Nov. 29, 1966 J. C. CAHLIK 3,288,327

PACKAGING OF SURGICAL GAUZE SPONGES AND THE LIKE

Filed April 14, 1965

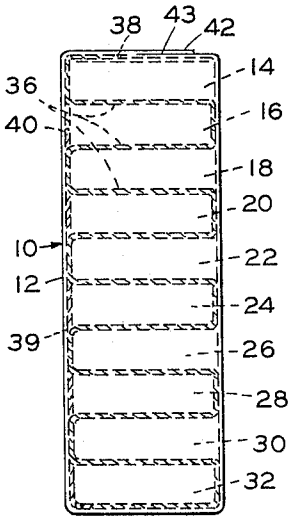


FIG. 1

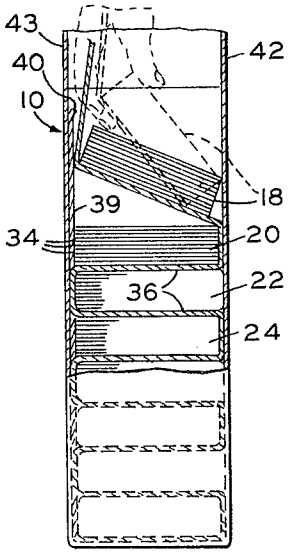


FIG. 2

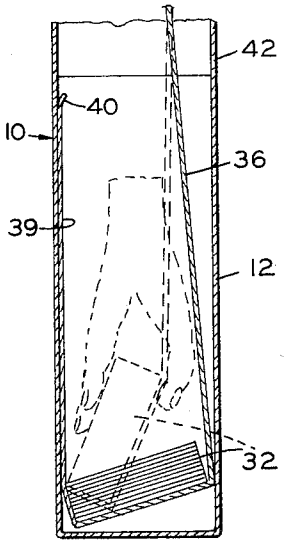


FIG. 3

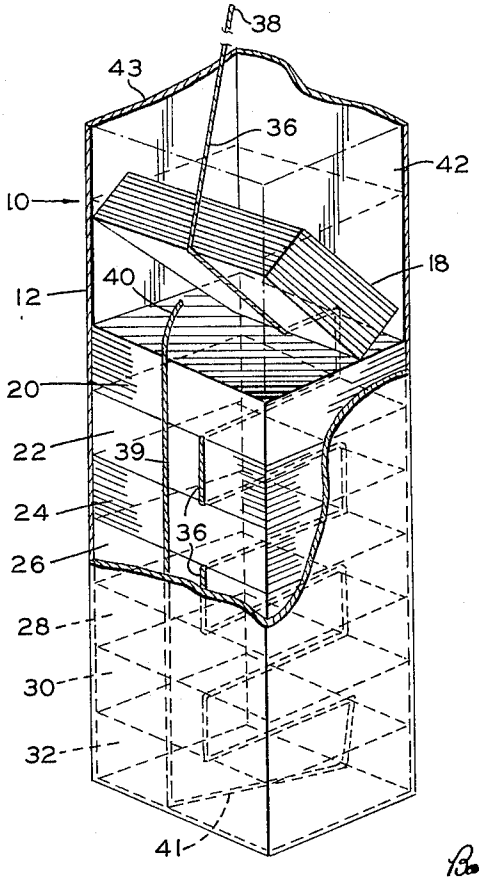


FIG. 4

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# PACKAGING OF SURGICAL GAUZE SPONGES AND THE LIKE

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This invention relates to packaging and dispensing a plurality of discrete articles and in particular to a package containing discrete articles such as surgical dressings or the like arranged in a plurality of separated groups each consisting of a precounted number of the articles and including means to facilitate successive removal of the articles individually and in groups from the package as required.

One form of surgical dressing presently in widespread use in surgical and related medical fields is a sponge commonly referred to as an "X-ray sponge" consisting of a piece of loosely woven cotton gauze, which for example is folded into a sixteen-ply pad four inches square and approximately one sixteenth of an inch in thickness when compressed. Large quantities of such gauze sponges are used in hospital surgical activities, but under strict inventory control involving meticulous hand counting procedures on the part of the operating room personnel to insure that all such sponges supplied to the surgeon are accurately accounted for at the completion of the operation. Hitherto it has been customary to commercially supply such sponges in packages of for example ten sponges each. The operating nurse would obtain a supply of these packages, tear them open, individually count out by hand the requisite number of sponges and place them on a sterilizing tray along with the surgical instruments for subsequent sterilization and delivery to the operating room for use in the scheduled operation. Due to the flimsy and folded nature of the gauze sponges, they are difficult to handle, dispense and count as presently packaged, and therefore the above procedure is more time consuming and costly and less reliable than is desired.

