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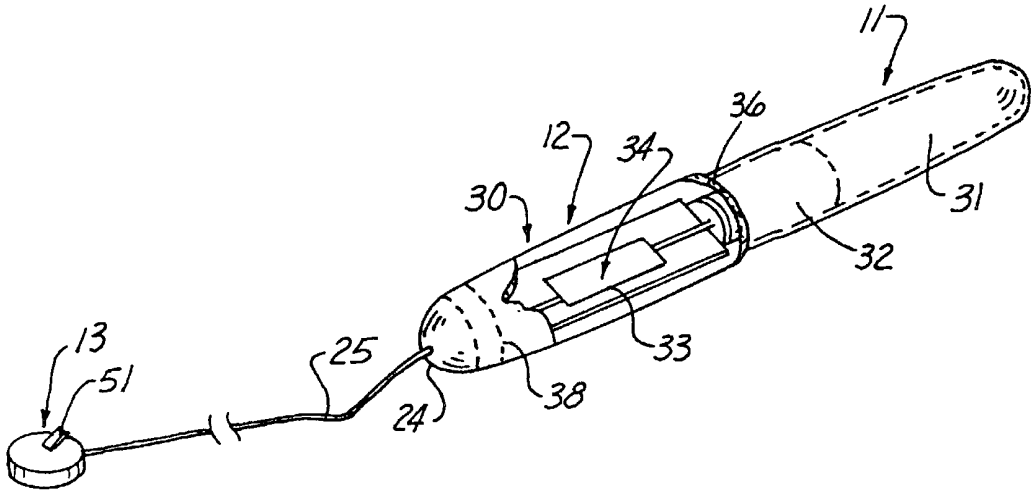
(54) Title: IMPROVED VIBRATING TAMPON APPARATUS



(57) Abstract

The invention is an improved vibrating tampon apparatus (10) for easing a woman's menstrual cramps. The apparatus (10) includes an inner vibrator unit (12), and an outer tampon unit (11) dimensioned to be received in a woman's vaginal canal, a remote power supply unit (13) disposed outside of the vaginal canal, and operatively connected to the inner vibrator unit (12) for the purpose of preventing electrical shocks to the walls of the vaginal canal.

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"IMPROVED VIBRATING TAMPON APPARATUS"

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to the field of sanitary napkin constructions in general, and in particular, to a sanitary napkin/tampon construction having a vibrating mechanism incorporated therein and provided with a remote power source.

Description of Related Art

This invention is an improvement over my previously patented invention U.S. Patent No. 5,782,779 which issued on July 21, 1998 and is entitled Vibrating Tampon Apparatus.

As can be seen by reference to the following U.S. Patent Nos. 2,422,639; 3,626,931; 3,669,100; and 5,067,480, the prior art is replete with myriad and diverse vibrating devices.

While all of the aforementioned prior art constructions are more than adequate for the basic purpose and function for which they have been specifically designed, they are neither designed nor intended to perform the improved dual function that is provided by the subject matter that forms the basis of the present invention.

As many women who suffer menstrual cramps are aware, stimulation of the vaginal tract can, under certain circumstances, alleviate the pain associated with menstrual cramp. In addition, many women experience vaginal dryness at this time which makes the insertion of a tampon a trying experience.

In order to address these needs, U.S. Patent No. 5,782,779 was developed to provide a self-contained, vibrating mechanism within a tampon wherein the vibrating mechanism was actuated by a string that could also be used to remove the tampon after use.

Subsequent to the development of this invention, it was realized that a very remote possibility existed of an electrical shock being delivered to the user's vaginal walls by virtue of the power source contained within the body of the tampon.

As a consequence of the foregoing situation, there has existed a need for a new, improved, and safer vibrating tampon construction that not only contains an internal vibrator mechanism wherein the vibrating action will not only facilitate the insertion of the tampon into the vaginal tract and minimize the effects of menstrual cramps but will also perform those functions in a safer manner. The provision of such a construction is a stated objective of the present invention.

BRIEF SUMMARY OF THE INVENTION

Briefly stated, the improved vibrating tampon apparatus that forms the basis of the present invention comprises a tampon with a built-in, vibrating mechanism which may assist a woman by easing menstrual cramps wherein the vibrating mechanism is associated with a remote power source.

The apparatus resembles conventional cotton tampons, including the equivalent of a removal string, but differ greatly on the inside as they contain an internal vibrating motor which is operatively connected to a remote power source. The interior mechanism is housed inside of a non-toxic polyethylene plastic tube which is ultrasonically welded together providing a liquid proof container. This keeps liquids from entering or exiting the interior apparatus.

