

Aug. 9, 1966

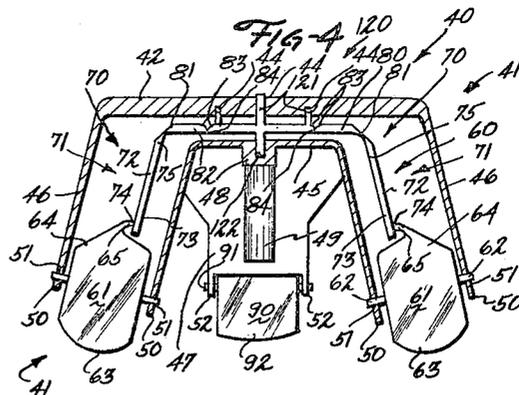
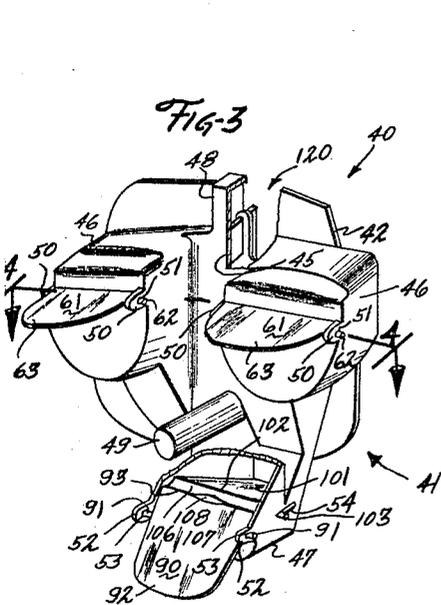
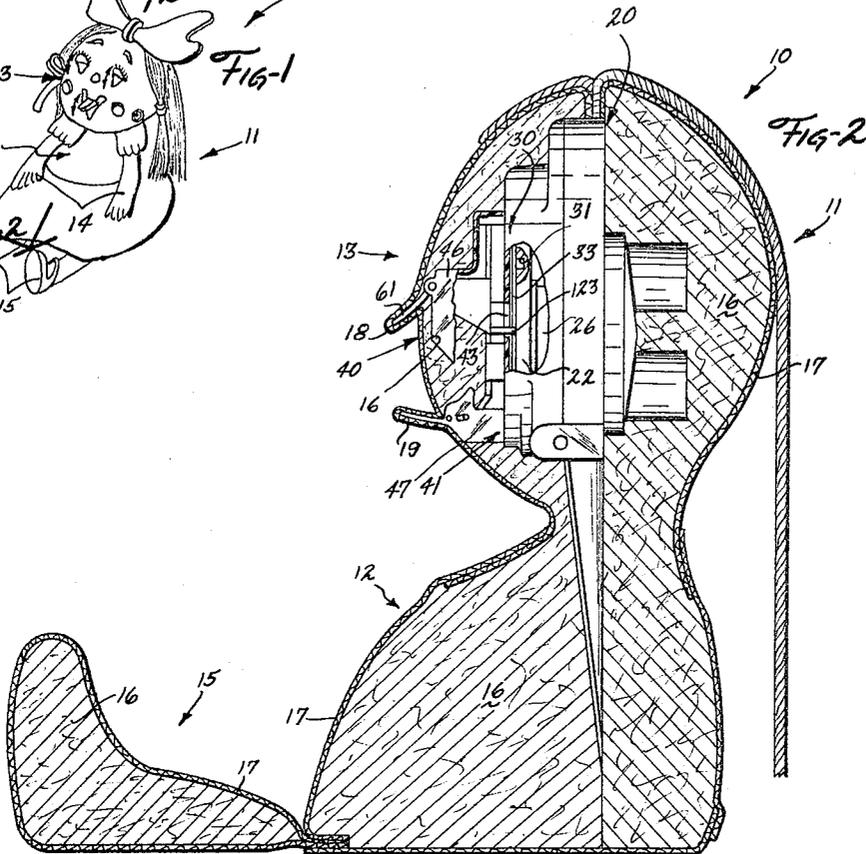
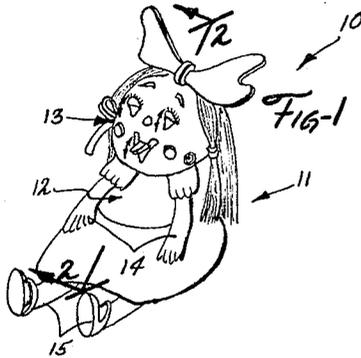
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3,264,778

