United States Patent [19]

Stage

[11] **3,851,814**

[45] **Dec. 3, 1974**

[54] **GUSSETED ARTICLE**

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[73] Assignee: **Arvey Corporation,** Chicago, Ill.

[22] Filed: **Feb. 28, 1972**

[21] Appl. No.: **229,981**

[52] **U.S. Cl.**..... **229/53,** 206/439, 229/3.5 MF, 229/62, 229/DIG. 3

[51] **Int. Cl.**..... **B65d 31/10**

[58] **Field of Search**..... 229/53, 62, DIG. 3, 3.5 MF; 206/63.2 R, 439

[56] **References Cited**

UNITED STATES PATENTS

2,395,077	2/1946	Southwick, Jr.	229/53 X
2,524,030	10/1950	Allen	229/62
3,027,065	3/1962	Lindquist et al.	229/53
3,231,642	1/1966	Goldman et al.	264/95
3,269,639	8/1966	Cash	229/3.5 MF X
3,338,019	8/1967	Trewella et al.	206/63.2 R X

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Assistant Examiner—Stephen P. Garbe
Attorney, Agent, or Firm—Dressler, Goldsmith, Clement & Gordon

[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.

5 Claims, 6 Drawing Figures

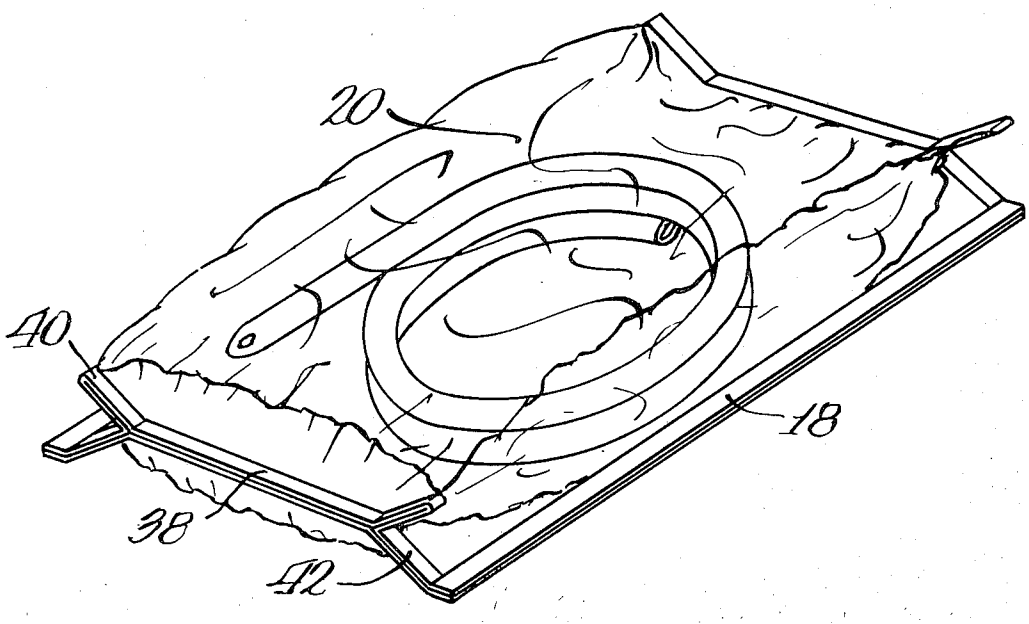


Fig. 1.

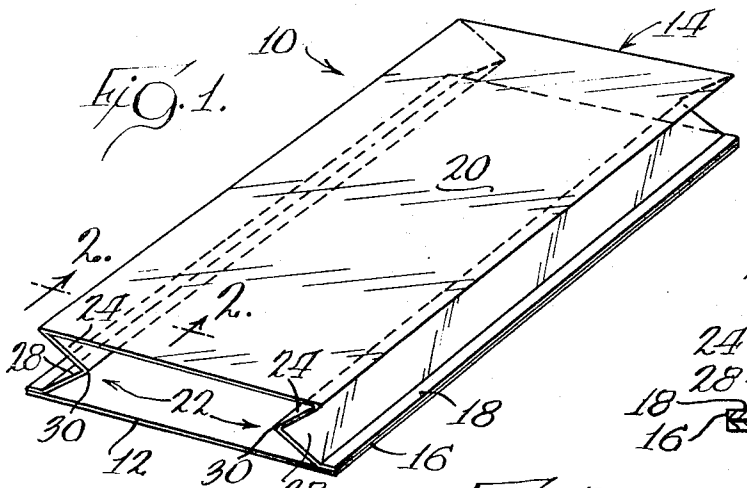


Fig. 2.

