United States Patent [19]

Graham

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[54] **TAMPERPROOF POUCH LABEL**

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[21] Appl. No.: **484,249**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 234,634, May 14, 1972, abandoned.

[52] **U.S. Cl.** ..... **206/459;** 40/2 R; 128/272; 128/DIG. 24; 282/28 R

[51] **Int. Cl.** **B65d 31/12**

[58] **Field of Search** ..... 40/2 R, 2.2, 10 D, 359–360; 128/214 D, 272, 275, DIG. 24; 150/8; 206/232, 459; 229/56, 72; 282/25, 28 R

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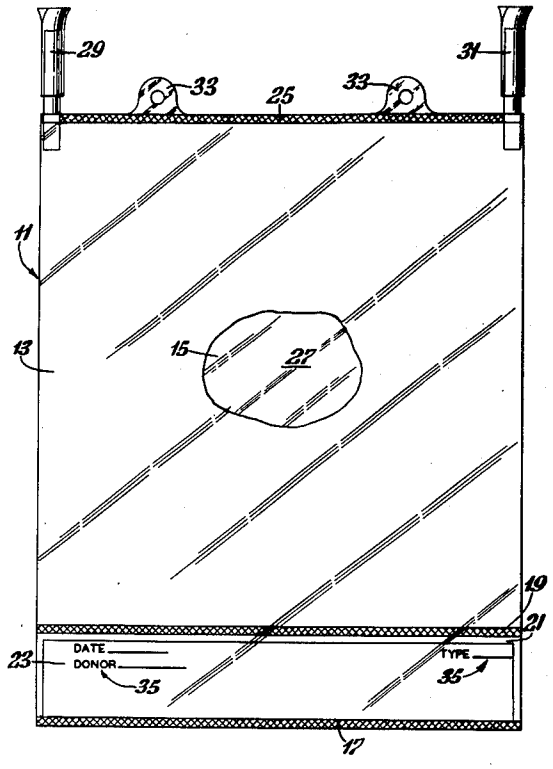
[57] **ABSTRACT**

A transparent plastic film pouch for packaging, freezing, storing and transporting viable and perishable materials such as blood components is provided with a completely interiorly sealed tamperproof identification marking label having a pressure sensitive surface which is discernibly markable by pressures applied to the outer surface of the contiguous film.

