

July 19, 1966

W. BODENSTEIN

3,261,124

ANIMATED SPEAKING FIGURE TOY

Filed March 11, 1964

2 Sheets-Sheet 1

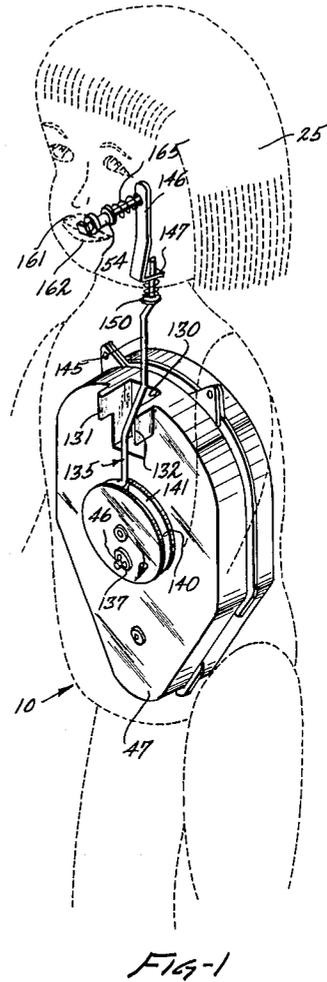
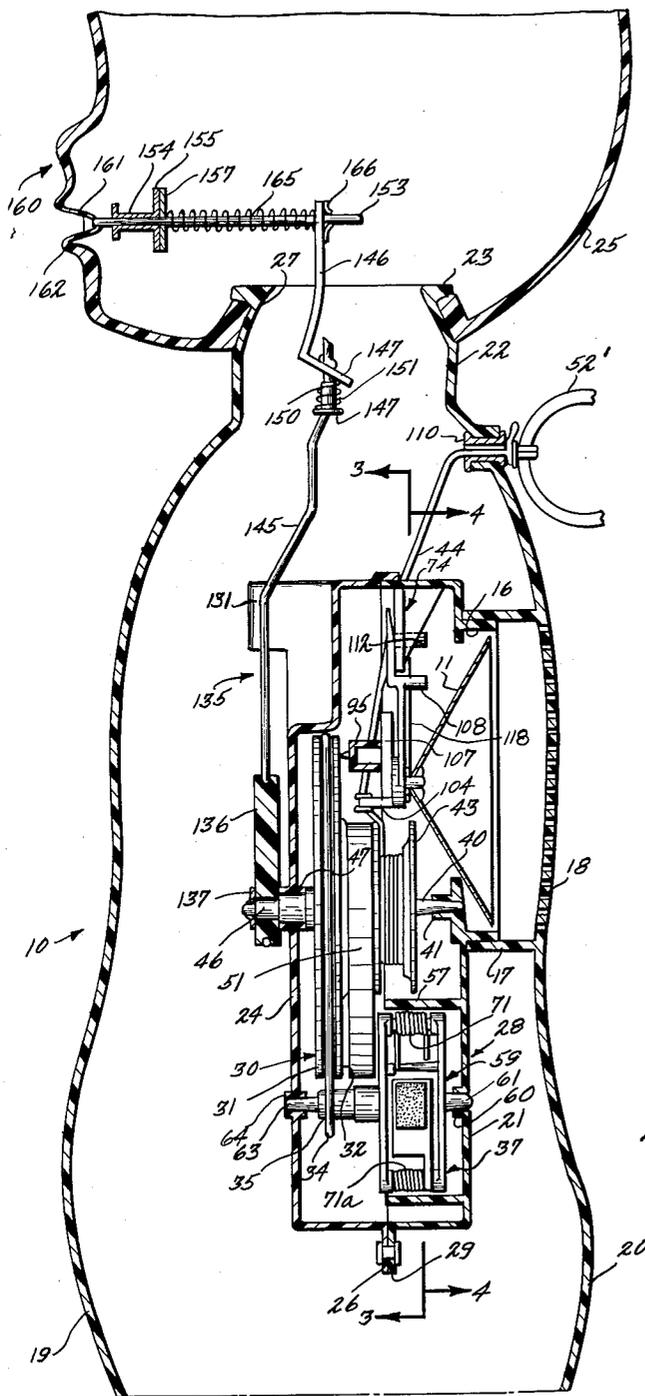


