

April 21, 1970

R. H. PRATT
ARTICLE-SEPARATING PACKAGES FOR FLAT ARTICLES
SUCH AS SURGICAL SUPPLIES
Original Filed July 27, 1967

3,507,087

Fig. 1

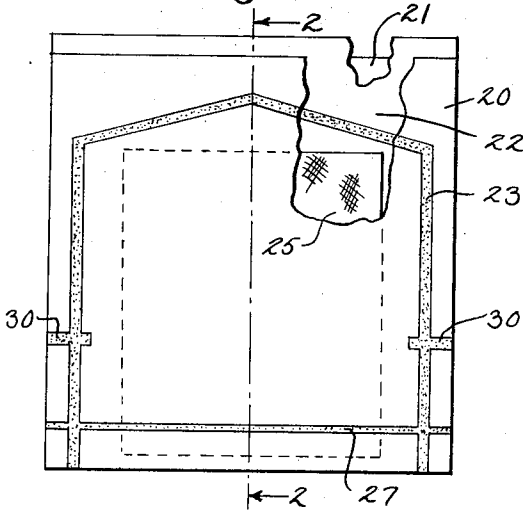


Fig. 2

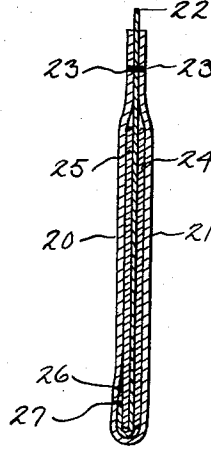


Fig. 3

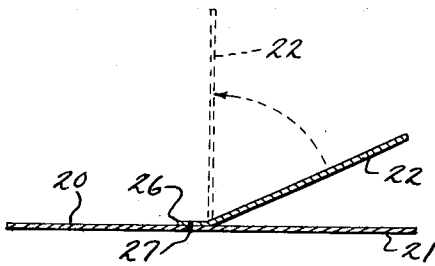


Fig. 4

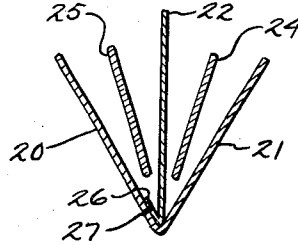


Fig. 5

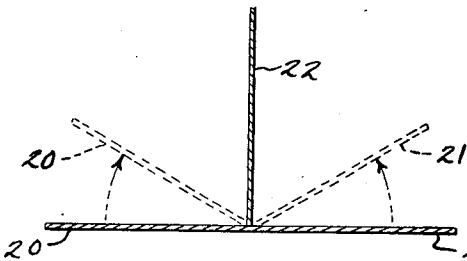


Fig. 6

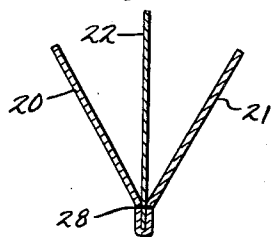


Fig. 7

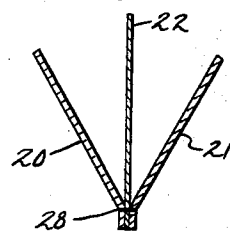


Fig. 8

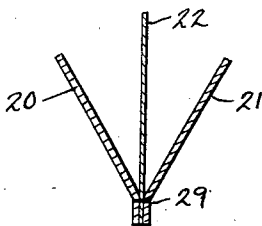


Fig. 9

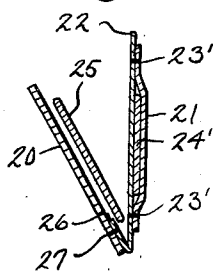
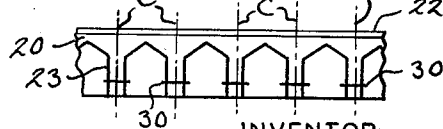


Fig. 10



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ARTICLE-SEPARATING PACKAGES FOR FLAT ARTICLES SUCH AS SURGICAL SUPPLIES

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Divided and this application Feb. 24, 1969, Ser. No. 805,982

No. 805,982

Int. Cl. B65b 43/06

U.S. Cl. 53—29

4 Claims

ABSTRACT OF THE DISCLOSURE

A package having top and bottom panels, at least one of which is of paper having such porosity that steam sterilization is effective therethrough, and there being an intermediate panel separating surgical supplies on each side thereof, the intermediate panel being of heat-sealable film, and the top and bottom panels being heat sealed to the intermediate panel.

