

DISPOSABLE FLUID OR PARTICULATE APPLICATOR

The present invention relates to a disposable and sterile fluid or particulate applicator. It has particular application in the medical and food technologies where the supply of a fluid or particulate under sterile conditions is paramount.

5 BACKGROUND OF THE INVENTION

Single use containers have been known to be used to provide a sterile fluid or particulate. For example, such containers may provide a saline solution to wash wounds, may contain sauces to be added during cooking or may house materials that can not be exposed to air.

- 10 Similarly, multi-use containers such as sauce bottles are also known where they may be used many times and even be refillable. Generally multi-use containers also include a tool to assist in dispensing of the fluid or particulate. These tools, such as nozzles, can become contaminated through continued usage. Remnants of the fluid or particulate can remain in the nozzle and can
15 over time start to degrade. Furthermore, the nozzle can become blocked if it is in physical contact with a food during use, such as the application of sauce internally to a pie. Not only is the blockage inconvenient, but it can pose a health risk.

- It is an object of the present invention to provide a disposable or one-use only
20 fluid or particulate dispenser that overcomes at least some of the abovementioned problems or provides the public with a useful alternative.

SUMMARY OF THE INVENTION

Therefore in one form of the invention there is proposed a fluid or particulate dispenser including:

- 25 a sachet having a reservoir and a cover;
said reservoir having an internal volume adapted to contain a fluid or particulates and including a spout extending to a distal tip having an aperture for dispensing said fluid or particulates;
said cover sealingly removable from said reservoir to enable for the
30 dispensing of said fluid or particulates from said reservoir through said spout.



Preferably said cover is frangibly attached to said reservoir. This allows the cover to be easily torn from the reservoir. It is also to be understood that the term frangible is not intended to limit it to the construction that the cover is attached to the reservoir during manufacture. For example, an existing sachet
5 may be modified to provide for a reservoir and a cover member by the application of a heat seal that assists in providing the frangible attachment.

Preferably said sachet is made from a flexible material. This assist in allowing the fluid to be pressurised and expelled from said reservoir.

Preferably said cover includes a sealing means to seal said aperture. IN this
10 way, the fluid does not seep into the cover. One way of doing this is for the sealing means to be a plug.

Preferably the spout is sealingly attached to said reservoir member. For example, the spout could be glued to the inside of the reservoir member.

In a further form of the invention there is proposed a fluid or particulate
15 dispenser including:
a fluid sachet including a flexible reservoir and a cover frangibly attached to said reservoir;
said reservoir having an internal volume adapted to support a fluid and including a neck portion extending to a distal tip having an aperture for
20 dispensing said fluid, said neck portion being slidable between a first position located within said internal volume and a second position extending from said internal volume;
whereby in use, the said cover frangible seal is fractured and removed from said reservoir and whereby applying an external force on said reservoir fluid
25 pressure causes the neck portion to slide to said second position and fluid to flow through said aperture.

In a still further form of the invention there is proposed a fluid or particulate dispenser including;
a sachet having a flexible reservoir and a cover frangibly attached to said
30 reservoir;
said reservoir having an internal volume adapted to support a fluid and including a neck extending to a distal tip having an aperture for dispensing said fluid, said neck being foldable;



whereby in use, the said cover frangible seal is fractured and removed from said reservoir and whereby applying an external force on said reservoir fluid causes said neck portion to fold out and fluid flows through said aperture.

5 Preferably the cover is frangibly attached to said reservoir along a seam. The seam could be made by appropriate heat welding that also may assist in sealing the spout to the reservoir.

10 Preferably said neck portion is resilient to maintain its structural integrity when inserted into an area where the fluid or particulate is to be applied. For example it has been found highly useful by the inventors to use the invention to apply sauce to a bottle as well as insertion of appropriate medical fluids into the rectum.

For example the dispenser could be used for the dispensing of sauce into pies or pasties.

15 In preference said dispenser further includes an inner bladder disposed with said internal volume, said neck portion fluidly connected to said inner bladder.

