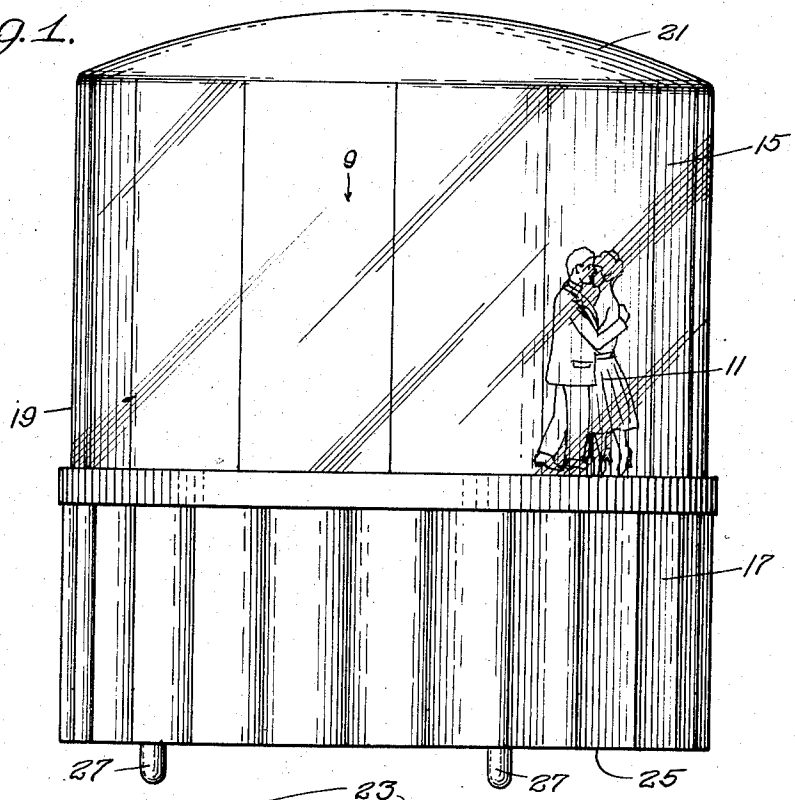
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DANCING TOY

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Fig. 1.



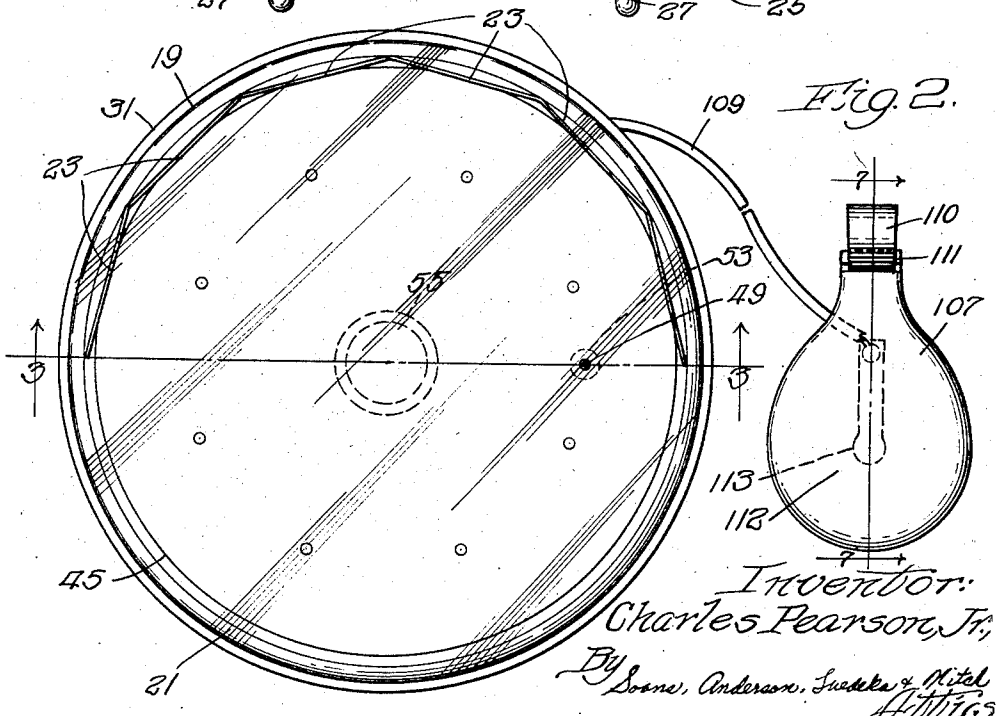




Fig. 2.

