May 28, 1957 K. B. MAXWELL 2,793,778

NURSING BOTTLE

Filed May 6, 1954

Fig. 1.

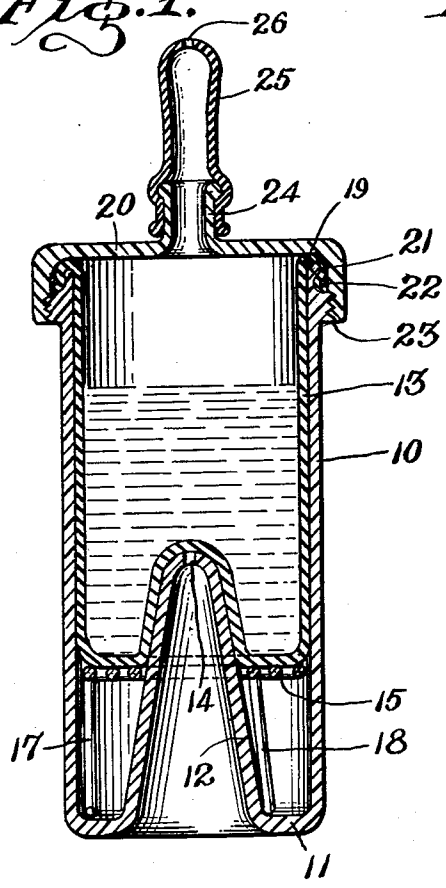


Fig. 2.

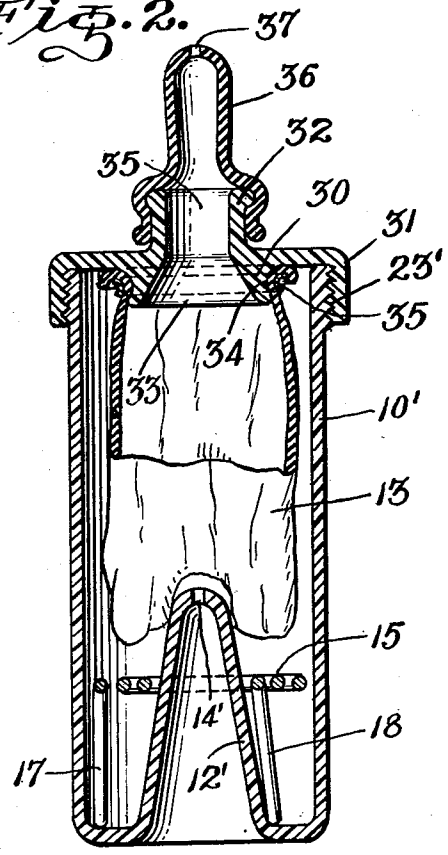


Fig. 3.

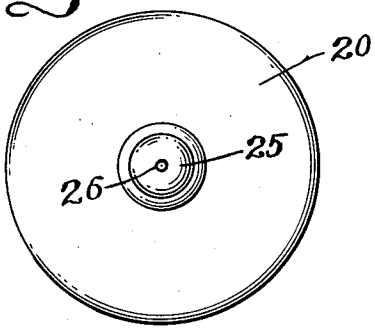
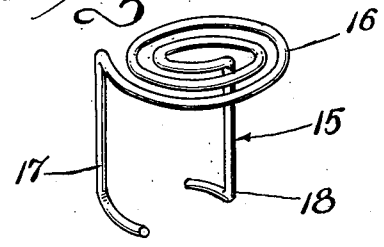


Fig. 4.



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NURSING BOTTLE

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3 Claims. (Cl. 215—11)

This invention relates to a nursing bottle and more particularly to a nursing bottle having a collapsible and expansible inner container or sac.

It is an object of the present invention to provide means in a nursing bottle having a collapsible container or sac whereby the sac is prevented from collapsing when partially emptied from the milk and wherein there is an air opening in the nursing bottle to permit the sac to follow the milk as it is taken from the bottle and to thereby cause the full emptying of the collapsible container.

It is another object of the invention to provide in a nursing bottle having a collapsible container therein adequate means for the securement of the collapsible container at the open end of the nursing bottle by means of the nipple cover so that there is an effective seal between the sac and the upper edge of the nursing bottle.

It is another object of the invention to provide an effective means in a nursing bottle having a collapsible container for the securement of the open end of the container with either the bottle or with the nipple support, such means including a spring ring member securable about the open end of the collapsible tube to thereby effect a positive engagement of the collapsible container with the parts of the nursing bottle.

Other objects of the invention are to provide a nursing bottle having the above objects in mind which is of simple construction, inexpensive to manufacture, has a minimum number of parts, compact, durable, convenient to use, effective and efficient in use.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a vertical sectional view of the combined nursing bottle and collapsible container constructed according to one form of the invention;

Fig. 2 is a vertical sectional view of the combined nursing bottle and collapsible container constructed according to another form of the invention;

Fig. 3 is a top plan view of the nipple and of the nipple cover according to the form of the invention shown in Fig. 1;

Fig. 4 is a perspective view of a wire support disposable in the bottom of the bottle and about the central upstanding projection therein.

Referring now particularly to Figs. 1, 3 and 4, **10** represents a bottle formed of glass or other suitable material which has a bottom **11** with a central upstanding projection **12** extending upwardly into the bottle to support a collapsible container **13**. This central supporting portion **12** has an air opening **14** so as to permit entrance of the air into the bottle in order that the collapsible container **13** can be evenly and effectively collapsed as milk is taken from the container.

In order to prevent the collapsible container **13** from being collapsed into one side of the support **12** and into the bottom of the bottle, there is provided a wire support **15**. This wire support has a coil **16** and depending supporting members **17** and **18**. This will prevent the collapsible container from getting down into the bottom of the bottle and collapsing to one side or the other of the upstanding projection **12**.

