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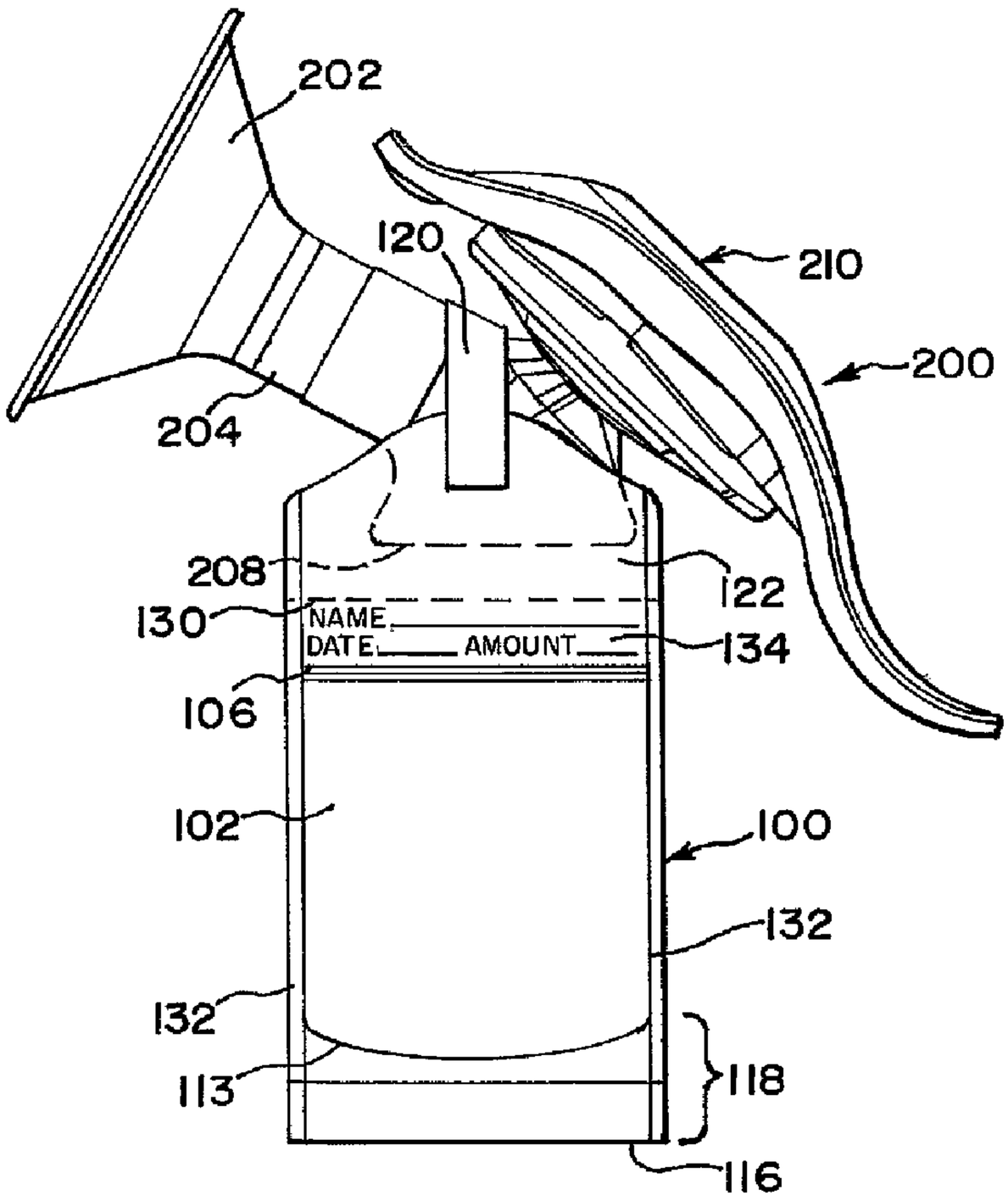
(54) Titre : SAC A LAIT DOTE D'UNE BANDE DE FIXATION DE POMPE
(54) Title: MILK BAG WITH PUMP ATTACHMENT STRAP



(57) Abrégé/Abstract:
A sanitary disposable bag is described for attachment to a breastmilk pump for containing breastmilk that can be easily and efficiently manufactured, packaged and used. A plastic bag adapted to contain milk, such as a bag formed by two sheets of plastic

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(57) Abrégé(suite)/Abstract(continued):
constituting a front and a back sheet that are in facial engagement and are joined to each other by a series of seals in such manner to define a sealable liquid containing portion of the bag. The bag includes a hanger attachment portion of the bag, which in one form is a strap, sized and shaped to suspend the bag in place with a milk outlet of the pump.

