Dec. 20, 1938. P. B. VALLÉ 2,141,026

TAMPON APPLICATOR

Filed Sept. 26, 1936

Fig. 1.

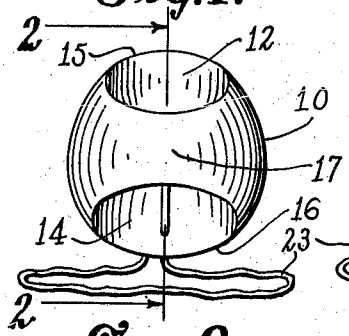



Fig. 2.

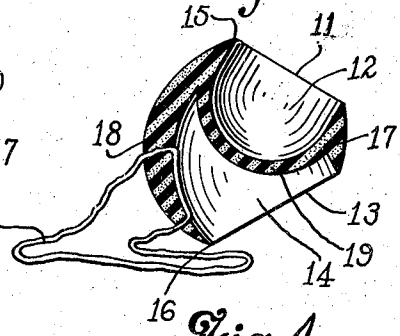



Fig. 3.

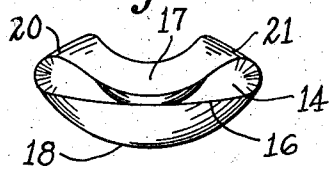



Fig. 4.

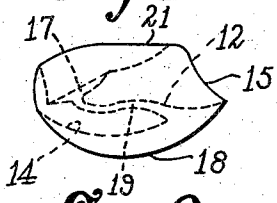



Fig. 5.

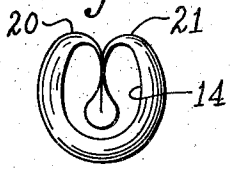
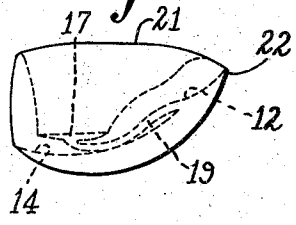



Fig. 6.




Inventor

Paul B. Vallé

By Rockwell & Barthelow

Attorneys

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# UNITED STATES PATENT OFFICE

2,141,026

## TAMPON APPLICATOR

Paul B. Vallé, New Haven, Conn., assignor to The Connecticut Hard Rubber Company, New Haven, Conn., a corporation of Connecticut

Application September 26, 1936, Serial No. 102,767

7 Claims. (Cl. 128—127)

This invention relates to a tampon-applicator, and more particularly to a device designed to serve as a medicinal applicator in passages of the human body, particularly the vaginal passage, for which the shape of the present article is particularly adapted.

In devices of this character it is desirable to provide a tampon which will effectively seal the canal or passage in which it is used, and which at the same time may be folded or reduced in size for insertion into the passage, the device expanding after it has been inserted to press against and make contact with the passage wall so as to seal the same. It is also desirable to provide means for supplying a medicated preparation to the passage or to the organs with which the passage communicates, such as the cervix, for example.

The device shown herein is also adapted to be employed as a support for the uterus, so that it may be effectively used in cases where such a support is desired, as when a patient is suffering from so-called prolapsed condition of the uterus.

One object of the invention is the provision of a tampon applicator which may be readily and easily inserted in the vaginal passage and which at the same time will expand to press against the walls of the passage and seal the same.

Another object of the invention is the provision of a device of the character described which will be so formed that it may be compressed or folded into relatively small size for insertion in the vaginal passage.

A still further object of the invention is a device of the character described which will have provision for containing medicinal preparation to be applied to the organs of the person employing the same.

A still further object of the invention is the provision of a tampon-applicator which will serve as a support for the uterus when in a prolapsed condition, and which will be properly shaped to lie in the proper position for such support, and so constructed that it will offer resistance to any tendency of the uterus to drop to an abnormal position.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the drawing:

Fig. 1 is a front elevational view of a tampon-applicator embodying my invention;

Fig. 2 is a sectional view on line 2—2 of Fig. 1;

Fig. 3 is an elevational view after a preliminary folding or compressing operation of the device, the view being taken looking toward the lower end of the applicator;

Fig. 4 is a side elevational view of the device in the position shown in Fig. 3;

Fig. 5 is a view looking at the device in the same direction as in Fig. 3 but illustrating its appearance after a further folding operation; and

Fig. 6 is a side elevational view of the device in the position shown in Fig. 5.

To illustrate a preferred embodiment of my invention I have shown a tampon-applicator having a body portion 10 of generally spherical or egg-shaped form. The device will preferably be made of a relatively soft elastic material such as sponge rubber, for example. In any case, however, the surface of the article will preferably be smooth and nonporous, although the texture below the surface shall be such that the device will be soft and readily compressible and flexible.

As shown in Figs. 1 and 2, the upper portion of the device is cut off as at 11, and at this portion is provided a cavity 12 of generally semi-spherical shape. Likewise, at the lower portion of one side the body is also cut off as at 13, and a cavity 14 provided at this point, the cut-off portions causing the body to have a generally oblate spherical shape.

It will be noted that the cavity 12 terminates in a relatively thin edge 15, as does likewise the cavity 14, as shown at 16. Between these edges the walls of the body will be relatively thick, as shown, for example, at the front part of the device 17 and also at the rear side or rear wall of the tampon, as at 18.

Between the cavities 12 and 14 is a disphragm 19, this diaphragm separating the two cavities and being sufficiently thin to be very flexible, while at the same time being sufficiently thick to support the walls and space them from each other, and act to some degree to effect the expansion of the device after it has been folded or compressed for insertion. As shown this diaphragm is of spherical shape, although I do not intend to limit the invention in this respect.

