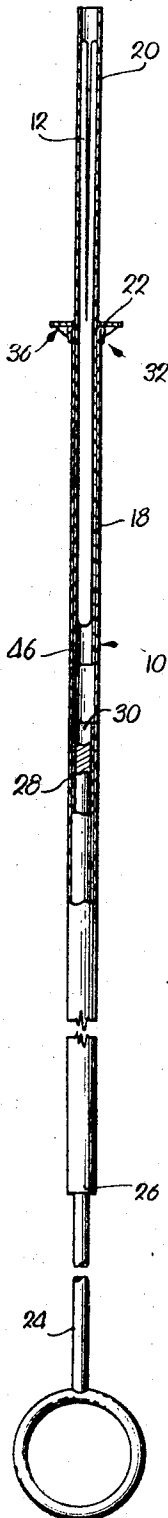


Fig. 1.

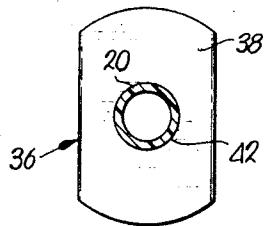


Fig. 4.

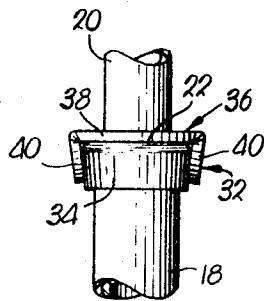


Fig. 5.

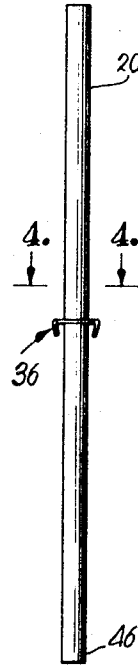


Fig. 3.

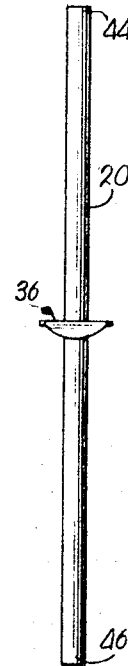


Fig. 2.

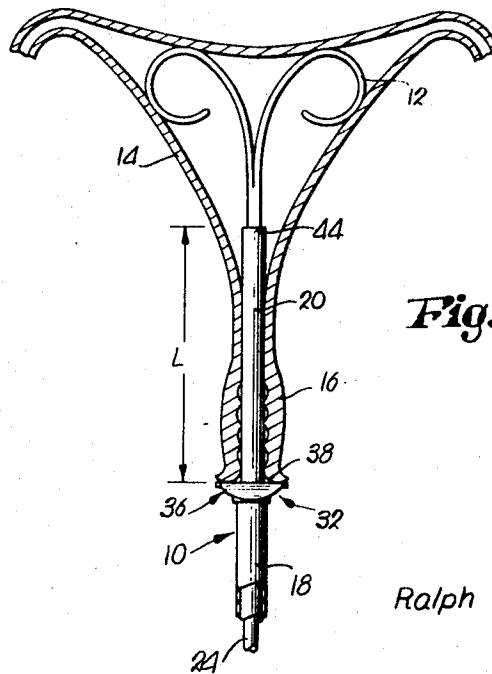


Fig. 6.

INVENTOR
Ralph R. Robinson

BY

Hovey, Schmidt, Johnson & Hovey
ATTORNEYS

1

2

3,467,088
INTRAUTERINE DEVICE INSERTER
 Ralph R. Robinson, 2026 Cumberland Ave.,
 Middlesboro, Ky. 40965
 Filed Dec. 22, 1966, Ser. No. 603,882
 Int. Cl. A61F 5/46

U.S. Cl. 128—130

5 Claims

ABSTRACT OF THE DISCLOSURE

An inserter for collapsible intrauterine devices having an outer tube and an inner disposable tube extending outwardly from the operational end of the inserter. A snap-fit lock is provided for releasably attaching the tubes together, the part of the lock on the inner tube being slidable along the length of the latter to change the effective length of the same.

This invention relates to an improved inserter for use with collapsible intrauterine devices, and particularly to an improvement for inserters of the type illustrated in my Patent No. 3,234,938 of Feb. 15, 1966, entitled "Intrauterine U-Stem Pessary."

It is the primary object of the instant invention to provide an inserter for collapsible intrauterine devices wherein the inserter includes a disposable uterus-entering portion whereby sterilization problems are minimized.

Another very important object of the instant invention is to provide such an inserter wherein the maximum penetration depth of the uterus-entering portion thereof, that is to say the effective length of the portion, is preselectable to the end that the user of the inserter can be assured of the exact position of the portion in the uterus and thus the possibility of injury to the uterine tissues is minimized.

A further very important object of the instant invention is to provide releasable lock means for interconnecting the portion and the remainder of the inserter, the part of the lock on the portion being slidable on the latter to the end that the portion is rendered disposable and the effective length thereof may be preselected by the user of the inserter.

In the drawing:

FIGURE 1 is a fragmentary plan view of an inserter embodying the concepts and principles of the instant invention wherein portions of the inserter have been shown in cross section to reveal constructional details and the disposition of a collapsible intrauterine device in the inserter prior to installation of the device into the uterus;

FIG. 2 is a plan view of the disposable portion of the inserter in the disposition illustrated in FIG. 1;

FIG. 3 is a view of the portion after having been rotated 90° about its longitudinal axis from the disposition of the same illustrated in FIG. 2;

FIG. 4 is an enlarged, cross-sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is an enlarged, detail view illustrating the releasable lock means of the inserter; and

FIG. 6 is an operational view of the inserter in the uterus and after the device has been partially ejected from the inserter into the uterus.

