Nov. 1, 1960 P. STRANGES ET AL 2,958,144

HULA HOOP DOLL

Filed Dec. 16, 1958 3 Sheets-Sheet 1

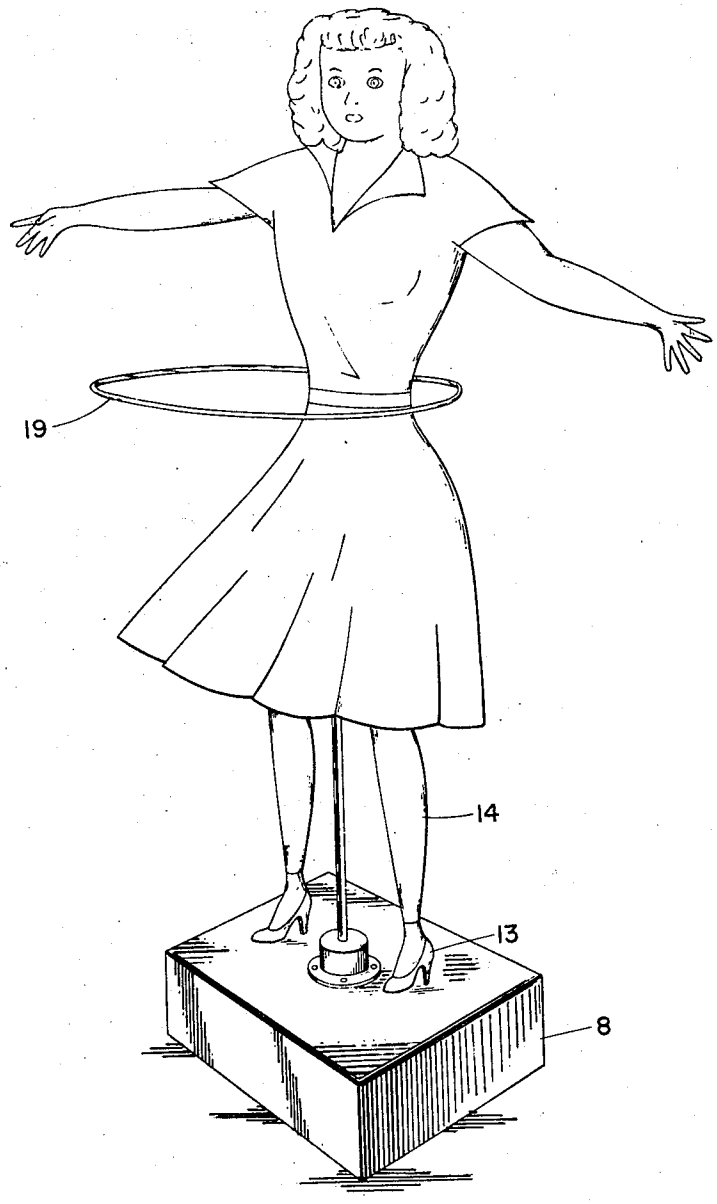


FIG. 1

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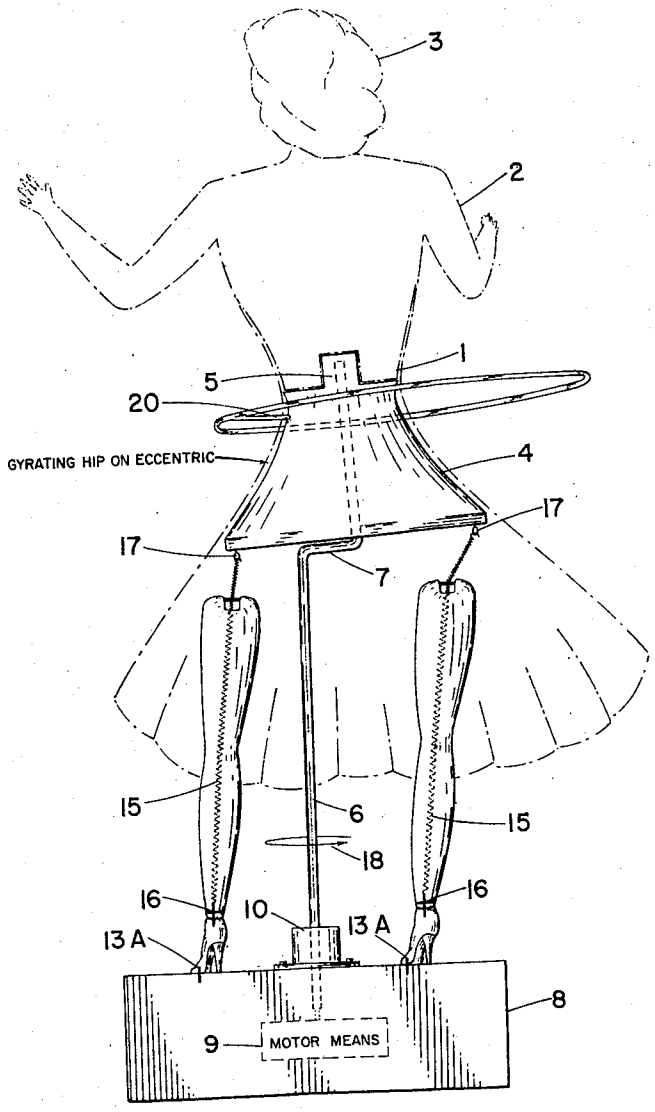


