

Aug. 25, 1964

E. T. ROBERTS ETAL

3,145,867

BABY BOTTLE

Filed Feb. 28, 1962

3 Sheets-Sheet 1

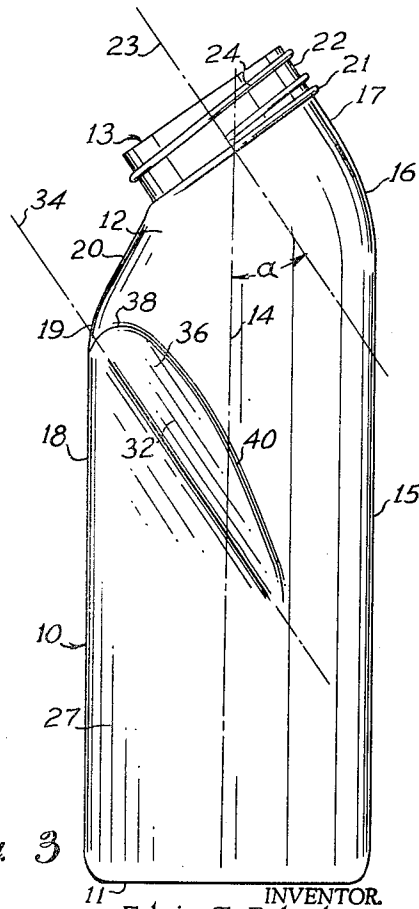
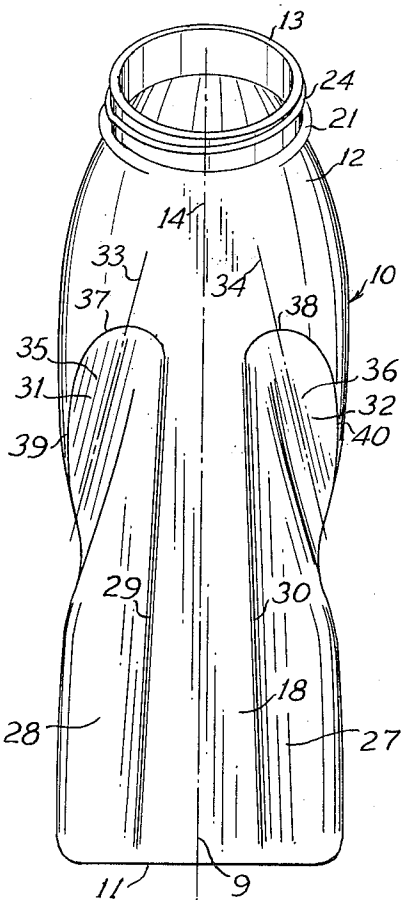
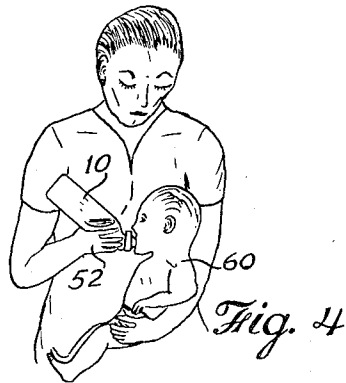
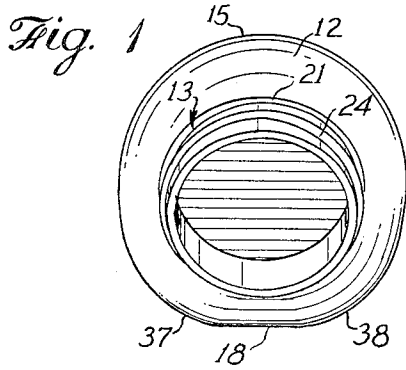