It is an object of the present invention to provide an improved package protectively enclosing a relatively large quantity of discrete articles such as gauze sponges or the like which facilitates accurate and rapid dispensing of individual and precounted groups of the articles therefrom.

Other objects, features and advantages of the present invention will become apparent from the following description taken in conjunction with the accompanying drawing wherein:

FIG. 1 is a side elevational view of one preferred embodiment of a sealed package of the present invention containing gauze sponges arranged in discrete groups each containing a precounted number of sponges.

FIG. 2 is a side elevational view of the package of FIG. 1 with a portion of the side of the package broken away and with its upper end opened, illustrating the package after the two uppermost groups of sponges have been removed and with the third group in the process of being manually removed.

FIG. 3 is a side elevational view of the package of FIGS. 1 and 2 illustrating the same after all but the bottom group of sponges has been removed from the package, with this last group in the process of being removed.

FIG. 4 is a perspective view of the package corresponding to its condition in FIG. 2 and a portion thereof broken away.

Referring in more detail to the drawing, FIG. 1 illustrates a sealed package **10** in accordance with the present invention. Package **10** comprises a suitable container **12**, such as a paper or plastic bag or cardboard box, which in the illustrated embodiment is square in cross section to closely conform to the configuration of the square sponges packaged therein. The top and bottom ends of bag **12** are closed by folding inwardly and adhesively sealing the end portions of the paper bag in a conventional manner. In the case of a cardboard container suitable flaps may be used to seal the ends.

Package **10** also includes a predetermined number of groups of discrete articles of known quantity per group, herein illustrated as ten groups numbered **14–32** inclusive each containing ten individual gauze sponges **34** (FIG. 2). Package **10** thus contains an exact, factory determined count of one hundred gauze sponges arranged in groups of ten stacked one upon another with the sponges laid flat transverse to the lengthwise dimension of the package.

Package **10** also includes a length of flexible material such as string **36** or other suitable material which is factory assembled with sponges **34** in a zigzag fashion such that it extends in alternate opposite directions between adjacent groups **14**, **16**, etc. of the sponges. Thus starting with upper end **38** of the string **36** (as viewed in FIG. 1), the string extends in a plane centrally of the package (parallel to the plane of the drawing) first along the top sponge of group **14** toward the left side of bag **12**, then downwardly between the left side of group **14** and the adjacent wall of bag **12**, then horizontally between groups **14** and **16** to the right side of bag **12**, then downwardly between the right side of group **16** and the adjacent wall of bag **12**, then horizontally between groups **16** and **18** to the left side of the bag, and so on in this zigzag arrangement until the string reaches the bottom of the package. String **36** then extends under the bottom group **32** over to the left side thereof and then straight upwardly along the left side of bag **12**, past at least the lowermost two groups **32** and **30**, and terminating at an end **40** thereof which is disposed adjacent group **16**. As best seen in FIGS. 2 and 4, the straight upwardly extending length of string **36**, hereinafter referred to as a terminal portion **39**, is preferably offset from the portions of string **36** lying adjacent the left sides of groups **18**, **22**, **26** and **28**, as by angling the run **41** of the string beneath the bottommost group **32** (FIG. 4), so that portion **39** is held frictionally secured between the end edges of the sponges **34** and the left side of the bag **12**.

The package **10** when assembled and sealed as described above and as shown in FIG. 1 provides a protective enclosure for the sponges suitable for shipment and storage. When a given quantity of gauze sponges **34** are required for an operation, the upper end of the package is opened by unfolding the folded over ends **42** and **43**, thereby exposing the upper end **38** of string **36**. Preferably the string is dyed a bright red or other contrasting color so that it is readily visible against the white gauze sponges. The upper end **38** of the string is then grasped and pulled upwardly so as to tilt or lift the first group **14** upwardly far enough to enable it to be grasped in the fingers and pulled from the package. This operation is illustrated in FIG. 2 with respect to the third group of sponges **18**. Thus merely pulling on string **36** quickly separates an accurate precount of ten sponges **34** from the balance of the sponges in the package and permits the upwardly tilted group of sponges to be grasped easily without touching the successive sponges. The above string pulling operation is simply repeated as successive groups of articles are needed, successive operations finally emptying the container as illustrated in FIG. 3. If the scheduled surgical operation requires forty-six sponges, for example, the string is successively pulled to

tilt upwardly for successive removal the first four groups **14**, **16**, **18** and **20** and the remaining six sponges required are all that need to be individually counted from the fifth group **28**.