As will be explained in greater detail further in the specification, the equivalent of the tampon removal string comprises an insulated pull cable element that encapsulates a pair of electrical leads which operatively connect the remote power source to the internal vibrating motor which is surrounded by the tampon.

In addition, the remote power source includes a low voltage battery member which is electrically coupled to the electrical leads via a switch element; wherein, the positive electrical lead is provided with a micro fuse which prevents a voltage spike being transmitted from the battery member to the vibrator motor which is contained within the vaginal canal.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

These and other attributes of the invention will become more clear upon a thorough study of the following description of the best mode for carrying out the invention, particularly when reviewed in conjunction with the drawings, wherein:

FIG. 1 is a perspective view of the exterior of the improved vibrating tampon apparatus that forms the basis of this invention.

FIG. 2 is a partial cut-away view showing a portion of the internal vibrating mechanism.

FIG. 3 is a cut-away view of the remote power supply unit.

FIG. 4 is a partial schematic showing the operative connection between the power supply unit and the vibrator member; and

FIG. 5 is an isolated detail view of the vibrator motor.

DETAILED DESCRIPTION OF THE INVENTION

As can be seen by reference to the drawings, and in particular to FIG. 1, the vibrating tampon apparatus that forms the basis of the present invention is designated generally by the reference number **10**. The apparatus **10** comprises, in general, an outer tampon unit **11**, an inner vibrator unit **12**, and a remote power supply unit **13**. These units will now be described in seriatim fashion.

As can best be seen by reference to FIGS. 1 and 2, the outer tampon unit **11** comprises an elongated tampon member **20** fabricated from a sterile absorbent material **21** such as cotton or the like. The tampon member **20** forms a fabric envelope **22** which surrounds the vibrator unit **12**.

In addition, one end **23** of the tampon member **20** is provided with a discrete aperture **24** which is dimensioned to receive a pull cord element **25** whose purpose and function goes beyond that of a conventional tampon string, as will be explained in greater detail further on in the specification.

As shown in FIG. 2, the vibrator unit **12** comprises a generally elongated vibrator member **30** including a male **31** and female **32** casing segment which are joined together in a well recognized fashion to provide a waterproof housing for the internal components of the vibrator member **30**.

Turning now to FIGS. 3 and 5, it can be seen that the vibrator member **30** comprises a circuit board **33** having a printed circuit **34** which controls a miniature vibrator motor **36** in response to the output from the remote power supply unit **13**.

As shown in FIGS. 2 through 4, the remote power supply unit **13** comprises a low voltage battery member **50** connected by a pair of thin, flexible, electrical leads **26, 27** which are encased within the pull cord element **25** such that the electrical leads **26, 27** can provide electrical current to the vibrator motor **36** from the battery member **50**.

As can best be seen by reference to FIGS. 3 and 4, the electrical connection between the battery member **50** and the vibrator motor **36** is further controlled by a switch element **51** which completes the electrical circuit; wherein, a micro fuse **52** is disposed in the positive electrical lead **26** to prevent any power surges from the battery member **50** from being transmitted through the electrical leads **26, 27** to give an electrical shock to a woman employing the apparatus **10**.

In addition, the battery member **50** switch element **51** micro fuse **52** and a portion of the electrical leads **26, 27** are contained within an insulated housing element **53** preferably fabricated from soft rubber or plastic to reduce the risk of abrasion by the contact of the power supply unit **13** with the user's skin.

It should also be noted that due to the primary focus of this invention which is to eliminate the possibility that a woman would receive an electrical shock to the vaginal canal and to substantially reduce the possibility of an electrical shock being transmitted to skin surfaces outside of the vaginal canal a great deal of care has been given to the choice of the low voltage battery member **50**.

To that end, in the preferred embodiment of the invention, a 2-volt battery member **50** has been found to produce acceptable results. However, it should be noted that the acceptable range of voltages that can be employed in this apparatus can range from a maximum of 3.7 volts to a minimum of 1.5 volts or provide extended operation of the vibrator motor **36**.

Turning now to FIGS. 4 and 5, it can be seen that the vibrator motor **36** is secured to the circuit board **33** by a plurality of mounting tabs **41** and one end of the vibrator motor **36** is provided with a motor counterweight **42** whose oscillating motion imparts a vibrating motion to the tampon member **20** via the external case

segments **31** and **32**.

By now, it should be appreciated that while the present apparatus **10** contains all of the advantages produced by the subject matter of U.S. Patent No. 5,782,779, it also removes the remote possibility of internal electrical shocks by locating the power source unit **13** at a remote location from the vibrator unit **12** wherein the remote location is positioned at a distance from the vaginal canal as dictated by the length of the pull cord element **25**.