7 Claims, 2 Drawing Figures



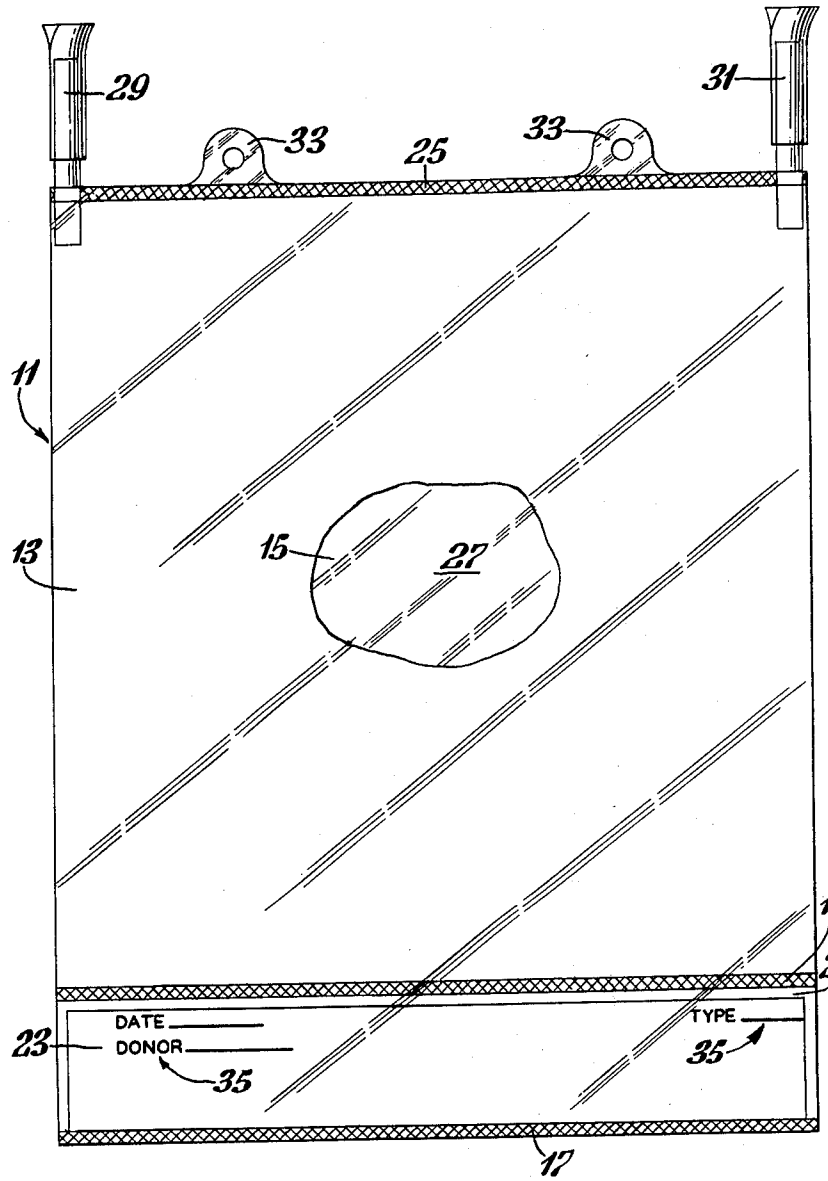


FIG. 1

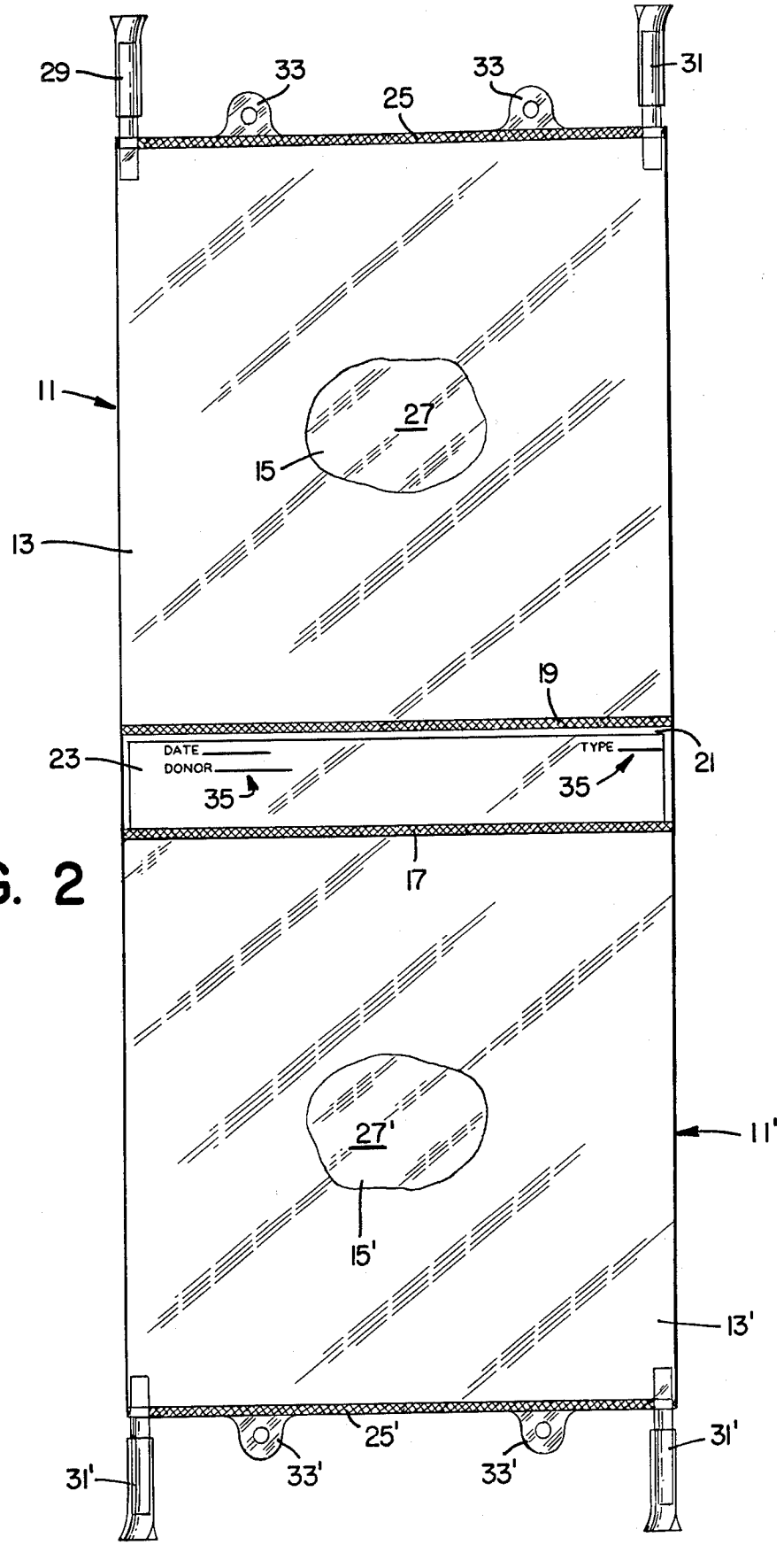

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FIG. 2

TAMPERPROOF POUCH LABEL

This is a continuation-in-part of application Ser. No. 234,634, filed March 14, 1972, now abandoned.

The present invention relates to packaging bag labels and more particularly to a tamperproof label sealed completely within a bag or pouch of transparent plastic film such as may be used for the packaging, freezing, storing, transporting, and eventual thawing for utilization of viable and perishable materials such as the fluid components of blood. According to the present invention a tamperproof label disposed sealably within a pouch has a pressure sensitive surface which produces discernible indicia in response to writing or marking pressures applied to the outer surface of the pouch film wall beneath which the label is disposed.

Packages, bags, pouches and the like for collecting, enclosing and safeguarding viable and perishable materials have been the subject of much research and development work in the biomedical arts. Plastic film pouches, usually transparent, which are slack-filled and flattened for processing have been used successfully in the collection, freezing, storage, transportation, thawing and ultimate utilization of blood fluid components for example. Such pouches are described and illustrated in U.S. Pat. No. 3,576,650 to Underwood.

It is essential that such individual package articles be marked for identification purposes in a permanent and tamperproof manner. With specific reference again to blood fluid components by way of example, there exists the need to cross match discrete samples with markings on sample main containers and to ensure continued reliable identification through all life phases of the sample from its collection right up to and including its utilization. The selection of label means and labeling techniques to effect and facilitate this identification is thus of considerable importance.

Problems are encountered with labels made separately to be applied exteriorly to fluid filled pouches since the attachment must be by means which do not detrimentally affect the structural and/or hygienic integrity of the article. If mechanical fastening means are used there arises the danger of puncturing the pouch. If adhesive means are used to affix the label, the adhesive selected must be one which will not penetrate or migrate through the thin plastic walls of the pouch possibly to contaminate the pouch internal surfaces and the