

April 12, 1949.

B. C. KING

2,467,040

DANCING FIGURE TOY

Filed May 24, 1945

2 Sheets-Sheet 1

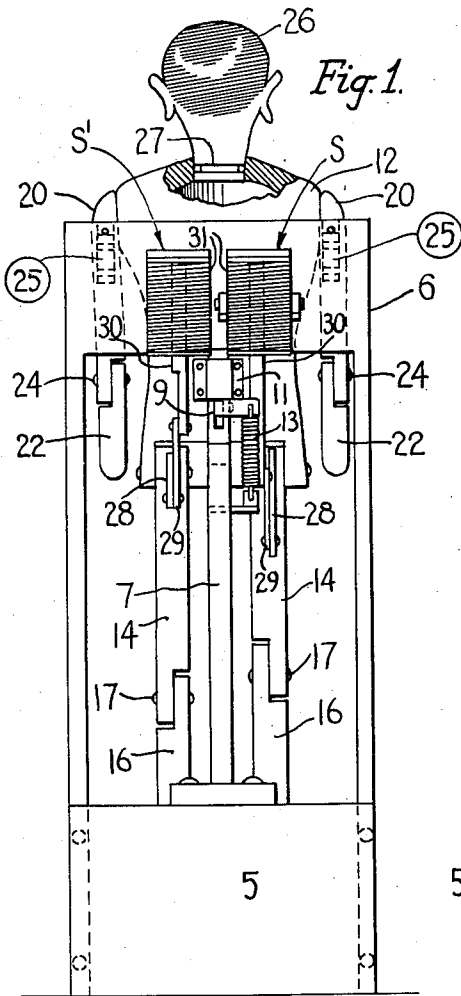


Fig. 1.

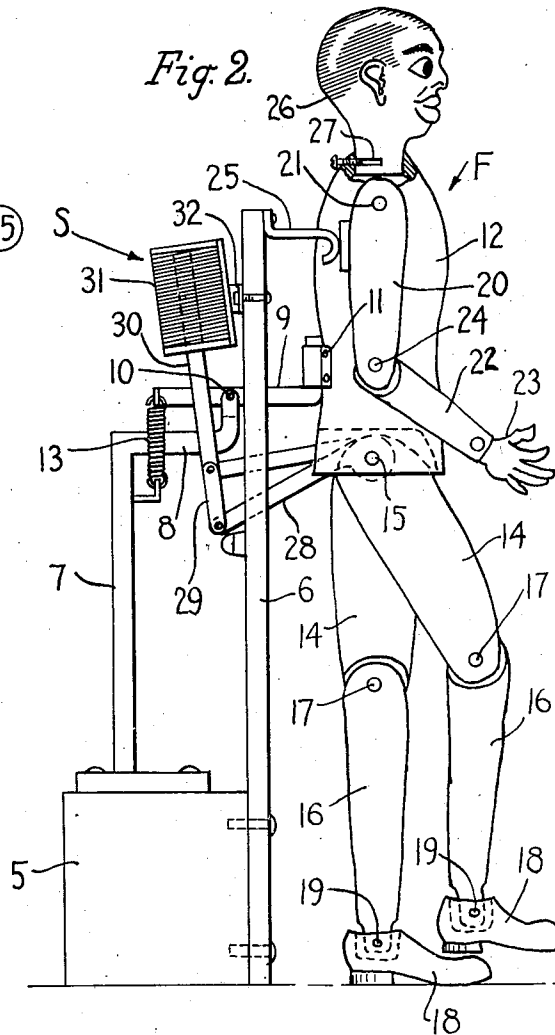


Fig. 2.

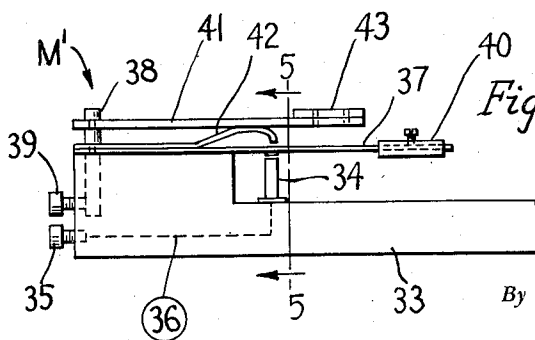


Fig. 3.

