

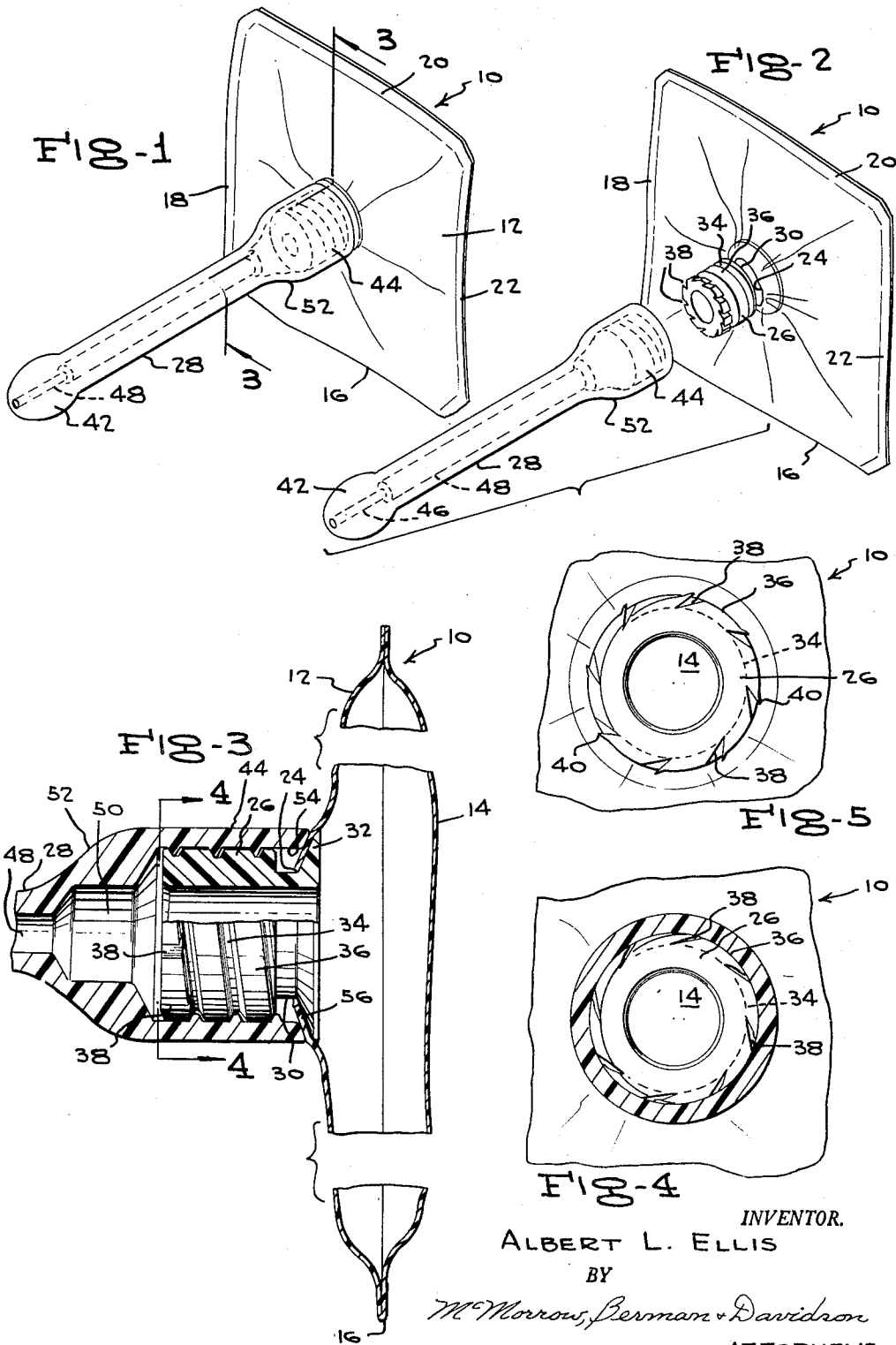
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DISPOSABLE DOUCHE SYRINGE AND BAG

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DISPOSABLE DOUCHE SYRINGE AND BAG
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This invention relates to syringes, particularly those employed in matters of feminine hygiene, and generally termed "douches" or "douche bags." In the modern world, feminine hygiene has received attention at rapidly increasing rate, and this has been complicated by the mobility of the population, with travel continually on the increase. In the matter of travel, it is somewhat inconvenient, and often embarrassing to include the usual, cumbersome, domestic syringe in luggage, and this gives rise to the problem of providing an inexpensive, disposable syringe, capable of compacting for storage in a small space. In addition to the problem mentioned, the inherent nature of certain modes of employment of a syringe render a repeated use thereof somewhat undesirable, and therefore, even in the home, a disposable type syringe is preferable. Furthermore, the conventional douche bag is usually kept out of sight when not in use, and since handling thus becomes furtive, the use of the device is less facile than could be desired.

