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INTRAUTERINE U-SHAPED PESSARY

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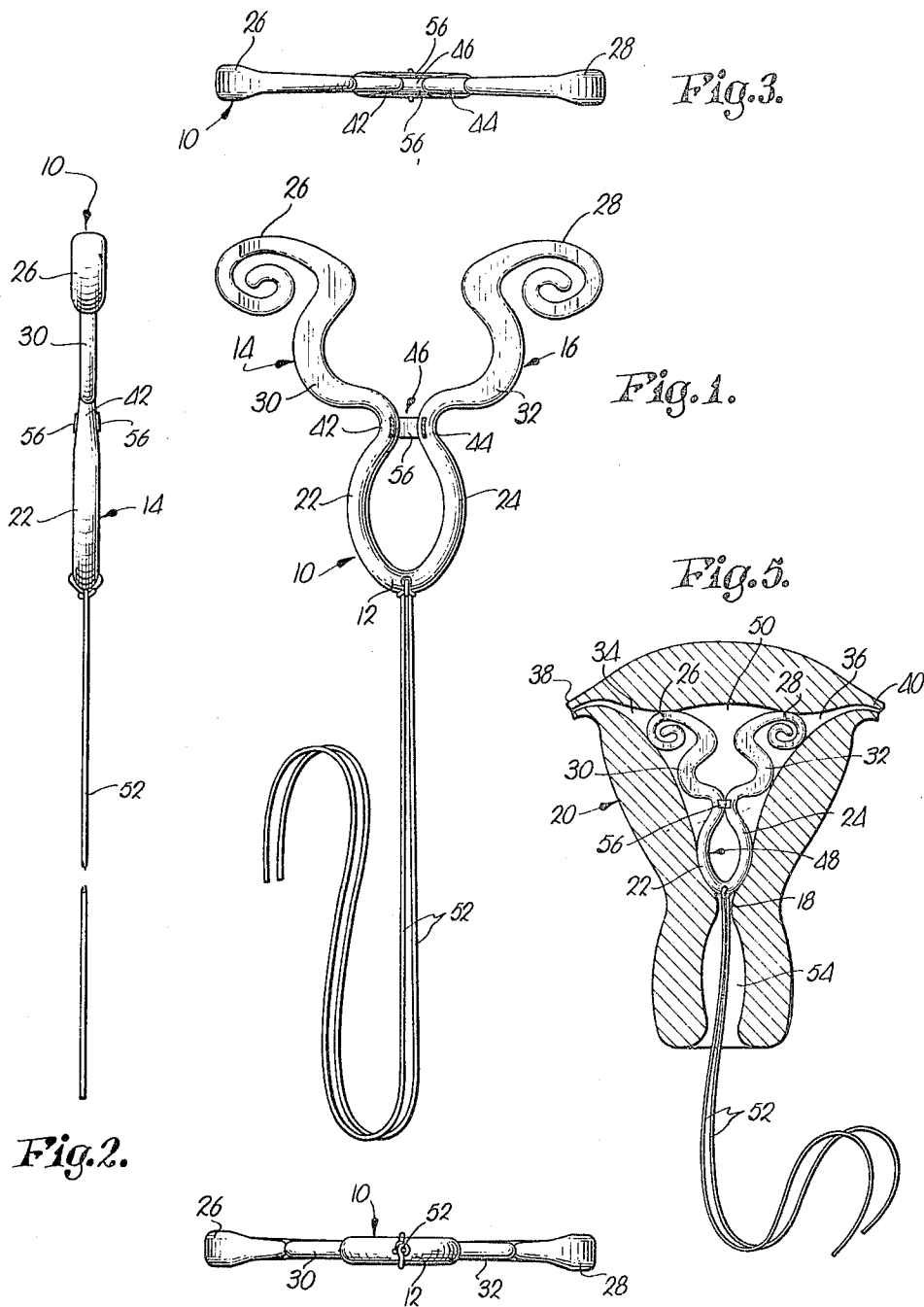


Fig. 2.

Fig. 4.

Fig. 1.

Fig. 5.

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INTRAUTERINE U-SHAPED PESSARY
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This is a continuation-in-part of my copending application Serial No. 283,326, filed May 27, 1963, and entitled Intra-Uterine U Stem Pessary, which issued as Patent No. 3,234,938, on February 15, 1966.

