

# PATENT SPECIFICATION

662,700



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## COMPLETE SPECIFICATION

### Improvements in or relating to Mechanical Toys

I, ERNST VOELK, of German nationality, personally responsible partner of the firm of JOHANN DISTLER K.G., of Leonhardstrasse 5, Nürnberg, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

This invention relates to a mechanical figure toy, provided with members operated by spring driven mechanism, the performance of which toy is to create a mechanical figure imitating an amusing effect thus providing a surprising attraction.

According to the present invention the figure toy comprises a mechanical toy figure with head, body and leg members operated by spring driven mechanism, characterised by the feature that both the head member and the leg member can slide into and out of the body member.

With this in view the figure may appear to grow more and more on the one hand, whilst on the other hand it may get shorter and shorter. Thereby will be obtained extremely amusing impressions which in the case of a clown will be based on the fact that by emulating a "stretching effect" it provides a threatening or merry appearance, or to show in immediate continuation the anxious or shy clown as it "crouches down". This effect is emphasised by the grotesque shape and painting of the figure casing, if necessary.

In further development of the invention also other "body members" as, for example, the eyes, tongue, arms, may be movable in dependence upon the movement of the casing parts, so that, for example, the stretched figure looks with delightfully open eyes, whilst the crouched down figure keeps the eyes closed. Similar additional effects can be obtained by moving other body members.

The toy is made in such a manner that a spring driving mechanism located in the body casing part operates by means of a cam member on a stop of the leg casing part. Further, a stop of the head and neck casing

part may be operated by means of the cam member. Preferably, the same cam member formed as a double armed lever is used for displacement of the leg casing, as well as for the displacement of the head and neck casing. Each stop against which the cam member acts preferably is formed of an extension projecting towards the body casing and arranged on the leg and neck casing parts.

Preferably, guiding members are provided to guide the casing parts when sliding relative to each other.

If the eyes are used as additional movable body members, a plate movable up and down may be situated behind the holes representing the eye sockets. This plate is provided on its lower part with a representation of open eyes and on its upper part with closed eyes. This eye plate can be located on the front arm of a rocking lever, whilst the rear arm slides by means of a feeler finger on an upwardly projecting guide member of the body casing or the spring driven mechanism respectively. In order to drive or regulate the rocking lever in one tilting direction it is preferably loaded by a counterweight or a spring for the movement in the opposite direction.

The amusing effect of the figure may be increased so that the figure moves also on its base stand, for example, so that it rotates about its own axis. In accordance with the invention this is obtainable, although the figure will not be equipped with running members, but has a rigid bottom plate adjacent the casing. The movement of the toy on its base stand is obtained by the vibration which is induced by the spring mechanism driving a control shaft arranged vertically and provided with a heavy eccentrically operated governor. Thus intermittent impacts are transmitted to the casing by the eccentrically operated governor resulting in a gradual lateral movement and subsequent rotation of the casing. Thereby impressions will be obtained of the stretching

and crouching of the figure.

The present invention is shown in the accompanying drawings by way of example, in which:

5 Figure 1 is a front elevation of a toy clown in stretched position,

Figure 2 is a front elevation of the toy in crouched position,

10 Figure 3 is a longitudinal section of the toy in the stretched position and seen in front elevation,

Figure 4 is a longitudinal section of the toy in the stretched position and seen in side elevation,

15 Figure 5 is a longitudinal section of the toy in the stretched position and seen from the rear side,

Figure 6 is a longitudinal section of the toy in the crouched position and seen from 20 the rear side, and

Figure 7 is a cross section taken on the line A-B of Figure 4.

The example of a clown includes a casing which consists of three parts 1, 2 and 3. The 25 casing part 1 has the shape of the body and the arms dressed with a smock like a clown. The casing part 2 represents the legs provided with trousers. The casing part 3 of the casing shows the shape of a human head and 30 neck like a clown. As may be seen in the drawing the several casing parts are arranged in such a manner that they show the grotesque appearance of a clown in a manner true to nature. This is intended especially 35 with regard to the face of the clown.

Inside the body casing part 1 there is located a spring driving mechanism, the spring 4 of which turns by means of a socket shaft 5 a gear 6 mounted on said shaft. 40 Said gear drives a pinion 7 located on the shaft 8 carrying a gear 9. The latter engages with a pinion 10 of a shaft 11 on which gear 12 is mounted to turn a pinion 13 of a shaft 14. On said shaft a crown gear 15 is situated 45 so as to engage with pinion 17 revolving a governor shaft 16. Below the governor shaft there is a governor 18 which is designed as an eccentric balance weight having the outline of a segment.

