ABSTRACT OF THE DISCLOSURE

A vaginal cup for the collection of menstrual fluids, including improved double ring sealing means at an inner end thereof.

This invention relates generally to the field of vaginal cups suitable for use for the collection of menstrual fluids, and also for the application of medicaments in the vaginal canal. Devices of this type are generally known in the art, and the invention lies in specific constructional details.

In menstrual cups known in the prior art, as exemplified, for example, in the Chalmers Patent No. 2,089,113, of Aug. 3, 1937, the device includes a relatively smooth outer surface with a rim and projecting ring intended to create a seal with the walls of the vaginal canal. This type of seal, although not without utility, has proven ineffectual in many cases, due to improper physiological fit caused by the irregular convolutions or folds in the vaginal mucosa and wide individual differences to which a single commercially-produced size cannot be adapted. A poor seal, permitting leakage of menstrual fluid, negates the purpose of the entire product. It is therefore among the principal objects of the present invention to provide a menstrual cup of the class described having an improved seal which provides greatly improved sealing action without causing any physical discomfort.

It is also known in the art, as exemplified in the Chalmers Patent No. 2,534,900 of Dec. 19, 1950, to provide a tapered cup which incorporates a thickened wall portion along the point of the cone and a posteriorly disposed portion which terminates in a bulge or keel-like appendage. This construction has not only proven impractical from a positioning standpoint, as it is very difficult to fold and insert, but also has been found to be extremely uncomfortable due to the hard mass of the thickened wall portion which tends to exert pressure on the colon, especially when full. It is therefore among the objects of the present invention to provide an improved vaginal cup which may be generally cylindrical in configuration, thereby increasing the stability of placement in the absence of the above-mentioned disadvantages.

Another object of the invention lies in the provision of an improved menstrual cup of increased capacity.

Yet another object of the invention lies in the provision of a vaginal cup of the class described having a lower sealing ring in addition to those disposed at the upper end thereof, as an aid to preventing involuntary expulsion or shifting of the cup after proper placement.

Yet another object of the invention lies in the provision of an improved vaginal cup of the class described having improved means for removal after use.

Yet another object of the invention lies in the provision of an improved vaginal cup of a disposable type, which may be conveniently flushed through ordinary plumbing fixtures.

Yet another object of the invention lies in the provision of an improved means facilitating the insertion of the within-described cup, whereby the difficulty of maintaining the same in a compressed, partially folded condition until full insertion, using the fingers of the hand, is eliminated.

A feature of the invention lies in the improved comfort accompanying the wearing of the device, as contrasted with that of prior art devices. These objects and features, as well as other incidental ends and advantages, will more fully appear in the progress of the following disclosure, and be pointed out in the appended claims.

In the drawings, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIGURE 1 is a view in perspective of a vaginal cup embodying the invention.

FIGURE 2 is a fragmentary view in elevation of the female torso, partially broken away to show the embodiment of FIGURE 1 in proper position.

FIGURE 3 is a sectional view of the embodiment shown in FIGURE 1.

FIGURE 4 is a view in elevation showing a means for inserting the cup.

FIGURE 5 is a fragmentary view in perspective showing the positioning of the cup within the means of FIGURE 4 prior to insertion.

FIGURE 6 is a fragmentary view in perspective showing the insertion of the cup and inserting means for proper positioning of the device.

In accordance with the invention, the device, generally indicated by reference character 10 (see FIGURE 6), comprises broadly: a vaginal cup element 11 and an inserting element 12.

The cup element 11 is of generally cylindrical configuration, including a cup-shaped fluid-retaining member 13 having an upwardly disposed mouth 14 defined by an upper edge 15. The mouth 14 leads to a generally conically-shaped inner surface at the upper portion of the cup, and a spherical portion 17 at the lower portion thereof. Surrounding the mouth 14 are a first set of sealing ribs or lips 18 and 19, and a second set of lips 20 and 21. Extending downwardly from the lip 21 are an outer conical surface 22 and an outer spherical surface 23 interconnected by a lower retaining lip 24, the purpose of which will become more clearly apparent at a point later in the disclosure.

The uppermost of the sealing lips 18, are the lips to be subsequently described, is of generally tapered configuration, including a downwardly extending surface 25 and a radial surface 26 forming an interstice 27 with a downwardly tapered surface 28 forming the lip 20. The radial surface 29 is generally parallel to the radial surface 26, with the result that the lips 18 and 19 are generally downwardly oriented with respect to the principal axis of the cup element 11.

The second set of lips 20-21 is spaced from the lips 18-19 by a relatively large interstice 30. The lip 20 includes an upper radial surface 32 and a lower tapered surface 33 leading to an interstice 34. The lip 21 includes an upper radial surface 35 and a lower tapered surface 36, so that the lips 20-21 are generally oriented in an upwardly extending direction as contrasted with the downwardly extending lips 18-19. The lower retaining lip 24 includes a radial surface 37 as well as a tapered surface 38, so that the same is also generally upwardly oriented like the lips 20-21. A number of venting orifices 31 are located adjacent to the retaining lip 21.

