UNIT FOR DISPENSING LIQUID FROM A FRANGIBLE AMPOULE

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ABSTRACT

The unit comprises large and small blisters which communicate with one another by way of a passage extending between the blisters. The large blister is covered with a non-porous sheet while the small blister is covered by a sponge-like scrubbing pad. A liquid-containing ampoule is housed within the large blister and, when the sides of that blister are squeezed inwardly to break the ampoule, the liquid therein is released and flows through the passage and into the small blister from where the liquid may be dispensed through the scrubbing pad.

6 Claims, 5 Drawing Figures
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BACKGROUND OF THE INVENTION

This invention relates to a liquid dispensing unit such as a skin scrubbing unit and constitutes an improvement over another skin scrubbing unit which I have developed. My other skin scrubbing unit lends itself to high speed manufacturing and assembly techniques and comprises a one-piece body made of flexible material and defining an open-sided blister for receiving a frangible ampoule filled with a liquid skin cleansing agent. The open side of the blister is covered with a sheet or pad of porous material such as polyurethane foam which becomes permeated with the cleansing agent when the sides of the blister are squeezed inwardly to break the ampoule.

SUMMARY OF THE INVENTION

The general aim of the present invention is to provide a new and improved liquid dispensing unit which may be manufactured and assembled by substantially the same high speed techniques as the above-described unit and which, at the same time, enables dispensing of the liquid through a smaller sponge-like pad so as to permit scrubbing of a more selective area with a greater concentration of liquid.

A further object of the invention is to provide a skin scrubbing unit of the above character in which the blister may be flexed into an inclined position with respect to the pad so as to form an inclined handle facilitating manipulation of the pad.

These and other objects and advantages of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a new and improved dispensing unit embodying the novel features of the present invention, the view primarily showing the top of the unit.

FIG. 2 is a perspective view which primarily shows the bottom of the dispensing unit.

FIG. 3 is a perspective view showing the unit after the handle has been flexed to an inclined position with respect to the pad.

FIG. 4 is an exploded perspective view of the unit.

FIG. 5 is a perspective view which schematically illustrates one high speed method of manufacturing and assembling dispensing units incorporating the features of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention contemplates the provision of a new and improved liquid dispensing unit such as a skin scrubbing unit 10 which may be manufactured and assembled by high speed, automated techniques and which is capable of dispensing liquid from a frangible ampoule 11 (FIG. 4) and concentrating the liquid within a relatively small scrubbing pad 13. In addition, the scrubbing unit may be easily manipulated while the user keeps his fingers well away from the skin area being cleansed.

As shown in FIG. 1, the scrubbing unit comprises a one-piece body 14 having an elongated or oblong dome of blister 15 of generally U-shaped cross-section. The ends 16 and 17, the sides 19 and the top 20 of the blister are closed while the bottom of the blister is open when the body is first formed. The body is made of a non-porous material such as polyvinylchloride which is sufficiently rigid to retain its shape but which also is flexible and capable of yielding. A peripheral flange 21 preferably is formed integrally with the blister adjacent the bottom thereof and projects outwardly from the end 17 and the sides 19 of the blister.

Housed within the blister 15 is the ampoule 11 which is made of glass or other frangible material, the ampoule being filled with a liquid cleansing agent such as alcohol. The ampoule is captivated in the blister 15 by a sheet 23 of non-porous plastic material which is suitably heat sealed to the flange 21.

In carrying out the invention, a generally rectangular tongue 25 is formed integrally with the blister 15 and projects outwardly from the forward end 16 of the blister adjacent the bottom thereof, the bottom side of the tongue initially lying in the same plane as the bottom side of the flange 21. Formed in the tongue is a second blister 26 defining an open-bottomed chamber 27 (FIG. 4) which communicates with the interior of the blister 15 by way of a downwardly opening passage or channel 29 formed in the end 16 of the blister 15. The scrubbing pad 13 is bonded to the bottom of the tongue and is made of a porous sponge-like material such as polyurethane foam. The pad is small in size when compared to the sheet 23 and has a bottom area which is approximately one third that of the sheet. Preferably, the end of the pad 13 overlaps the adjacent end of the sheet 23.

To use the scrubbing unit 10, the sides 19 of the blister 15 are squeezed and flexed inwardly between the thumb and the forefinger to crush the ampoule 11 and release the cleansing agent into the blister 15. Thereafter, the rear end of the unit is tilted upwardly at about a 45 degree angle so that the liquid in the blister 15 flows through the channel 29 and collects in the chamber 27 from where the liquid may pass into and permeate the sponge-like pad 13.

Prior to scrubbing the desired skin area, the user may press the pad 13 downwardly against the skin and, at the same time, may lift upwardly on the rear end portion of the blister 15 so as to flex the blister upwardly relative to the pad. As a result, the blister assumes an inclined position relative to the pad and the tongue 25 (see FIG. 3) and defines a convenient handle by which the user may manipulate the pad without touching his fingers on the skin area to be cleaned. To facilitate upward flexing of the blister 15, a section of the body 14 may be weakened to define a hinge line. In this instance, the hinge line is defined by two generally V-shaped depressions 30 (FIGS. 1 and 4) formed in the upper side of the tongue 25 adjacent the forward end 16 of the blister 15.