contents. More formidable problems arise with adhesives when cryogenic temperature freezing is involved in processing the article to the extent that the adhesive bond is detrimentally affected at low temperatures. In addition to the aforerecited difficulties where labels are marked separately of the pouches and subsequently attached or adhered thereto, there is the danger of putting a wrong label on a given article.

It has also been found inadvisable heretofore to mark or write on a label preintegrally formed with the bag or pouch since the marking instrument may easily pierce the fluid filled container.

In the face of and towards solving these problems, the present invention was conceived, reduced to practice, developed and improved with the object of providing a tamperproof labeled pouch for the packaging of viable perishable materials.

It is a further object of this invention to provide a pouch labeling system with the label completely sealed within the pouch and wherein the label can be marked as desired by pressures applied thereto through the pouch film material from the pouch exterior surface.

A further object of the invention is to provide a pouch having a labeling system completely compatible with extremely high structural and hygienic integrity standards attending biomedical applications and usages.

These and additional objects of the present invention will become the more readily apparent from the ensuing description and the drawings, wherein:

FIG. 1 shows a frontal elevation of an embodiment of the invention partly cut away to show a pouch interior and back panel, and

FIG. 2 shows a double sided or two storage compartment embodiment of the invention.

In general the present invention comprehends a pouch for packaging viable perishable materials comprising, in combination, a section of tubular transparent plastic film flattened to define two substantially planar parallel side walls, and first linear seal extending transversely of the side walls and sealing them to each other interiorly of the pouch, a second linear seal extending substantially parallel to the first seal transversely of the side walls and sealing them to each other interiorly of the pouch to define a sealed label compartment intermediate the edges of the section between said first linear seal and said second linear seal, and a label disposed in the sealed label compartment, said label having a pressure sensitive surface to produce indicia discernible through the film contiguous thereto in response to marking pressures applied thereto through the film exteriorly of the pouch.