FIG-2

FIG-1

INVENTOR.
WILLIAM BODENSTEIN
BY
Herrig & Walsh
ATTORNEYS

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W. BODENSTEIN

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ANIMATED SPEAKING FIGURE TOY

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2 Sheets-Sheet 2

Fig-3

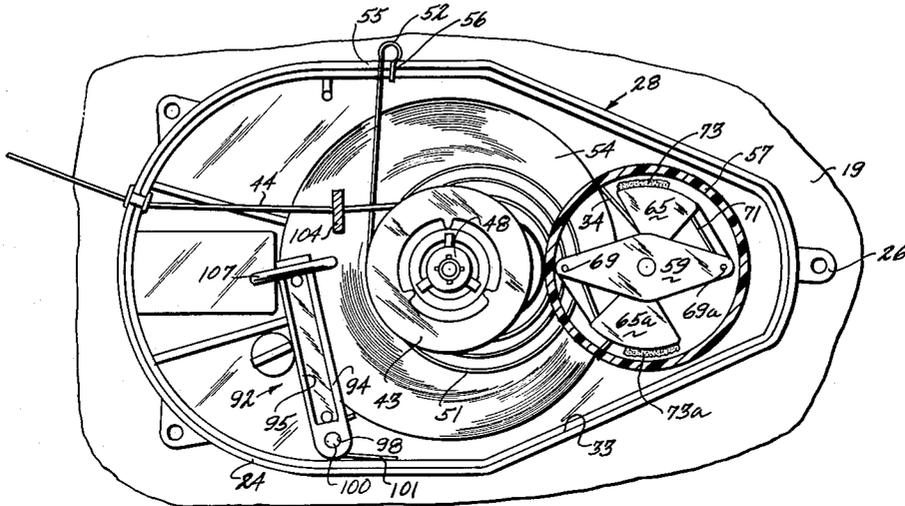


Fig-4

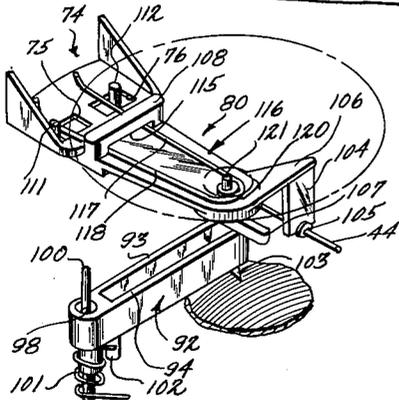
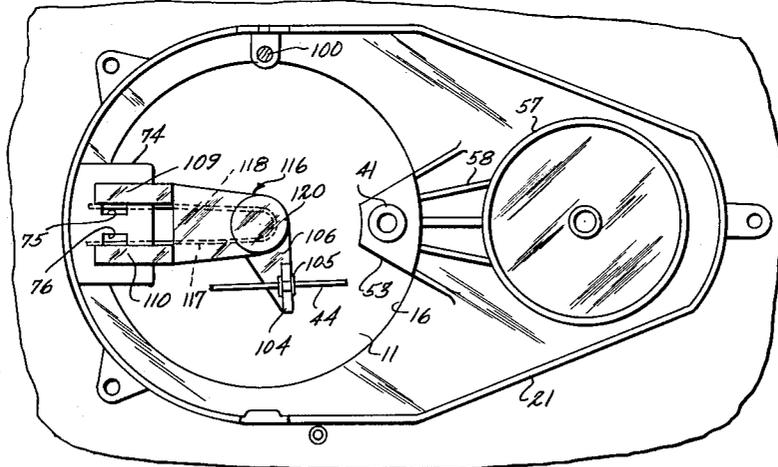


Fig-5

INVENTOR.

