

[54] **FLOPPY FOAM DOLL**

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[51] Int. Cl. A63h 3/46

[58] Field of Search.....46/163, 160, 161, 173

[56] **References Cited**

UNITED STATES PATENTS

1,273,469	7/1918	Dun Lany.....	46/173
2,451,023	10/1948	Dusko	46/163

FOREIGN PATENTS OR APPLICATIONS

662,811	1951	Great Britain.....	46/173
653,113	1963	Italy.....	46/173

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[57] **ABSTRACT**

A doll constructed with a foam torso and appendages, and with joints that permit free appendage movements within a limited range. Each appendage is formed of foam which is completely covered by a water-proof skin except at the inner end which lies near the torso, and each joint includes a coupling member that covers the inner appendage end and is sealed to the skin surrounding it to prevent entrance of water into the appendage. Several coupling members are mounted on the torso for joining to other coupling members on the appendage. In one design, each torso-mounted coupling member has several slots which receive detents on an appendage-mounted coupling member to permit limited moved of the appendage, although the appendage may be forced to turn so that the detents move out of one slot and into an adjacent slot.

9 Claims, 4 Drawing Figures

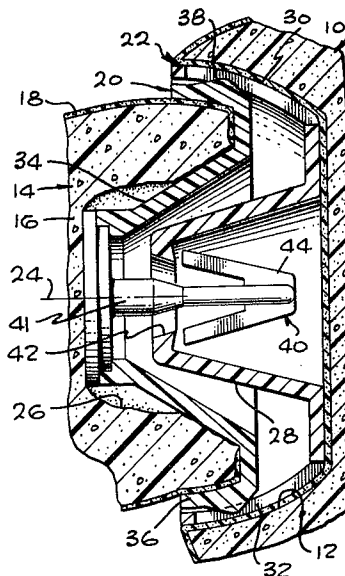


Fig. 1

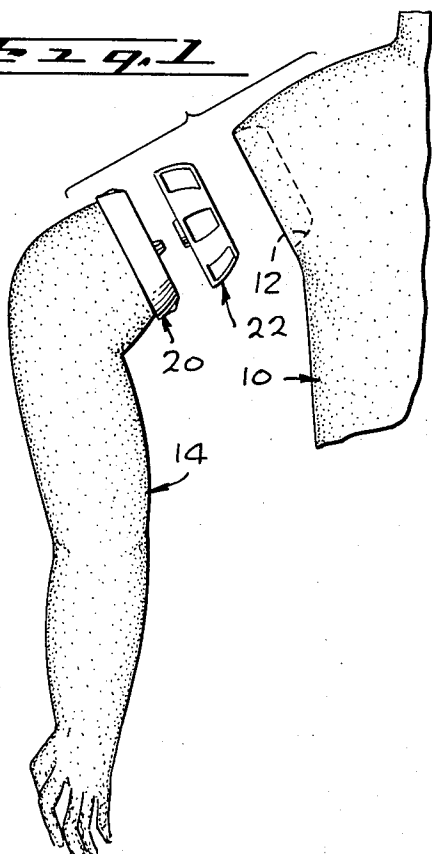


Fig. 3

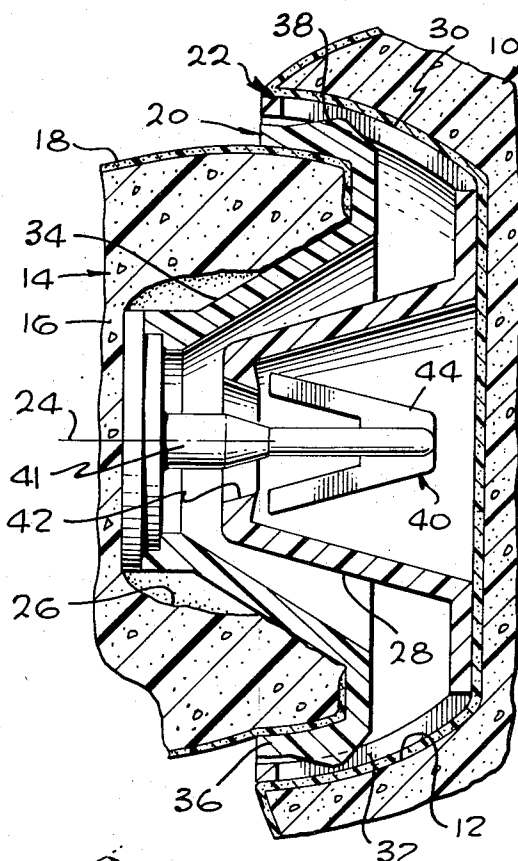


Fig. 2

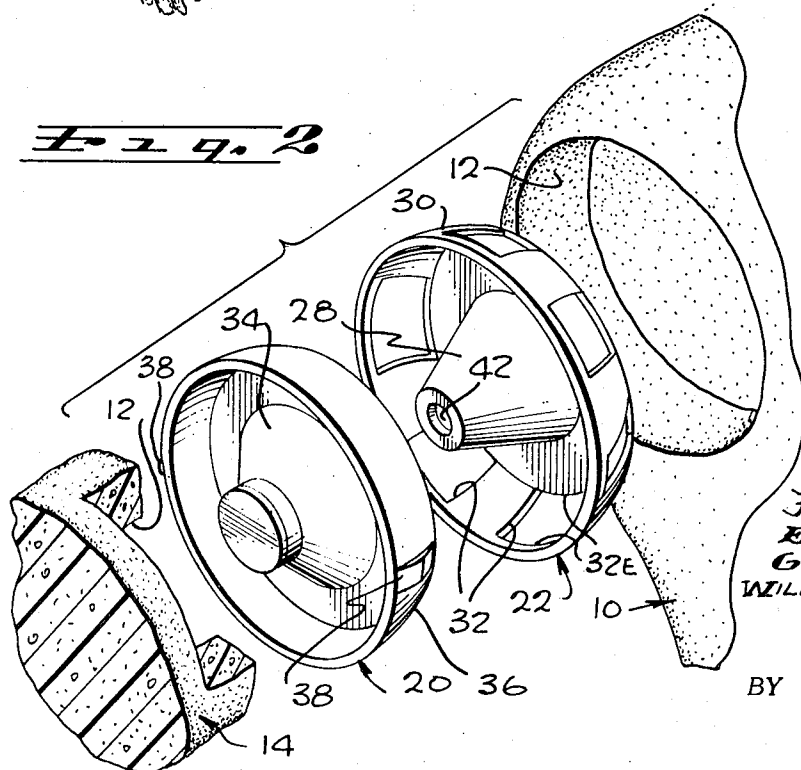
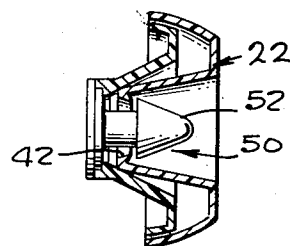


Fig. 4



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FLOPPY FOAM DOLL

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to dolls with movable joints.

2. Description of the Prior Art

The torso and appendages of dolls can be made smooth and pliable so as to closely resemble the skin of babies, by constructing them of a resilient foam which is covered by a thin flexible skin. The appendage can be constructed by forming its skin with a hole at the inner end and then pouring foam through the hole to fill the skin. However, this leaves the inner end of the appendage devoid of a water-proof skin. If the appendage is to be mounted for movement on a torso, there is a possibility that water will seep in through the joint and into the inner end of the appendage, and cause rotting of the foam. While it is possible to separately coat the inner end of the appendage, this leads to appreciable added cost. In order for dolls to be sold at a low price, it is necessary to utilize a minimum number of processing steps and parts.

