July 22, 1969 W. J. MATTES ET AL 3,456,851

DEVICE FOR APPLYING LUBRICANT TO TAMPONS

Filed April 24, 1968

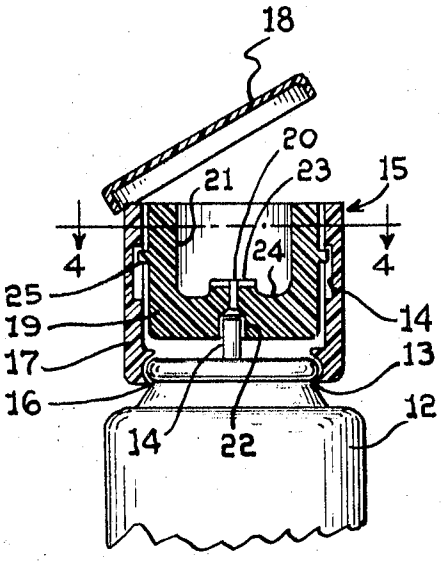


Fig. 1

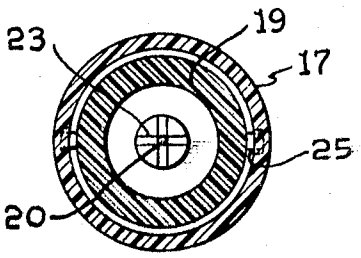


Fig. 4

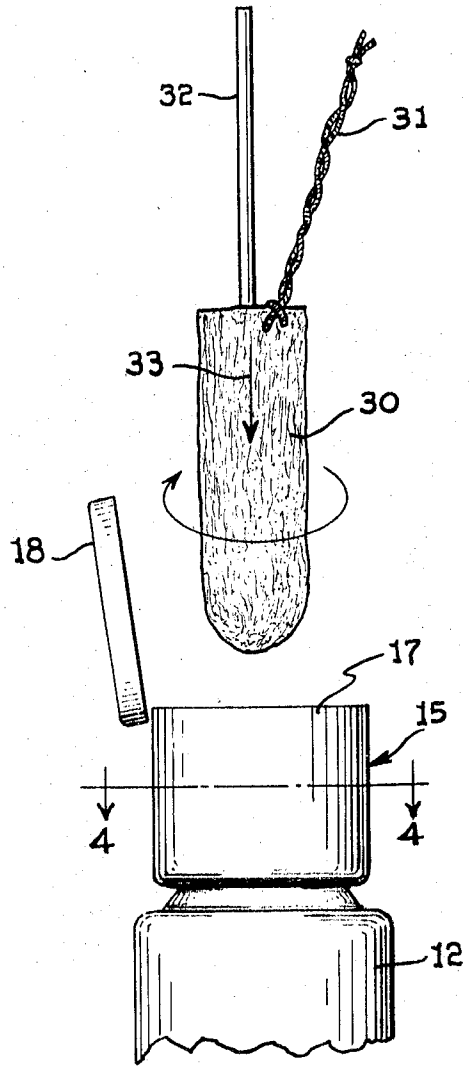


Fig. 2

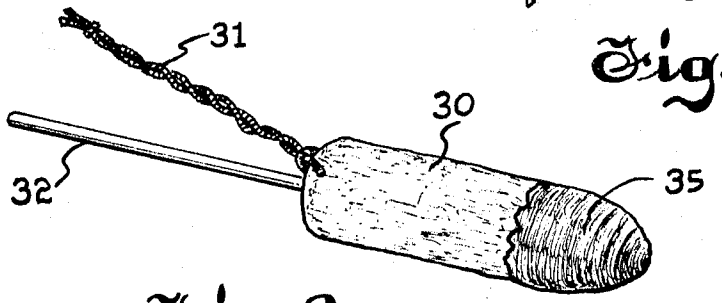


Fig. 3

United States Patent Office 3,456,851 Patented July 22, 1969

3,456,851

DEVICE FOR APPLYING LUBRICANT TO TAMPONS

William J. Mattes and Robert F. Skora, Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware

Filed Apr. 24, 1968, Ser. No. 723,796
Int. Cl. B67d 5/06; B65d 83/00, 83/06
U.S. Cl. 222—205 4 Claims

ABSTRACT OF THE DISCLOSURE

A dispensing cap for a can of pressurized lubricant material especially adapted to apply lubricant to the leading end of an absorbent tampon. The cap is provided with a vertically movable interior shell forming a cup with an axially disposed aperture in its bottom wall. When the end of a tampon is inserted into the cup and pressed downward, the shell moves downward to activate the valve of the pressurized can, releasing lubricant into the bottom of the cup. The tampon is then rotated in the cup, spreading the lubricant circumferentially on the surface of the tampon's leading end.

