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DISPENSING PACKAGE FOR FLUID SOLUBLE MATERIALS

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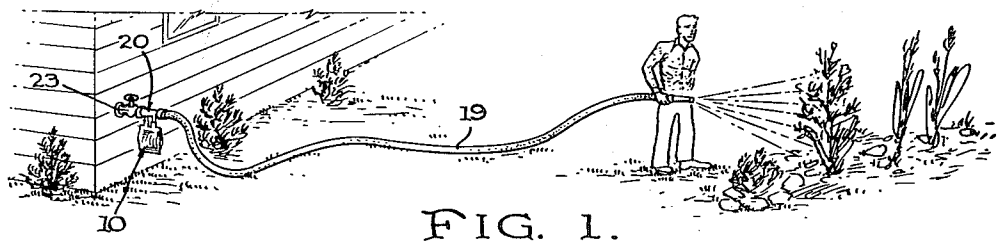


FIG. 1.

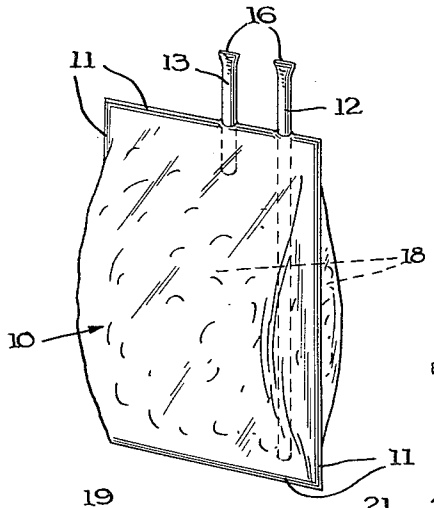
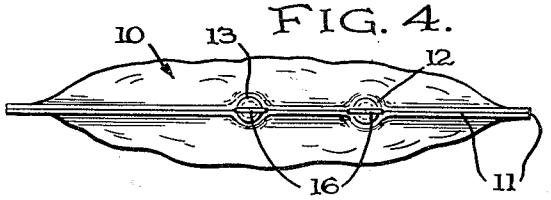


FIG. 2.

FIG. 4.



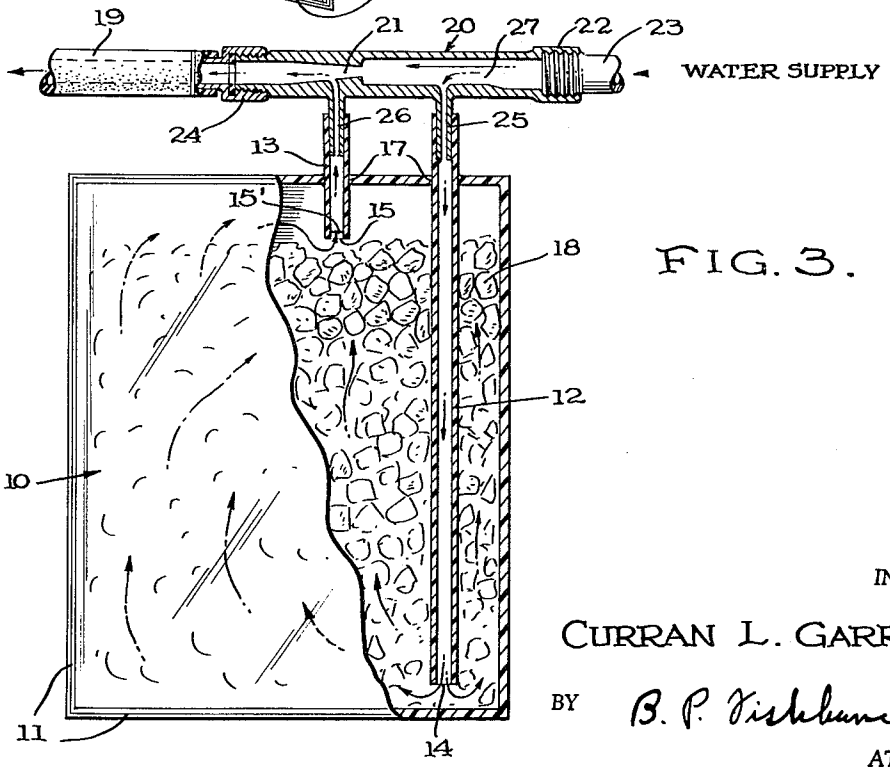


FIG. 3.

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DISPENSING PACKAGE FOR FLUID SOLUBLE MATERIALS

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This invention relates to dispensing receptacles, and more particularly to a dispensing package of fluid soluble material, such as fertilizer, certain insecticides, and other like chemicals.

An object of the invention is to provide a package of the above-mentioned character which may be cheaply manufactured for distribution to the wholesale or retail customer in a completely sealed condition, so that no moisture or other foreign matter can enter the package prior to use of the same.

