United States Patent

[11] **3,574,968**

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[54] **FIGURE TOY**
5 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **46/22,** 46/151, 46/157
[51] **Int. Cl.** **A63h 33/00**
[50] **Field of Search** 46/22, 151, 152, 157

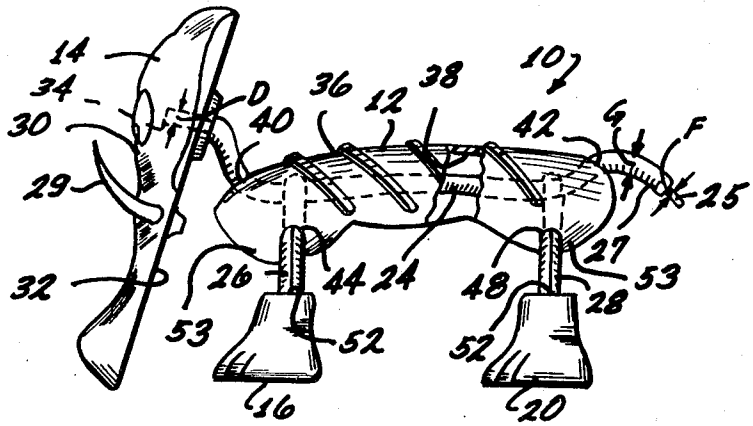
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ABSTRACT: Animal figures comprising body parts held together by pipe cleaners, and molds for forming the body parts from pliable plastics.



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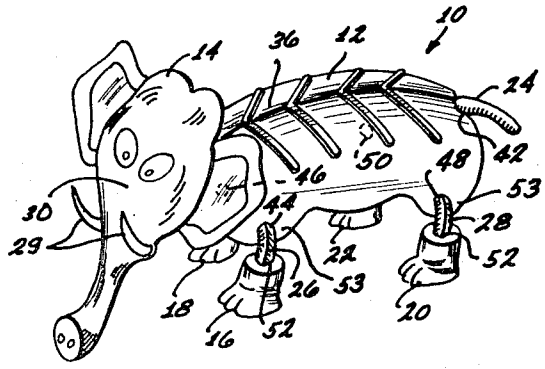


