

No. 862,625.

PATENTED AUG. 6, 1907.

T. V. FIELD.  
MECHANICAL TOY.  
APPLICATION FILED FEB. 28, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

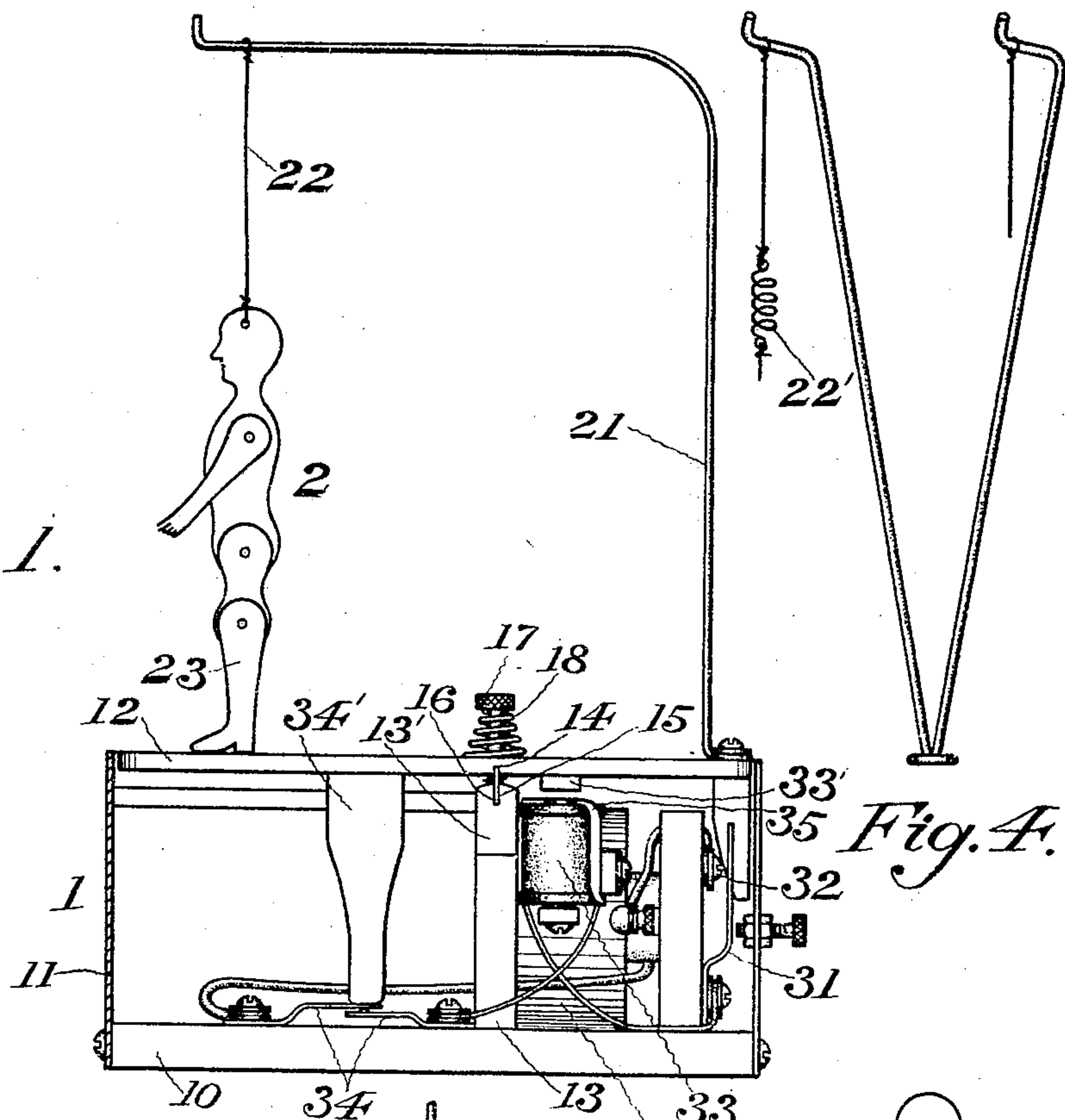


Fig. 4.