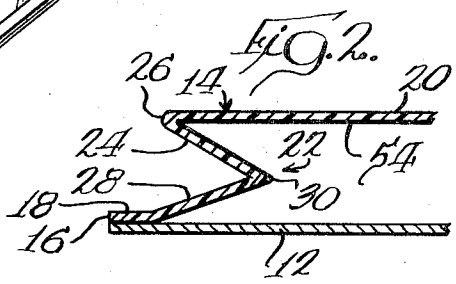


Fig. 3.

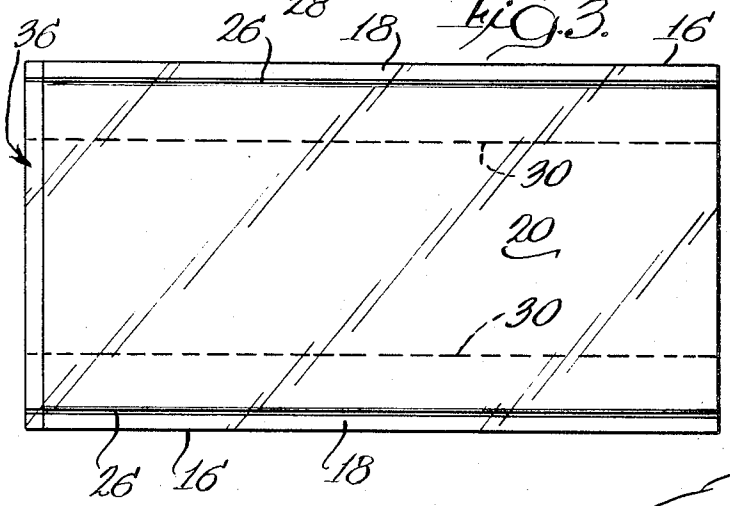


Fig. 4.

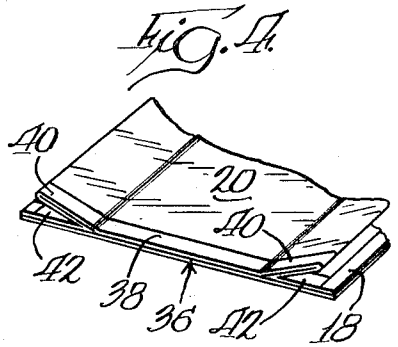


Fig. 5.

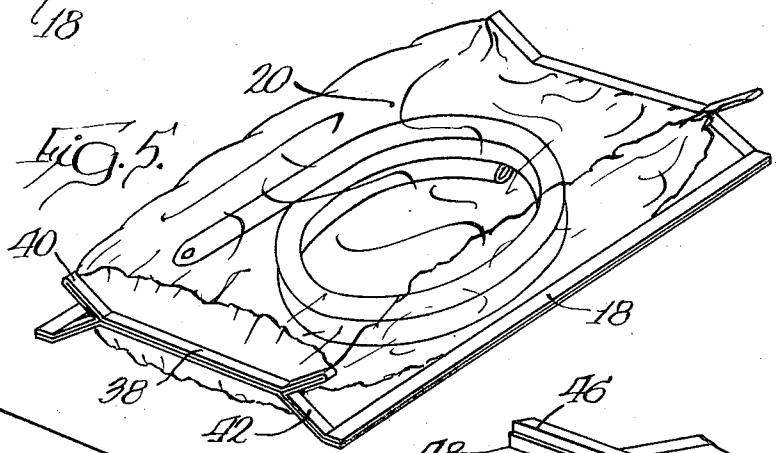
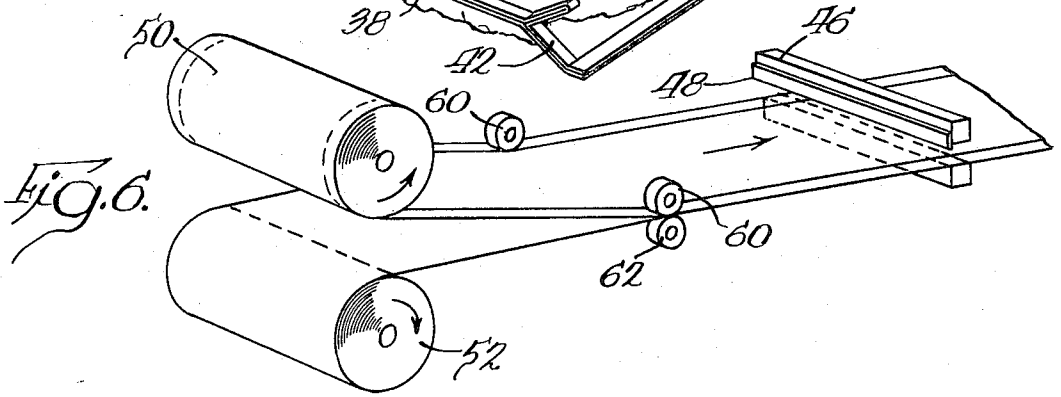