The collapsible container **13** is formed of rubber or other flexible material and will expand under the weight of the milk when poured therein. The upper end of the container **13** is open, and its edge is folded over a projection **19** on the upper edge of the nursing bottle **10**. This edge **19** is of annular shape and provides a seat against which the upper edge of the container **13** is held upon placing of the nipple cover **20** over the top of the bottle. Below the annular seat portion **19** is an annular groove **21** into which the upper edge of the collapsible container **13** is extended and retained by a spring wire or elastic band **22**. Threads **23** extend outwardly of the seat portion **19** and cooperate with the threads on the cover. Upon tightening the cover on the threads **23**, the top part of the cover **20** is brought down tightly against the container edge and the seat portion **19** to provide an effective sealing engagement of the cover **20** with the nursing bottle, **10**.

The nipple cover **20** has a neck portion **24** adapted to receive a nipple **25** having a small hole **26** in its end through which the milk is extracted as the nipple is worked by the infant. It will be apparent that the cover and the nipple can be of an integral formation instead of two parts, including the cover and the nipple **25**. However, the filling of the container in such an arrangement is difficult if adequate means are not provided for the securement of the container to the bottle prior to the placing upon the bottle of a cover. In the present instance the filling of the container can be effected through the neck portion **24** prior to the placing of the nipple **25** thereupon. The effective seal of the upper edge of the container **13** will have been made against the seat portion **19**.

As the container **19** is filled, it will expand and the weight of the milk will take the container into the bottom of the bottle and over the raised central portion **12**. As the milk is extracted, the container, due to its elasticity, will contract, and since there is an opening **14** by which air can enter the bottom of the bottle, the contracting of the container is effected without difficulty. The inside container will be surrounded by air pressure and will follow the milk as it leaves the container. The bottle is thereby allowed to be filled with air and to replace the milk as it is removed. There is little opportunity for air to be drawn into the milk and taken by the infant.

In Fig. 2, there is shown a slightly modified form of the invention wherein different means are provided for holding the upper edge of the container upon the nipple cover. A bottle **10'** is provided with a similar upstanding bottom portion **12'** above which is disposed the wire supporting loop **15**. A hole **14'** is provided in the upper end of the portion **12'**.

The upper open end of the bottle has the threaded portion **23'** and is without any seating portion. A cover **30** is provided with threads **31** for engaging the threads **23'**. This cover has a neck portion **32** and a depending container supporting portion or skirt **33** with an annular groove **34** into which the upper edge of the container **13** is placed and retained by a spring metal ring **35**. This container is thus placed upon the nipple cover **30** and the nipple cover secured to the bottle so that the container will extend downwardly into the bottle and over the central raised portion **12'**. After the container is disposed in the bottle, it can be filled through the neck opening **35** so that the container **13** is expanded to conform to the inner shape of the bottle and be lowered onto the wire loop support **15**. A nipple **36** can then be

placed upon the nipple portion 32. This nipple has a hole 37 in its upper end.

The operation of this assembly is similar to the operation of the assembly shown in Fig. 1, wherein the container 13 will follow the milk as the milk is drawn from the bottle through the nipple 36. By virtue of the open end 14' air is permitted to enter the bottle so that adequate pressure is provided upon the exterior of the container 13 to cause the effective and gradual collapse of the container 13. The container will collapse evenly and any tendency of the container to move to one side of the central portion 12' or to the other is prevented by the wire loop 15.

It should now be apparent that there has been provided an effective and efficient nursing bottle assembly containing a collapsible container wherein the collapsible container will be evenly collapsed, and the milk will be drawn from the assembly without difficulty.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A nursing bottle assembly comprising a bottle part, said bottle part having a bottom portion with an upstanding central projection with an air opening therein and an open externally threaded top, an internally threaded cover part including a nipple attachable to the bottle part, a collapsible container having an open mouth and a closed bottom, means for securing the open mouth of said collapsible container to the cover part, said collapsible container engaging with and extending over the upstanding projection in the bottom of the bottle, said collapsible container being of expansible, flexible material, said upstanding central projection forming a recess in the bottom of the container and a support surrounding said upstanding projection providing an air space below the container to prevent the collapse and flow of the container to one side or the other of the upstanding projection.

2. A nursing bottle assembly comprising a bottle part, said bottle part having a bottom portion with an upstanding central projection with an air opening therein and an open top, a cover part including a nipple attachable to the bottle part, cooperative means on the bottle part and cover part removably securing said cover part on the bottle part, a collapsible container having an open mouth and a closed bottom, means for securing the open mouth of said collapsible container to the cover part, said collapsible container engaging with and extending over the upstanding projection of the bottom of the bottle, said collapsible container being of expansible, flexible material, said upstanding central projection forming a recess in the bottom of the container, and a support surrounding said upstanding projection providing an air space below the container to prevent the collapse and flow of the container to one side or the other of the upstanding projection.

3. A nursing bottle assembly comprising a bottle part, said bottle part having a bottom portion with an upstanding central projection with an air opening therein and an open top, a cover part including a nipple attachable to the bottle part, cooperative means on the bottle part and cover part removably securing said cover part on the bottle part, a collapsible container having an open mouth and a closed bottom, means for securing the open mouth of said collapsible container to the cover part, said upstanding central projection extending substantially one-half the heighth of the bottle in spaced relation to the sides of said bottle, said collapsible container being of expansible, flexible material with the bottom portion thereof engaging with and extending downwardly around the upstanding central projection in the bottom of the bottle whereby said central projection supports the bottom portion of the collapsible container centrally of the bottle part.

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