Fig. 1

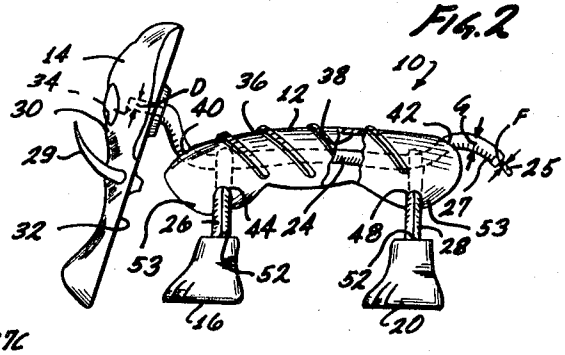


Fig. 2

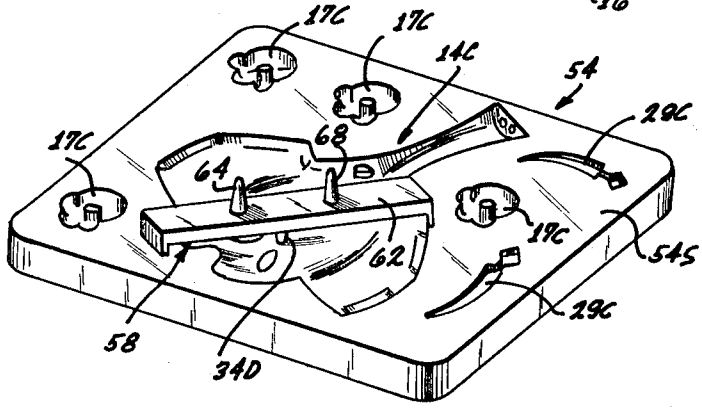


Fig. 3

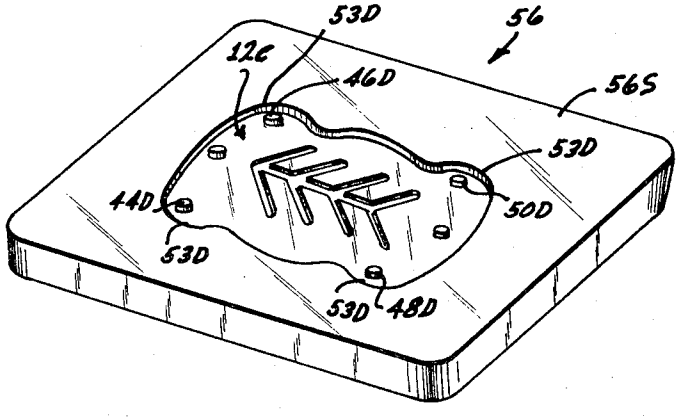


Fig. 4

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FIG. 5

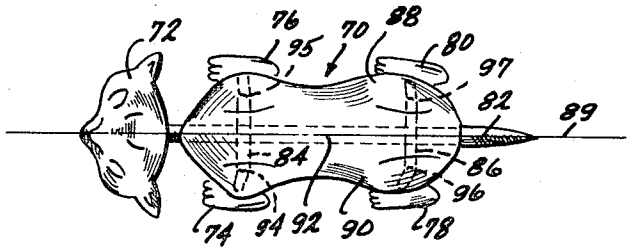
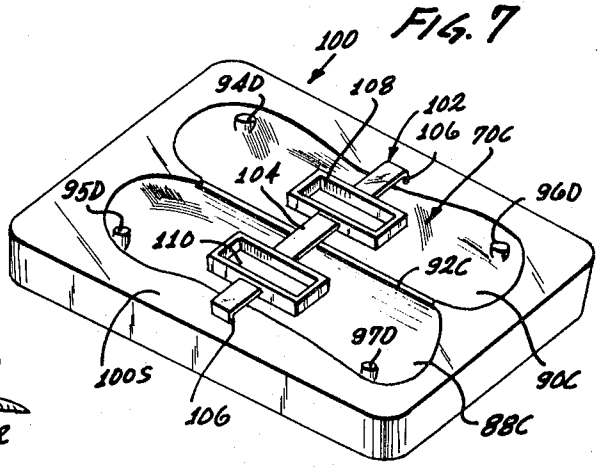


FIG. 7



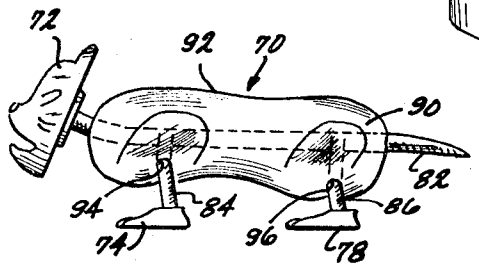


FIG. 6

FIG. 8

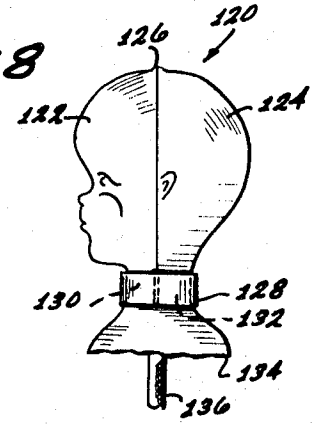
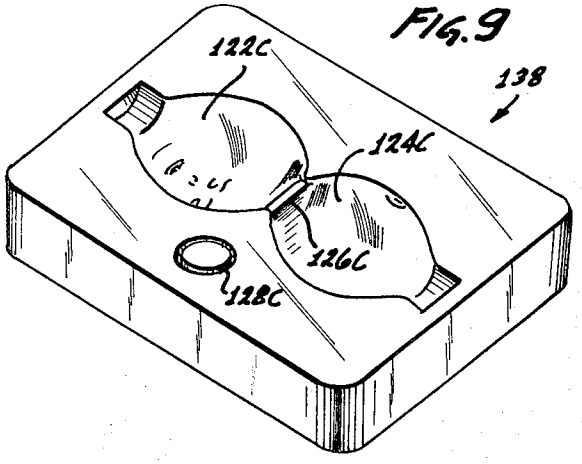


FIG. 9



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FIGURE TOY

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to toy figures and toy molding apparatus therefor.