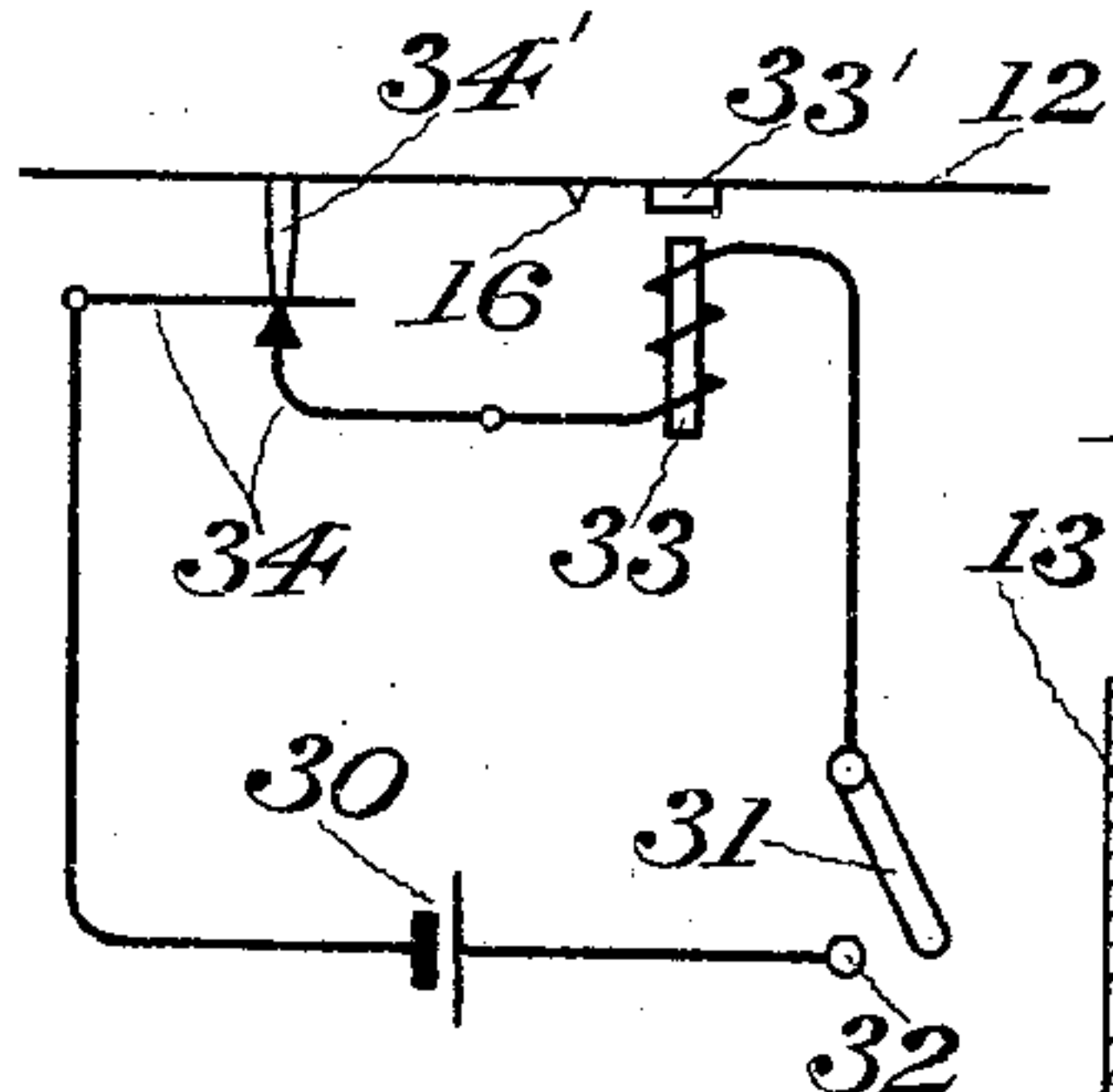


Fig. 3.