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DANCING TOY

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Fig. 3.

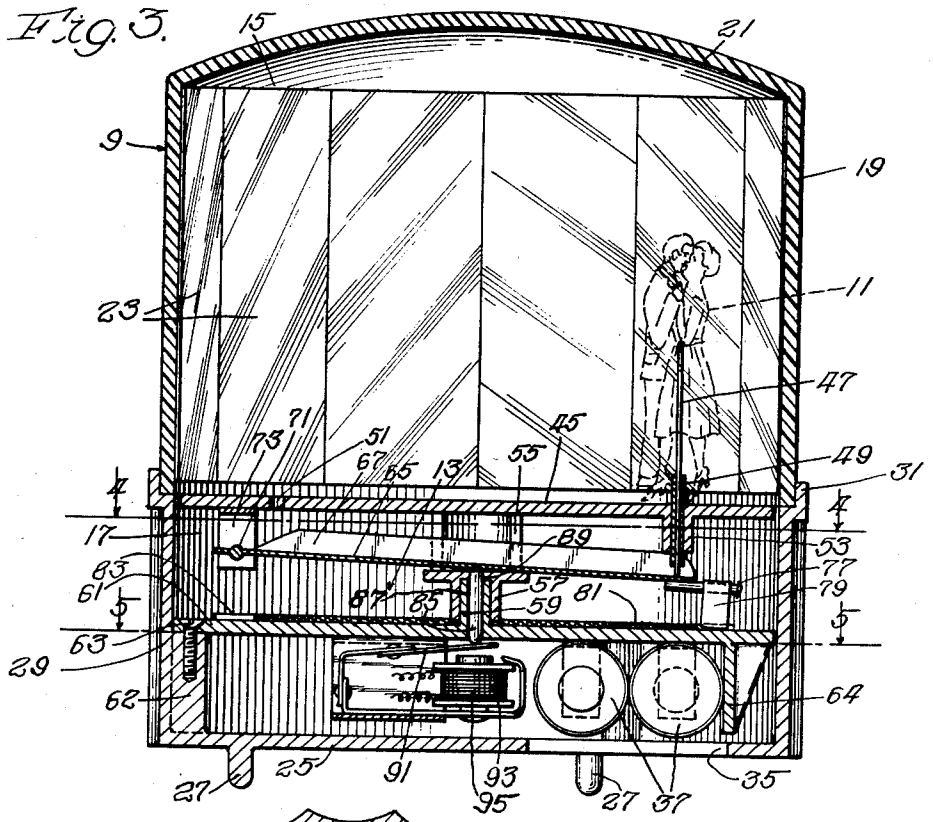
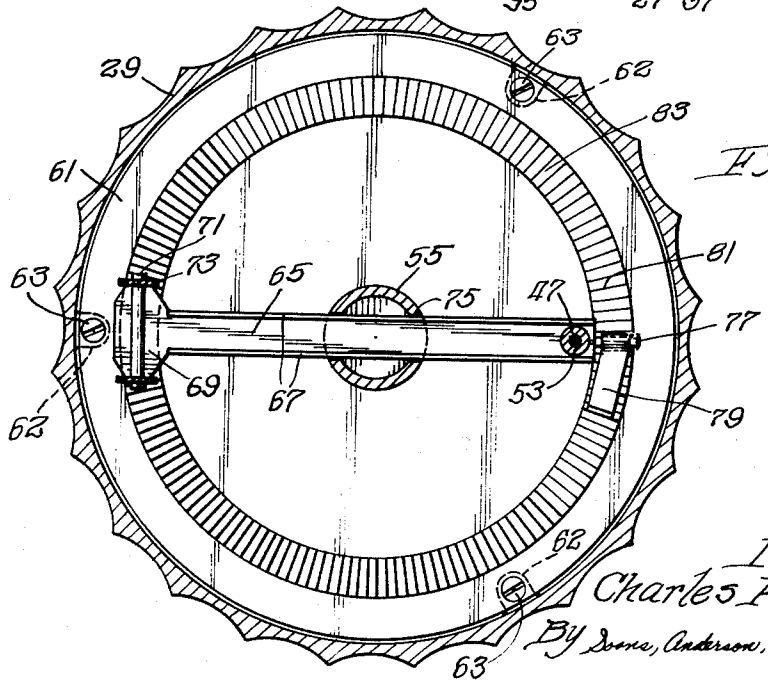



Fig. 4.