Fig. 2

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Fig. 5

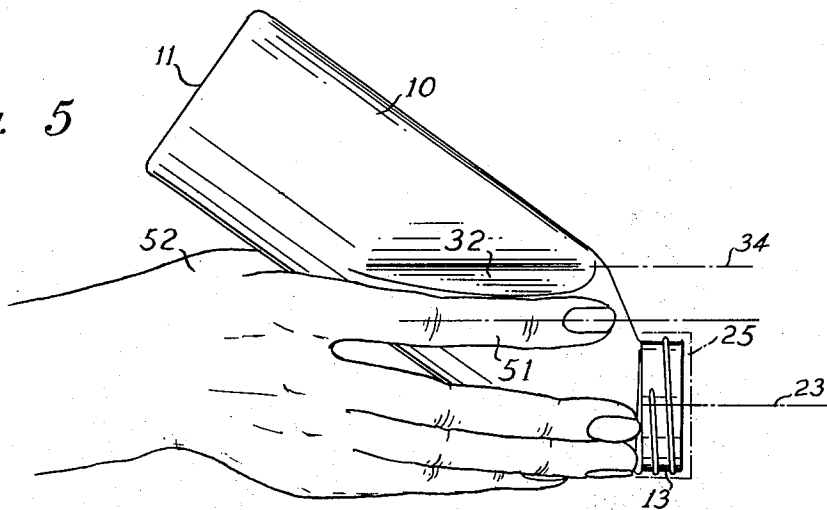
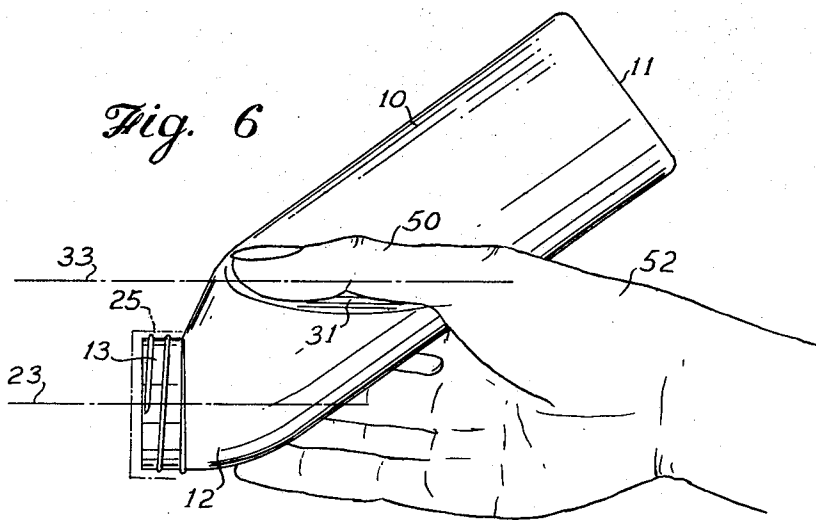


Fig. 6



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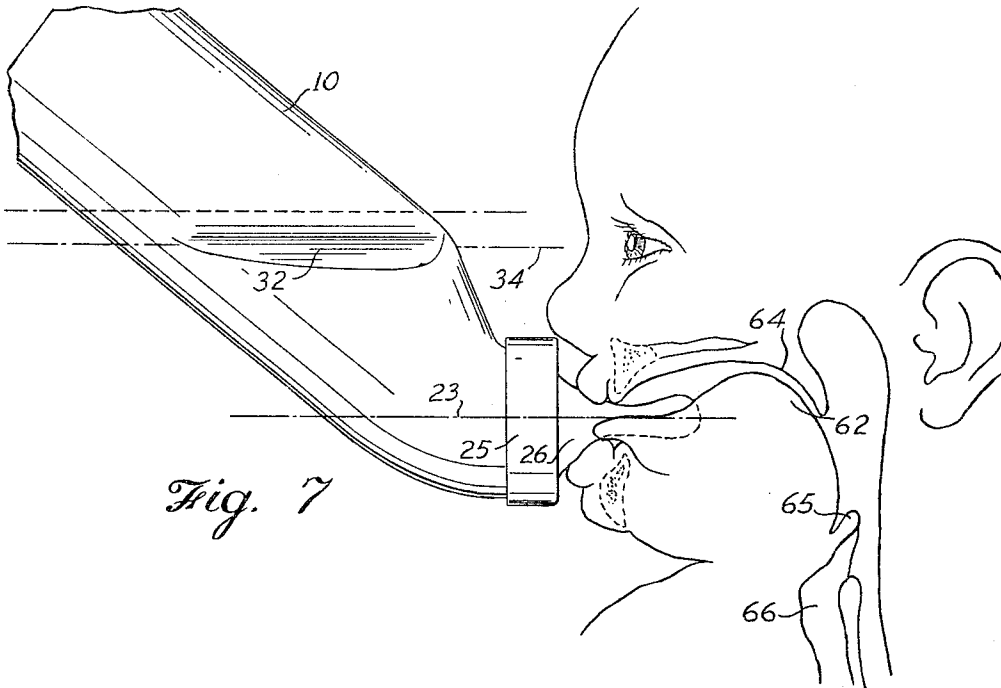
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3 Sheets-Sheet 3



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BABY BOTTLE

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Filed Feb. 28, 1962, Ser. No. 176,370
10 Claims. (Cl. 215-11)

This invention relates to a baby bottle, and is more particularly concerned with a bottle which will require that a baby be fed while the baby is in a more nearly proper feeding position.