FIG. 2

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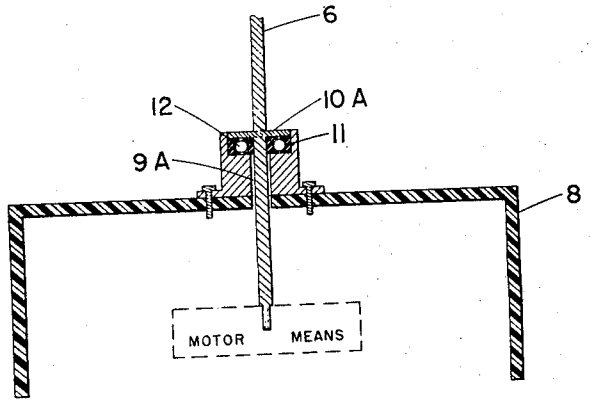


FIG. 3.

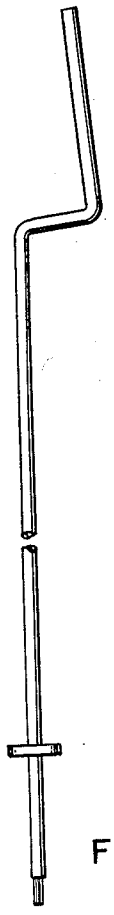


FIG. 4.

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HULA HOOP DOLL

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3 Claims. (Cl. 40—106.3)

This invention relates generally to improvements in moveable toys such as dolls and the like.

More especially, the invention relates to a doll, at least a portion of the body of which, is capable of performing rotary or gyratory movements. These movements simulate the movements of the Hawaiian dance known as the hula dance, and dances of a similar character.

The gyratory movement of the doll's body enables it to perform the children's game known as the "hula hoop" which is the rotation of a hoop around the hip or other part of the body, by gyration of that part of the body.

Of course the figure need not be that of a doll. Other mammalian figures, such as a monkey, which have a reasonable approximation of a human being may be used, providing the general object specified above is accomplished.

The invention will be described more specifically with reference to the accompanying drawings in which:

Figure 1 is a perspective view illustrating the doll in action.

Figure 2 is an elevation taken from the rear of the doll and illustrating the main operational parts thereof.

Figure 3 is a cross-sectional showing the shaft extending from the base and through the guiding sleeve.

Figure 4 is an elevation of the eccentric shaft detached from the other mechanism and also showing the shaft shoulder.

The doll comprises an upper body section designated generally at **1** which has arms **2**, a head **3** and means defining a waist and hip portion **4**. The section **1** may be push-fitted on to the waist and hip portion **4** which is shown as being of generally frusto-conical configuration. The section **1** is shaped for reception of the supporting post **5** of the portion **4** as shown in Figure 2. The portion **4** is also apertured to receive a vertical drive shaft **6**. The shaft **6** is bent in the shape of an elbow at **7** in order to form an eccentric on the shaft. It can be seen that the eccentric tip **6***a* shown in Figure 5 is slightly off centre relative to the straight portion of the drive shaft **6**. Although it is believed that the doll will work most successfully with the provision of such an eccentric, a straight vertical drive shaft may also be employed with good results. The hip **4** may be either hollow or solid. If solid the location and angle of the elbow **7** should be sufficiently low to avoid friction with the underside of the hip. If the portion is hollow the elbow may be higher since the friction problem will not be present.

A base **8** houses the motor means for driving the shaft **6**. The motor means **9** may be either electrical or mechanical. Any suitable electrical or mechanical motor device may be used. If a mechanical motor is used an opening will be left in the base **8** for cranking purposes. For demonstration purposes and in order to ensure continuous action, an electric motor will be used but the

commercial embodiment may employ a small coil spring motor.

