Jan. 2, 1934. M. E. RABELL 1,941,717

SANITARY APPLIANCE

Filed Aug. 9, 1933

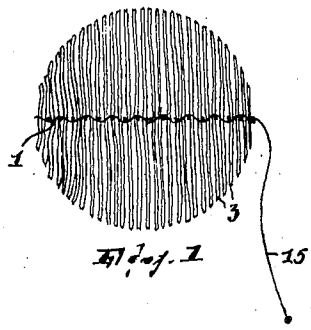


Fig. 1.

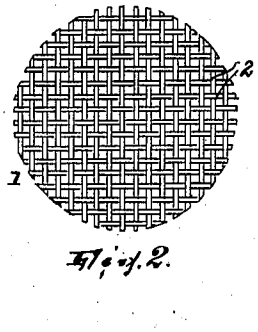


Fig. 2.

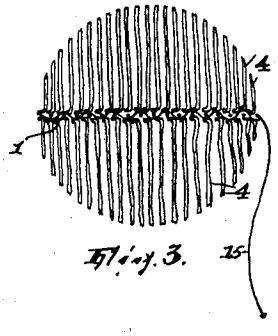


Fig. 3.

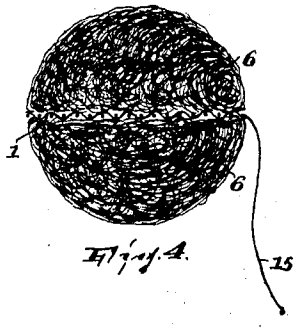


Fig. 4.

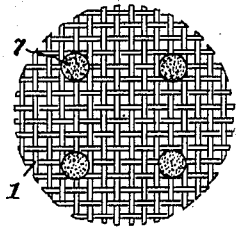


Fig. 5.

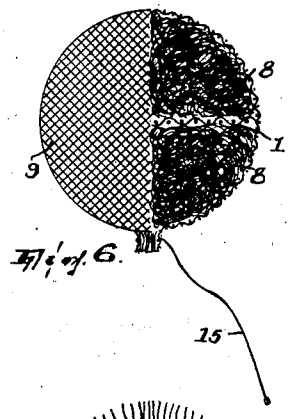


Fig. 6.

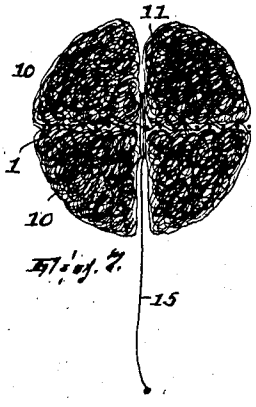


Fig. 7.

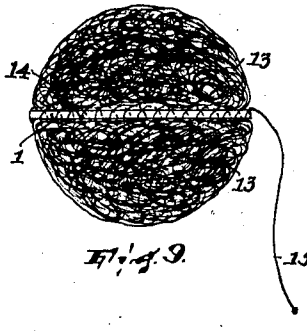


Fig. 9.

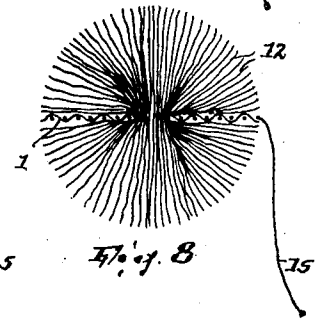


Fig. 8.

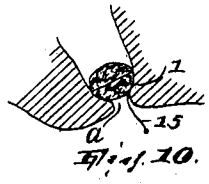


Fig. 10.

INVENTOR,
Miriam E. Rabell,
BY
John Lennard
ATTORNEY

Patented Jan. 2, 1934 1,941,717

UNITED STATES PATENT OFFICE

1,941,717

SANITARY APPLIANCE

Miriam E. Rabell, Pelham Manor, N. Y.

