

Nov. 4, 1969

J. M. MATHESON
DISPOSABLE SYRINGE

3,476,111

Filed June 20, 1967

2 Sheets-Sheet 1

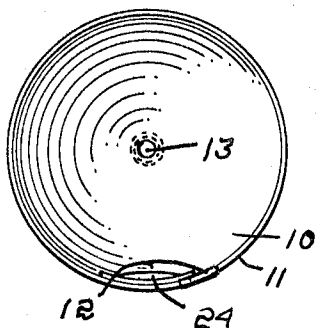


FIG. 1

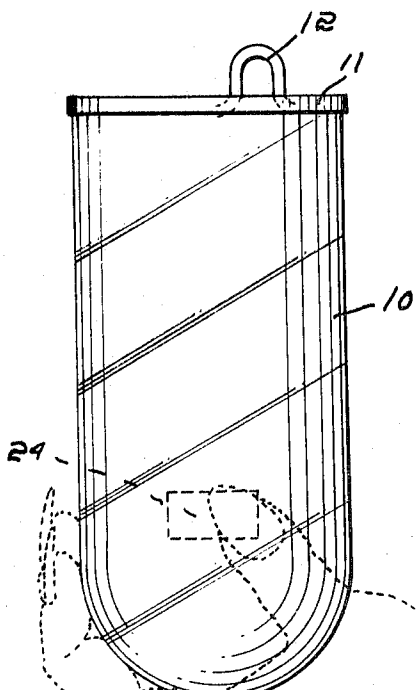


FIG. 2

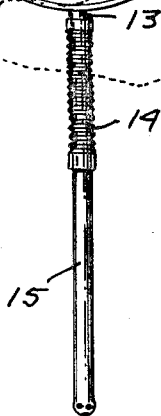


FIG. 3

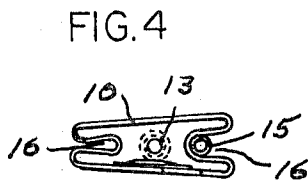


FIG. 4

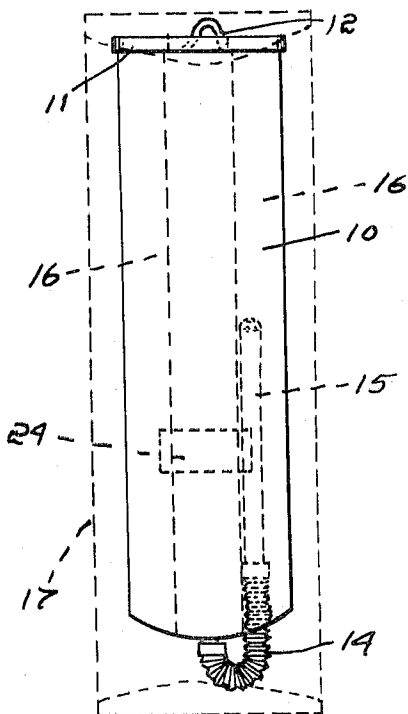


FIG. 5

INVENTOR
JAMES M. MATHESON

BY,

Abbot Spear
ATTORNEY

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FIG. 7

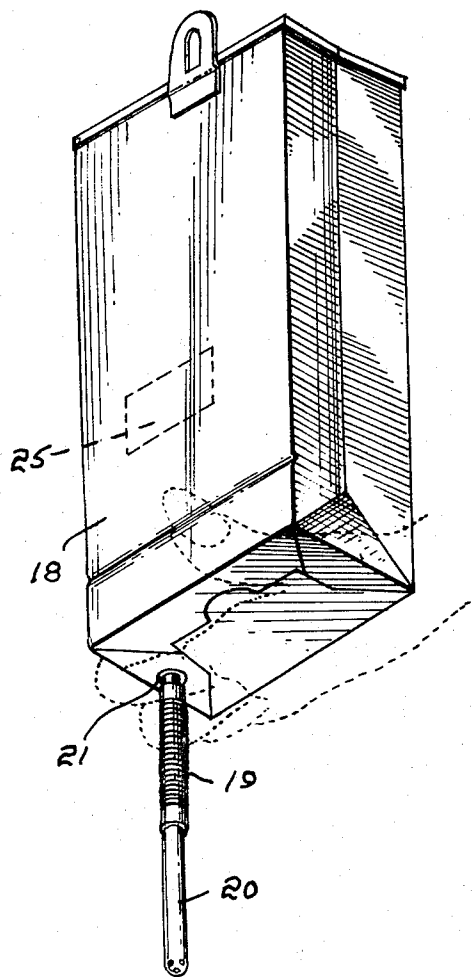


FIG. 6

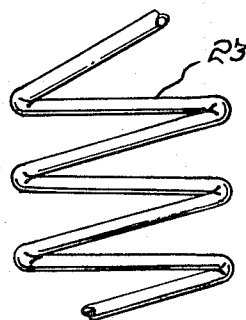
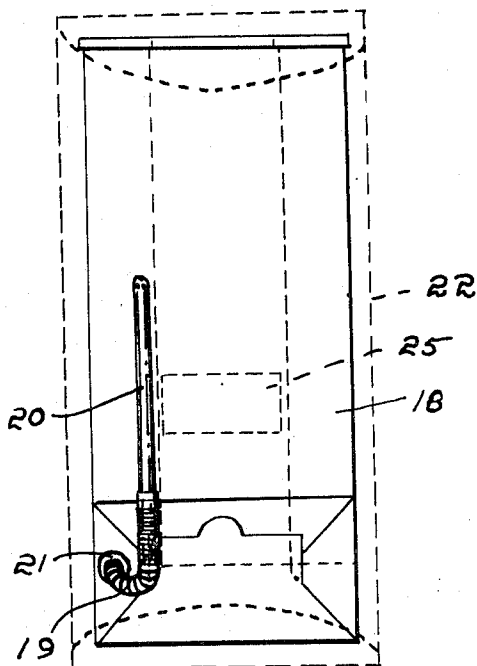


FIG. 8

INVENTOR
JAMES M. MATHESON
BY,
Abbot Spear
ATTORNEY

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3,476,111

DISPOSABLE SYRINGE

James M. Matheson, 10 Pierce Ave.,
Portland, Maine 04112

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3 Claims

ABSTRACT OF THE DISCLOSURE

A disposable syringe includes a corrugated conduit extensible from two to sixteen inches interconnecting a container and a rigid elongated nozzle. The corrugated conduit and container are made of a plastic or paper which is sufficiently waterproof for a single use. The container when filled is self supporting so that it may be held in the palm of the user's hand with the corrugated conduit extending between two digits of the user's hand. For storage in an envelope, the container may be folded to produce longitudinal side channels and the conduit may be reversely bent so that the nozzle may be positioned in one of the side channels.

Syringes for enema administrations and for vaginal douches are available but not of a single use type adapted to meet requirements. There is a real need for such syringes for not only could douche kits be machine-dispensed but also economies would result in hospital management if they and single use enema kits were available. Proposals for disposable kits for such uses have not proved acceptable for various reasons ranging from production costs to inability to ensure convenience in use.

