

[54] **METHOD OF MAKING A PACKAGE**

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[58] Field of Search **93/DIG. 1, 33 H, 35 R, 93/14, 18, 19, 20, 82, 1 F; 229/48 T, 53**

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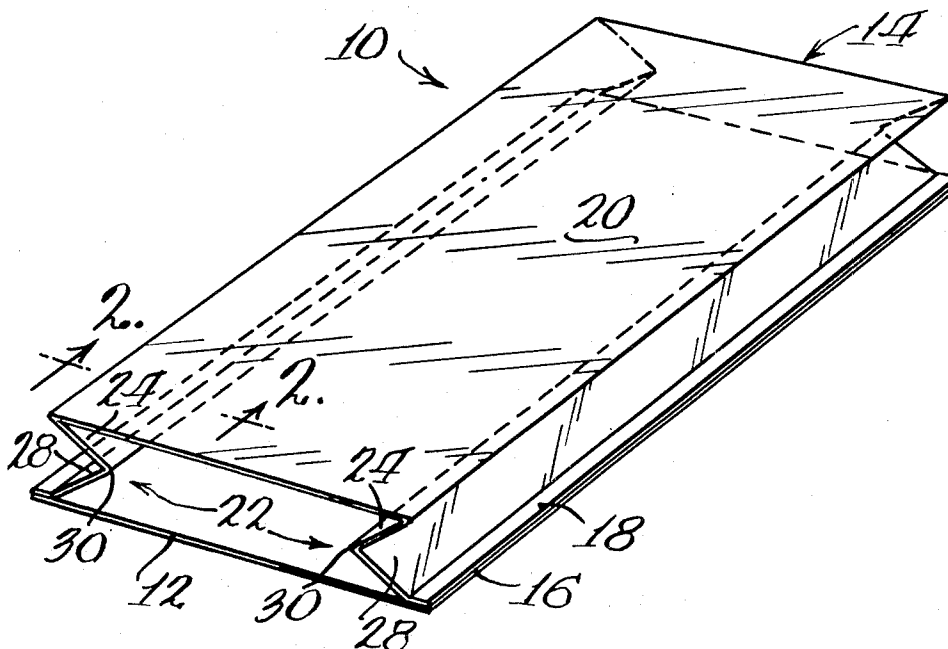
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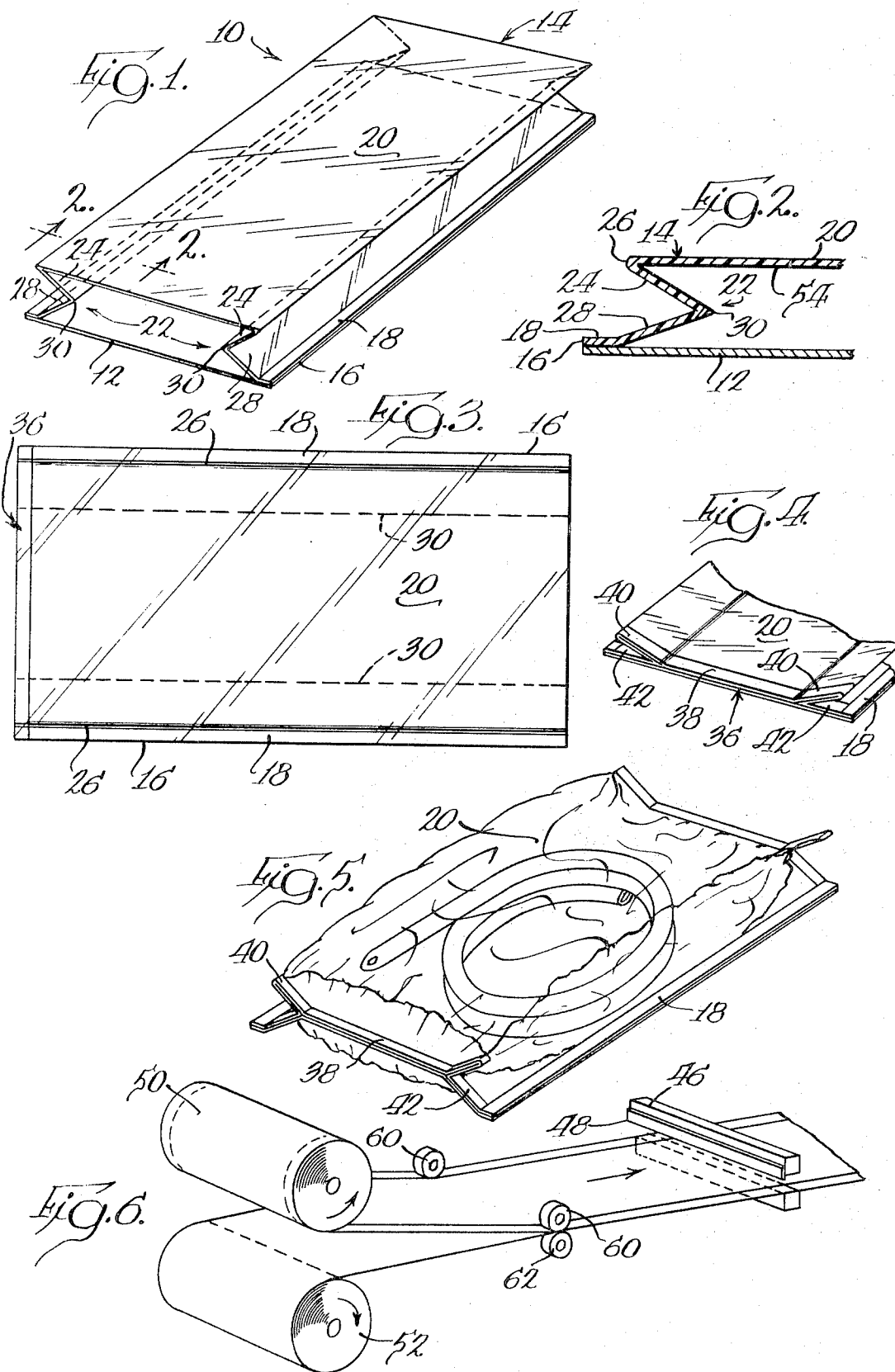
[57] **ABSTRACT**

