A scrubbing unit includes a sponge with a frangible ampoule containing a liquid soap disposed within a slot in the sponge. A cap fits on the sponge over the slot and pinches in the sides of the sponge to compress a portion of the sponge across the ampoule and thereby close the slot. This prevents fragments of the broken ampoule from coming out of the sponge and helps to directionize the flow of soap through the sponge by reducing the permeability of the sponge adjacent the cap.

2 Claims, 5 Drawing Figures
Sponge With Encapsulated Liquid

Background of the Invention

This invention relates to scrubbing units such as may be used in the first-aid treatment of a wound to clean the skin area around the wound preparatory to the application of a bandage. More particularly, the invention relates to the type of unit in which a frangible ampoule containing a liquid cleanser or soap is disposed within a chamber defined by a slot in a sponge and is crushed when the sponge is squeezed to release the soap to permeate the sponge so that an outer surface of the sponge may be used to scrub the skin.

Summary of the Invention

The primary object of the present invention is to provide a new and improved scrubbing unit of the above general character in which the liquid soap more readily permeates the sponge to avoid the necessity of wetting the sponge with water before the unit is used. A further object is to achieve the foregoing by eliminating blockage of the flow of the soap out of the chamber and through the sponge and, at the same time, the sponge itself prevents the glass fragments from the broken ampoule from coming out of the sponge.

A more detailed object is to prevent the glass fragments from coming out of the sponge by closing the slot around the ampoule in a novel manner and, as an incident thereto, to directationalize the flow of the soap toward the scrubbing surface of the sponge.

Invention also resides in a novel construction and connection of parts of the scrubbing unit to render a portion of the sponge relatively impermeable to directationalize the flow of the soap through the sponge and to facilitate easy crushing of the ampoule and handling of the unit when scrubbing clean the skin area around the wound.

These and other objects and advantages of the present 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 an assembled scrubbing unit embodying the novel features of the present invention.

Fig. 2 is a perspective view of parts of the unit aligned for assembly as a unit.

Fig. 3 is an enlarged end cross-sectional view of a partially assembled unit.

Fig. 4 is an enlarged end cross-sectional view of a fully assembled unit.

Fig. 5 is an enlarged side cross-sectional view of the unit showing the ampoule being broken to release the liquid soap.

Detailed Description of the Preferred Embodiment

As shown in the drawings for purposes of illustration, the present invention is embodied in a scrubbing unit 10 comprising a pad 11 which may be used to cleanse the skin around a wound before applying an adhesive bandage. If the skin is not cleaned before the bandage is applied, it is likely that the bandage will come loose and the wound will thereby be left unprotected with the result that the likelihood of infection is greatly increased. Therefore, it is desirable to clean the skin around the wound to remove any foreign substances present so that the bandage which is to be applied will stick to the skin and protect the wound. Unfortunately, washing facilities are not always immediately available and, as a result, an injured person either neglects to properly clean and protect his wound or must go elsewhere in order to clean the injured area.

To provide for on-the-spot cleaning of the skin area around the wound, the scrubbing unit carries its own supply of liquid cleanser 13. The cleanser is contained in a frangible glass ampoule 14 and disposed within the absorbent pad of material 11 so that, when the ampoule is broken, the cleanser is released into the pad for use in cleansing the skin. Herein, the pad is a sponge formed from a flexible, resilient and soft material such as polyurethane foam to prevent undue irritation of the wound as the unit is rubbed back-and-forth across the skin to clean the area around the wound. More particularly, the sponge 11 is formed in the shape of a rectangular block which is about 2 inches long, 1 inch wide and one-half inch thick and includes a slot 15 cut through the upper surface 16 into the sponge to serve as a chamber for containing the ampoule 14. The latter is substantially cylindrical in shape and is approximately 1/4 inches long and one-fourth inch in diameter and contains the cleanser which is a liquid soap.

Normally several of the scrubbing units 10 are supplied in a packet (not shown) carried in a first-aid kit. When it is desired to use one of the units, the latter is removed from the packet and squeezed to break the ampoule 10 (see FIG. 5) which thereby releases the soap into the sponge 11 to flow toward the lower or scrubbing surface 17 of the sponge. In use, the sponge is held against the skin under a slight pressure and rubbed gently back and forth to clean the skin area around the wound.

In accordance with the primary aspect of the present invention, the scrubbing unit 10 includes a cap 19 which functions in a novel manner to enable the liquid soap 13 to permeate the sponge 11 more readily and thus eliminate the necessity of having to wet the sponge with water before use. For this purpose, the ampoule 14 alone is contained within the sponge thereby to avoid any substantial blockage of the flow of the soap from the slot 15 and through the sponge. The cap serves to hold the slot closed to prevent glass fragments from coming out of the slot in the sponge by compressing the slotted portion of the sponge across the ampoule so that nothing additional is required to prevent glass fragments from migrating to the surfaces of the sponge. This has the added advantage of rendering that portion of the sponge relatively impermeable as compared with the remainder of the sponge and thus helps to directationalize the flow of the soap from the slot toward the scrubbing surface 17 so that water need not be used to draw the soap to the scrubbing surface. In addition, the cap serves as a backing against which the ampoule may be crushed easily between the fingers and as a handle so that the scrubbing unit is easier to hold during use.