The present application is a continuation-in-part of our copending application Serial No. 804,227, filed April 6, 1959, now abandoned.

It has been recognized by many doctors that an infant should preferably not be fed while the infant is in a prone position; neither should the infant be fed while in a position approaching a prone position. Instead, it is more desirable to position the infant so that its head is essentially upright, with its body essentially aligned with its head.

Numerous cases of inflammation of the middle ear have been traced to the presence of milk in the middle ear. Such a condition occurs for two principal reasons: (1) the baby has no control over the amount of milk taken into the mouth so that the excess milk fills the Eustachian tube and runs into the middle ear; (2) the baby chokes and regurgitates milk which may run behind the soft palate, into the Eustachian tube, and thence into the middle ear. Both of these reasons are traceable to the baby's lack of control of the amount of milk taken into the mouth and swallowed.

Another problem in baby feeding is that the infant may take in a relatively large quantity of air along with the milk. This problem is aggravated: (1) if the nipple of the bottle fails to stay full, allowing air as well as milk to pass through the nipple; and/or (2) if the baby is in a prone position, thus allowing the air which is swallowed to be trapped in the stomach. Therefore, after each feeding, the baby must be "burped," the infant being held in an essentially vertical position.

The baby's lack of control of the flow of milk is partially attributable to the gravity flow of the milk when a baby is lying on his back. When fed while in someone's arms, the usual methods require that the baby's head be thrown back in order to reach the nipple of the bottle. Such a position of the head stresses the muscles of the throat and dilates the entire throat, causing the muscles to hold the back of the tongue down. Since the tongue is required for swallowing, immobilization of the back of the tongue allows liquid to run straight into the throat. Liquid impinging on the back of the mouth causes gagging, hence regurgitation.

Though the above stated problems are recognized by people in the medical field, it is difficult to train parents in the preferred feeding methods. This training is especially difficult when a conventional bottle is used, since the bottle does not lend itself readily to such an operation when the baby is in a vertical position.

To overcome the abovementioned difficulties, the present invention provides a bottle in which the neck of the bottle is angularly disposed with reference to the body of the bottle so that the bottle may be inclined while the axis of the nipple thereon is essentially horizontal. The bottle is also provided with grips which are approximately parallel to the axis of the nipple so that a person holding the bottle naturally arranges the bottle in such a position that the axis of the nipple is horizontal, and the body of the bottle slants upwardly from the nipple, thus insuring that the nipple is always full of milk. With the axis of the nipple horizontally disposed, the baby must,

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of course, be vertically disposed in order to obtain milk from the nipple.

Thus, the baby achieves full use of its tongue and is less likely to swallow air with its milk.

It is, therefore, an object of the present invention to provide a baby bottle which will allow a baby in a vertical position to be fed comfortably therefrom.

It is another object of the present invention to provide a baby bottle which is so constructed that the person feeding the baby with such a bottle will naturally tend to hold both the baby and the bottle in the preferred feeding position.

Another object of the present invention is to provide a baby bottle which allows the person utilizing the bottle for feeding a baby to view the nipple of the bottle during the feeding operation.

Another object of the present invention is to provide a baby bottle which when held in the proper position for feeding an infant will require that the infant be so positioned that the infant will have full control of its tongue so as to control more readily the flow of milk from the bottle and whereby the child may prevent the accumulation of excessive amounts of milk in its mouth.

And a further object of the present invention is to provide a new and improved baby bottle which is easy to clean by conventional methods, and which is adapted to use conventional nipples.

Other and further objects, features and advantages of the present invention will become apparent from consideration of the following specification when taken in conjunction with the accompanying drawings in which:

FIG. 1 shows a top plan view of a baby bottle constructed in accordance with the present invention.

FIG. 2 is a front elevational view of the bottle shown in FIG. 1.

FIG. 3 is a side elevational view of the bottle shown in FIGS. 1 and 2.

FIG. 4 is an illustration on a reduced scale of one preferred feeding method, using the bottle of the present invention.

FIG. 5 is an enlarged side elevational view of the bottle of the present invention as held in the proper position by a person.

FIG. 6 is a view similar to FIG. 5 and showing the other side of the bottle as it is held by a person.

FIG. 7 is a side elevational view of the bottle of the present invention being utilized by an infant, a portion of the infant's head being broken away to show the nipple being received in the infant's mouth.