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(54) Title: MILK BAG WITH PUMP ATTACHMENT STRAP

(57) Abstract: A sanitary disposable bag is described for attachment to a breastmilk pump for containing breastmilk that can be easily and efficiently manufactured, packaged and used. A plastic bag adapted to contain milk, such as a bag formed by two sheets of plastic constituting a front and a back sheet that are in facial engagement and are joined to each other by a series of seals in such manner to define a sealable liquid containing portion of the bag. The bag includes a hanger attachment portion of the bag, which in one form is a strap, sized and shaped to suspend the bag in place with a milk outlet of the pump.

MILK BAG WITH PUMP ATTACHMENT STRAP

FIELD OF THE INVENTION

The present invention generally relates to breastmilk pumps, and more particularly relates to an improved bag for attachment to a breastmilk pump. More specifically, the improved bag includes an attachment strap for securing the bag directly to a breastmilk pump, eliminating the need for a separate container for receiving expressed breastmilk.

BACKGROUND OF THE INVENTION

Breastmilk pumps are well known and are generally comprised of a hood or shield that fits over a portion or the entire breast, a vacuum pump connected to the hood for generating an intermittent pressure variation within the hood, and a receptacle for the expressed milk. The receptacle in such an arrangement is typically a rigid plastic feeding bottle well known to those in the art. There are manually driven vacuum pumps (e.g., handheld piston pumps) which most commonly connect to at or closely adjacent to the hood, as well as vacuum pumps that are driven by an electric motor and interconnect to the hood via tubing. The vacuum pumps of these devices intermittently generate a pressure, most typically a vacuum (or a negative pressure) within the hood, with the hood encompassing the nipple and a substantial amount of the breast. The intermittent suction action of the pump serves to pull on the breast, drawing it within the narrowing funnel of the hood, to thereby extract milk in an action reminiscent of suckling. The milk so extracted typically flows from the hood into a container, e.g., a bottle, for storage and later use. A breastpump of the foregoing type is shown in U.S. Pat. No. 4,857,051. While rigid milk containers (bottles) are most often used with breastpumps, it is also desirable to use disposable plastic bags as the containers.

Many such sterile plastic bags have been proposed and adapted for use with a breast pump to function in the above-described manner. The method of using and storing these types of bags are well-documented as are the advantages. See for instance, U.S. Patent Publication No. 2002/0156419. However, without exception, these bags are used either independently of the pump, with milk from the container transferred to the plastic bag for storage, and/or used in combination with a container by, for example, having a portion adapted to be fixed in place by, for instance, a

threaded connection with a collar or the like between the container and a housing or main portion of the pump. The threaded connection serves to fix the bag in place with respect to the pump, and the container provides support to the bag. The presence of the bag makes unnecessary the step of cleaning the container after use and, strictly speaking, makes the container merely a means of attaching the bag to the pump.

Applicants believe there is a demand for an improved disposable, sterile plastic bag with a feature that provides convenient use with a breast pump.

SUMMARY OF THE INVENTION

Now, with the foregoing in mind, the current invention builds upon the original concept of a disposable, sterile plastic bag for receiving and storing expressed breastmilk, and in the case of a preferred embodiment, there is provided a disposable, sterile bag including a pump attachment feature which does not require a container, collar or other element of the pump itself for attachment of the bag. It should be understood that the term "bag" as used herein is not intended to be limiting and is intended to refer to a receptacle adapted to use with a breast pump, and having a generally flexible structure and an interior to receive and retain breast milk during use and during storage. Of course, the term "bag" excludes conventional baby bottles and rigid containers.

One of the principal objects of the present invention is to provide a sanitary disposable bag for attachment to a breastmilk pump for containing breastmilk that can be easily and efficiently manufactured, packaged and used. To these and other ends, the inventive breastmilk bag comprises in one form an improved flexible plastic bag adapted to contain milk, such as a bag formed by two sheets of plastic constituting a front and a back sheet that are in facial engagement and are joined to each other by a series of seals in such manner to define a hermetically sealable liquid containing portion of the bag. The bag could also be formed by a continuous tube closed and separated in a well known manner, among other ways to form the general bag itself. One feature of the invention is a pump attachment portion of the bag, which in perhaps one of its broadest expressions has a strap, sized and shaped to suspend the bag in place under a milk outlet of the pump. An embodiment of the invention includes a reclosable (preferably fluid tight when closed) opening for receiving expressed breastmilk when in an open condition, and sealing the bag when in a closed condition.

The attachment strap preferably has first and second ends, the first end of which is attachable to one side (e.g., the front) of the bag and the second end is attachable to the other side (e.g., back) of the bag. The attachment strap is sized and shaped to position the bag to provide the opening in operative association with the breast pump, for example, the strap forms a hanger from which the bag is suspended in place on the pump.