Inventor

Bert C. King

By *Alvanice A. O'Brien*
and *Harvey B. Jacobson*
Attorneys

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2 Sheets-Sheet 2

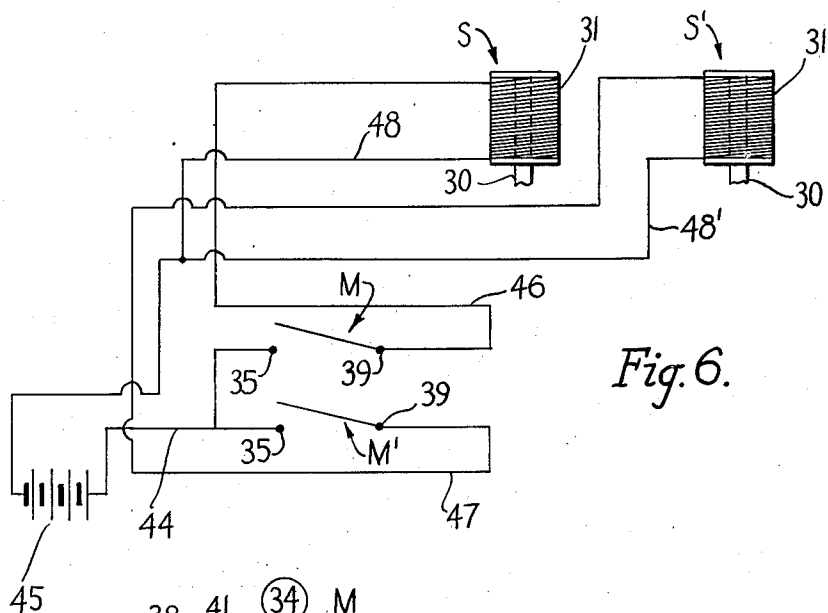


Fig. 6.

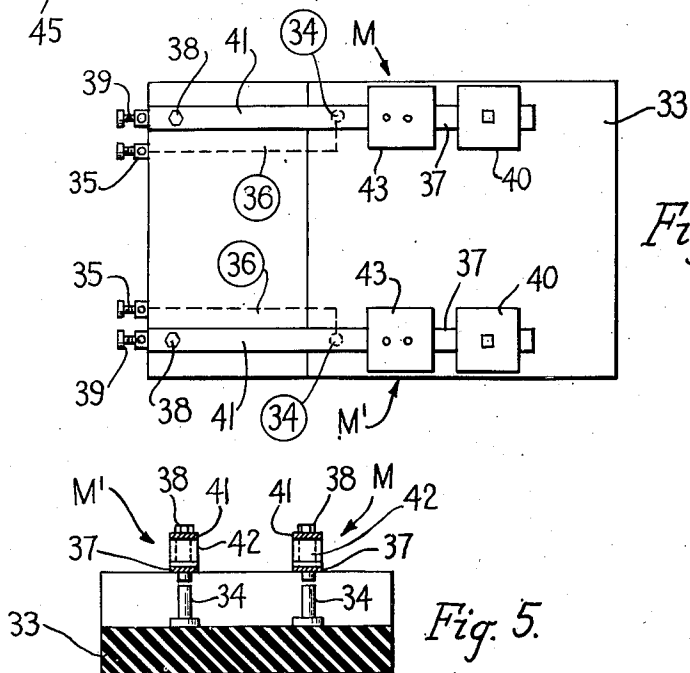


Fig. 4.

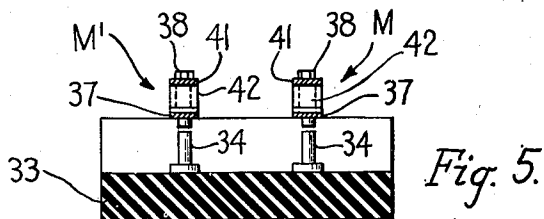


Fig. 5.

Inventor

Bert C. King.

By

Charles A. O'Brien
and Harvey B. Jacobson
Attorneys

UNITED STATES PATENT OFFICE

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DANCING FIGURE TOY

Bert C. King, San Francisco, Calif., assignor, by
mesne assignments, of one-third to Nathan B.
Williams, San Francisco, Calif.

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9 Claims. (Cl. 46—139)

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This invention relates to dancing figure toys, and the primary object of the invention is to provide a toy of this kind including a toy figure yieldingly mounted for vertical vibration and having jointed legs, and means for independently rapidly oscillating the upper segments of the jointed legs so as to cause tapping of the foot portions of the legs on the surface upon which the toy is placed and simultaneous vertical vibration of the figure to accentuate relative movement between the segments of the legs.