50 The mounting of the spring driving mechanism on the body casing part is made by means of extensions 19, which are bent over a rear plate 20 of the spring mechanism and secured by means of bent pins 21 on the 55 body casing. On the front plate 22 of the spring mechanism there are brackets 23, 24, the horizontal parts of which are formed as loops through which guiding rods 25 pass. The latter are fixed in the leg casing part on 60 a bottom plate 26 by means of an angle mounting member 27, preferably by soldering. The guiding rods 25 are provided with a button-like limiting member 28 on their upper ends,

The head and neck casing part is mounted 65 on a horizontal plate 29 which is connected with sliding member 30 serving as a guide for the head casing when being moved up and down. The sliding member slides on the rear plate 20 of the spring mechanism. It 70 is provided with a slot 31 through which the shaft 5 of the spring mechanism passes. Further, longitudinal slot 32 is provided through which the mounting extensions 19 project. By this arrangement the sliding 75 member 30 will be guided in its movement up and down. Also bent clamps 33 arranged on the rear plate 20 help to facilitate the guiding, being directed towards the sliding member 30 as shown. 80

At the top of the spring mechanism a directing blade 35 is fixed by means of a strip 34. A feeler finger 36 reposes movably on this blade and is bent on one arm 37 of a 85 double armed rocking lever adapted to turn about a shaft 38, which is turnable in suitable recesses 39 of the head casing.

On the other end of the rocking lever a plate 41 is mounted which is provided on the lower part with the eyes 42. Above these 90 "eyes" there are illustrations of closed eyelids. It may be sufficient to paint a flesh coloured strip above the eyes. The rocking lever 40 will be loaded by a weight 43. The eyes are situated in the position of the 95 rocking lever shown in Figure 4 behind holes 44 of the head casing. These holes indicate the sockets of the eyes. If the rocking lever is tilted towards the direction of the arrow x the eyelids or the flesh coloured strip re- 100 spectively will take the position behind the holes such as indicating the impression of closed eyes in accordance with Figure 2.

When the spring driving mechanism is operated after the spring is wound up by 105 means of the socket shaft 5 and suitable key, a cam member 45 mounted on the shaft 8 will be rotated, this cam member being formed as a double armed cam in the example of execution. The one end 46 acts 110 against a stop ledge 47 which is fixed on the extension of the leg casing part 2. Further, it bears by means of its other end 49 against a cross ledge 50 which is located below the extension of the neck casing part formed as 115 the sliding member 30. Subsequently the leg casing part will be pressed down and the head casing part pressed towards the top until the cam takes the position according to Figures 3, 4 and 5. As, however, the figure 120 is standing by its bottom plate 26 upon the ground, the body casing part will be lifted and the head casing part pushed from the body casing part, thereby giving the impression of growing. Such appearance will 125 be effective especially clearly, because the growing takes place at two points of the figure. In reverse order the parts sink into

each other when the cam continues to rotate until it takes the position according to Figure 6. The body casing part will be lowered down and is pushed over the leg casing part. At the same time the head part is lowered into the body casing part. The growing more and less of the figure will be repeated as long as the spring mechanism is operative.

10 When the head casing part is lowered downwards into the body casing, the feeler finger 36 on the directing blade 35 acts in such a manner that the rocking lever arm 37 will be lifted and the rocking member 15 tilted towards the direction of the arrow x so that the eye plate 41 will be moved downwards. Thereby the eyes 42 will be displaced, while the eyelids or the coloured strip substituting the latter respectively take the 20 position behind the eye sockets 44. The toy, therefore, closes the eyes when the head is lowered. On its stretching movement the eyes open, as the pressure between the feeler finger 36 and the directing blade 35 ceases 25 and the weight 43 moves the rocking member in the opposite direction of the arrow x.

Whilst these operations are made the shaft 16 rotates with the governor 18. Due to the eccentricity of the latter the figure vibrates 30 on its base plate and rotates about its own axis.

