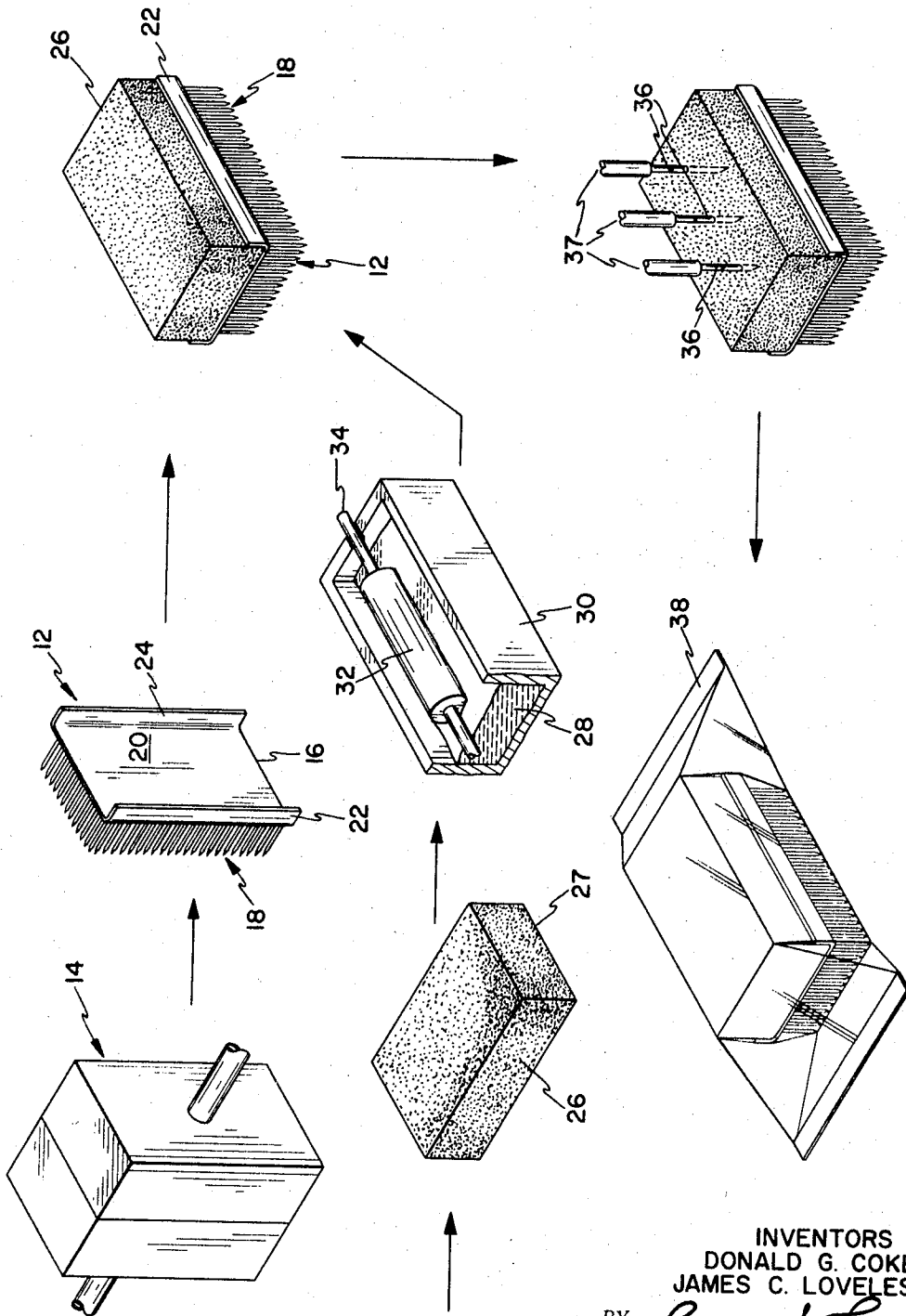


June 3, 1969

D. G. COKER ET AL
SURGICAL SCRUB DEVICE
Filed Feb. 12, 1968

3,447,181



INVENTORS
DONALD G. COKER
JAMES C. LOVELESS
BY *Lynn J. Foster*
ATTORNEY

1

2

3,447,181

SURGICAL SCRUB DEVICE

Donald G. Coker, Salt Lake City, and James C. Loveless, Layton, Utah, assignors to Deseret Pharmaceutical Company, Inc., Sandy, Utah

Filed Feb. 12, 1968, Ser. No. 704,670

Int. Cl. A46b 15/00; A47i 13/14, 13/50

U.S. Cl. 15—104.94

1 Claim

ABSTRACT OF THE DISCLOSURE

An end product for making a surgical scrub brush comprising molding a brush portion comprised of backing and bristles from synthetic resin and thereafter attaching a porous foam or sponge of selected size to the backing. Surgical detergent or the like is forced into the sponge, preferably at various depths for timed release during scrubbing. The surgical scrub device is thereafter packaged and sterilized.

The present invention relates to a pre-surgery scrub device and, more particularly, to a scrub brush and open-cell foam or sponge that contains a predetermined amount of detergent.

Prior to engaging in surgical operations, physicians and nurses are required to conform to recognized sterile techniques by scrubbing their hands and arms for a predetermined length of time in a suitable manner. Most frequently, a conventional sterilized hand brush is used onto which antibacterial detergent is deposited from a leg-actuated dispenser during the scrubbing procedure. Generally, the sterile technique requires that at no time during the scrubbing procedure shall the hands or arms contact anything except the sterile hand brush, the detergent and running water.