Referring now in detail to the embodiment chosen for the purpose of illustrating the present invention, it being understood that in its broader aspects the present invention is not limited to the exact details herein depicted, numeral 10 denotes the hollow tubular body of the bottle of the present invention which is closed by a flat bottom 11. The upper end of the body 10 is provided with an upwardly tapered neck 12 having, at its upper end, a hollow cylindrical or annular bottle mouth 13 inclined with respect to the axis 14 of the body 12.

It will be observed in FIG. 3 that the semi-cylindrical back portion 15 of body 10 defines a straight rear edge, the upper end of which curves inwardly at numerals 16 so as to merge with the straight rear edge 17 of the neck 12. The flat front portion 18 of body 10 defines a straight front surface essentially parallel to the rear edge; however, front portion 18 terminates below the upper end of rear edge 15 and is curved inwardly at numeral 19 so as to merge with the flattened portion 20 of neck 12. The front portion 20 and rear edge 17 of neck 12 are approximately the same length and terminate at their ends in a peripheral shoulder 21 of smaller diameter than the mean diameter of the body 10.

It will be observed in FIG. 3 that, in side view, the rear edge 22 of mouth 13 is aligned with edge 17 of neck 12, the two edges 17 and 22 being parallel to the axis 23 of the mouth 13.

The axis 23 of mouth 13 and the axis 14 of the body 10 intersect at or adjacent the plane of the shoulder 21, the axes 23 and 14 subtending therebetween an acute angle of approximately 35° which should not vary more than 5°, i.e. from 30° to 40°.

The outer surface of mouth 13 is provided with external threads 24 for threadedly receiving the internal threads of a conventional nipple keeper ring or cap 25 which carries a nipple 26.

From the central and lower portions of the semicylindrical back portion 15, the inwardly and forwardly tapering or converging flat side walls 27 and 28 extend so as to join the upwardly converging side edges 29 and 30 of front portion 18. On the front portion 18 between edges 29 and 30 are indicia 9 which indicate the quantity of liquid in the bottle. Except for the indicia 9, the bottle is symmetrical on opposite sides of a vertical center plane passing longitudinally through body 10.

According to the present invention, a pair of opposed complementing elongated digit receiving recesses 31 and 32 are provided in body 10. The recesses 31 and 32 are outwardly concaved and are provided with upwardly converging, forwardly extending axes 33 and 34 which lie in a transverse plane parallel to axis 23 of neck 13. The upper extremities of recesses 31 and 32 terminate slightly below the neck 13 while the recesses 31 and 32 extend downwardly and rearwardly so as to terminate in the central portion of body 10, protruding only slightly into the back portion 15.

Since the flattened side walls 27 and 28 converge slightly in an inwardly and upwardly direction and merge with the low portions of recesses 31 and 32, there are only slight indentations for the lower portions of recesses 31 and 32, while the upper portions of recesses 31 and 32 curve abruptly outwardly so as to define pronounced ledges 35 and 36 for purposes to be described hereinafter.

The upper extremities of the recesses 31 and 32 are defined by semi-circularly downwardly opening curved edges 37 and 38, the inner ends of which merge with the upper ends of the edges 29 and 30 respectively. The outer ends of edges 37 and 38 merge with the shoulder defining edges 39 and 40 which curve only slightly in a downward direction when viewed from the side, as in FIG. 3.

With the nipple 26 installed, it will be understood that its longitudinal axis coincides with the axis 23 of mouth 13. Thus, the axis of nipple 26 is parallel to the plane of axes 34 and 35.

The bottle is so proportioned that when filled with milk or other liquid, it may be gripped and held in the position shown in FIGS. 5 and 6, with the thumb 50 of the person resting in recess 31 as the index finger 51 engages the bottle on the opposite side of the bottle. In such a position, the curvature of back portion 15 corresponds to the curvature of the hand 52 between the base of the thumb 50 and the base of the index finger 51, and hence is cradled therein. The remaining fingers naturally fall beneath the rear portion of the neck 12 to provide support therefor, engaging perhaps a small area of the back portion 15.

When the hand 52 is held horizontal as would be natural for a person, the body 10 extends upwardly and rearwardly above the hand 52 while the mouth 12 containing the cap 25 is disposed vertically in front of the hand 52. Thus, the axis 23 is disposed in a horizontal position to provide ready access for the infant 60 arranged in an upright or seated position as shown in FIG. 4.