WILLIAM BODENSTEIN

BY

Hertzig & Walsh
ATTORNEYS

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2

3,261,124

ANIMATED SPEAKING FIGURE TOY

William Bodenstein, Teaneck, N.J., assignor to Mattel, Inc., Hawthorne, Calif., a corporation of California

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9 Claims. (Cl. 46-118)

This invention relates to an improved toy which is an animated speaking figure toy such as a doll or other figure which might be a plush toy, for example.

The toy of the invention, which in a preferred form is embodied in a doll, has a manually actuatable phonograph or voice unit in it and the doll has animated or movable lips and facial features. The phonograph or voice unit is similar in some respects to that disclosed in Patent No. 3,017,187 of John W. Ryan. The phonograph device, as stated, is manually operated and has a random characteristic in that in response to actuating manipulation it can produce a variety of distinctive sounds or sentences or the like at random so that what the doll says in effect is unexpected or unanticipated.

The lips and facial features of the doll or the figure are movable, having improved animated characteristics. A particular feature of the invention is that the phonograph or voice unit has combined with it a power take-off whereby the lips and facial features are moved in synchronism with, or in relation to the operation of the phonograph and the sounds emanating therefrom so that the doll simulates lifelike characteristics both from the standpoint of sounds and also from the standpoint of the movements or animation of the face and lips. The power take-off provides particular coordination between the movements of the face and lips and the phonograph operation.

The primary object of the invention is to provide a novel and improved figure toy capable of simulating speaking or making sounds which are coordinated with movable or animated lips and facial features.

Another object is to provide a toy as in the foregoing including a phonograph device and a combined power take-off whereby the phonograph device drives the movable or animated lips and facial features.

Another object is to provide a toy as in the foregoing wherein the toy is provided with a face and lips formed of flexible material with mechanical connections to the power take-off for animating the lips and facial features, the said connections and movements thereof being such as to impart naturally appearing movements to the lips and facial features.

Another object is to provide a phonograph device adapted for use in a toy, as described, wherein the device is operated by a drawstring and the device having tone arm means so arranged that upon tensioning the drawstring the tone arm is permitted to return to a starting position under the influence of a return spring.

Further objects and additional advantages of the invention will become apparent from the following detailed description and annexed drawings wherein:

FIGURE 1 is a view of a doll having the invention embodied therein;

FIGURE 2 is a cross-sectional view of a doll embodying a preferred form of the invention;

FIGURE 3 is a sectional view taken along the line 3-3 of FIGURE 2;

FIGURE 4 is a sectional view taken along the line 4-4 of FIGURE 2;

FIGURE 5 is a perspective view of the tone arm mechanism;

The major components of the assembly will be described and then the overall operation will be summarized.

The phonograph device is shown in FIGURES 1, 2, 3, 4 and 5 and the power take-off device for animating the lips and facial features is shown in FIGURES 1 and 2.

Numeral 10 in FIGURES 1 and 2 designates a toy doll figure which may have a body made of plastic or other suitable material and may have articulated legs, arms and head, as shown. In this form of the invention the phonograph device is embodied in the torso of the doll with the speaker cone 11 in a position as shown in the figures. The speaker cone is within the annular rib 16 extending from the phonograph housing and this rib is within annular rib 17 on the inside of the doll body. This part of the doll body is perforated as shown at 18 to allow the sound to come out.

Preferably, the body of the doll is formed in halves or sections as designated at 19 and 20. The sections form a circular neck part 22 having a flange 23. The head 25 may be made of a suitable material, preferably, having a flexible flanged neck opening as shown at 27 which can be fitted over the flange 23 on the neck part 22 of the body as shown. The head and particularly the face and lips are made of a material such as plastisol which is flexible and can be flexed to simulate natural facial expressions and lip movements, as will be described more in detail presently.

The phonograph device generally is supported from the part or half 20 of the body, the annular rib 16 being secured within annular rib 17 to support the phonograph device. The housing of the phonograph has a shape as shown in FIGURES 3 and 4, and is designated by the numeral 28. The housing is in two parts, as designated at 21 and 24.

These parts may be made of molded plastic, for example, having mating ears as shown at 26 and 29 which are riveted together. Several pairs of such ears may be provided. Part 24 has a substantially continuous peripheral shoulder 33 and the periphery of part 21 fits into it.