One type of doll which preferably contains a soft pliable skin is a medium-to-large size doll that represents a baby. The appendages are preferably freely movable so that they can drop and shake when the doll is moved. However, it is also desirable that the appendages be detentable so that they can be posed, as where a baby's arm is moved up to wave. A simple joint construction would be desirable to enable such movements while largely concealing the joint apparatus to promote a natural appearance.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the present invention is to provide an economical doll with soft pliable skin and movable joints.

Another object is to provide simple joint apparatus for a doll that enables free movements about several detentable positions.

In accordance with one embodiment of the present invention, a doll is provided with skin that has a natural feel and appearance and with joints that allow free movement about several detentable positions. The appendages are constructed of foam with a water tight skin thereabout except at the inner end that is nearest the torso. A coupling member is provided that is sealed to the skin surrounding the inner end of the appendage to prevent the entrance of water into the foam. The torso-mounted coupling member has a rounded periphery, with a pair of detents extending therefrom. Another coupling member that is mounted in a recess in the torso, has a rounded periphery with several slots therein for receiving the detents of the appendage-mounted coupling member. The detents allow free movement of the appendages within a limited range to create a "floppy" action, yet the detents can be forced into different slots for a large change in appendage position.

The novel features of the invention are set forth with particularity in the appended claims. The invention will be best understood from the following description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partial exploded view of a doll constructed in accordance with the invention;

FIG. 2 is a more detailed exploded view showing the joint apparatus of the doll of Figure 1;

FIG. 3 is a sectional view of the joint apparatus shown in an assembled configuration; and

FIG. 4 is a partial sectional view of doll joint coupling members constructed in accordance with another embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1-3 illustrate a portion of a doll that represents a baby, and shows the type of joint that enables "floppy" movements of the appendages, that is, free movement within certain limits. The doll includes a torso 10 with several recesses 12 where appendages are mounted thereon, such as the arm appendage 14. The arm 14 is constructed with an armature 16 of a resilient open foam material and a covering 18 of a resilient water-proof, flesh-colored material. The torso 10 is similarly constructed, with a foam inside structure covered by a resilient skin. The arm 14 and torso 10 are held together by a pair of coupling members 20 and 22. The arm coupling member 20 is fixed to the inner end of the arm while the torso coupling member 22 is fixed in the torso recess 12. The two coupling members 20 and 22 are engaged in a manner that permits the arm 14 to pivot by several degrees in all directions with substantially no frictional restraint. The arm 14 can also be forced to pivot about the axis 24 to any one of several detentable positions thereabout, and the arm can then freely pivot by several degrees about the new detentable position.

The arm 14 can be economically manufactured by first forming the covering or skin 18 and then pouring in a foaming material to form the foam armature 16. However, the arm cannot readily be made with its inner end, which lies nearest the torso, covered by the skin 18 because a hole at the inner end is desirable in forming the skin and in providing a hole through which foam material is received. Although the absence of the skin covering 18 at the inner end is not noticeable, it is desirable to seal it so as to prevent the entrance of water therein that could result in deterioration of the foam. The arm coupling member 20 is adhesively sealed to the portion of the skin 18 that surrounds the uncovered inner end 26 of the arm to prevent the entrance of moisture therein. The coupling member 20 is devoid of openings where water could pass into the foam, and therefore the arm is effectively sealed against the entrance of water. It may be noted that the torso 10 is similarly constructed, but it has other openings such as at a head location where it can be held, so that each of the depressions 12 can be completely covered by the water-proof skin.