A gusset pouch and a method of making the pouch is disclosed. The pouch consists of two webs of material that have coterminous marginal edges with the first web having a width greater than the second web between the marginal edges. The first web has a main body portion substantially the same width as the second web with an interconnecting segment between the main body portion and each of the receptive marginal edges. The two webs are interconnected or adhered to each other at one end while the segments each have first and second overlapping portions respectively adhered to the first web and to the second web.

The method of making the package or pouch includes folding the first web along spaced fold lines to produce first and second overlapping portions adjacent each marginal edge with the first fold lines spaced inwardly from the respective marginal edges, positioning a second web adjacent the first web and heat sealing the webs to each other along the exposed portions to produce a gusseted tube. The gusseted tube can then be formed in individual pouches by heat sealing transversely of the webs at longitudinally spaced locations and severing the webs along one edge of the transverse heat seal.

11 Claims, 6 Drawing Figures





METHOD OF MAKING A PACKAGE

This is a division of application Ser. No. 229,981, filed Feb. 28, 1972.

BACKGROUND OF THE INVENTION

The present invention relates generally to packages and more particularly to an improved method for making gusseted pouches and an improved pouch.

In many instances, pouches are utilized for enclosing medical or surgical articles and the sealed pouch is then autoclaved to sterilize the article enclosed therein. In some instances, the sterilized articles are stored for an extended period of time before being used. In places, such as hospitals, it is mandatory that the article be maintained in a bacteria free environment during storage.

Because of the shortcomings of heretofore commercially available packages or pouches that met autoclaving requirements, it has been customary to wrap the articles to be sterilized in numerous layers of muslin and provide an indicator tape within the package so that the sterilized article would remain in a sterile condition during storage and the indicator give a visual showing when the article was no longer sterile. If the articles were stored for any extended period of time, the autoclaving process had to be repeated to keep the articles in a sterile condition.

SUMMARY OF THE INVENTION

The present invention contemplates an improved gusseted pouch that has an extended bacteria free shelf-life and accomodates articles of varying size. The pouches can readily be mass produced with normal heat sealing equipment.

The package or pouch consists of first and second webs of material with the first web having a transverse dimension between opposed marginal edges that is greater than the transverse dimension of the second web. The two webs have coterminous adhered marginal edges. The first web has a main body portion and an interconnecting segment being each marginal edge and the main body portion so that the first web can be moved relative to the second web to accommodate articles of different size between the webs.

The method for producing packages consists of folding a first web along spaced fold lines to produce first and second overlapping portions with the first fold lines spaced inwardly from the respective marginal edges to expose a portion of the first web beyond the first fold lines. The second web is then positioned adjacent the first web with the overlapping portions located between the webs and the webs are heat sealed to each other along the exposed portions of the first web to produce the gusseted tube. The gusseted tube can then be transformed into individual packages or pouches by heat sealing transversely at longitudinally spaced locations and cutting a web along one marginal edge of each transverse heat seal.