Background of the invention

Ease of insertion is one of the most important properties desired for tampon devices. The most common method to improve this property has been to provide the tip of the tampon with some sort of pre-applied lubricant, such as water-soluble coatings or films. However, difficulties have been encountered in pre-applying a coating of such material to the tampon and in keeping the coating in suitable condition to enable it to perform its intended function at the time of insertion. While pre-applied insertion aids do improve ease of insertion, it has been found that when a lubricant is applied to the tampon immediately prior to insertion, the lubricity function is much more efficient than that of precoated tampons. Further, such an application appears to interfere less with the important absorbent properties of the tampon. Lubricants for this purpose are now applied from squeeze tubes, pressurized cans, or by direct digital application. However, none of these methods provide as neat and hygienic an operation as is desired.

Accordingly, it is an object of this invention to provide an improved means for applying lubricant to a tampon.

It is another object to provide a dispensing cap device for a can of pressurized lubricant which device is especially adapted for applying lubricant to tampons.

Summary of the invention

This invention comprises a dispensing cap device which fits over the dispensing end of a can of pressurized lubricant material. The device is provided with an internal cup-like member adapted for vertical movement within the outer cap structure. A central aperture in the lower wall of the cup-like member admits lubricant from a cooperating, axially projecting dispensing tube of the pressure can when the tube is depressed by vertical movement of the cup-like member. To apply lubricant to a tampon, the end of the tampon is inserted into the cup, and pressed downward, this opens a conventional valve in the can, admitting lubricant into the bottom of the cup through the axial aperture therein. Pressure on the tampon is released after a desired amount of lubricant is expressed into the cup, and the tampon is then rotated in the cup to spread an even amount of lubricant onto the peripheral surface of the tampon's forward end. A protective lid is used to cover the inner cup-like member to protect the cup from dust and dirt when the device is not in use.

Other features, objects and advantages of the device will become apparent by reference to the following specification and accompanying drawing.

Brief description of the drawing

In the drawing, in which like numbers represent like parts:

FIGURE 1 is a sectional view of one embodiment of the dispensing cap device of this invention in position on a pressurized can, with only a top portion of the latter being shown.

FIGURE 2 is a fragmentary side view of a pressurized can with the dispenser cap in place and having its lid open ready to receive a tampon for the lubricant applying operation.

FIGURE 3 is a perspective view of a tampon on which lubricant has been applied by utilizing the device of this invention.

FIGURE 4 is a sectional view taken on line 4—4 of FIG. 1, or FIG. 2.

Description of the preferred embodiment

In FIG. 1, there is shown a can **12** containing a pressurized lubricant such as water-soluble surgical gel, or the like. The pressurized can is provided with a top closure having an annular bead **13**. Axially disposed in said closure is a conventional discharge tube **14** which when depressed activates a suitable spring-biased valve within said closure to discharge lubricant through the tube.

The dispensing cap device **15** fits onto annular bead **13** of can **12**, and is held in place by a projecting lip **16**, or the like, on the lower inner wall portion of the cap. The cap device is comprised of a circular outer member **17**, a flat cover member **18**, and an inner shell-like member **19**. Inner member **19** is disposed for vertically slidable movement within outer member **17**. Cover member **18** may be hingedly connected to outer member **17**, as shown, or attached thereto by a conventional snap fit. The bottom wall of inner member **19** is provided with an axially disposed central aperture **20** which is in communication with the inside of cylindrical cup **21** forming the inner portion of said shell. Aperture **20** is also in communication with, and centrally disposed with respect to socket **22**, which fits over discharge tube **14**. The inner surface of the bottom wall of cup **21** is provided with spaced, radially extending channels **23** in communication with axial aperture **20** and an annular channel **24**.

The outer wall of inner member **19** is provided with projecting tabs **25** which are disposed for slidable engagement in vertical grooves **25** disposed in the inner wall of outer member **17**. The tabs and grooves serve to keep the inner member properly seated and retained within the cap device, and also serve to prevent inadvertent rotation of the inner member when lubricant is spread on the tampon. Two diametrically opposed tabs and grooves are adequate for the intended purpose, but additional ones may be used. Other suitable means for movably attaching the inner member **19** to outer member **17** may also be used.