In a still further form of the invention there is proposed a fluid of particulate dispenser including:
a sachet defining an internal volume and including a neck portion that is to be contained within the internal volume of said sachet and adapted to divide the
20 sachet into a reservoir and a cover;
said neck portion including an aperture for dispensing said fluid and/or particulate, said sachet further including an inner surface configured to seal said aperture.

25 Preferably the dispenser further includes a tool enclosed by said cover. The tool could additionally provide for a seal against the aperture.

Therefore, one can see that the present invention provides for a fluid or particulate dispenser that is designed to be disposed off after use. This minimises the risk to public health. It can also be used in medical applications where the provision of sterile fluids or particulates as well as the provision of
30 small tools. The dispenser may also include fluid or particulate spouts or necks that assist in controlling the direction of the fluid flow. Being made from



a flexible material the dispenser is relatively inexpensive and can be effectively stored adding yet a further advantage. However it is to be understood that the dispenser can be made to be partially flexible and partially rigid. For example, the base of the dispenser may be rigid to afford additional protection against storage and dispensing.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Several embodiments of the invention are described hereunder in some detail with reference to and as illustrated in the accompanying drawings, in which:

Fig 1 is a plan view of a fluid dispenser according to a first embodiment of the invention;

Fig 2 is a side cross-sectional view of the dispenser of Figure 1;

Fig 3 is a front cross-sectional view of the dispenser of Figure 1;

Fig 4 is a perspective view of a fluid dispenser according to a second embodiment of the invention;

Fig 5 is an exploded view of the fluid dispenser of Figure 4 showing the fluid dispenser in use;

Fig 6 is a side cross-sectional view of the fluid dispenser of Figure 4;

Fig 7 is a perspective view of a fluid dispenser according to a third embodiment of the invention;

Fig 8 is a perspective view of the fluid dispenser of Figure 7 showing the dispenser being prepared for use;

Fig 9 is a perspective view of a fluid dispenser according to a fourth embodiment of the invention;

Fig 10 is a perspective view of the fluid dispenser of Figure 9 showing the dispenser being prepared for use;

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Fig 11 is a side cross-sectional view of the dispenser of Figure 9;

Fig 12 is a plan view of a dispense according to a fifth embodiment of the invention;

Fig 13 is a cross-sectional view of the dispense of Figure 12;

5 Fig 14 (a) and (b) are plan and cross-sectional view of a dispense according to a sixth embodiment of the invention;

Fig 15 (a) and (b) are plane and cross-sectional views of the dispenser of Figure 14 prepared for use;

10 Fig 16 is a perspective partially cutaway view of a fluid dispenser according to a seventh embodiment of the invention; and

Fig 17 is an exploded perspective view of the fluid dispenser of Figure 16 prepared for use.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

1 5 Referring now to the drawings in detail it is to be understood that like numerals refer to like elements. Thus there is shown in Figures 1-3 a fluid dispenser 10 according to a first embodiment of the invention that may be used to dispense liquids such as tomato sauce. The dispenser 10 includes a tool 12 that divides the dispenser into a reservoir 14 and a cover 16. The tool, in this embodiment
2 0 being a spout, is sealingly circumferentially attached to the inside of the dispenser around internal radius 18 to prevent any fluid in the reservoir flowing into the cover except through an aperture in the spout. To allow access to the spout, the cover simply needs to be removed from the reservoir at a location forward from said radius. This can be done by the use of an external cutting tool, such as a pair of scissors. To however assist in this
2 5 regard a seam 20 may be introduced forward of the radius, such as that made by a heat seal, which allows the cover to be physically torn from the reservoir thereby exposing the spout.

To manufacture the dispenser one therefore simply needs a single sachet into which is introduced and fixedly attached spout 12, and whereby a heat



seal 20 is then applied forward the location where the spout 12 is fixed to the dispenser 10 to enable the cover 16 to be frangibly attached to the reservoir 14. To ensure that no fluid flows from the reservoir into the cover, the aperture 22 of the spout may be appropriately sealed, although a particular seal is not shown. The cover may also assist in the sealing but that is discussed in a further embodiment.

Alternatively two sheets of suitable material, such as plastic, may be positioned one over a spout and one under a spout and whose edges 24 are then heat sealed to thereby define the dispenser.

