

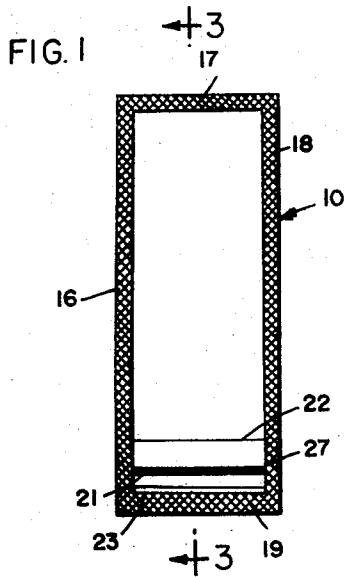
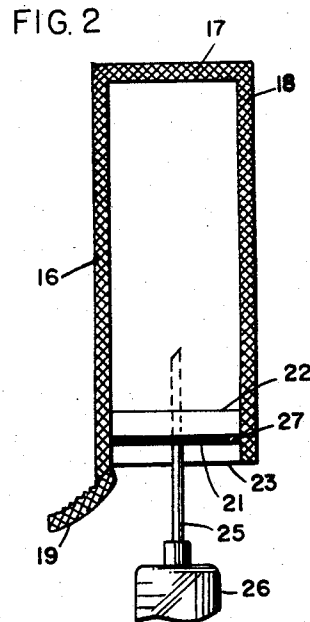
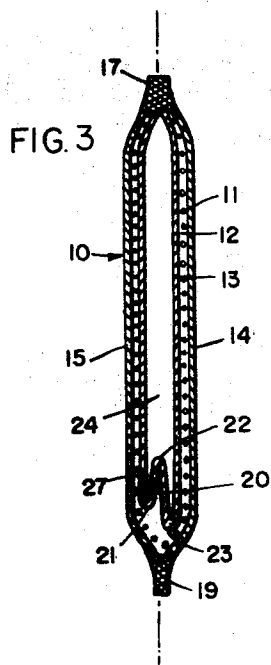
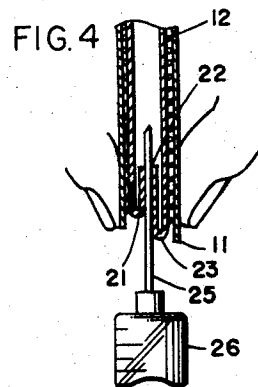
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3,474,789

FLEXIBLE AMPOULE

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3,474,789

FLEXIBLE AMPOULE

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Continuation-in-part of application Ser. No. 405,551,
Oct. 21, 1964. This application May 8, 1967, Ser.
No. 636,831

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5 Claims

ABSTRACT OF THE DISCLOSURE

A flexible ampoule for storing medicaments and the like. The ampoule comprises an outer envelope and an inner envelope, and an antioxidant or antiseptic material may be dispersed therebetween. The outer envelope is formed of a pair of relatively non-elastic films which are heat sealed together along their edges. The inner envelope includes a gusset along one edge thereof formed by folding the inner envelope along spaced parallel lines. The other edges of the inner envelope are heat sealed together between the associated heat-sealed edges of the outer envelope.

RELATED APPLICATION

This application is a continuation-in-part of my prior co-pending application entitled Liquid Container and Method, Ser. No. 405,551, filed Oct. 21, 1964, now abandoned.

BACKGROUND OF THE INVENTION

This invention relates to a liquid-filled container, and finds particular utility in medicinal use. It is known that individual doses of medication to be injected are divided into small glass ampoules. However, handling, washing, filling and labeling of the ampoules are considered complicated and expensive operations. There is also a need for a container in which small quantities of medicine in powdered form, such as antibiotics, can be stored, diluted, and withdrawn without exposing the solution to air. Rubber-capped antibiotic flasks now in use have proved to be unsatisfactory for this use.

SUMMARY OF THE INVENTION

The inventive ampoule stores a measured quantity of medicament and permits easy withdrawal of the medicament when it is to be administered. The heat sealed edge of the outer envelope which is adjacent the gusset of the inner envelope may be readily torn off to expose the gusset. The sides of the gusset serve to guide a hypodermic syringe and facilitates perforation of the inner envelope by the syringe. After the medicament is withdrawn, the relatively inexpensive ampoule may be discarded.