No deviation from the horizontal position is required for the bottle until the bottle is essentially empty, since at the held inclined angle the inverted bottle constantly supplies milk to the entire inner periphery of the nipple 26, that is, until the level of the liquid in the bottle passes

below the exit opening in the nipple 26. Thereafter, of course, the bottle must be tilted forwardly to an essentially vertical position to drain the last portion of milk into the nipple 26.

It will be understood that the inside contour of the bottle corresponds generally to the outside contour thereof and that, as the infant drinks from the bottle, ambient air passes into the bottle from the nipple opening to fill the partial vacuum created by the egress of liquid. The bubbles thus formed in the milk float upwardly, striking the front portion 18 which directs the bubbles along a narrow path between the side walls 27 and 28. Thus, no excess frothing of the milk occurs.

It is apparent that with the infant 60 in an upright position as shown in FIG. 4, he may more easily drink from the bottle. When an infant 60 drinks from a nipple 26, the action is one of both sucking (i.e., reducing the pressure within the oral cavity by expanding the oral cavity without allowing air to enter) and milking action of the tongue. This action is that normally used in feeding from the breast of a woman; and, the same action is attempted when drinking from a bottle.

As is shown in FIG. 7, the tongue 62 is raised to such an extent that it almost touches the soft palate 64. Thus the milk drawn into the mouth by nursing will stay in the front part of the oral cavity until the infant is ready to swallow. The baby is thus forced to draw milk from the bottle, which he will do only to the extent that he can swallow the milk comfortably. The close relationship of soft palate 64 and tongue 62 allows maximum control of the milk that actually enters the throat. Also, in swallowing, the epiglottis 65 is closed to prevent liquid from entering the larynx 66. Such a controlled drinking by the infant 60 prevents so large a volume of milk entering the infant's mouth as to cause choking and/or regurgitation; and, since the baby is vertically disposed, milk cannot flow directly behind the soft palate 34 to enter the Eustachian tubes.

Thus, it will be seen that the baby bottle of the present invention provides a bottle which will be used properly by a person feeding a baby, whether or not the person has been trained in proper feeding techniques. The bottle lends itself to only one method of use without discomfort on the part of the person feeding the baby. The method requires that the infant 60 be in a vertical position in order to be fed from the bottle, which permits the infant 60 himself to control the feeding and precludes the many objections and disadvantages of a forced feeding.

It will be obvious to those skilled in the art that many variations may be made in the embodiments chosen for the purpose of illustrating the present invention without departing from the scope thereof as defined by the appended claims.

We claim:

1. A baby bottle comprising a hollow tubular body, a bottom closing the bottom end of said tubular body, an upwardly tapered neck integrally connected to the upper end of said tubular body, and an annular mouth integrally connected to said tapered neck, said mouth being inclined forwardly with respect to said body, the axis of said mouth intersecting the axis of said body at an acute angle, said body being provided with a pair of opposed complementary outwardly concaved recesses above said side walls, said recesses having axes which lie in a common plane parallel to the axis of said annular mouth, said recesses extending forwardly and upwardly from the central portion of said body and terminating adjacent the forward portion of said neck.

2. A baby bottle comprising a hollow tubular body, a bottom closing the lower end of said tubular body, an upwardly tapered neck integrally connected to the upper end of said tubular body, and an annular mouth integrally connected to said tapered neck, said mouth being inclined forwardly with respect to said body, the axis of

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said mouth intersecting the axis of said body at an acute angle, said body being characterized by a curved back portion, a front portion and side walls joining said front portion and the extremities of said back portion, said body being provided with an outwardly concaved recess above one of said side walls, said recess having an axis which lies approximately parallel to the axis of said annular mouth, said recess extending forwardly and upwardly from the central portion of said body and terminating adjacent the forward portion of said neck, the upper portion of said recess being curved outwardly to define a shoulder for receiving the thumb of a person when holding the bottle in an inverted position with said body extending upwardly and rearwardly from the person's hand, the upper end of the rear portion of said neck extending upwardly beyond the upper end of the forward portion of said neck and being curved inwardly.

