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Glass et al.

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[45] **Jan. 7, 1975**

[54] **ANIMATED DANCING DOLL**

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[73] Assignee: **Marvin Glass & Associates,** Chicago, Ill.

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[52] **U.S. Cl.** **46/247,** 46/120, 46/136

[51] **Int. Cl.** **A63h 33/26**

[58] **Field of Search** 46/120, 247, 228, 136, 46/245

[56] **References Cited**

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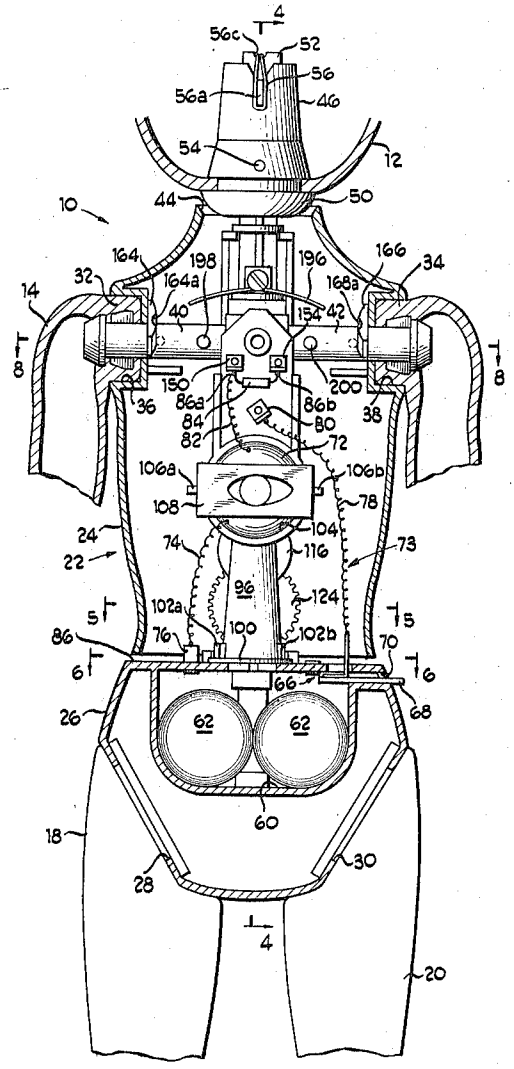
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Assistant Examiner—Robert F. Cutting
Attorney, Agent, or Firm—Coffee & Sweeney

[57] **ABSTRACT**

An animated doll comprising a body having relatively movable upper and lower torso portions, a head movably mounted relative to the torso, and a pair of movable arms. The arms are connected with circuitry for actuating a motor in the interior of the torso, with the motor being associated with drive means for moving the upper torso in a reciprocal tilting or toggle motion about a horizontal axis relative to the lower torso. Each arm is associated with separate contacts in the circuitry for actuating the motor and a resistance means is provided between the contacts for changing the amount of power supplied to the motor, and therefore the speed thereof, depending on which arm is moved to an actuating position. In addition, the head is movable about a vertical axis facing one side or the other depending on which arm is moved to actuating position.

