June 11, 1963 R. K. OSTRANDER 3,092,929

DOLLS

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Fig. 1.

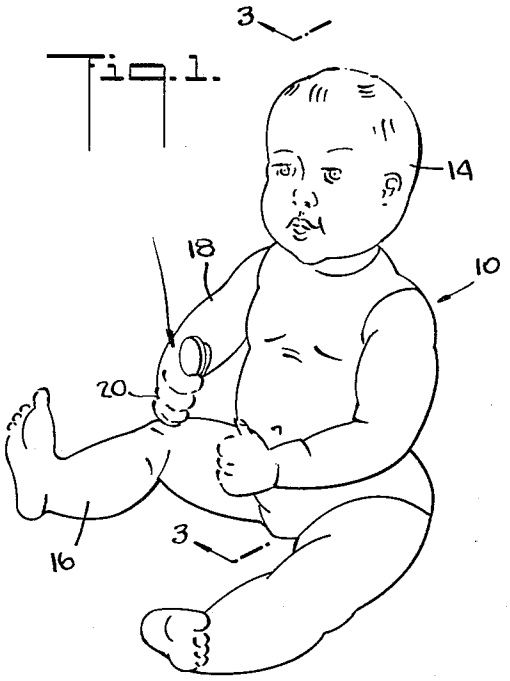


Fig. 2.

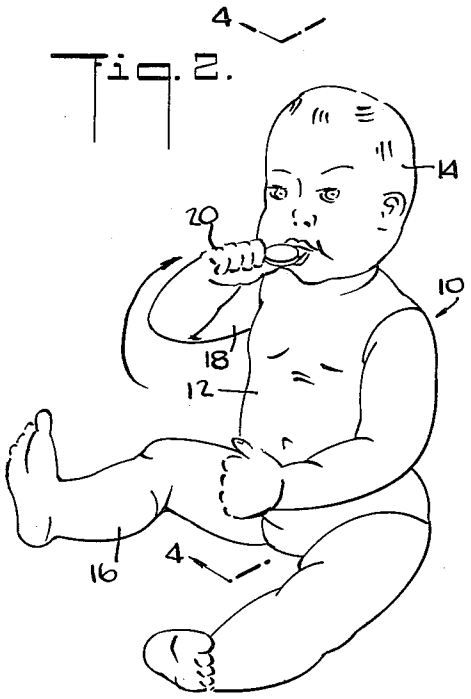


Fig. 3.

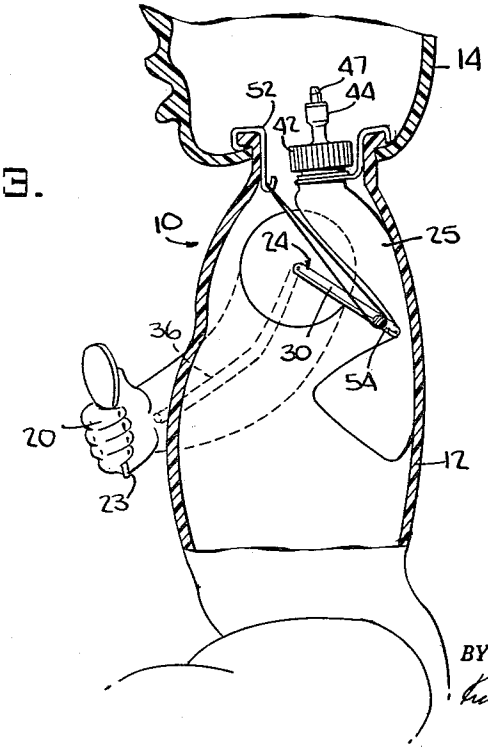
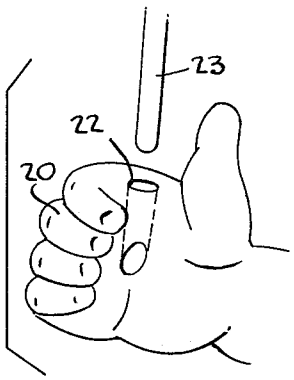


Fig. 7.



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Fig. 5.



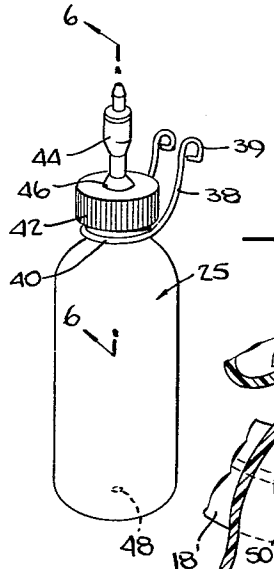


Fig. 4.