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Fig. 5.

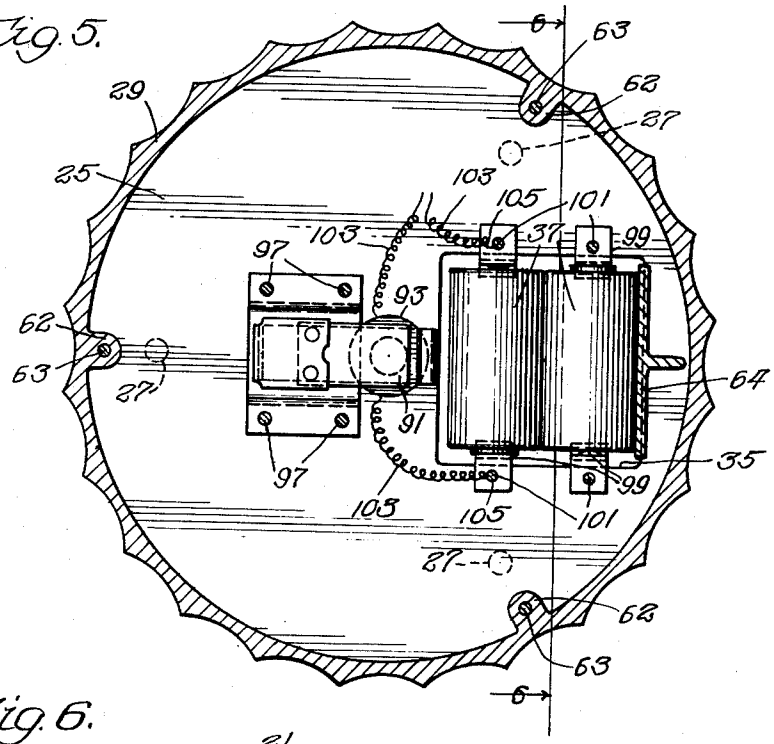



Fig. 6.

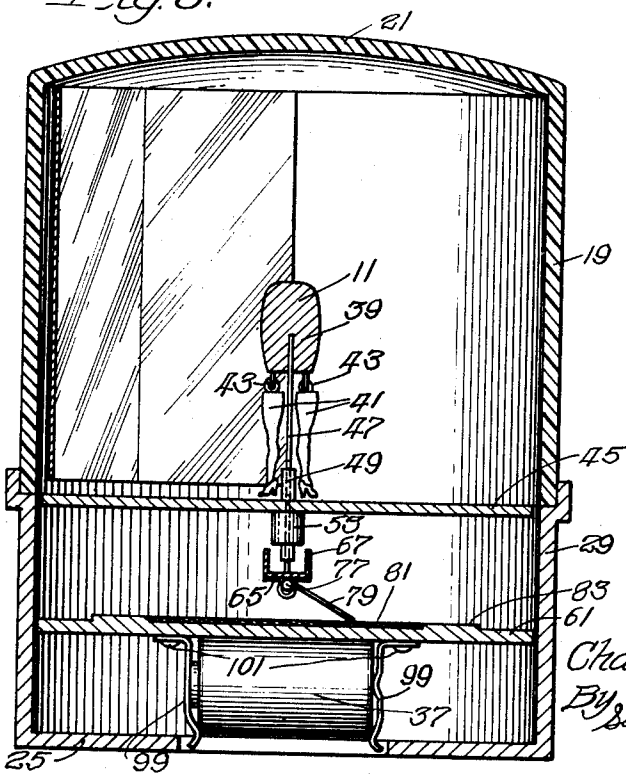
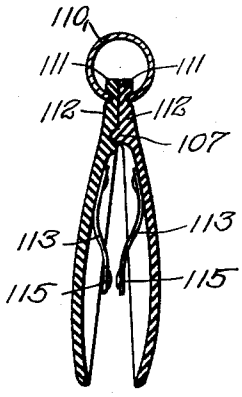



Fig. 7.