Fig. 2.

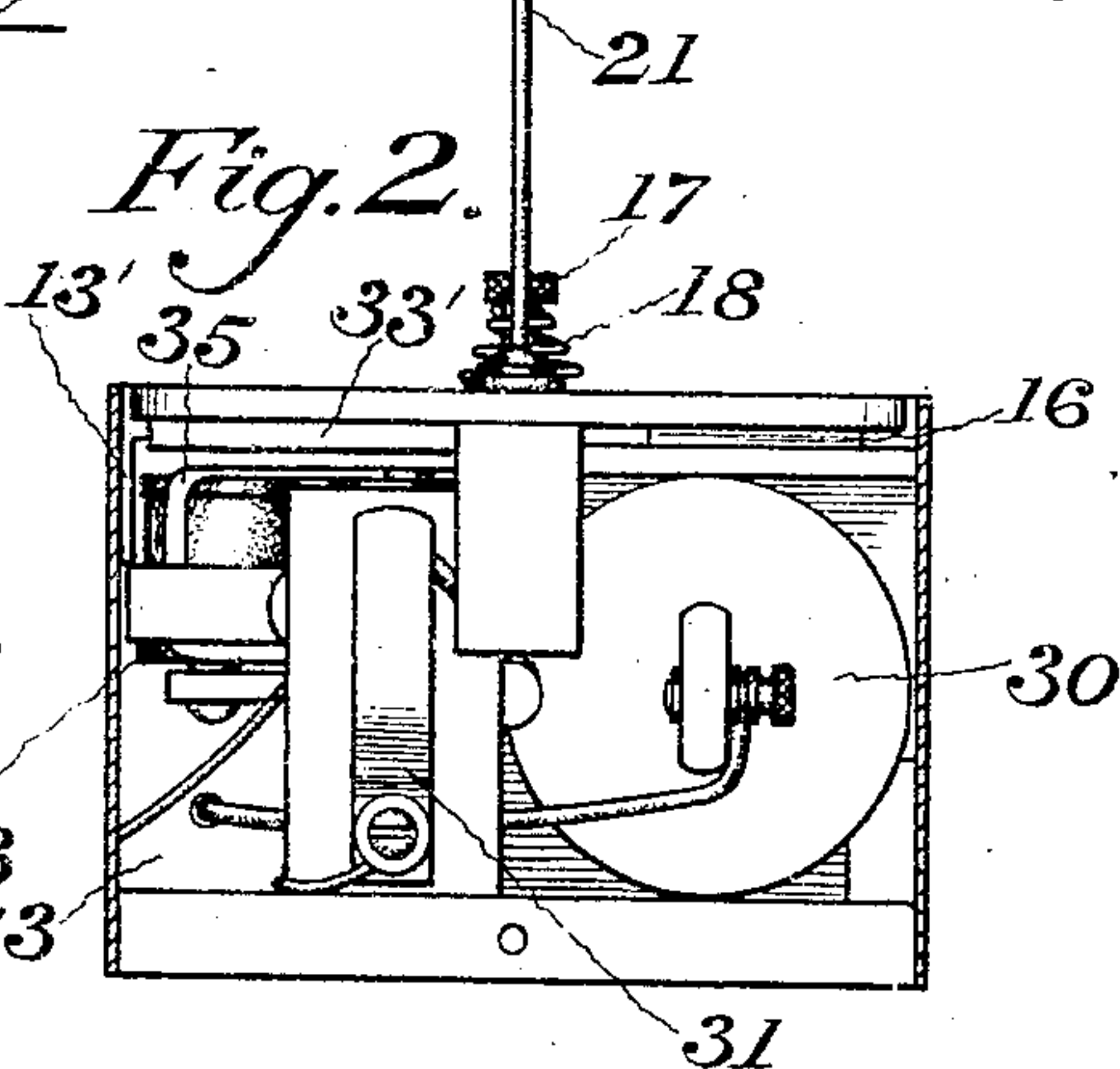


Fig. 5.

