

Jan. 8, 1963

I. W. SCHWARTZ
MOVABLE DOLL'S HAND

3,071,893

Filed Oct. 13, 1959

2 Sheets-Sheet 1

FIG. 1

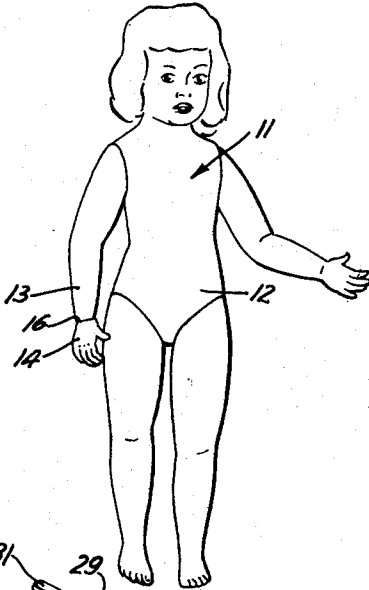


FIG. 2

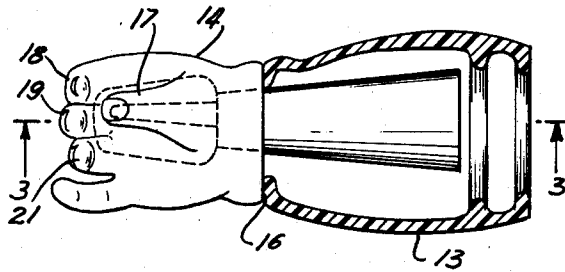


FIG. 3

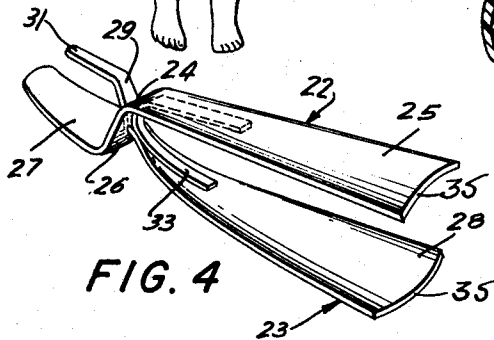
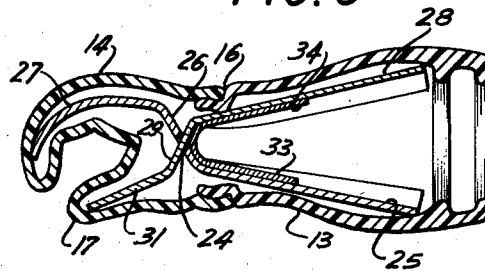


FIG. 4

FIG. 6

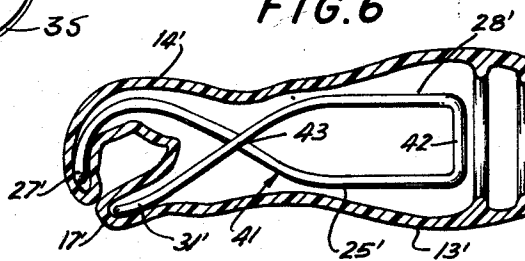
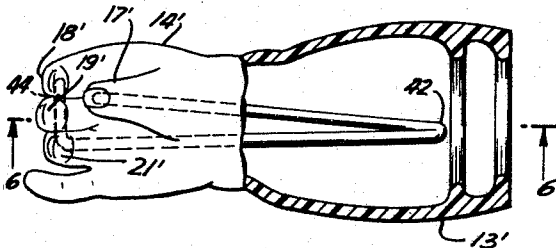