The phonograph has a turntable 30 which has peripheral flanges as shown at 31 and 32 providing a groove for a belt. Passing around the turntable is a belt 34 which drives a pulley 35 by means of which a governor, as designated at 37, is driven as will be described. The turntable has an extending stem or arbor 40 received in an opening in a post 41 extending from part 21 of the housing 28. The stem 40 extends inwardly and mounted on it is a spool 43 for drawstring 44. The stem 40 has an extending end part 46 journaled in bushing 47 in part 24 of the housing 28. Between the spool and the turntable 30 is a clock type spring 51 which is wound or energized when the drawstring 44 is pulled by pulling the ring 52. The spool 43 is provided with a one-way clutch, not shown, so that when the drawstring 44 is pulled the spring is wound or energized without the turntable being driven and when the drawstring is released the spring can drive or rotate the turntable. Such one-way clutch may be like that shown in Ryan Patent No. 3,017,187. The spool 43 is held on the stem 40 by a locking washer 48.

Post 41 is integral with shelf 53 extending in from rib 16 and reinforced by radial ribs 58, as shown in FIGURE 4.

The turntable carries a record 54 which may preferably be a record of the type disclosed in prior Patent No. 3,017,187 having interleaved spiral grooves each having a distinctive group of words or sounds recorded thereon. The end 52 of the spring 51 is held in slots 55 and 56 in the housing 28 as shown in FIGURE 3.

Housing 28 has an extending circular boss 57 within which is mounted the centrifugal governor 37. This governor may preferably be of a type shown in Patent No. 3,017,187. The governor has a rotor 59 which carries the pulley or wheel 35 and which has an extending stem 61 which extends into an opening or bushing 60 in part 21 of the housing 28. The rotor has an extending

stem 63 at the other end which is journaled in an opening in a boss 64 in one side of the part 24 of the housing 28. The governor is of the fly ball type having arcuate weighted members, as designated at 65 and 65a journaled on pins or stems 69 and 69a having torsion springs 71 and 71a on them. The weights or fly ball members have friction surfaces as shown at 73 and 73a which frictionally engage against the interior of the circular boss or skirt 57 to regulate the speed of rotation, the outward movement being against the force of the torsion springs as designated at 71 and 71a. The governor acts to keep the operating speed uniform.

The housing part 24 has an extending shelf part 74 having openings 75 and 76. FIGURE 5, which is a detail view, shows the configuration of the member or part 74. The speaker cone is carried on the end of arm 80 which is hinged to part 74. The tone arm is designated at 92, it having a cross-section including side ribs 93 and 94 and an intermediate web 95. At the end of the tone arm 92 is an aperture 98 which is journaled on a post or stem 100. The post 100 is mounted in part 24 of the housing 28. Numeral 101 designates a coil return spring for the tone arm 92 which returns the tone arm to starting position at the end of each play. One end of the spring engages projection 102 on the tone arm.

The tone arm carries the needle 103 which overlies the record surface. The tone arm 92 also has a transverse rib 107 which provides for sliding engagement between the tone arm and the arm 80 and speaker cone 11. Arm 80 has an extending part 106 with right angle leg 104 having an eyelet 105 through which drawstring 44 passes. The drawstring 44 also passes through an eyelet 110 provided in part 20 of the body 10. The arm 80 has a raised transverse rib 108 and extending fingers 109 and 110 having pins or projections 111 and 112 which extend through openings 75 and 76. At the base of rib 108 is a slot opening 115. Numeral 116 designates a hairpin spring having legs 117 and 118 extending through slot 115. The bight of spring 116 is held by projections 120 and 121 on arm 80. The construction described hinges arm 80 to part 74. Spring 116 urges arm 80 and consequently the tone arm 92 and needle 103 toward record 54. As may be observed, from FIGURE 2, tension in drawstring 44 will lift arm 80 from rib 107 of the tone arm 92 allowing spring 101 to return the tone arm to the starting position.