2. Description of the Prior Art

Toy figures are commonly constructed using soft wire armatures, particularly pipe cleaners. The appearance of the figures can be improved by attaching molded body parts to the wire, such as parts representing the head, trunk or legs of an animal. An entertaining toy set is provided by a molding outfit which enables a child to form various body parts which can be assembled in any combination on soft wire armatures into animal figures of normal or outlandish appearance. However, the molds must be easy to use and the molded body parts formed therewith must be easy to assemble and disassemble.

One simple type of toy mold employs a single die or mold with a flat upper surface and cavities formed therein. Liquid plastic is poured into the cavities up to the upper surface and mold is heated to harden the plastic. The parts formed in this manner have a flat surface. While such molds are economical and easy to use, the occurrence of a large flat surface has made it difficult to utilize them to provide parts of natural or three-dimensional appearance.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the present invention is to provide toy-molding apparatus for readily forming body parts that can be assembled on soft wire armatures to form interesting figures.

Another object is to provide simple molding apparatus for forming animal parts of three-dimensional appearance.

In accordance with the present invention, figure body parts and molds for forming them are provided, which enable the simple construction of interesting toy figures. The molds are generally cavities in a plate, and the cavities are filled to the upper surface of the plate so that body parts are formed which have a large flat surface. In order to eliminate flat appearing surfaces on the figure, particularly at the trunk, some of the body parts are formed into hinged halves that are folded over so that the flat sides are inside. Some other body parts are formed as thin shells that are held by a soft wire armature in a curved configuration, with the flat surface (now curved) facing downwardly. Some of the outer body parts such as the feet or head are held by a pipe-cleaner-type armature, by providing a long narrow hole in the body part. The narrow hole receives the end of the pipe cleaner so the bristles thereon are pressed together to resist removal.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a toy figure constructed in accordance with the present invention;

FIG. 2 is a partially sectional, side elevation view of the toy figure of FIG. 1;

FIG. 3 is a perspective view of a mold for forming the head and leg portions of the toy figure of FIG. 1;

FIG. 4 is a perspective view of a mold for forming the trunk portion of the toy figure of FIG. 1;

FIG. 5 is a plan view of a toy figure constructed in accordance with another embodiment of the invention;

FIG. 6 is a side elevation view of the toy figure of FIG. 5;

FIG. 7 is a perspective view of a mold for forming the trunk portion of the toy figures of FIG. 5;

FIG. 8 is a partial side elevation view of a toy figure constructed in accordance with still another embodiment of the invention; and

FIG. 9 is a perspective view of a mold for forming the head portion of the toy figure of FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1 and 2 illustrate a toy figure 10 constructed in accordance with the invention using the molds shown in FIGS. 3 and 4. The toy figure includes a trunk 12, head 14, and four foot portions 16, 18, 20 and 22, all constructed of a soft, pliable plastic material. The trunk and head are held together by a soft wire armature 24 comprising a soft wire core 25 with bristles or villous coverings 27 on it, which is the type widely used as a pipe cleaner. The front foot portions 16 and 18 are held on the ends of another armature 26 of the same type and size, which passes through the trunk 12, and the back foot portions 20 and 22 are held in the same manner by still another armature 28.

The head 14 has a sculptured front surface 30 and a substantially flat back surface 32. A pair of tusks 29 are fastened to the head through holes in the sides thereof. A narrow aperture 34 extends a substantial distance into the back surface of the head to receive the armature 24. The aperture 34 has a diameter D which is greater than the diameter F of the wire core of the armature, but less than the diameter G of the armature as measured across the bristles. The bristles or nap, which are elastic, tend to expand and thereby resist removal of the head from the armature.