Extending axially downward from the outer spherical surface 23 is an elongated loop 40 including converging portions 41 and 42 and a rounded end portion 43. In relatively unpressed condition, the loop 40 is free of contact with the vaginal walls, and during removal of the device, the converging portions 41-42 may be spread to permit the entry of a finger between them for positive manual engagement.
In the preferred form, the entire cup element 11 is formed from a suitable synthetic resin, such as any one of the well-known polyvinyl alcohols which have a limited degree of water solubility, while retaining all of the other desirable characteristics including non-toxicity resiliency, and a complete lack of the tendency to irritate sensitive tissue.

The inserting element 12 may be formed as a molding from synthetic resinous materials, or may be made of suitable metal, such as stainless steel and the like. It includes an elongated main body member 45 and a sliding collar member 46 mounted thereupon.

The main body member 45 is of generally skeletonized construction, including a gripping portion 50 having finger-engaging recesses 51 and 52 as well as a curved recess 53 suitable for engaging the rearward portion of the palm of the hand of the user. Extending from the recesses 51 and 52 are a pair of elongated members 54 and 55 which are joined at the opposite ends thereof by a curved member 56 in a generally semicircular shape integrally connected by a flexible hinge member 57.

The collar member 46 includes a loop portion 59 formed by an upper wall 60, a lower wall 61, side walls 62 and 63, and curved interconnecting portions 64, 65, 66 and 68. Extending rearwardly from the lower wall 61 is an elongated portion 69, the free end of which is modified to form a finger-engaging portion 70.

As is the case in prior art devices, in order to insert the cup element 11, it is necessary to fold and compress the same. Referring to FIGURE 5, this is most conveniently done by placing the cup in the end of the inserting element 12, that is to say the end of the main body member 45, and to manually fold the outwardly extending portion of the side wall of the cup using the fingers of one hand, while sliding the collar member 46 over the folded portion of the cup element 11 to retain the same in folded condition. In this condition, the cup element 11 may be freely inserted into the vaginal canal by the user, using only a single hand, reference being made to FIGURE 6 in the drawings. Gentle pressure may be exerted by the palm of the hand, while the index finger engages the finger-engaging portion 70 of the collar member 46. When the correct position has been reached, the main body member is maintained in position, and the collar member gently withdrawn outwardly by exerting pressure on the portion 70, thus permitting the cup element 11 to expand, the lips 18-21 engaging the inner surfaces of the vaginal walls. Once properly seated, the inserting element 12 may be gently withdrawn without disturbing the cup element 11 and the latter may then be worn until time of removal. Removal is facilitated by inserting a finger to spread the loop 49 formed by the portions 41 and 42, following which the finger is inserted into the loop. This engagement is virtually slip-proof, and requires only a gentle pull to stretch the device sufficiently to permit the passage of air through the openings 31 whereby atmospheric pressure is obtained on either side of the device.

It will be observed that owing to the fact that the lips 18 and 19 are generally downwardly facing, and the lips 20 and 21 are upwardly facing, a snubbing action against the vaginal walls is available in either direction, thereby preventing the device from slipping upwardly past the pre-determined proper position, as well as slipping downwardly therefrom. Any tendency for the device to rock about an axis passing through the area adjacent to ribs 18-21 is counteracted by the presence of the lower retaining lip 24 which also engages the vaginal walls to provide the equivalent of a cylindrically-shaped cup.

It may thus be seen that I have invented not only an improved vaginal cup which offers improved comfort, ease of insertion and removal, as contrasted with prior art devices, but also an improved device for effecting such insertion. The cup element may be conveniently molded using existing molding techniques at such low cost as to be conveniently disposable after a single use, and, as mentioned hereinabove, by forming the device from materials having a controlled degree of water solubility. Thus, because of disposability after a single use, the problems of hygiene and aesthetics in connection with the cleaning of a used menstrual cup before reuse are eliminated. As a means of assuring that disposable cups will not be reused a substantial percentage of water soluble compound has been incorporated within the formulation of the synthetic resins. The resulting material maintains its resiliency and functions properly for a single use, but produces sufficient distortion so as to discourage cleaning and reuse. The application of large amounts of water during cleaning will further accentuate this condition. The special compound is non-toxic and is non-irritating to sensitive tissue.

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

I claim:
1. In a vaginal cup, including a cup-shaped container having an outer surface and an upwardly facing mouth, the improvement comprising: first and second sets of sealing lips disposed adjacent said mouth on said outer surface, said first set of lips including first and second parallel lips extending radially outwardly and in a first general downward direction, said second second set of lips including first and second parallel lips extending radially outwardly and in a second generally upward direction, said first and second sets of lips defining an angularly-shaped interstice therebetween.
2. Structure in accordance with claim 1, further characterized in the provision of an additional lip on said outer surface in substantially spaced relation with respect to said second set of lips.
3. Structure in accordance with claim 1, further characterized in the provision of a flexible, elongated, axially aligned ring member which in expanded condition permits the entry of a finger for withdrawing said cup.
4. Structure in accordance with claim 1 in which said structure is formed from synthetic resinous material having a degree of water solubility.

References Cited
UNITED STATES PATENTS
2,008,380 7/1935 Bachmann .................. 128—127
2,079,022 5/1937 Martin .................. 128—127
2,089,113 8/1937 Chalmers .................. 128—285
2,444,672 7/1948 Prather .................. 128—127
2,613,670 10/1952 Sokolik .................. 128—127
2,818,856 1/1958 Kohl .................. 128—127

CHARLES F. ROSENBAUM, Primary Examiner.