The principal purpose of the cavity 12 is to provide a container for a medicinal preparation, which is desired to be applied, for example, to the uterus or surrounding parts. This cavity is also designed to receive the cervix or neck of the uterus, which extends into the vaginal passage, so as to support the same. The larger cavity 14 at the lower part of the device provides for and permits the folding or compressing of the article into a relatively compact mass so that it may be readily inserted in place. It may here be

noted that the axis of the lower cavity 14 is not in alignment with or parallel to that of the upper cavity 12. Preferably the angle between the axes of the two cavities is approximately 60°, although this may be varied as desired. It has been found, however, that this is about the proper angle to provide a device of the proper shape whereby, when the upper edge 15 enters the cul de sac and surrounds the neck of the uterus, the lower rear wall 18 will rest against the opposite side of the vaginal canal and properly support the uterus from falling.

It may also be noted that the greatest resistance of the article to compression is along an axis between the front wall 17 and the rear wall 18. This is due to the design and shape of the walls and of the cavities 12 and 14. When the device is in position, as described in the preceding paragraph, this resistance to compression acts as an upward force through the diaphragm 19 to maintain the uterus in its normal position. Also the size of the cavities in the device and the consequent relatively small amount of material in the walls thereof make the article very light, so that it will give no discomfort to the user.

When it is desired to insert the tampon, it is folded and compressed as shown in Figs. 3 to 6. First the thumb is applied approximately at the point 17 at the front of the article, and the front wall pressed inwardly toward the rear wall. This position of the device is shown more especially in Figs. 3 and 4, where, as shown, the front wall 17 is concave in shape, and the side portions are forced outwardly, forming the lobe portions 20 and 21. These lobe portions are then grasped between the thumb and forefinger and folded together, as shown in Fig. 5. The article is then of relatively small size in cross-section, as shown, and the upper end of the device tapers to a comparatively sharp point 22. This is the end of the device which will be inserted first, and provides a tapering shape to provide for an easy insertion of the device through the introitus. As shown in Figs. 5 and 6, the shape of the tampon when compressed is essentially that of the introitus, so that no difficulty will be had in its insertion.

After the device has been inserted and pushed upwardly to the desired position, it is released and will immediately expand and assume its normal shape and size, thus effectually sealing the vaginal passage and at the same time serving as a support for the uterus. In addition to keeping the medicinal preparation where it is needed, the tampon will exclude foreign substances from entering the region of the uterus. Also, because of its generally oblate spherical shape, the device, even if incorrectly inserted, will act as an effective tampon or sealer, for it will expand to contact with the canal walls and make a seal regardless of its position. Owing to its shape, however, it tends normally to assume the correct position, and therefore may be used by anyone without previous training. Also, on account of its softness and extreme compressibilty, it need not be especially made to exact size for the user, and thus the necessity is avoided of having a multiple number of sizes which need to be fitted to the individual.

A cord 23 may be secured to the body of the device, as shown in Figs. 1 and 2, so that it may be readily extracted after being used.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. A tampon-applicator comprising a hollow body portion generally spherical in shape, and a diaphragm extending between the walls of the body at the intermediate portion thereof, said diaphragm separating the hollow interior portion of the body into an upwardly facing cavity and a downwardly facing cavity and forming the bottom of one cavity and the top of the other, and the diaphragm being a concavo-convex member to flex downwardly when the body is compressed for insertion.

2. A tampon-applicator comprising a hollow body portion generally spherical in shape, and a diaphragm extending between the walls of the body at the intermediate portion thereof, said diaphragm separating the hollow interior portion of the body into an upwardly facing cavity and a downwardly facing cavity, the last-named cavity being of greater size than the former, and having its axis at an oblique angle to the axis of the former whereby the body is provided with a relatively large unbroken surface area on one side and a relatively small surface area upon the opposite side.

3. A tampon-applicator comprising a hollow body portion generally spherical in shape, and a diaphragm extending between the walls of the body at the intermediate portion thereof, said diaphragm separating the hollow interior portion of the body into an upwardly facing cavity and a downwardly facing cavity, and the wall of said body tapering in thickness from its intermediate portion toward the upper and lower ends thereof.

4. A tampon-applicator comprising a hollow body portion generally spherical in shape, and a diaphragm extending between the walls of the body at the intermediate portion thereof, said diaphragm separating the hollow interior portion of the body into an upwardly facing cavity and a downwardly facing cavity, and the axis of said lower cavity being disposed at an angle to the axis of the upper cavity, and the said lower cavity opening through the forward side of the device whereby the rear wall is of considerably greater length than the front wall.

5. A tampon-applicator comprising a generally hollow body of substantially spherical shape, said body having a relatively long rear wall and a relatively short front wall, a diaphragm extending across the interior of said body at an intermediate portion thereof, said body being made of a soft elastic material, and the front wall thereof being displaceable toward the rear wall to decrease the thickness of the body, and the sides of the body being thereafter foldable together over the displaced front wall to decrease the cross-sectional size of the article.

6. A tampon-applicator being of generally spherical shape and having a relatively short front wall and a relatively long rear wall, said tampon having an upwardly facing cavity surrounded by a relatively thin edge designed to enter the cul de sac of the human body, whereby the cervix is received in said cavity and the relatively long rear wall of the device serves to support it in position.

7. An applicator member comprising a body of insoluble flexible material of generally spherical shape, said body having a cavity opening through the upper end thereof and a cavity open-

ing through the lower portion thereof, said cavities being separated by a diaphragm which forms the bottom of the upper cavity, and said cavities rendering the body of said member substantially hollow whereby it may be compressed and folded into a shape of smaller than normal cross-sectional size, the axes of said cavities being at an oblique angle one to the other, and the outer surface of the body being substantially spherical except where cut off by said cavities.

PAUL B. VALLÉ.