United States Patent [19]

Smith, III et al.

[11] **3,750,330**

[45] **Aug. 7, 1973**

[54] **MANIPULATIVE TOY**

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[22] Filed: **Aug. 5, 1971**

[21] Appl. No.: **169,407**

[52] **U.S. Cl.** **46/119**

[51] **Int. Cl.** **A63h 11/00**

[58] **Field of Search** 46/119, 115, 116, 46/120, 135, 145, 146, 23, 24, 25

[56] **References Cited**

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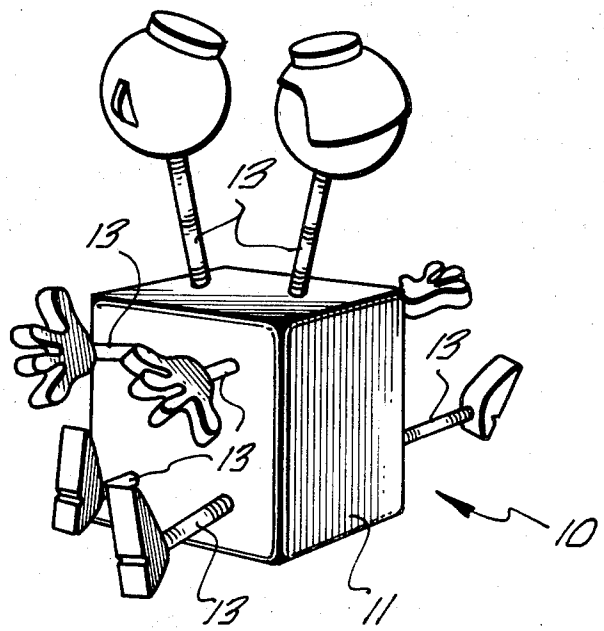
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[57] **ABSTRACT**

A manipulative toy is disclosed in which a plurality of flexible coil springs are slidably received within a body. The extremities of each spring extend out of the body and have enlarged objects connected thereto. In the preferred embodiment, the springs are oriented to simulate the limbs and necks of two characters extending out of the main body member. The extremity of each limb or neck has a respective simulated head, hand or foot connected to it. Each spring can be manually moved to slide in and out of the body member. Of particular interest to children is the fact that as one extremity is moved in one direction with respect to the body member, the other extremity of the spring automatically moves in the opposite direction. Moreover, since each spring functions as a flexible cable, the rotary movement of an object on one extremity can be transmitted to the object on the other end of the spring.