Another aspect of the present invention provides a bag for breastmilk in combination with a breastpump, including a breastpump with a housing having an outlet and a hood connected to the housing communicating expressed milk through to the outlet. The hood is sized and shaped to receive some or all of a breast. The bag has an opening sized and shaped to fit the outlet, and is otherwise closed. The attachment strap includes first and second ends. The first end can be fixed to the bag adjacent the opening in manufacture, for convenience of the user. It need not be, however, and could be provided as a separate piece. The attachment strap is sized and shaped to mount on the breastpump so as to suspend the bag in operative association with the breast pump and the opening fitted to the outlet. This can be done most preferably with a release paper covered adhesive on the second end, which when the paper is stripped way, reveals the adhesive for attachment to an opposed side of the bag. Other attachment schemes are readily adaptable, however.

Yet another aspect of the present invention is provided wherein the attachment strap is formed as a unitary part of the bag itself, i.e., integral with the bag material and not detachable from the bag.

The present invention will be further appreciated, and its attributes and advantages further understood, upon consideration of the following detailed description of an embodiment of the invention, taken in conjunction with the accompanying drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view of an embodiment of a breastmilk bag according to certain aspects of the present invention;

FIG. 1A is a sectional view taken along line A-A of FIG. 1;

FIG. 1B is a front view of another embodiment of a breastmilk bag according to certain aspects of the present invention;

FIG. 2 is a perspective view of an embodiment of the breastmilk bag prior to being mounted to a breastpump; and

FIG. 3 is a side view of an embodiment of the breastmilk bag of FIG. 1 mounted to the breastpump.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

The embodiments of the invention described hereinafter have been particularly adapted for use with a conventional, commercially available breastpump; it need not be conventional, however, so long as there is something from which the bag can be suspended by the strap in place around the milk outlet. The breastpump may be manual or motor driven.

Referring to FIG. 1, a bag 100 for containing breastmilk comprises a front sheet 102 and a back sheet 104 (See FIG. 2). The front and back sheets 102, 104 are made of a suitable liquid impervious food compatible plastic, such as polyethylene. Each of sheet 102, 104 may be made from a single ply of material or, in the alternate a suitable laminate. A polyethylene-polyester laminate can be advantageously used, with the polyethylene layer on the inside of the bag for flexibility, and also better sealability. Each of front sheet 102 and rear sheet 104 (See FIG. 2) may be formed of a laminate including 44 gauge polyester (PET) film and 200 gauge low-density polyethylene (LDPE) film.

Looking at FIG. 1A in particular, one notes that each sheet 102, 104 is generally rectangular with a pair of opposed parallel side edges 132 and a bottom edge 116 (FIG. 1) set at right angles to side edges 132 and a top edge 110, which is slightly scalloped around a center area of the sheets at the opening. Each of the front sheet 102 and rear sheet 104 is formed of a laminate 111 comprising a first side 150 of a 44 gauge polyester (PET) film and a second side 152 including a 200 gauge low-density polyethylene (LDPE) film, first side 150 and second 152 joined by a tie layer 154. The densities of the film, and even the type of film (or other material), is not limiting, and is merely descriptive of this one embodiment.

Front sheet 102 and rear sheet 104 are joined by seal 114, which is applied to side edges 132 and (referring back to FIG. 1) bottom edge 116 forming a pouch 112 (FIG. 2) with opening 180 defined at top edge 110. A gusset structure 118 is formed between bottom edge 116 and bottom of pouch 102, formed by seal line 113. This gusseted bottom is formed by conventional methods, e.g., providing a folded panel of

pouch material adjacent the bottom edge 116 of the bag and sealing the material into a gusset structure. It lends further strength to the region, and even the ability to stand the bag when filled. Suitable materials for making such disposable milk bags are well known. The bag 100 can similarly be formed from a continuous tube of plastic, eliminating the need for lateral seals for the bag.

A resealable or reclosable seal 106 is provided to provide access to the bag interior (pouch 112) when in an open condition and seals the bag when in a closed condition.

In one embodiment, the reclosable seal is preferably a "zip" type closure 106 or an equivalent, formed by attaching to either front sheet 102 or rear sheet 104, an extended male element, above and essentially parallel to bottom edge 116, which male element is press fit into a corresponding female channel type element attached to the other of the front and back sheet 102, 104. A number of known designs exist for "male/female" zip-type closures. Some are designed to fasten together to merely hold a bag opening in a closed condition and some are designed to retain fluids within the bag in a leak proof fashion. Of course, other mechanisms of sealing the bag are contemplated for use in the present invention to seal the bag in a reclosable fashion.

Reclosable seal 106 extends between side edges 132 and is also located below top edge 110. Thereby, when reclosable seal 106 is closed, the combination of reclosable seal 106, sealed side edges 132 and sealed pouch bottom edge 113 define the generally rectangular bag pouch 112 suitable for retaining fluids therewithin through opening 180.

Because reclosable seal 106 is positioned below top edge 110, a portion of each of front sheet 102 and rear sheet 104 extends beyond reclosable seal 106. The extended portions of sheets 102 and 104 form two opposing tabs or flaps, respectively; front tab 122 and rear tab 124. Front tab 122 and rear tab 124 are used to aid in opening bag 100, but as will now be discussed, also in positioning the bag in use.