In the fully assembled scrubbing unit 10 as shown in FIG. 1, the cap 19 includes a central web 20 which spans two side flanges 21. The latter are joined integrally with the web along opposing edges 23 thereof and fit along the opposite sides 24 of the sponge with the web in engagement with the upper surface 16 to cover the slot 15. Preferably, the flanges are folded to-
ward each other under the edges of the web and include upturned shoulders 26 facing each other. The facing surfaces 27 (see FIG. 4) of the shoulders compress the sponge between the two flanges 21 and the upper ends 29 of the shoulders pinch a portion of the sponge against the web 20 to keep the sponge 11 from easily being pulled loose from the web.

As shown in FIG. 4 the sponge is compressed above the ampoule 14 thereby shutting the slot 15 to prevent fragments of the broken ampoule from coming out of the unit 10. In addition, the compressing of the sponge above the ampoule and between the two shoulders 26 reduces the permeability of the sponge adjacent the web. This prevents a substantial portion of the soap 13 from flowing into the area adjacent the cap so that more soap is directed toward the scrubbing surface 17.

As a result of this directionalization of the flow of soap from the ampoule, the scrubbing surface need not be wetted with water in order to draw the soap through the sponge and to the surface for use in scrubbing. Thus, the unit is easier to use in the field because once the ampoule is broken the unit is immediately ready for use in cleansing the area around the wound.

Prior to assembly of the unit 10, the cap 19 resembles a channel-shaped member with the flanges 21 formed at right angles to web 20 and the shoulders 26 extending inwardly towards each other as shown in FIGS. 2 and 3. To assemble the unit, the ampoule 14 is positioned in the slot 15 and the cap is placed over the slot with the flanges engaging the sides 24 of the ampoule, the web engaging the upper surface 16 and the shoulders 26 pressing in on the sides of the ampoule below the upper surface (see FIG. 3). Thereafter, the cap is heat treated along the edges 23 and the flanges are bent toward each other with the ends 29 of the shoulders eventually pinching a portion of the sponge against the underside of the web thereby trapping upper corner portions of sponge in a triangular area 30 (see FIG. 4) between the web and the flanges and against the underside of the web. This also causes the shoulders to compress the sponge just above the ampoule to seal closed the slot 15 to prevent escape of ampoule fragments and to directionalize the flow of soap when the ampoule is broken.

Once assembled, the unit 10 is ready for use and may be stored conveniently in the first-aid kit until needed. To use the unit, the ampoule may be broken easily by pressing against the scrubbing surface 17 to squeeze the sponge 11 against the web 20 of the cap 19 as shown in FIG. 5. Thus, the cap advantageously serves as a backing against which the ampoule may be broken between the fingers to prepare the unit for use.

From the foregoing it will be seen that the present invention provides a novel scrubbing unit 10 which is more convenient to use in the field owing to the increased permeability of the sponge resulting from the novel arrangement of the cap 19. In addition, the cap serves to prevent fragments of the broken ampoule 14 from coming out of the sponge and to directionalize the flow of the liquid soap 13 toward the surface of the sponge so that the sponge need not be wetted with water before usage.

1 claim:

1. A scrubbing unit for use in cleansing the skin around a wound, said unit comprising a block-shaped sponge having a top surface and a bottom scrubbing surface, a slot formed in the upper portion of said sponge and opening upwardly out of said top surface, a frangible ampoule disposed within said slot, a liquid cleanser contained within the ampoule to permeate the sponge when the ampoule is broken, a rigid and non-permeable cap having a central web disposed across said top surface and said slot, and means integral with opposite margins of said web and compressing opposite sides of said sponge inwardly above said ampoule and compressing said sponge against said web thereby to clamp the sponge against the web, to close said slot, and to directionalize the flow of the liquid cleanser downwards through the sponge and toward said scrubbing surface.

2. A scrubbing unit for use in cleansing the skin around a wound, said unit comprising a block-shaped sponge having a top surface and a bottom scrubbing surface, a slot formed in the upper portion of the sponge and opening out of said top surface, a frangible ampoule disposed within said slot, a liquid cleanser contained within the ampoule to permeate the sponge when the ampoule is broken, and a rigid and non-permeable cap having a central web disposed across said top surface and said slot, opposing flanges integrally joined with opposite margins of said web and inclined downwardly and inwardly therefrom into compressive engagement with opposite sides of the sponge, and an upwardly and inwardly inclined shoulder formed along the inner end of each flange and coacting with the latter and said web to compress the portion of the sponge above said ampoule thereby to hold the sponge against the web, to close said slot and prevent fragments of the broken ampoule from coming out of the sponge and to directionalize the flow of the liquid cleanser through the sponge and toward said scrubbing surface so as to avoid having to wet the sponge with water before usage.

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