The turntable of the phonograph device embodies a power take-off from which coordinated power is taken off for actuating the movable lips and facial features. FIGURES 1 and 2 show the exterior configuration of housing part 24. It has in it a depression 130 of the shape, as shown. Adjacent the slot or depression 130 are projections 131 and 132 providing a guideway for an actuating stem or rod 135. Numeral 136 designates an eccentric disc carried on stem 46 and held by lock disc 137 so that as the turntable rotates, the eccentric disc 136 also rotates. The disc 136 has a peripheral groove 140 in which is received a loop 141 formed at the end of rod or stem 135. Rod 135 is bent as shown at 145. Its end is jointed to a link member 146 having a foot 147 with an aperture in it. The end of rod 145 extends through an aperture and through a flanged sleeve 150. Around this sleeve is a coil spring 151 between foot 147 and the flange on the sleeve 150. The end of link 146 has an opening fitting over the stem or rod 153. Stem 153 passes through flanged sleeve or collar 154 having flange 155 adjacent to which is a flexible washer 157. The end of stem 153 is secured to the inside of the face 160 of the doll at the position of the lips 161 and 162. A coil spring 165 is on stem 153 between washer 157 and the end of link 146 which is held by crimps 166 on stem 153.

As may be observed, when eccentric disc 136 is rotated, a reciprocating and sideways motion is imparted to stem or wire 135 in guide channel 130 which is transmitted through

the spring joints to the face 160 and lips 161, 162 of the doll.

It will be observed that the stem 153 extends inwardly from the face 160 of the doll and that it is connected to the link 146 which is in turn jointed to the end of the wire or stem 145. As may be seen, there is freedom of movement in all directions of the end of the stem 153 and the link 146. The motion imparted to wire 135 by the disc 136 is a combined reciprocating and sideways motion in the depression or guide channel 130. The springs 151 and 165 allow for limited freedom of movement of the link 146 and stem 153. The motion imparted to the face 160 and lips 161 and 162 is such that the lips appear to move realistically, simulating lip movements that would occur corresponding to the sounds that are emanating from the phonograph device. Similarly the parts of the face or facial features adjacent to the lips and eyes move producing facial expressions along with the lip movements simulating natural expressions coordinated with the sounds coming from the phonograph device.

From the foregoing, the overall operation will be readily understood by those skilled in the art. The child grasps the ring 52 and pulls on the drawstring 44. This rotates the spool 43 and winds the clock spring 51. The tension in the drawstring 44 passing through the eyelet 105 in the part 104 of the arm 80 causes this arm to be lifted around its hinge so as to release the tone arm 92 allowing the torsion spring 101 to lift the needle 103 from the record surface and to return the tone arm to its starting position at the periphery of the record 54. The record has a plurality of interleaving grooves in each of which is recorded a distinct sound, speech or saying such as for example, "I Love You"; "Let's Play A Game"; etc. Preferably, also the various speeches are in different languages so that the responses made by the doll are more interesting, varied and fascinating. The interleaving grooves terminate at different angular positions at the periphery of the record. As pointed out in the foregoing, in a preferred form of the invention, a one-way clutch is provided in the drive of the turntable 30, that is between the stem 40 and the turntable itself. After an operating cycle, that is after the turntable has been operated to reproduce a speech or saying, it stops at an unpredictable or random position since it may overrun or coast after the application of the driving effort. At each operation in response to pulling of the drawstring 40, therefore, the tone arm 93 and needle 103 operate to select a groove and sound or speech to be reproduced at random, the angular position of the record as explained, being unpredictable, i.e., random at the time an operating cycle is begun. The selection is random even though the drawstring 44 is not pulled all the way or to its full extent. As the sounds emanate from the phonograph device, the lips and facial features are animated as described in the foregoing by way of the eccentric disc 136 and the rod or stem 135.

From the foregoing those skilled in the art will observe that the invention realizes and achieves all of the objects and advantages as set forth in the foregoing as well as having many additional advantages that are apparent from the detailed description. The mechanism, in effect, endows the doll with a personality of its own because the sayings or sounds emanating from the doll cannot be anticipated, but appear to be chosen and selected by the doll or figure toy itself. The lips are animated and the doll exhibits natural facial expressions simulating those of a natural person, so that the overall effect is fascinating, interesting and extremely entertaining to the child.

