

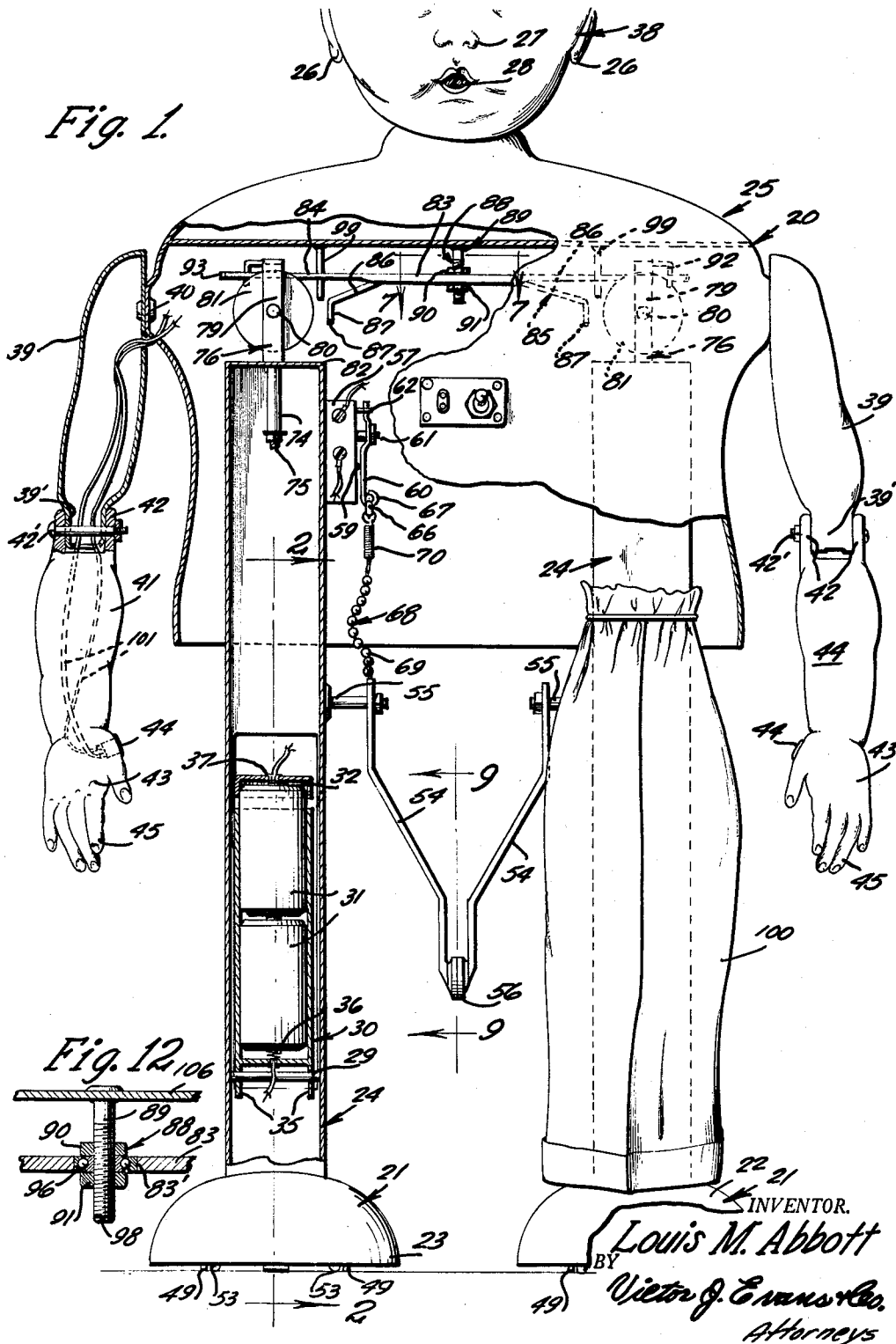
April 2, 1963

L. M. ABBOTT
MOVABLE FIGURE TOY

3,083,504

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3 Sheets-Sheet 1



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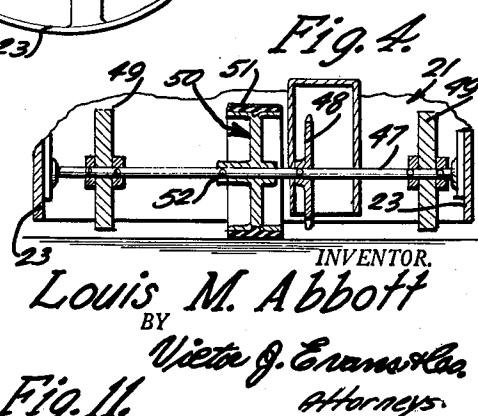