It is, therefore, a primary object of the invention to provide a disposable, single-use syringe. Another object is to provide such a syringe which is capable of a high degree of compacting, for storage in a minimum of space. Objects related to the foregoing include the provision of a syringe which, while simple in structure, easy to manufacture, and low in cost, is nevertheless rugged, easy to assemble, and reliable in operation. It is also a particular object to provide a composite syringe, which is readily chargeable with fluid, but which automatically locks upon assembly to positively prevent re-use.

These and other objects, which will be apparent, are attained by the present invention, a preferred form of which is described in the following specification, as illustrated in the drawing, in which:

FIGURE 1 is a perspective view of the syringe, as assembled,

FIGURE 2 is a view similar to FIGURE 1, showing the bag and nozzle separated,

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 1,

FIGURE 4 is a sectional view taken on the line 4—4 of FIGURE 3, and

FIGURE 5 is a view similar to FIGURE 4, with the nozzle removed.

Referring to the drawing by characters of reference, there is shown a fluid-holding bag or reservoir, 10, preferably of polyethylene plastic, in thin, sheet form, formed from a pair of flat, generally rectangular, wall sections 12, 14 which may be produced from a single sheet, folded in the middle to produce one edge 16 of the bag, and being secured along the other three sides of the bag, as by heat-sealing or cementing, in marginal portions, 18, 20, 22. The resulting bag is of minimum weight and volume, and due to the flexibility of the material, may be further compacted by folding. Obviously, the bag may be made in various geometric forms other than the one shown, and other materials may be employed.

The bag wall 12 has a central, circular opening 24 for reception of a filler plug or nipple 26, which also serves to mount a delivery nozzle 28. Both of these parts are also made from polyethylene. For mounting in the bag opening, plug 26 has an annular channel near one end, providing a reduced neck 30, of about the same diameter as bag opening 24. Outwardly of neck 30, plug 26 has

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an enlarged, end flange 32, which is forced through opening 24, and brought into engagement with the inner surface of the bag, around the periphery of opening 24.

For attachment of the nozzle 28, the plug 26 is provided with a helical groove 34, adapted to mate with threads in the nozzle. In the form shown, the pitch of groove 34 is such that the ridge, or thread 36 on the plug is relatively wide in comparison to the width of the groove. At the outer end of the plug the first convolution of thread 36 is provided with oblique, wedge-shaped peripheral notches 38, equi-angularly spaced about the axis of the plug, the notches being inclined in the direction of advance along the thread, toward the bag. As seen in FIGURE 5, in the absence of the nozzle the short ratchet-like edges at the outer ends of the slots 38 extend, in their normal, unstressed state, beyond the periphery of thread 36, in tips or barbs 40, which are forced inwardly to the periphery of the plug when the nozzle is mounted thereon, which tend to bite into the nozzle on reverse turning thereof, so as to resist withdrawal of the nozzle.

The nozzle 28 is tubular throughout, and has an ovate, outer head 42, and a hood-shaped inner cap 44. Interiorly of the nozzle 28, the axial passage has an outer, restricted passage 46 within head 42, opening through the end thereof, a somewhat larger intermediate portion 48 between the head and cap, a still larger passage 50 within the shoulder portion 52 of the cap, and a terminal counterbore 54 within the main body of the cap, the counterbore being threaded to mate with the threaded plug 36. When the nozzle is screwed onto plug 36, the outer edge of cap 44 is brought into engagement with bag wall 12, around opening 24, this portion of the bag being thus secured in fluid-sealing relation between the cap end and the flange 32 of the plug, and for this purpose the end of the cap is preferably rounded, as at 56.

From the foregoing it will be evident that there has been provided a syringe which is simple, and moderate of dimension, and which, further is capable of compacting, for storage. At the same time, the device is easily filled, with the plug stabilizing the bag opening, and, therefore, acting as a funnel. The parts are easily assembled, and the functions of the assembled device are easily accomplished by evacuating the contents of the bag by squeezing with the hand. Once used, the device will be thrown away, since the ratchet effect of the notches in the plug defeat efforts to remove the nozzle. It is, of course, possible to employ a device without the locking feature, in case re-use should, for any reason be desirable.

As packed for the market, the two parts will be separate, and since the bag is foldable, the parts may be placed in a relatively small container, which can be easily carried in a pocket or purse. For certain intended uses, suitable chemicals may be supplied with the bag, for ultimate solution in the fluid when the bag is filled. The chemical in pill or powder form, may be placed within the bag at the time of packaging, and a strip of gummed tape or paper placed over the opening in the plug.

Generally speaking, whereas a certain preferred embodiment has been shown and described, various modifications will become apparent, in the light of the disclosure, and the invention should not, therefore, be deemed as limited except insofar as shall appear from the spirit and scope of the appended claims.