14 Claims, 9 Drawing Figures



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2 Sheets-Sheet 1

Fig 1

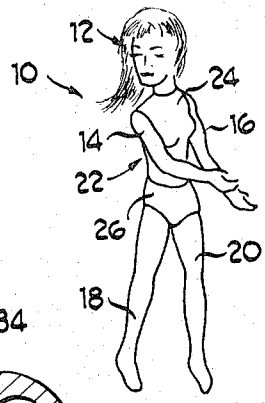


Fig 2

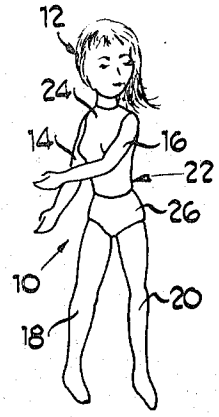


Fig 3

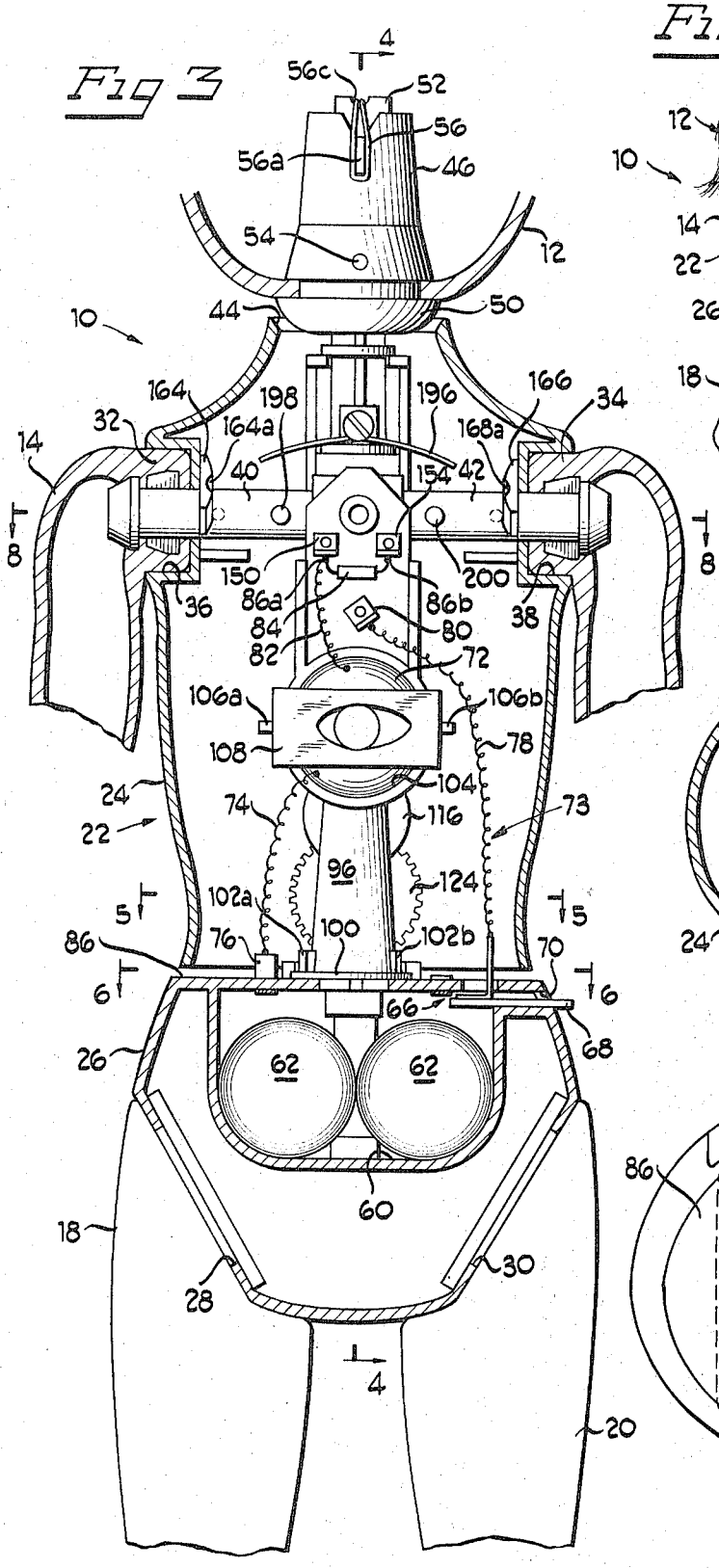
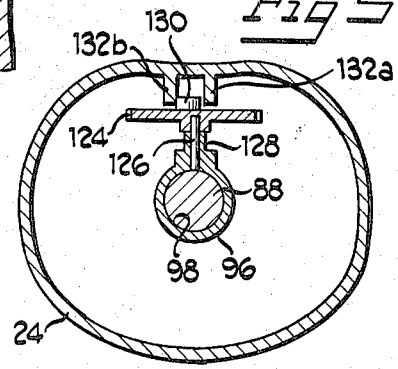