10 To dispense fluid, such as sauce, the cover 16 is torn along the frangible seam 20 to thereby expose spout 12 and aperture 22. By pressurising the reservoir 14 by simply squeezing it externally 14, fluid is caused to flow out through said aperture 22.

15 The spout 12 may be manufactured so as to be more resilient than the rest of the dispenser 10 and thus can be adapted to be inserted into food, such as pies and pasties, so that sauce can be dispensed directly into the pies or pasties. Once the sauce has been dispensed, the dispenser is disposed of eliminating problems of public health. Since the spout is completely covered by the cover prior to its use it is kept in a sterile environment.

20 Referring now to figures 4-6 there is shown a second embodiment of the invention where a spout 12 is manufactured integrally with the reservoir 14. In this embodiment, the cover 16 is removably attached to the reservoir 14, with the seam 20 once again being one allowing the cover to be torn from the reservoir. In this embodiment the cover also includes a cavity 26
25 correspondingly shaped to the spout and including an end 28 that is adapted to sealingly engage the aperture 22 to prevent fluid 28 flowing into the cover member when it is attached to the reservoir. In this embodiment it may be useful to use a material that is more resilient and to provide a support for the spout so as maintain integrity in its shape.

30 Referring now to figures 7 and 8 there is shown a third embodiment of the invention. Spout 12 is slidably disposed within the reservoir. Located towards the spout end of the reservoir is a join or seam 20 dividing the dispenser into a reservoir 14 and cover 16. The edge 30 of the reservoir includes an opening



32 positioned to be co-axial with the spout 12. When the cover 16 is removed from the reservoir 14, the opening 32 is exposed. The spout can then slide through the opening. Obviously the edges of the spout remain in sealing engagement with the reservoir to ensure that any fluid within the reservoir can only flow through the spout. To use the dispenser one simply tears the cover exposing the opening and then applies pressure to the reservoir behind the spout which pressurises the reservoir causing the spout to move through the opening until its size is equal to that of the opening at which point the fluid is pressurised to flow out through the spout. The spout may also be manufactured from a hard material enabling more control over the insertion of the nozzle into food by being manufactured of a resilient material.

A fourth embodiment of the present invention is shown in Figures 9-11. The dispenser 10 includes a bladder 34, one end of the bladder 34 being foldable along folds 36 and including a spout 12. The bladder is enclosed by the reservoir 14 and cover 16 that are integrally attached to each other and define the outside of the dispenser. The cover 16 is tearingly removable to expose the side of the reservoir and through which can then extend the spout 12. By applying pressure, the reservoir containing the fluid is pressurised acting on the spout that is then moved outwardly until the folds are straightened. Once again, the nozzle may be manufactured of resilient material allowing the spout to be inserted into foods such as pies. Although the construction of Figures 9-11 shows a bladder, it is to be understood that instead of a bladder, the foldable portion 36 may simply be attached to the inside walls of the reservoir 14 without extending throughout the whole bladder. The exact configuration would of course depend upon what strength the bladder needs to be manufactured to and the cost and ease of manufacture.

A fifth embodiment of the invention can be seen in Figures 12 and 13 where the spout is an integral part of the reservoir. The cover is tearingly or frangibly attached along seam 20 to the spout portion of the reservoir. This embodiment may be useful in situations where the spout need not be inserted into matter but where it is imperative that the outside of the aperture is kept sterile. In addition the aperture 22 is sealed by plug 38 that is not attached to the cover. To break the seal instead of removing the cover and then the plug., the plug may be twisted by, for example, applying rotational motion 40 to the plug through the cover thus breaking the seal on the aperture. Only then is the cover 16 removed thereby removing the plug 38 and exposing the spout 12.



Shown in figures 14 and 15 is a sixth embodiment of the invention where the cover is frangibly attached to the reservoir and where the cover 16 is correspondingly shaped to the spout 12. Somewhat similar to the previous embodiment in including a plug that can be broken by applying rotational motion to it, in this embodiment the cover completely extends over the spout protecting it from the outside.