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United States Patent Office 2,932,918 Patented Apr. 19, 1960



2,932,918

# DANCING TOY

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Application April 5, 1957, Serial No. 650,936

3 Claims. (Cl. 46—245)

The present invention generally relates to a dancing toy, and more particularly relates to a remote controlled dancing toy having toy figures operable in a manner to accurately depict dancing.

Various types of dancing toys have been constructed. Some dancing toys are of relatively simple and inexpensive construction, but the toy figures of such toys can usually only be operated to rather crudely simulate the act of dancing. Dancing toys which can impart a number of types of movements to toy figures so as to effectively simulate dancing are usually expensive and of relatively complex construction. However, the dancing toy of the present invention is not only of simple, inexpensive and durable construction, but in addition has one or more toy figures which can be simply operated in a manner to perform complex movements which realistically depict dancing. Moreover, the rate of movement of the single or plural toy figures can be varied, as desired, and in addition, the toy is constructed so as to be remotely controlled. The dancing toy of the present invention is preferably fabricated so that when actuated a single toy figure or a pair or relatively small number of pairs of toy figures give the illusion of a large number of toy figures dancing on a ballroom floor.

Accordingly, it is the primary object of the present invention to provide an improved, remote controlled dancing toy of simple and inexpensive yet durable construction, which toy has one or more toy figures actuatable to perform various movements, at a controlled rate, which movements accurately depict dancing.

It is another object of the present invention to provide an improved dancing toy so constructed as to create the illusion, when actuated, of a large number of figures dancing on a ballroom floor.

Further objects of the present invention will be apparent from a study of the following detailed description and from the accompanying drawings, of which:

Figure 1 is a front elevational view of a preferred embodiment of the dancing toy of the present invention;

Figure 2 is a top plan view of the dancing toy of Figure 1;

Figure 3 is a sectional view of the dancing toy taken along the section line 3—3 of Figure 2;

Figure 4 is a sectional view of the dancing toy taken along the section line 4—4 of Figure 3;

Figure 5 is a sectional view of the dancing toy of Figure 1 taken along the section line 5—5 of Figure 3;

Figure 6 is a sectional view of the dancing toy of Figure 1 taken along the section line 6—6 of Figure 5;

And, Figure 7 is a sectional view taken along the section line 7—7 of Figure 2.

The dancing toy of the present invention includes one or more toy figures, a platform which may rotate, a rod supporting the toy figures above the platform and means for vertically reciprocating the rod to raise and lower the toy figure above the platform. Each toy figure has pivotally connected legs so that the figure may rotate about its own axis during reciprocation. The combination of movements of each toy figure when the dancing toy is actuated effectively creates the illusion of dancing figures.



Referring now more particularly to Figures 1 and 3 of the accompanying drawings one specific embodiment of the present invention is shown, comprising a dancing toy having a housing 9, paired toy figures 11 and means generally designated 13, including a motor means, a force transmitting means and a force translating means, for actuating the paired toy figures to simulate dancing.

Housing 9 is constructed so as to represent a ballroom. In this connection, housing 9 has an upper bell-shaped portion or shell 15 and a base portion 17. Shell 15 comprises a vertically extending cylindrical wall 19 joined at its upper edge to a generally horizontally extending, domed, circular roof 21 and at its bottom edge to the uppert edge of a base 17. Shell 15 is transparent so that the interior thereof can be viewed. Alternatively, shell 15 could be opaque with a cutaway front to expose the interior for viewing. A portion of the inner surface of wall 19. Cylinder 29 has a decorative outer surface in are angularly arranged to multiply the reflection of the paired toy figures 11 disposed within the shell 15 above base portion 17, so as to create the illusion of a plurality of pairs of such figures in a ballroom. Mirrors 23 may be glass, plastic, polished metal or the like.

Base portion 17 of housing 9 includes a vertically extending cylinder 29 closed at one end by a circular base 25 which includes a plurality of legs 27 depending therefrom for supporting the housing and inner assembly hereinafter described in detail. The upper end of the cylinder 29 is offset so as to provide an L-shaped flanged rim 31 for receiving and supporting the bottom edge of the wall 19. Cylinder 29 has a decorative outer surface in scalloped form, as illustrated in Figures 1 and 3, or of other suitable design so as to lend an attractive appearance to the toy. Base 25 is provided with a suitable aperture 35 for the easy replacement of a power source, such as storage batteries 37, located within housing 9.