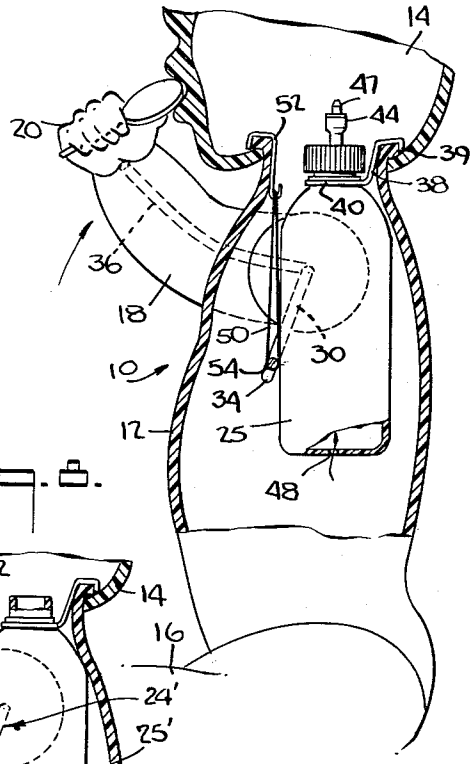
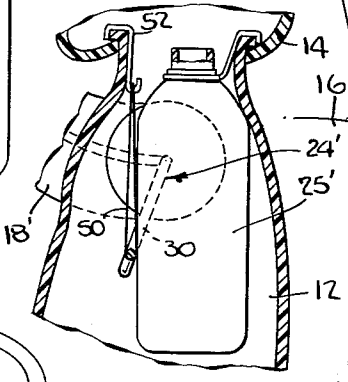


Fig. 8.



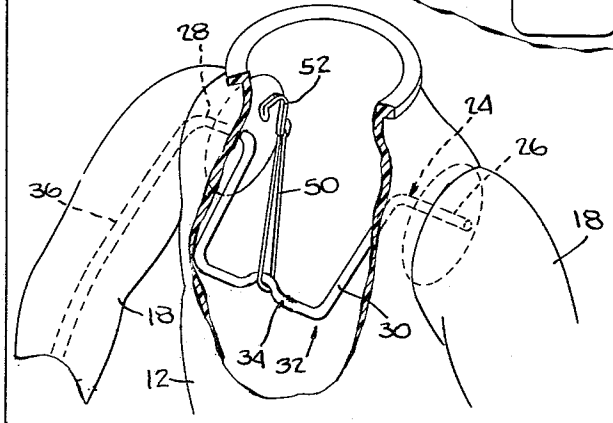
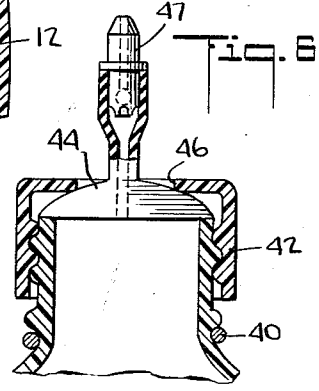


Fig. 6.



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United States Patent Office 3,092,929 Patented June 11, 1963

3,092,929

DOLLS

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Filed Jan. 9, 1961, Ser. No. 81,297
2 Claims. (Cl. 46—141)

This invention relates to dolls, and, more particularly, to a novel doll which will repeatedly return a hand towards its face in order to put an object such, for example, as a lollipop or its thumb, in or to the mouth.

It is a principal object of my invention to provide a doll capable of repeatedly and very realistically putting an object in or to its mouth with its hand each time the hand has been pulled away.

It is another object of my invention to provide a doll of the character described which is rugged, durable, simple to play with, and highly realistic in appearance and action.

It is another object of my invention to provide a doll of the character described which is simple and inexpensive to manufacture.

Other objects of my invention in part will be obvious and in part will be pointed out hereinafter.

My invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the devices hereinafter described, and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings, in which are shown various possible embodiments of my invention,

FIG. 1 is a perspective view of a doll embodying the instant invention with a lollipop held in its right hand, said hand having been depressed to displace it from the doll's mouth;

FIG. 2 shows the doll with said hand holding the lollipop in its mouth;

FIGS. 3 and 4 are enlarged fragmentary sectional views taken substantially along the lines 3—3 and 4—4 of FIGS. 1 and 2, respectively, and showing the mechanism for actuating the right hand from the position shown in FIG. 1 to that shown in FIG. 2;

FIG. 5 is an exploded enlarged fragmentary partially broken-away view of the doll in the region of the neck and shoulders and showing details of the arm actuating mechanism;

FIG. 6 is an enlarged fragmentary sectional view taken substantially along the line 6—6 of the vessel shown in FIG. 5;

FIG. 7 is an enlarged perspective view of the right hand of the doll showing a detail of the construction thereof; and

FIG. 8 is a view similar to FIG. 3 showing a modified form of the actuating mechanism.