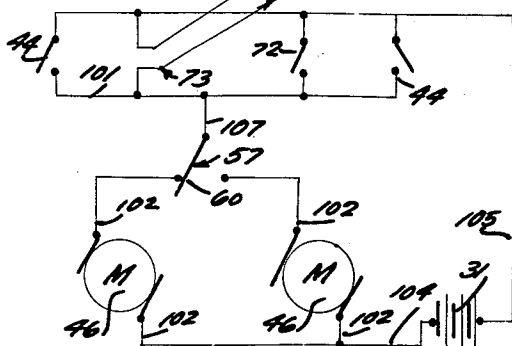
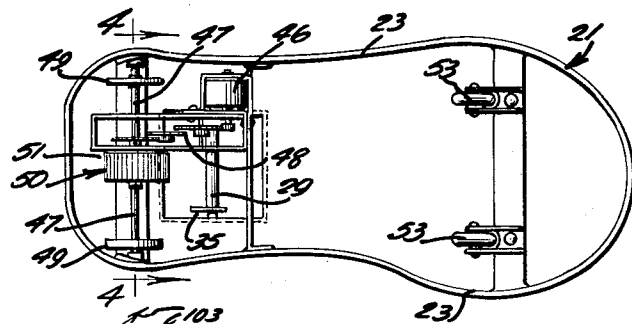
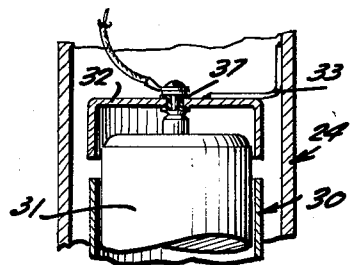
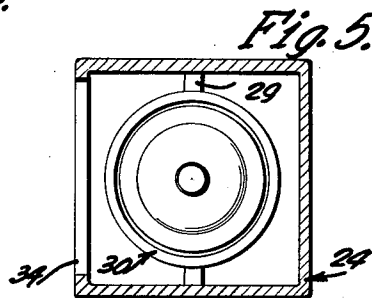
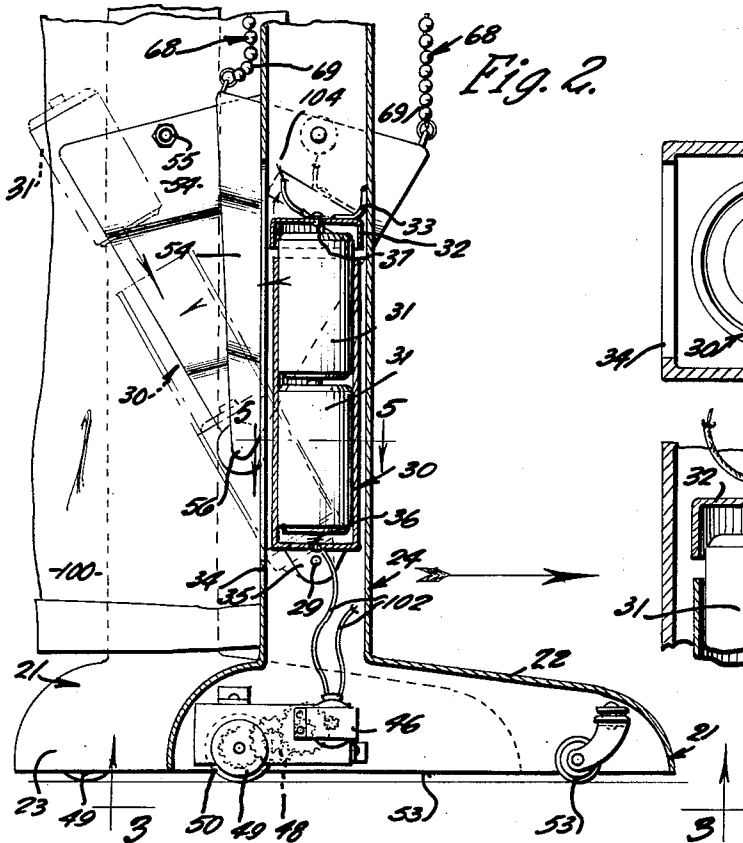
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MOVABLE FIGURE TOY