This application is a division of application Serial No. 656,409, filed July 27, 1967, now abandoned.

BACKGROUND OF THE INVENTION

Field of the invention

The present invention pertains to packages for surgical supplies such as surgical sponges, and is of a type which allows for steam sterilization of at least some of the surgical supplies after the package has been sealed, the package being of a type which contains plural articles and which permits remaining articles to be held in protected condition in the partially-opened package after one of the items has been withdrawn.

Description of the prior art

Article-separating packages for surgical supplies have heretofore been proposed and reference is made to my Patents Nos. 2,997,166, dated Aug. 22, 1961, and 2,968,396, dated Jan. 17, 1961. In these prior packages one article is adapted to be positioned against one panel and another article against the other panel, there being an article-separating pleat projecting inwardly from one edge of the package between articles. This type of package requires the printing of a heat-sealing pattern on the panels, or the application of lines of adhesive in particular locations, and requires cutting and folding in conformity with said patterns.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an article-separating package wherein it is unnecessary to print a sealing pattern of heat-sealing material on the outer panels, and unnecessary to apply adhesive in particular locations.

It is a further object to provide, as one form of the invention, a package having top and bottom panels and having an intermediate panel of heat-sealable plastic film which performs the dual function of separating the articles and of providing the heat-sealable material which is effective to cause heat sealing of the intermediate panel to both the top and bottom panels when heat-sealing elements of any selected outline are applied thereto.

A further object of the invention is to provide a package as above described which is capable of accommodating one or more articles on each side of the intermediate panel, and which is capable of packaging and separating articles of different size on the two sides of the intermediate panel if desired.

A further object of the invention is to provide a package as above described which can be inexpensively produced and which is capable of being easily opened without contaminating the contents, the package also providing the required porosity for breathing during sterilization.

A further object of the invention is to provide a package which may be easily opened from an edge, the construction being such as to protect the items in the package from contaminating contact both during and after opening of the package, and being such as to protect the remaining items after the contents has been partially used.

A further object of the invention is to provide a package as above described where there may be extra transverse seals which serve to resist opening of the package past a predetermined point, whereby the package stays together in protecting condition during removal of the items.

A further object of the invention is to provide a multi-panel package having top and bottom panels and an intermediate panel, which, in certain forms of the invention, permits selection of different materials for the different panels, depending upon particular requirements.

With the above and other objects in view, the invention consists of the improved article-separating package, and all of its parts and combinations, as set forth in the claims, and all equivalents thereof.

BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawing, wherein the same reference numerals designate the same parts in all of the views;

FIG. 1 is a plan view of a package, part of the top panel being broken away;

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1;

FIG. 3 is a transverse sectional view through the webs showing a first stage in one method of forming the package of FIG. 1, the dotted line position showing a second stage in the method;

FIG. 4 is a similar view showing a third stage in the formation of the package of FIG. 1;

FIG. 5 is a view similar to FIG. 3 showing a modified method of forming the package, the dotted lines indicating a partially-folded position of the outer panels;

FIG. 6 is a view showing a further stage in the formation of a package by the modified method;

FIG. 7 is a fragmentary view similar to FIG. 6 showing the lower edge of the package trimmed off;

FIG. 8 is a transverse sectional view through partially-assembled webs showing a third method of forming the package from three separate webs;

FIG. 9 is a transverse sectional view showing the formation of a modified type of package for packaging articles of different size; and

FIG. 10 is a view showing how the packages are severed between heat seal outlines.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more particularly to the drawing, the preferred package of FIG. 1 includes a top panel 20, a bottom panel 21 and an intermediate panel 22. In the preferred embodiment, the intermediate panel is formed of a heat-sealable film such as a thin sheet of polypropylene or polyethylene. It is also possible to use some other suitable film or material which is coated with a heat-sealing material, such as polypropylene-coated foil. The latter material is, however, relatively expensive and, in the conventional package, cost is usually an important factor. The use of a plastic sheet material such as poly-

propylene film for the intermediate panel 22 provides an inexpensive way of forming the package and the film inherently provides the heat-sealing material.