Bag 100 includes a strap 120 preferably attached to front sheet 102 (See FIG. 2) by adhesive 121 at one end thereof, by heat sealing or any other suitable method or material adjacent upper part of tab 122. The strap 120 may be attached in a releasable fashion as well, e.g., looped through a hole(s). The other end of the strap 120 may include adhesive 121, or an equivalent attachment mechanism or material for releasable or permanent attachment to the rear sheet 104 on tab 124 adjacent the upper

end thereof. The strap 120 may be a single layer of material, such as plastic or paper configured as a rectangular strap, may be multiple plies of material, may be string-like or any suitable shape so as to provide an attachment to a breastpump as will be discussed in more detail below.

Referring now in particular to FIG. 1B, a breastmilk receptacle or bag 100 is shown, which is similar to that shown in FIG. 1. The bag 100 illustrates one preferred embodiment of providing the strap 120 in a stored or pre-deployed condition. In particular, the strap 100 may be coiled or folded into a compacted form on the outside of front tab 122 of front sheet 102. The strap 120 is held in the folded condition by a temporary adhesive (not shown) or a layer of material 123 overlaying the strap, which is removed before use of the strap.

Referring now in particular to FIGS. 2 and 3, a breastpump 200 includes a funnel-shaped hood 202 that is sized and shaped for engagement with at least a portion of a breast. Downstream from the hood 202 is a cylindrical extension 204 which is connected or connectable to a receiving portion of a pump housing 206. Upstream and downstream are used relative to milk flow in use of the invention. The pump housing 206 includes a conduit (not shown) for conveying expressed breastmilk from the hood 202, through extension 204 and out through an outlet 208. In the given example, this is a lever pump mechanism 210 connected to the housing 206 to provide a cyclical negative pressure at the hood 202. Further details of this pump mechanism 210 and associated components, including valving, as well as operation, can be gleaned from U.S. Patent Application Publication No. 2004/0039330. Again, the specific breastpump is incidental to the inventive bag.

In use, longitudinal strap 120 is directed over the extension 204 and housing 206 so as to suspend the bag 100 below the pump 200 with the outlet 208 inserted into the bag interior (pouch 112). It will be understood that the opening to the bag interior formed in part by the tabs 122, 124, is sized and shaped so as to fit with the outlet 208 of pump housing 206 such that milk conveyed through the outlet is directed into the bag interior without spillage. The present invention contemplates a variety of cooperating configurations of the outlet 208 and bag 100. While the strap 120 is depicted as encircling the extension 204 and housing 206 of pump 200, the strap may engage the pump in other ways, which are also within the scope of the invention.

Strap 120 uses an adhesive covered by a release paper or sheet, which is commonly known. The release paper is removed to expose the adhesive 121 and then

to affix the free end of the strap 120 to the tab 124. The strap 120 need not be provided already affixed at one end to the bag, but could be supplied separately, although attaching one end to the bag is considered more advantageous.

Strap 120 can be formed from several types of material. No one material or form is critical to the present invention. Neither the means of affixing the strap 120 to the tabs 122, 124 nor the shape or type of adhesive are critical to the present invention so long as the basic object of the invention is satisfied.

Returning to FIG. 1, for instance, each of front sheet 102 and rear sheet 104 includes a line of perforation 130, located upstream of and parallel to reclosable seal 106 and extending between side edges 132. By tearing along line of perforation 130, after filling and sealing bag 100, those parts of bag 100 which are not required for storage (i.e., tabs 122, 124), may be detached and discarded.

Bag 100 may further include a label area 134, located on the outer side of front sheet 102, of sufficient dimensions to allow for some information to be provided on bag 100 regarding the contents in the bag, such as, for example, "DATE", "VOLUME" and "NAME", either by writing directly on front sheet 102, or indirectly by adhering an optional label at this location. Other locations for information may be provided. Calibrated markings 101 as for milk volume may additionally be provided.

The present invention has been described and illustrated with reference to specific embodiments; those skilled in the art will recognize that modifications and variations may be made without departing from the principles of the present invention as described hereinabove. For instance, while the strap of this invention has been described as forming a loop-shaped hanger, the strap piece or its equivalent could be adapted to simply hang from an end, as by a hook. It could be in two pieces which separately affix to a part of the pump, as by adhesive attachment, and for forth. This, the invention is not intended to be limited except as set forth in the following claims.

The embodiment of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An improved bag for use with a breastpump, wherein the breastpump has an outlet through which milk travels and structure above the outlet, comprising:

a bag formed of material having an interior defined within the bag to form a liquid containing portion, and defining an opening to the bag;

an elongated attachment element including first and second ends, said first end being attachable to one side of the bag adjacent said opening of said bag and said second end being releasably attachable to another side of the bag spaced from the one side and adjacent said opening of said bag so as to form a loop that spans said bag opening, said attachment element being sized and shaped to support the bag from the breastpump structure and position said bag under the outlet to receive milk therefrom.