The invention will not be limited to the described and illustrated examples. Within the limits of the invention there are possible 35 many modifications. Alternatives are obtainable, for instance, by providing the cam member 45 with curves. Further, besides the eyes other body members may be moved additionally, for example, in such a manner 40 that the figure puts out and pulls in its tongue, or that the clown figure shakes its ears, or that it raises the arms during growing and drops the same during the lowering actions, etc. No especial driving mechanism 45 for the limbs being moved additionally is necessary except, for example, a rocking lever with a sliding finger. Also, the driving may be operated by the cam member.

In particular the invention will not be 50 limited to a clown or any other joke figure, as other human and animal figures may be equipped with the features of the invention. Thus the invention may be used for an animal crouching down or bobbing up alternately (dog, cat, and the like) wherein as 55 additional moved limbs of the body the jaw may be operated to open or close the mouth. Also especially the animal figures may be provided with an acoustic member, for 60 example, a squeaking voice device to be operated in accordance with the displacement of the casing parts.

HAVING NOW particularly described and ascertained the nature of my said invention

and in what manner the same is to be per- 65 formed, I declare that what I claim is:—

1. A mechanical toy figure with head, body and leg members operated by spring driven mechanism, characterised by the feature that both the head member and the leg member 70 can slide into and out of the body member.

2. A mechanical toy as claimed in Claim 1, characterised by the feature that a casing part representing the body is slidable in relation to parts of the casing representing 75 the legs and the head and neck.

3. A mechanical toy as claimed in Claims 1 and 2, characterised by its eyes, tongue, arms are arranged to be movable in dependence upon the displacement of the casing 80 parts.

4. A mechanical toy as claimed in Claims 1 and 2, characterised by the feature that the spring driven mechanism is arranged within the body casing part, and operates on 85 a stop ledge of the leg casing part by means of a cam.

5. A mechanical toy as claimed in Claim 4, characterised by the feature that an angled upper ledge of an extension of the leg casing 90 part is arranged to serve as the stop.

6. A mechanical toy as claimed in Claims 1, 2 and 5, characterised by the feature that the body casing part is guided during its displacement by means of rod-shaped mem- 95 bers of the leg casing part, on which loops of the spring mechanism slide longitudinally.

7. A mechanical toy as claimed in Claims 1 and 2, characterised by the feature that the spring driving mechanism is mounted 100 within the body casing part, and operates on a stop of the head and neck casing part by means of a cam.

8. A mechanical toy as claimed in Claim 7, characterised by the feature that an angled 105 lower ledge of an extension of the neck casing part is arranged to serve as a stop.

9. A mechanical toy as claimed in Claims 7 and 8, characterised by the feature that the extension of the neck casing part is 110 formed as a sliding member guided on a plate of the spring mechanism.

10. A mechanical toy as claimed in Claim 3, characterised by the feature that a plate is arranged to be movable behind holes repre- 115 senting eye sockets of the head casing part, whilst the plate is provided on the lower part with representations of the eyes and on the upper part with representations of the eyelids or with a coloured strip replacing the 120 latter.

11. A mechanical toy as claimed in Claims 3 and 10, characterised by the feature that the eye plate is arranged on the front arm of a rocking lever, there being a feeler finger 125 attached to the rear arm of said lever sliding upon a directing blade projecting upwards of the body casing part or the spring mechanism.

12. A mechanical toy as claimed in Claim 11, characterised by the feature that the feeler finger of the rocking lever is loaded by a weight or by a spring.
- 5 13. A mechanical toy as claimed in Claims 1 to 12 characterised by the feature that the toy is provided with a rigid base plate and is moved on its base plate by vibrations.
- 10 14. A mechanical toy as claimed in Claim 13, characterised by the feature that the spring mechanism is provided with a vertical governor shaft, which is equipped with a heavily eccentrically disposed governor.
15. A mechanical toy as claimed in Claims 1 to 14, substantially as described with reference to the accompanying drawings.

Dated this 29th day of June, 1949.

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Manchester & Glasgow.