ANIMATED SOUNDING FIGURE TOY

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2 Sheets-Sheet 1



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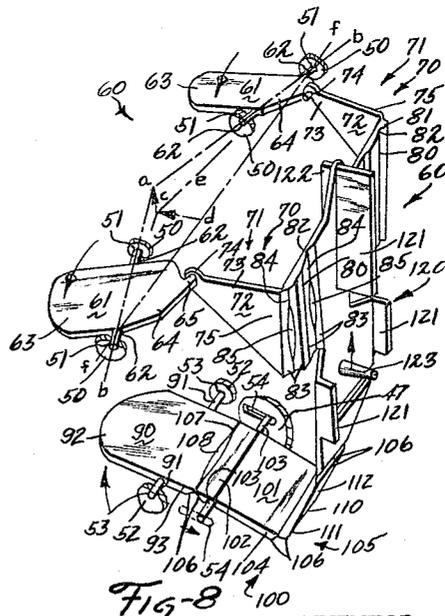
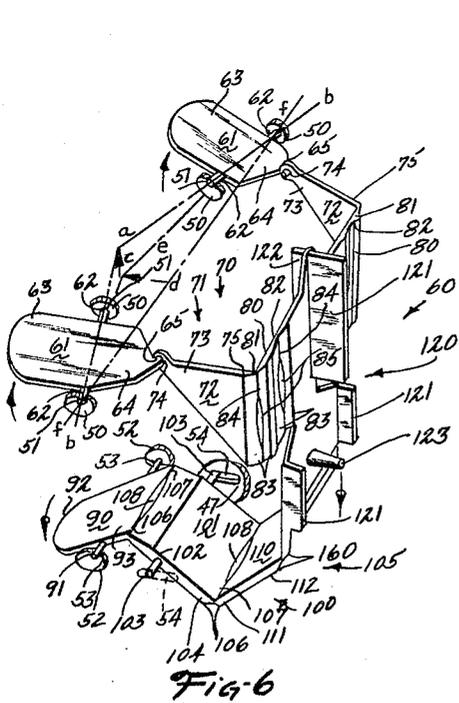
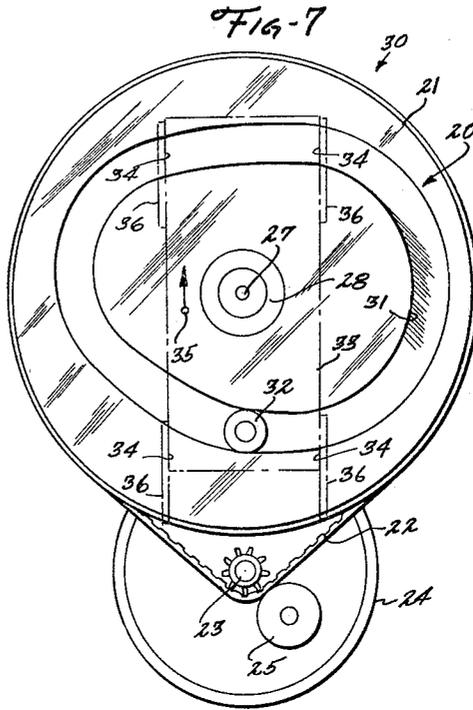
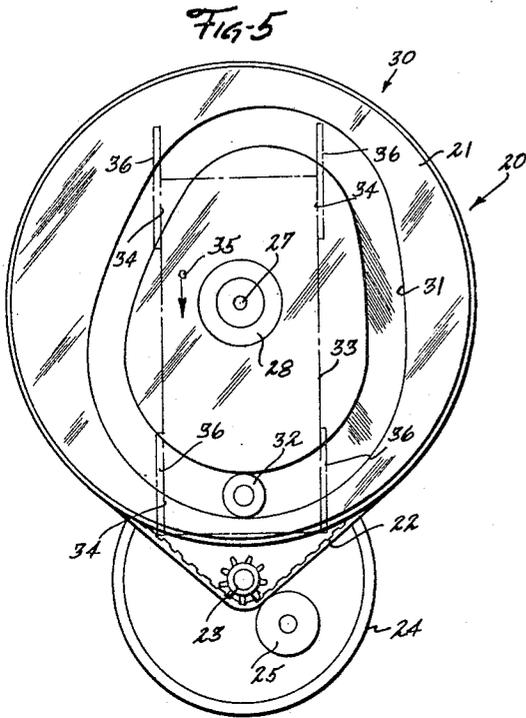
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ANIMATED SOUNDING FIGURE TOY