Fig 5



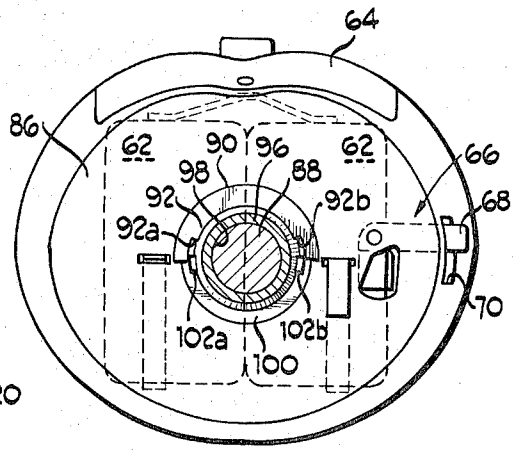


Fig 6

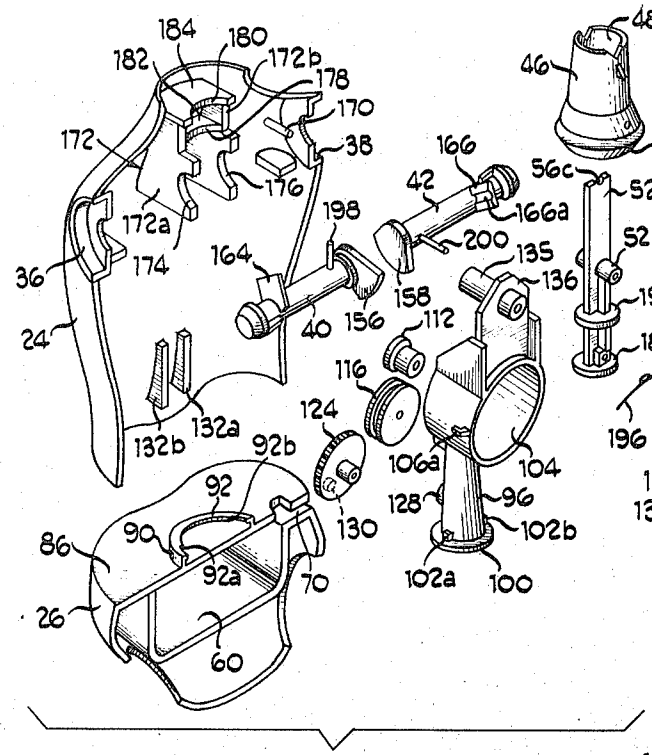


Fig 7

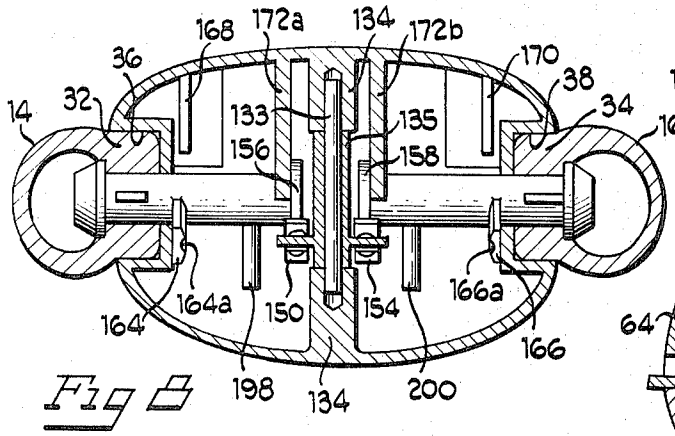


Fig 8

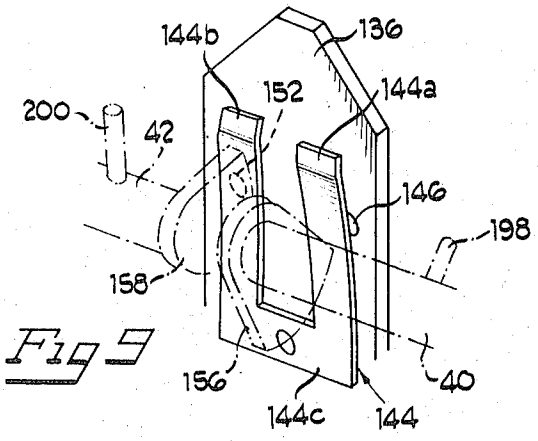


Fig 9

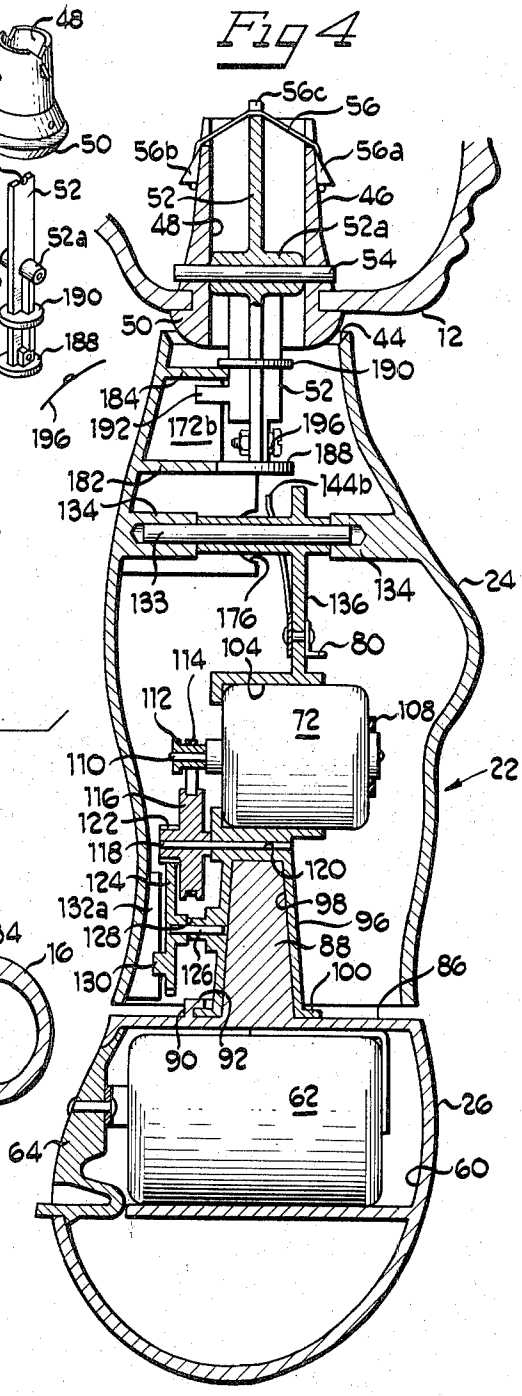


Fig 4

ANIMATED DANCING DOLL

BACKGROUND OF THE INVENTION

This invention relates to animated dolls and, particularly, to animated dolls having relatively movable, positively driven portions.

The prior art, such as found in Class 56, subclass 120, and other related classes, abounds in animated doll figures having relatively movable portions. Furthermore, it is common to provide such dolls with an internal motive means for positively driving some component of the doll to produce a desired effect. Such dolls are always well received in the art, in that it is easy for a child to identify with a doll which appears to have its own capability of motion. Accordingly, improvements in such animated dolls are well received and this invention is directed to an improved form of an animated doll wherein portions of the torso move relative to each other to simulate a dancing motion.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

This invention is directed, in brief, to the provision of an improved animated doll having relatively movable torso portions.