As best shown in Figure 3, the torso coupling member 22 is largely cup-shaped in order to permit close reception in the recess 12. A central or hub portion 28 forms a tapered hollow mound that projects away from the torso. The periphery 30 of the cup-shaped coupling member, which forms the sides of the cup, has several recesses 32 therein spaced uniformly

thereabout. The arm coupling member 20 has a tapered center portion 34 that can receive the tapered mound 28 of the torso coupling member, and has a rounded peripheral portion 36 that lies immediately within the slotted peripheral portion 30 of the torso coupling member. A pair of detents 38 formed on the outside of the peripheral portion 36 of the arm coupling member can be received in slots 32 of the torso coupling member, to limit the amount of movement of the arm relative to the torso. A clip 40 fastened to the center of the arm coupling member 20, has a stem 41 that projects through a hole 42 in the mound 28 of the torso coupling member. An enlarged outer end 44 on the clip prevents its withdrawal from the hole 42. The clip 40 provides positive joining of the coupling members to prevent accidental separation during use.

The peripheral portion 30 of the torso coupling member and the peripheral portion 36 of the arm coupling member are both formed as parts of spheres with common centers. This permits the detents 38 to be received at a constant depth in the slots 32 during pivoting of the arm about an axis perpendicular to the axis 24. The ends 32E of the slots prevent pivoting by more than about 15° from a center position about such perpendicular axes, but there is substantially no frictional resistance to movement within such limits. Similarly, the detents 38 have a smaller width than the slots 32, so that the arm can pivot by up to about 15° about the axis 24. The absence of substantial frictional forces enables the appendages to freely fall or to wiggle when the doll is shaken. The angle of free, or substantially frictionless, movement can be made larger or smaller than 15°. However, an angle of at least about 5° is desirable to permit definite movements, and an angle less than about 45° is desirable so that moderate shaking makes the appendage reach and abruptly stop at the limits.

In addition to the limited movement about any particular position, the arm can be forced to pivot without limit about the axis 24. When the arm is forced to pivot by a large angle about this axis, the detents 38 bear against the walls of the slots 32 and bend them outwardly to allow the detents to pass thereover. However, at every 60° rotation of the arm, the detents 38 fall into new slots and the arm can freely pivot about the new position. A child therefore can force the arm to a number of different positions, and yet the arm can freely flop within a limited angle about the new position. The doll therefore displays a "floppy" characteristic which allows the appendages to freely wiggle, and yet the appendages can be posed within limited angles.

The arm coupling member 20 can be economically produced by forming it as two members, the clip 40 being a separate member that is fastened to the rest of the arm coupling member. The arm coupling member 20 is then adhesively joined to the arm, while the torso coupling member 22 is adhesively joined to the torso. The two coupling members are then joined by forcing the enlarged part 44 of the clip through the aperture 42 in the hub portion of the torso coupling member, while the detents 38 are forced to fall into the slots 32. The enlarged portion 44 of the clip is formed by a pair of resilient parts that can deflect to pass into the slot and which thereafter remain apart to prevent their removal.

Another form of the clip is shown in Figure 4 wherein the clip 50 has a uniform cone-shaped end 52. The embodiment shown in Figure 4 is assembled by heating the torso coupling member 22 to soften the walls of hole 40 so that the enlarged end 52 of the clip can be forced through the hole to install it. When the torso coupling member 22 cools, it returns to its original shape, trapping the clip end 52 in place. In this embodiment of the invention, the torso coupling member 22 has no slots and the appendage coupling member has no detents. Accordingly, a "floppy" movement which is not detentable, is obtained.

Thus, the invention provides a doll with life-like appendages that are economically produced, and which are simply connected in a manner that enables free appendage movement for a "floppy" motion. Production of life-like appendages is facilitated by producing them without a skin at their inner ends, and by employing a coupling member sealed to the skin regions that surround the uncovered inner end of the appendage. A detentable "floppy" movement is provided by utilizing coupling members wherein one member has slots that receive detents of the other member that are much smaller than the slots. The slotted member has resilient walls that enable it to deflect so that the detents can be forced to move into other slots, thereby enabling movement of the doll appendages to several different detentable positions.

Although particular embodiments of the invention have been described and illustrated herein, it is recognized that modifications and variations may readily occur to those skilled in the art and, consequently, it is intended that the claims be interpreted to cover such modifications and equivalents.