9 Claims, 6 Drawing Figures



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SHEET 1 OF 2

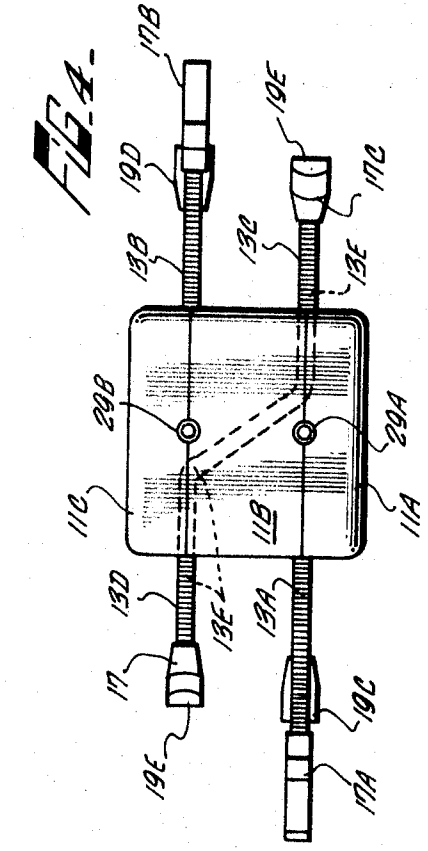


FIG. 4

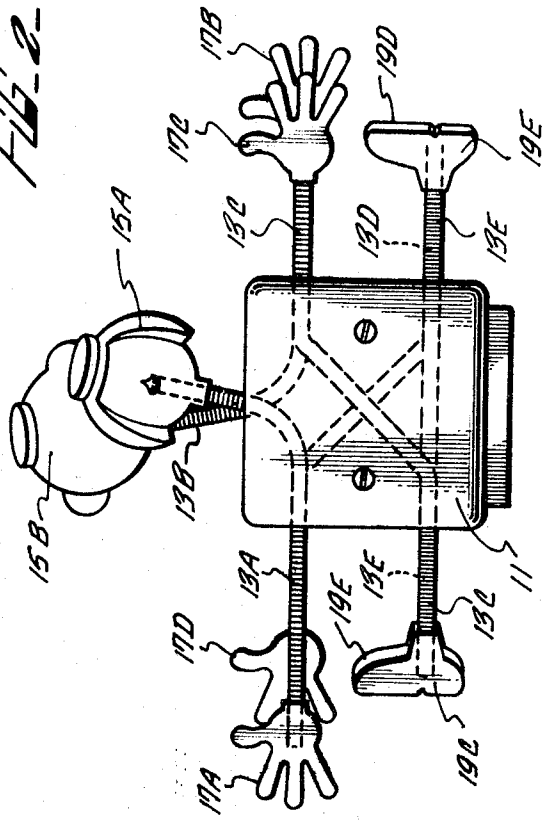


FIG. 2

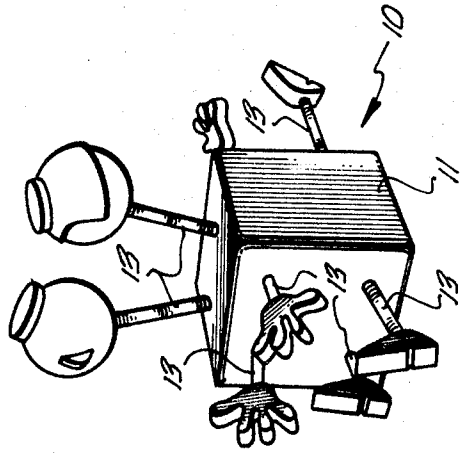


FIG. 1

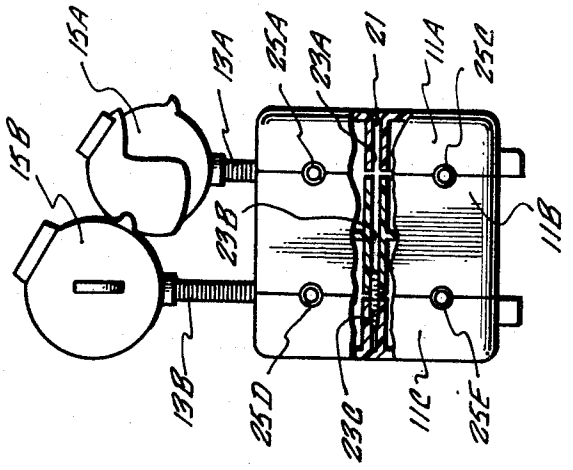


FIG. 3

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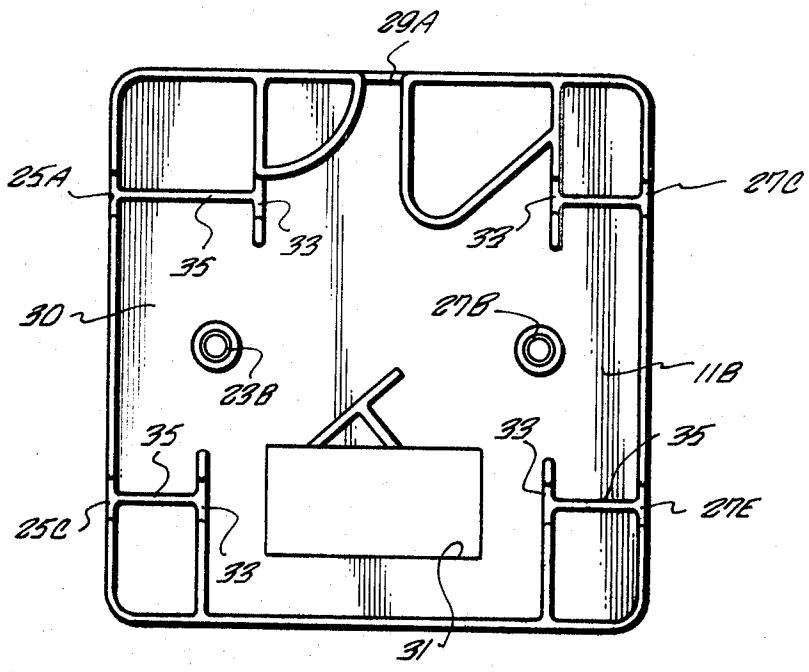