Various alternative embodiments of the invention are also comprehended, one being a pouch as described hereinabove having a third linear seal extending transversely across the side walls and sealing them to each other interiorly of the pouch at an end of the section to define a fillable compartment between said first and said third linear seals and at least one selectably sealable aperture communicating from the exterior of said fillable compartment with the interior thereof.

Another embodiment is as described in the preceeding paragraph with the addition of a fourth linear seal extending transversely across the side walls and sealing them to each other interiorly of the pouch at an end of the section to define a fillable compartment between said second and said fourth linear seals and at least one selectably sealable aperture communicating from the exterior of said fillable compartment with the interior thereof. This embodiment is illustrated in FIG. 2 of the drawings.

The embodiment considered to be of most significant practical interest comprehends a pouch along the lines described hereinbefore with a first linear seal defining an end closure, a second linear seal extending substantially parallel to the first seal transversely across the side walls and sealing them to each other interiorly of the pouch to define a sealed label compartment between the end closure and the remainder of the pouch, and a label as hereinbefore described disposed in the sealed label compartment. This embodiment is advantageously used as a blood and blood component pouch when provided with a third linear seal extending across the side wall edges at the end of of the section opposite the end closed by the first linear seal, sealing them to each other to define another end closure, and at least one selectably sealable filling aperture communicating

from the exterior of the pouch to the pouch interior compartment between the first and third linear seals.

Suitable labels, it has been found, may have pressure sensitive surfaces comprising surface encapsulated indelible fluids such as inks.

With reference to FIG. 1 of the drawings a pouch, shown generally as **11**, according to the present invention may be formed from a section of extruded tubular transparent plastic film flattened to define a front side wall **13** and a rear side wall **15**, not completely visible in the view presented but behind the front side wall **11** and in substantially planar parallel relationship thereto. A linear seal **17** extends transversely across the side wall edges at one end of the section, the bottom of the pouch as illustrated, and seals the walls **13, 15** to each other to define a pouch bottom end closure. A second linear seal **19** extends substantially parallel to the first seal **17** transversely across the side walls and seals them to each other interiorly of the pouch to define a sealed label compartment **21**. A pressure sensitive surface label **23** is disposed in compartment **21**. The installation of the label **23** must of course be made before the second of the seals **17, 19** is applied and in this connection it may be advantageous in the interest of maintaining sterility to make the seal **19** first, insert the label **23** into its compartment **21** from the bottom end of the pouch and then apply the end closure seal **17**.

The pouch illustrated in FIG. **1** is of a type customarily used to package blood and/or the fluid components of blood to be quick frozen and stored at very low temperatures. Such pouches are furnished with a third linear seal **25** which extends transversely across the side wall edges at the end of the section opposite the end closed by the seal **17** to define a pouch top end closure and an interior filling compartment **27** between the seals **19, 25**. A filling aperture in the form of a tube **29** is provided as shown extending through the top end closure **25** and is adapted by plug or clamp means to provide selectably sealable communication from the exterior of the pouch to the pouch interior filling compartment **27**. A second aperture in the form of a tube **31** is usually provided as shown extending through the top end closure **25**, and is also adapted by plug or clamp means to provide selectably sealable communication between the pouch exterior and compartment **27** to serve as vent means during pouch filling and/or emptying operations. One or more hold hanging tabs **33** may be provided on the pouch as shown to facilitate handling and filling.

Pouches similar to the one illustrated may also be fabricated from folded over transparent plastic film sheets longitudinally seamed or sealed up one side and for the purposes of this invention such structures are to be considered as tubes or tubular sections within the scope of the appended claims.

The label **23** disposed in compartment **21** may be of any type having the capability of producing discernible indicia **35** in the form of readable words, numbers, code symbols and the like on its surface upon the application of suitable writing or imprinting pressure to such surface through the film sheet **13**. Label papers which have been used successfully include commercially available surface encapsulated pressure sensitive label paper. Since the label **23** is disposed in a compartment **21** separate and sealed off from the pouch filling compartment **27**, it is possible to support the label from beneath with a flat surface to facilitate the marking operation.

FIG. **2** of the drawings shows an alternative embodiment in the form of a double-ended or two fluid storage compartment bag. The numerical designations of parts and elements hereinbefore described are designated similarly on the second fluid storage compartment as on the first, but are marked with a prime (') symbol for clarity.

