BABY BOTTLE

1. Nature and Objective of the Invention in Brief

The invented baby bottle is designed to enable a baby or infant to suck milk or liquid food from the bottle enjoyably for a lengthy period of time. It is also designed to fit with the different postures in bottlefeeding the baby or with the way the parent or the baby hold the baby bottle in different postures including lying, sitting or standing.

It is designed in such a way that, while the baby is sucking the milk, the milk will always flow down to fill up the neck part of the bottle, thanks to the special features of the invention which take advantage of the different levels between the neck and the body of the bottle.

With the invented baby bottle, it is not necessary to tilt the baby bottle or raise the bottom part of the bottle all the time. The fact that the linking part of the bottle between the neck and the body is at a sloping position which always allow the milk or liquid food from the body of the bottle at the higher level to flow down to the neck at the lower level. As a result, the invention helps lessen the chance that the baby will take air into his/her stomach which could lead to colic or indigestion.

2. Field of Technology Related to the Invention

Engineering related to baby bottle for babies.

3. Related Arts and Sciences

A baby bottle is a basic device necessarily used in bottlefeeding babies or infants. There are many improvements and inventions of the styles of baby bottles to give more convenience and to correspond with the actual practice.

However, after studies and tests were conducted on baby bottles available in the market, it was found out that there were still some problems or drawbacks which could be addressed or improved to make the baby bottles easier and more convenient to use.

In bottlefeeding the babies, parents could bottlefeed the babies or allow the babies to suck milk from the bottles on their own. There are many postures which could be used in bottlefeeding: with baby lying down on the floor, with baby sitting on the highchair or with baby cuddled in the parent's arm and with baby standing.

In a lying position, bottlefeeding or sucking milk from the conventional cylinder-shaped baby bottle is suitable for this position. Because the nipple and the neck of the baby bottle are facing downwards and its bottom part of the bottle is usually raised, causing the milk to flow evenly into the nipple. The baby bottles of cylinder shape or other shapes are all suitable for bottlefeeding in a lying position.

In a sitting position or when the baby was being cuddled in the parent's arm, the level of the nipple and the neck of the baby bottle would normally have to be slightly raised

or stay at the same level of the baby's mouth. The conventional cylinder-shaped bottle could well be used for this position.

However, the more the quantity of the milk in the bottle decreases, the higher the bottom part of the bottle has to be raised. Concurrently, the position of the baby has to be adjusted with his/her face looking upwards while the bottom part of the bottle has to be gradually raised in order that the baby could suck milk evenly from the bottle. This is rather cumbersome and difficult to maneuver both for the parent and the baby.

For a type of a baby bottle on the U.S. Patent No. 4,676,387 issued to Jim D. Stephenson and Pual C. Donner, the shape of the bottle is bent with the axis which passed the nipple and the neck of the bottle bisecting the main body of the bottle to form a curve and an angle. This makes it more convenient to bottlefeed the baby than the conventional cylinder-shaped bottle.

However, this type of baby bottle still has some drawbacks to be addressed, particularly when the baby could hold the baby bottle on his/her own. Since the neck of the bottle was rather short, the baby was unable to get a good grip of the bottle. Moreover, the fact that the body of the bottle is bent with the bottom part tilted upward caused the wrist of the baby to twist unnaturally. The wrist of the baby would soon fatigue. Consequently, the baby will throw away the baby bottle and may get fed up with sucking milk.

A standing position is suitable for a grownup baby who could hold his/her baby bottle on his/her own without the help of his/her parent. The problem encountered by the baby in this position is similar to the one encountered when the baby is in a sitting position. In a standing position, while the baby could get a good grip of the conventional cylinder-shaped bottle, it is not convenient for him/her to have to raise the bottom part of the bottle all the time and also to lift his/her head upward at the same time. In so doing, the milk would fill up to the neck of the bottle while the baby is sucking the milk.

While the baby bottle invented by Mr. Stephenson and Mr. Donner helps making the milk fill up the nipple and the neck of the bottle, it still has some drawbacks. In holding the bottle, the baby has to twist his/her wrist unnaturally, causing his/her wrist to fatigue easily. As a result, the baby will leave the baby bottle or get fed up with sucking milk.

Therefore, it is necessary to design a baby bottle that could fit the different positions in which the parent bottlefeeds the baby or when the baby holds the baby bottle him/herself. The bottle must allow the milk to fill up the nipple and the neck of the bottle all the time so that the baby could suck the milk evenly for a lengthy period of time and with enjoyment. Moreover, the baby bottle must help lessen the chance that the baby would take air which could lead to colic or indigestion.