A further object of the present invention is to provide a toy of the above character embodying electro-magnetic means for oscillating the upper leg segments of the toy figure, and manually operable means for independently energizing said electro-magnetic means.

Still another object of the invention is to provide a toy of the above character in which the toy figure is vertically vibrated in an arcuate path, wherein the toy figure is provided with jointed arms, and wherein abutments are provided for the upper segments of the jointed arms whereby rapid movement of the arm segments is effected upon vibration of the toy figure.

A still further object of the present invention is to provide a toy of the above character in which the toy figure is provided with a swiveled head mounted for limited turning movement, whereby turning of the head from side to side is effected by the vertical vibration of the figure.

Yet another object of the present invention is to provide a toy of the above character in which manually operable normally open switches are provided for controlling energization of the electro-magnetic means, and wherein such switches are of a quick-action type and specially constructed to readily facilitate changing the length of time each electro-magnetic means is energized so that fast or slow tapping may be selectively produced for attaining a most realistic dancing operation.

Still another object of the invention is to provide a toy of the above kind which is comparatively simple and durable in construction, economical to manufacture, and easy to control.

The present invention consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings, wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a rear elevational view, partly broken away and in section, of a dancing figure toy constructed in accordance with the present invention.

Figure 2 is a side elevational view thereof.

Figure 3 is a side elevational view of the switch unit employed for controlling energization of the

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electro-magnetic means forming part of the toy shown in Figures 1 and 2.

Figure 4 is a top plan view of the unit shown in Figure 3.

Figure 5 is a vertical transverse section taken on line 5—5 of Figure 3.

Figure 6 is a wiring diagram showing how the electro-magnetic means and the switch unit are included in circuits with a source of current.

Referring in details to the drawings, the present toy includes a suitable base 5 having a wall or vertically elongated plate 6 rigid with and rising from the front thereof, said wall or plate 6 being preferably slotted or cut away for sake of lightness and economy of material and to permit passage of certain parts therethrough as later described. Rigid with and rising from the base 5 behind the wall or plate 6 is a post or standard 7 having a forwardly and upwardly projecting angular upper end portion 8. A lever 9 is pivoted intermediate its ends, as at 10, to the free end of the upper end portion 8 of upright 7, for vertical oscillation. The lever 9 projects forwardly through the slot of wall or plate 6 and has its forward end attached at 11 to the back of the body portion 12 of a toy figure F. The rear end of lever 9 is connected by a helical tension spring 13 with the upright 7 so that downward movement of the toy figure F is yieldingly resisted by said spring 13.

The toy figure F includes legs, each embodying an upper leg segment 14 pivoted at 15 to the body portion 12 for forward and rearward oscillation, and a lower leg segment 16 hingedly jointed to the upper leg segment 14, as at 17. A foot member 18 is provided on the lower end of each lower leg segment 16 and is preferably pivoted to the latter at 19 for limited tilting movement relative thereto about a horizontal axis or joint correlative thereto to the ankle joint of the human foot. The arrangement is such that when the legs are straightened, the foot members 18 will just touch a surface on which the base 5 is placed. The toy figure further includes arms embodying inner segments 20 hinged at 21 to the body portion 12 and forearm segments 22 provided with hands 23 and hingedly jointed to the inner arm segments, as at 24.

It will be noted that the toy figure is thus mounted for vertical vibration in an arcuate path about the pivot 10, such vibration being yieldingly resisted in one direction by the spring 13. Attached to and projecting forwardly from the upper portion of wall or plate 6 are abutments 25, one arranged directly behind the inner segment of each arm of the toy figure. The arrangement is such that upon upward movement of the toy figure during its vertical vibration, the abutments 25 will contact the inner arm segments 20 and accelerate swinging movement of the arms

of the figure as well as change in angular relation between the arm segments. This causes a realistic action of the toy figure as in the act of actually dancing. The toy figure still further includes a head 26 having a neck portion swiveled in the top of the body portion 12 for limited turning movement about a vertical axis. Thus, upon vertical vibration of the toy figure, the head 26 of the figure will turn from side to side to also realistically simulate an action which normally takes place in actual dancing.