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*This Drawing is a reproduction of the Original on a reduced scale*

Fig. 1

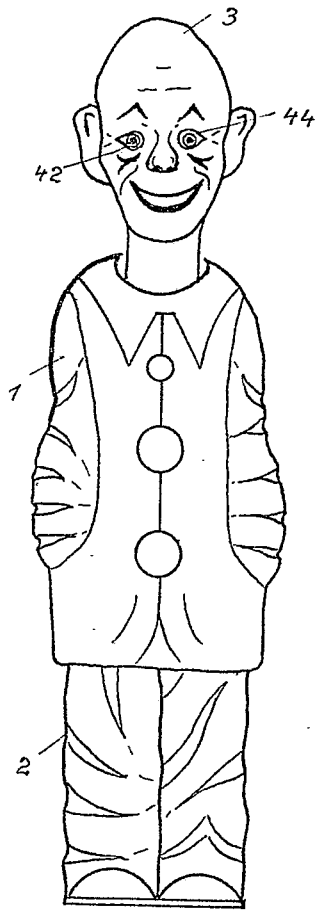


Fig. 2

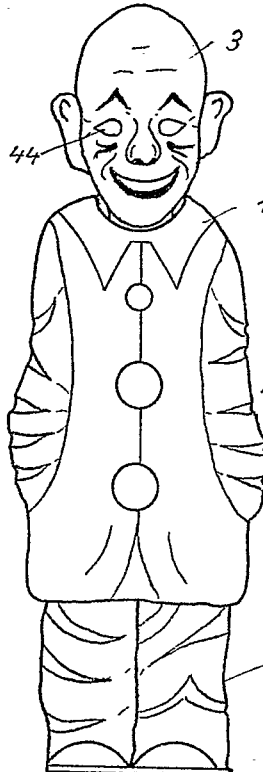


Fig. 3

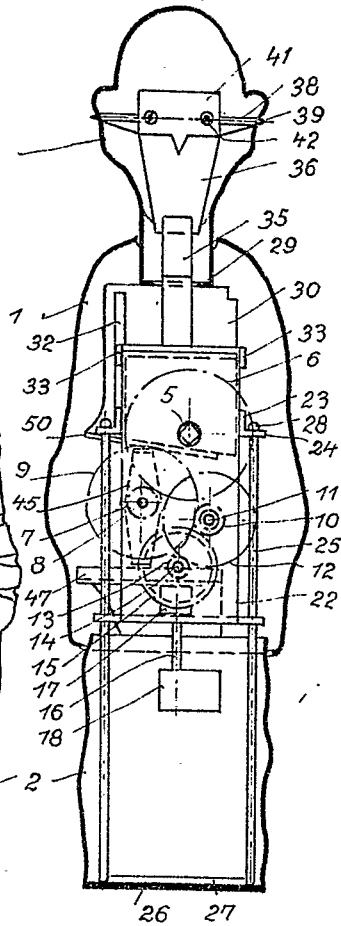


Fig. 4

Fig. 5

Fig. 6

3

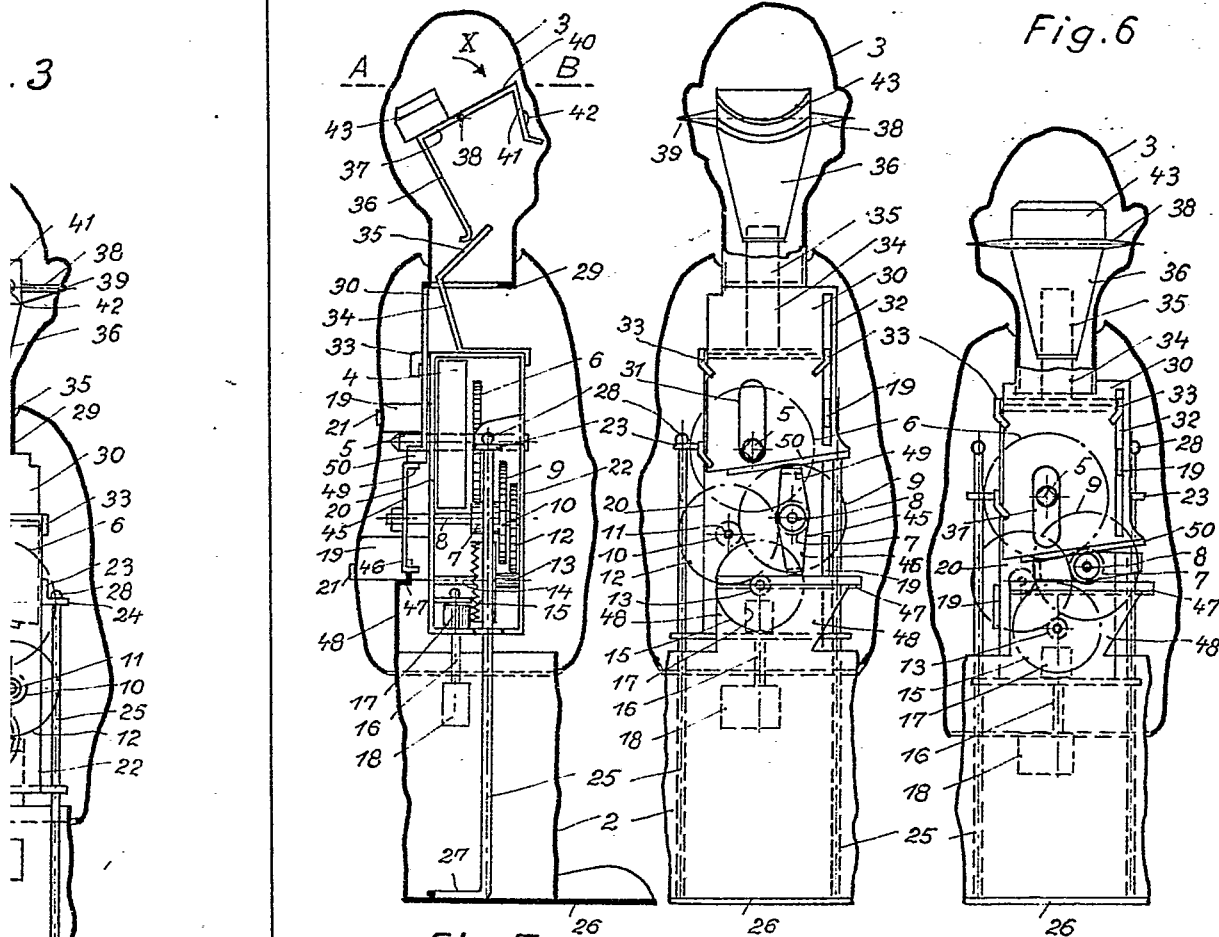


Fig. 7

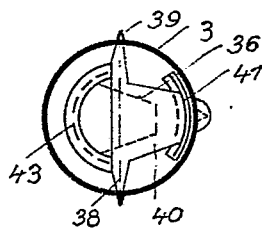


Fig. 1

