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MENSTRUAL CUP

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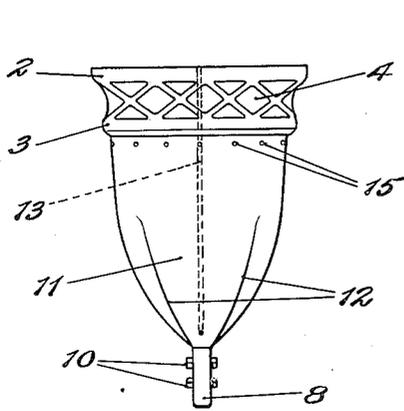


Fig. 1.

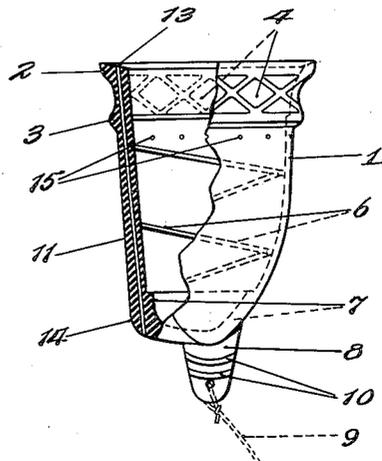


Fig. 2.

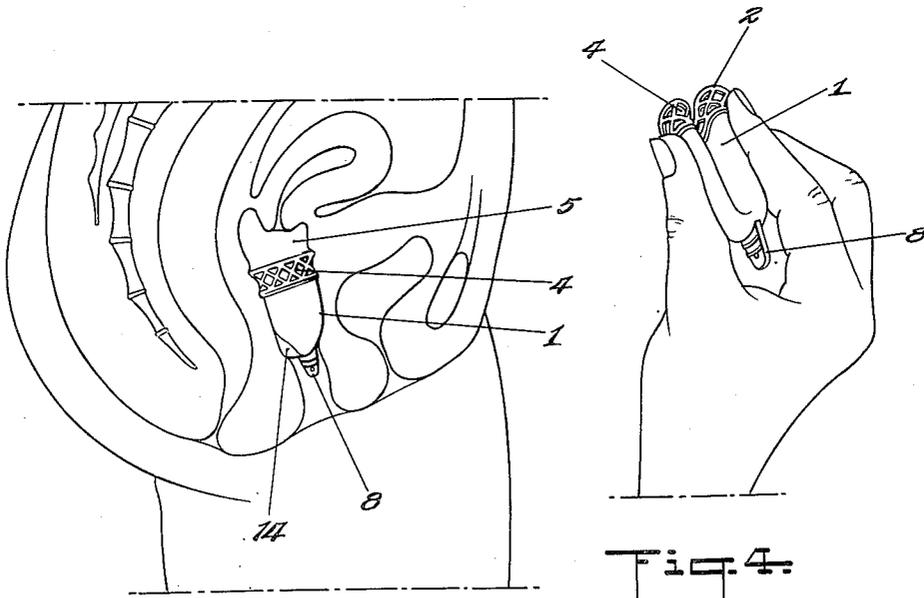


Fig. 3.

Fig. 4.

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MENSTRUAL CUP

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9 Claims. (Cl. 128—285)

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This invention relates to a menstrual cup and more particularly to a flexible menstrual cup. Menstrual cups adapted for placement in the vaginal canal have been known heretofore but have been uncomfortable to wear and have tended to get out of position. When one of these cups gets out of position, seepage is likely to occur, with resulting mental and physical discomfort and spoiling of garments. It has been known heretofore to make such a cup of light enough rubber to enable it to be collapsed and folded while being inserted in position. Heretofore a tapered cup has been used, but such tapered cup is inherently unable to maintain its proper position in the vaginal canal for any length of time. I have discovered a construction of menstrual cup which remains in the correct position and, at the same time, is made of such light, pliable rubber that it is capable of being folded for the purpose of insertion and is not uncomfortable while in position. It is characteristic of my cup that the pliable, non-resilient material of which it is made is strengthened by resilient or less pliable elements which tend to return the cup to its expanded position. It is also characterized by the presence of a strengthening element which also has the function of holding the tapered cup in position as if it were a cylinder rather than a tapered cup.