An inserter embodying the principles and concepts of the instant invention is broadly designated by the numeral 10, illustrated in FIG. 1, and is adapted for installing a collapsible intrauterine device 12 into a uterus 14 having a cervix 16. Viewing FIG. 1 it can be seen that the device 12 in the inserter 10 is in its collapsed condition and in this respect it is to be understood that, while the device 12 is illustrated as being similar to the intrauterine devices disclosed in my above-mentioned patent, the

exact form of devices installed by inserter 10 is not important to the instant invention, the only requirement being that the device be sufficiently collapsible to fit into inserter 10 as shown in FIG. 1.

Inserter 10 includes an outer tube 18 and a disposable inner tube 20, the latter being partially telescoped within outer tube 18 at end 22 of the latter as can be seen viewing FIG. 1. A plunger 24 is received in the opposite end 26 of outer tube 18 and is guided by a sleeve 28 in tube 18. Sleeve 28 has substantially the same inner diameter as tube 20 and is aligned coaxially therewith and thus, the innermost end 30 of the plunger 24 is guided into inner tube 20 and into contact with device 12 to eject the latter.

Releasable lock means 32 is provided for interconnecting tubes 18 and 20 as can be seen viewing FIG. 5. Means 32 includes a part in the nature of an annular enlargement 34 at end 22 of tube 18 and a part in the nature of a U-shaped clip 36 on tube 20. Clip 36 has a bight 38 and a pair of legs 40, the latter diverging as the bight 38 is approached. In this respect it is to be noted that the diameter of enlargement 34 increases as end 22 of tube 18 is approached and thus, legs 40 frictionally engage enlargement 34 to provide a snap-fit for interconnecting tubes 18 and 20.

Clip 36 is provided with an opening 42 disposed centrally of bight 38. Opening 42 has a diameter substantially the same as the outer diameter of tube 20, the latter being received within opening 42 with the bight 38 in frictional engagement with tube 20 as can best be seen in FIG. 4. Thus, clip 36 is selectively shiftable or slidable along the length of tube 20.

In practice, it has been desirable to prepare a plurality of sterilized units comprising a tube 20 having a clip 36 thereon and a collapsible intrauterine device such as 12 therein. At the time of use the doctor measures the uterus 14 of the patient to determine the desirable depth of penetration or effective length L of tube 20. Clip 36 is then moved along tube 20 until the distance between bight 38 and end 44 of tube 20 equals the predetermined depth of penetration L. The other end 46 of tube 20 is then inserted into tube 18 through the end 22 of the latter and legs 40 and enlargement 34 are brought into locking engagement. Inserter 10 is then guided through the vagina and tube 20 is received through the cervix 16 as shown in FIG. 6. The mouth of the cervix engages bight 38 of clip 36 to limit the movement of tube 20 into uterus 14. Plunger 24 is then actuated to eject device 12 from tube 20.

After device 12 is installed in the uterus 14, inserter 10 is withdrawn and tube 20 and its attached clip 36 are discarded. Thus, sterilization problems are minimized, particularly in view of the fact that the prepackaged units may be sterilized after the device is installed therein. It is to be noted in this respect that the tube 20 is easily and efficiently connected to tube 18 and the danger of contaminating tube 20 during this operation is thus minimized. On the other hand, when inserters of the type illustrated in my above-mentioned patent are utilized, great care must be exercised in installing the intrauterine device in the barrel of the inserter.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. An inserter for a collapsible intrauterine device comprising:
 - an inner and an outer tube,
 - the inner tube extending outwardly beyond one end of the outer tube and being adapted to house the device therewithin when the device is collapsed;
 - a plunger extending into the outer tube at its opposite end for ejecting the device from the inner tube into

3

the uterus when the inner tube is inserted into the uterus; and
 lock means interconnecting the tubes,
 said lock means being releasable for rendering the inner tube disposable after use and removal from the outer tube, 5
 said lock means having parts on each of the tubes, the part on the inner tube being shiftable along the latter for varying the effective length of the inner tube beyond said outer tube, 10
 said part on the outer tube comprising an enlargement adjacent said one end thereof,
 said part on the inner tube comprising a clip normally in frictional engagement with the enlargement.
 2. The invention of claim 1, 15
 said clip being substantially U-shaped, presenting a bight slidable along the frictionally engaging the inner tube, and a pair of enlargement-engaging legs.
 3. The invention of claim 2,
 said legs diverging as the bight is approached, said enlargement progressively increasing in diameter as said one end of the outer tube is approached whereby to present a snap fit between the enlargement and the legs. 20
 4. An inserter for a collapsible intrauterine device comprising: 25
 an inner and an outer tube,
 the inner tube extending outwardly beyond one end of the outer tube and being adapted to house the device therewithin when the device is collapsed;
 a plunger extending into the outer tube at its opposite 30

4

end for ejecting the device from the inner tube into the uterus when the inner tube is inserted into the uterus; and
 lock means interconnecting the tubes,
 said lock means being releasable for rendering the inner tube disposable after use and removal from the outer tube,
 said lock means having parts on each of the tubes, the part on the inner tube being shiftable along the latter for varying the effective length of the inner tube beyond said outer tube,
 said part on the outer tube surrounding the latter adjacent said one end of the outer tube,
 said part on the inner tube surrounding the latter intermediate the ends of the inner tube in frictional engagement with the inner tube,
 said part on the inner tube having means thereon releasably engaging said part on the outer tube.
 5. The invention of claim 4,
 and means in the outer tube for guiding the plunger into the inner tube.

References Cited

UNITED STATES PATENTS

3,101,713	10/1963	Sargent	128—263
3,253,590	5/1966	Birnberg et al.	128—130

ADELE M. EAGER, Primary Examiner

U.S. Cl. X.R.

128—263, 270, 285