It is to be noted that as the groups of sponges are removed more of the terminal portion **39** of the string becomes exposed, but the string remains securely retained down to and including the bottom group **32** by the remaining groups of sponges frictionally clamping the portion **39** against the adjacent side wall of bag **12**. The terminal portion **39** thus precludes the string from threading its way between the last two or three groups instead of the desired elevation of the same individually as in the previous operations. Due to this frictional retention feature the string may be assembled in package **10** without the need of an adhesive or other fastening means, although if desired terminal portion **39** may be glued to the side edge of the package prior to assembly of the same. In order to obtain reliable frictional retention of terminal end **40** of the string the terminal portion **39** should extend generally parallel to the direction in which groups **14**, **16**, etc. are removable from the package, in this case upwardly along at least the two bottom groups **30** and **32** of sponges, and may of course extend most of the way to the top of the package substantially as shown. In addition, the transverse dimensions of bag **12** should be such that sponges **34** are placed under slight lateral compression when in assembled relation with the bag. Alternatively, the terminal end **39** of the string may be brought up alongside the left side of the bottom group **32** and then laid on top of the bottom group beneath group **30**, or even wrapped around the bottom group **32**, but these alternatives entail more expense in the manufacture of the package and hence the frictional side retention feature is preferred.

Sponges **34** may be readily dispensed from package **10** singly or in precounted groups successively via the upper opened end of the package, even to the last article, without reducing the protective capacity of bag **12**. The sponges are preferably pre-assembled in a given quantity per group as determined by a machine count prior to assembly in the package, thereby reducing the chances for error in count, the amount of handling and the time involved in the count out procedure. These advantages apply to various types of articles adapted to be packaged in the manner of the invention, but they are particularly important and beneficial in the case of surgical gauze sponges which are dispensed, used and then re-called under strict inventory controls.

It is to be understood that the predetermined and precounted number of sponges per group can be varied as desired in the manufacture of package **10**, but for ease of dispensing counted-out quantities it is preferred to use group of five or ten sponges. It is also to be understood that the flexible element **36** may comprise a piece of string, tape or the like, or a wrapper occupying the full width of bag **12** in applications where further protection of the undispensed articles remaining in the package is desired or necessary.

I claim:

**1.** A package for the selective dispensing of a plurality of groups of discrete precounted articles comprising an enclosure, a plurality of groups of said articles contained in said enclosure, said enclosure having means at one end openable to expose the group of said articles closest to said one end for successive removal therethrough of said groups, said groups being arranged in layers in said package transversely to the direction of removal of said groups from the package via said one end, and a flexible length of material extending in a zigzag fashion within said package from adjacent said openable means alternately in opposite directions between said groups and having a terminal portion extending between the one of said groups furthest remote from said one end and the adjacent wall of the remote end of said package and thence between and in contact with the interior surface of one side of the package and the adjacent edges of the articles in said remote group.



**2.** The package as set forth in claim **1** wherein said articles are slightly laterally compressed about their peripheries by the side walls of said package and said terminal portion of said flexible length of material is frictionally clamped by and between said remote group and the adjacent side wall of said package.

**3.** The package as set forth in claim **2** wherein said terminal portion extends alongside at least the two of said groups closest said remote end of said package.

**4.** The package as set forth in claim **3** wherein said terminal portion extends along the interior surface of said side wall for a major portion of its extent generally parallel to the direction in which said groups are removable from said package via said openable end thereof.

**5.** In combination, a container having a plurality of groups of discrete articles arranged with an identical number of said articles in each group and in layers in relatively tightly packed relation in said package and a flexible element extending alternately in opposite directions between each of the groups from one openable end of the package to the other end thereof and thence back along one side of the package in frictional engagement between the edges of said articles in at least one of said groups of closest said other end and the adjacent side wall of the package.

**6.** A protecting and dispensing package for surgical dressings such as gauze sponges or the like consisting of an enclosure adapted to closely surround the sponges with the same arranged in layers extending transversely to the lengthwise dimension of the package and having one end openable for removal of the sponges therethrough, a plurality of groups of sponges firmly packed in layers in the package with an identical number of precounted sponges in each group, and a flexible element extending in zigzag fashion within said enclosure alternately in opposite directions between each of said groups from said one end of the package to the other with one terminal end of said element disposed between the openable end of the package and the adjacent group of sponges, said element having a terminal run adjacent its other end extending from between the opposite end of said package and the group of sponges adjacent thereto along the one side of the package toward said openable end for a distance at least two groups of said sponges, said terminal run being frictionally engaged between the edges of said last two groups of sponges and the adjacent side wall of the enclosure for frictionally retaining said terminal end of said element generally in place as the groups of sponges are successively removed via said openable end.


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