

April 15, 1958

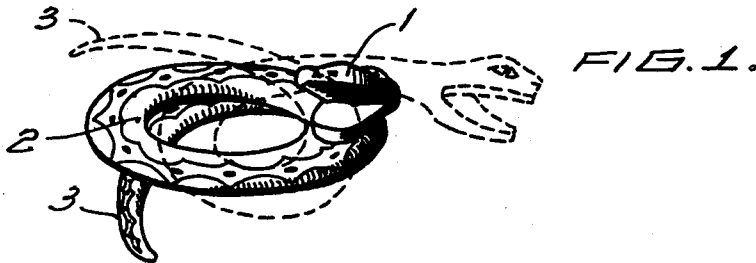
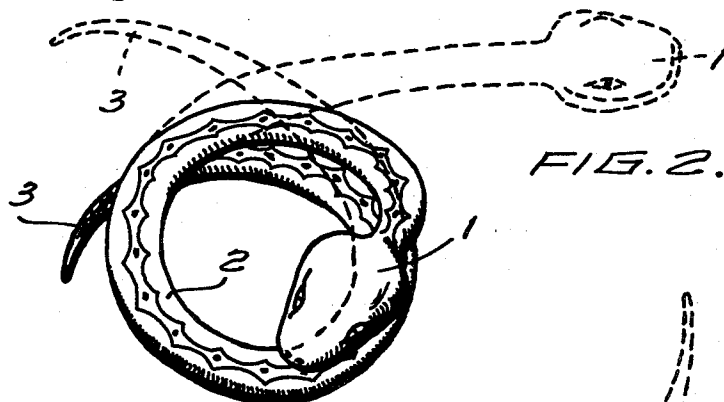
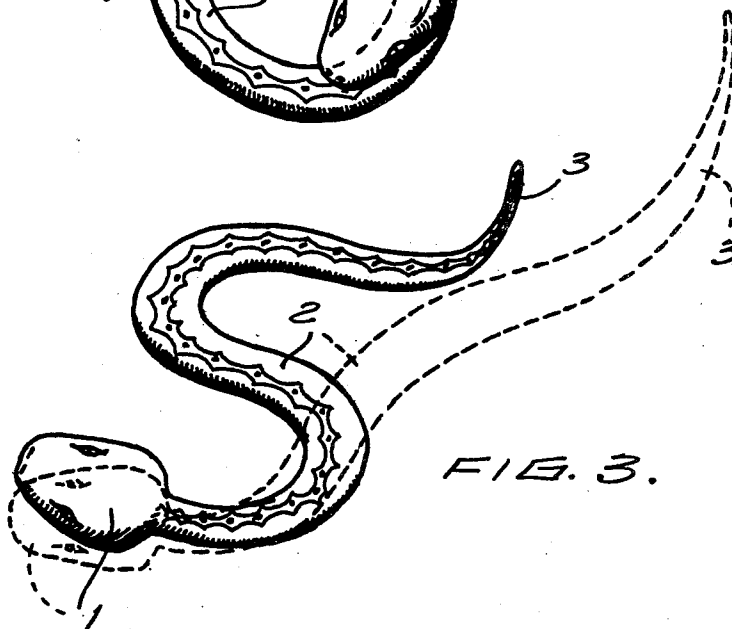
F. SCHLEICH

2,830,402

ORNAMENTAL TOYS POSSESSING RETARDED RESILIENCY

Filed Oct. 4, 1954

3 Sheets-Sheet 1



Inventor:

Friedrich Schleich

By:

Michael S. Striker
agt.

April 15, 1958

F. SCHLEICH

2,830,402

ORNAMENTAL TOYS POSSESSING RETARDED RESILIENCY

Filed Oct. 4, 1954

3 Sheets-Sheet 2

FIG. 4.