In one method of manufacturing the scrubbing units 10 of the invention, a base sheet 33 (FIG. 5) of appropriate material is advanced step-by-step along a horizontal path by conventional web feeding mechanism (not shown) used in a high speed blister-packaging line. When the sheet dwells, upper and lower dies 34 close upon the base sheet to form the body 14 including the blisters 15 and 26 and the channels 29. The bodies are interconnected by webs 35 which ulti-
mately define the flanges 21 and the margins of the tongues 25.

As the bodies 14 subsequently advance and then dwell, an automatic dispensing mechanism 36 places a filled ampoule 11 into each of the blisters 15. Thereafter, two sheets 39 and 40 are bonded to the webs 35, the sheet 39 covering the bottom of the blisters 15 and ultimately becoming the sheet 23 while the sheet 40 covers the bottom of the blisters 26 and ultimately defines the pad 13. Herein, the leading ends of the cover sheets 39 and 40 initially are attached to the base sheet 33 so that the cover sheets are drawn along with the base sheet as the latter is advanced. After the cover sheets have been guided into overlying relation with the filled bodies and as the sheets dwell, heated pressing shoes 43 engage the sheets to secure the cover sheets to the base sheet. Thereafter, the sheets are advanced to a cutting station where suitable die cutting apparatus 44 cuts through adjacent webs 35 to separate the bodies into individual blistering units 10 which then are packaged in separate glassine envelopes and sterilized.

From the foregoing, it will be apparent that the present invention brings to the art a new and improved blistering unit 10 which is capable of being easily manufactured in mass quantities and which includes a relatively small blistering pad 13 through which the liquid is dispensed. As a result of the small pad, the user is better able to scrub selected areas around a wound or may better prep the skin with a selected wiping motion. Moreover, the liquid in the ampoule 11 is concentrated in the small pad and thus may be more effectively used. By flexing the blister 15 into an inclined position relative to the pad, the blister forms a convenient handle and enables sanitary manipulation of the blistering unit.

I claim as my invention:

1. A unit for dispensing liquid, said unit comprising a one-piece body made of non-porous flexible material capable of retaining its shape, said body including an elongated blister having a top, sides, ends and an open bottom, a fragible ampoule filled with liquid and housed within said blister, a sheet of non-porous material bonded to said body and covering the bottom of the blister to retain the ampoule therein, said body having means located outwardly of one end of said blister and defining a chamber having an open bottom, a pad of porous material covering the bottom of said chamber, and a passage establishing communication between said blister and said chamber whereby, when the sides of said blister are squeezed inwardly to break said ampoule, the liquid therein may flow out of said blister and through said passage into said chamber from where the liquid may be dispensed through said pad.

2. A unit as defined in claim 1 in which a tongue is formed integrally with said blister and projects outwardly from said one end of the blister adjacent the bottom thereof, said means comprising a second blister formed in said tongue and defining said chamber, and said porous material being bonded to the bottom of said tongue.

3. A unit as defined in claim 2 in which said passage comprises a downwardly opening channel formed in said one end of said first blister and leading from said first blister to said second blister.

4. A unit as defined in claim 2 in which a peripheral flange is formed integrally with and projects outwardly from the sides and the opposite end of said first blister adjacent the bottom thereof, said non-porous sheet being bonded to said flange, the bottom of said flange and the bottom of said tongue initially lying in the same plane, and means defining a hinge adjacent said one end of said first blister to enable said tongue to be flexed to a position in which the bottom of said tongue is inclined relative to the bottom of said flange.

5. A unit as defined in claim 4 in which said hinge is defined by a weakened section formed in the material of said body adjacent said one end of said first blister.

6. A unit for dispensing liquid, said unit comprising a one-piece body made of a non-porous flexible material capable of retaining its shape, said body including an elongated first blister having a top, sides, first and second ends and an open bottom, a fragible ampoule filled with liquid and housed within said first blister, a peripheral flange formed integrally with and projecting outwardly from the sides and said first end of said first blister adjacent the bottom thereof, a sheet of non-porous material bonded to said flange and covering the bottom of said first blister to retain said ampoule therein, a tongue projecting outwardly from the second end of said first blister adjacent the bottom thereof, said tongue having a bottom which initially lies in the same plane as the bottom of said flange, means defining a hinge adjacent said second end of said first blister to enable said tongue to be flexed to a position in which the bottom of said tongue is inclined relative to the bottom of said flange, a second blister formed in said tongue and having an open bottom, a pad of porous material bonded to the bottom of said tongue and covering the bottom of said second blister, and a passage formed in the second end of said first blister and establishing communication between said first and second blisters whereby, when the sides of said first blister are squeezed inwardly to break said ampoule, the liquid therein may flow out of said first blister and through said passage into said second blister from where the liquid may be dispensed through said pad.

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