As shown in Figures 1 and 2, paired toy figures 11 depict male and female dancing partners in a dancing posture. These figures may be constructed of any suitable material, such as plastic, rubber, wood, metal, glass, cloth or the like. As shown in Figure 6, the toy figures 11 comprise a combined trunk and head section 39 and each of the toy figures has depending freely swingable legs 41 pivotally connected to the trunk section, as by link means 43, for movement around a plurality of axes. The body portions of the toy figures, exclusive of the legs are joined together and may be cast as a single unit. The legs of one of the toy figures 11 are longer than those of the other partner, as shown in Figures 1 and 2, so that the feet thereof touch the surface of rotatable platform 45 when the figures are not actuated. The toy figures are provided with suitable arms and clothing for assembly in the toy.

Platform 45 is circular in shape and of such size that its periphery is adjacent cylinder wall 29 of base 17. The toy figures 11 are supported in an upright position by a rod 47 which extends into and connects with the body section thereof. Rod 47 is slidably and rotatably received within a collar or sleeve 49, which in turn fixedly extends through an aperture 51 in platform 45, and through an integral boss or collar portion 53 on the underside of the platform. As shown in Figure 3, the lowermost portion of rod 47 extends below the bottom of collar 49. Other apertures 51 may be provided, if desired, as shown in Figure 3, for receiving additional rods and collars associated with additional pairs of toy figures 11.

Platform 45 is provided with a central hub 55 depending from the bottom thereof, which has at its lowermost extremity a narrowed female portion 57 fitting over a complementary vertically extending male portion 59 of stationary, horizontally extending plate 61 for rotation thereabout. Accordingly, platform 45 with hub 55 and narrowed portion 57 may be rotated as a unit. Plate 61 rests on and is fixedly secured to three inwardly projecting portions 62 of cylinder 29 by suitable means, such as screws 63. Plate 61 is also provided with a depending positioning flange 64, which aids in retaining power source 37 in a desired position.

A generally horizontally extending arm 65 is provided between platform 45 and plate 61, the arm having generally vertically extending reinforcing flange portions 67, and an expanded portion 69 at one end thereof pivotally connected by means of a pin 71 to an inverted U-shaped flange 73, attached to the bottom of platform 45 adjacent the periphery thereof. Arm 65 passes through passageway 75 in hub 55, and terminates beyond the lower end of rod 47, so that the rod 47 rests on arm 65. The passageway 75 is cut away vertically for a sufficient distance to allow for considerable vertical movement of arm 65. To the non-pivoted end of arm 65 is connected a generally horizontally extending pin 77. A generally, rectangular plate element 79 having a lower wedge-shaped end is suitably journaled adjacent its upper end on pin 77 and depends therefrom for rotation therearound. Element 79 is adapted to engage, at an angle from the vertical, a radially extending saw toothed groove 81 on the upper surface of annular ring 83. The ring 83 is provided with a plurality of such grooves at uniformly closely spaced intervals. Ring 83 is fixedly connected to stationary plate 61, as shown in Figure 3.

A vertically extending pin 85 is slidably received within a suitable aperture 87 through the center of male portion 59 of plate 61 and an adjoining aperture 89 in hub 55, as shown in Figure 3. Pin 85 at its upper end abuts the bottom surface of arm 65 and its lower end rests on generally horizontally extending arm 91 of solenoid 93 which serves as the motor means. Arm 91 is of magnetically attractable flexible metal, such as spring steel. The solenoid 93 includes an electromagnet 95 spaced from and positioned below arm 91 and pin 85. The solenoid is mounted in a saddle which is fixedly secured by screws 97 to the underside of plate 61.

Storage batteries 37 may be of any conventional design such as the standard batteries shown in Figure 3 and are positioned laterally beneath plate 61 and above base 25 and between electromagnet 95 and portion 64 of plate 61. Spring plates 99, as shown in Figure 6, retain batteries 37 in position and suitably electrically interconnect the batteries in series. Plates 99 are secured to the underside of plate 61, as by screws 101.

As shown in Figure 5, wires 103 are provided for electrical connection between electromagnet 95, the terminals 105 of storage batteries 37 and a castanet type switch 107 (Figures 2 and 7). The wires may be sheathed in a suitable outer jacket 109, as shown in Figure 2.