The trunk 12 is substantially a thin sheet with a low-profile sculpture on its upper side 36 and a smooth bottom side 38. The trunk has forward and rearward ends with holes 40 and 42 therein, and opposite sides with holes 44, 46 48 and 50 therein. The armature 24 extends from the head through the hole 40 at the front of the trunk, then along the length of the trunk on the bottom or underside thereof, and then out of the hole 42 at the rear of the trunk to form a tail. The leg-holding armatures 26 and 28 extend through holes 44, 46, and 48, 50 on opposite sides of the trunk at its forward and rearward ends respectively. The foot-holding armatures are in an upside down U-shape, with their ends extending downwardly into holes 52 at the top of the foot portions 16, 18, 20 and 22. The holes 52 have a diameter less than the diameter G of the armature bristles and greater than the diameter F of the armature core, to provide secure fastening.

The foot-holding armatures 26, 28 hold the opposite sides of the trunk in a downwardly extending orientation, so that the trunk is arched. As a result, the trunk appears to have a solid or bulky shape, as viewed from the side, even though the trunk is really a thin sheet. This provides a realistic animal appearance while allowing thin sheet trunks to be used. The longitudinally-extending armature 24 also holds the trunk in a slightly curved shape that helps to provide a solid appearance. The foot armatures 26, 28 and the longitudinally extending armature 24 also serve to strengthen the trunk to prevent excessive sagging or collapse, by supporting it at several points and also by holding it in an arched shape. In order to enhance the solid appearance and to promote the appearance of legs, the trunk has outwardly extending portions 53 on each side near the front and back, and the side holes are formed at these outwardly extending portions.

The body parts may be formed by using molds 54 and 56 of the type shown in FIGS. 3 and 4. The mold cavities 12C and 14C form a trunk and head 12, 14, the cavities 17C form the foot portions 16, 18, 20 and 22, and cavities 29C form the tusks. A child pours a heat-hardening plastic material into the mold cavities until the material is just below the mold surfaces 54S and 56S. He then places the mold on a heater (not shown). After heating and then cooling the plastic-filled molds, he removes the hardened molded parts which are then ready for use in constructing the figures. Core means 58 is employed to form the hole 34 in the head portion. The core means 58 includes a beam 62 that extends across the cavity 14C with ends that lie on the upper mold surface 54S. An elongated core 34D attached to the beam extends downwardly into the mold cavity to form the hole in the finished part which receives the armature end. An additional pair of cores 64, 68 on another side of the beam is provided for use in molding

other body parts (not shown) which may require two armature-receiving holes.

The core means **58**, is constructed of a good heat-conducting material such as aluminum or other metal. Accordingly, it serves not only to form an armature-receiving hole, but to conduct heat from the mold to inner portions of the body part, to assure more uniform hardening. A core means can, of course, be used with a variety of molds to form armature-receiving holes. In the case of the cavities **17C** in mold **54**, and the trunk cavity **12C** in the mold **56**, cores are formed by posts extending from the bottom of the mold. The posts **44D**, **46D**, **48D** and **50D** forming the holes in the sides of the trunk are positioned at outwardly extending portion **53C** of the cavity.

In many instances, it is desirable to form fully three-dimensional body parts instead of parts with flat sides. FIGS. **5** and **6** illustrate a cat figure which has a trunk **70**, head **72**, and four foot portions **74**, **76**, **78** and **80** held together by three armatures **82**, **84** and **86**. The head and foot portions have armature-receiving holes similar to those of the toy of FIG. **1**, and of the same general form. However, the trunk **70** is of substantially solid construction, so that it appears natural from all angles of viewing.

The trunk **70** is constructed of two trunk half-portions **88** and **90** that define the portions of the body part on opposite sides of an imaginary plane **89** extending through it. The trunk half-portions are hingedly joined by a thin web **92**, so that the entire trunk is formed as a single integral member. The lower sides of the two halves, opposite the hinge web **92**, are held together by the foot armatures **84** and **86** that extend through the holes **94**, **95**, **96** and **97** in the trunk halves. The longitudinally extending armature **82** passes between the trunk halves, the trunk material being pliable enough to indent to receive the armature and to then hold it firmly in place.