Generally, in accordance with the foregoing objects of the invention I provide a doll which in its normal condition has one hand holding an object in or to its mouth and which, when, in effect, it is reprimanded by having said hand moved away from its mouth, slowly, and thereby slyly, returns the hand to its mouth just as babies and children characteristically will do in the belief that they then are deceiving or defying an adult. Preferably, the realistic effect is heightened by having the doll snap the object into its mouth at the last moment when the object has been brought almost to the mouth.

To carry out said objects of the invention, an arm of the doll is mounted for free rotation in its shoulder joint and is arranged to move with an actuating lever which normally biases the arm to a position in which the hand thereof holds an object in or to the doll's mouth. Pursuant to my invention the lever is actuated by a hollow, air-containing self-form-maintaining flexible-walled vessel such

as a rubber ball or plastic squeeze bottle the restoring force of the walls of which will self-inflate the vessel when it is released after squeezing. In its fully self-inflated position the vessel abuts a follower crank integrally connected to the lever and holds the latter in such position that the object carried by the arm is held to or in the doll's mouth. When the arm connected to the lever is lowered, i.e. the hand carrying a lollipop or the like is swung away from the doll's mouth, the crank will be moved by the lever against the self-inflatable vessel and will deform the same inwardly, i.e. squeeze it.

The vessel on being deformed exerts a return torque (to its original position) just over-balancing the weight-generated torque of the arm and actuating lever and the friction of the shoulder joint so that return of the vessel after deformation by the lever crank is slow. Thus, when the arm is released, the vessel slowly returns to its undeformed condition and in this way slowly actuates the crank and thus the lever to slowly move the arm up so that the hand returns towards the doll's mouth. The just overbalancing return torque of the vessel (whereby it only slowly returns to undeformed condition) may be provided with an open-mouthed vessel as a result of the inherent resilience of the material of which the vessel is made. Polyethylene vessels, for example, are capable of providing the requisite degree of resilience and slow self-restoration to original shape. Preferably, however, a closed-mouth vessel is provided having a check (one-way) valve which passes air only out of the same; such vessel is also provided with a slow air intake leak opening which permits air to slowly re-enter it after expulsion of air through the check valve. The slow return of air causes the vessel to return to undeformed position (original shape) slowly with the result that return of the arm also is slow.

There may be provided, also, resilient means such as a spring or rubber band effectively operable just before the object carried by the hand reaches the doll's mouth, and this means serves to suddenly return the hand the rest of the way to the mouth after it has slowly approached the same. In this way I make the doll simulate the slow, furtive action of a child returning a proscribed piece of candy or its thumb to its mouth after reprimand and then at the last minute quickly and definitely popping the object into its mouth.

Referring now in detail to the drawings and particularly to FIGS. 1–7, the reference numeral 10 denotes a doll embodying the present invention and including a hollow torso 12, a head 14, legs 16 and arms 18. At least the torso and shoulder ends of the arms preferably are fabricated from synthetic plastic, such, for example, as polyethylene, that has a low coefficient of friction, i.e. a slick surface, and, preferably, at least the arms are made by a process of blow molding which enables the weight thereof to be kept low, so, as a result, an arm can be readily moved by the biasing action of the vessel after the latter has been deformed. The arms 18 are bent at the elbow and are provided with hands 20. The arms and legs are socketed in the body in a conventional manner, as by journalling at the shoulders and hips to permit realistic movement thereof.

In the embodiments of my invention illustrated and to be described hereinafter, the invention is carried out with respect to the right arm and hand of the doll. In other words, it is the right hand that carries a lollipop or piece of candy or of which the thumb is placed in the doll's mouth 21. As will be obvious, however, the invention could be practiced with respect to the left hand or both hands.

The right hand 20 is provided with a through bore 22 in the palm thereof for receiving the stem 23 of a lollipop or some other type candy or object (see FIG. 7). This

hand may, of course, be provided with any other convenient means for holding the object or the object could be permanently affixed or molded to the hand.

Pursuant to the instant invention, the right arm which is bent at the elbow is freely rotatable in the shoulder socket of the body between two extreme positions, the ease of rotation being aided by the use of materials for the shoulder joint having low coefficients of friction. One position (hereinafter referred to for convenience as the first position) is that wherein the arm is raised sufficiently for the object held in the hand thereof to be inserted in or held to the doll's mouth. The other position (referred to hereinafter as the second position) is that wherein the arm is substantially lowered so that the object held in the hand is remote from the doll's mouth.