In the drawings:

Figure 1 is a view in rear elevation of a menstrual cup constructed in accordance with my invention;

Figure 2 is a side elevation of the same cup, partly broken away to show the back of the cup in section;

Figure 3 is a diagram taken vertically through a female pelvis from front to rear, showing my cup in position in the vaginal canal; while

Figure 4 is an illustration of my cup folded and held in the fingers ready for insertion in the canal.

My menstrual cup is designed as a simple, inexpensive catch-basin for menstrual waste and is designed to be self-supporting. It is built to be worn in a position different from pessaries and like therapeutic devices. My cup is worn in an intermediate position in the vaginal canal, wholly out of contact with the uterus.

My menstrual cup can be folded, as shown in Fig. 4. This folding occurs about or parallel to the normal longitudinal axis of the cup in order to reduce its lateral dimension for insertion in the vagina. The cup, generally speaking, is substantially acorn shaped, a form which is susceptible of

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being folded easily. The basic material of the cup is preferably non-resilient but pliable, and I therefore prefer to make the cup of thin rubber or similar moisture-impervious material. By making the basic material non-resilient, the cup yields to any temporary change in shape of the vaginal canal. On the other hand, it is necessary that the cup be returned to its full expanded position or shape as soon as body conditions permit, and therefore resilient means must be provided to supplement the pliant rubber.

Around the upper or open end of the cup are two annular strengthening ribs 2, 3 spaced from each other vertically on the outside of the cup. The upper rib 2 is exactly at the top of the cup and the lower one 3 is spaced a little distance below. The upper rib is somewhat larger than the lower rib. One function of these ribs is to provide resilience tending to expand the upper end of the cup to its open position or to maintain it in that position. In the space between the two ribs, I provide cross-connected lines or ridges forming enclosed recesses or depressions 4 which act as suction cups when pressed into the membrane lining of the vaginal canal 5. It will be seen from Fig. 2 of the drawings that the ribs are rounded so as not to cut the membrane of the canal. The band formed by the ribs and the suction cups between them form a hollowed-out or concave fillet around the upper edge of the cup.

Extending around the inside of the cup in a spiral manner beginning just below a point opposite the lower annular rib is a rib 6 of resilient material. This extends downwardly to the base of the cup. This spiral rib, acting in connection with the annular ribs and the base 7, also assists in returning the cup to its expanded condition after it has been folded for insertion or partially collapsed due to muscular contraction of the vaginal canal. The base 7 of the cup is much less in diameter than the rest of the cup and comprises merely the lower end where the diameter begins to contract sharply to close the cup. This base is made of thicker or less pliable material than the rest of the walls and therefore resists folding or collapse. It assists the thinner walls in maintaining themselves in expanded position.

On the bottom of the cup is a flattened tab 8 extending downwardly a short distance and having an opening therein in which a short length of string 9 can be placed, if desired. This tab can have ribs 10 or other roughening on its surface for ease in grasping it when the cup is to be removed.

One of the novel features of my cup is the

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comparatively straight back 11 that can be seen in Fig. 2. This back extends directly down substantially to the bottom of the cup without tapering inwardly, as can be seen by comparison of the two edges of the cup, as shown in Fig. 1. If desired, this back can have considerable breadth, as indicated by the diverging lines 12 in Fig. 1. The function of this comparatively straight back will be described in connection with the placement of the cup in the vaginal canal. This back has appreciable thickness compared to the rest of the cup's walls and provides a framework or backbone connecting the base with the fillet at the top of the cup. When in position in the vaginal canal, the back 11 prevents the different parts of the cup being twisted or folded with relation to each other, because of the pliability of the rest of the cup.

I introduce another novel feature in this back in the form of an air vent 13. This air vent consists of a small straight opening running straight down the back from the top of the upper or larger rib 2 through the bottom of the back. At both ends this air vent is a short distance forward from the outer surface of the back. One purpose of the vent is to release gases which sometimes form in the vaginal passage due to certain pathological conditions, especially that known as trichomonas and the pressure from which might cause the menstrual cup to be forced out of position and result in seepage. Having the air passage or vent located in this particular position makes it possible not only to allow free passage of the gas from inside the vaginal passage to the outer air, thus equalizing the pressures, but it also facilitates removal of the cup. It will also be noted that having the air vent in the back eliminates all extra parts which might cause damaging contact with any part of the anatomy. The lower end of this back wall may be described as a bulge 14 when compared to the front edge, as shown in Fig. 2. There may also be small air holes 15 around the cup just below the fillet.