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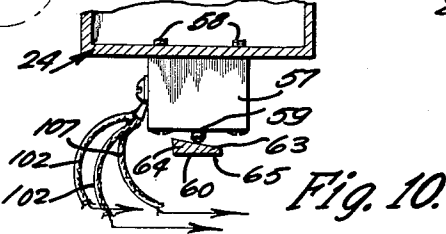
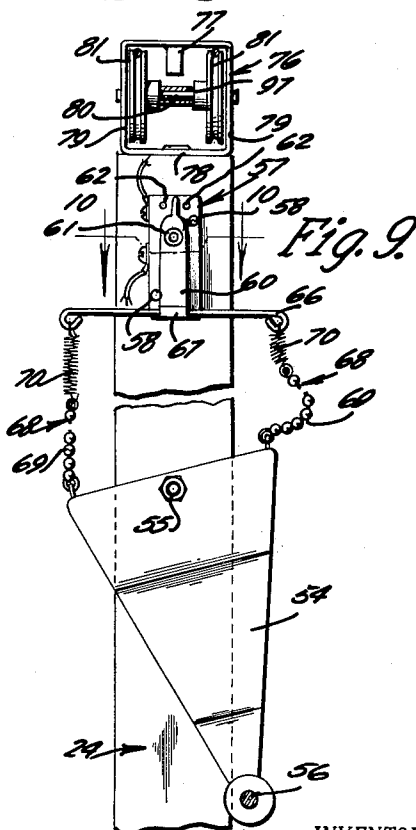
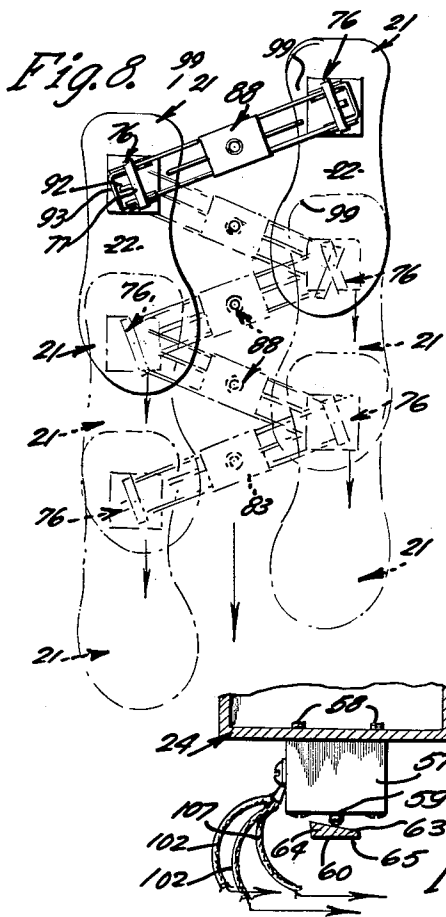
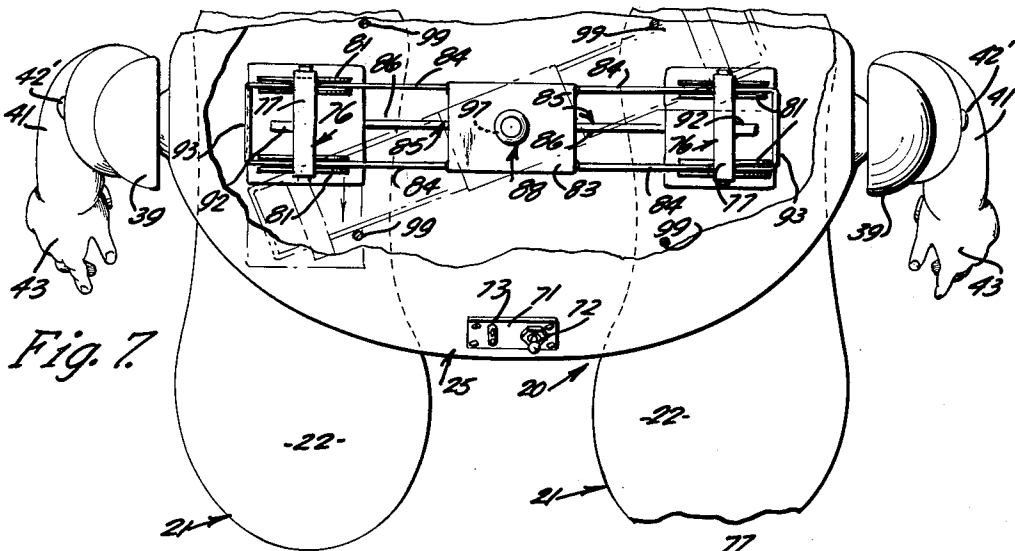
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MOVABLE FIGURE TOY