Another object of the invention is to provide a dispensing package for fluid soluble fertilizers, insecticides and the like, formed entirely of heat sealable tough flexible plastic material capable of withstanding city water main pressure during use.

Still another object of the invention is to provide a dispensing package or receptacle of the above-mentioned character which may be utilized in conjunction with an ordinary garden hose and conventional feed or proportioning device to dispense the packaged material onto a lawn, and around shrubbery and the like.

Another object is to provide a package of the mentioned character having built-in sealed fluid inlet and outlet tubes, which need only to be severed by the user, exteriorly of the package, in order that such tubes may be connected to a standard type feed and proportioning device.

Another object is to provide a dispensing package for fluid soluble materials, which is reliable and efficient in operation, highly simplified and economical in design, and cheap enough to be expendable after a single usage thereof.

Other objects and advantages of the invention will become apparent during the course of the following detailed description.

In the accompanying drawings, forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

FIGURE 1 is a perspective view illustrating one manner of using the dispensing package according to the invention,

FIGURE 2 is a perspective view on an enlarged scale showing the sealed package prior to use,

FIGURE 3 is a further enlarged central vertical section, partly in elevation, through the package while the same is in use, and

FIGURE 4 is a plan view of the package.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral **10** designates generally a receptacle or package body portion formed of tough water-impermeable flexible sheet plastic material, such as polyethylene, polystyrene, or the like. Most conveniently, the receptacle body portion **10** may be formed from a pair of precut rectangular sheets of said plastic materials, arranged in superposed relation and heat sealed together around their entire marginal edges, as indicated at **11**. Thus formed, the package or receptacle body portion constitutes a substantially completed closed flexible envelope of any preferred size, adapted to be filled to the desired extent with fluid or water soluble fertilizer, insecticide, or the like, preferably in small particle form. The package body portion thus formed from the mentioned materials will be capable of withstanding ordinary city or household water pressure without bursting or parting.

The dispensing package further comprises a relatively long fluid inlet tube **12** and a relatively short outlet tube **13** through which water having the material within the package dissolved therein is conveyed to a garden hose or the like. The tubes **12** and **13** may be formed of the same plastic material utilized for constructing the body portion **10**, although the material of the tubes may be of a heavier gage, if desired, to render the tubes somewhat stiffer. The long inlet tube **12** has its lower open end **14** positioned and terminating near and slightly above the bottom of the receptacle body portion, as best shown in FIGURE 3. The outlet tube **13**, which is much shorter than the tube **12**, has its lower end **15** terminating near and below the upper end of the package body portion. Both tubes **12** and **13** extend exteriorly of the package body portion, beyond the top end thereof for a distance of several inches or the like, and which distance may vary somewhat in practice. The two tubes **12** and **13** preferably extend equal distances beyond the top edge of the package body portion, exteriorly thereof, as shown. The top ends of both tubes **12** and **13** are completely sealed or closed at **16** by heat sealing, or the like. The tubes **12** and **13** are received within small openings **17** in the top of the package body portion and heat sealed or otherwise suitably permanently anchored therein in a fluid tight manner. The openings **17** and tubes are spaced apart laterally approximately as shown, and this distance or spacing may be varied somewhat in practice, as found desirable. The tubes **12** and **13** are preferably parallel in their assembled relation to the receptacle body portion or envelope **10**. Thus formed, the package containing the solid water soluble material **18** is completely sealed or closed, and no moisture or other foreign matter may enter the package prior to the use thereof. The tubes **12** and **13** form an integral and permanent part of the package and the entire package is flexible and of a shape rendering it readily stackable with other packages of the same type. The package is durable and quite tough and will not rupture or leak even when subjected to rather rough usage.

In order to use the package for dispensing the fluid soluble material therein onto a lawn or the like, an ordinary garden hose **19** may be employed as depicted in FIGURE 1. A conventional feed and proportioning device **20** of rigid construction and having a venturi throat **21** may be coupled at **22** with a water faucet **23** or the like. The garden hose **19**, as best shown in FIGURE 3, is coupled at **24** with the other end of the proportioning device **20**. The device **20** has a pair of rigid tubular nipples **25** and **26**, of relatively small diameter, formed integral therewith, and extending in spaced parallel relation from one side thereof. The nipple **25** communicates with a main interior chamber **27** of the proportioning device **20**, while the nipple **26** communicates with the venturi throat **21** as shown in FIGURE 3.

To couple the dispensing package with the device **20**, it is merely necessary to sever the plastic tubes **12** and **13** close to their sealed ends **16**, which renders both tubes fully open at both ends, and the severed ends of the tubes are then telescoped over the nipples **25** and **26**, as shown in FIGURE 3, in snug fitting relation thereto and forming therewith fluid tight joints. When the parts are properly sized, it will be unnecessary to wrap or bind the tubes **12** and **13**, and the same will remain engaged with the nipples **25** and **26** frictionally.