Application August 9, 1933. Serial No. 684,320

3 Claims. (Cl. 128—285)

This invention relates to appliances for use in the vaginal passage and while it may of course be employed otherwise, as in treatment of the vaginal region, it is especially intended and adapted for the control of the menstrual flow. What my invention contemplates is the provision of an absorbing barrier which may be readily applied and removed and shall be inexpensive to manufacture, to the end that the user may at little cost use a number of them a day, as one in each interval between urinations, and which in any event shall of course properly control the flow and not be a source of discomfort to the user.

In carrying out my invention I utilize a mass or masses of suitable absorbent material, which in itself is not new in this art, but in addition to such mass or masses I provide a diaphragm, itself preferably permeable if not actually absorbent, which carries said mass or masses and imparts to the barrier a certain degree of stiffness in the plane of such diaphragm, the latter being of such diameter as to exceed somewhat that of the narrowest or mouth part of the vagina and for the purpose of facilitating its entry or removal being preferably more or less flexible. By this construction I effectively stop the flow, at least for the indicated limited period of time of its intended use, and yet have an absorbent barrier which is far more comfortable to the user than appliances of this class heretofore proposed, such being usually in the nature of absorbent plugs which to be effectual barriers had to be of appreciable size and undersirably compact.

In the drawing,

Fig. 1 is a sectional view of one form of the barrier;

Fig. 2 is a plan of the diaphragm;

Figs. 3 and 4 are sectional views of two other forms;

Fig. 5 shows the diaphragm of Fig. 4 in plan, with adhesive thereon;

Fig. 6 shows partly in side elevation and partly in section another form;

Figs. 7 and 8 are sectional views, and Fig. 9 a side elevation, of still other forms; and

Fig. 10 is a section of the mouth portion of the vagina with the barrier in place therein.

(All the sectional views of the barrier may be regarded as taken in any plane perpendicular to the diaphragm.)

The diaphragm is designated 1 in all the figures of the drawing. It is preferably composed of strands 2 of cotton or other fibers woven together or otherwise interrelated as the strands of a fabric. It is in the example and preferably so far permeable, as by being actually reticulated, as not unhygienically to seal off the vaginal passage from its mouth *a*; preferably the material of which it is composed is absorbent. Its diameter (it is preferably a disk or more or less round in plan, as circular) is greater than that of the narrow part or mouth *a* and it also has sufficient stiffness so that, while in the example it will flex in order to enter through such mouth without undue distention and discomfort to the user, it will remain spanning the passage within such mouth—see Fig. 10. Its fibers are of course soft enough to avoid irritation.

The diaphragm carries the absorbent mass or masses, which may take any of the forms shown in Figs. 1, 3, 4, 6, 7, 8 and 9, for example. I use the expression "mass or masses" because, while such are shown as located at each side of the diaphragm, the invention contemplates the presence of a mass at only one side, to wit, the side which will be inside when the appliance is in use, though if the diaphragm is permeable there may be a mass also at the other side.

In the form shown in Fig. 1 the absorbent masses are formed by soft absorbent strands 3 which are drawn through the mesh of the diaphragm, being preferably trimmed or initially formed so that the contour of the barrier is substantially ball-like. The strands are about $\frac{1}{16}$ inch thick or more.

In Fig. 3 the absorbent masses are formed by soft absorbent strands 4 which are secured to the diaphragm by a suitable adhesive, as a rubber cement; there are two sets of these strands, one secured to each side of the diaphragm, and they are also about $\frac{1}{16}$ inch thick or more. The strands are here, also, trimmed or initially formed so that the contour of the barrier is substantially ball-like.

In Fig. 4 the masses are shown as masses of absorbent batting 6, as cotton batting, which may be secured to the diaphragm by applying adhesive 7, as rubber cement, to the latter. Here again the barrier takes also substantially the form of a ball.

In Fig. 6 the principal elements (diaphragm 1 and masses 8) are the same as in Fig. 4, but the assembly formed has a permeable cover 9, as of cotton gauze fabric.

In Fig. 7 absorbent masses 10 of absorbent, as cotton batting are secured to both sides of the diaphragm 1 by threading a securing strand 11 through them and the diaphragm at two different points and drawing the strand up tightly and

tying its ends together. The form here is also substantially that of a ball.