Further pursuant to the present invention, simple, inexpensive, rugged and positive acting manually over-rideable means is provided to hold the arm in the first position and to move the arm slowly from the second to the first position when the arm has been manually moved to the second position and is released.

The aforesaid means comprises an actuating lever **24** and a self-inflatable air-containing vessel such as a squeeze bottle **25** of the well-known type fabricated, for example, from polyethylene, these two elements being adapted to co-act in the manner to be described hereinafter.

The actuating lever **24** constitutes a stiff wire made preferably of steel and capable of retaining its shape in use. It includes laterally oppositely extending aligned reaches **26**, **28** respectively integral with the upstanding legs **30** of a U-shaped crank **32**. The crank is completed by a base **34** integral with the lower ends of the legs.

The reach **26** is rotatably received in a central opening in the closed shoulder end of the left arm of the doll; the arm is rotatable about this reach which provides a journal for the actuating lever. In other words, the left arm does not turn with the reach, the two being independently rotatable with respect to the torso. The other reach **28** extends through a central opening in the closed shoulder end of the right arm and includes a perpendicular extension **36** running longitudinally of the arm from the shoulder end to the wrist. There is hardly any clearance in the wrist where the extension fits so that the reach **28** and extension **36** cause the right arm to oscillate with the actuating lever, i.e. said arm and actuating lever are functionally integral.

The self-inflatable bottle **25** is suspended from the neck of the torso by a wire hanger **38** which includes a hoop portion **40** adapted to encircle and grip the neck of the bottle. The hanger further includes terminal hooks **39** that fit over the neck of the doll and in use are concealed by the head. The bottle is disposed inside the torso substantially at the chest portion thereof. It includes a cap **42** which screws onto the threaded neck thereof. The head of a check valve support **44** is secured to the bottle between the cap and the top of the bottle, the tubular stem of the valve support projecting through an opening **46** in the crown of the cap and into the head. The tip of the stem carries a ball check valve **47** that is constructed to pass air only in the direction out of the bottle. A slow air intake leak is provided by a pin hole **48** in the bottom of the bottle. The bottle, although flexible and resilient and, therefore, readily deformable, is self-form-maintaining, as is conventional in squeeze type polyethylene vessels, so that when a collapsing pressure is released the bottle will resume its relaxed shape, if its interior is in communication with the ambient atmosphere.

The crank extends into the body with its legs **30** embracing the self-inflatable bottle. It is so oriented with respect to the extension **36** of the reach **28** that its base **34** abuts but does not deform the bottle, i.e. does not squeeze it, when the right arm is in its first (elevated) position (see FIG. 4). This contact between the base and bottle normally holds the arm in its first position.

The operation of the mechanism described so far is as follows:

When the bent right arm is pulled down manually towards its second position, the base **34** presses against the front of the bottle to thereby squeeze the bottle and force air out of it through the egress check valve. The second position shown in FIG. 3 is reached when the front and back walls of the bottle contact one another. On release of the arm, air returns slowly to the bottle through the pinhole **48**, permitting the bottle to slowly resume its original shape and thereby actuating the crank so that the right arm is slowly moved by the lever back towards its first position. If the walls of the bottle were strong, the bottle would return to its undeformed condition rapidly if air were allowed to re-enter rapidly, but the check valve and pinhole prevent this. It may be noted that in passing air out of the bottle the check valve permits quick flow so that movement of the arm from the first to the second position can be as rapid as desired. When the bottle is reinflating, a certain point may be reached (depending on the shape of the bottle) where the walls of the bottle will exert sufficient force to restore the bottle to its original shape even with a slight momentary subatmospheric pressure. At this point the bottle will snap back to its original shape and rapidly move the arm back to its first position.

Further pursuant to the instant invention, resilient means desirably may be provided, if desired, to ensure such rapid movement of the right arm to its first position when it is quite close thereto on its return from its second position. In the embodiment shown, said means constitutes a resilient, e.g. rubber band **50** anchored at one end to a hook **52** suspended from the front of the neck of the doll and anchored at its other end to a centrally disposed hump **54** in the base **34** of the crank. The location of the hook **52** with respect to the hump is such that the two anchoring points of the rubber band and the journalling axis of the actuating lever are on a straight line when the right arm is a major fraction, about three-quarters, of the way back from its second to its first position. The rubber band is of such length that it is under tension in both positions. As a result of this construction when the arm is in its second position the rubber band biases the crank, and thus the arm, towards the second position of the latter and opposes return of the arm to its first position. The rubber band, therefore, tends to aid in keeping the return movement of the arm from its second to its first position at a slow rate until the arm gets quite near to the first position. Once the arm has traveled about three-quarters of the distance back to the first position, however, the rubber band crosses over dead center and, therefore, biases the arm towards the first position. Since such movement is not opposed except by friction and the weight of the arm, the effect of the rubber band is to snap the arm the rest of the way. It may be noted that the rubber band is not strong enough to prevent the bottle from reinflating, i.e. the self-restoring force exerted by the walls of the squeeze bottle is stronger than the maximum bias exerted by the rubber band.