Means is provided for independently rapidly oscillating the upper leg segments 14 so as to cause tapping of the foot portions 18 on the surface upon which the base 5 is placed and simultaneous vertical vibration of the figure due to straightening of the legs and engagement of the foot portions with said surface. Such a means is associated with the upper segment of each leg of the toy figure, and description of one of such means will suffice for both. An arm 28 is rigid with the pivoted upper end of each leg segment 14 and projects rearwardly therefrom through the wall or plate 6. The rear end of this arm 28 is connected by a link 29 with the core 30 of a solenoid that also includes a coil 31 in which the core is movable. The core 30 may be normally projected by gravity or spring means and is retracted or elevated by energization of the coil 31. Such coil 31 may be mounted by any suitable means rigidly upon the back of the upper portion of wall or plate 6, as at 32. Obviously, by alternately and intermittently energizing the coils 31, the leg segments 14 may be independently and rapidly oscillated to secure the tapping or dancing operation referred to above. The solenoid for actuating the right leg of the figure is indicated at S and that for actuating the left leg of the figure at S'.

A switch unit embodying two independent normally open circuit makers mounted upon a common base 33 is provided for independently energizing the coils 31 of the solenoids. As both circuit makers are of the same construction, description of one will suffice for both. As shown, the base 33 is formed of suitable insulating material and has a thin end portion on which is secured an upstanding contact 34 connected with a binding post 35 at the other end of the base by means of a conductor 36. The other thicker end of the base has one end of a flexible contact 37 secured thereon by means including an upstanding pin 38 embedded and secured in the base and electrically connected at its lower end with a second binding post 39. The contact 37 projects forwardly from the thicker end of the base 33 over and in spaced relation to the thinner end thereof and its intermediate portion overlies and coacts with the contact 34. Slidably adjustable on the free forward end portion of contact 37 is a weighted finger piece 40 that is used to depress the contact 37 into engagement with contact 34. Contact 37 is tensioned to normally spring upwardly out of engagement with contact 34, and by adjusting the finger piece 40 longitudinally of contact 37, its sensitivity and action may be varied to suit the user's requirements. A flexible key 41 is also mounted on the pin 38 in spaced relation to and above the contact 37, and downward flexing of this key may be yieldingly resisted by a leaf spring 42 mounted on the pin 38 and engaging the under side of said key 41. This leaf spring has a downturned free forward end adapted to be depressed into engagement with the contact 37 by the key 41 so as to in turn de-

press said contact 37 into engagement with contact 34. The free forward end of key 41 has a finger piece 43, and it will be noted that the key 41 is shorter than the contact 37 so that its finger piece 43 is located rearwardly of the finger piece 40 of contact 37. Thus either finger piece 40 or 43 may be depressed to effect the engagement of contact 37 with contact 34. When very rapid and instantaneous closing and opening of a circuit is desired, the finger piece 40 of the contact 37 is directly actuated. A slightly slower and more prolonged circuit-closing action may be effectively had by depressing the key finger piece 43 to in turn depress the contact 37 into engagement with contact 34. Thus, by selective use of the flexible contact direct and use of the contact-actuating key, the number and duration of circuit-closing and opening operations may be varied so as to provide for long or short tapping action of the feet of the figure toy, thereby making it possible to effect a dancing operation which is very realistic. The circuit maker for controlling the solenoid S is generally indicated at M and that for controlling the solenoid S' at M'. As it is intended to operate the switch unit from a point behind the toy with the operator facing the back of the toy and with the thin end of the switch unit nearest the operator, it will be apparent that the circuit maker M will be located at the right of the operator and the circuit maker M' will be located at the left of the operator to correspond with the respective positions of the solenoids S and S'. As shown in Figure 6, the binding posts 35 of the circuit makers are connected at 44 to one side of a battery or source of current 45. The binding post 39 of circuit maker M is connected at 46 to one side of the coil 31 of solenoid S, and the binding post 39 of the circuit maker M' is connected at 47 to one side of the coil 31 of solenoid S'. The other sides of the coils 31 of both solenoids are connected at 48 and 49 to the other side of battery or source of current 45. Thus, closing of circuit maker M will energize the coil 31 of solenoid S so as to attract and elevate its core 30 and actuate the right leg of the toy figure. On the other hand, closing of circuit maker M' will cause energization of the coil 31 of solenoid S' so as to attract and raise its core 30 for actuation of the left leg of the toy figure. As soon as the flexible contact, or key of either circuit maker is released, the circuit of the associated solenoid will be broken, and it will therefore be evident that rapid vibration of the legs of the toy figure may be readily effected to produce short or long taps and thereby realistically simulate a tap dancing operation.