The best mode currently contemplated for carrying out the invention includes a doll having a torso comprised of an upper and lower portion which are connected together for movement relative to each other. The upper torso supports a transversely oriented pivot pin which mounts the upper torso for movement about a horizontal axis. A pair of arms are pivoted to the upper portion of the torso and each arm includes an inwardly extending shaft having a cam member thereon in a position to engage one portion of a contact associated with circuitry for actuating the motor. The circuit includes a resistor interposed between the two contacts so that, depending upon which contact is closed, a different output speed will be supplied by the motor to drive the doll through a swaying motion. Also the doll head is mounted for pivotal movement relative to the body to permit it to be moved in response to movement of the doll's arms to upper actuating positions.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the doll of this invention in one position of movement;

FIG. 2 is a perspective view of the doll of this invention in another position of movement;

FIG. 3 is a fragmentary enlarged vertical section of the doll of this invention;

FIG. 4 is a section view taken generally along the lines 4—4 of FIG. 3;

FIG. 5 is a section view taken generally along the lines 5—5 of FIG. 3;

FIG. 6 is a section view taken generally along the lines 6—6 of FIG. 3;

FIG. 7 is a fragmentary exploded view of portions of the torso interior of the doll of this invention;

FIG. 8 is a section view taken generally along the lines 8—8 of FIG. 3; and

FIG. 9 is a fragmentary perspective view of a portion of the contacts and circuitry for actuating the motor means of the doll of this invention.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a specific embodiment therefor, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention of the embodiment illustrated.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

The doll **10** of this invention includes a head **12**, arms **14** and **16** and legs **18** and **20**, all of which are connected to a torso **22** made up of an upper torso portion **24** and a lower torso portion **26**. The legs **18** and **20** are connected to the lower torso portion **26** at joints **28** and **30** so that the position of the legs may be moved with respect to the lower torso. Each arm **14** and **16** terminates in a transverse, inwardly directed stub **32** and **34**, respectively. Therefor, each arm can be rotated relative to the torso. In addition, each arm is connected to a rotatable shaft defined by portions **40** and **42** which extend through the recesses **36** and **38**, respectively, into the interior of the upper portion **24** of torso **22** so that movement of the arms may be translated to effectuate either movement or actuation of related components in the interior of the torso.

The top of the upper torso portion **24** has an opening **44** in which a head sleeve **46** is received. Head sleeve **46** has a hollow interior **48** and a spherical segmental bottom portion or ball end **50** which occupies the majority of the opening **44** at the top of the torso. A head column **52** extends through the hollow interior **48** of head sleeve **46**. Head column **52** has a transverse bearing sleeve **52***a*, and a pivot pin **54** is transversely oriented through the head column sleeve **52***a* and the head sleeve **46** so as to allow for relative pivotal movement between the head **12** and the column **52** about a horizontal axis. Column **52** extends downwardly into the interior of the upper torso portion **24** for association with other components of the doll, as will be explained hereinafter. A resilient band **56** is stressed between nibs **56***a* and **56***b* on opposite sides of the head sleeve **46** and extends through a notch **56***c* in the head column **52** so as to resiliently limit the relative free movement between the head column **52** and the head **12**.

The lower torso portion **26** is provided with a battery chamber **60** in which there may be received a pair of batteries **62** which provide a source of power for the doll. An access panel **64** is provided for gaining access into the battery chamber **60** for the removal and replacement of batteries as necessary. Switch means **66** (FIG. 6) is associated with the battery chamber **60** and includes a switch arm **68** which protrudes exteriorly of the lower torso portion **26** through slot **70**. The switch is movable between an "on" position and an "off" position to selectively supply power from the battery **62** or to terminate the supply of power therefrom as desired.

The doll of this invention is further provided with motive means in the form of a motor **72** in the interior of the upper torso portion **24**. Motor **72** is included in a circuit **73** which also includes the battery source of power. Circuit **73** includes a wire **74** which extends from post **76** on the battery chamber **60** to one side of the motor **72**. Another wire **78** leads from the switch **66** to a post **80** and another wire **82** leads from a resistor **84** which spans posts **86***a* and **86***b*. Posts **86***a* and **86***b* are part of normally open contacts to be described hereinafter. Motor **72** may be actuated when the switch

66 is in the "on" position and when the circuit is closed across one of the posts 86*a* and 86*b*.