This invention relates to an intrauterine contraceptive device, the primary object being to solve the expulsion problem which has heretofore tended to cause such devices to fall into disrepute, while at the same time eliminating irritation and discomfort factors which have resulted in caution in their use and difficulty in obtaining widespread approval.

One chief disadvantage with heretofore available contraceptive devices of this type has resided in the substantially straight, relatively inflexible followers attached to the coil of some devices, the followers being intended to extend through the cervical canal into the vagina. Usually such devices are provided with longer followers than are necessary and the excess length is cut off as required to accommodate the length of the cervical canal of a particular patient. The follower then serves to indicate the presence of the contraceptive in the uterus and provides means for removal of the device when desired. Followers of this type, when severed at or adjacent the mouth of the uterus, can and often do become embedded within the tissues resulting in constant irritation to the host. Even when the follower is left rather long, there still is a tendency for the follower to become embedded, resulting in damage, irritation and often a consequent high rate of expulsion of the device.

It has heretofore been suggested to use relatively flexible, non-irritating tails instead of the more rigid followers. Further, the use of spirals, per se, is not new in contraceptors of this type. The instant invention relates to the use of altogether different coils or spirals, constructed in a novel manner to bias the coils into and within the mouths of the Fallopian tubes to thereby reduce the expulsion factor of the device. Further, the contraceptive of this invention has a smooth surface and may utilize soft, flexible tails with no need for the straight, relatively rigid and consequently irritating follower.

In the drawings:

FIGURE 1 is a side elevational view of a pessary made pursuant to my present invention;

FIG. 2 is an edge elevational view thereof;

FIG. 3 is a plan view thereof;

FIG. 4 is an end view oppositely from FIG. 3; and

FIG. 5 is a view similar to FIG. 1 on a reduced scale, illustrating certain of the female reproductive organs and showing the device in place within the uterus of the human female.

My intrauterine contraceptive device of the instant invention is a generally U-shaped loop 10 of resilient material, such as plastic, presenting therefore a bight 12 and a pair of arms 14 and 16 that are serpentine in shape and extend upwardly from the bight 12 when the latter is in position, as illustrated in FIG. 5, across the cervix or restricted portion 18 of the uterus 20.

Arms 14 and 16 are provided with outwardly bowed portions or lobes 22 and 24 respectively adjacent the bight 12, together with termini 26 and 28 respectively at their upper ends. Each arm is also provided with an outwardly protruding length or flute 30 and 32 respectively between the termini 26, 28 and the lobes 22, 24.

The termini, as illustrated, are in the nature of heads

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or spirals 26, 28 which complementally conform in size and in configuration to the mouths 34 and 36 of Fallopian tubes 38 and 40 respectively. The outwardly coiled spirals 26 and 28 are disposed outwardly farther than the corresponding flutes 30 and 32 and, by the same token, the flutes 30 and 32 are disposed outwardly farther than the corresponding lobes 22 and 24. The spaced convolutions of the spirals 26 and 28, by virtue of the resiliency of the material from which the loop 10 is made, readily compress inwardly in response to muscular contractions of the uterus 20 adjacent the mouths 34 and 36 within which the spirals 26 and 28 are normally disposed. It is to be appreciated that, to some extent at least, the number of convolutions in the heads 26 and 28 is optional and they may, therefore, merely take the form of a ram's horn not materially different for the intrauterine device of my copending application Serial No. 283,326, filed May 27, 1963, and allowed on July 30, 1965.

Concavo-convex bends 42 and 44 in arms 14 and 16 respectively separate the flutes 30, 32 from corresponding lobes 22, 24 and normally, it is to be preferred that there be a gap 46 between the bends 42 and 44 which closes, as illustrated in FIG. 5, in response to contraction of the uterine muscles. Therefore, the innermost surfaces (which may be flattened) are disposed in interabutment when the gap 46 is closed and there is presented, by the lobes 22, 24 and the bight 12, a closed ring 48 having an oval or elliptical configuration, the ring 48 becoming more or less flattened depending upon the extent of the action on the lobes 22 and 24 by the uterine muscles.