The general objective of the present invention is to provide syringes of a low cost construction that are adapted to meet storage, dispensing, and use requirements whether distributed by hospital supply houses or sold in vending machines. In accordance with the invention, this objective is attained by providing a syringe having its container collapsed and having a nozzle placed in communication with the interior of the container by a conduit extensible from a shortened state, convenient for packaging, into an extended state in which its length is adequate for self use requirements.

A particular objective of the invention is to provide a container in the form of a bag collapsed by end-to-end folds and of paper treated for a single use or of a plastic that can be similarly collapsed and with the container wall structure self-supporting when opened and filled.

A further objective of the invention is to provide an extensible conduit that may be made of paper treated to be sufficiently waterproof for a single use or of a plastic, in either case the conduit to be sufficiently flexible so that when the filled container is supported in the palm of the hand with the conduit depending between two fingers or a thumb and a finger, the conduit can be squeezed shut by digital pressure. A further objective of the invention is to provide, for some uses, extensible conduits that are, when extended, substantially free of lengthwise elasticity.

A further objective of the invention is to provide a kit in which a medicament is within the container, in a water permeable package secured to a wall thereof, for example.

In the accompanying drawings, there are shown illustrative embodiments of the invention from which these and other of its objectives, novel features, and advantages will be apparent.

In the drawings:

FIGURE 1 is a view of a syringe as seen from the open end of its container,

FIGURE 2 is a side elevation thereof,
FIGURE 3 is a fragmentary section, on an increased scale, showing the conduit construction.