In its preferred form, the first web consists of a polyester film, such as a polyethylene terephthalate film, that has one surface which has heat sealing characteristics. The heat sealing characteristics may be produced by laminating a polypropylene film to the polyester film. The second web is a surgical craft paper of low reading of porosity so that the enclosed article is steam sterilizable. The resultant pouch has the two overlap-

ping portions of the interconnecting segment respectively secured to the adjacent surfaces of the respective webs at each end while the overlapping portions of the web are free of any interconnection.

5 An article enclosed in a package of this type can readily be sterilized and the polyester film will provide maximum visibility for any item contained therein.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF DRAWINGS

FIG. 1 is a perspective view of two webs of material that are connected to form a tube capable of being transformed into a sealed pouch;

FIG. 2 is an enlarged fragmentary sectional view taken generally along line 2—2 of FIG. 1;

FIG. 3 is a plan view of the tube shown in FIG. 1 after being sealed at one end;

FIG. 4 is an enlarged fragmentary perspective view of the sealed end of the tube;

FIG. 5 is a perspective view of a completely sealed pouch with the contents enclosed therein; and

FIG. 6 is a schematic illustration of apparatus that can be utilized for producing the endless tubes and pouches.

DETAILED DESCRIPTION

FIG. 1 of the drawing shows a tube 10 that is capable of being formed into a sealed pouch. The tube or package 10 consists of first and second webs of material 14 and 12. The first web 14 has a transverse dimension between opposite marginal edges 16 that is greater than the transverse dimension between the marginal edges of the second web 12 while the two webs are interconnected along the areas generally designated at 18 in FIG. 1 and will be described in more detail hereinafter.

The first web 14 consists of a main body portion 20 that is substantially coextensive in width to the width of the second web 12 and has two interconnecting segments 22 respectively located between the marginal edges and the opposite sides of the main body portion. The interconnecting segments 22 (FIG. 2) each consist of a first overlapping portion 24 secured to the main body along a fold line 26 and a second overlapping portion 28 located between a second fold line 30 and the marginal edge 16.

As more clearly shown in FIGS. 2 and 3, the first fold lines 26 are located inwardly of the marginal edges 16 of the first web so as to expose a portion of the upper surface of the second overlapping portion 28, for a purpose which will be described later.

The tube 10 can readily be transformed into an open ended pouch by interconnecting the two webs along transversely extending securing areas 36 (FIGS. 3 and 4). Preferably, the two webs are secured to each other by heat sealing. This will adhere the two webs directly to each other between the two fold lines 30 while each first overlapping portion 24 is secured to the main body portion 20 of the first web at 40 and the second overlapping portions 28 are secured to the second web along securing areas 42. After the package has been formed to the configuration shown in FIG. 3 wherein the one end of the tube is sealed and the two marginal edges of the webs are secured to each other, the contents or article may be inserted through the open end of the tube or pouch and the remaining end may be sealed in a manner similar to that described in connec-

tion with the first sealed end. The overlapping portions or interconnecting segment will allow the main body of the first or top web to move relative to the main body of the second or bottom web to allow the packaging of articles of different sizes. The final configuration of the package is illustrated in FIG. 5.

The method for producing the package is schematically illustrated in FIG. 6. The method for manufacturing the webs consists of initially folding the first web 12 along first and second fold lines 26 and 30 located inwardly of each of the marginal edges 16 to produce the first and second overlapping portions, 24 and 28. This folding may be accomplished prior to placing the web on a roll 50 or alternatively may be accomplished by a suitable folding mechanism (not shown) located adjacent the roll 50. The second web 14 of material is fed from a roll 52 to a position adjacent the first web and below the overlapping portions so that the overlapping portions 24 and 28 are located between the main body of the first web and the second web. The opposite marginal edges of the respective webs are transversely aligned with each other and the two webs are adhered to each other adjacent the marginal edges.

In order to simplify the equipment necessary for adhering the two webs while still having a visible article, it is desirable to utilize a heat sealing adhering means for securing the webs to each other and have at least one transparent web. For this purpose, the upper or first web is a polyester film having a coating or laminate of a heat sealing material 54 (FIG. 2) on the lower surface thereof. The second web or substrate is a paper that will allow steam to pass through it. The two webs then can be directly adhered using heat sealing rolls 60 and 62. Since the upper surface of the first web is exposed adjacent each of the marginal edges, the heat sealing rolls can engage the upper web directly while a lower supporting roll 62 is located below the lower web.