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3 Sheets-Sheet 3



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MOVABLE FIGURE TOY

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2 Claims. (Cl. 46-247)

This invention relates to an amusement or recreation device of the moving or walking type, and more particularly to a walking doll.

The object of the invention is to provide a movable figure toy which is adapted to have a fanciful or life-like configuration so that for example it may be made as a doll, and wherein the present invention includes a self-contained source of electrical energy such as a battery electrical circuit system which can be suitably energized or actuated in order to operate motors which will rotate drive wheels so that the toy can be made to move or walk in a life-like manner.

Another object of the invention is to provide a moving figure toy which can be operated in such a manner that a child or other person using the device can manually depress a switch in the hand portion of the device in order to complete the electrical circuit so as to cause the toy to walk along a particular surface or area, and wherein when desired a switch can be moved in order to permit the device to walk or move by itself without the necessity of the child depressing the switch in the hand portion of the device, and wherein the present invention is also constructed so that a remote control arrangement such as a switch on the end of a leash can be actuated in order to control movement of the doll or toy as desired.

Still another object is to provide such a walking doll which is rugged in structure and foolproof in operation and which is economical to manufacture and efficient to use.

These and other objects of the invention will become apparent from a reading of the following specification and claims, together with the accompanying drawings, wherein like parts are referred to and indicated by like reference characters and wherein:

FIGURE 1 is a front elevational view of the moving figure toy shaped to resemble a walking doll, and with parts broken away and in section.

FIGURE 2 is a sectional view taken on the line 2-2 of FIGURE 1.

FIGURE 3 is a sectional view taken on the line 3-3 of FIGURE 2.

FIGURE 4 is a sectional view taken on the line 4-4 of FIGURE 3.

FIGURE 5 is a sectional view taken on the line 5-5 of FIGURE 2.

FIGURE 6 is a fragmentary sectional view illustrating the upper portion of the battery case.

FIGURE 7 is a sectional view taken on the line 7-7 of FIGURE 1.