FIGURE 4 is an end view of the container collapsed and in a package,

FIGURE 5 is a side elevation of the syringe within an indicated package,

FIGURE 6 is a perspective view of a syringe in accordance with another embodiment of the invention,

FIGURE 7 is a view of the syringe within an indicated package, and

FIGURE 8 is a fragmentary side view of an extensible conduit in accordance with yet another embodiment of the invention.

In the embodiment of the invention illustrated by FIGURES 1-5, a molded, round bottomed container 10 is shown as having a reinforced rim 11 formed with an eye 12 by which the container 10 may be suspended. At its bottom, the container 10 has a port 13 to which an extensible conduit 14 is sealed. The other end of the conduit 14 is sealed to an elongated nozzle 15.

The container 10 may be formed from any moldable material that is sufficiently waterproof for a single use and, for most purposes, its wall structure is sufficiently rigid to be self-supporting when the container is filled for use but foldable lengthwise to provide inwardly extending, outwardly opening channels 16, see FIGURES 4 and 5, for packaging within a suitable envelope indicated at 17 in FIGURE 5 with the conduit 14 within one of the channels 16.

The conduit 14 is shown in FIGURE 3 as a length of corrugated tubing and desirably stretches to a length in the neighborhood of sixteen inches. Its shortened length may be as short as two inches. While for some uses, the lengthwise elasticity of the conduit 14 is not important, it is desirable, in self uses, that the conduit have insufficient lengthwise elasticity to interfere with the application.

In the embodiment of the invention illustrated by FIGURES 6 and 7, the container 18 is shown as a conventional paper bag type but of a stock that is sufficiently waterproof for a single use. In this embodiment of the invention, the extensible conduit 19 has a nozzle 20 secured to one end while its other end is in communication with the interior of the bag 18 and has a flange 21 sealed to the bottom thereof. The kit may be packaged in an envelope, indicated at 22 in FIGURE 7.

In FIGURE 8, the conduit is shown as a length of tubing 23, plastic or paper, that is shortened by deforming it into reverse bends.

It will be noted that the containers 10 and 18 have packages of a medicament secured to the interior side walls, the package in the case of the container 10 being indicated at 24 and in the case of the container 18 at 25, the medicament packages being of a water absorbent material.

In use it will be noted that the syringe may be removed from the containers without releasing the nozzles from the channels. Once the syringe is to be used, it is opened and filled and its conduit may either be held in a non-draining position or clamped closed by digitally applied pressure. The filled containers may, as shown in FIGURES 2 and 6, be held in the palm of the user's hand, in embodiments where the wall structure of the container is self-supporting when filled. When held with the extensible conduit depending between two fingers or a finger and a thumb, the conduit may be held closed by digitally applied pressure until the container contents are to be injected.

It will be appreciated that while the essential features of syringes in accordance with the invention have been

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described, the detailed construction may be varied substantially as required by particular uses and constructions that are desired for low cost production.

I claim:

1. A disposable syringe for enema and douche uses, said syringe comprising an open-ended container, a rigid elongated nozzle, and a corrugated conduit having a diameter substantially less than the diameter of said container and effecting communication between said nozzle and the interior of said container, said container and nozzle each being formed of a plastic, or paper which is sufficiently waterproof for a single use, a size of said container being such that, when filled with an enema or douche solution, it may be held in the palm of the user's hand, the location of said corrugated conduit relative to said container and the yieldability of said corrugated conduit being such that when the container is filled and supported on said hand as aforesaid, the corrugated conduit depends between two digits of said hand and may be closed by clamping pressure applied by said digits, the wall structure of said container being sufficiently rigid so that said container is self supporting when the container is filled with an enema or douche solution and held in the palm of the user's hand and sufficiently flexible so that the container may be collapsed along lengthwise folds on opposite sides thereof to form a substantially flat package including outwardly opening channels on opposite sides of the container, the structural characteristics of said corrugated conduit further being such that the corrugated conduit in its unextended state has a

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length of about two inches and may be reversely bent so that the rigid nozzle and the nozzle end of said conduit may be positioned in one of the side channels which may be formed in the container for packaging purposes and the corrugated conduit may be extended to a length of about sixteen inches for self use requirements.

2. The syringe of claim 1 in which the corrugated conduit, when extended to a length of about sixteen inches, has substantially no lengthwise elasticity.

3. The syringe of claim 1 in which there is a water permeable package containing a medicant secured to the inner surface of the container.

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GEORGE J. MARLO, Primary Examiner

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128—247; 206—17.5, 69; 222—523, 530, 527