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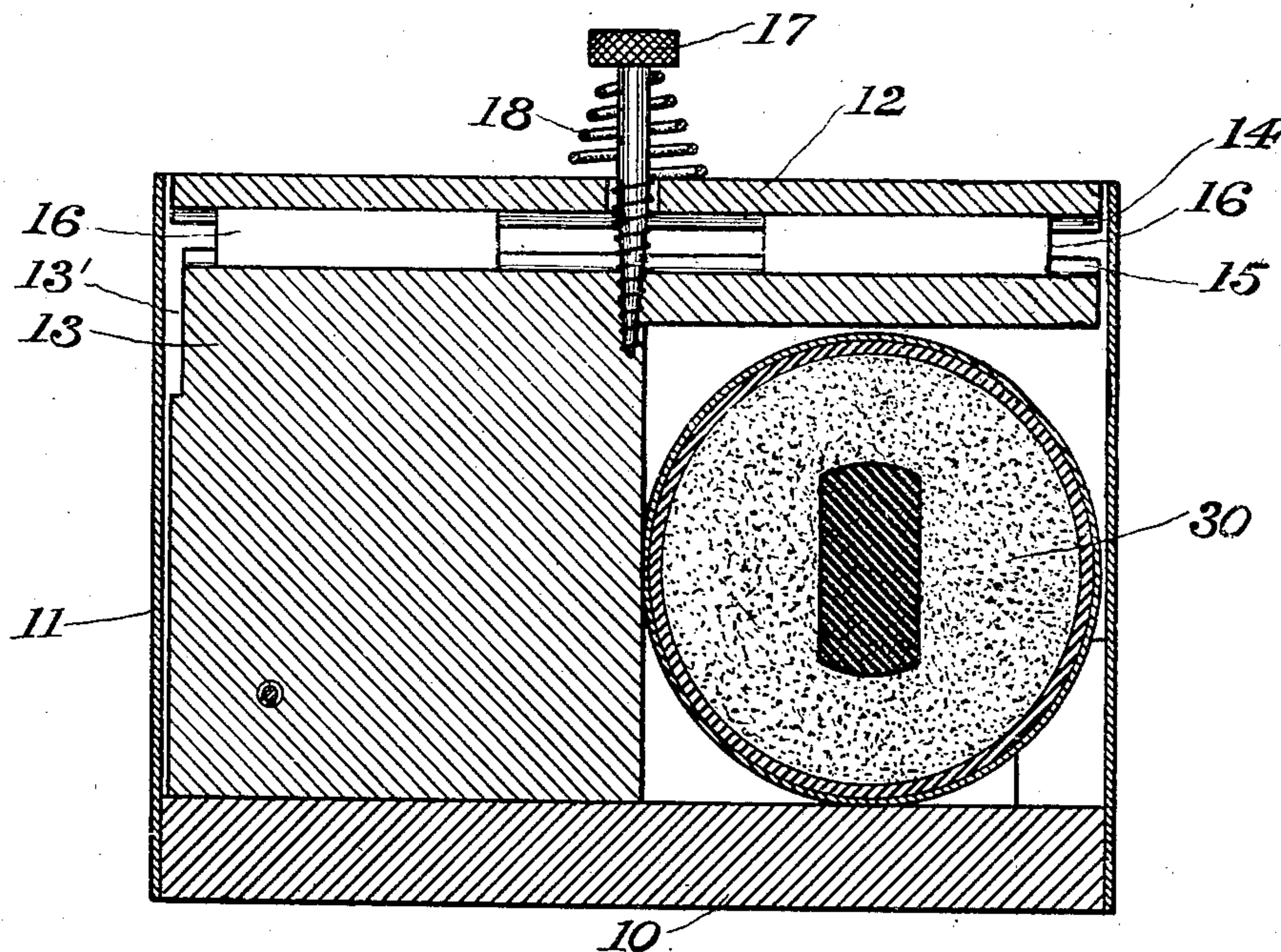
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2 SHEETS—SHEET 2.

*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## MECHANICAL TOY.

No. 862,625.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed February 28, 1907. Serial No. 359,712.