Although only an exemplary embodiment of the invention has been described in detail above, those skilled in the art will readily appreciate that many modifications are possible without materially departing from the novel teachings and advantages of this invention. Accordingly, all such modifications are intended to be included within the scope of this invention as defined in the following claims.

Having thereby described the subject matter of the present invention, it should be apparent that many substitutions, modifications, and variations of the invention are possible in light of the above teachings. It is therefore to be understood that the invention as taught and described herein is only to be limited to the extent of the breadth and scope of the appended claims.

I CLAIM:

1. An improved vibrating tampon apparatus comprising:

an inner vibrator member including a vibrator motor contained within a waterproof housing;

an outer tampon member fabricated from a sterile absorbent material, disposed in a surrounding relationship relative to said inner vibrator member, and dimensioned to be received in a female's vaginal canal; and,

a remote power source unit electrically connected to said vibrator motor and including a switch actuated battery member disposed outside of the vaginal canal for providing electrical current to said vibrator motor.

2. The apparatus, as in claim 1; wherein, the outer tampon member is provided with an opening which is dimensioned to receive a pull cord element which is operatively associated with the inner vibrator member.

3. The apparatus as in claim 1; wherein, the pull cord element encapsulates a pair of electrical leads which are operatively connected between the battery member and the vibrator motor.

4. The apparatus as in claim 3; wherein, the switch actuated battery member and the micro-fuse are disposed within an insulated housing element.

5. The apparatus as in claim 4; wherein, the switch actuated battery member and the micro-fuse are disposed within an insulated housing element.

6. The apparatus as in claim 1; wherein, said switch activated battery member has a maximum voltage of 3.7 volts.

7. The apparatus as in claim 1; wherein, said switch activated battery member has a minimum voltage of 1.5 volts.

8. The apparatus as in claim 1; wherein, said switch activated battery member has a voltage ranging from 3.7 volts to 1.5 volts.