Also, using a polyester film, such as polyethylene terephthalate, that has a coating or laminate of heat sealable material only on one surface thereof, the contacting surfaces of the upper surface of the first web will not adhere to each other during the heat sealing of the webs. Since the upper surface of the first web does not have heat sealing characteristics heat and pressure applied by the heating bars 46 will cause the two webs to adhere directly to each other between the two second fold lines 30, while the first overlapping portions 24 are secured to the main body portion to the first web and the second overlapping portions 28 are secured to the second web. The overlapping portions are free of interconnection between the second folds 30 and the marginal edges 16.

If individual pouches are to be formed, one of the heating bars 46 will have a cutter or severing means 48 to sever the two webs along one edge of the transverse seal and produce the open ended pouch. If desired, the webs could be scored or weakened rather than being cut so that the continuous webs would be placed on a roll for storage and shipment.

By proper selection of the materials for the two webs, an extremely practical pouch can be produced that will have extended shelf-life. With the first web being a lamination of a polyester film and a polypropylene film and the lower or second web is a surgical craft paper of low reading of porosity, the pouch with an article sealed therein can readily be sterilized and stored for periods

of up to one year, while still having a bacteria free sterilized article. In addition; the article is readily visible through the film laminate.

It will be appreciated that any size of package or pouch can be made and the amount of relative movement between the main body portion of one web and the second web or substrate will be dependent upon the spacing between the two second fold lines 30. Also, if additional sealing along the marginal edges is desired, the first fold lines 26 may be moved inwardly to expose a larger area of the second overlapping portion 28. Alternatively, the heat sealed areas 18 could extend under the fold lines 26 into the first overlapping portions merely by raising the first overlapping portion to expose a greater area of the second overlapping portion.

The pouch or endless tube could also be utilized for packaging many other articles by proper selection of the two webs of material which may be paper, plastic film, metal foil or various combinations thereof.

While the above description and the accompanying drawings describe and illustrate in detail one specific embodiment of the invention, it is to be understood that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated.

I claim:

1. A method of connecting two webs comprising the steps of folding a first web along first and second spaced fold lines inwardly of each opposite marginal edge of said web to produce first and second overlapping portions with the first fold lines spaced inwardly from the respective marginal edges and the second fold lines located inwardly of the first fold lines, and the distance between said first fold lines and said marginal edges being greater than the distance between said first and second fold lines to expose a portion of the web beyond said first fold lines; positioning a second web adjacent the first web with overlapping portions located between said webs, at least one of said webs having heat sealing characteristics on the side facing the second of said webs; and heat sealing the webs to each other along the exposed portions of the overlapping portions of the first web to produce a gusseted tube.

2. A method as defined in claim 1, in which said webs have opposite ends including the further step of heat sealing the webs to each other along one of said ends to produce an open ended pouch.

3. A method as defined in claim 2, in which the heat sealing of one of said ends includes sealing the end portions of each of said first overlapping portions to said first web and sealing the end portions of the second overlapping portions to said second web while maintaining said overlapping portions free of interconnection in the overlapped areas.

4. A method as defined in claim 3 in which said first web is a polyester film having only one surface of heat sealing characteristics.

5. A method as defined in claim 4, in which said second web is a paper material.

6. A method as defined in claim 1, including the further steps of heat sealing said webs transversely between marginal edges at longitudinally spaced locations and severing said webs along one edge of each transverse heat seal to produce open ended pouches.

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7. A method as defined in claim 1, in which said first web is a laminate of a polyester film and a polypropylene film with the polyester film defining the outer surface of said first web and the polypropylene film defining the inner surface of said first web.

8. A method as defined in claim 7, including the further step of heating said first web at longitudinally spaced locations to seal said webs to each other and to seal the respective overlapping portions to the respective webs while maintaining said overlapping areas of the first and second overlapping portions free of interconnecting; and severing said webs along the transverse seals to produce open ended pouches.

9. A method of forming a gusseted article from two webs of material interconnected along coterminous marginal edges comprising the steps of folding a first web of material along first and second spaced fold lines located inwardly of each of the side marginal edges of said first web to produce first and second overlapping portions; said first fold lines being closer to said marginal edges than said second fold lines and the distance

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between said first fold lines and said side marginal edges being greater than the distance between said first and second fold lines, whereby a gusset is formed such that areas are exposed beyond said second fold lines and adjacent the side marginal edges of said first web of material and said areas lie beyond said gusset; at least one of said webs having heat sealing characteristics along the side edges facing said other web and adhering said first web to said second web along said exposed area adjacent the marginal edges of said first web.

10. The method defined in claim 9 in which said first web is a non-heat sealable polyester film coated on one side with a heat sealable material and the second web is paper.

11. A method as defined in claim 9 in which said webs have opposite ends including the further step of heat sealing the webs to each other along one of said ends to produce an open ended pouch.

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