*To all whom it may concern:*

Be it known that I, THOMAS V. FIELD, a citizen of the United States of America, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a new and useful Improvement in a Mechanical Toy, of which the following is a specification.

My invention pertains to mechanical toys and has as its object the production of an acting figure simulating a dancer, boxer or other desired subject, and caused to maintain an entertaining motion continuously when desired.

More specifically, I provide a vibrating platform, a vibrating elastic support for a manikin or for a plurality of them, the intention being to secure a desirable irregularity or eccentricity of action on the part of the manikin in response to a continued uniform vibration of its platform and supports. I then provide simple electrical means for vibrating the device. In the specific type chosen for description herein as illustrative of my invention, I embody desirable features in the simplicity of mechanical construction and in provision for the advantageous packing of the parts of the apparatus.

My invention is illustrated in the accompanying drawings, in which

Figure 1 represents an elevation of the type of my invention chosen for illustration, with the side of the box toward the observer removed to reveal the contained mechanism. Fig. 2 shows a similar end view. Fig. 3 shows the electrical circuit of the device. Fig. 4 shows a multiple support providing for a plurality of acting figures. Fig. 5 shows a detail of the acting figure. Fig. 6 shows a section taken at right angles to Fig. 1, through the screw 17 and support 13.

Referring to Fig. 1, the device chosen for illustration consists of the box 1, having a bottom board 10, and a surrounding wall 11. The cover of this box is the platform 12, and is not attached to the wall of the box. Rigidly mounted within the box is a part 13, rising nearly to the level of the lower surface of the platform 12 the part 13 forming a support for the platform 12 and serving also as a partition in the box 1. The platform 12 is hinged upon the support 13 by a knife-edge hinge. A saw cut at 14 is made in the under surface of the platform, a saw cut at 15 is made in the top of the support 13, and two flat hinge plates 16 of sheet metal are placed in the saw cut at 15, the platform 12 then being placed in position with the hinge plates 16 entering the saw cut at 14, so that the platform 12 may rock upon the hinge plates 16. The hinge plates are two in number, so that a space is left between them for a tension screw 17, clamping the tension spring 18. The tension screw 17 passes with ample clearance through a hole in the platform 12 and takes its threads in the support 13. Under

the head of the tension screw 17 is the tension spring 18, which presses upon the upper surface of the platform 12. Upon the vibrating platform, 12, is properly supported the acting figure, 2. The means of support are the post or standard, 21, and the suspension member, 22. The standard, 21, is shown as a formed wire, the wire being of sufficient rigidity to support the figure through its suspension, 22, but having essentially a considerable elasticity; further the elasticity of the standard, 21, will be manifest in a periodic vibration.

The suspension, 22, is shown in Fig. 1 as a simple string which may be conceived to be elastic or non-elastic, depending upon the material from which it is made. In Fig. 4 a spiral spring, 22', is shown as a portion of the suspension, thus definitely providing for an elastic suspension if desired. In the provision of an elastic suspension as shown at 22' a further element giving periodic vibrations is embodied in the device.

The manikin, 2, consists of any desired combination of parts going to make up a figure. It is desirable that the figure be a jointed one, and it is shown as a representation of a human figure with arms pivoted at the shoulders and with legs pivoted at hip and knee. The evident latitude possible in the substitution of types of figures and in the mechanical construction of the figures of any type gives a wide range to the possibilities of my device in this detail.

Further variation in the construction of the device is provided by the modification shown in Fig. 4 as a plurality of figures, may be mounted upon the same platform and will all act in response to the vibration of the platform and supports.

In Fig. 5 a detail of the manikin of Fig. 1 is shown. The part, 23, is that part of the dancing or acting figure which makes contact with the vibrating platform, 12. At 24 a resilient cushion is shown. This resilient cushion enhances the activity of the limbs of the dancing figure in response to the repeated blows of the vibrating platform.