FIG. 5



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FIG. 7

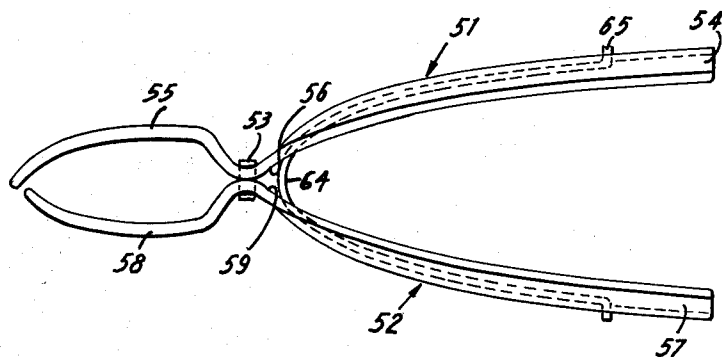


FIG. 8

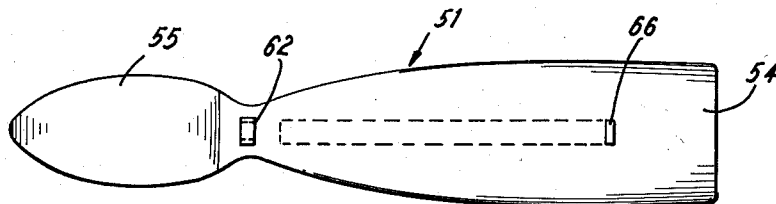
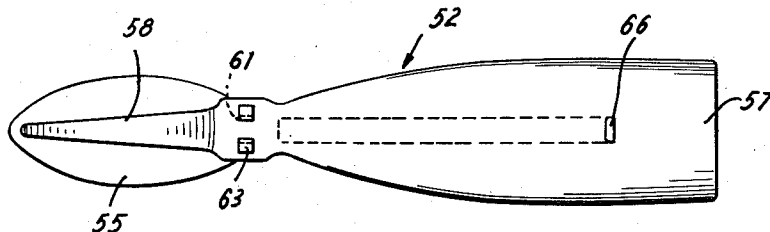


FIG. 9



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MOVABLE DOLL'S HAND

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10 Claims. (Cl. 46-163)

It is among the objects of the invention to provide a doll's hand that may readily be fabricated with relatively low cost material, which is devoid of complex linkages which may readily become deranged, and which will, with but a simple manipulation that may readily be performed by a young child, permit the latter to grasp objects with such doll's hand and as readily release such objects.

According to the invention, these objects are accomplished by the arrangement and combination of elements hereinafter described and more particularly recited in the claims.

In the accompanying drawings, in which are shown one or more of various possible embodiments of the several features of the invention,

FIG. 1 is a perspective view of a doll,

FIG. 2 is a plan view of a doll's hand according to one embodiment of the invention, with parts broken away,

FIG. 3 is a sectional view taken along line 3-3 of FIG. 2,

FIG. 4 is a perspective view of the actuating mechanism of FIGS. 2 and 3,

FIG. 5 is a view similar to FIG. 1 of another embodiment of the invention,

FIG. 6 is a sectional view taken along line 6-6 of FIG. 5,

FIG. 7 is a side elevational view of still another embodiment of the invention,

FIG. 8 is a top plan view of FIG. 7, and

FIG. 9 is a bottom plan view of FIG. 7.

Referring now to the drawings, in the embodiment shown in FIGS. 1 to 4, the doll 11 may be of any suitable type having a body 12 which desirably is of molded flexible plastic.

The forearms 13 of the doll are also of molded flexible plastic, as are the hands 14, both said forearms and said hands desirably being hollow, as shown in FIG. 3, and of relatively thick stock so that they will retain their shape.

To facilitate assembly, the doll's hand 14 is desirably formed as a separate unit and is releasably connected to the forearm 13 at substantially the wrist portion 16, the thickness of the stock of the forearm and the hand and their relative rigidity ensuring a secure connection therebetween.

As shown in FIG. 3, the thumb 17 of the hand is separate from the other fingers, the forefinger 18 and the adjacent two fingers 19 and 21 preferably forming a single hollow cavity.

Positioned in the hand and extending into the forearm is the actuating mechanism for the fingers.

As shown in FIGS. 2 to 4, this mechanism comprises two arms 22 and 23, each illustratively of sheet metal stock, pivotally connected adjacent one of their ends, as at 24.