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2 Sheets-Sheet 2



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3,264,778

ANIMATED SOUNDING FIGURE TOY**John W. Ryan, Bel Air, Calif., assignor to Mattel, Inc.,
Hawthorne, Calif., a corporation of California****Filed July 17, 1964, Ser. No. 383,465****7 Claims. (Cl. 46—118)**

The present invention is an improvement over the invention described in applicant's copending application, Serial No. 257,123, filed February 8, 1963, now Patent No. 3,230,665, entitled, Animated Speaking Figure Toy.

In general, the present invention relates to an improved animated speaking toy. More particularly, the present invention involves an animated speaking figure toy adapted to oscillate both its lips and eyelashes through a substantial angle in synchronization with the operation of a phonograph device and actuated solely by the operation of said phonograph device.

In the past, there have been a wide variety of figure toy structures which have been adapted to move either the eyes or the lips or both. However, such figure toy structures were commonly gravity-operated or manually operated by the person manipulating the toy such as the case of a ventriloquist dummy. Further, there have been developed a number of speaking figure toys in the past such as, for example, the toy described in applicant's U.S. Patent No. 3,017,187. Although such speaking figure toy included animated facial features such as movable eyelashes, it did not synchronize the movement of such facial features with the voice unit or phonograph device of a toy. Consequently, there was no coordination between the facial expression and movement and the words or sentences spoken by the toy figure. Consequently, applicant developed the above noted animated speaking figure toy invention, wherein at least the movement of lips was synchronized with the operation of a phonograph device. While such invention was suitable for many applications, it was found to have certain limitation when applied to certain types of dolls and toy animals. One limitation is that the over-all combination of the animated facial features, power take-off device, and phonograph device were not designed to fit within a compact volume and were constructed with a considerable number of parts. Consequently, because of the relatively spread-out construction of the animated facial feature portion of the invention, it was not possible to close the unit within a single housing to protect it from rough handling and, particularly, the case of stuffed figures from the adjoining figure stuffing. Furthermore, the usual toy figure phonograph device, particularly the manually operated ones, normally have only a very limited excess power output above that required to operate the phonograph device available to operate the animated facial features. Consequently, it is important that the various animated facial features be operated by the application of a minimum force thereon. Also, it is desirable that the animated facial features such as the eyelashes or lips be capable of rotation through a large angle about diverging axes. Thus, it is desirable that the actuating mechanism for such feature be capable not only of vertical displacement but also of forward and side displacement.

Consequently, an object of the present invention is an improved animated speaking figure toy which is adapted to oscillate both its lips and eyelashes in synchronization

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with the operation of a phonograph device and actuated solely by the operation of the phonograph device.

Another object of the present invention is an improved animated speaking figure toy which is adapted to rotate its eyelashes and lips about diverging axes so that substantial forward and side displacement is involved as well as vertical displacement.