3. A baby bottle comprising a hollow tubular body, a bottom closing one end of said tubular body, an upwardly tapered neck integrally connected to the upper end of said tubular body, and an annular mouth integrally connected to said tapered neck, said mouth being inclined forwardly with respect to said body, the axis of said mouth intersecting the axis of said body at an acute angle, said body being characterized by a curved back portion, a flat front portion and relatively flat side walls joining said flat front portion and the extremities of said back portion, the curvature of said back portion corresponding to the curvature of a person's hand between the base of the person's thumb and the base of the person's index finger, said body being provided with a pair of opposed complementary outwardly concaved recesses above said side walls, said recesses having axes which lie in a common plane parallel to the axis of said annular mouth, said recesses extending forwardly and upwardly from the central portion of said body and terminating adjacent the forward portion of said neck, the upper portion of said recesses being curved outwardly to define shoulders for respectively receiving the left or right hand thumb of a person when holding the bottle in an inverted position with said body extending upwardly and rearwardly from the person's hand.

4. A baby bottle comprising a hollow tubular body, a bottom closing one end of said tubular body, an upwardly tapered neck integrally connected to the upper end of said tubular body, and an annular mouth integrally connected to said tapered neck, said mouth being inclined forwardly with respect to said body, the axis of said mouth intersecting the axis of said body at an acute angle of between 30° and 40°, said body being characterized by a semi-circular back portion, a front portion and side walls joining said front portion and the extremities of said back portion, the curvature of said back portion corresponding to the curvature of a person's hand between the base of the person's thumb and the base of the person's index finger, said body being provided with a pair of opposed complementary outwardly concaved recesses above said side walls, said recesses extending forwardly and upwardly from the central portion of said body and terminating adjacent the forward portion of said neck, the upper portion of said recesses being curved outwardly to define shoulders for respectively receiving the left or right hand thumb of a person when holding the bottle in an inverted position with said body extending upwardly and rearwardly from the person's hand.

5. A baby bottle comprising a hollow tubular body, a bottom closing the bottom end of said tubular body, an upwardly tapered neck integrally connected to the upper end of said tubular body, and an annular mouth integrally connected to said tapered neck, said mouth being inclined forwardly with respect to said body, the axis of said mouth intersecting the axis of said body at an acute angle

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of between 30° and 40°, said body being characterized by a semi-circular back portion, a relatively narrow flat front portion and relatively flat inwardly tapered side walls joining said flat front portion and the extremities of said back portion, the curvature of said back portion corresponding to the curvature of a person's hand between the base of the person's thumb and the base of the person's index finger, said body being provided with a pair of opposed complementary outwardly concaved recesses above said side walls, said recesses having axes which lie in a common plane parallel to the axis of said annular mouth.

6. A baby bottle comprising a hollow tubular body, a bottom closing one end of said tubular body, and an annular mouth integrally connected to said body at its other end, said mouth being inclined forwardly with respect to said body, the axis of said mouth intersecting the axis of said body at an acute angle of between 30° and 40°, said body being provided with a pair of opposed complementary outwardly concaved recesses above said side walls, said recesses having axes which lie in a common plane parallel to the axis of said annular mouth, said recesses extending forwardly and upwardly from the central portion of said body and terminating adjacent the forward upper portion of said body.

7. A baby bottle comprising a hollow tubular body, a bottom closing the lower end of said tubular body, an upwardly tapered neck integrally connected to the upper end of said tubular body, and an annular mouth integrally connected to said tapered neck, said mouth being inclined forwardly with respect to said body, the axis of said mouth intersecting the axis of said body at an acute angle of approximately 35°, said body being characterized by a semi-circular back portion, a flat front portion and relatively flat side walls joining said flat front portion and the extremities of said back portion, the curvature of said back portion corresponding to the curvature of a person's hand between the base of the person's thumb and the base of the person's index finger, said body being provided with a pair of opposed complementary outwardly concaved recesses above said side walls, said recesses having axes which lie in a common plane parallel to the axis of said annular mouth, said recesses extending forwardly and upwardly from the central portion of said body and terminating adjacent the forward portion of said neck, the upper portion of said recesses being curved outwardly to define shoulders for respectively receiving the left or right hand thumb of a person when holding the bottle in an inverted position with the body extending upwardly and rearwardly from the person's hand, the upper end of the rear portion of said neck extending upwardly beyond the upper end of the front portion thereof and being curved inwardly, said rear portion of said neck being aligned with the rear periphery of said annular mouth, the forward portion of said neck being flattened and extending from the upper end of said body portion and terminating at the forward portion of said annular mouth.

8. The structure defined in claim 7 including a cap threadably received on said mouth, a nipple carried by said cap, the axis of said nipple coinciding with the axis of said mouth.

9. The structure defined in claim 8 wherein said front is provided with indicia thereon for indicating the quantity of liquid in said bottle.

10. The structure defined in claim 9 including an annular shoulder between said neck and said mouth.

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