FIGURE 8 is a diagrammatic view illustrating the movement of the present invention.

FIGURE 9 is a sectional view taken on the line 9-9 of FIGURE 1.

FIGURE 10 is a sectional view taken on the line 10-10 of FIGURE 9.

FIGURE 11 is a wiring diagram for the present invention.

FIGURE 12 is a sectional view illustrating certain constructional details of the present invention.

Referring in detail to the drawings, the numeral 20 indicates the walking figure toy of the present invention which is shown constructed so that it is in the form of a walking doll, but it is to be understood that the mechanism and principles of the present invention are applicable to other types of toys and devices besides dolls. The walking figure toy 20 includes a pair of feet 21 which

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may be shaped to resemble the left and right feet of a creature, and the feet 21 include top sections 22 as well as depending sections 23. The numeral 24 designates each of a pair of hollow legs which have their lower ends secured to or formed integral with the feet 21, and the numeral 25 indicates a body member which is supported above the legs 24 as later described in this application, and the body member 25 is hollow.

As shown in FIGURE 1 for example, a head portion 38 is mounted on the upper portion of the body member 25, and the head portion 38 is shaped to include ears 26, a nose 27, and a mouth portion 28.

Mounted in one of the hollow legs 24 adjacent the lower portion thereof is a pin 29, and the numeral 30 indicates a battery case which has depending ears 35 that are swivelly or pivotally connected to the pin 29, and a suitable source of electrical energy such as batteries 31 are positioned in the casing 30. The numeral 32 indicates a cover for the case 30, and the cover 32 may be held in place by means of a spring member 33 which can be secured to the cover 32 and also to the interior of a leg 24. As shown in FIGURE 2, the leg 24 which has the casing 30 therein is provided with an opening or cutout 34 so when the batteries 31 are to be removed or replaced, the parts can be pivoted about the pin 29 from the solid line position of FIGURE 2 to the broken line position of FIGURE 2 in order to permit the removal and replacement of the batteries. A spring terminal 36 is mounted in the lower portion of the case 30, and a terminal 37 is mounted in the cover 32, FIGURE 6, so that as later described the electrical circuit can be selectively completed to the batteries 31.

The numeral 39 indicates shoulder members which are pivotally connected to the sides of the body member 25 by means of pivot pins 40. Arms 41 which are also hollow, as are the shoulder members 39, are arranged as shown, and the arms 41 are bifurcated as at 42 for receiving the lower end portions 39' of the shoulders 39 therein, and pivot pins 42' serve to pivotally connect the lower end portions 39' of the shoulder 39 to the bifurcated portions 42 of the arms 41. Hand portions 43 are arranged on the lower ends of the arms 41, FIGURE 1. The hand portions 43 are shaped to include fingers 45, and a manually operable switch 44 is mounted in each hand 43.

As shown in FIGURE 3, an electric motor 46 is suitably mounted or arranged in each foot 21, and a drive shaft 47 is spaced from the motor 46, and the ends of the shaft 47 are suitably journaled in bearings in each foot 21. The motor 46 is operatively connected to the drive shaft 47 through the medium of a gear train 48 so that when the motor 46 is actuated the shaft 47 will be rotated at the desired speed. Idler wheels 49 are mounted on the end portions of each shaft 47, and there is provided a drive wheel 50 which is suitably affixed to the shaft 47 by means of a pin 52, FIGURE 4. The drive wheel 50 has a diameter which is greater than the diameter of the idler wheel 49, and the drive wheel 50 may have a resilient annular tread portion 51 thereon so as to help increase traction of the drive wheel. The numeral 53 indicates a pair of casters which are swivelly connected to the front portion of each foot 21.

There is further provided an electrical circuit which includes conductors or wires that are electrically connected to the pair of motors 46, FIGURE 2.