The lower torso portion 26 includes a generally planar top wall 86 and a generally centrally oriented, upwardly extending, frusto-conical post 88. A semi-annular ring 90 (as best seen in FIG. 7) is provided on top of wall 86 adjacent to the post 88. Ring 90 includes an inwardly directed flange 92 which terminates in shoulders 92*a* and 92*b* that form one part of a limit means for limiting the rotational movement of the upper torso portion 24 of the doll about a vertical axis relative to the lower torso portion 26.

A generally frusto-conical motor support and bearing sleeve 96 is telescopically positioned about post 88. Sleeve 96 has a generally hollow interior 98, which substantially mates with the exterior configuration of the post 88, and terminates in a base flange 100. Base flange 100 has a pair of spaced apart lugs 102*a* and 102*b* which are positioned for engagement with the shoulders or stops 92*a* or 92*b* of flange 92 so as to limit the rotation of the sleeve 96 about the axis of the post 88.

The sleeve 96 supports a hollow cylindrical motor housing sleeve 104 which is oriented about an axis generally transverse to the axis of the sleeve 96. The motor housing sleeve 104 has a pair of outwardly projecting ears 106*a* and 106*b* which impale, and hold, a flexible band or strap 108 which is wrapped about the open ends of sleeve 104 to retain motor 72 within sleeve 104.

Motor 72 has a rotatably driven output shaft 110 having a pulley 112 fixed thereto. Pulley 112 drives a belt 114 which also is wound about a pulley 116 fixed on shaft 118. Shaft 118 is rotatably mounted on a bearing sleeve 120 which is an integral part of support sleeve 96. Pulley 116 has a pinion portion 122 which is in meshing engagement with a gear 124 mounted on gear shaft 126. Gear shaft 126 is rotatably received in the hub portion 128 of support sleeve 96. Gear 124 has an eccentric projection 130 which projects outwardly from the gear, off-center relative to gear shaft 126. Eccentric 130 comprises a track portion of a tracking and follower arrangement which further includes a pair of spaced apart ribs 132*a* and 132*b* (FIG. 7) which project inwardly from the interior wall of the upper torso portion 24 on opposite sides of eccentric 130. By this arrangement, as gear 124 rotates responsive to the drive of motor 72, a lateral to and fro tilting or toggle movement will be imparted to the upper torso 24 relative to the lower portion 26 about a horizontal axis defined by a shaft member 133. More particularly, the shaft member 133 extends front to rear of the doll within the upper torso portion 24 and is journalled at its ends in bosses 134 formed integral with the upper torso portion. The shaft member 133 is mounted in a sleeve 135 which is part of a frame piece 136 protruding upwardly from the motor housing 104.

Frame piece 136 has a U-shaped contact member 144 (FIG. 9) connected thereto. Contact member 144 includes a pair of contact arms 144*a* and 144*b* mutually connected by a base portion 144*c*. Arm 144*a* is spaced away from a pin-like eyelet 146 which extends through frame piece 136 and supports a contact post 150 (FIG. 3) on the other side of the frame piece 136. Arm 144*b* is spaced away from a pin-like eyelet 152 which extends through frame piece 136 and mounts a contact post 154 to the other side of the frame piece. Resistor 84 is connected between the contact posts 150 and 154.

Cam extensions 156 and 158 project outwardly from shafts 40 and 42, adjacent to contact arms 144*a* and 144*b*, respectively, so that, as one of the arms 14 or 16 is moved to rotate shaft portions 40 and 42, respectively, one of the cams 156 or 158 will move one of the contact arms 144*a* or 144*b* into engagement with its adjacent pin eyelet 146 or 152 to close the circuit thereacross, and supply power to the motor 72, when the switch means 66 is in the "on" position.

Each shaft 40 and 42 also has a radially outwardly extending first locking member or leg 164 and 166, respectively, each of which has a medial depression or groove 164*a* or 166*a* therein. The interior of the torso 24 includes inwardly extending posts or second locking members 168 and 170 (FIG. 8) which are positioned adjacent to the first locking members 164 and 166, respectively. By this arrangement, the arms may be held in an "up" or "on" position to maintain the circuit across the contacts 144*a* or 144*b* closed so that the motor 72 may be continually actuated as long as the switch means 66 is in the "on" position. Either arm 14 or 16 may be easily moved to this locking position or away therefrom by pivoting the arm about its mounting so that post 168 or 170 rides over locking members 164 or 166 and occupies groove 164*a* or 166*a*.