Fig. 6.



GUSSETED ARTICLE

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 overlapping 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.

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 connection 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 can then 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 gusseted article formed from two webs of material interconnected along coterminous marginal edges comprising

a first web of material having a transverse dimension greater than the second web of material; said first web of material comprising a non-heat sealable film having first and second spaced parallel fold lines adjacent each marginal edge to produce a first inwardly extending portion and a second outwardly extending portion having a transverse dimension greater than the transverse dimension of the first portion whereby a gusset is formed in said first web of material adjacent each marginal edge thereof with an outer area of each second portion extending outwardly beyond the adjacent first fold line whereby the outer area of each second portion is exposed at the marginal edges of said first web;

means for adhering said first web of material to said second web of material including means sealing the exposed outer area of the second portions of the first web along at least a portion of their length to an adjacent area of the second web to form a seal adjacent the two marginal edges of said first and second webs,

said adhering means further including closure forming means intersecting the sealed marginal edges of said first and second webs, said closure forming means being provided by means sealing the facing surfaces of said first and second webs between said second fold lines, means sealing said inwardly extending first portions of said first film to the adjacent surface of the first film, and means securing the outwardly extending second film, said first and second portions of said first web being in overlapped, unsealed relationship with respect to one another.

2. The gusseted article of claim **1** in which the means for adhering said first web of material to said second web of material is a heat sealable coating on the side of said first web facing said second web.

3. A gusseted article as defined in claim 1 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.

4. A gusseted article as defined in claim 1 in which said first web is a non-heat sealable polyester film and the second web is a metal foil.

5. An article as defined in claim 1 in which said webs have opposite ends and said closure forming means is adjacent at least one of said ends to form an open ended pouch and means for closing said open end.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 3,851,814
DATED : December 3, 1974
INVENTOR(S) : Leo J. Stage

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Please correct claim 1 to read as follows:

1. A gusseted article formed from two webs of material interconnected along coterminous marginal edges comprising

a first web of material having a transverse dimension greater than the second web of material; said first web of material comprising a non-heat sealable film having first and second spaced parallel fold lines adjacent each marginal edge to produce a first inwardly extending portion and a second outwardly extending portion having a transverse dimension greater than the transverse dimension of the first portion whereby a gusset is formed in said first web of material adjacent each marginal edge thereof with an outer area of each second portion extending outwardly beyond the adjacent first fold line whereby the outer area of each second portion is exposed at the marginal edges of said first web;

means for adhering said first web of material to said

second web of material including means sealing the exposed outer area of the second portions of the first web along at least a portion of their length to an adjacent area of the second web to form a seal adjacent the two marginal edges of said first and second webs,

said adhering means further including closure forming means intersecting the sealed marginal edges of said first and second webs, said closure forming means being provided by means sealing the facing surfaces of said first and second webs between said second fold lines, means sealing said inwardly extending first portions of said first film to the adjacent surface of the first film, and means securing the outwardly extending second portions of said first film to the facing surface of said second film, said first and second portions of said first web being in overlapped, unsealed relationship with respect to one another.

Signed and sealed this 3rd day of June 1975.

(SEAL)
Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents
and Trademarks