The numeral 54 designates each of a pair of generally triangular shaped connector members, FIGURES 1 and 9, and the connector members 54 are arranged so that the upper portions are pivotally or swivelly connected to the legs 24 by means of pivot pins 55. The lower ends of the members 54 are offset inwardly and the lower ends of the members 54 are pivotally or swivelly connected together by means of a pivot connection 56.

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The numeral 57 indicates a control switch or micro-switch which is suitably affixed to the upper inner portions of one of the legs 24, FIGURE 1, and the switch 57 may be of conventional construction and is adapted to be fastened to the leg by means of securing elements 58, FIGURE 10. The switch 57 is provided with a push button 59, and the numeral 60 indicates a bar which is pivotally connected to the housing of the switch 57 by means of a pivot pin 61, and stop elements 62 are provided for limiting swinging or pivotal movement of the bar 60. As shown in FIGURE 10 the lever 60 is provided with a cam surface 63 that defines a thickened portion 64 as well as a thin portion 65. The numeral 66 indicates a crosspiece which is connected as at 67 to the lower end of the bar 60, and connectors 68 which include small springs 70 and chains 69 serve to connect the ends of the crosspiece 66 to the upper end portions of the guide member 54 arranged therebelow, FIGURE 9. As one leg 24 moves forwardly the associated connecting member 54 swings rearwardly due to the pivotal connection 56 of the two members 54.

Upon swinging movement of the member 54 associated with a leg 24 on which the switch 57 is secured, the forward chain 69 is tightened and the bar 60 is swung about the pivot pin 61 so as to move to the right in FIGURE 10. This movement of the bar 60 causes the cam surface 63 to press the button 59 inwardly to break the electrical connection to the motor of the leg 24 which has moved forwardly and to energize the motor of the other leg which then moves forwardly until the aforesaid connecting member 54 swings so as to loosen the forward chain 69 and tighten the rearward chain 69 which results in shifting of the switch to the first position. This results in alternating forward rolling movement of each foot 21 with complementary walking movement of each leg 24.

The numeral 71 indicates an electrical fitting which is mounted on a convenient location such as on the body member 25, and the fitting 71 comprises a manually movable on and off switch 72 as well as terminals 73 which can be used as a remote control arrangement so that a leash can be used and wherein such a leash may have an electrical plug on its end for engaging the terminals 73 so that by holding such a leash in the hand and actuating the switch on the end thereof, the child can readily walk the doll or control the movement thereof.

The numeral 74 indicates hollow bushings which depend from the top walls 82 of the legs 24 and which are secured thereto in any suitable manner by welding, or else the bushings can be formed integral with the top walls 82. A vertically disposed pin 75 extends through each bushing 74 and is rotatably supported therein, and an open rectangular bracket or support member 76 is secured to or formed integral with the upper end of each pin 75. As shown in FIGURE 9, the brackets 76 each include horizontally disposed top and bottom sections 77 and 78, as well as vertically disposed spaced parallel side sections 79. A shaft 80 is journaled between the side sections 79 of each bracket 76, and a pair of grooved pulleys 81 are mounted on each shaft 80.

The numeral 83 indicates a plate which has a pair of spaced parallel rods 84 connected to each end thereof, and the rods 84 are arranged in engagement with the grooved pulleys 81. The numeral 85 indicates a stop member which includes an elongated portion 86 as well as down turned transverse end portion 87. The numeral 88 indicates a bearing assembly which has a stud or pin 89 extending therethrough, FIGURE 12, and the numeral 99 indicates stop pins which are engaged by certain of the rods 84 in order to limit movement of the parts, FIGURE 7. The rods 84 have their outer ends joined or connected together by straight portions 93. The numeral 92 indicates stop elements which have a generally L-shaped configuration, and the L-shaped stop elements

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92 are secured to or formed integral with the portions 77 of the brackets 76.

The doll or member 20 may be attractively costumed so that pants 100 may be arranged on the legs 24 and a shirt, dress or the like can be suitably used with the present invention as desired. When pants such as the pants 100 are used, a slide fastener may be used on the pants legs which surrounds the leg 24 that has the batteries 31 therein so that such a slide fastener can be opened in order to provide a means for readily gaining access to the parts such as the batteries 31 when such batteries are to be removed or replaced.