Clapper 107 may be of any suitable shape, such as ovoid, and may comprise a tensioned pressure ring 110 which is slit at one section thereof to receive notched end portions 111 of generally arcuately shaped, opposed arms 112. Extending inwardly from arms 112 are opposed, inwardly curved metal spring elements 113 having opposed metal contacts 115.

To elements 113 are connected wires 103 (not shown). Ring 110 is biased against arms 112 so that in the resting position, as shown in Figure 7, arms 112 and elements 113 are spread apart, and contacts 115 do not touch each other. When arms 112 are squeezed toward each other against the biasing action of ring 110, contacts 115 touch, completing the electrical circuit between the switch 107, storage batteries 37 and electromagnet 95. Release of pressure on arms 112 breaks the electrical connection through contacts 115.



The dancing toy of the present invention can be operated in the following manner:

The operator grasps the arms 112 of switch 107 and presses them toward each other, as previously described, to complete the electrical circuit through electromagnet 95, thereby producing an electromagnetic field. Accordingly, metal arm 91 is attracted downwardly towards electromagnet 95. Since pin 85 rests on arm 91 it also moves downwardly.

The electrical circuit through contacts 115 is then broken by allowing arms 112 and elements 113 to return to their original position, through the biasing action of ring 110. Accordingly, electromagnet 95 is deactivated and the electromagnetic field ceases. As a result, arm 91 springs upwardly to its original position spaced from electromagnet 95 and drives pin 85 with considerable force up through apertures 87 and 89. Pin 85 strikes the opposed surface of arm 65, driving it upwardly in passageway 75 as it pivots around pin 71. Rod 47, seated on the free end of arm 65, is therefore kicked upwardly. Toy figures 11 connected to rod 47 jump or pop to a position above and spaced from the level of platform 45. At the same time, element 79, being connected to arm 65 through pin 77, moves upwardly and partially swivels around pin 77 to a position inclined at a lesser angle to the vertical than its original position. Such movement of element 79 disengages it from the particular groove 81 of ring 83 with which it was originally in contact.

The weight of toy figures 11 then causes rod 47 to move downwardly until the legs of the longer figure touch the top surface of platform 45. The toy figures 11 due to their weight and to the pivotal connection of the legs to the trunk swivel around, that is, they partially rotate about their own axis. The movement of rod 47 downward forces arm 65 downwardly so that element 79 engages a different groove 81 in ring 83 than the groove with which it was originally engaged. Such new engagement of 79 and continual movement of arm 65 downwardly forces element 79 to again assume a position of pronounced inclination to the vertical. This movement of element 79 forces simultaneous movement of arm 65, that is, arm 65 rotates for a distance comparable to the distance between the groove 81 originally engaged by element 79 and the groove 81 newly engaged by that element. Since arm 65 abuts hub 55 of platform 45 in passageway 75, concomitant rotation of platform 45 occurs.

Movement of arm 65 in a downward direction aids in returning pin 85 to its original resting position on arm 91, so that the cycle of connected movements of the movable components of the dancing toy is completed. It is to be understood that the weight of the various movable components of the toy which are displaced upwardly by the upward thrust of pin 85 contributes to the return of these components to their original resting positions. It is seen that arm 65 and associated elements, including rod 47 and element 79, act to translate power transmitted from pin 85 into power of rotation for platform 45 and reciprocating movement of toy figures 11.

As described, a single activation and deactivation of the core 97 of electromagnet 95 produces a sequence of movements resulting in the desired upward and downward movements of toy figures 11 and their concomitant rotation about their own axis, as well as their movement with rotating platform 45. The total effect achieved is an accurate depiction of dancing of the toy figures. The rate of movement of the toy figures and the platform can be remotely controlled by varying the rate at which the electrical circuit through the switch is made and broken. In practice, the electrical circuit is preferably completed and broken at a relatively rapid and continuous rate so that the toy figures rapidly dance around the ballroom without substantial interruption of their

realistic dancing movements. This circuit making and breaking can be regulated to keep time with music so that the toy figures dance to the music.

A novel remote controlled dancing toy is provided which is simply constructed of inexpensive and durable components, to impart realistic movements to dancing toy figures. The toy is attractive in appearance and can be operated with little effort and no technical skill, so that it is ideally suitable for use by a child. The flexibility of control over the movements of the dancing figures and the simplicity of operation of the means by which the movements are effected and controlled are believed to represent a distinct improvement of the present dancing toy over conventional dancing toys.