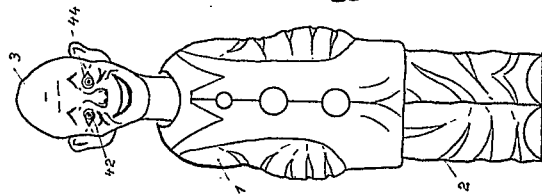


Fig. 2

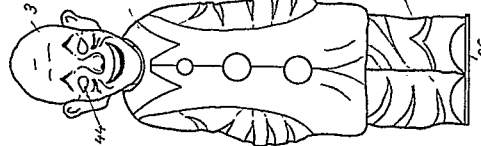


Fig. 3

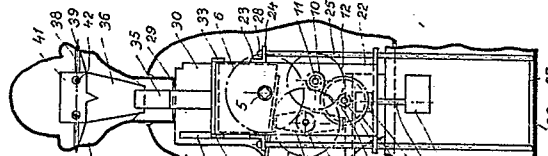


Fig. 4

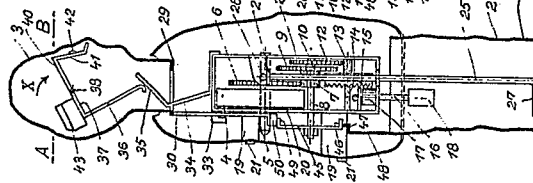


Fig. 5

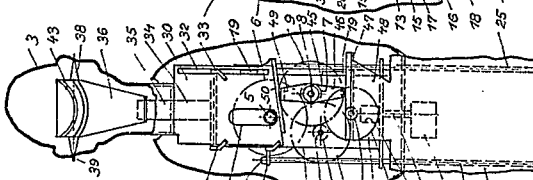


Fig. 6

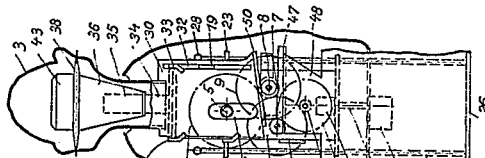
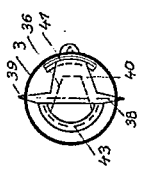


Fig. 7



This Drawing is a reproduction of the Original on a reduced scale