More particularly, the arm 22 has a handle portion 25 with a portion 26 at one end extending at substantially right angles thereto, said portion 26 having a relatively wide jaw 27 extending laterally outward from the end thereof and curved toward the plane of the handle portion 25.

The arm 23 also has a handle portion 28 complementary to handle portion 25 and a portion 29 at one end of width less than that of the portion 26 of arm 22 so that it will pass freely through an aperture in said portion 26. The portion 29 has a relatively narrow jaw

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31 extending laterally outward therefrom substantially parallel to the jaw 27.

Resilient means are provided reacting against the handle portions 25, 28 of the arm normally to urge the jaws 27, 31 apart. Although any suitable means may be used for this purpose, as illustratively shown a leaf spring 33 is provided bent substantially into a U and secured at its ends as at 34 to the opposed surfaces of the handle portions of the arms.

In assembling the unit, the narrow jaw 31 is positioned in the thumb of the hand and the wide jaw 27 is positioned in the cavity defined by the forefinger 18 and adjacent fingers 19 and 21.

By reason of the spring 33, the handle portions 25 and 28 will be spread apart to move the jaws 27, 31 apart and by reason of the resilience of the material from which the hand is formed the thumb and the fingers will also be spaced apart.

With the hand and the associated actuating mechanism connected to the forearm as previously described, the handle portions 25 and 28 of the arms will extend in the forearm 13 adjacent the opposed wall surfaces thereof, the handle portions desirably being curved as at 35 to conform to the curvature of the forearm.

In the embodiment shown in FIGS. 5 and 6, in which elements corresponding to those in FIGS. 1 to 4 have the same reference numerals primed, the forearms 13' and hands 14' are also of molded flexible plastic but formed in one piece.

Positioned in the hand 14' and forearm 13' is the actuating mechanism for the fingers.

As shown in FIGS. 5 and 6, this mechanism comprises a length of spring wire 41 reversely bent at one end as at 42 to define two spaced substantially parallel handle portions 25' and 28'. The ends of said handle portions are bent in opposite directions to cross over as at 43 and define curved jaws 27' and 31' which normally are urged toward each other by reason of the resiliency of the spring wire 41.

The jaw 31' extends in the thumb 17' of the hand and the jaw 27' has a lateral extension 44 at its end and is positioned in the cavity defined by the forefinger 18' and adjacent fingers 19' and 21'.

By reason of the resilience of the spring wire 41 the handle portions will be spread apart to move the jaws 27' and 31' together, and by reason of the resilience of the material from which the hand is formed the thumb and the fingers will be pressed tightly together.

In the embodiment shown in FIGS. 7, 8 and 9, the actuating mechanism comprises two arms 51, 52, each illustratively of sheet metal stock pivotally connected adjacent one of their ends as at 53.

More particularly, the arm 51 has a handle portion 54 at one end and a relatively wide curved jaw 55 at the other end, the portion of the arm 51 between the handle portion 54 and jaw portion 55 being curved into substantially U-shape as at 56.

The arm 52 also has a handle portion 57 at one end complementary to handle portion 54 and a relatively narrow jaw portion 58 at the other end, the portion of the arm 52 between the handle portion 57 and jaw portion 58 also being curved into substantially U-shape as at 59.

The U-shaped portions 56, 59 of arms 51, 52 are designed to abut as shown and each of the abutting surfaces has a pair of parallel slots 61 through which a U-shape retainer 62 extends, the ends of the legs of the retainer being bent outwardly as shown at 63 to pivot the arms loosely together.

The jaws 55, 58 are normally urged together as by a leaf spring 64 bent substantially in a U and secured

at its ends as at 65 in suitable slots 66 in the handle portions 55, 57.

In assembling the unit, the narrow jaw 58 is positioned in the thumb of the hand and the wide jaw is positioned in the cavity defined by the forefinger 18 and adjacent fingers 19 and 21.

By reason of the spring 64 the handle portions 54, 57 will be spread apart to move the jaws 55, 58 together and by reason of the resilience of the material from which the hand is formed, the thumb and fingers will also be moved together.