From the foregoing description, it is believed that the construction and operation, as well as the advantages of the present invention, will be readily understood and appreciated by those skilled in the art. Minor changes may be made in details of construction illustrated and described, such as fairly fall within the spirit and scope of the invention as claimed.

What I claim is:

1. A dancing figure toy including a toy figure, said toy figure including a body portion having jointed legs, said legs embodying upper leg segments pivoted to the body portion for forward and rearward swinging movement and lower leg segments pivoted to said upper leg segments for forward and rearward swinging movement, said lower leg segments having foot portions engageable with a supporting surface on which the toy is placed, means yieldingly mounting said body

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portion for vertical vibration, electro-magnetic means for independently rapidly oscillating said upper leg segments so as to cause tapping of the foot portions on said surface and simultaneous vertical vibration of the figure, and means including key-type quick-action normally open switches for independently energizing said electro-magnetic means.

2. The construction defined in claim 1, wherein the upper segment of each leg is provided with a rigid rearwardly projecting arm, and wherein each electromagnetic means includes a solenoid having a core operatively connected to said arm.

3. The construction defined in claim 1, wherein the toy includes a base provided with a standard, and wherein the means for yieldingly mounting the toy figure includes a lever pivoted intermediate its ends to the standard for vertical oscillation, one end of said lever being attached to the body of the figure, and a helical tension spring connecting the other end of said lever with said standard so as to yieldingly resist downward movement of the figure.

4. A dancing figure toy comprising a toy figure having a body portion yieldingly mounted for vertical vibration in an arcuate path, said toy figure having jointed arms and jointed legs, said legs including upper leg segments pivoted to the body portion for forward and rearward movement and lower leg segments pivoted to said upper segments for forward and rearward swinging movement, said lower leg segments having foot portions engageable with a supporting surface on which the toy is placed, electro-magnetic means for independently rapidly oscillating said upper leg segments so as to cause tapping of the foot portions on said surface and simultaneous vertical vibration of the figure, means including key-type quick-action normally open switches for independently energizing said electro-magnetic means, and a supporting base having an upstanding plate provided with forwardly projecting abutments respectively arranged behind and engageable with the inner segments of the jointed arms of the figure upon upward movement of the latter during vibration, whereby to effect movement of the arms and relative movement of the segments of the arms.

5. The construction defined in claim 1, wherein said manually operable means includes a flexible contact operable for closing the circuit of each solenoid and a supplemental flexible key for actuation of the flexible contact.

6. A dancing figure toy including a toy figure having a body portion, means yieldingly mounting said body portion for vertical vibration, said toy figure having jointed arms and jointed legs, said

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jointed legs embodying upper leg segments pivoted to the body portion for forward and rearward movement and lower leg segments pivoted to said upper leg segments for forward and rearward swinging movement, said lower leg segments having foot portions engageable with a supporting surface on which the toy is placed, electro-magnetic means for independently rapidly oscillating said upper leg segments so as to cause tapping of the foot portions on said surface and simultaneous vertical vibration of the figure, and a key-type quick-action normally open switch for controlling the circuit of each electro-magnetic means.

7. A dancing figure toy including a toy figure including a body portion having a swivelled head mounted for limited turning movement, means yieldingly mounting said body portion for vertical vibration in an arcuate path, said toy figure further having jointed arms and jointed legs, said legs embodying upper leg segments pivoted to said body portion for forward and rearward swinging movement and lower leg segments pivoted to said upper leg segments for forward and rearward swinging movement, said lower leg segments having foot portions engageable with a supporting surface on which the toy is placed, electro-magnetic means for independently rapidly oscillating said upper leg segments so as to cause tapping of the foot portions on said surface and simultaneous vertical vibration of the figure, and a key-type quick-action normally open switch for controlling the circuit of each electro magnetic means.

8. The construction defined in claim 6, in combination with abutments respectively arranged behind and engageable with the inner segments of the jointed arms of the figure upon upward movement of the latter during vibration.

9. The construction defined in claim 7, in combination with abutments respectively arranged behind and engageable with the inner segments of the jointed arms of the figure upon upward movement of the latter during vibration.

BERT C. KING.

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