In the box, 1, under the platform, 12, is provided means for vibrating the platform, 12, and the divers parts mounted upon that platform. This means may be of any desired type, but perforce must consist of a source of power, and a device whereby that power may be allowed to expend itself in the vibration of the oscillating platform, 12. According to general laws of physics, the platform 12 will have a speed of vibration which is variable by change in mass of the vibrating part, by change in center of gravity of the vibrating part or by change in any tension placed upon or existing in the vibrating part.

Manifestly any adjustable feature whereby a variation in the frequency of the vibration of the part 12 will be effected falls within the scope of my invention.



Deferring for a moment the description of the motor mechanism for vibrating the platform, 12, the general operation of the toy will be described.

The platform, 12, is caused to vibrate and imparts motion to the acting figure, 2, through two means of transmission; first, by tapping the feet of the manikin or the contact elements of the acting figure corresponding to the limbs in the drawing; second, by a vibration of the suspension. In response to the energy thus transmitted, the figure dances and disports itself irregularly.

A vibrating element exists in the part 22 or 22', whereby the vertical vibration of the figure 2 is to some extent controlled; a vibrating element exists in the part 21, whereby not only a vertical but a combined vertical and horizontal motion of the point of support of the suspension 22, and therefore of the point of support of the acting figure 2, is attained; a vibrating element is provided in the platform 12, this element being furnished with an adjusting means whereby its speed of vibration may be varied within limits at will.

If in the adjustment of the device in manufacture, the frequency of the vibrations of the part 22 approximates the frequency of the vibrations of the part 21, then the coincidence of the nodes of those vibrations will produce violent motion in the acting figure 2, whereas if the two vibrating frequencies be indefinitely related, the motion of the acting figure 2 will be more nearly continuously uniform. It will be seen thus that the relation of the vibrating functions of the elastic parts 21-22 is a decided feature in my invention.

I now pass to a description of the apparatus for vibrating the platform, 12. I have described this in general terms as a source of energy with means for converting the energy of that source into vibratory motion of the platform, 12, and it is my desire to have my claims interpreted in the view of the widest scope of these words. An electric battery may form the source of energy and a magnetic vibrating device, included in circuit with the battery, may produce the movement of the platform, 12. An electrical dry cell, 30, is connected in series with a master switch, 31-32, an electro-magnet, 33, and a vibrator contact, 34. A soft iron armature, 33', for the electro-magnet 33 is attached to the platform, 12, and a projection, 34', is attached to the platform, 12, to control the vibrator contact, 34. The operation of this mechanism is as follows:—A switch, 31-32, is closed to start the device and energization of electro-magnet, 33, follows, which draws down armature, 33', thus swinging the platform upon its hinge at 16 and lifting the projection, 34', which permits the breaking of the vibrator contact, 34; by the breaking of the vibrator contact, 34, the magnet, 33, is deenergized and the platform, 12, returns to its original position, the projection 34' being thus moved back to its first position where it again closes the contact 34 and thus the cycle is repeated indefinitely. The action of the device is stopped by opening the switch, 31-32, and the speed of vibration is varied by the device 17-18 as hereinbefore set forth.

To reduce or eliminate the noise of vibration, resilient cushions are provided for the platform, 12. On

the one hand, the springs of the vibrator contact, 34, form a resilient stop for the platform, 12, and on the other hand, a rubber band, 35, is placed upon the electro-magnet, 33, to receive the blow of the armature, 33'.

The support 13 taken with the sides of the box serves to form a compartment containing the vibrator switch 34 and adapted to contain also the figure 2 when not in use. At 13' the support 13 does not extend into engagement with the side of the box, but allows a clearance space whereby the support 21 when not in use may be stored within the box, lying partly within the compartment containing the vibrator contact 34 and extending past the support 13 at the point 13'. It is of course necessary to remove the platform 12, that part being replaced then as a cover to the box. The parts 17 and 18 also may be packed within the box in the space described.

I do not wish to limit my invention in all respects to the exact details herein shown and described.