4. Complete Disclosure of the Invention

Figure 1:

This figure shows the front perspective of the invented baby bottle with the following details:

#1: front side of the baby bottle

#2 left side of the baby bottle

#3 back side of the baby bottle

#4 bottom side of the baby bottle

#5 screw cover

#6 nipple.

The objective is to show that the screw cover (#5) serves as a component for holding the nipple (#6) to the mouth of the bottle when the baby bottle is used.

Figure 2:

This figure shows the back perspective of the invented baby bottle with the following details:

#3 back side of the baby bottle

#2 left side of the baby bottle

#4 bottom side of the baby bottle.

The objective is to show that the shape of the main body of the bottle is cylindrical with the bottom side of the baby bottle (#4) curving inward. The end of the top part of the main body of the bottle is bent forward in a sloping position and then turned straight upward. This part of the bottle is called the joining wall of the bottle that links the main body of the bottle with the neck of the bottle.

The neck of the bottle has a cylinder shape with the top end open to be assembled with the screw cover (#6) and the nipple (#5) when the bottle is used.

Figure 3:

This figure shows the side view of the baby bottle in a position when it is used. The axis passing the centers of diameter of the nipple and the screw cover is below the axis passing the center of the diameter of the main body of the bottle. This is illustrated by the dotted line (#8) which represents the line starting from the bottom part (#4) of the bottle to the neck of the bottle and the nipple (#6).

Figure 4:

This figure shows a cross-section of an empty baby bottle. It could be seen that the structure of the invented baby bottle consists of the following parts and features:

- The main body of the bottle has a cylinder shape with the top end open but the bottom end closed. The main body of the bottle is connected to the wall of the bottle that links the main body with the neck of the bottle.
- The linking wall of the bottle has a cylinder shape with both ends open.
- The bottom part of the axis passing through the center of the diameter of the linking wall intersects the top part of the axis passing through the center of the diameter of the main body of the bottle, forming a curve and an angle of α whose measure ranges from 10 degrees to 90 degrees.
- The top part of the axis passing through the center of the diameter of the linking wall intersects the bottom part of the axis passing through the center of the diameter of the neck of the bottle.
- The neck of the bottle has a cylinder shape with both ends open.
- The top part of the axis passing through the center of the diameter of the linking wall intersects the bottom part of the axis passing through the center of the diameter of the neck of the bottle, forming a curve and an angle of □□whose value ranges from 10 degrees to 90 degrees.
- It could be seen that the axis passing the center of the diameter of the main body of the bottle is parallel to the axis passing the center of the diameter of the neck of the bottle.
- The two axes are at different level (X) and are between 5 millimeters and 50 millimeters apart.
- The plane on the top of the neck of the bottle is also parallel to the plane of the bottom part of the bottle.

Figure 5:

This figure shows the use of the baby bottle when a baby is in a lying position and holding the baby bottle with the front side of the bottle facing upward. It also shows that the way the baby holds the bottle fits the way the baby sucks the milk. The bottle is in a position that the nipple (#6) faces downward and the bottom part of the bottle (#4) is raised while the baby is holding the bottle at the part of its main body.

Figure 6:

This figure shows an enlarged picture of only the baby bottle when the baby is lying on the floor and holding the baby bottle with the front side of the bottle facing upward. The bottle is put in a position as in Figure 5. It could be seen that the milk or liquid food would always fill up the neck of the bottle and the nipple (#6) even when there is only little milk or last drop left in the bottle.

Figure 7:

The figure shows a baby who is in a lying position and holding the baby bottle with the back side of the bottle facing upward. It also shows that the way the baby holds the bottle fits the way the baby sucks the milk.

The bottle is in a position that the nipple (#6) faces downward and the bottom part of the bottle is lifted up while the baby is holding the bottle at the part of its main body, similar to Figure 5. However, the bottle is now turned around with the back side of the bottle facing upward.

This position of the bottle is also suitable when the parent bottlefeeds the baby.

Figure 8:

This figure shows an enlarged picture of only the baby bottle when the baby is lying on the floor and holding the baby bottle with the back side of the bottle facing upward.

The bottle is in a sloping position as in Figure 7 with its back side facing upward. It could be seen that, similar to Figure 6, the milk or liquid food would always fill up the neck of the bottle and the nipple (#6) even when there is only little milk or last drop left in the bottle.

Figure 9:

This figure shows a baby who is in a sitting position and holding the baby bottle with the back side of the bottle facing upward. It also shows that the way the baby holds the bottle fits the way the baby sucks the milk.