FIG. 5

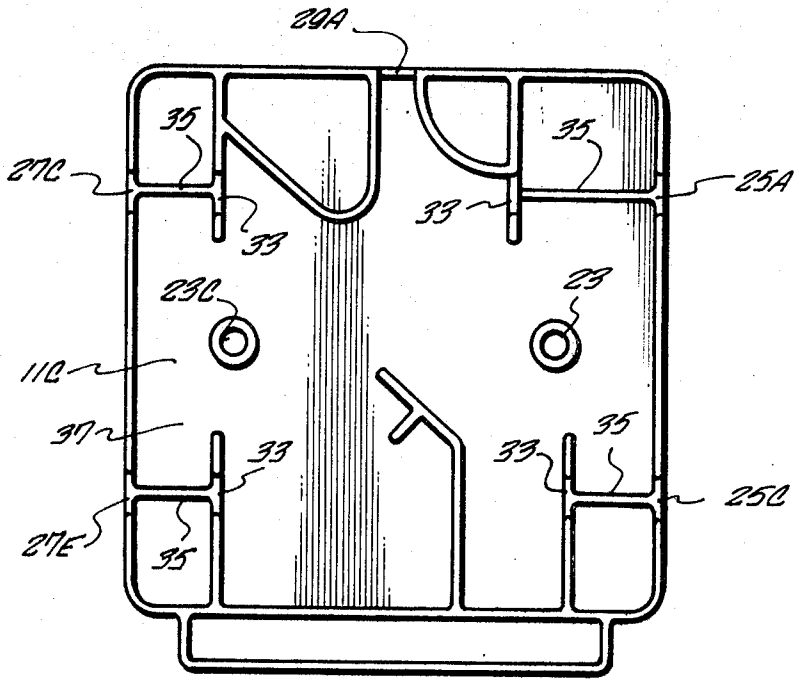


FIG. 6

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MANIPULATIVE TOY

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a toy apparatus having movable parts which can be manipulated by children for their amusement.

2. Description of the Prior Art

Of all of the many different types of toys, one that is very popular for pre-school children is the group of toys which have movable components which can be hand manipualated according to the desires of the child operator. A typical example of this type is the toy peg set.

Another very popular toy of this type is the apparatus sold under the trademark "BUSYBOX". This apparatus has many cranks, levers and other movable components that can be moved at the will of the child. Such toys are particularly beneficial to pre-school children who are just discovering the rudiments of mechanical movements and spatial relations.

SUMMARY OF THE INVENTION

The present invention also pertains to a toy apparatus having movable parts which can be hand manipulated for the amusement and education of the child.

The apparatus comprises a multi-section body having a plurality of passageways formed therethrough. Each passageway is adapted to slidably receive a flexible coil spring with the extremities of the spring extending out of the body. The extremities of each spring can be moved in any rotational or translational direction. The extremities of the springs are also characterized by having enlarged objects connected to them. In the preferred embodiment, the external portions of the springs are oriented to simulate the limbs and necks of two characters extending out of the main body member. A simulate head, hand or foot is connected to the end of each respective limb or neck. The interrelationships of the various limbs is of special interest to children, particularly when they discover that the movement of one head, hand or foot causes a corresponding movement of another in the opposite direction. Another entertaining feature of the apparatus is that the translational movement of the springs through the passageways creates an amusing whirring sound. Moreover, being a flexible cable, the child can discover that he can impart a rotary movement to one end of the spring by rotating the other end of the same spring.

A primary advantage of the present invention is that the apparatus can provide many hours of amusement and entertainment to pre-school children.

Another advantage of the present invention is that the apparatus is quite safe and simple to use.

Still another advantage of the present invention is that the apparatus functions to teach children about simple mechanical movements and to help them understand spatial relationships.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the manipulative toy apparatus of the present invention;

FIG. 2 is a front elevational view of the toy apparatus with the routing of the various springs shown in broken lines;

FIG. 3 is a side elevational view of the toy apparatus with a portion thereof shown in section to show the connecting means;

FIG. 4 shows a top elevational view of the toy apparatus with the cross-over route of one of the bottom springs shown in broken lines;

FIG. 5 is an elevational view of the center body member prior to being connected to the front body member; and

FIG. 6 being an elevational view of the front body member prior to being connected to the center body member.

DESCRIPTION OF THE PREFERRED EMBODIMENT:

Referring now to the drawings, FIG. 1 shows a toy apparatus, generally indicated by arrow **10**, having a multi-section main body **11** housing a plurality of flexible coil springs **13**. In the preferred embodiment, the flexible springs **13** simulate the limbs and necks of two characters, with the extremities of each spring being connected to a respective simulated head, hand or foot.

As shown in FIG. **2**, each spring **13** is routed through a particular passageway formed in the main body **11** to form two outer limbs of the characters. The first two springs **13A** and **13B** are routed through the upper portion of the body **11** to form a neck and an arm member respectively. A head **15A** and a hand **17A** are connected to the ends of spring **13A** while a head **15B** and hand **17B** are connected to the ends of spring **13B**. A third and fourth springs **13C** and **13D** are routed through the body **11** with one end of each spring **13C** and **13D** extending out of a lower portion of the body **11** to form a leg while the other end thereof extends out of the upper portion to form the second arm portion for each character. A hand **17C** and **17D** are connected to the arm portions of spring **13C** and **13D** respectively while a foot **19C** and **19D** are connected to the respective leg portions thereof.

A fifth spring **13E** is routed through the bottom portion of the body **11** to form the second leg portion for each character. The cross-over routing for the spring **13E** is more clearly shown in FIG. **4**. A foot **19E** is connected to each end of spring **13E**.