What I claim as new and desire to secure by United States Letters Patent is:

1. In a mechanical toy; a vibrating platform; a support upon said platform; suspension means on said support; and an acting figure on said suspension means, substantially as described. 90
2. In a mechanical toy; a vibrating platform; an elastic support upon said platform; suspension means on said support; and an acting figure on said suspension means, substantially as described. 95
3. In a mechanical toy; a vibrating platform; a support upon said platform; elastic suspension means on said support; and an acting figure on said suspension means, substantially as described.
4. In a mechanical toy; a vibrating platform; a support upon said platform; suspension means on said support; and an acting figure on said suspension means and resting in contact with said platform, substantially as described. 100
5. In a mechanical toy; a vibrating platform; an elastic support upon said platform; suspension means on said support; and an acting figure on said suspension means and resting in contact with said platform, substantially as described. 105
6. In a mechanical toy; a vibrating platform; an elastic support mounted upon said platform; and an acting figure upon said support, substantially as described. 110
7. In a mechanical toy; a vibrating platform; a support mounted upon said vibrating platform; an acting figure upon said support and resting in contact with said vibrating platform, substantially as described. 115
8. In a mechanical toy, a vibrating platform a support upon said platform; an acting figure mounted upon said support and acting in response to the vibrations of said platform; and electromagnetic means for vibrating said platform, substantially as described. 120
9. In a mechanical toy; a vibrating platform a support upon said platform; an acting figure suspended from said support and resting in contact with said vibrating platform; and electromagnetic means for vibrating said platform, substantially as described. 125
10. In a mechanical toy; a box having a vibrating platform as the top thereof; an acting figure supported by means mounted upon said vibrating platform and adapted to operate in response to the vibration of said platform; and electromagnetic means for vibrating said platform, substantially as described. 130
11. In a mechanical toy; a vibrating platform a toy figure upon said platform; an electromagnetic armature mounted upon the under surface of said platform; an electro-magnet mounted in position to attract said armature; an electric vibrator contact controlled by said vibrating platform; a battery; and a circuit including said battery, said electro-magnet and said vibrator contact 135



whereby said platform is vibrated, substantially as described.

12. In a mechanical toy, a box having a vibrating platform as the top thereof; a support and knife-edge hinge  
5 for said vibrating platform; an electromagnetic armature mounted upon the under surface of said platform; an electro-magnet mounted in position to attract said armature; an electric vibrator contact controlled by said vibrating platform; a battery; and a circuit including said  
10 battery, said electro-magnet and said vibrator contact whereby said platform is vibrated, substantially as described.

13. In a mechanical toy, a box having a vibrating platform as the top thereof; a support and knife-edge hinge  
15 for said vibrating platform; an electromagnetic armature mounted upon the under surface of said platform; an electro-magnet mounted in position to attract said armature; an electric vibrator contact controlled by said vibrating platform; a battery; and a circuit including said  
20 battery, said electro-magnet and said vibrator contact whereby said platform is vibrated, said battery, electro-magnet and vibrator contact being contained within said box, substantially as described.

14. In a mechanical toy, a box having a vibrating platform as the top thereof; a support and knife-edge hinge  
25 for said vibrating platform; an electromagnetic armature

mounted upon the under surface of said platform; an electro-magnet mounted in position to attract said armature; an electric vibrator contact controlled by said vibrating platform; a battery; a controlling switch; and a  
30 circuit including said controlling switch, said battery, said electro-magnet and said vibrator contact, whereby said platform is vibrated, substantially as described.

15. In a mechanical toy; a box having a vibrating platform as the top thereof; a support and knife-edge hinge  
35 for said vibrating platform; an electromagnetic armature mounted upon the under surface of said platform; an electro-magnet mounted in position to attract said armature; an electric vibrator contact controlled by said vibrating platform; a battery; a switch; and a circuit including said switch, said battery and said electro-magnet  
40 and said vibrator contact, whereby said platform is vibrated; said battery, electromagnet and vibrator contact being mounted within said box and concealed by said vibrating platform and said switch being controlled by  
45 means external to the box, substantially as described.

Signed by me at Indianapolis, county of Marion, and State of Indiana in the presence of two witnesses.

THOMAS V. FIELD.

Witnesses:

T. P. SYLVAN,  
M. E. JAYNES.