The bottle is in a position that the nipple (#6) faces downward, the back side of the bottle (#3) faces upward and the bottom part of the bottle (#4) is slightly raised while the baby is comfortably holding the bottle at the part of its main body. In holding the bottle, the baby's wrist is not twisted unnaturally, meanwhile, the baby does not have to raise his/her head or look up to fatigue his/her muscles in the neck.

Figure 10:

This figure shows an enlarged picture of only the baby bottle when the baby is in a sitting position and holding the baby bottle with the back side of the bottle facing upward.

The bottle is in a slight sloping position as in Figure 9 with its back side facing upward. It could be seen that the milk or liquid food could steadily flow from the main body of the bottle at a higher level to the neck of the bottle and evenly fill up the nipple (#6) which are at a lower level.

Figure 11:

This figure shows a baby who is in a standing position and holding the baby bottle with the back side of the bottle facing upward. It also shows that the way the baby holds the bottle fits the way the baby sucks the milk.

The bottle is in a position that the nipple (#6) faces downward, the back side of the bottle faces upward and the bottom part of the bottle (#4) is slightly raised while the baby is comfortably holding the bottle at the part of its main body. In holding the bottle, the baby's wrist is not twisted unnaturally.

This position is suitable for the baby who starts learning to walk. The baby could suck the milk while standing or walking without having to look up or raising his/her head to fatigue his/her muscles in the neck.

Figure 12:

This figure shows an enlarged picture of only the baby bottle when the baby is in a standing position and holding the baby bottle with the back side of the bottle facing upward.

The bottle is in a slight sloping position as in Figure 11, similar to Figure 10 with the back side facing upward. It could be seen that the milk or liquid food could steadily flow from the main body of the bottle at a higher level to the neck of the bottle and evenly fill up the nipple (#6) which are at a lower level.

5. Brief Explanations of Figures

Figure 1:

A perspective of the invented baby bottle showing the front view of the baby bottle.

Figure 2:

A perspective of the invented baby bottle showing the back view of the baby bottle.

Figure 3:

The side view of an empty baby bottle in a position when it is used.

Figure 4:

The cross-section view of an empty baby bottle in a position when it is used.

Figure 5:

This figure shows a baby who is in a lying position and holding the baby bottle with the front side of the bottle facing upward.

Figure 6:

This figure shows an enlarged picture of only the baby bottle when the baby is in a lying position and holding the baby bottle with the front side of the bottle facing upward.

Figure 7:

This figure shows a baby who is in a lying position and holding the baby bottle with the back side of the bottle facing upward.

Figure 8:

This figure shows an enlarged picture of only the baby bottle when the baby is in a lying position and holding the baby bottle with the back side of the bottle facing upward.

Figure 9:

This figure shows a baby who is in a sitting position and holding the baby bottle with the backside of the bottle facing upward.

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Figure 11:

This figure shows a baby who is in a standing position and holding the baby bottle with the back side of the bottle facing upward.

Figure 12:

This figure shows an enlarged picture of only the baby bottle when the baby is in a standing position and holding the baby bottle with the back side of the bottle facing upward.

6. The Best Invention Method

As indicated in the Complete Disclosure of the Invention.

CLAIMS

1. A baby bottle including:
a main body that is cylinder shaped with an open top end and a closed bottom end;
a neck that is cylinder shaped with both ends open;
a linking wall between the main body and the neck that is cylinder shaped with both ends open;
equal angles (α) formed at the intersection of the central longitudinal axes of the main body and the linking wall and formed at the intersection of the central longitudinal axes of the neck and the linking wall;

2. A baby bottle as in Claim 1 wherein, the central longitudinal axis of the main body is parallel to the central longitudinal axis of the neck.

3. A baby bottle as in Claim 2 wherein, the distance (X) between the central longitudinal axis of the main body and the central longitudinal axis of the neck is between 5 millimeters and 50 millimeters.

4. A baby bottle as in Claims 1, 2 or 3 wherein, the main body and the linking walls circumferentially join to form curved surfaces.

5. A baby bottle as in Claims 1, 2 or 3 wherein, the angle (α) formed at the intersection of the central longitudinal axis of the main body with the central longitudinal axis of the linking wall ranges from 10^0 to 90^0.

6. A baby bottle as in Claim 5 wherein, the angle (α) formed at the intersection of the central longitudinal axis of the linking wall with the central longitudinal axis of the neck ranges from 10^0 to 90^0.

7. A baby bottle as in Claims 1, 2 or 3 wherein, a plane of the top open end of the neck is parallel to a plane of the bottom closed end of the main body.

8. A baby bottle as in Claims 1, 2 or 3 wherein, the neck is adapted to connect with a cover housing a nipple.