Still another object of the present invention is an improved animated speaking figure toy wherein vertical oscillation produces not only vertical displacement of the facial features but also forward and side displacement.

Still another object of the present invention is an improved animated speaking figure toy including a lip and eyelash structure which is adapted to be actuated by a minimum force.

Other objects and advantages of the present invention will be readily apparent from the following description and drawing which illustrate a preferred exemplary embodiment of the present invention.

In general, the present invention involves an animated speaking figure toy comprising a substantially integral flexible lip and eyelash structure having pivotally mounted eyelashes, each hinged at its rear end to an upper linking arm adapted to undergo substantial forward and side displacement. Connected to the rear end of the upper linking arm is a slidably mounted back plate adapted to be vertically oscillated by the phonograph device. The lip and eyelash structure also includes a pivotally mounted lip hinged at its rear end to a lower linking arm adapted to undergo substantially forward displacement and to oscillate the lip opposite the oscillation of the eyelashes. Such lower linking arm is connected to the back plate at its rear end.

In order to facilitate understanding of the present invention, reference will now be made to the appended drawings of a preferred specific embodiment of the present invention. Such drawings should not be construed as limiting the invention which is properly set forth in the appended claims.

In the drawings:

FIGURE 1 is a perspective view of an animated speaking doll incorporating the present invention;

FIGURE 2 is a cross-sectional view of FIGURE 1 taken along the lines 2—2 of FIGURE 1;

FIGURE 3 is a perspective view of the animation structure portion of the present invention;

FIGURE 4 is a cross-sectional view of FIGURE 3 taken along the lines 4—4 of FIGURE 3;

FIGURE 5 is a plan view of the power take-off portion of the present invention showing one point in its operation;

FIGURE 6 is a perspective view of the lip and eyelash structure portion of the present invention showing its position corresponding to the point of operation of the power take-off means shown in FIGURE 5;

FIGURE 7 is another plan view of the power take-off portion of the present invention showing another point in its operation; and

FIGURE 8 is another perspective view of a lip and eyelash structure of the present invention showing its position corresponding to the point of operation with the power take-off shown in FIGURE 7.

As illustrated in FIGURES 1—8, the present invention involves an animated speaking figure toy such as the doll

10 which is adapted to oscillate both its lips and eyelashes through a substantial angle in synchronization with the operation of a phonograph device 20 and actuated solely by the operation of the phonograph device 20. The figure toy 10 comprises a plush doll 11 having a trunk 12, a head 13, arms 14, and legs 15. Each of such body portions are made up of a resilient stuffing 16 having a cover 17 stretched thereover to form the shape of the doll. The head cover 17 includes a pocket 18 to simulate the doll eyelashes and a pocket 19 to simulate the doll lip. Enclosed by the stuffing 16 within the doll 11 is the phonograph device 20, the power take-off device 30 and the animation structure 40. The phonograph device 20 is the same phonograph device disclosed in applicant's co-pending application for animated speaking toy noted above. Thus, the phonograph device 20 includes a turntable 21 rotatable on a stem 27 set in a post 28 and having peripheral flanges separated by a peripheral series of teeth. Passing around the turntable 21 is a tooth belt 22 which drives a tooth pulley 23. The tooth pulley 23, in turn, rotates a governor (not shown) enclosed in a circular housing 24. The tooth belt 22 is maintained in engagement with the tooth pulley 23 by an idler roller 25. The turntable 21 is driven by a spiral spring 26 which is wound by pulling on a drawstring (not shown) and then releasing the drawstring to rotate the turntable 21. Similar to the phonograph device 20, power take-off device 30 is also disclosed in applicant's co-pending application for animated speaking figure toy noted above. The power take-off device 30 includes a groove 31 in the underside of the turntable 21 circumscribing the stem 27 to form a pathway of predetermined configuration. Positioned in the groove 31 is a roller 32 which is rotatably mounted on a slide plate 33 (shown in broken lines) which is adapted to be vertically oscillated by the movement of the roller 32 in the groove 31 when the turntable 21 is rotated. The slide plate 33 is guided by the engagement of its corner ribs 34 with guide members 36. The slide plate 33 has an aperture 35 which is adapted to engage the pin 123 extending rearwardly from the back plate 120 of the animation structure 40 so that the vertical oscillation of the slide plate 33 generated by the phonograph device 20 is transmitted directly to the animation structure 40.

The animation structure 40 of the doll 11 comprises a housing 41 which encloses the lip and eyelash structure 60. The housing 41 comprises a rear wall 42 having a vertical slot 43 therein through which the pin 123 extends to engage the sliding plate 33. The rear wall 42 has a series of vertical channels 44 whose function is set forth below. The housing 41 also includes a front wall 45 from which forwardly extend upper tubes 46 for enclosing the eyelash structure and a lower tube 47 for enclosing the lip structure. The front wall 45 has an internal vertically extending channel 48 whose function will be described below and an external forwardly extending post 49 adapted to be received in the stuffing 16 to maintain the position of the animation structure 40 and the related power take-off device 30 and phonograph device 20 in the doll 11. Each of the upper tubes 46 have an opposed pair of forwardly extending ears 50 on their front end and the ears 50 each have an aperture 51 therein whose function is described below. Similarly, the lower tube 47 has an opposed pair of forwardly extending ears 52 on its front end and the ears 52 have apertures 53 therein whose function is described below. Also, the tube 47 has an opposed pair of slots 54 on its side walls extending horizontally along the tube 47 and whose function is described below.

Enclosed within the housing 41 is a substantially integral, flexible lip and eyelash structure 60. The lip and eyelash structure 60 includes eyelashes 61 having opposed pairs of arbors 62 extending from its side and pivotally received in the apertures 51 of the ears 50 of the housing 41. The front ends 63 of the eyelashes 61 are received in the pocket 18 of the doll cover 17 and adapted to rotate the pockets when the eyelashes 61 are rotated. The

rear ends 64 of the eyelashes 61 are hinged to upper linking arms 70 which are adapted to undergo substantial forward and side displacement. Each upper linking arm 70 is formed out of a single strip 71 of material and comprises a vertically extending front panel 72 hinged at its front end 73 to the rear end 64 of the eyelash 61. Such hinged connection is composed of a side extending finger 65 pivotally received in an aperture 74 in the front end 73 of the panel 72. Hinged at its first end 81 to the rear end 75 of the front panel 72 is a vertically extending rear panel 80. The rear panel 80 of each upper linking arm 70 is also hinged at its second end 82 to the back plate 120. The hinged connections of the rear panel 80 are formed by tapering portions 83 of the strip 71 over the entire width of the strip 71 to a thin linear cross section 84 and then widening said thin cross section in the central portion 85 of the strip 71 to form a thin central area. Such arrangement minimizes the resistance to rotation of the hinged connection particularly in a central area portion while maintaining sufficient structural rigidity so that the hinge pivots about the linear cross section portions 84 adjoining the edge of the strip 71.

The lip and eyelash structure 60 also includes a lip 90 having an opposed pair of arbors 91 pivotally received in the apertures 53 of the ears 52 of the housing 41. The front end 92 of the lip 90 is received in the pocket 19 of the doll cover 17 and adapted to rotate the pocket 19 when the lip 90 is rotated. The rear end 93 of the lip 90 is hinged to a lower linking arm 100 which is adapted to undergo substantial forward displacement and to oscillate the lip 90 opposite to the oscillation of the eyelashes 61. The lower linking arm 100 is connected to the back plate 120 at its rear end and comprises a horizontally extending front panel 101 hinged at its front end 102 to the lip 90. The front panel 101 has an opposed pair of arbors 103 which are pivotally and slidably received in the slots 54 of the tube 47 of the housing 41. Such connection permits the front panel 101 not only to rotate about the arbors 103 but also permits its forward displacement. A horizontally extending rear panel 110 is hinged at its forward end 111 to the rear end 104 of the front panel 101 and hinged at its rear end 112 to the back plate 120. The lower linking arm 100 is formed out of a single strip of material 105 and its hinged connections are formed by tapering portions 106 of the strip 105 over the entire width of the strip 105 to thin linear cross sections 107 and widening the linear cross section 107 in the central portion of the strip to a thin area 108. Such construction results in a reduced resistance to rotation while retaining structural support as outlined above.

Connected to the rear end of the upper linking arm 70 and the lower linking arm 100 is a back plate 120 which is slidably mounted in the housing 41 and adapted to be vertically oscillated by the phonograph device 20. The back plate 120 has rearwardly extending fins 121 which are slidably received in the channels 44 of the rear wall 42 and a forwardly extending fin 122 which is slidably received in the groove 48 of the front wall 45. Also, the back plate 120 has a rearwardly extending pin 123 which extends through the slot 43 in the housing 41 and is engaged in the aperture 35 of the sliding plate 33.

The operation of the figure toy 10 is initiated by actuating the phonograph device 20 by pulling on a drawstring (not shown) and then releasing it. Upon release, the spring motor 26 rotates the turntable 21 which in turn causes vertical oscillatory movement of the roller 32 due to its movement in the groove 31 on the underside of turntable 21 as illustrated in FIGURES 5 and 7. The vertical oscillatory movement of the roller 32 is transferred to the sliding plate 33 and, in turn, to the back plate 120 of the lip and eyelash structure 60. As the back plate 120 moves downwardly, the rear ends of the eyelashes 61 not only move downwardly but also to the rear and sideways towards each other. Such rear

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and side displacement of the rear ends 64 of the eyelashes 61 are due to the fact that the axes of rotation *a-b* of the eyelashes 61 about the arbors 62 are tilted at an acute angle to a plane (*a-c-d*) parallel to the side of the doll 11 and a plane (*e-d-f*) parallel to the front of the doll 11 (see FIGURES 6 and 8) because the eyelashes 61 are located towards the side of the head 13 and tilt upwardly toward each other. In any event, the rear and side displacement of the rear ends 64 of the eyelashes 61 are permitted by the hinge connections at the first end 81 and second end 82 of the rear panel 80 of the upper linking arm 70. Thus the joint action of such two hinged connections permits both the rear and side displacement of the rear ends 64 of the eyelashes 61. Also, as the back plate 120 moves downwardly, the rear panel 110 of the lower linking arm 100 moves downwardly causing the rear end 104 of the front panel 101 to also move downwardly. However, since the front panel 101 is pivoted about the arbor 103, its front end 102 moves upwardly and causes the rear end 93 of the lip 90 also to move upwardly. Thus, the motion of the lip 90 is opposite to the movement of the eyelashes 61. Since the lip 90 is pivotally mounted in the apertures 53 of the ears 52 by its arbors 91, the forward displacement of the rear end 93 of the lip 90 is compensated for by the forward displacement of the arbors 103 of the front panel 101. Thus, front panel 101 slides forwardly to permit the upward movement of the rear end 93 of the lip 90. When the back plate 120 reverses its direction and moves upward as illustrated in FIGURE 8, the reverse set of movements takes place with respect to both the upper linking arm 70 and the lower linking arm 100 so that the front ends 63 of the eyelashes 61 move downwardly and the front end 92 of the lip 90 moves upwardly.

Many other specific embodiments of the present invention will be obvious to one skilled in the art in view of this disclosure. Thus, for example, although a specific phonograph device and power take-off unit have been disclosed in conjunction with the animation structure of the present invention, other such devices may be utilized as long as they produce the vertical oscillatory motion in the back plate of the animation structure in conjunction with the operation of the phonograph device.

There are many features in the present invention which clearly show the significant advance the present invention represents over the prior art. Consequently, only a few of the more outstanding features will be pointed out to illustrate the unexpected and unusual results obtained by the present invention. One feature of the present invention is an animation structure which is both compact and simply constructed so that it can be enclosed within a housing and be mounted adjoining to a phonograph device. Thus, as illustrated in FIGURE 2, the entire combination of animation structure, power take-off device and phonograph device may be located in just the forward portion of the head of the doll. Furthermore, the lip and eyelash structure are substantially completely enclosed by the housing portion of the animation structure and thus protected from the doll stuffing while the doll stuffing, in turn, protects the structure as a whole. Thus, only the front ends of the eyelashes and lips are exposed to external manipulation.

Another feature of the present invention is the simple, direct synchronization of the movement of both the eyelashes and lid in conjunction with a phonograph device, and which are actuated solely by the operation of the phonograph device. Thus, the facial expression of a doll can be coordinated with the doll speech.

Still another feature of the present invention are lips and eyelashes which will rotate through a large angle, and, particularly, eyelashes which are set at diverging angles so that their rotation involves both forward and side displacement of the rear ends of the eyelashes. Thus, the lip and eyelash construction of the present inven-

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tion is capable not only of vertical displacement but also forward and side displacement.

Still another feature of the present invention is a lip and eyelash construction which is adapted to be operated by the application of a minimum displacing force thereto. Thus, as described above, the lip and eyelash construction utilizes a specific hinge connection which is simply formed out of a single strip of material, presents the minimum resistance to rotation of the hinge and yet provides substantially the same structural rigidity as a normal hinge connection.

It will be understood that the foregoing descriptions and examples are only illustrative of the present invention and are not intended that the invention be limited thereto. All substitutions, alterations and modifications of the present invention which come within the scope of the following claims or to which the present invention is readily susceptible without departing from the spirit and scope of this disclosure are considered part of the present invention.

What is claimed is:

1. An animated speaking figure toy adapted to oscillate both its lips and eyelashes through a substantial angle in synchronization with the operation of a phonograph device and actuated solely by the operation of said phonograph device, comprising:

- (a) a phonographic device;
- (b) a substantially integral flexible lip and eyelash structure having pivotally mounted eyelashes, each hinged at its rear end to an upper linking arm, said arm having means adapted to undergo substantial forward and side displacement; and
- (c) a slidably mounted back plate connected to the rear end of said upper linking arms and means to vertically oscillate said plate by said phonograph device.

2. A figure toy as stated in claim 1 wherein said upper linking arm comprises a vertically extending front panel hinged at its front end to said eyelash and a vertically extending rear panel hinged at its first end to the rear end of said front panel and hinged at its second end to said back plate.

3. A figure toy as stated in claim 2 wherein said upper linking arm is formed out of a single strip of material and said rear panel hinge connections are formed by tapering a portion of said strip over the entire width of said strip to a thin linear cross section and widening said thin cross section in the central portion of said strip.

4. A figure toy as stated in claim 1 wherein said lip and eyelash structure includes a pivotally mounted lip hinged at its rear end to a lower linking arm, said lower linking arm having means adapted to undergo substantial forward displacement and to oscillate said lip opposite to the oscillation of said eyelashes, said lower linking arm having a rear end connected to said back plate.

5. A figure toy as stated in claim 4 wherein said lower linking arm comprises a horizontally extending front panel hinged at its front end to said lip and pivotally and slidably mounted between its ends and a horizontally extending rear panel hinged at its front end to the rear end of said front panel and hinged at its rear end to said back plate.

6. A figure toy as stated in claim 5 wherein said lower linking arm is formed out of a single strip of material and said hinged connections are formed by tapering a portion of said strip over the entire width of said strip to a thin linear cross section and widening said thin cross section in the central portion of said strip.

7. A figure toy as stated in claim 1 which includes a housing enclosing said lip and eyelash structure, said back plate being slidably mounted in said housing, said eyelashes and lips being pivotally mounted in said housing and said lower front panel being pivotally and slidably mounted in said housing.

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