A sleeve **10** is secured to, or may be integral with, the base **8**. The shaft **6** extends through the aperture **9***a* in the sleeve **10** as is best shown in Figure 4. The sleeve also houses a shaft shoulder **10***a* on a bearing **12** located at the top of the sleeve **10**. The lower end of the shaft **6** is provided with a hexagonal portion **6***b* which fits into the output motor shaft. The purpose of the sleeve construction is at least twofold. Firstly it facilitates rotation of the shaft and secondly it provides a stabilizing means for the shaft during operation of the doll and prevents it from swaying excessively. This is of some importance since excessive sway would adversely affect the efficient operation of the doll.

The foot **13** of each leg **14** is secured to the base **8** by means of a pin **13***a*. A leg spring **15** is attached at one end to a foot attachment **16** which holds the legs **14** in place and at the other end the leg springs are secured to a hook **17** fastened to the underside of the hip **4**.

In operation it will be seen that by means of a conventional power take-off the shaft **6** is driven by the motor means **9**. The vertical drive shaft **6** performs two main functions one of which is to supply the necessary motion to gyrate the portion **4**. The motion which gyrates the portion **4** results from the shaft rotation and the eccentric on the shaft **6**. The eccentric which is an integral part of the shaft **6**, rotates relative to the portion **4** since it is not firmly secured therewithin. The portion **4** may be lifted from its resting place on the shaft **6** simply by removing the upper section **1** of the doll and detaching the leg springs **15** from the hooks **17**. A second function and purpose of the vertical shaft **6** is to support on the end **6***a* of the eccentric the upper section **1** of the doll. The shaft shoulder **10***a* which may be an integral part of the shaft **6** would take up the thrust due to the shaft supporting the weight of the upper section **1**. The arrow **18** indicates the direction in which the doll would be gyrating to find itself in the position illustrated by Figure 2.

The gyrating portion **4** while being a physical part of the overall components which make up the doll structure also maintains the hoop **19** in gyratory motion.

In the illustrative embodiment of the invention, the hoop as best seen in Figure 2 is actually secured to a part of the waist and hip portion of the doll itself by means for example of a supporting link **20** as shown in Figure 2. By using a link **20** or equivalent means to operatively connect the hoop to the power means in the manner shown, the hoop will be gyrated upon energization of the power means **9**, as will be evident.

The leg springs **15** attached to the portion **4** inhibit the rotation of the hip with the eccentric. It will be seen from Figure 2 that the particular shape of the eccentric on the shaft **6** tilts the portion **4** slightly from the horizontal. It is due largely to these two factors that the rotary motion of the shaft **6** is transformed into the gyratory motion of the hip which simulates the motions of the Hawaiian dance. The leg springs **14**, when attached to the portion **4** support the legs and simultaneously prevent hip rotation. The flexibility of these springs permits the hip gyration while still holding the legs in place.

The supporting post **5**, which is an integral part of the hip, supports the upper section **1** and indirectly the legs **14**. Since the tip **6***a* of the eccentric is off centre relative to the straight portion of the shaft **6** a slight gyratory motion is also supplied to that part of the doll's body immediately above the hip.

A circularly cylindrically shaped hip and waist portion **4** could be used in place of the conical shaped hip.

The doll will be suitably clothed with for example the dress 23. This will conceal the leg and spring arrangement and make the whole assembly more pleasing to the eye.

The present invention will thus be seen to completely and effectively accomplish the objects enumerated hereinabove. It will be realized, however, that various changes and substitutions may be made to the specific embodiments disclosed herein for the purpose of illustrating the principles of this invention, without departing from these principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.

What we claim is:

1. A display device of the character described comprising: a manikin including an upright body portion, said body portion comprising means defining a waist and hip portion including a peripheral external surface; a circular and relatively rigid hoop disposed in eccentric encircling relation about said waist and hip portion and spaced therefrom substantially about its entire periphery; means connecting the hoop at one point of its periphery to a part of said hip and waist portion; and power means carried by said display device and operatively connected to said part of said hip and waist portion to cause every point in said part of said hip and waist portion to move in a circular path when said power means is energized.

2. A display device of the character described comprising: a manikin including an upright body portion, said body portion comprising means defining an integral waist and hip portion including a peripheral external surface; a circular and relatively rigid hoop disposed in eccentric encircling relation about said waist and hip portion and spaced therefrom substantially about its entire periphery; a link connecting said hoop at one point in its periphery to said waist and hip portion; power means carried by display device; an output shaft drivingly connected to and extending vertically outwardly from said power means, and an eccentrically disposed crank portion on said shaft and journalled in said waist and hip portion to cause every point in said waist and hip portion to move in a circular path when said power means is energized.

3. The structure defined in claim 2 wherein said peripheral external surface of said integral waist and hip portion is of generally frusto-conical configuration.

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