DESCRIPTION OF THE DRAWING

FIG. 1 is an elevational view of the inventive ampoule; FIG. 2 is a view similar to FIG. 1 showing the contents of the ampoule being withdrawn;

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 1; and

FIG. 4 is a fragmentary sectional view showing the contents of the ampoule being withdrawn.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIGS. 1 and 3, the numeral 10 designates generally the inventive ampoule, which may advantageously be formed according to the method described in my co-pending application entitled Method of Forming Flexible Ampoules, Ser. No. 636,830, filed May 8, 1967.

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Ampoule 10 is seen to be generally rectangular in shape and includes an outer envelope 11 and an inner envelope 13. A film 12 of a oily, non-drying, antioxidant may be interposed between the outer and inner envelopes to improve the oxygen and water vapor barrier characteristics of the ampoule. Alternatively, the film 12 may be an antiseptic to preserve the aseptic quality of the contents of the ampoule. Many oil and grease soluble antioxidants are suitable, such as propylgallate or 5-acenaphthenol. Similarly, many oil and grease soluble antiseptics may be used. Derivatives of the phenol group such as hexylresorcin have been found particularly suitable.

Outer envelope 11 is advantageously formed of a pair of films 14 and 15 of a relatively non-elastic material which is relatively impervious to oxygen and moisture such as ethyl vinyl acetate, polyvinylidene chloride (saran), or the like. It is desirable that at least one of the films 14 or 15 be transparent in order to permit visual observation of the contents of the ampoule. However, one of the films may be of metallic foil or other opaque material which provides better protection for the inner envelope. The edges of the films 14 and 15 are heat sealed together as at 16, 17, 18, and 9.

Inner envelope 13, which is preferably made of an elastic thermo-plastic material such as polyethylene, is also generally rectangular in shape and is approximately co-extensive with the outer envelope. One end of the inner envelope is seen to be provided with a gusset 20 which is formed by folding the inner envelope along spaced parallel lines as at 21, 22, and 23. The gusset-equipped edge of the inner envelope terminates short of the sealed edge 19 of the outer envelope, and the sides of the gusset formed by fold lines 21 and 23 are preferably of unequal length. The edge of the inner envelope opposite the gusset is heat sealed between the associated edge of the outer envelope by heat seal 17, and the edges of the inner envelope extending transversely of the gusset are also heat sealed between the associated edges of the outer envelope by seals 16 and 18. The inner envelope thereby provides a liquid-tight pocket 24 in which medicaments may be stored.

When it is desired to withdraw the contents of the ampoule, the nurse or physician tears the outer envelope along the seal 19, thereby exposing the gusset 20 of the inner envelope. A needle 25 of a hypodermic syringe 26 may then perforate the inner envelope along the fold 22 of the gusset. The gusset guides the syringe and facilitates perforation of the inner envelope. The unequal sides of the gusset facilitate insertion of the syringe between the gusset sides, and the shorter gusset side providing by the fold 21 may be more readily observable by imprinting thereon a line 27.

When the film 12 is an antiseptic, the gusset 20 becomes coated with the antiseptic and the needle of the syringe is lubricated with the antiseptic as it passes through the gusset, thereby preserving the aseptic qualities of the ampoule contents.

The inventive ampoule permits ready insertion of the syringe when it is filled with either a liquid or a powdered medicament. The ampoule may be used to store a small quantity of medicine in a powdered form, such as an antibiotic. The medicine can be diluted in the ampoule by injection of a solvent through the syringe, and when the powder is dissolved, the solution can be aspirated by the syringe. The ampoule thereby allows antibiotics to be prepared for use without the introduction of air, which cannot be done with antibiotic flasks provided with rubber caps currently being used.

While in the foregoing specifications, detailed description of the preferred embodiment was set down for the purpose of explanation, many variations of the details herein given may be made by those skilled in the art with-

out departing from the spirit and scope of the invention.
I claim:

1. A flexible container of generally rectangular shape comprising an outer envelope and an inner envelope, said outer envelope formed by a pair of films, said films being heat sealed along the edges thereof, said inner envelope being disposed within the outer envelope and being folded on itself along spaced parallel lines to develop a gusset along one edge, the other edges of said inner envelope being heat sealed between associated edges of said films.

2. The container of claim 1 in which an antioxidant is dispersed between said inner and outer envelopes.

3. The container of claim 1 in which an antiseptic is dispersed between said inner and outer envelopes.

4. The container of claim 1 in which said gusset is developed by three reverse folds of said inner envelope to form a pair of gusset sides, said sides being of unequal length.

5. The container of claim 1 in which said films are relatively non-elastic.

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