The plastic film materials to fabricate pouches or bags used successfully in this invention can be generally described as polyolefin films whose major polymeric constituent, that is an amount greater than about **50%** by weight, in ethylene. The specifics of the film manufacture are not germane to this invention, being well within the ken of persons familiar with the packaging arts.

The present invention finds ready applicability to forms of transparent pouches other than exactly like the pouch shown in the drawing. It is possible and within the scope of this invention, for instance, to provide a flat sealed off label compartment and label intermediate the ends of a pouch having two separate filling compartments such as shown in FIG. **2** of the drawings and as is used to hold reactant fluids and/or compositions apart until reaction is initiated by rupturing one or more internal intra compartment seals to intermix the contained substances.

Numerous other alternative structures and embodiments of the invention will, in the light of the foregoing, undoubtedly occur to readers, particularly those familiar with the art, and it is thus intended that the description herein be considered as illustrative and not taken in any limiting sense.

What is claimed is:

1. A pouch for packaging viable perishable materials comprising, in combination,

a. a section of tubular transparent plastic film flattened to define two substantially planar parallel side walls,

b. a first linear seal extending transversely of the side walls and sealing them to each other interiorly of the pouch,

c. a second linear seal extending substantially parallel to the first seal transversely of the side walls and sealing them to each other interiorly of the pouch at one end of the section to form a bottom closure and to define a sealed label compartment intermediate the bottom closure and the unclosed end of the section between said first linear seal and said second linear seal and an open ended fillable compartment contiguous to said sealed label compartment and

d. a label disposed in the sealed label compartment, said label having a pressure sensitive surface to produce indicia discernible through the film contiguous thereto in response to marking pressures applied thereto through the film exteriorly of the pouch.

2. A pouch according to claim **1** having a third linear seal extending transversely across the side walls and sealing them to each other interiorly of the pouch at an end of the section to define a substantially closed fillable compartment between said first and said third linear seals and at least one selectably sealable aperture communicating from the exterior of said fillable compartment with the interior thereof.

3. A pouch according to claim 2 having a fourth linear seal extending transversely across the side walls and sealing them to each other interiorly of the pouch at an end of the section to define a pouch fillable compartment between said second and said fourth linear seals and at least one selectably sealable aperture communicating from the exterior of said fillable compartment with the interior thereof.

4. A pouch for packaging viable perishable materials comprising, in combination,

a. a section of tubular transparent plastic film flattened to define two substantially planar parallel side walls,

b. a first linear seal extending transversely across the side wall edges at one end of the section and sealing them to each other to define an end closure,

c. a second linear seal extending substantially parallel to the first seal transversely across the side walls and sealing them to each other interiorly of the pouch to define a sealed label compartment between the first linear seal defining the end closure and the second linear seal and an open ended fillable compartment contiguous to said sealed label compartment and

d. a label disposed in the sealed label compartment, said label having a pressure sensitive surface to produce indicia discernible through the film contiguous thereto in response to marking pressures applied thereto through the film exteriorly of the pouch.

5. A pouch according to claim 4 having a third linear seal extending transversely across the side wall edges at the end of the section opposite the end closed by the first linear seal, sealing them to each other to define another end closure and at least one selectably sealable filling aperture communicating from the exterior of the pouch to the pouch interior compartment between the second and third linear seals.

6. A pouch according to claim 4 wherein the label pressure sensitive surface comprises surface encapsulated indelible fluid.

7. A pouch for packaging, freezing, storing, transporting and thawing viable perishable materials frozen and stored at cryogenic temperatures in the order of about that of liquid nitrogen comprising, in combination,

a. a section of tubular transparent plastic film flattened to define two substantially planar parallel side walls,

b. a first linear seal extending transversely across the side wall edges at one end of the section and sealing them to each other to define an end closure,

c. a second linear seal extending substantially parallel to the first seal transversely across the side walls and sealing them to each other interiorly of the pouch to define a sealed label compartment between the end closure and the remainder of the pouch,

d. a third linear seal extending substantially parallel to the second seal transversely across the side wall edges at the end of the section opposite the end sealed by the first linear seal to define a fillable compartment between the second seal and the third seal,

e. at least one selectably sealable aperture communicating from the exterior of the pouch to the interior of said fillable compartment and

f. a label disposed in the sealed label compartment, said label having a pressure sensitive surface to produce indicia discernible through the film contiguous thereto in response to marking pressures applied thereto through the film exteriorly of the pouch.

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