2. The bag of claim 1, further including a closable seal positioned adjacent said opening.

3. The bag of claim 2, wherein said closable seal is a reclosable seal.

4. The bag of claim 2, wherein said bag includes a tear line upstream from said closable seal.

5. The bag of claim 1, where said second end includes a reclosable fastener.

6. The bag of claim 1, wherein said attachment element is a strap, and said second end has an adhesive portion.

7. The bag of claim 6, wherein said strap is attached in use to a removable part of the bag that is upstream from said tear line, whereby said

strap and removable part are dissociable from the remainder of said bag along said tear line.

8. The bag of claim 7, wherein said tear line is a perforation positioned between said closable seal and said opening.

9. A bag for breastmilk in combination with a breastpump, comprising:

a breastpump including a housing with an outlet and a hood connected to said housing, said hood sized and shaped to receive some or all of a breast; and

a bag having a front sheet and a back sheet sealed together to form a liquid containing portion and defining an opening sized and shaped to fit around said outlet, and an attachment strap including first and second ends, said first end attachable to said front sheet and said second end releasably attachable to said back sheet, said attachment strap being sized and shaped to mount on said breastpump housing so as to suspend said bag in operative association with said breastpump to receive milk from said outlet.

10. The bag of claim 9, further including a closable seal positioned adjacent said opening.

11. The bag of claim 10, wherein said closable seal is a reclosable zip seal.

12. The bag of claim 9, wherein said front sheet includes a front tab and said back sheet includes a back tab.

13. The bag of claim 12, wherein said strap first end is permanently attached to said first tab one of said tabs.

14. The bag of claim 13, wherein said strap second end is initially free, and in use is attached to the other of said tabs.

15. The bag of claim 14, wherein said second end includes an adhesive.

16. The bag of claim 15, further including a perforation positioned between said reclosable seal and said opening.

17. An improved milk container for use with a breastpump, where the breastpump has an outlet through which expressed milk flows from related breastpump structure, comprising:

a milk receptacle having an interior defined therein as well as an opening to said interior, said opening sized to receive milk from the breastpump outlet; and

a flexible receptacle hanger, said hanger having one end permanently affixed to said milk receptacle and a free end, said free end having a fastener for releasably affixing said free end to another part of said milk receptacle, said hanger being sized and shaped to suspend said receptacle below the breastpump outlet.

18. The container of claim 17, wherein said hanger is an elongated

19. The container of claim 18, wherein said elongated member forms a loop which engages over the related breastpump structure to thereby suspend said milk receptacle in place.

20. The container of claim 19, wherein said milk receptacle is a plastic bag.

21. The container of claim 20, wherein said elongated member is a strap, said strap having one end permanently affixed to said bag and a free end, said free end having an adhesive portion for affixing said free end to another part of said bag to form said loop.

22. The container of claim 17, further including a closable seal positioned adjacent said opening.

23. The container of claim 22, wherein said closable seal is a reclosable seal.

24. The container of claim 22, wherein said milk receptacle includes a tear line upstream from said closable seal.

25. The container of claim 22, wherein said strap is attached in use to a removable part of said milk receptacle that is upstream from said tear line, whereby said strap and removable part are dissociable from the remainder of said milk receptacle along said tear line.

26. An improved milk container for use with a breastpump, where the breastpump has an outlet through which expressed milk flows from related breastpump structure, comprising:

a milk receptacle having an interior defined therein as well as an opening to said interior, said opening sized to receive milk from the breastpump outlet; and

a flexible receptacle hanger, said hanger being formed integral to said receptacle and having a part that attaches to the related breastpump structure to suspend said receptacle below the breastpump outlet.