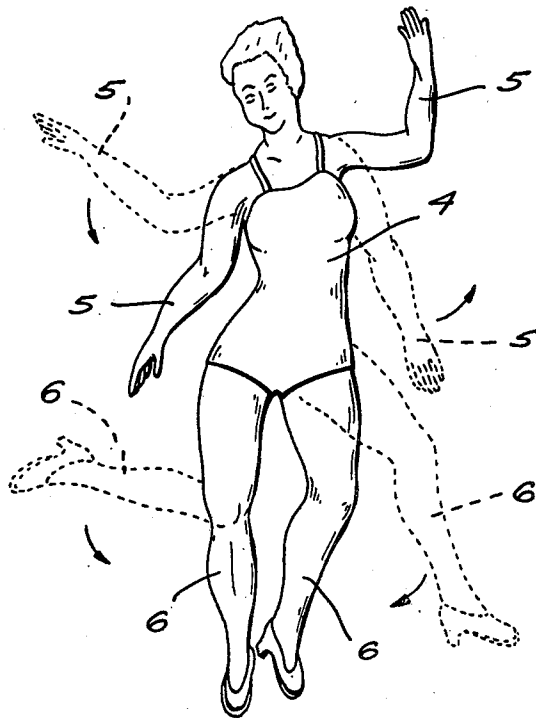
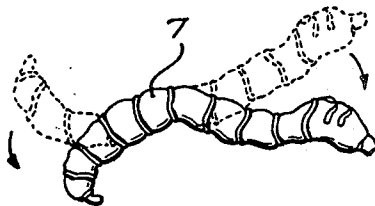


FIG. 5.

INVENTOR.
Friedrich Schleich
BY
Michael S. Striker
agt.

April 15, 1958

F. SCHLEICH

2,830,402

ORNAMENTAL TOYS POSSESSING RETARDED RESILIENCY

Filed Oct. 4, 1954

3 Sheets-Sheet 3

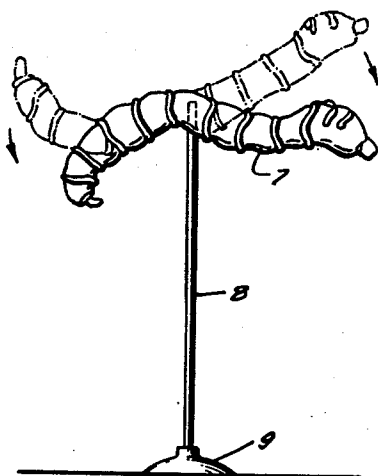


FIG. 6.

INVENTOR.
Friedrich Schleich
BY *Michael A. Stricker*
att'y.

1

2,830,402

ORNAMENTAL TOYS POSSESSING RETARDED RESILIENCY

Friedrich Schleich, Schwabisch-Gmund, Germany, assignor to Ideal Toy Corporation, Hollis, N. Y.

Application October 4, 1954, Serial No. 460,063

4 Claims. (Cl. 46—119)

The present invention relates to ornamental objects and toys and more specifically to ornamental objects and toys possessing a retarded resiliency.

Toys and ornamental objects made of rubber or other synthetic, elastic and resilient materials are well known. These objects, due to the characteristics of the material of which they are composed, possess the quality to return to their original shape after being exposed to bending or other form-distorting force. This return to the original shape occurs rather suddenly and immediately after withdrawal of the form-distorting force. Therein lies a limitation for the use of such objects. For instance, it is impossible to introduce an element of surprise by having an object move long after the form-distorting force has been withdrawn. Existing toys of this kind, for instance, permit observation of the cause and effect relationship between the form-distorting action and the immediately following and quickly completed shape regaining reaction.

It is an object of the present invention to provide decorative pieces, toys and the like which after being exposed to a form-distorting action, like bending, squeezing or twisting, slowly but completely regain their original shape.

It is a further object of the present invention to provide such toys and the like in which the shape-regaining reaction occurs so slowly that an observer does not necessarily have to be aware of the preceding form-distorting action.

It is a further object of this invention to provide such slow reacting form-regaining pieces, toys or other three-dimensional images for decorative, play and other purposes like, for instance, as objects for animated motion pictures.

It is still another object of the present invention to endow such figures, toys, decorative pieces and the like with this quality of retarded resiliency and consequently slow regaining of original shape by using as material in the manufacture of their retardedly resilient parts, suitable, preferably low molecular weight, plastic materials to which, in addition to the conventional plasticizers and fillers, a resiliency retarding component has been added.

Other objects and advantages of the present invention may be apparent from a further reading of the specification and of the appended claims.

With the above objects in view, the present invention mainly comprises an ornamental object, at least a portion of the object consisting of resilient material including a resiliency retarding component, so that parts of the ornamental objects may be bent relative to each other and will return, due to the action of the resilient material, into their initial position, the return being slowed down by the resiliency retarding component included in the resilient material.

The retarded shape-regaining effect in accordance with the invention is controlled by the quality and quantity of the resiliency-retarding components which are added to the resilient material of which these objects consist. In a preferred embodiment addition of these resiliency-retarding components is so adjusted that the shape-regain-

2

ing action occurs with the approximate speed of slow-motion moving pictures.