The present invention provides a novel surgical scrub device comprising a unique combined brush and detergent-infused sponge, which, among other things, obviates the need for a separate detergent supply and remote dispensing system.

It is therefore a primary object of the present invention to provide a novel surgical scrub device.

Other objects and features of the present invention will become more fully apparent from the following description and appended claims taken in conjunction with the drawings wherein:

The one figure schematically illustrates the presently preferred step-by-step process for forming and impregnating the presently preferred embodiment of the surgical scrub device.

With reference to the drawing, a brush portion, generally designated 12, is formed by injection molding a suitable resinous material into a partible mold 14. Although any suitable resinous material could be used, polyethylene is presently preferred. The mold 14 is internally configured to form the brush portion 12 as an integral unit which comprises a U-shaped backing 16 and a set of bristles 18, which desirably extend away from the back in more or less a common direction. The bristles 18 are preferably suitably sized so as to be relatively flexible and resilient.

The backing 16 is provided with a central flat portion 20 and upwardly directed side portions 22 and 24 which, together with the flat portion 20, form the U-shape.

A conventional synthetic sponge 26, preferably formed of open cell polyurethane foam, is shown as being rectangular in shape and sized to contiguously fit within the U formed by the flat portion 20 and the inside surfaces of the side portions 22 and 24.

Before assembly the bottom sponge surface 27 (which is to be contiguous with the brush backing 16) is first treated with a suitable bonding agent 28. For example only, the bonding agent 28 is applied from reservoir 30 to the sponge 26 by rolling the bottom sponge surface 27 over a freely rotatable roller or cylindrical applicator 32, the bottom of which rests in the confined liquid bonding agent 28. The roller 32 is carried upon a shaft 34 which in turn rests in concave side recesses of the receptacle 30. Sufficient bonding agent 28 is maintained within the receptacle 30 to always engage the lower edge of the roller 32.

Thus, as the sponge 26 is displaced across the roller 32, bonding agent 28 will be deposited upon the contacting sponge or foam surface 27. Although it is presently preferred that a commercially available hot melt adhesive be used, other bonding agents including latex-based adhesives or various epoxies could be used to securely attach the sponge 26 to the backing 16 of the brush portion 12. When the adhesive used is latex based or epoxy, it is often preferable to etch or rough the surface 16 to insure a more permanent bond. Etching or roughing is not necessary when a hot melt adhesive is used, although the hot melt adhesive in receptacle 30 must be maintained at a temperature sufficient to retain the adhesive in a liquid condition.

Usually after the sponge 26 and the brush portion 12 have been united into a single combination as shown at the upper right of FIGURE 1, the sponge 26 is impregnated with a surgical cleansing agent, preferably surgical detergent. However, pre-impregnation of the sponge 26 before assembly of the brush and sponge could alternatively be resorted to. The surgical detergent is preferably in liquid form and may, if desired, be provided with anti-septic or bacteriostatic material, such as hexachlorophene.

One preferred method of impregnating the sponge 26 comprises injecting the detergent into the sponge at various depths through hollow needles 36. In the illustrated embodiment, an array of hypodermic type needles 36 are advanced to penetrate varying distances into the interior of the sponge. The respective barrels 37 contain a supply of detergent which following the mentioned needle penetration is ejected from the needles into the sponge at different interior depths. The purpose for the variation in depth of detergent placement is to insure a substantially continuous time span of release of sudsed detergent throughout the normal scrubbing period responsive to wetting and agitation. Alternatively, the detergent may be forced into the interior open cells of the sponge by use of a pressure gun (not shown).

When the sponge 26 has been suitable impregnated, the combined sponge and brush device is packaged for dispensing. One preferred method of packaging includes placing each surgical scrub device in an individual polyethylene or like bag 38 of polymer film, sealing the device within the bag and thereafter sterilizing the bag and contents. Normally, a plurality of individually packaged brushes will be placed in a dispenser box and the entire unit will be sterilized. Alternately, a plurality of surgical scrub brush and sponge combinations are group packaged in a dispenser box with the dispenser box enclosed, sealed and sterilized, in a bag of the mentioned type.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of

equivalency of the claims are therefore to be embraced therein.

What is claimed and desired to be secured by Letters Patent is:

1. A surgical scrubbing device comprising an open-cell foam portion of generally uniform variation in cell structure throughout having a predetermined generally block configuration and a substantial depth; a molded unitary brush portion of synthetic resinous material generally co-extensive with the foam portion and presenting an array of individual bristles integral with one flat surface of a base comprising a thin planar wall and opposed upstanding side edges which are contiguous with the foam portion; the foam portion being in face-to-face bonded relation with a second flat surface of the thin planar wall opposite the bristles so that the original predetermined block configuration of the foam portion is substantially preserved; surgical scrubbing agent disposed in a substantial portion of the interior of the open cells of the foam portion so that sudsing will occur following wetting and agitation for scrubbing-up prior to surgery; and a

sealed bag of synthetic film enveloping the brush portion and the foam portion.

References Cited

UNITED STATES PATENTS

2,889,567	6/1959	Solomon	15—244 XR
3,396,419	8/1968	Richter et al.	15—104.93
1,748,008	2/1930	Barnowitz	15—110 XR
3,061,087	10/1962	Scrivens et al.	206—63.2
3,094,735	6/1963	Hanlon	15—104.93
3,283,357	11/1966	Decker et al.	252—91

FOREIGN PATENTS

352,330	7/1931	Great Britain.
1,024,188	3/1966	Great Britain.

PETER FELDMAN, *Primary Examiner.*

U.S. Cl. X.R.

15—114, 244; 252—91; 206—63.2; 401—283