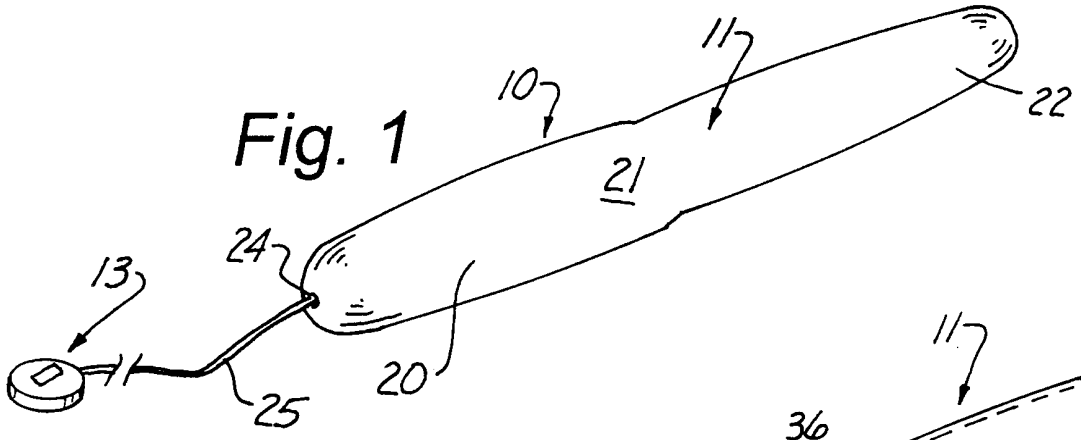

Fig. 1

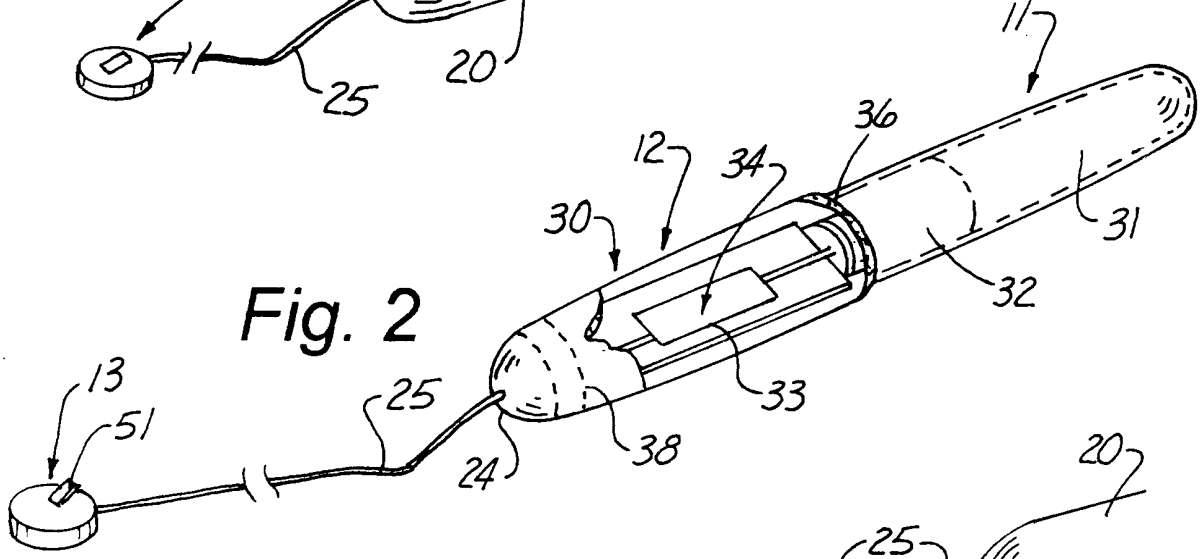

Fig. 2

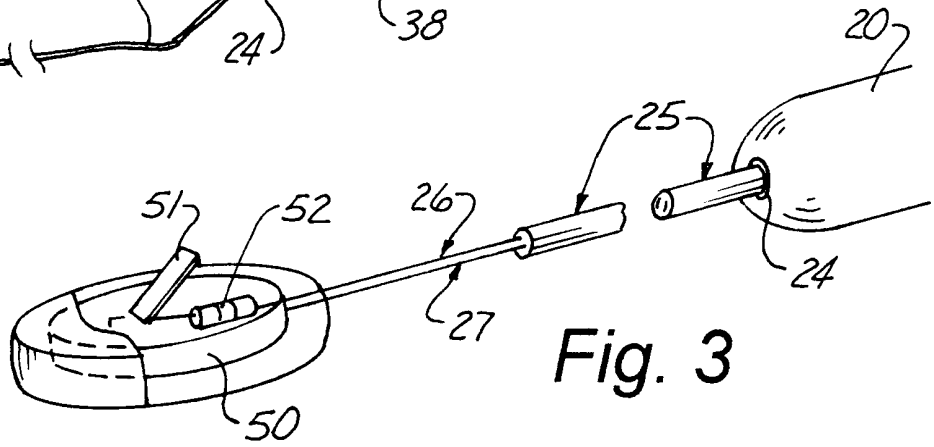

Fig. 3

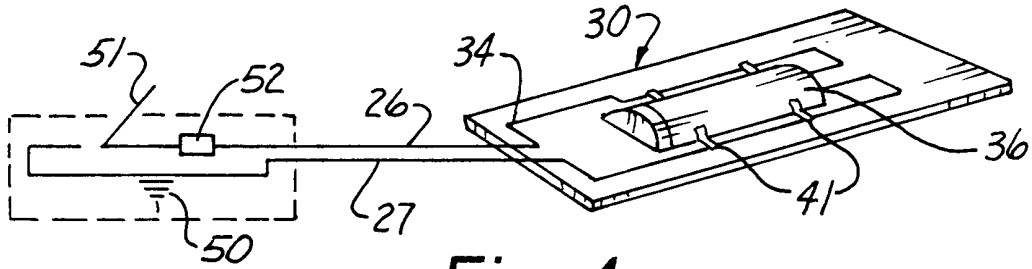

Fig. 4

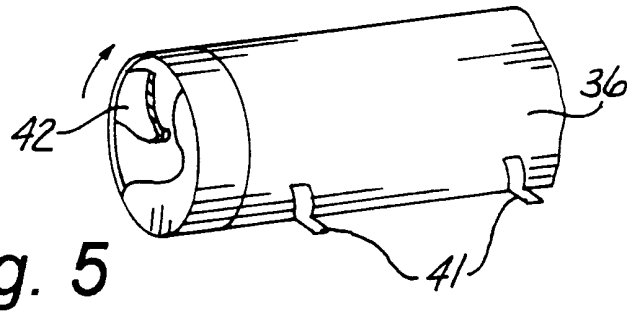

Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/11413

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :A61H 21/00
US CL :601/46

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 601/46, 47, 69-72, 78, 80, 81; 604/904, 363.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST
Search Terms: vibrat$ and absor$ and motor; (tempon or cervical) and (stimulat$ or vibrat$).

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,515,167 A (HOCHMAN) 07 May 1985, Fig. 1.	1-8
A	US 3,669,100 A (CSANAD) 13 June 1972, entire document.	1-8
A	US 5,782,745 A (BENDEREV) 21 July 1998, entire document.	1-8

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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