In this way, and especially in connection with toys, it is possible to achieve effects which previously could only be simulated by the use of complicated and difficult to arrange driving mechanisms, etc. Contrary to the above-mentioned arrangements, the toys according to the present invention move in absolute silence, thus increasing the desired effect.

In a preferred embodiment of the present invention the decorative object or toy consists of low molecular weight polyvinylchlorides to which, in addition to the usual plasticizers, phthalic acid dicyclohexyl ester (dicyclohexylphthalate) has been added, advantageously together with other gelatinizing materials, and fillers like chalk, etc. The proportioning of the individual additions is thereby adapted to the size and shape of the figure to be made and to the degree of shape-regaining retardation desired.

Figures made in accordance with the present invention are especially impressive if they contain elongated parts like, for instance, stems of flowers, arms or legs of human figures, or if they form an elongated shape, like, for instance, when simulating a snake. It is quite obvious that such elongated objects or parts lend themselves to a considerable amount of bending and twisting and consequently, are adapted to perform a prolonged and extensive shape-regaining movement.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a perspective drawing of an object, in accordance with the present invention, simulating a snake in twisted, distorted shape;

Fig. 2 is another perspective drawing of an object, in accordance with the present invention, simulating a snake in twisted shape-distorted position;

Fig. 3 is a further perspective view of an object, in accordance with the present invention, simulating a snake in a differently bent shape-distorted position;

Fig. 4 is a perspective view of an object, in accordance with the present invention, simulating a human figure;

Fig. 5 is a perspective view of an object, in accordance with the present invention, simulating a caterpillar; and

Fig. 6 is a perspective view of the object shown in Fig. 5 mounted on a support.

Figs. 1-6 indicate objects in both a shape-distorted position and in their regular undistorted shape.

Referring now to the drawings, and more particularly to Figs. 1 and 2 both of which show in a perspective view an object simulating a snake in twisted and distorted position and also show in broken lines, the same object in the process of regaining its original undistorted shape; it can easily be seen that the head 1 performs a helical movement of larger diameter than the tail 3 which is somewhat impeded in its movements by the friction between the support on which the object rests and the tail's carrying the weight of the whole object. This difference in speed and diameter of movement serves to achieve closer simulation of the movement of a real snake.

As shown in Fig. 3, the snake simulating object may also be bent in the shape of zig-zag turns. Upon release from the shape-distorting force, the snake simulating object stretches to its original shape. By providing for a weight or suction cups, for instance, in the neighborhood of tail 3, a lateral movement of body 2 and head 1 is achieved, creating in an observer the impression of the snake slowly moving towards him.

3

Such weights or suction cups may be provided in suitable portions of objects made in accordance with the present invention, so as to speed up or retard movement within parts of the object.

Another example is given in Fig. 4 showing a human figure which, after being bent into the position indicated by broken lines, will return to its original shape, as indicated in the perspective view. Hereby a movement is performed by the arms 5 and the legs 6 in relation to the body 4, as indicated by arrows.

Fig. 5 shows a caterpillar 7. A distorted position is indicated in broken lines and arrows show the direction of movement back to its original shape, as indicated in the perspective drawing.

Referring now to Fig. 6, the caterpillar 7 shown in Fig. 5 is illustrated herein as being mounted on one end of an elongated support member 8. Support member 8 terminates at its other end in a resilient cup-shaped suction means 9, capable of removably adhering the entire toy to a surface such as a table top.

It goes without saying that imaginary figures like dragons, or inanimated subjects, like vehicles, houses, etc., or flowers and other natural objects may be simulated by objects made in accordance with the present invention and these objects used for their decorative value, or as toys, or in the making of slow-motion and animated cartoon movies and for many other purposes.

As shown in the embodiments described above, the present invention permits with simple and relatively inexpensive means to create a practically unlimited variety of objects for the various purposes enumerated above. It is of course also possible to apply a suitable surface coating to such objects so as, for instance, to give an object simulating a human figure or flower the appearance of flexible china.

The following examples are given to further illustrate the various compositions of material used in the present invention, the scope of the invention not however being limited to the specific details of the examples.