As shown in FIG. **3**, the main body **11** is made of three sections: a front section **11A**, a central section **11B**, and a rear section **11C**. These three sections are secured together by means of two screws **21** (one of which is shown) which extend through bores **23** A, B, and C formed in the three sections. The bores **23C** are threaded to receive the threaded ends of the screws **21** for securing purposes.

FIG. **3** also shows a plurality of apertures **25** A, C, D, and E formed at the mating surfaces of the three sections **11** A, B, and C. The other side of the apparatus **10** is identical to the side shown in FIG. **3** with the apertures being indicated as apertures **27** B, C, D, and E respectively.

The top portion of the body **11** as shown in FIG. **4** forms similar apertures **29** A and B respectively.

As can be seen, the spring 13A extends through apertures 25A and 29A while the spring 13B extends through apertures 27B and 29B. In like manner, the spring 13C extends through apertures 25C and 27C while spring 13D extends through apertures 25D and 27D. Finally spring 13 extends through apertures 25E and 27E.

As shown in FIG. 5, the one side of the central section 11B is shown. The central section 11B includes a base 30 having a plurality of external walls, ribs, and guides projecting upwardly therefrom. It should be noted that the other side of the base 30 also has identical walls, ribs, and guides projecting outwardly therefrom, the other side being the mirror image of the side shown. The central section 11B also includes an opening 31 for permitting the spring 13E to cross therethrough.

As shown in FIGS. 3 and 4, the edges of the external walls of the central section 11B forms semi-circular bores which mate with semi-circular bores formed in the external walls of the front and rear sections 11A and 11C to form the apertures 25, 27, and 29.

Referring back to FIG. 5, each lateral passageway is defined by the above-mentioned outer apertures and a corresponding inner aperture 33 with a rib 35 located therebetween. As before, the wall structure within the central section 11B forms only one half of each aperture 33 while the other half is formed by similar wall structures formed in the front and rear sections 11 A and C.

The front and rear body sectionss 11 A and C are similarly formed with the exception that the ribs and guides extend outwardly from only the interior sides 37 thereof. The front body section 11A is shown in FIG. 5. The rear body section 11C is identical to this construction except that it is the mirror image of section 11A. The only other difference is the construction of the screw holes 23 which was noted in the description of FIG. 3.

As can be seen, the apparatus 10 simulates a pair of characters comprising a main body having arms, legs, and necks extending outwardly therefrom. Since the springs 13 are slidably movable within the body 11, any limb or neck member can be moved toward or away from the body. What is of special interest to the children is that if one member is moved, for example, the head 15A, a corresponding movement occurs in another member, i.e., the hand 17A, in the opposite direction. It should also be noted that since the springs function as flexible cables, any rotational movement of one end of each spring will transmit the same rotary movement to the other end of the spring in the opposite direction.

Finally, any translational movement of the springs results in an amusing whirring sound created by the spring coils rubbing against the corners formed in the body passageways.

In closing, the apparatus of the present invention can provide many hours of safe amusement and entertainment to pre-school children. Moreover, the apparatus has an educational value in teaching the children simple mechanical movements and spatial relationships.

It should be noted that various modifications can be made to the apparatus while still remaining within the purview of the following claims.

What is claimed is:

1. A manipulative toy comprising:
   - a main body having an exterior surface;
   - a plurality of passageways formed within said body, each passageway extending completely through said body and terminating at two openings formed on the exterior surface thereof;
   - a flexible spring cable extending through each passageway and slidably movable therein, the extremities of each cable extending out of the main body through said openings; and
   - a pair of enlarged objects mounted on each spring cable, each enlarged object resiliently supported exteriorly of said main body surface and at a distance from each opening whereby each flexible spring cable will have a limited amount of free movement.

2. The invention of claim 1 wherein each of said flexible cables comprises a metal coil spring.

3. the invention of claim 1 wherein said main body comprises a plurality of said passageways, said passageways being oriented to enable the extremities of the flexible cables to simulate the limbs and neck of a character.

4. The invention of claim 3 wherein said enlarged objects comprise a plurality of simulated hands, feet, and head which are mounted on the appropriate extremities of the flexible cables.

5. The invention of claim 4 wherein said main body comprises five passageways, said passageways being oriented to enable the ten extremities of flexible cables to simulate four arms, four legs, and two necks of a pair of characters.

6. The invention of claim 1 wherein said main body is made of at least two members, each member forming one half of each passageway with the members being mirror images of the other in order to form the complete passageways when mated.

7. The invention of claim 6 wherein said body member comprises three of said members positioned in a side by side relationship.

8. The invention of claim 6 wherein each of said members comprises a base plate having a plurality of ribs extending outwardly therefrom to form one half of said passageways.

9. The invention of claim 8 wherein each of said members includes an exterior wall forming a portion of said body exterior surface.

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