The movable hands of all embodiments may readily be operated by a child to pick up objects.

With respect to the embodiment of FIGS. 1 to 4, in which the jaws 27 and 31 are normally spaced, the child need merely position the hand so that the spaced fingers and thumb straddle the object, and exert pressure on the forearms to move the jaws together so that the object will be securely gripped between the thumb and the fingers.

With respect to the embodiment of FIGS. 5 and 6 and the embodiment of FIGS. 7 to 9 in which the jaws 27', 31' and 55, 58 are normally closed, the child need merely exert pressure on the forearm to space the jaws and then straddle the object with the fingers and thumb and release pressure on the forearm so that the jaws will move together securely to grip the object between the finger and the thumb.

By reason of the simplicity of the actuating mechanism, it is not likely to become damaged even with long use or rough handling of the doll by the child.

Although the actuating mechanism has been illustratively described as made substantially from sheet metal or rod stock, it is of course to be understood that any suitable rigid plastic could be used.

As many changes could be made in the above constructions and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. An article of manufacture, a movable doll's hand comprising a hand portion of resilient deformable material having fingers and a thumb extending over said fingers, a pair of movable rigid jaws positioned respectively in said fingers and said thumb and engaging said fingers and thumb respectively, a forearm portion of resilient deformable material connected to said hand portion, said jaws each having a portion integral therewith extending longitudinally into said forearm portion, said forearm portion when compressed and released causing said longitudinally extending portions to effect movement of said jaws toward and away from each other correspondingly to move the thumb and the fingers of said hand portion.

2. The combination set forth in claim 1 in which means are provided normally to maintain said jaws in spaced relation.

3. The combination set forth in claim 1 in which means are provided normally to maintain said jaws in closed relation.

4. The combination set forth in claim 1 in which a pair of rigid arms is provided pivotally connected adjacent one of their ends, the portions of said arms on one side of the pivot defining said longitudinally extending portions and constituting handle portions and the portions of said arms on the other side of said pivot defining said jaws and resilient means reacting against said handle portions normally to move the latter apart and to retain the jaws in spaced relation.

5. The combination set forth in claim 1 in which a pair of rigid arms is provided pivotally connected adjacent one of their ends, the portions of said arms on one side of the pivot defining said longitudinally extending portions and constituting handle portions and the portions of said arms on the other side of said pivot defining said jaws, resilient means reacting against said handle portions normally to move the latter apart and to retain the jaws in spaced relation, said handle portions normally positioned adjacent opposed wall surfaces of said forearm portion, whereby upon pressure applied to said forearm the handle portions will be moved together against the tension of said resilient means to move the jaws and the thumb and fingers together.

6. The combination set forth in claim 1 in which said thumb and said fingers are hollow to receive said respective jaws.

7. The combination set forth in claim 1 in which a length of spring wire is provided, reversely bent to define a pair of spaced substantially parallel handle portions constituting said longitudinally extending portions, the ends of said handle portions being bent in opposite directions to cross each other and to define said jaws, the resiliency of said spring wire normally urging said jaws together.

8. The combination set forth in claim 7 in which the jaw positioned in said fingers has a lateral extension at the end thereof.

9. The combination set forth in claim 1 in which a pair of rigid arms is provided pivotally connected adjacent one of their ends, the portions of said arms on one side of the pivot defining said longitudinally extending portions and constituting handle portions and the portions of said arms on the other side of said pivot defining said jaws, and resilient means reacting against said handle portions normally to move the latter apart and move the jaws together.

10. The combination set forth in claim 1 in which a pair of rigid arms is provided, each arm having a U-shaped bend between its ends, means extending through said U-shaped bends pivotally to connect said arms, the portions of said arms on one side of the pivot defining said longitudinally extending portions and constituting handle portions and the portions of said arms on the other side of said pivot defining said jaws, and resilient means reacting against said handle portions normally to move the latter apart and to retain the jaws in closed relation.

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