What is claimed is:

1. A doll comprising:

a torso;

an appendage for coupling to said torso, said appendage constructed of a foam material with a water-proof skin surrounding the entire appendage except at an inner end portion that lies adjacent to the torso, said inner end portion being devoid of said skin;

a first imperforate coupling member constructed of water-proof material sealingly fixed to and surrounding said inner end portion of said first appendage and skin, said coupling member adhesively sealed to an forming a water-proof seal with the region of said skin surrounding said inner end portion of said appendage and completely covering the inner end portion which is devoid of said skin; and

a second coupling member fixed to said torso and movably engaged with said first coupling member to allow relative movement between them.

2. The doll described in claim 1 wherein:

said inner end portion of said first appendage defines a recess and

said first coupling member includes a peripheral portion surrounding around said inner end and recess, a recessed tapered portion extending into said recess, and a clip portion extending from the center of said first coupling member towards said torso and having an enlarged outer end; and

said second coupling member has a hollow hub portion extending away from said torso into said recessed tapered portion and loosely surrounding said enlarged outer end of said clip portion whereby said appendage is pendulously secured to said torso.

3. The doll described in claim 2 wherein:

said first and second coupling members each have peripheral portions which are substantially parts of spheres, with the peripheral portion of each second coupling member having slots spaced thereabout and the peripheral portion of each first coupling member having protruding detents received in slots of the second coupling member.

4. A doll comprising:

a torso with at least one appendage location thereon; an appendage for coupling to said torso at said appendage location;

a first coupling member mounted on said torso at said appendage location, including a round peripheral portion with a plurality of slots therein spaced uniformly thereabout; and

a second coupling member mounted on the inner end of said appendage loosely connected to said first coupling member, said second coupling member including a resilient round peripheral portion located immediately within the peripheral portion of said second coupling member and having a plurality of detent portions thereon projecting into said slots;

said peripheral portions of said first coupling member constructed to resiliently deflect outwardly, to permit said detent portions to move out of slots and fall into the next ones, whereby to enable detentable pivoting of said appendage.

5. The doll described in claim 4 wherein:

said peripheral portion of said first member is substantially part of a sphere, and said first member has a hollow hub portion projecting away from said torso and having a hole at the end thereof furthest from said torso; and including

an elongated clip member fastened to the center of said second coupling member and projecting through said hole in said hollow hub portion, said clip member having an enlarged outer part loosely

held within said hollow hub portion and having a greater width than said hole in said hub portion for preventing removal therethrough.

6. The doll described in claim 4 wherein:

said torso has a recess at said appendage location; said first coupling member has the shape of a cup and is received in said recess, the round peripheral portion of said first coupling member forming the side of the cup and the open end of the cup facing away from said torso, the center of said first coupling member forming a hollow mound extending away from said torso and having a central hole therein; said appendage has a recess; and said second coupling member has a tapered central region that receives said mound in said first coupling member.

7. A doll comprising:

a torso;

an appendage;

a first coupling member fixed to said torso, said first coupling member having a round peripheral cup-like portion and a hub portion therein;

a second coupling member fixed to said appendage, said second coupling member including a round peripheral portion within and adjacent to said peripheral portion of said first coupling member with a clearance between them to permit free relative universal pivoting at least within a predetermined arc, said second coupling member also having a central portion loosely coupled to said hub portion of said first coupling member to provide a free relative movement while preventing withdrawal of said appendage from said torso.

8. The doll described in claim 7 wherein:

said hub portion of said first coupling member includes a hollow mound portion with a hole at its center; and

said central portion of said second coupling member includes a clip with a stem extending through said hole in said hub and an enlarged end within said mound portion.

9. The doll described in claim 7 including:

detents mounted on one of said coupling members to limit pivoting with respect to the other member, to an angle on the order of 15°.

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