The foregoing disclosure is representative of a preferred form of the invention and is to be interpreted in an illustrative rather than a limiting sense, the invention to be accorded the full scope of the claims appended hereto.

What is claimed is:

1. In a phonograph device for use in a figurine or the like having a turntable for a record to be rotated and

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a tone arm carrying a needle, the improvements comprising a member mounted transversely above the turntable and having a hinge mounting at one end and having a portion engaging a speaker means, means mounting the tone arm for slidable engagement of one portion thereof with said transverse member substantially directly opposite the portion thereof engaging the speaker means whereby to transmit sound to the speaker means, said transverse member normally urging the needle into playing engagement with a record on the turntable, means for adjusting the transverse member to vary its engagement with the tone arm, and means for returning the tone arm to a starting position relative to the record, said figurine having upper and lower lip members made of a flexible material and capable of movements simulating lifelike animation, means providing an interconnection between the upper and lower lip members to coordinate their movements, the said turntable having a power take-off and means connecting the power take-off to the said interconnecting means whereby to produce coordination between upper and lower lip movements and coordination of lip movements with sounds reproduced by the phonograph device.

2. A phonograph device as in claim 1 wherein said adjusting means comprises a part connected to said transverse member and having an eyelet, a drawstring passing through said eyelet, the said part being positioned whereby tension in the drawstring is able to lift said transverse member for releasing the needle pressure.

3. A figure toy comprising:

body means including a torso and a head, said head including free continuous, flexible material formed to simulate flexible lip means and an outwardly concave mouth cavity;

sound reproducing means mounted in said body means and having a movable member;

means for actuating said sound reproducing means and movable member; and

means connecting the material at the rear of said mouth cavity to said movable member for flexing said material at the rear of said cavity and thereby flexing said lip means in conjunction with the operation of said sound reproducing means when said sound reproducing means is actuated, whereby said lip means simulates natural lip movements in conjunction with sounds coming from said sound reproducing means.

4. A figure toy as stated in claim 3 wherein said connecting means includes power take-off means provided on said sound reproducing means and linkage means connecting said power take-off means to said material.

5. A figure toy as stated in claim 3 wherein said connecting means includes stem means connected to said sound reproducing means and eccentric means connecting said stem means to said movable member for imparting simultaneous reciprocating and lateral movements to said stem means.

6. A figure toy, comprising:

a phonograph device mounted in said figure toy, said

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phonograph device having a rotatable turntable and means for reproducing recorded sounds when said turntable is rotated;

upper and lower free lip members provided on said figure toy, said lip members being made of a flexible material and being capable of flexing movements to simulate lifelike animations;

flexible means interconnecting said upper and lower lip members to coordinate their flexing movements and defining an outwardly concave mouth cavity, said interconnecting means and said upper and lower lip members defining a continuous outwardly surface;

a power take-off connected to said rotatable turntable; and

means connecting said power take-off to the material at the rear of said mouth cavity for flexing said material at the rear of said mouth cavity and thereby flexing said lip members when said turntable rotates, whereby there is coordination of lip movements with sound reproduced by said phonograph device.

7. A figure toy as stated in claim 6 wherein said figure toy is provided with a face part including facial features made of an unsupported, flexible material formed integrally with said lip members, whereby the animation applied to said lip members produces movement of said facial features simulating lifelike, natural facial expressions.

8. A figure toy as stated in claim 6 wherein said means connecting said power take-off to said lip members comprises a first stem attached to said flexible material a second stem connected to said power take-off and means connecting said second stem to said first stem for imparting movements thereto during rotation of said turntable.

9. A figure toy as stated in claim 8 wherein said power take-off includes an eccentric member connected to said second stem for imparting simultaneous reciprocating and lateral motion to said second stem, whereby said flexible material flexes said lip members.

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RICHARD C. PINKHAM, *Primary Examiner*.

L. J. BOVASSO, *Assistant Examiner*.