The interior of the upper torso 24 also is provided with an inwardly extending neck column support and guide frame 172 (FIG. 7). Frame 172 includes a pair of side walls 172*a* and 172*b*, each having an inwardly facing recess 174 and 176, respectively, which closely embraces the shafts 40 and 42. In addition, the frame includes a pair of vertically spaced, inwardly directed recesses 178 and 180 formed in an intermediate panel 182 and a top panel 184, respectively.

Column 52 includes a disc-like base 188, the periphery of which bears against a recess 178 and is guided thereon, and a second vertically spaced disc-like portion 190 which rides on the top panel 184 of frame 172. By this arrangement, the column 52 is mounted for rotational movement about a vertical or upright axis to permit the head 12 to be rotated to and from about the vertical axis either manually by a user or mechanically by raising one of the doll's arms, as described below. The vertical to and fro movement of column 52 is limited by the engagement of inwardly directed tab 192 of column 52 and the interior of the side walls 172*a* and 172*b* of frame 172. In addition, the combination of the tab 192 and the disc 190 holds the column 52 against vertical dislodgement relative to the torso 22.

A wire spring 196 is connected to the column 52 and extends transversely of the column generally in the direction of the arm shafts 40 and 42 and overlies these shafts. Each shaft 40 and 42 has an outwardly extending pin 198 and 200, respectively, which is positioned for engagement with the wire spring 196 when the related arm is moved upwardly to bring one of the cams 156 or 158 into engagement with one of the contacts 144*a* or 144*b*. This will cause rotation of column 52 towards the same side of the torso (i.e., the doll's head will face the direction of the raised arm, as seen in FIGS. 1 and 2). The doll's head also may be twisted manually. If both arms are raised, the forces on wire spring 196 will be equalized and the head will not be rotated.

In operation, the doll may be actuated by first placing switch **66** in an "on" position, thereby creating a potential condition for supplying power to the motor **72.** Following this, either arm **14** or **16** may be raised to a point where one of the cam extensions **156** or **158** closes contact **144***a* or **144***b* which will supply power to the motor **72.** Depending upon which contact is closed, the resistor **84** will supply a different range of power to the motor so that the motor will be driven at one of two different speeds. As the motor is actuated, the drive train of the pulley **112** and **116** and gear **124** will cause eccentric **130** to alternately abut against the inside of the ribs **132***a* and **132***b*, thereby imparting side to side tilting movement of the upper torso portion relative to the lower torso about the horizontal axis defined by shaft **133.** The action of the doll may be terminated by allowing the raised arm to drop so that the circuit is opened across the previously closed contact. Also, either arm may be raised to a position where the first and second locking members defined by one of the legs **164** and **166** and post **168** and **170** will engage to hold the arm in a raised position, thereby holding the circuit closed and permitting continuous movement of the doll, with the doll's head facing the raised arm.

It should be pointed out at this point that the masses of the upper and lower torso portions preferabley are substantially equal. By doing this, a resulting full body movement is effected in a sort of toggle reciprocal motion in a side-to-side direction. Of course if either the upper or lower torso portions are rigidly held, the other torso portion will have an extreme relative movement. In addition, the head may be manually rotated to a desired position relative to the torso, the upper and lower torso portions may be manually relatively rotated, and the legs may be manually prepositioned relative to the torso.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, as some modifications may be obvious to those skilled in the art.

We claim:

1. An animated doll, comprising:

a lower torso portion having legs connected to the base thereof;

an upper torso portion having arms connected thereto, said upper torso portion being mounted on the lower torso portion for movement relative thereto about a generally horizontal axis extending through the upper torso portion and spaced upwardly from the top of the lower torso portion when the doll is in an upright position; and

drive means operatively associated between said upper and lower torso portions for effecting said relative movement therebetween.