FIG. 1

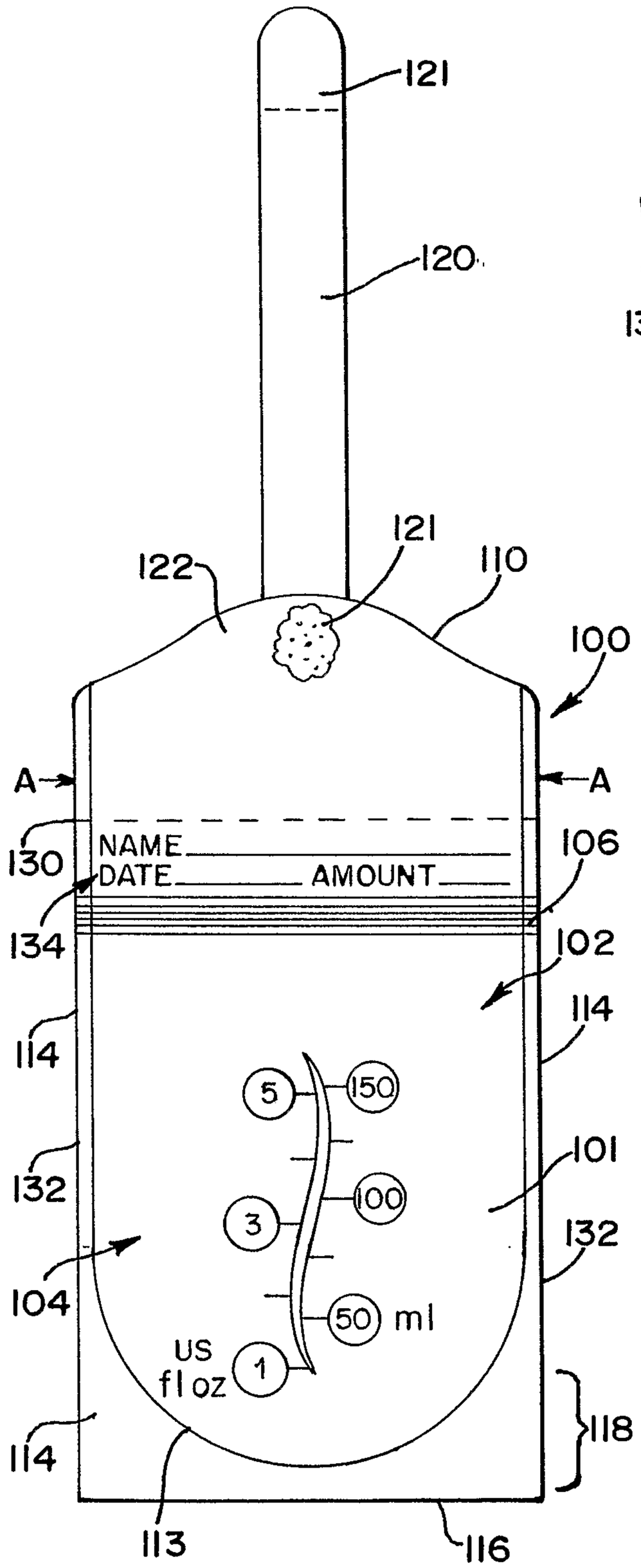

FIG. 1A

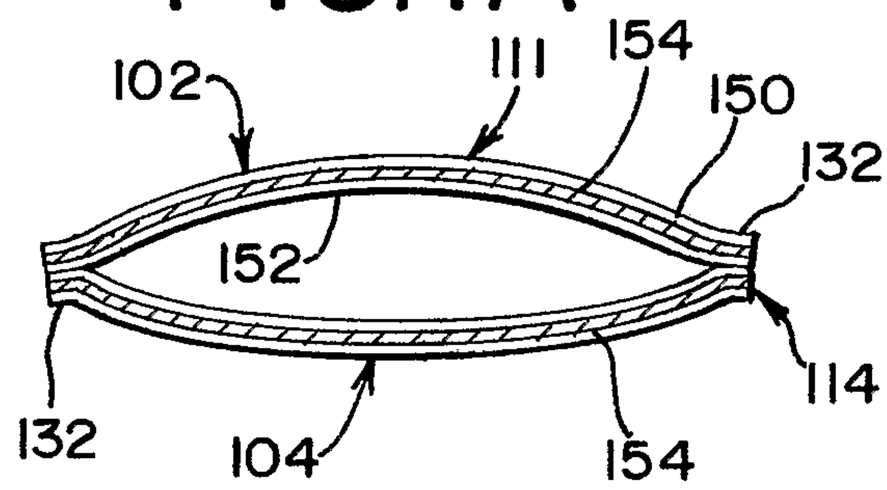

FIG. 1B