Yet a further embodiment of the invention can be seen in Figure 16 and 17 whereby besides the cover protecting a spout for the dispensation of fluid or particulates, the cover may also accommodate tools that may assist in a particular application. Shown in this embodiment are tweezers 42 including a base 44 adapted to seal aperture 22. The cover 16 is of a larger construction so as to accommodate the tweezers 42 which are kept in a sterile environment. This embodiment may have particular application for the medical field where tools such as tweezers that may be used to treat wounds need to be kept in a sterile environment. At the same time the reservoir may include a saline solution that may be used to wash the wound. In this way, the dispenser not only provides the sterile saline solution but also tweezers that may assist in cleaning the wound. Both are kept in the one dispenser and are thus not only convenient but are used only once minimising risk of infection.

Other variations to the invention that are not shown include spouts with multiple nozzles, or covers that include different tools. It is also to be understood wherein reference has been made to the dispensing of fluid, it is to be understood that the dispenser may equally well be used to dispense particulates such as powders or creams.

The foregoing describes only several embodiments of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope of the present invention.

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CLAIMS

1. A fluid or particulate dispenser including:
a sachet having a reservoir and a cover;
said reservoir having an internal volume adapted to contain a fluid or
particulates and including a spout extending to a distal tip having an
aperture for dispensing said fluid or particulates;
said cover sealingly removable from said reservoir to enable for the
dispensing of said fluid or particulates from said reservoir through said
spout.
2. A fluid or particulate dispenser as in claim 1 wherein said cover is frangibly
attached to said reservoir.
3. A fluid or particulate dispenser wherein said sachet is made from a flexible
material.
4. A fluid or particulate dispenser as in claim 1 wherein said cover includes a
sealing means to seal said aperture.
5. A fluid or particulate dispenser as in claim 4 wherein said sealing means is
a plug.
6. A fluid or particulate dispenser as in any one of the above claims wherein
said spout is sealingly attached to said reservoir member.
7. A fluid or particulate dispenser including:
a fluid sachet including a flexible reservoir and a cover frangibly attached
to said reservoir;
said reservoir having an internal volume adapted to support a fluid and
including a neck portion extending to a distal tip having an aperture for
dispensing said fluid, said neck portion being slidable between a first
position located within said internal volume and a second position
extending from said internal volume;
whereby in use, the said cover frangible seal is fractured and removed
from said reservoir and whereby applying an external force on said
reservoir fluid pressure causes the neck portion to slide to said second
position and fluid to flow through said aperture.

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8. A fluid or particulate dispenser including;
a sachet having a flexible reservoir and a cover frangibly attached to said
reservoir;
said reservoir having an internal volume adapted to support a fluid and
including a neck extending to a distal tip having an aperture for dispensing
said fluid, said neck being foldable;
whereby in use, the said cover frangible seal is fractured and removed
from said reservoir and whereby applying an external force on said
reservoir fluid causes said neck portion to fold out and fluid flows through
said aperture.
9. A fluid or particulate dispenser as in any one of the above claims wherein
the cover is frangibly attached to said reservoir along a seam.
10. A fluid or particulate dispenser as in any one of claims 7 to 9 wherein
the neck portion is resilient to maintain its structural integrity when inserted
into an area where the fluid or particulate is to be applied.
11. A fluid or particulate dispenser as in any one of claims 7 to 10
wherein said dispenser further includes an inner bladder disposed with
said internal volume, said neck portion fluidly connected to said inner
bladder.
12. A fluid or particulate dispenser including:
a sachet defining an internal volume and including a neck portion that is to
be contained within the internal volume of said sachet and adapted to
divide the sachet into a reservoir and a cover;
said neck portion including an aperture for dispensing said fluid and/or
particulate, said sachet further including an inner surface configured to
seal said aperture.
13. A fluid or particulate dispenser as in any one claims 7 to 12 wherein
said cover is frangibly attached to said reservoir in a configuration
whereupon removal of said cover exposes said neck portion.
14. A fluid or particulate dispenser as in any one of the above claims
wherein removal of said cover also acts so as to remove said seal from
said aperture enabling distribution of said fluid or particulate.

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15. A fluid or particulate dispenser as in any one of the above claims wherein said sachet further includes a tool enclosed by said cover.
16. A fluid or particulate dispenser as in claim 15 wherein said tool is adapted to seal said aperture.

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