Referring to FIGURE 11 of the drawings, there is shown schematically the wiring diagram of the present invention and it will be noted that wires or conductors 101 are electrically connected to the hand switches 44, and wires 102 are connected to the motors 46, and the electrical circuit further includes wires or conductors 104 and 105 which are suitably connected to the batteries or source of electrical energy 31. The numeral 103 indicates wires which may be arranged in a leash that is adapted to be connected to the terminals 73.

The numeral 106 indicates a wall portion or plate which is horizontally disposed, and this wall portion 106 is arranged in the upper section of the body member 25, and the stud 89 is arranged so that its upper end is secured to or formed integral with the wall portion 106, FIGURE 12.

The control switch 57 is electrically connected into the circuit by means of the wires such as the wires 102 and 107.

From the foregoing, it is apparent that there has been provided a figure toy or walking doll, and with the parts arranged as shown in the drawings, it will be seen that the child or other person using the device can press on one of the switches 44 as for example when the child is holding the hand 43 so as to complete the electrical circuit from the batteries 31 to the motors 46 and this will cause the doll or member 20 to proceed to walk in a lifelike manner. Thus, as the switch 44 is depressed or pressed inwardly, the electrical circuit to the motors 46 will be selectively completed and this will cause the motors to selectively rotate the drive shaft 47 through the gear trains 48. As a shaft 47 rotates, it will turn the drive wheel 50, so that a foot will be caused to move forward and the parts are arranged and constructed so that first one foot will move forward and then the other foot will move forward as shown schematically or diagrammatically in FIGURE 8 so that this alternate movement of the feet will have a life like action which will not only cause the doll to be moved in the desired manner and direction, but will also enhance or increase the pleasure with which the device is being used due to the lifelike walking ability thereof.

The guide members 54 help insure that the feet and legs will be maintained in their proper direction as the device moves. In addition the shoulder members 39 are pivotally connected to the body member 25 as at 40, and the arms 41 are swivelly or pivotally connected to the shoulders 39 as at 42', so that the shoulders and arms can pivot or move in order to simulate the realistic movement of a person's arms and shoulders.

The power for operating the device is carried within the device since the batteries 31 provide the power for energizing the motors 46, and these batteries 31 can be removed and replaced as desired and previously stated.

In addition, the switch 72 can be manually moved so that when desired the device 20 will walk by itself and wherein with the switch 72 properly set or adjusted, it is not necessary to maintain pressure on either of the switches 44 since the circuit will remain completed from the batteries 31 to the motors 46 in order to keep the doll walking without the necessity of holding the hand 43 and pressing the switch 44.

Minor changes in shape, size and rearrangement of de-

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tails coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:

1. In a moving figure toy including a pair of hollow feet, a leg rising from each foot, a body member including a head supported upon the upper ends of said legs, a drivable wheel journaled in each foot for rolling contact with a ground surface, and an electric motor drivably connected to each of said wheels, a first upright connecting member having one end pivotally connected to one of said legs for swinging movement about a first horizontal axis, a second upright connecting member having one end pivotally connected to the other of said legs for swinging movement about a second horizontal axis, the other ends of said first and second connecting members being 15 pivotally connected together for swinging movement about a third horizontal axis, a single pole double throw switch secured to one of said legs, a source of electrical energy carried by said toy in circuit with said switch and said motors, and means operatively connected to said first 20

connecting member operable upon swinging movement of said first connecting member in one direction to actuate said switch so as to energize one of said motors and operable upon swinging movement of said first connecting member in the other direction to actuate said switch so as to energize the other of said motors.

2. The apparatus according to claim 1 together with pivotal connection means on the upper end of each of said legs connecting said body member to said legs for swinging movement of said body member about said pivotal connection means as horizontal axes.

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