2. The animated doll of claim **1** wherein a head is connected to said upper torso portion and is mounted for movement relative to said upper torso portion.

3. The animated doll of claim **1** wherein said doll includes a head which is mounted on an upright support which is pivoted about a vertical axis.

4. The animated doll of claim **3** wherein the head is connected to a support for pivotal movement about a generally horizontal axis.

5. An animated doll, comprising:

an upper torso portion mounted on the lower torso portion for movement relative thereto about a generally horizontal axis when the doll is in an upright position;

first and second arms attached to said upper torso portion at least said first arm being movable between a first position and a second position;

drive means including a power source associated with said upper torso portion for effecting said movement; and

switch means including a first switch operably associated with said first arm and said power sorce and movable between an "on" position when said first arm is in said first position wherein said drive means is activated and an "off" position when said first arm is in said second position wherein said drive means is deactivated.

6. The animated doll of claim **5** wherein the lower torso portion includes an upstanding post which rotatably supports a bearing sleeve, said post and sleeve comprising a vertical axis about which the upper torso portion can be moved relative to the lower torso portion.

7. The animated doll of claim **6** wherein said lower torso portion is provided with an upstanding flange and said sleeve is provided with outwardly projecting ribs for engagement with said flange to limit the movement of the upper torso portion about said post axis.

8. The animated doll of claim **5** wherein said second arm is movable between a first position and a second position, said drive means having means for moving said torso at a first speed or a second speed, and said switch means including a second switch operably associated with said second arm and said power source and movable between an "on" position when said second arm is in said first position wherein said drive means is activated to move said torso at said second speed and an "off" position when said second arm is in said second position wherein said drive means is deactivated, said first arm causing said drive means to move said torso at said first speed when said first switch is in its "on" position.

9. The animated doll of claim **8** wherein said drive means includes an electric circuit having an electric power source and an electric motor connected to said power source to move the torso, said switch means has two pairs of contacts defining said first and second switches, said contacts being closeable to their respective "on" positions by engagement by portions of the first and second arms respectively, and means for changing the current flowing in the circuit in response to the closure of the first switch or the second switch.

10. The animated doll of claim **9** wherein said arms are connected to rotatable shafts which extend inwardly of the torso and wherein each shaft is provided with a contact engaging surface adjacent one of said contacts for closing the contact responsive to rotation of an arm.

11. The animated doll of claim **9** wherein means are provided for releasably locking each arm in a contact closing position.

12. An animated doll, comprising:

a lower torso portion having legs connected to the base thereof;

an upper torso portion having arms connected thereto, said upper torso portion being mounted on the lower torso portion for movement relative thereto about a generally horizontal axis when the doll is in an upright position;

a head mounted on an upright support which is pivotable about a vertical axis, said upright support having a lateral extension which resides between a pair of wall segments for limited to and fro pivotal movement of the support, and, therefore, the head; and

drive means operatively associated between said upper and lower torso portions for effecting said relative movement therebetween.

13. An animated doll, comprising:

a lower torso portion including an upstanding post which rotatably supports a bearing sleeve;

an upper torso portion movably mounted on the lower torso portion sleeve for movement relative thereto about a generally horizontal axis and a generally vertical axis when the doll is in an upright position, said upper torso portion including a tracking member and follower combination having a portion thereof mounted on the sleeve;

first and second arms attached to said upper torso portion, at least said first arm being movable between a first position and a second position;

drives means including a power source mounted in said upper torso portion and associated with said tracking member and follower combination for moving said upper torso portion relative to said lower torso portion about a generally horizontal axis; and

switch means including a first switch operably associated with said first arm and said power source and movable between an "on" position wherein said first arm is in said first position and said drive means is activated and an "off" position wherein said first arm is in said second position and said drive means is deactivated.

14. The animated doll of claim **13** wherein said drive means is connected to a portion of said sleeve and drives gear train means which includes said tracking and follower combination.

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