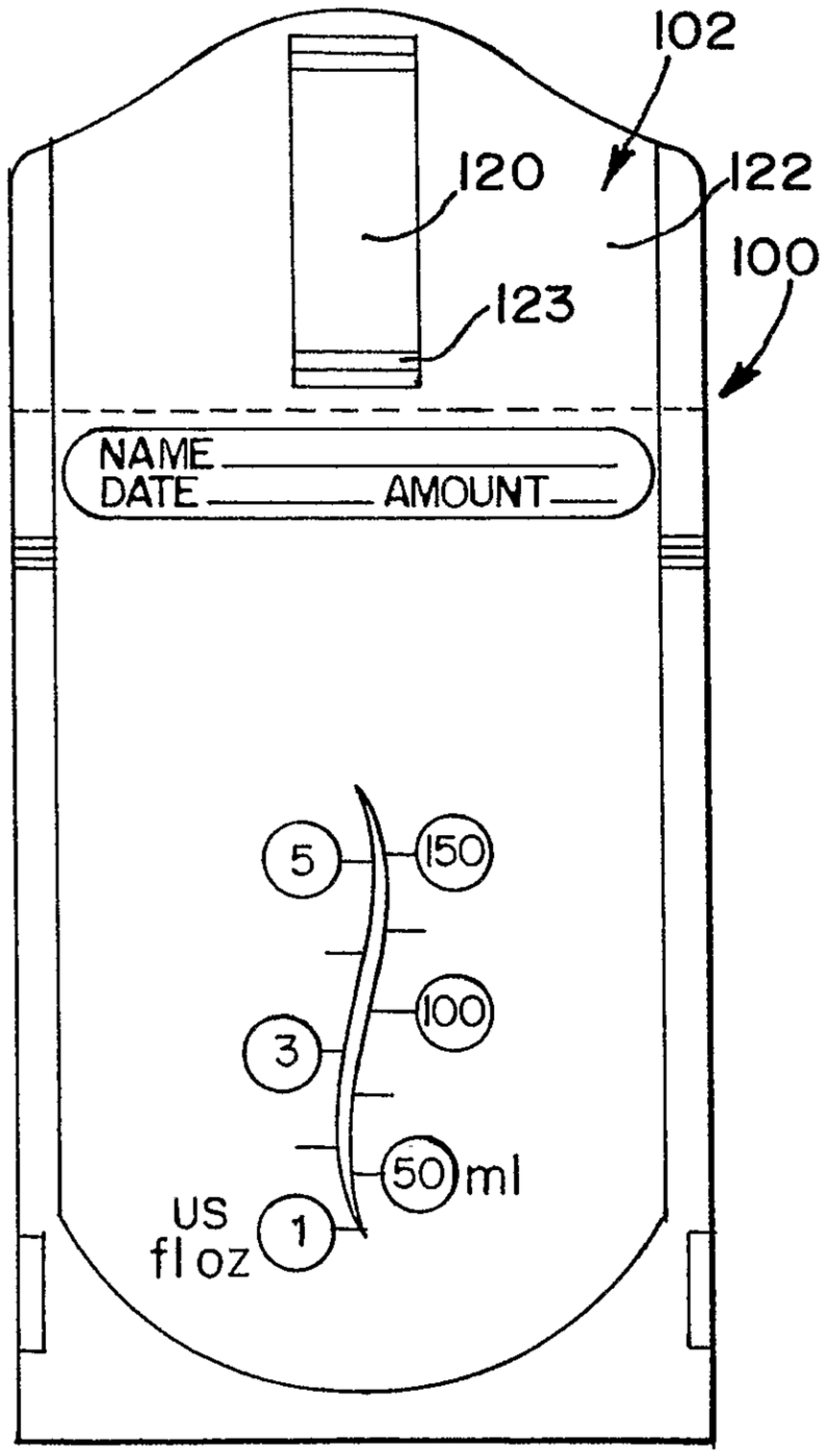

FIG.2

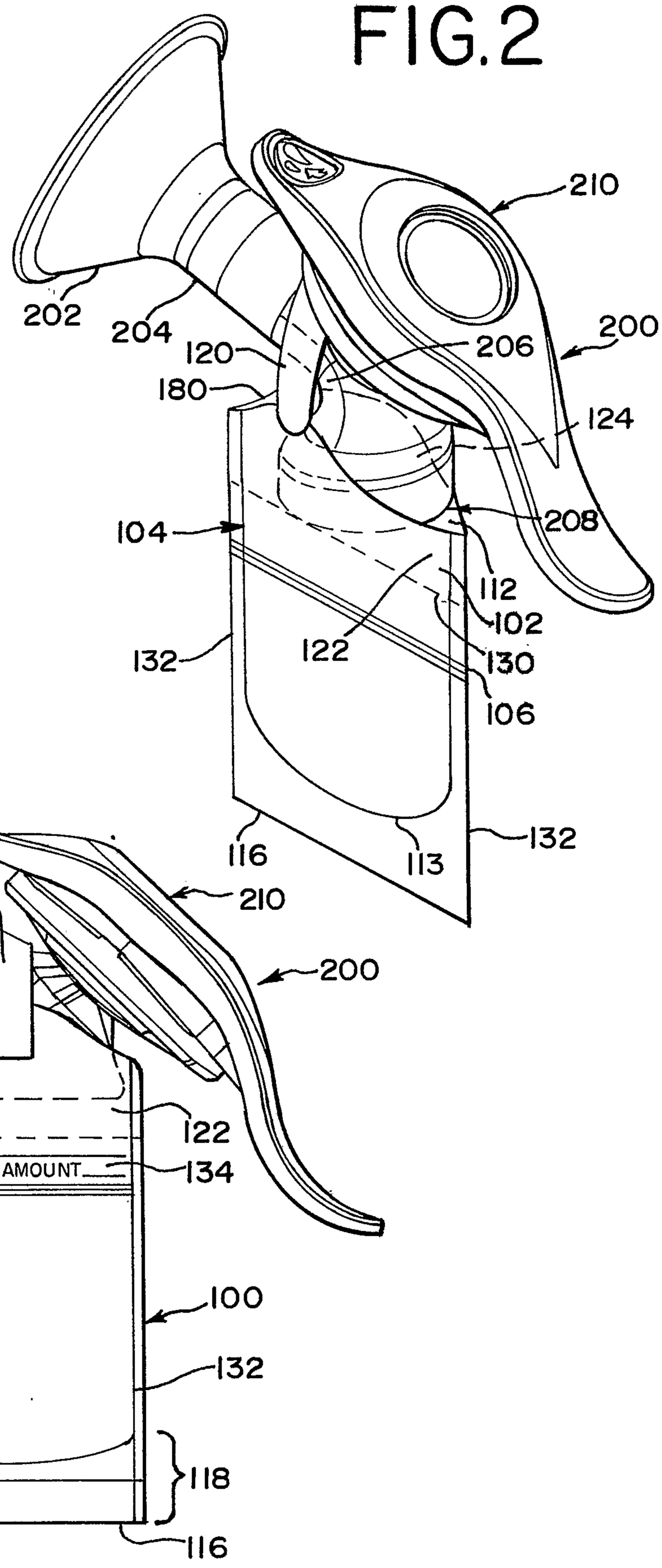
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