What is claimed is:

1. A disposable syringe comprising a flat thin-walled generally rectangular, double-faced, bag of plastic material having a folded edge on one side, and attached end edges on the other three sides, one face of said bag having a central, circular opening, a plug having an annular channel in its periphery, receiving the rim of said opening, a flange on said plug engaging the inner surface of said bag

adjacent said opening, said plug having a helical, thread groove and a thread relatively wide in comparison to said groove, the first convolution of said thread, at the outer end of said plug, having a series of oblique, wedge-shaped slots opening in the periphery of said plug, and having sharp corners extending outwardly of said periphery, and a nozzle having an end cap portion with an internal thread mating with said groove in said plug, an ovate head on said nozzle on the end opposite said cap, said nozzle having a central passage throughout, with a portion of restricted bore within said head.

2. A disposable syringe comprising a flat thin-walled double-faced, bag of plastic material having a folded edge on one side, and attached end edges on the other three sides, one face of said bag having a central, circular opening, a plug having an annular channel in its periphery, receiving the rim of said opening, a flange on said plug engaging the inner surface of said bag adjacent said opening, said plug having a helical, thread groove, and a thread relatively wide in comparison to said groove, the first convolution of said thread, at the outer end of said plug having a series of oblique, wedge-shaped slots opening in the periphery of said plug, and having sharp corners extending outwardly of said periphery, and a nozzle having an end cap portion with an internal thread mating with said groove in said plug, an ovate head on said nozzle on the end opposite said cap, said nozzle having a central passage throughout, with a portion of restricted bore within said head.

3. A disposable syringe comprising a pair of sheets of plastic material, joined on a peripheral line to provide a flat bag, one face of said bag having a central, circular opening, a plug having an annular channel in its periphery, receiving the rim of said opening, a flange on said plug engaging the inner surface of said bag adjacent said opening, said plug having a helical, thread groove, and a thread relatively wide in comparison to said groove, the first convolution of said thread, at the outer end of said plug, having a series of oblique, wedge-shaped slots opening in the periphery of said plug, and having sharp corners extending outwardly of said periphery, and a nozzle having an end cap portion with an internal thread mating with said groove in said plug, an ovate head on said nozzle on the end opposite said cap, said nozzle having a central passage throughout, with a portion of restricted bore within said head.

4. A disposable syringe comprising a pair of sheets of plastic material, joined on a peripheral line to provide a flat bag, one face of said bag having an opening, a plug having an annular channel in its periphery, receiving the rim of said opening, said plug having a helical, thread groove, and a thread relatively wide in comparison to said groove, the first convolution of said thread, at the outer end of said plug having a series of oblique, wedge-shaped slots opening in the periphery of said plug, and having sharp corners extending outwardly of said periphery, and a nozzle having an end cap portion with an

internal thread mating with said groove in said plug, an ovate head on said nozzle on the end opposite said cap, said nozzle having a central passage throughout, with a portion of restricted bore within said head.

5. A disposable syringe comprising a pair of sheets of plastic material, joined on a peripheral line to provide a flat bag, one face of said bag having an opening, a plug having an annular channel in its periphery, receiving the rim of said opening, said plug having a helical, thread groove, a series of oblique, wedge-shaped slots opening in its periphery, and having sharp corners extending outwardly of said periphery, and a nozzle having an end cap portion with an internal thread mating with said groove in said plug, an ovate head on said nozzle on the end opposite said cap, and said nozzle having a central passage throughout, with a portion of restricted bore within said head.

6. A disposable syringe comprising a pair of sheets of plastic material, joined on a peripheral line to provide a flat bag, one face of said bag having an opening, a plug having an annular channel in its periphery, receiving the rim of said opening, said plug having a helical, thread groove, and a series of integral, wedges extending beyond its periphery, and arranged, in their normal, unstressed state, oblique to radial planes through the plug axis and a tubular nozzle having a headed, outer end, and a cap at the inner end, with an internal thread mating with said groove.

7. A disposable syringe comprising a flexible bag, a threaded nipple secured to said bag and communicating with the interior thereof, said nipple having a helical thread groove, and obliquely-slanted barbs extending beyond its periphery, and arranged, in their normal, unstressed state, oblique to radial planes through the nipple axis. and a tubular nozzle having internal threads at one end, mating with said groove.

8. A disposable syringe comprising a pair of sheets of plastic material, joined on a peripheral line to provide a flat bag, a threaded nipple secured to said bag and communicating with the interior thereof, said nipple having a helical thread groove, and obliquely-slanted barbs extending beyond its periphery, and arranged, in their normal, unstressed state, oblique to radial planes through the nipple axis and a tubular nozzle having internal threads at one end, mating with said groove.

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