The various parts of the dancing toy of the present invention may be constructed from conventional, commercially available materials utilizing components of standard size. Thus, the power source 37 may, for example, be two 1.5 volt direct current batteries arranged in series. Housing 9 and the internal components of the dancing toy, except the mirrors 23, arm 91, arms 113 and contacts 115, may be fabricated from any suitable material of sufficient rigidity and durability, such as plastic, castings, hardened rubber, thin steel or aluminum stampings or the like. The electrical wiring may be of any conventional type, such as plastic, cloth or rubber jacketed copper or aluminum bell wiring or other wiring of suitable gauge, depending on the voltage of the electrical system.

It should be noted that the dancing toy of the present invention can be constructed for operation with a single toy figure, as well as with one or more pairs of toy figures. In addition, the dancing toy of the present invention can be operated with a fixed or non-rotating platform instead of the rotating platform of the embodiment described. In this connection, the dancing toy need not be equipped with reflecting mirrors or a housing shaped to represent a ballroom floor. Various other modifications in the construction and design of the dancing toy of the present invention and its component parts as are within the skill of those versed in the art, are contemplated as being within the scope of the present invention.

Various features of the present invention which are believed to be new are set forth in the accompanying claims.

I claim:

1. A dancing toy comprising, in combination, a rotatable platform, at least one toy figure having a trunk section and freely swingable legs pivotally connected to the lower end thereof for movement around a plurality of axes, a freely rotatable vertical rod which fixedly supports said toy figure in an upright position above said platform and which extends down through said platform, and means for vertically reciprocating said rod between a first position wherein the feet of said toy figure rest on said platform and a second position wherein the feet of said toy figure are above said platform, said means including a solenoid, manually operable contact means for alternately energizing and de-energizing said solenoid, and responsive mechanical means, operated by said solenoid, which produce the reciprocation of said rod in timed response to the energization and de-energization of said solenoid by said contact means, and means for rotating said



platform in timed response to the reciprocation of said rod.

2. A dancing toy comprising, in combination, a rotatable platform, at least one joined pair of toy figures, said toy figures having a trunk section and each of said toy figures having a pair of freely swingable legs pivotally connected to the lower end of said trunk section for movement around a plurality of axes, the pair of legs of one of said toy figures being longer than the pair of legs of the other of said pair of toy figures, a freely rotatable vertical rod which fixedly supports said toy figures in an upright position above said platform and which extends down through said platform, and means for vertically reciprocating said rod between a first position wherein the feet of the longer of said pairs of legs rest on said platform and a second position wherein the feet of said pair of toy figures are above said platform, the reciprocation of said rod being effective for rotation of said pair of toy figures about its own axis, said means also including means effective for rotation of said platform in timed response to said reciprocation of said rod, said means including manually operable control means, and responsive means operated thereby which produce the reciprocation of said rod, with the accompanying rotation of said platform and said toy figures, in timed response to the manipulation of said control means.

3. A dancing toy comprising, in combination, a rotatable platform, at least one joined pair of toy figures, said toy figures having a trunk section and each of said toy figures having a pair of freely swingable legs pivotally connected to the lower end of said trunk section for movement around a plurality of axes, the pair of legs of one of said pair of toy figures being longer than the pair of legs of the other of said pair of toy figures, a freely rotatable vertical rod which fixedly supports said toy figures in an upright position above said platform and which extends down through said platform, and means for vertically reciprocating said rod between a first position wherein the feet of the longer of said pairs of legs rest on said platform and a second position wherein the feet of said pair of toy figures are above said platform, the reciprocation of said rod being effective for rotation of said pair of toy figures about its own axis, said means also including means effective for rotation of said platform in timed response to said reciprocation of said rod, said means including a solenoid, manually operable contact means for alternately energizing and de-energizing said solenoid, and responsive mechanical means, operated by said solenoid, which produce the reciprocation of said rod in timed response to the energizaion and de-engization of said solenoid by said contact means with the accompanying rotation of said platform and said toy figures.


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# CERTIFICATE OF CORRECTION

Patent No. 2,932,918 April 19, 1960

Charles Pearson, Jr.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 2, line 22, strike out ". Cylinder 29 has a decorative outer surface in" and insert instead -- may be provided with a series of mirrors 23 which --.

Signed and sealed this 11th day of October 1960.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents