May 21, 1968 J. W. RYAN ETAL 3,383,795

MECHANISM FOR SIMULATING INGESTION IN A FIGURE TOY

Filed Dec. 6, 1966 5 Sheets-Sheet 1

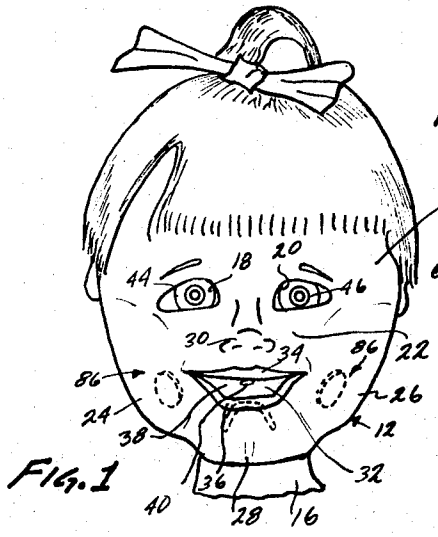



Fig. 1

Fig. 7

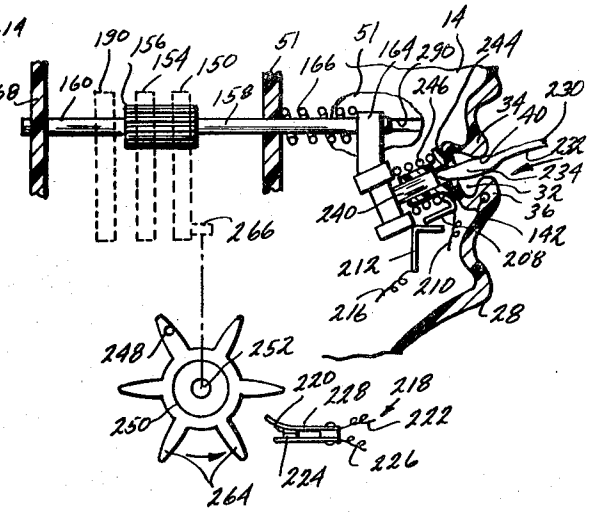



Fig. 8

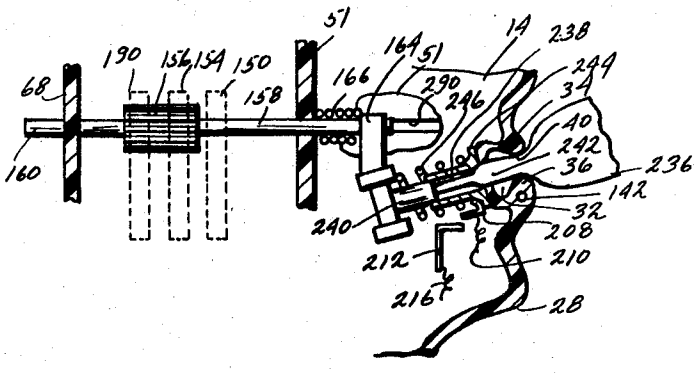
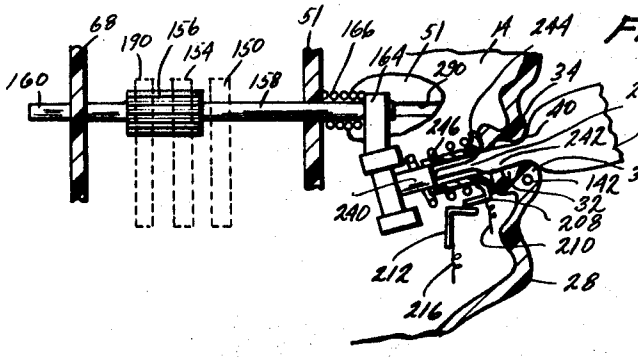



Fig. 9




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MECHANISM FOR SIMULATING INGESTION IN A FIGURE TOY

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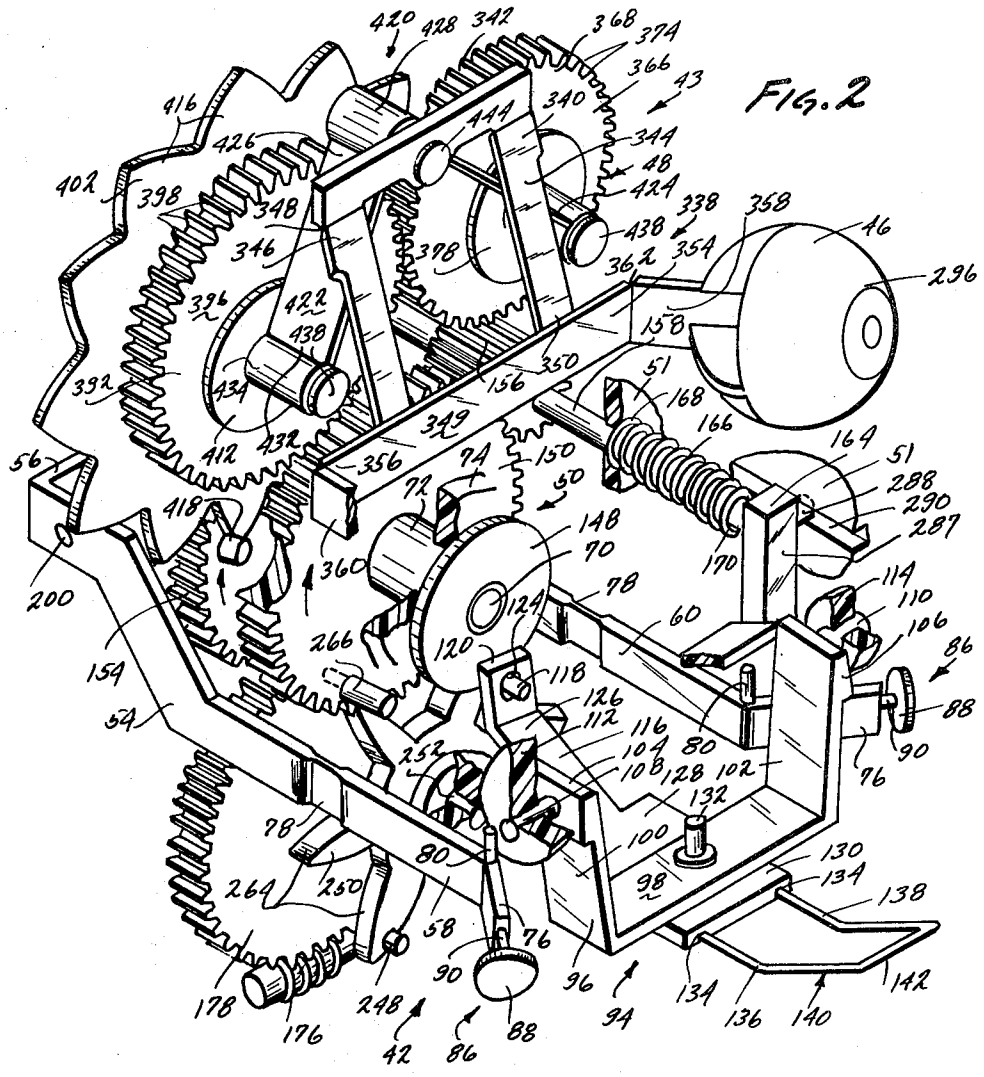


FIG. 2


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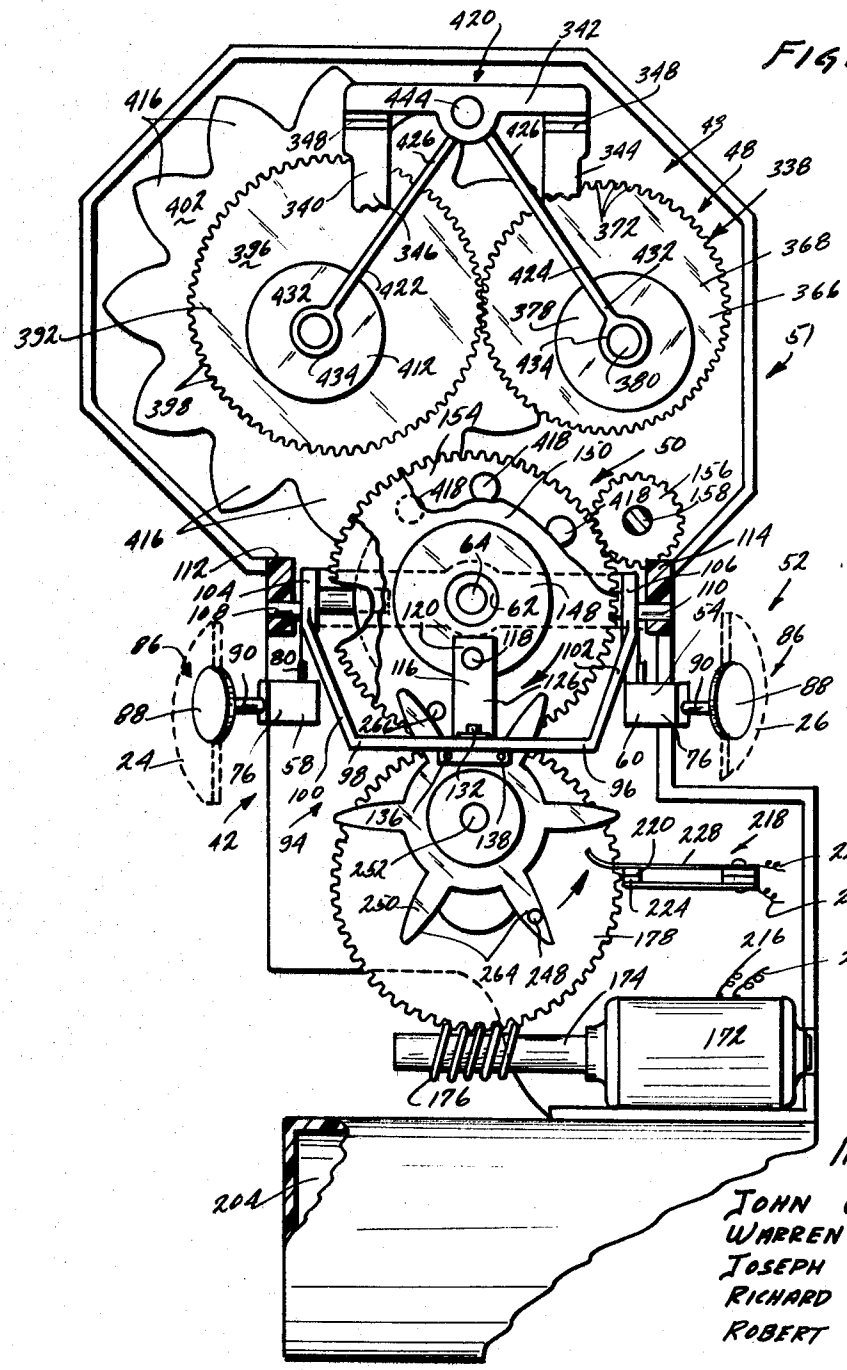
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MECHANISM FOR SIMULATING INGESTION IN A FIGURE TOY

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FIG. 3




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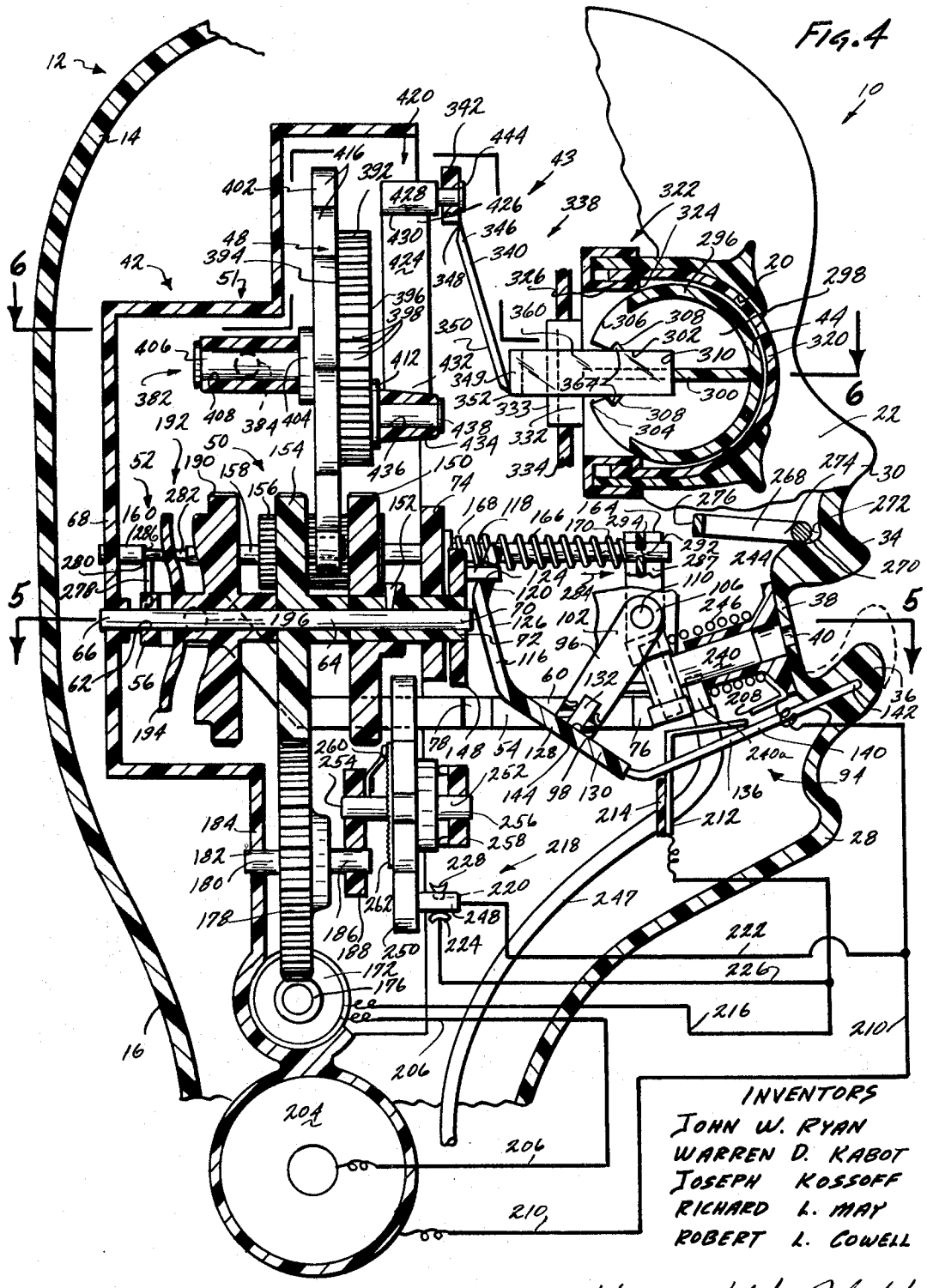
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MECHANISM FOR SIMULATING INGESTION IN A FIGURE TOY

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Fig. 4



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MECHANISM FOR SIMULATING INGESTION IN A FIGURE TOY

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FIG. 5

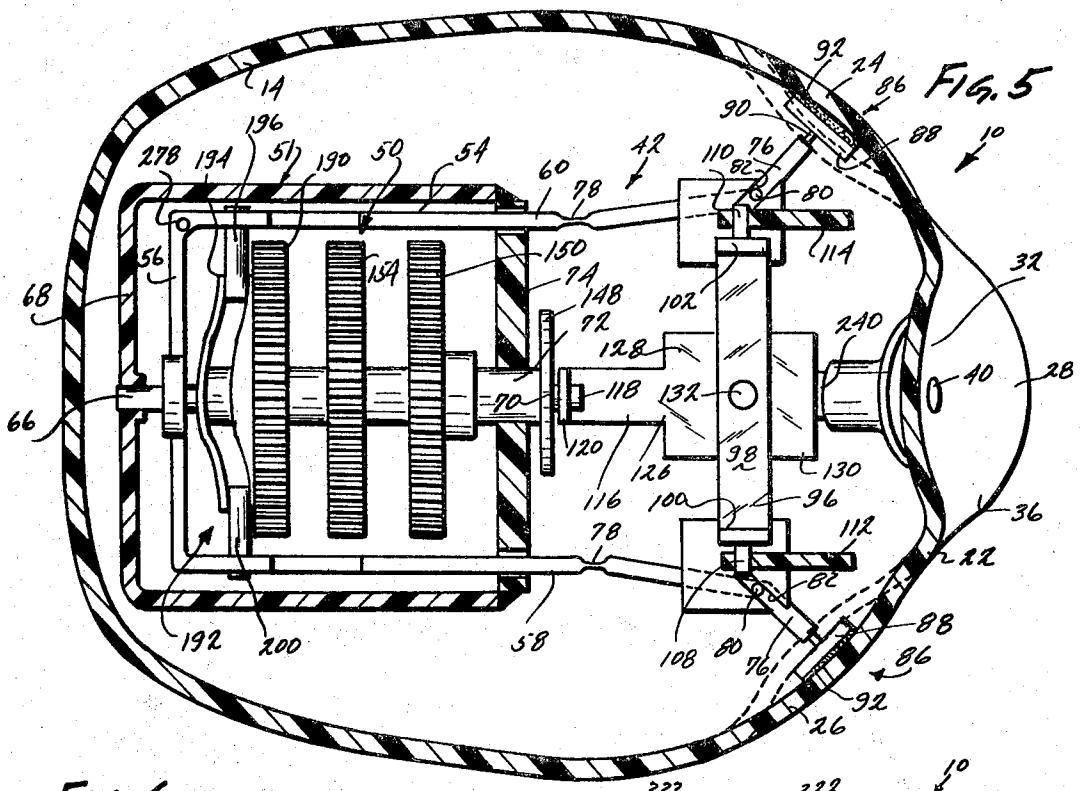
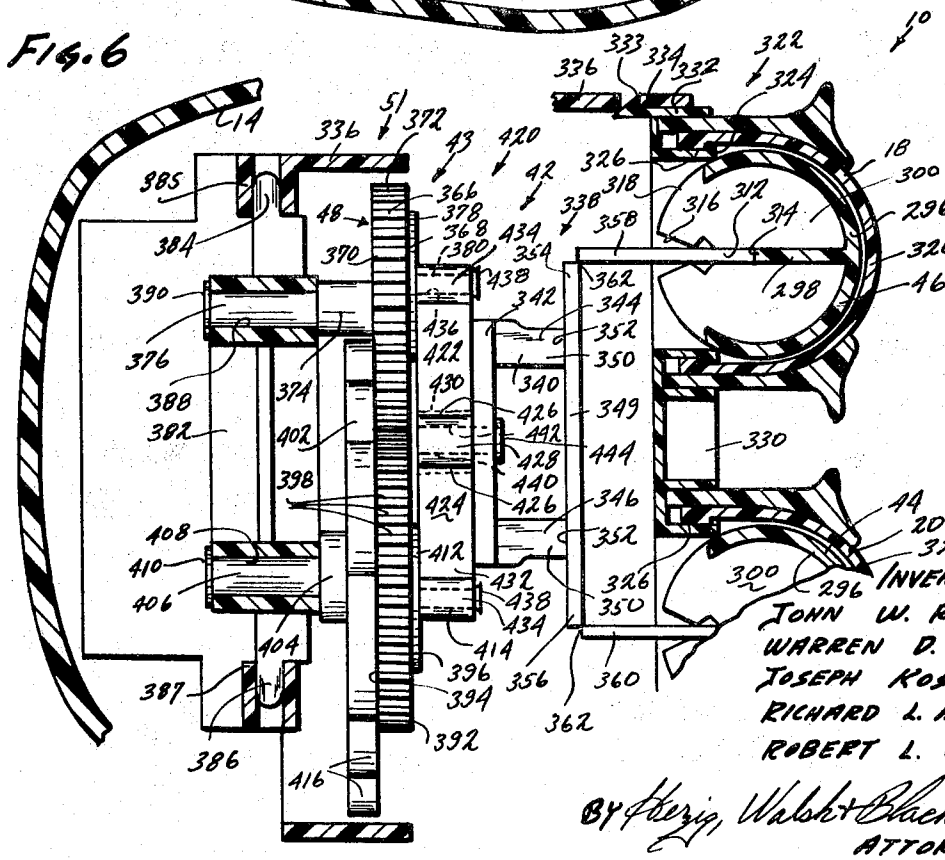


FIG. 6




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3,383,795

# MECHANISM FOR SIMULATING INGESTION IN A FIGURE TOY

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8 Claims. (Cl. 46—247)

## ABSTRACT OF THE DISCLOSURE

A toy figure having a head with movable lips, cheeks and eyes. In order to simulate nursing or chewing in the figure, a nursing bottle or a spoon may be inserted in the mouth to selectively connect an electric drive motor with either the movable cheeks and eyes or the movable lips and eyes, respectively. The connection between the motor and lips is such that the lower lip will move in an orbital path and will continue movement for a short time after withdrawal of the spoon.

The present invention relates to a new and useful mechanism for simulating ingestion in a figure toy and, more particularly, to such a mechanism which includes facial animating means for moving a doll's face through realistic, simulated ingestion movements and eye animating means for simultaneously moving the doll's eyes through realistic, non-uniform, eye sweeping patterns.

Mechanisms for simulating ingestion in figure toys are known. While generally satisfactory, some of these toys have the disadvantage that they employ a rigid face structure so that realistic, simulated ingestion movements cannot be imparted thereto by the mechanism for simulating ingestion. One of the prior art devices is in the form of a nursing doll which includes means for blinking the eyes of the doll at intervals during the nursing operation. Although generally satisfactory, the eye blinking mechanism does have certain disadvantages. One disadvantage resides in the fact that the eyes blink on a more or less uniform cycle which is not realistic. Another disadvantage resides in the fact that the eyes merely rotate about a horizontal axis and are incapable of sweeping movements usually found in the eyes of nursing babies.

In view of the foregoing factors and conditions characteristic of mechanisms for simulating ingestion in figure toys, it is a primary object of the present invention to provide a new and useful mechanism for simulating ingestion in figure toys not subject to the disadvantages enumerated above and having facial animating means for moving a flexible face through realistic, simulated ingestion movements.

Another object of the present invention is to provide a toy of the type described which includes means for moving the mouth and the cheeks of a doll through simulated nursing movements.

Yet another object of the present invention is to provide a toy of the type described which includes means for moving a doll's mouth through simulated chewing movements.

A further object of the present invention is to provide a mechanism for simulating ingestion in a doll and which operates in a first mode when a simulated nursing bottle is placed in the doll's mouth and in a second mode when a simulated feeding spoon is placed in the doll's mouth.

A still further object of the present invention is to provide a motor driven mechanism for simulating ingestion in a doll which includes a gear train for animating the cheeks of the doll when a simulated nursing bottle is



placed in the doll's mouth and for animating the lower lip of the doll when a simulated spoon is placed in the doll's mouth and which includes a delayed action switch for continuing operation of the motor a predetermined length of time after the feeding implements are removed from the doll's mouth.

According to the present invention, a mechanism for simulating ingestion in a doll is mounted in the doll's head. The doll's head is preferably made from a soft, flexible plastic material and includes eye sockets and a flexible face having cheeks and a mouth. The mouth includes an upper lip and a lower lip which are connected together by an inwardly extending, flexible bulb having an aperture provided therein. The aperture is connected by a fitting to actuating means for energizing the ingestion mechanism. The fitting is connected by a conduit to a discharge point within the body of the doll for carrying away any liquids which may be introduced into the mouth of the doll during simulated nursing operations.

The ingestion mechanism includes a facial animating means connected to the flexible face for moving it through realistic, simulated ingestion movements and eye animating means connected to the doll's eyes for moving them through realistic, non-uniform, eye-sweeping patterns. The facial animating means includes a cheek animating means for driving the cheeks on a predetermined cycle which also imparts movements to the doll's lips for simulating a nursing action and a lower lip animating means for driving the lower lip on a combined up-and-down and side-to-side pattern simulating chewing motions. The mechanism is driven by an electric motor through a gear train which includes a gear shifting mechanism for driving either the cheek animating means and the eye aminating means simultaneously or the lower lip animating means and the eye animating means simultaneously. The gear shifting mechanism is actuated by placing a probe in the form of a nursing bottle or a pacifier in the doll's mouth and pushing it into the mouth sufficiently to move a gear from its normally forward position where it enages driving gears for the lower lip and the eye animating means to a rear position where the gear engages the driving gears for the cheek and the eye animating means. The probe also closes an electrical circuit to the electric motor through a first switch.

When a simulated feeding spoon is placed in the doll's mouth, the first switch is again closed, but the shifting mechanism is not actuated so that the lower lip animating means and the eye animating means will operate. Operation of the lower lip animating means closes a second switch which is connected in parallel with the first switch. The second switch remains closed, even though the spoon is removed, until the ingestion mechanism operates through a predetermined number of cycles. The second switch is then automatically opened by a lug on a star wheel.

The doll's eyes are floatingly mounted in the eye sockets and are both connected to a common tie bar which is given a compound motion through a first crank which is attached to an eye-driving gear having a first predetermined number of teeth and by a second crank which is connected to another eye-driving gear having a different number of teeth. The eye-driving gears drivingly engage each other. Both cranks or connected to the cross bar at a common point and are driven intermittently by a star wheel. The star wheel is rotated three notches in rapid succession by three, closely-spaced lugs provided on a main drive gear in the gear train. The star wheel remains idle until the three lugs again come into engagement therewith. By using 31 teeth on one eye-driving gear and 28 teeth on the other eye-driving gear, it has been found that 48 revolutions of this common point may be made before the realistic, non-uniform, eye-sweeping

path which the eyes take repeats itself. Therefore, the eye-sweeping appears to be random.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings in which like reference characters refer to like elements in the several views.

*In the drawings*

FIGURE 1 is an elevational view of a figure toy incorporating a mechanism for simulating ingestion constituting a presently preferred embodiment of the present invention;

FIGURE 2 is a partial perspective view of the mechanism incorporated in the figure toy of FIG. 1;

FIGURE 3 is a front elevational view, with parts shown in cross-section, of the mechanism shown in FIG. 2;

FIGURE 4 is an enlarged, side elevational view, with parts broken away to show internal construction, of the figure toy of FIG. 1 and the mechanism of FIG. 2;

FIGURE 5 is a cross-sectional view taken along line 5—5 of FIG. 4;

FIGURE 6 is a partial cross-sectional view taken along line 6—6 of FIG. 4; and

FIGURES 7–9 are schematic views showing the operation of the switching mechanism used in the device shown in FIG. 2.

Referring again to the drawings and, more particularly, to FIGS. 1, 4 and 5, a mechanism for simulating ingestion in a figure toy, generally designated **10**, constituting a presently preferred embodiment of the invention, is in combination with a figure toy or doll **12** having a head **14** and a neck **16** which may be integrally molded from a suitable soft, flexible plastic material, such as a polyvinyl chloride of a type well known to those skilled in the art. The head **14** is provided with a pair of eye sockets **18**, **20** and includes a flexible face **22** having a pair of cheeks **24**, **26**, a chin **28**, a nose **30** and a mouth **32**. The mouth **32** includes an upper lip **34** and a lower lip **36** which are jointed together by an inwardly-concave wall **38** provided with an aperture **40**.

Referring now more in particular to FIGS. 1–6, the mechanism **10** is mounted in the figure toy **12** and includes a facial-animating means **42** and an eye-animating means **43**. The facial-animating means **42** is connected to the face **22** for moving it through realistic, simulated ingestion movements. The eye-animating means **43** is of the type disclosed in co-pending application, Ser. No. 599,569, filed Dec. 6, 1966 and includes a pair of eyeballs **44**, **46** floatingly mounted in associated eye sockets **18** and **20** and an eyeball drive means **48** connected to the eyeballs **44**, **46**, for moving them through realistic, non-uniform, eye-sweeping patterns. The facial-animating means **42** includes a facial-animating drive means **50** for driving it and the animating means **42** and **43** are both mounted in a housing **51**.

The facial-animating means **42** includes a cheek-animating means **52** of the type disclosed in co-pending application, Ser. No. 599,570, filed Dec. 6, 1966. The cheek-animating means **52** includes a substantially U-shaped cheek moving member **54** for moving the cheeks **24** and **26** through realistic, simulated nursing movements in a manner to be hereinafter described. The member **54** includes a bight portion **56** and a pair of parallel, forwardly-extending arms **58**, **60**. The bight portion **56** is provided with an aperture **62** (FIG. 4) for reciprocably mounting the member **54** on a fixed shaft **64** having a first end **66** seated in a rear wall **68** of the housing **51** and a second end **70** extending through a crank hub **72** which, in turn, is journaled in a partition **74** provided in the housing **51**. The arms **58** and **60** may be made from plastic material, such as polypropylene, and each arm includes an angularly-disposed free end **76** extending to a position closely adjacent an associated cheek **24**, **26**. Each arm **58**, **60** is provided with a hinge **78** intermediate an associated end **76** and the bight portion **56** which is formed by reducing the cross-section of an associated arm **58**, **60**. Each end **76** carries an upstanding pin **80** which rides in a slot **82** (FIG. 5) provided in a plate **84** affixed to the housing **51**. The pins **80** guide the ends **76** during reciprocation of the member **54** to flex associated cheeks **24**, **26** between the broken line and the solid line positions shown in FIG. 5. Each end **76** is connected to an associated cheek **24**, **26** by a connector means **86** which includes a disc **88** and a pin **90**. Each disc **88** may be secured to an associated cheek **24**, **26** by a suitable weldment **92** and the pins **90** may be secured to the associated ends **76** by any suitable means well known to those skilled in the art.

The facial-animating means **42** also includes a lower-lip animating means **94** for driving the lower lip **36** through realistic, simulated chewing movements following an orbital path having up-and-down and side-to-side components. The lower-lip animating means **94** includes a substantially U-shaped bridge **96** having a bight portion **98** and parallel arms **100**, **102**. The arms **100**, **102** have free ends **104**, **106**, respectively, which carry associated, outwardly-extending trunnions **108**, **110** for swingably mounting the bridge **96** in the housing **51** by journaling the trunnions **108**, **110** in associated housing side walls **112**, **114**, respectively.

The animating means **94** also includes a connecting rod **116** connecting a crank pin **118** to the bridge **96** and to the lower lip **36**. The connecting rod **116** includes an end **120**, which is provided with an aperture **124** for rotatably receiving the crank pin **118**, and a first downwardly and forwardly extending leg **126**, extending from the end **120** to a second downwardly and forwardly extending leg **128** having an end **130** and carrying an upstanding pin **132**. The end **130** is provided with a pair of counterbores **134** (FIG. 2) frictionally engaged by associated arms **136**, **138** provided on a wire, lip clip **140** having a bight portion **142** embedded in the lower lip **36**. The pin **132** is rotatably received in an aperture **144** (FIG. 4) provided in the bight portion **98** of the bridge **96** and is retained in position therein by a snap washer **146**.

The facial-animating drive means **50** includes a wheel **148** which is carried by the hub **72** and on which the crank pin **118** is eccentrically mounted. The drive means **50** also includes a lower-lip driving gear **150** which is keyed to the hub **72** by a key **152** (FIG. 4) for imparting rotation to the crank **118**. The gear **150** is driven by the eyeball-drive means **48** through an eyeball-driving gear **154** forming a part thereof and drivingly associated with the gear **150** through a shiftable pinion gear **156** reciprocably mounted in the housing **51** by a shaft **158** having one end **160** journaled in the rear wall **68** and another end **162** operatively associated with a shift lever **164**. The shift lever **164** is normally biased to the position shown in FIGS. 2, 4 and 7 by a compression spring **166** which encompasses the shaft **158** and which has a first end **168** bearing against a partition **169** in housing **51** and a second end **170** bearing against the lever **164**. In this position, the pinion gear **156** drivingly engages both the eye-ball driving gear **154** and the lower-lip driving gear **150** for transferring rotation of the gear **154** to the gear **150**, thereby rotating the crank pin **118**. This rotation drives the lower lip **36** on its up-and-down and side-to-side path through connecting rod **116**, bridge **96** and clip **140** for moving the face **22** through realistic, simulated ingestion movements in the form of chewing motions.

The facial-animating drive means **50** and the eyeball-drive means **48** are both powered by an electric motor **172** having an output shaft **174** to which a worm gear **176** is affixed for rotation thereby. The worm gear **176** drives a main drive gear **178** which is rotatably mounted in the

housing 51 by a shaft 180 (FIG. 4) having a first end 182 journaled in an end wall 184 of housing 51 and a second end 186 journaled in a partition 188 provided in the housing 51. The main drive gear 178 drivingly engages the eyeball-driving gear 154 for imparting rotation thereto.

The drive means 50 also includes a cheek-driving gear 190 which is rotatably mounted on the shaft 64 and which carries a cam member 192 for rotation thereby. The cam member 192 is provided with a shaped groove 194 in which is caged a first pin 196 (FIG. 5) carried by the arm 58 of the member 54 and a second pin 200 carried by the arm 60. The cam groove 194 is suitably shaped for translating rotary motion into linear, reciprocating motion of arms 58, 60 through the pins 196 and 200. When arms 58, 60 are moved to the left, as viewed in FIG. 5, the cheeks 24 and 26 are drawn rearwardly and inwardly to their broken line positions shown in FIG. 5. Return movement of arms 58, 60 to the right returns the cheeks 24 and 26 to their FIG. 5 solid line positions. During such reciprocation, the ends 76 of the member 54 follow the path defined by the slots 82 while the arms 58 and 60 bend at their associated hinges 78.

Rotation is imparted to the gear 190 by the gear 154 through the pinion gear 156 only when the pinion gear 156 is shifted by lever 164 from driving engagement with the gears 150 and 154 to driving engagement with the gears 154 and 190, as shown in FIGS. 8 and 9. At this time, the lower-lip driving gear becomes idle. Thus, when the toy 12 is being operated in its chewing mode by the lower-lip driving gear 150, the cheek driving gear 190 remains idle so that the toy 12 does not also simultaneously operate in its nursing mode and, alternatively, the gear 150 remains idle when the gear 190 is being driven by the pinion gear 156 so that the doll 12 does not operate in its chewing mode when it is being operated in its nursing mode. On the other hand, the eye-animating means 43 operates regardless of the ingestion mode because of the direct connection of the gear 154 with the gear 178 and worm gear 176.

Referring now more in particular to FIGS. 3–4, and 7–9, electrical power may be supplied to the motor 172 by suitable dry cell means 204 which is connected to the motor 172 by a lead 206 and to a movable electrical contact 208 by a lead 210. The contact 208 is affixed to the wall 38 in the mouth 32 and may be moved into engagement with a fixed contact 212, which is affixed to a partition 214 provided in the housing 51. The fixed contact 212 is connected to the motor 172 by a lead 216 for completing a circuit thereto when engaged by the movable contact 208. A circuit may also be completed to the motor 172 through a switch 218 having a first contact 220 connected to the lead 210 by a lead 222 and a second contact 224 connected to the lead 216 by a lead 226. Thus, the switch 218 is placed in a parallel circuit with the contacts 208 and 212 so that a circuit will be completed to the motor 172 whenever one set of contacts 220, 224 or 208, 212 are closed. The contacts 220 and 224 are normally closed by a leaf spring 228 which biases the contact 220 into engagement with the contact 224. The contacts 208 and 212 may be closed by moving the wall 38 sufficiently to engage the movable contact 208 against the fixed contact 212. The wall 38 may be moved, as shown in FIG. 7, by a simulated feeding spoon 230 having a handle 232 and a head 234. Alternatively, the contact 208 may be moved by a simulated nursing bottle 236 (FIGS. 8 and 9) having a simulated nipple 238. The length of the nipple 238 is such that it will engage a rigid member 240, which is affixed to the lever 164 by a cross bar 24 (FIGS. 2 and 4), for swinging the lever to the position shown in FIG. 8 and shift the pinion gear 156 from the gear 150 to the gear 190 before an enlarged portion 242 provided on the nipple 238 engages the wall 38 to move the contact 208 to its FIG. 9 position. The wall 38 is connected to the rigid member 240 by a reciprocable sleeve member 244 so that the wall 38 is free to move with respect to the rigid member 240 without imparting motion hereto. Thus, the contact 208 may be moved to its FIG. 7 position for operating the toy 10 in its chewing mode without shifting gear 156 to the nursing mode. When the spoon 230, or the nursing bottle 236, is removed from the mouth 32, the contact 208 will be moved back to its FIGS. 4 and 8 position by a compression spring 246 which encompasses the sleeve 244.

Liquids may be introduced into the doll 12 from the bottle 236 and directed to a discharge point (not shown) for performing a well-known doll "wetting" function. These liquids may be discharged from the nipple 238 into the rigid member 240 from whence they flow through an outlet conduit 247 which is connected to the member 240 by an outlet nipple 240*a* and which passes through the neck 16 into a lower torso portion (not shown) of doll 12.

Referring to FIGURES 2–4 and 7, switch 218 is opened after the lower-lip driving gear 150 rotates through a predetermined number of cycles by a lug 248 carried on a star wheel 250. The star wheel 250 is rotatably mounted in the housing 51 by a shaft 252 having a first end 254 journaled in the partition 188 (FIG. 4) and a second end 256 journaled in a partition 258. The partition 188 carries a detent spring 260 which engages a plurality of teeth 262 carried by the wheel 250 for preventing unwanted rotation thereof. The wheel 250 includes a plurality of points or fingers 264 engageable by a pin 266 (FIGS. 2 and 7) carried by the gear 150 for imparting an increment of rotation to the wheel 250 each time the gear 150 completes a full revolution. Thus, the switch 218 will be automatically opened by the lug 248 after the gear 150 has completed enough revolutions to rotate the wheel 250 through a full revolution. Assuming that the spoon 230 has been previously removed from the mouth 32, the doll 12 will then stop chewing until the spoon 230 is again inserted into the mouth moving the contact 208 into engagement with the contact 212. This again energizes the motor 172 imparting rotation to the gear 150 through worm gear 176, main drive gear 178, eyeball-drive gear 154 and pinion gear 156. Initial rotation of the gear 150 will drive the lug 248 out of engagement with the leaf spring 228 closing switch 218 so that the motor 172 will continue to operate for a predetermined number of revolutions after the spoon 230 has been removed from the mouth 30. Thus, a child user may insert the spoon to simulate giving the toy 12 a spoonful of food and remove the spoon while the doll 12 chews the food for a predetermined number of cycles until the switch 218 opens. The child may then feed the doll 12 another spoonful of food.

During this chewing cycle, the upper lip 34 will receive some sympathetic movement from the lip 36 through the wall 38. However, substantial movement of the upper lip 34 is prevented by a bridge member 268 (FIG. 4) comprising a substantially U-shaped member having a bight portion 270 seated against the inner wall 272 of the face 22 between the nose 30 and the upper lip 34 and a pair of parallel arms, such as the one shown at 274, each connected by a brace member 276 to the housing 51.

During operation of the toy 12 in the nursing mode wherein the member 54 is reciprocated on the shaft 64 to move the cheeks 24, 26 between their solid and broken line positions shown in FIG. 5, a certain amount of sympathetic movement is also imparted to the lips 34 and 36 through the flexible face 22 to heighten the nursing illusion. The flexible face 22 is molded with a preset so that the cheeks 24, 26 are normally indented to the position shown in broken lines in FIG. 5. Since the figure toy 12 would have a somewhat unnatural appearance if the cheeks 24, 26 remained in their broken line positions when the member 54 is inoperative, the cheeks 24, 26 are moved to their solid line positions automatically when operation of the member 54 is terminated. This is accomplished by mounting a pin 278 (FIG. 4) on the arm

58 and engaging the upper end 289 of the pin 278 in a small-diameter portion 282 provided on the rod 158. Then upon removal of the nursing bottle 236 from engagement with the rigid member 240 so that the spring 166 is free to move the rod 158 forwardly in the direction of arrow 284 (FIG. 4), the rod 158 will also move the member 54 forwardly through the engagement of pin 278 by an annular shoulder 286 on rod 158.

The lever 164 includes an upper end 287 which carries a pin 288. The pin 288 rides in a slot 290 provided in the housing 51 for guiding end 287 of lever 164. The lever 164 is connected to the shaft 158 for imparting reciprocation thereto without interfering with the rotation thereof by engaging a reduced diameter portion 292 of the shaft 158 between vertical ribs, like the one shown at 294 in FIG. 4, provided on the end 287 of lever 164.

Referring now more in particular to FIGS. 2, 4 and 6, the eyeballs 44, 46 each includes a hollow, substantially hemispherically-shaped member 296 in which a pair of plates 298, 300 are mounted at right angles to each other. The plate 298 is provided with a substantially rectangular slot 302 (FIG. 4) having a mouth 304 which flares outwardly to the periphery 306 of the plate 298 and a pair of notches 308 intermediate the mouth 304 and a closed end wall 310 defining the inner end of the slot 302. The plate 300 is provided with a slot 312 (FIG. 6) having a closed end 314 lying at right angles to the end wall 310 and an outwardly-flared open end 316 at the peripheral edge 318 of the plate 300.

The eyeballs 44, 46 are each floatingly mounted in a transparent plastic bubble 320 which is clamped into position within an associated eye socket 18, 20 by a bridge member 322 having a pair of clamping rings 324 clamping the eye sockets 18, 20 and associated bubbles 320 together at the open ends 326 thereof. The bridge 322 includes upper and lower rails, as shown at 330 in FIG. 6 for the lower rail, connecting the clamping rings 324 together and is connected to the housing 51 by a pair of clips carried by the ends of bridge 322, as shown at 332 in FIGS. 4 and 6 for one clip, which is carried by end 333 of bridge 322. Each clip 332 may be snapped into engagement with an associated lug 334 affixed to an associated side wall 336 on the housing 51.

The eyeballs 44, 46 are connected to the eyeball-drive means 48 by a connector means 338 which may be made of a suitable plastic material, such as polypropylene, and which includes a U-shaped member 340 having a bight portion 342 to which a pair of downwardly and forwardly extending arms 344, 346 are connected by associated hinges 348 formed in the connector means 338 by reducing the cross-section thereof at the junction of the arms 344, 346 with the bight portion 342. The connector means 338 also includes a cross bar 349 which is connected to the free ends 350 of associated arms 344, 346 by associated hinge members 352 formed in the connector means 338 by reducing the cross-section thereof at the junction of the arms 344, 346 with the cross bar 349, as is well known in the art for forming live hinges in polypropylene members. The cross arm 349 includes a first end 354 and a second end 356 to which first and second links 358 and 360, respectively, are connected by live hinges 362 formed in the connector means 338 by reducing the cross-section thereof at the junction of the links 358, 360 with the cross arm 349. The links 358, 360 each carry a pair of protuberances 364 (FIG. 4) which may be seated in associated notches 308 provided in associated slots 302 so that the links 358, 360 may be connected to their associated eyeballs 44, 46 for transmitting realistic, non-uniform, eye-sweeping movements thereto from the eyeball-drive means 48.