When the package is to be used for surgical gauze sponges or other materials, these must be sterilized in the package, and the inner and outer panels 20 and 21 must be of a type of paper having such porosity that steam sterilization is possible. In other words, the steam must pass through the paper to be able to act upon the contents of the package. On the other hand, the paper must be of such type that contaminating matter is not admitted. A bleached kraft paper, as well as other suitably porous papers, is satisfactory.

With the construction of the improved package of FIGS. 1 and 2 it is unnecessary to print any adhesive pattern on the panels 20 or 21 or to have a pattern of heat-sealing material on the panels 20 or 21. This is because the heat-sealing characteristics are embodied in the intermediate panel 22 so that heat-sealing elements having the outline indicated at 23 will heat seal the outer panels 20 and 21 to opposite sides of the intermediate panel 22. With this arrangement the expense of pre-printing an adhesive or a heat-sealing material on the panels 20 and 21 is eliminated. In the illustrated package of FIGS. 1 and 2 one surgical gauze sponge 24 is contained on one side of the intermediate panel 22 and another surgical gauze sponge 25 is contained on the other side, the sponge 25 being heat sealed in position by the heat-sealed outline 23, and the sponge 24 being heat-sealed to the other side of the intermediate panel by a like heat-sealed outline 23'.

The package of FIGS. 1 and 2 may be produced in several ways. One of the preferred methods is illustrated in FIGS. 3 and 4. Here a single width of material such as bleached kraft paper forming a first web is continuously fed longitudinally to provide both the top and bottom panels 20 and 21. As a first step in the procedure a strip of material such as polypropylene film to form the intermediate panel 22 is provided with a flange 26 which is heat sealed as at 27 longitudinally of the first web. The intermediate panel 22 is then folded upwardly, as the webs travel longitudinally, to the position shown by dotted lines in FIG. 3. Next, with the web traveling continuously in a longitudinal direction on a suitable machine, the top and bottom panels 20 and 21 are folded partially upwardly, as shown in FIG. 4, and the sponges 24 and 25 or other articles are dropped into position in the manner shown. Thereafter the top and bottom panels 20 and 21 are brought all the way up on opposite sides of the panel 22 and are engaged by the heat-sealing elements to heat seal along the outlines 23 and 23' and form the finished package of FIGS. 1 and 2. Thereafter the individual packages are severed between heat-sealed outlines, as on the lines of cut C.

As an alternate method, the step of providing the flange 26 on the intermediate layer 22 may be eliminated and the web portions may be assembled as shown in FIG. 5 while being moved longitudinally on a machine, the single web forming the panels 20 and 21 being folded upwardly from the full line position of FIG. 5 as indicated by the dotted line position. Thereafter the partially assembled package portions are heat sealed along the line 28 and the lower edge may then be trimmed off as indicated in FIG. 7. Thereafter the sponges 24 and 25 may be dropped into position in the same way as shown in FIG. 4, and the packages completed and severed to form final packages which are essentially the same as the package of FIGS. 1 and 2 except that there is no closed fold at the lower edge of the package.

Separate webs of material may also be used to form the top and bottom panels 20 and 21, as shown in FIG. 8. Here the parts are suitably brought together and heat sealed as at 29. Thereafter the articles are dropped into position as illustrated in FIG. 4 and the panels are then heat sealed together as heretofore described in connection with FIGS. 1 and 2.