The ring 48 acts effectively to impede expulsion of the loop 10 from within the uterine cavity 50 through the cervix 18 and, after the bends 42 and 44 interengage, a fulcrum is presented at the zone of interengagement which results in additional deformation of the loop 10 such as to further impede expulsion of the loop 10 from within the cavity 50. That is to say, as the lobes 22 and 24 are compressed inwardly, after the aforementioned abutment takes place, the flutes 30 and 32 are caused to spread apart into firmer engagement with the proximal walls of the uterus 20 within its cavity 50. Still further, such outward movement or spreading of the flutes 30 and 32 causes a corresponding outward movement of the heads 26 and 28 more firmly into the mouths 34 and 36. It is therefore the combined action of the lobes 22, 24 and the flutes 30, 32 and the heads 26, 28 that reduces the expulsion factor of the device to a minimum.

It is quite important that the entire loop 10 have no sharp projections or other components which might tend to cause irritation and discomfort to the user, and it is therefore to be particularly noted that the bight 12 which constitutes the lowermost segment of the loop 10 is smooth and arcuate in shape.

If desired, the loop 10 may be provided with one or more tails 52, made from plastic or from gut material used for surgical sutures, tied or otherwise attached to the loop 10 at the bight 12. The tails 52 might well be sufficiently long as to extend through the mouth 54 of the womb, thence through the vagina and be accessible exteriorly of the latter, permitting the user to easily and quickly examine herself to make sure that the device is in place.

Still further, if desired, in order to assure interabutment between the bends 42 and 44, they may be interconnected by thin filaments 56 operable to prevent overlapping or crossing of the bends 42 and 44 in response to muscular activity which tends to squeeze inwardly upon the lobes 22 and 24 adjacent the cervix 18.

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

1. An intrauterine device comprising:

a generally U-shaped loop of resilient material having a bight for disposition across the cervix and a pair of arms extending upwardly from the bight, each arm having an upper terminus for disposition at the mouth of the corresponding Fallopian tube, there being an outwardly bulged portion in each arm respectively at said bight disposed for engagement with the uterus and for actuation inwardly by interaction between said portions and the uterus at the zone of engagement therebetween during contraction of the uterine muscles into a position of interabutment of said portions subjacent the bight, said bight and said portions forming a closed ring when the portions are in abutment, presenting a fulcrum at the zone of abutment, whereby said termini are pressed outwardly into engagement with the uterus in said mouths as said muscular contraction continues to act inwardly on said portions, thereby impeding expulsion of the device from within the uterus.

2. The invention of claim 1, each arm having an outwardly protruding length between its portion and its terminus disposed for movement against the uterus as the termini move into said mouths for further impediment of said device against expulsion from within the uterus.

3. The invention of claim 1, each of said portions being an outwardly bowed lobe and the bight being an arcuate, lowermost segment of the loop, presenting an oval configuration in said ring when the latter is closed.

4. The invention of claim 1, each terminus including a head complementally conforming in size and in configuration to said mouths and serving, therefore, to further impede said device from expulsion when the heads are pressed into the mouths.

5. The invention of claim 3, said bight having a continuous, substantially smooth outer surface.

6. An intrauterine device comprising: a generally U-shaped loop of resilient material having

a bight for disposition across the cervix and a pair of arms extending upwardly from the bight, each arm having an upper terminus for disposition at the mouth of the corresponding Fallopian tube, there being an outwardly bulged portion in each arm respectively at said bight disposed for actuation inwardly by contraction of the uterine muscles into a position of interabutment of said portions subjacent the bight, said bight and said portions forming a closed ring when the portions are in abutment, presenting a fulcrum at the zone of abutment, whereby said termini are pressed outwardly into said mouths as said muscular contraction continues to act inwardly on said portions, thereby impeding expulsion of the device from within the uterus, each terminus including a head complementary conforming in size and in configuration to said mouths and serving, therefore, to further impede said device from expulsion when the heads are pressed into the mouth, each arm having an outwardly protruding length between its portion and its terminus disposed for movement against the uterus as the termini move into said mouths for further impediment of said device against expulsion from within the uterus, each head including an outwardly coiled spiral disposed outwardly farther than its corresponding length and having spaced convolutions compressible inwardly in response to muscular contractions within said mouth.

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