Examples of composition of material possessing a retarded resiliency

(1) A composition composed of:

Polyvinylchloride	12.5 kg.
Dicyclohexylphthalate (as solid plasticizer)	5.45 kg.
Diocetylphthalate (as liquid plasticizer)	2.05 kg.
Refined chalk (CaCO ₃) (as filler)	2.0 kg.
Lead stearate (as stabilizer)	.25 kg.
Pigments (as coloring agents)	1-2% of the above

(2) A composition composed of:

Polyvinylchloride	kg.	13.5
Dicyclohexylphthalate	kg.	10.6
Diocetylphthalate	kg.	1.25
Lead stearate	grams.	270
Titanium dioxide	do.	269.55
Victoria Blue R	do.	0.45

(3) A composition composed of:

Polyvinylchloride	kg.	11.6
Dicyclohexylphthalate	kg.	6.4
Diocetylphthalate	kg.	2.0
Lead stearate	grams.	232
Ochre (of desired darkness)	do.	58

(4) A composition composed of:

Polyvinylchloride	kg.	15.9
Dicyclohexylphthalate	kg.	11.1
Diocetylphthalate	kg.	3.0
Refined chalk	kg.	1.5
Lead stearate	grams.	318
Cadmium yellow	do.	159
Pontacyl Green S Extra	do.	159

4

In the place of diocetylphthalate also other compounds that act as plasticizing softeners for polyvinylchloride may be used, such as tricresylphosphate, dibutylphthalate and the like. Different fillers which enhance the resiliency-retarding action, such as kaolin, talcum, suitable silica products and the like may also be used.

Each of the above compositions is prepared by weighing the required quantities of the two softening ingredients, dicyclohexylphthalate and diocetylphthalate and mixing them thoroughly in a mechanical mixer. After a homogeneous mass is obtained, the colloid pigments, thereafter the stabilizer, and finally the fillers are added. After further intensive mixing the polyvinylchloride is added. Strong stirring is continued for about 30 minutes in order to obtain a homogeneous mixture. The thus obtained homogeneous mass, having powdery characteristics, is then plasticized between rolls, or in an injection molding apparatus, or in another suitable device at elevated temperatures of preferably between 160°-170° C.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of ornamental objects or toys differing from the types described above.

While the invention has been illustrated and described as embodied in objects simulating a snake, a human figure and a caterpillar, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A toy having at least a portion consisting of a solid elongated body of substantial thickness made of a resilient material consisting essentially of low molecular weight polyvinyl chloride and a resiliency-retarding ingredient, so that said body may be bent from an initial position and will return, due to the action of said resilient material, to said initial position, said return being slowed down by the resiliency-retarding ingredient, and said toy having a shape and appearance simulating those of a form of life, whereby the toy will simulate the natural movement of said form of life.

2. A toy comprising, in combination, a support member; and a solid elongated body of substantial thickness attached to said support member and made of a resilient material consisting essentially of low molecular weight polyvinyl chloride and a resiliency-retarding ingredient, so that said body may be bent from an initial position and will return, due to the action of said resilient material, to said initial position, said return being slowed down by the resiliency-retarding ingredient, and said toy having a shape and appearance simulating those of a form of life, whereby the toy will simulate the natural movement of said form of life.

3. A toy comprising, in combination, a support member; and a solid elongated body of substantial thickness attached to said support member and made of a resilient material consisting essentially of low molecular weight polyvinyl chloride and a resiliency-retarding ingredient, so that said body may be bent from an initial position and will return, due to the action of said resilient material, to said initial position, said return being slowed down by the resiliency-retarding ingredient, said support member being of sufficient size and weight in relation to said elongated body to prevent toppling over of said toy during action of said resilient material in returning said

5

body to its initial position after being bent relative thereto, and said elongated body having a shape and appearance simulating those of a form of life, whereby the toy will simulate the natural movement of said form of life.

4. A toy comprising, in combination, a support member including a suction means; and a solid elongated body of substantial thickness attached to said support member and made of a resilient material consisting essentially of low molecular weight polyvinyl chloride and a resiliency-retarding ingredient, so that said body may be bent from an initial position and will return, due to the action of said resilient material, to said initial position, said return being slowed down by the resiliency-retarding ingredient, said support member preventing toppling over of said toy during action of said resilient material in

5

10

15

6

returning said body to its initial position after being bent relative thereto, and said elongated body having a shape and appearance simulating those of a form of life, whereby the toy will simulate the natural movement of said form of life.

References Cited in the file of this patent

UNITED STATES PATENTS

2,058,854	Bush	Oct. 27, 1936
2,153,957	Davis	Apr. 11, 1939
2,184,639	Exline	Dec. 26, 1939
2,219,130	Herrmann	Oct. 22, 1940
2,288,313	Buchsbaum et al.	June 30, 1942
2,484,397	Barton	Oct. 11, 1949