With the package thus assembled to the revice **20**, FIGURE 3, the water supply is turned on and the water will flow through the device **20** and into the garden hose **19**. Some water will be diverted through the nipple **25** and through the long inlet tube **12** to the bottom of the package, as shown by the arrows in FIGURE 3. This water gradually fills the package body portion, dissolving and

mixing with the soluble fertilizer, insecticide or the like therein. When the water level within the package rises sufficiently to cover the lower end **15** of the tube **13**, the suction created in the venuturi throat **21** will begin to draw or siphon the dissolved material from the package through the outlet tube **13** and nipple **25** and into the venturi throat **21**, and from this throat into the garden hose **19** for dispensing onto a lawn, shrubbery or the like. This action will continue as long as the water continues to flow through the garden hose and proportioning device and all of the soluble material in the package will be dissolved in and mixed with the water therein and then siphoned through the tube **13**, until the package is substantially empty. When substantially clear water is observed to be discharging from the hose nozzle, the operator may readily remove the package from the device or adapter **20** and replace it with a new package containing a fresh charge of soluble material. The spent package, due to its inexpensive construction, can be discarded after a single usage.

As should now be apparent, the invention provides a package which is highly convenient to market to the customer and equally convenient to use or dispense from, without the necessity for any tools save a pair of scissors or the like for serving the two tubes **12** and **13** close to their sealed ends. The package is leak-proof during use and will not contaminate the hands of the user with fertilizer or other chemicals which might be contained therein. The package is highly compact in construction and generally flat so that a large number of packages may be stacked or placed in a common storage bin in a retail store or the like. They are tough and durable, as previously stated, and will withstand rough usage without rupturing or opening. The entire package is flexible and the side walls thereof are capable of expanding considerably when the water under presure is introduced therebetween, so that a thorough mixing and dilution of the contents may take place prior to the actual dispensing.

A small filter or strainer **15'** is preferably contained near the lower end of outlet tube **13** to prevent the passage of any large particles of material into the outlet tube or device **20**, thereby preventing possible clogging of the same.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, wthiout departing from the spirit of the invention or scope of the subjoined claims.

Having thus described my invention, I claim:

1. A flexible sealed dispensing package for liquid soluble particulate material, said package maintaining said material dry and uncontaminated prior to use, said package formed entirely of heat sealable plastic material and adapted for connection with a liquid proportioning device, said package comprising a flexible walled generally flat bag-like body portion adapted to hold a charge of said particulate material and being closed by heat sealing around its entire marginal edge, a relatively long liquid inlet tube extending through said marginal edge and heat sealed therein in a fluid tight manner and having an open end within the confines of the body portion near the remote side thereof, the opposite end of said tube being closed by heat sealing in a fluid tight manner exteriorly of the body portion and said marginal edge, and a relatively short discharge tube extending through said marginal edge in spaced parallel relation to the inlet tube and heat sealed within the marginal edge in a fluid tight manner and having an open end terminating within the body portion near the proximal side thereof and remote from the open end of said inlet tube, said discharge tube having its opposite end closed by heat sealing in a fluid tight manner exteriorly of the body portion and said marginal edge, the sealed ends of said tubes being equidistantly spaced from the body portion and said marginal edge, whereby said tubes may be severed inwardly of their sealed ends and exteriorly of the body portion for opening them and allowing them to receive spaced tubular nipples of said proportioning device.

2. A dispensing package for liquid soluble particulate solids adapted to maintain the solids dry and uncontaminated prior to use, said package formed entirely of heat sealable tough plastic material and comprising a closed fluid tight package body portion including a pair of opposed distendable flexible side walls and a marginal edge, and a pair of spaced parallel tubes extending through said marginal edge and heat sealed therein and extending equidistantly outside of the body portion and extending for unequal distances inside of the body portion, corresponding ends of said tubes within the body portion being open and the corresponding ends of said tubes exteriorly of the body portion being closed in a fluid tight manner by heat sealing, whereby said tubes may be opened exteriorly of the body portion by severing them near and inwardly of their heat sealed ends and equidistantly of said marginal edge to permit the exterior ends of the tubes to receive therein telescopically nipples of a proportioning device.

3. The invention as defined by claim 2, and wherein the entire package including said body portion and tubes are formed of polyethylene.

4. A one-use flexible dispensing package for liquid soluble solids formed entirely of heat sealable plastic material and being generally rectangular and flat and having a pair of opposed distendable side walls heat sealed together in a fluid tight manner around their registering marginal edges, and a pair of tubes extending through one heat sealed marginal edge of the package in a fluid tight manner and extending equidistantly outwardly of the marginal edge in spaced parallel relation and extending unequal distances interiorly of the marginal edge and package and having corresponding ends open within the package, the exterior ends of the tubes being closed in a fluid tight manner by heat sealing.

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