The construction of this cup having been set forth, the manner of its placement and use will now be described. At the inner end of the vaginal canal is located the mouth of the uterus. To insert the cup it is given some longitudinal folds and held in its collapsed position by the fingers, as shown in Fig. 4. It is then placed in position in the vaginal canal with the upper and open end of the cup a short distance below but out of contact with the uterus. It is important that the line of the upper end of the cup be substantially at right angles to the walls of the vaginal passage in order to prevent seepage. I have found that even if the ordinary tapered menstrual cup is placed in the vaginal passage with the top of the cup absolutely at right angles to the walls of the passage, that cup sooner or later tends to get out of position and tips slightly so that there tends to be seepage around one edge of the upper end of the cup. This tipping may be due either to gravity, because the vaginal passage is not vertical, or to the muscular action of the walls of the vaginal passage, due to pressure of neighboring organs. A regularly tapered cup cannot maintain itself at the correct angle. I have therefore extended the back in the form of the aforementioned bulge. When this back wall of the cup is placed on the back wall of the vaginal passage, i. e., on the side toward the rectum and backbone of the wearer, the cup will be maintained with its lower end tipped forward.

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In this way the center line of the cup and of the vaginal passage will be substantially parallel and the upper end of the cup and the ribs of the fillet will be substantially at right angles to the walls of the passage. The annular ribs press into the membranes of the walls and cause the membranes to be pressed into the suction cups. This creates a vacuum-tight hold on the walls.

When it is desired to remove the cup, this vacuum hold can be broken by moving the tab to the rear. This tilting lets air in between the membrane and the suction cups on one side. Also, it allows air to pass up into the tiny holes 15 below the fillet and the air tube 13 to the space above the cup, thereby helping to break any vacuum which may exist there. When the vacuum has been broken, the menstrual cup should be removed slowly with a downward rotary motion, by turning the tab end and at the same time pulling gently.

It will be seen that this construction of cup serves to provide a leakage-proof hold in the vaginal canal without introducing any strains on the vaginal canal in the removal of the cup; that the device cannot get out of position; and that while it has the advantages of a collapsible receptacle as far as concerns insertion and comfort to the wearer, it remains in expanded position while in use, thereby also obtaining the advantages of a non-collapsible receptacle.

I claim:

1. A menstrual cup adapted for placement in the vaginal canal, comprising a tapered cup having a relatively thick back and pliable walls, in combination with a bulge forming a straight extension of the back down to a point opposite the bottom of the cup, whereby the cup maintains a straight position in the canal.

2. A menstrual cup according to claim 1 in which the walls of the cup are substantially non-resilient and there is a resilient spiral rib inside the cup tending to keep the cup expanded, whereby the cup is easily folded for insertion in the canal.

3. A menstrual cup according to claim 2, in combination with a base of less pliable material than the walls and of lesser diameter than the portions of the cup above said base, said base being integrally connected to the back, whereby the cup easily resumes its normal shape after folding.

4. A menstrual cup according to claim 1 in which there is an air tube in the back connecting the top edge of the cup and the bottom of the bulge, whereby air pressure in the canal above and below the cup is equalized.

5. A menstrual cup according to claim 1 in which there is a pair of resilient external annular ribs at the upper end of the cup spaced from each other, in combination with a plurality of depressions in the space between the annular ribs adapted to form suction cups, whereby the cup is adapted to be firmly held in the vaginal canal.

6. A menstrual cup according to claim 5 in which one annular rib is at the end of the cup and is larger than the other one, both the ribs being rounded and the surface between them being concave, whereby removal of the cup is facilitated.

7. A menstrual cup according to claim 1 in which there are a resilient spiral rib inside the cup tending to keep it expanded, a base of less pliable material and of lesser diameter than the walls, said base being integrally connected to

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the back, and a pair of resilient external annular ribs at the upper end of the cup spaced from each other, in combination with a plurality of depressions in the space between the annular ribs adapted to form suction cups.

8. A menstrual cup according to claim 7 in which there is an air tube in the back connecting the top edge of the cup and the bottom of the bulge, in combination with small holes around the walls just below the annular ribs.

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9. A menstrual cup according to claim 8 in which one annular rib is at the end of the cup and is larger than the other one, both the ribs being rounded and the surface between them being concave, whereby removal of the cup is facilitated.

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No references cited.