In FIG. 2, there is shown a compressed cylindrical tampon body **30** with a conventional withdrawal string **31** and insertion stick **32**. The tampon is shown poised above the cap device, ready for insertion therein. After the tampon is inserted in cap device **15**, additional downward pressure is applied on the tampon in the direction indicated by arrow **33**. This opens the valve in pressure can **12** and causes lubricant to be discharged from pressure can **12** into the interior of cup **21** (FIG. 1). Downward pressure on the tampon is then released, following which the tampon is rotated, as shown by arrow **34**, causing the lubricant in cup **21** to be spread peripherally on the surface of the tampon's leading end.

In FIG. 3, the tampon is shown ready for insertion with an even coat of lubricant **35** spread on its leading end.

It will be seen that the lubricant may be applied to the tampon without having the hands of the user touch either the lubricant or the tampon body, thus providing a convenient and tidy means of application. The cover **18** for the device is kept closed when not in use to protect the inner cup from dust and dirt, maintaining the device and its contents in a sanitary and hygienic condition.

While the device of this invention as shown, is particularly adapted for applying lubricant to stick-type tampons in which the compressed tampon has a rounded nose portion, it is equally effective for applying lubricant to stick type tampons of other configurations, as well as to tube-confined tampons. In the latter case, however, it is preferred that annular channel **24** be omitted from the bottom wall of the cup, with radial channels **23** extending all the way to the inner side wall of the cup. This modification allows for better distribution of the lubricant as well as more uniform application of lubricant to the tube surfaces.

In the drawings, the cap device is shown as being made from plastic. Polyethylene and polypropylene are both excellent for this purpose. Other plastics can, of course, be used, as well as metal.

If polypropylene is used, the inner member may be flexibly attached to the outer member by a thin bar which will permit vertical movement and also allow the entire device to be cast as one piece.

The cover is shown as hinged to the outer member, but a snap fit may also be used.

Various configurations for the cap device other than the cylindrical style shown in the drawings may also be used, such as a truncated cone, or a rectangular outer body and cylindrical inner shell, etc.

Various known lubricants, both medicated and plain, are suitable for use in the pressure can. Preferred are water-soluble types such as surgical gel, in order to minimize adverse effects on absorbency of the tampon body.

It is understood that the invention is not limited specifically to the preferred embodiments set forth above, and that suitable changes, modifications, and variations may be made without departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A dispensing cap device for a pressurized can of lubricant material particularly adapted for applying lubricant to the tip of an absorbent tampon; said can being of the type which includes an axially disposed dispensing tube projecting through the top closure of the can, with said tube having a central discharge opening therein controlled by a depressible valve disposed within the can, the top closure of the can having an annular bead for seating said cap; said cap comprising a hollow outer member, a cover for said outer member, and an inner member disposed within said outer member in vertically slidable relationship therewith; the lower portion of said outer member being provided with means to engage and hold said cap on said bead; said inner member being a shell-like structure having formed therein a cylindrical cup of a size adapted to receive the end of a tampon body; the bottom wall of said cup being penetrated by an axially-extending aperture; the upper surface of said bottom wall having spaced grooves extending radially outward from said aperture; the lower surface of said bottom wall having an axially disposed socket in which said aperture is centered and which is adapted to engage said dispensing tube; and means to permit vertical movement of said inner member within said outer memebr while restricting rotational movement.

2. The device of claim **1** in which said means comprise at least a pair of diametrically opposed projecting tabs on the outer wall of said shell and short vertical grooves on the inner surface of said outer member for slidable engagement with said tabs.

3. The device of claim **1** in which the inner surface of said bottom wall has an annular groove in communication with said radial grooves.

4. The device of claim **1** in which said cover is hinged to said outer member.

References Cited

UNITED STATES PATENTS

2,518,751	8/1950	Carlton	222—205 X
3,137,414	6/1964	Steinkamp	222—402.13 X
3,203,454	8/1965	Micallet	222—205 X
3,211,384	10/1965	Seaquist	222—402.13 X
3,257,044	6/1966	Seaquist	222—402.13
3,370,756	2/1968	McKinnie	222—402.13 X

ROBERT B. REEVES, Primary Examiner

N. L. STACK, JR., Assistant Examiner

U.S. Cl. X.R.

222—402.13