It will be understood that while the second position of the arm is that in which the limit of deformation of the squeeze obttle by the crank has been reached, the arm need not be fully moved to that position for the invention to operate as described above. In order, however, to obtain the slow and then fast return, the arm must at least be moved somewhat past the position in which the biasing effect of the rubber band is in the direction of return to the first position.

Although in the description of the operation of the rubber band, the point where it snaps the arm into the first position has been indicated as three-quarters of the way back from the second position, this point could be in any desired location, depending on how much of the return movement of the arm is desired to be at a slow rate.

Referring now to FIG. 8, I have shown therein a modified form of actuating mechanism which includes an open-mouthed self-inflatable bottle **25'** which has no check valve. Said bottle is fabricated of a material such as polyethylene which, upon being squeezed, exerts through the crank a torque in returning to its undeformed condition which torque just over-balances the torque engendered by weight of the actuating lever **24'** and arm **18'** and by the friction at the shoulder joint. No check valve or air intake leak is required, therefore, to obtain the slow return action, the slow return being a characteristic of the particular degree of resilience of the bottle material selected and of the shape and thickness of the bottle. Outside of the particular construction of the bottle and the omission of the check valve, bottle cap, and air intake leak, the structure of the modified form of the invention is the same as that of the preferred form.

It is to be observed that the mechanism described above is very simple and rugged. Thus, a doll embodying the present invention is easy for a child to use and hard to break. Also, provision of the elements of the instant invention in no way affects the appearance of the doll (since all of the elements are concealed) and will affect the cost thereof but slightly.

It thus will be seen that I have provided devices which achieve the several objects of my invention, and are well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent,

1. A doll comprising a head having a mouth, a hollow torso, an arm, means captively mounting said arm for free rotation on the torso, a hand on said arm, said hand carrying an object for the mouth, manually overridable means operable over the entire extent of rotation of the arm for maintaining the arm in a first position in which the object is disposed at the mouth and for slowly returning the arm to said first position after manual movement thereof to a second position wherein the object is spaced from the mouth, said last mentioned means comprising an actuating lever and a hollow air-containing self-inflatable flexible-walled vessel having an egress check valve and a slow air intake leak opening, said lever being adapted to move with said arm and including an element located adjacent the vessel when the arm is in its first position and the vessel is fully inflated, said element being positioned to deform the vessel on movement of the arm towards its second position whereby such movement of the arm causes deflation of the vessel and whereby, on release of the arm, self-inflation of the vessel occurs slowly, thereby causing the element to actuate the lever to slowly move the arm back towards its first position, and resilient means for rapidly returning the arm to its first position after the first mentioned means has slowly returned the arm from its second position partially back to its first position.

2. A doll comprising a head having a mouth, a hollow torso, an arm, means captively mounting said arm for free rotation on the torso, a hand on said arm, said hand carrying an object for the mouth, manually overridable means operable over the entire extent of rotation of the arm for maintaining the arm in a first position in which the object is disposed at the mouth and for slowly returning the arm to said first position after manual movement thereof to a second position wherein the object is spaced from the mouth, said last mentioned means comprising an actuating lever and a plastic flexible-walled self-inflating bottle located in the torso, said bottle having a check valve adapted to pass air only out of the bottle and having also a pinhole adapted to very slowly pass air between the inside and the outside of the bottle, said lever being mounted to move with said arm on a bearing concentric with the axis of rotation of the arm, said lever including a crank including a section abutting the bottle in its fully inflated condition with the arm in its first position, said section being adapted to squeeze the bottle on movement of the arm towards its second position whereby, on release of the arm after manual movement thereof towards its second position, the slow inflation of the bottle will cause the arm to slowly return towards its first position, and a rubber band stretched between the crank and an anchor located on the side of the bearing of the lever opposite from the side on which the abutting section of the crank is located, the points of attachment of the rubber band being so located that they and the bearing lie on a straight line when the arm is close to its first position, the rubber band being under tension in either position of the arm, whereby during slow return of the arm from its second to its first position the rubber band will snap the arm into its first position when the arm is close thereto.

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