If it is desired to package articles of different size a panel 21 may be preliminarily heat sealed to one side of the intermediate panel 22 with the relatively small item 24' packaged therebetween. The intermediate panel may have a flange 26 just as in the procedure of FIG. 3 which may be heat sealed as at 27 to an outer panel 20. Thereafter a relatively large item such as the item 25 may be dropped into position, and the package completed by heat sealing the panel 20 to the intermediate panel 22 with a heat seal outline similar to that indicated at 23 in FIG. 1.

In heat sealing the top and bottom panels in position it is preferred to use, in addition to the heat seal outline 23, heat-sealing elements also having cross bars to produce short transverse seals 30 extending inwardly from the edges of the package short of the sides of the item within. This forms a resistance when ripping open a panel and helps to hold the lower portion of the package together to protect the contents while the items are being removed. While FIGS. 2 and 4 illustrate one item on each side of the intermediate panel it is obvious that more than one item may be packaged on a side.

While the preferred embodiment of the invention contemplates the use of a plastic film of heat-sealing material for the intermediate panel 22, and the use of paper having a suitable porosity for steam sterilization for the panels 20 and 21, it is possible to employ foil or paper for the layer 22, if such layer is suitably coated with polypropylene, polyethylene, or other heat-sealing material. However, this would increase the expense and it is one of the features of the present invention to be able to employ an inexpensive, readily-available heat-sealing film material for the layer 22, together with inexpensive, bleached kraft paper devoid of the usual heat-sealing or adhesive patterns, for the layers 20 and 21. Where sterilization is not necessary for a particular item on one or both sides, a material which is non-porous may be substituted for the panel 20 or 21, or for both. However, in most instances this would defeat the purpose of the present invention.

In use the projecting upper edge of the intermediate panel 22 may be gripped between thumb and forefinger and a corner 31 of the top or bottom panel 20 or 21 may be grasped by the fingers of the other hand and ripped downwardly to break the heat seal, said downward ripping being temporarily resisted by the transverse heat seals 30 where these are employed. It is then desirable to stop ripping and to hold the lower portion of the package, below the transverse seal lines 30, between the thumb and forefinger of the left hand while the surgical sponge 25 is removed with the forceps. In this way the hand does not come in contact with the surgical sponge and the remaining sponge or sponges within the package are kept in protected condition until they are needed. When this time arrives the other panel 21 may be ripped down, in the same way previously described, to expose the upper portion of the sponge 24. If the heat seal pattern does not contain the cross seals 30 it is desirable to stop the downward tearing at about the same point. The use of the cross seals, however, tends to insure that the package remains together to protect the remaining contents.

Various changes and modifications and combinations of material other than those heretofore described may be employed without departing from the spirit of the invention, and all of such changes are contemplated as may come within the scope of the claims.

What I claim is:

1. A method of wrapping superimposed flat articles comprising continuously feeding web material which is to form opposite panels of the packages in a longitudinal direction, feeding an additional web which is to form intermediate panels longitudinally thereadjacent, connecting a longitudinal edge of said additional web to a portion of said first-mentioned web material, folding the first-mentioned web material toward the additional web to

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form V's on each side of the additional web, inserting articles one after another into each V, sequentially heat sealing the opposite sides of the first-mentioned web material to opposite sides of the additional web by heat seal outlines which enclose the articles, and severing the packages transversely between seals.

2. A method of wrapping superimposed flat articles comprising continuously feeding a relatively wide first web longitudinally, continuously feeding a second web which is of lesser width longitudinally thereadjacent, continuously connecting a longitudinal edge of said second web to said first web intermediate the width of the latter, continuously folding the first web to form upwardly opening V's on each side of the second web, dropping articles one after another into each V, sequentially heat sealing the opposite sides of said first web to opposite sides of said second web by heat seal outlines which enclose the articles, and severing the packages transversely between seals.

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3. A method of wrapping superimposed flat articles as claimed in claim 2 which includes the steps of continuously forming an edge flange on a longitudinal edge of said second web, and continuously connecting said edge flange to the first web to form the connection intermediate the width of the first web.

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4. A method of wrapping superimposed flat articles as claimed in claim 3 in which the second web is continuously folded upwardly after its edge flange has been connected to the first web.

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