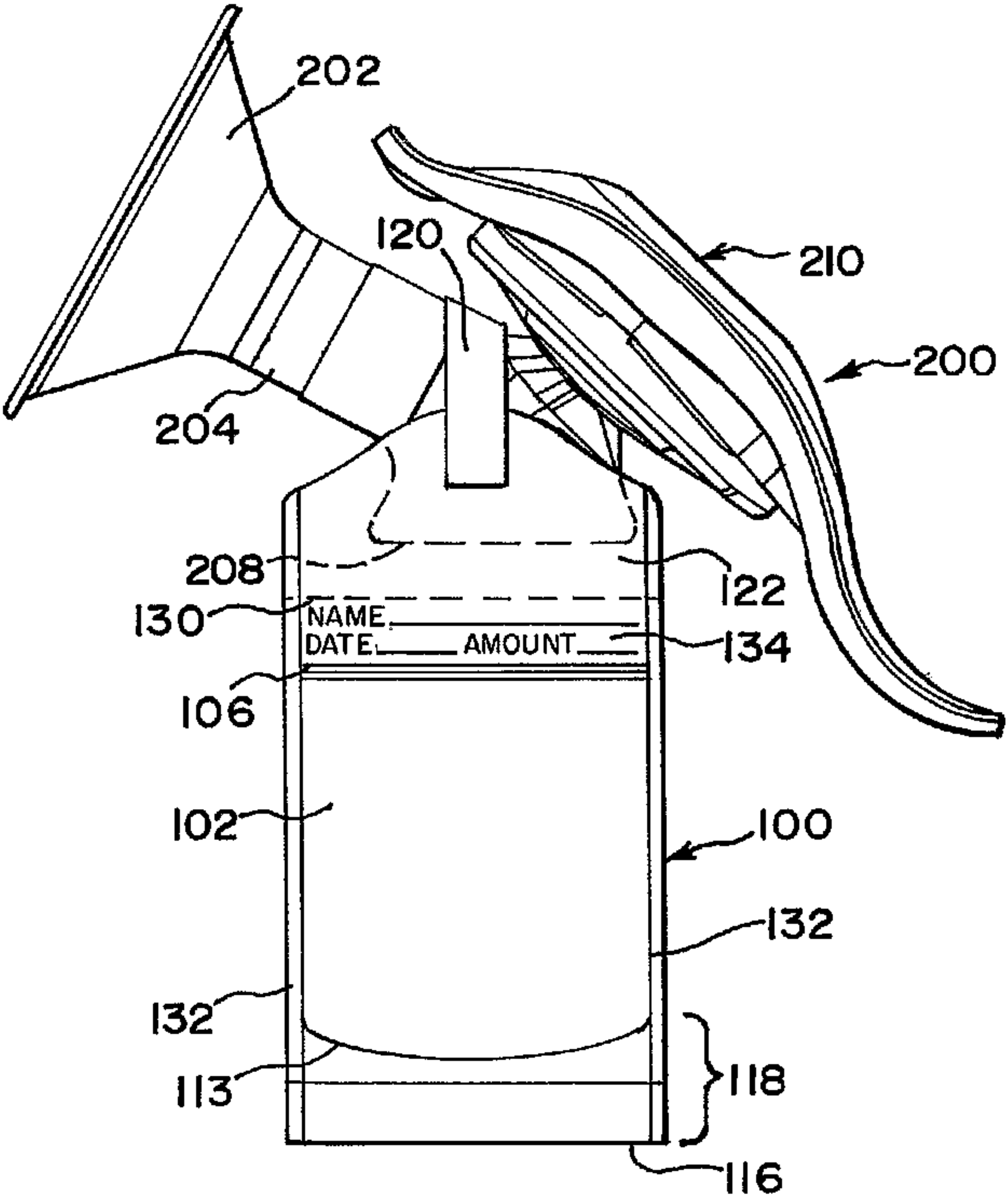
FIG.3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