FIG. **7** illustrates a mold **100** with a cavity **70C** which can form the trunk **70** of the animal of FIG. **5**. The mold has two deep cavity portions **88C** and **90C** for forming the trunk halves **88** and **90** and a shallow portion **92C** for forming the connecting web **92**. Four posts **94D**, **95D**, **96D** and **97D** extending from the bottom of the cavities form the armature-receiving holes **94** through **97**, the posts being positioned so that the holes are aligned when the trunk halves are pivoted together. The mold is used in the same manner as the molds described above, by placing them on a heater and filling them with a heat-hardening liquid plastic, up to the level of the mold upper surface **100S** or slightly below it. Core means **102** is provided which includes a beam **104** that extends across the mold cavity **70C** and has feet **106** that rest on the upper mold surface **100S**. Two cores **108** and **110** on the beam fill part of each cavity **88C** and **90C**. The cores **108**, **110** mounted on the beam reduce the amount of plastic required to fill the cavities, and also conduct heat to the part as it hardens to assure faster and more uniform hardening. The holes left by the cores **108**, **110** are inside the trunk body part when the halves thereof are folded over, so they do not detract from the appearance of the animal.

FIG. **8** illustrates a head body part **120** of three-dimensional form which can be formed in a mold of the type shown in FIG. **9**, which forms parts with large flat surfaces. The head **120** comprises front and back halves **122**, **124** joined by a thin hinge portion **126**. The front and back halves are held together by a collar part **128** which surrounds neck portions **130**, **132** formed on the bottom of the head halves, opposite the hinge portion. In order to fasten the head to other body parts, such as a trunk **134**, a wire armature **136** is provided which may be a simple wire or a bristle-covered pipe cleaner type. The armature **136** extends through the collar-enclosed neck portions **130**, **132** and between the head halves. The pliable material of the body parts enables them to be depressed around the armature and to hold the armature in place.

The mold **138** for forming the head is similar to the mold of FIG. **7**. It includes cavities **122C**, **124C** for the front and back halves and a shallow cavity portion **126C** for the hinge portion. No cores are required to form holes therethrough, although core means of the type shown at **102** in FIG. **7** can be used to reduce the amount of plastic required and to promote uniform hardening. A collar cavity **128C** is also provided to form the collar part **128**.

Thus, the invention provides toy figures of natural appearance which can be easily molded and assembled by a child. 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.

We claim:

1. A three-dimensional figure toy comprising:

a body part of resiliently flexible material and normally assuming a first shape having a substantially flat surface when unrestrained, said body part being bent to a second shape wherein said initially flat surface is bent whereby said body part stimulates a three-dimensional portion of a body;

openings through opposed side edge portions of said body part; and

a bendable elongated member extending through said openings and being bent to hold said body part in said second shape against the resilience thereof.

2. A figure toy as defined in claim **1** wherein said body part is provided with two of said openings through each of said opposed side edge portions; and an elongated member extending through each of said opposed openings; said members being bent so that opposite ends thereof all extend in generally the same direction, away from said body part, to define legs for said figure toy.

3. A figure toy as defined in claim **2** wherein:

said body part, when in said first shape, is a substantially flat sheetlike element;

further opposed openings in opposed end edge portions of said body part; and

a further bendable elongated member extending through said further openings and being bent to hold said body portion in a second shape having a compoundly curved exterior surface.

4. A figure toy as defined in claim **3** including a head simulating member on one end of said further bendable member.

5. A figure toy as defined in claim **2** wherein said body part, when in said first shape, defines a substantially flat surface on one side thereof and adjacent bulbous portions on the opposite side thereof, separated by a relatively thin elongated portion; said body part being bent along said thin elongated portion to bring opposed portions of said substantially flat surface into face-to-face abutment.