Referring to FIGS. 2, 3, 4 and 6, the drive means 48 includes a small-diameter gear 366 having a front face 368, a rear face 370 (FIG. 6) and a plurality of teeth 372. The rear face 370 carries an integrally formed hub 374 and a spindle 376 and the front face 368 is provided with a cylindrical land 378 and an integral crank pin 380 which are offset from the center of rotation of the gear 366. The gear 366 is journaled in a bearing block 382 having a first cylindrical end 384 connected to a hollow boss 385 on the side wall 336 of housing 51 and a second cylindrical end 386 connected to a hollow boss 387 on the housing 51. The bearing block 382 is provided with a first aperture 388 receiving the spindle 376, which may be maintained in operative association with block 382 by forming an enlarged head 390 on the free end of spindle 376 and by the hub 374.

The drive means 48 also includes a large-diameter gear 392 having a rear face 394, a front face 396 and a plurality of teeth 398, which mesh with the teeth 372. The rear face 394 carries a star wheel 402 which, in turn, carries a hub 404 and a spindle 406 for rotatably connecting the gear 392 and the star wheel 404 to the bearing block 382 by engaging the spindle 406 in an aperture 408 provided in the bearing block 382. The free end of the spindle 406 may be provided with an enlarged head 410 which cooperates with the hub 404 for maintaining the spindle 406 in operative association with the bearing block 382. A cylindrical land 412 and an integral crank pin 414 are carried by the front face 396 of the gear 392 and are offset from the center of rotation thereof.

The star wheel 402 includes a plurality of teeth 416 engageable by three closely-spaced pins 418 (FIG. 3) which are provided on the gear 154 for rotating the wheel 402 through three predetermined increments of rotation during each complete revolution of the gear 154. The pins 418 are adapted to engage three teeth 416 in succession and then remain disengaged from the teeth 416 until the gear 154 starts its next revolution. These increments of rotation are transmitted by the star wheel 402 to the gear 392 which, in turn, drives the small-diameter gear 366.

The combined output of the gears 366 and 392 is transmitted to the connector means 338 by a connecting-rod means 240 having a pair of arms 422, 424, each of which includes a first end 426 connected to a hub member 428 by an associated live hinge 430. The arms 422, 424 each includes a second end 432 which carries a hub 434 provided with an aperture 436. The aperture 436 on the arm 424 rotatably receives the crank pin 414 on gear 392, and is retained in position on the crank pin 414 by an enlarged head 438 provided thereon. The aperture 436 in the arm 422 rotatably receives the crank pin 380 and is retained in position on the crank pin 380 by an enlarged head 439 provided thereon. The hub 428 carries a pin 440 received in an aperture 442 (FIG. 4) provided in the bight portion 342 of connector means 338 for connecting the hub 428 thereto. The pin 440 may be provided with an enlarged head 444 for retaining it in position on bight portion 342. The pin 440 constitutes an eccentric drive for the connector means 338 and is driven through a path defined by the combined output of the crank pins 380 and 414. This combined output appears to be random in nature because the drive gear 154 may make a great many revolutions before the path followed by the pin 440 repeats itself. This is accomplished by giving the large-diameter gear 392 an odd number of teeth, such as 31, and the small-diameter gear 366 an even, lesser number of teeth, such as 28. The connector means 338 transmits the path of travel of the pin 440 to the eyeballs 44, 46 moving them through realistic, non-uniform, eye-sweeping patterns within their associated bubbles 320.

While the particular mechanism for simulating ingestion in a figure toy herein shown and described in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiment of the invention and that no limitations are in-

tended to the details of construction or design herein shown other than as defined in the appended claims.

What is claimed is:

1. In a figure toy having a head provided with a flexible unsupported face including a mouth defined by a mouth cavity and upper and lower lips: animating means connected to a mid-portion of said lower lip for cyclically moving said portion in a generally orbital path toward and from said upper lip and from side-to-side of said face; and movable drive means for actuating said animating means whereby to animate said mouth in simulation of natural chewing motions.

2. A figure toy as defined in claim 1 wherein said animation means comprises a lever; support means mounting said lever in said head for universal pivotal movement about a center intermediate its ends, one end of said lever being connected to said mid portion of said lower lip, said drive means being arranged to swing the other end of said lever in a closed path.

3. A figure toy as defined in claim 2 wherein said support means is pivotally mounted about an axis generally parallel to said lower lip, said lever being pivoted to said support means about an axis oblique to a line containing the ends of said lever whereby circular motion of said other end moves said one end about a non-circular orbital path.

4. A figure toy as defined in claim 1 including control means accessible in said mouth cavity for selectively disconnecting said animating means from said drive means.

5. A figure toy as defined in claim 1 including an electric motor for powering said drive means; a normally open first switch for controlling operation of said motor; and control means operable from within said mouth cavity for selectively closing said switch to start said motor.

6. A figure toy as defined in claim 5 including a second normally closed switch for energizing said motor independently of said first switch; said drive means including a movable member arranged to open said second switch when in one position and cyclically movable away from then back to said position by said motor whereby said second switch is closed upon starting said motor by closing said first switch and said motor continues to run, after opening said first switch, until said movable member again reaches said position.

7. In a figure toy having a head provided with a flexible unsupported face including a mouth having an outwardly open mouth cavity, cheeks and eyes: first animating means connected to said mouth to flexibly move the same to simulate a first natural motion; second animating means connected to at least one of said cheeks to flexibly move the same to simulate a second natural motion; drive means; and control means accessible in said mouth cavity for seslectively connecting either said first or second animating means to said drive means.

8. A figure toy as defined in claim 7 wherein said control means includes yieldable means normally holding one of said animating means connected to said drive means; a motor for powering said drive means; and a switch means operable from within said mouth cavity for controlling said motor, said switch means being operable independently of said control means.

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