In Fig. 8 the diaphragm 1 has a central hole and the masses are formed by absorbent strands 12, as of soft cotton fibers, which are drawn through the hole and afterwards allowed to spread as to their ends so as to radiate in all directions, this being an incident of their being more or less compacted where they pass through the hole.

In Fig. 9 the principal elements (diaphragm 1 and masses 13) are the same as in Fig. 4, but the latter are secured to the former by stitching as at 14, through said masses and the diaphragm around the edges of the latter.

The mentioned mass or masses in any case perform primarily the function of an absorptive and, as indicated, because of the presence of the diaphragm, which in itself acts somewhat as a barrier, do not need to be so bulky and unyielding as to be uncomfortable to the user.

In all cases it is preferred to provide some expedient for withdrawing the appliance. This may be by a simple cord 15 preferably attached to the periphery of the diaphragm so that in removing the appliance the pull on the cord will come at one side of the diaphragm and so eases the removal with the least discomfort. It will be noted that the fabric diaphragm is bendable, but its material is stiffer than the absorbent material. That is, said diaphragm is stiffer than a mass of equivalent size of said absorbent material. The diaphragm is not necessarily permeable, and the application of the rubber cement makes it impermeable. The fluid tends to seep around the diaphragm, if it is impermeable, and the moistening of the lower mass of absorbent material warns the user that the body must be replaced.

Likewise, and as shown in Fig. 10, the normal width of the diaphragm is substantially equal to the width of the vaginal passage.

I do not wish to be limited to having the width of the diaphragm equal to the full width of the device. When the device is moistened, the diaphragm has little or no shrinkage whereas the absorbent material tends to shrink. By shaping and securing the absorbent material to the diaphragm, so as to prevent any substantial relative movement between the edge of the diaphragm and the edge of the absorbent material, due to said unequal shrinkage, the absorbent material is maintained adjacent the edge of the diaphragm.

Whereas as herein shown the diaphragm and mass or masses are formed of initially distinct materials, it will be understood that any rotund body to be used as an absorbent barrier for the purposes indicated and including a mass of absorbent material forming the major part of its bulk and a relatively thin diaphragm adjoining such material and imparting localized stiffness to said body in the plane of such diaphragm is comprehended within my invention.

What I claim as my invention is:

1. A menstrual tampon comprising a woven fabric diaphragm which is freely bendable and which is adapted to be located transverse to the vaginal passage when inserted, said diaphragm being substantially normally resilient and having sufficient size and stiffness so that it will substantially span the mouth of said passage when inserted, said diaphragm having a mass of absorbent material secured to each side thereof, the edge part of the absorbent material being adjacent and secured at the edge of the diaphragm, the material of said diaphragm being stiffer than said absorbent material, and a string connected to said diaphragm, said absorbent material being substantially co-extensive with the surface of the diaphragm so as to engage the wall of the passage, said string being connected to said diaphragm substantially at the edge of said diaphragm.

2. A menstrual tampon comprising a woven fabric diaphragm which is freely bendable and which is adapted to be located transverse to the vaginal passage when the tampon is inserted, said diaphragm being substantially normally resilient and having sufficient size and stiffness so that it will substantially span the mouth of said passage when inserted, said diaphragm having a mass of absorbent material secured to a side thereof, the edge part of said absorbent material being adjacent and secured at the edge of the diaphragm, the material of said diaphragm being stiffer than said absorbent material, and a string connected to said diaphragm, said absorbent material being substantially co-extensive with the surface of the diaphragm so as to engage the wall of the passage.

3. A menstrual tampon comprising a woven fabric diaphragm which is freely bendable and which is adapted to be located transverse to the vaginal passage when inserted, said diaphragm being substantially normally resilient and having sufficient size and stiffness so that it will substantially span the mouth of said passage when inserted, and said diaphragm will also substantially span said passage behind said mouth, said diaphragm having a mass of absorbent material connected thereto at a side thereof, the edge part of said absorbent material being adjacent and secured at the edge of the diaphragm, the material of said diaphragm being normally stiffer than said absorbent material, said absorbent material being substantially co-extensive with the surface of the diaphragm so as to engage the wall of the passage when inserted.

MIRIAM E. RABELL.