Jan. 21, 1964 W. R. ALLEN 3,118,247

ANIMATED DOLL

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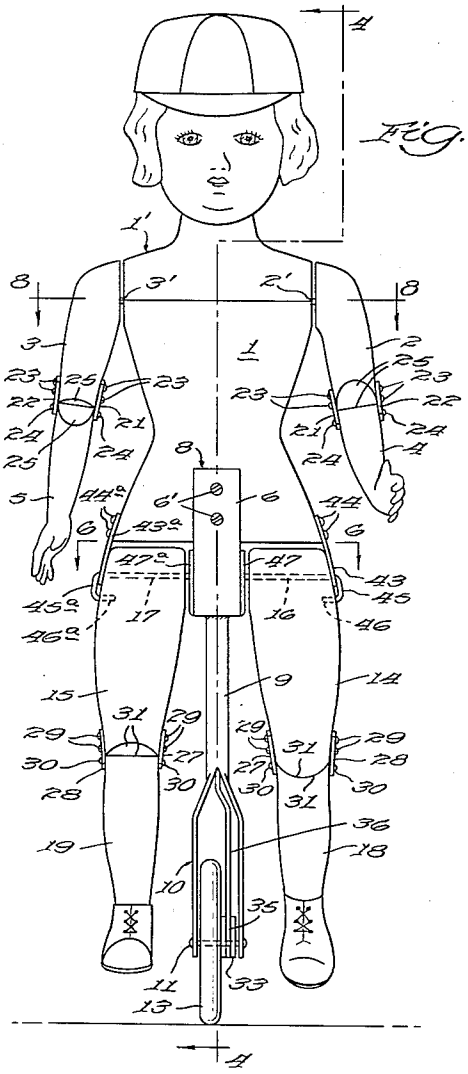


Fig. 3.

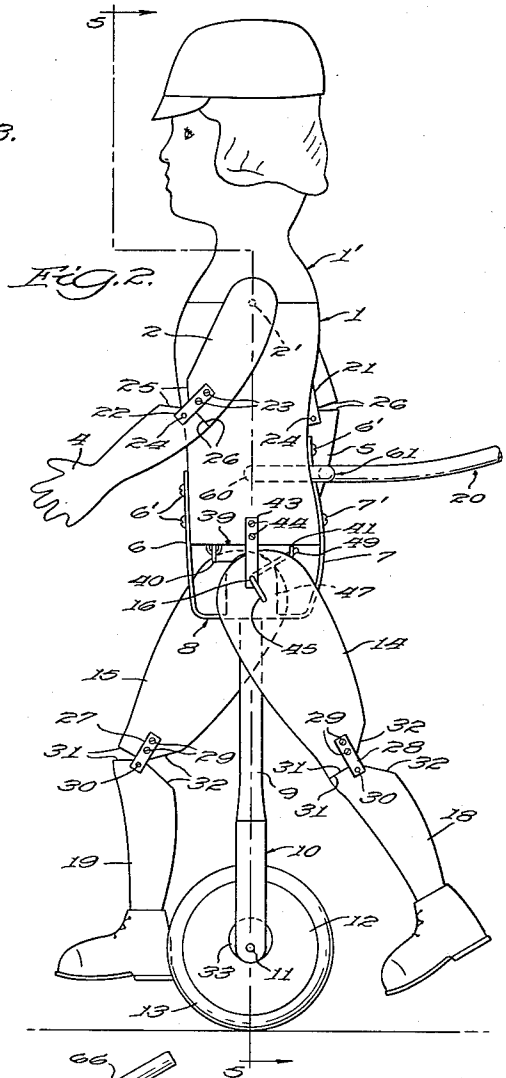


Fig. 2.

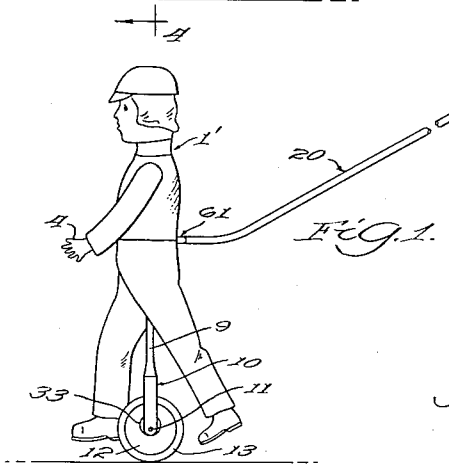


Fig. 1.

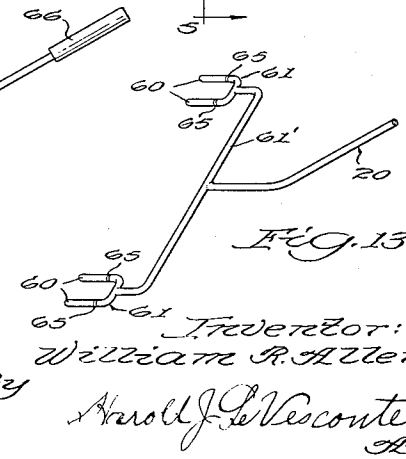


Fig. 13.

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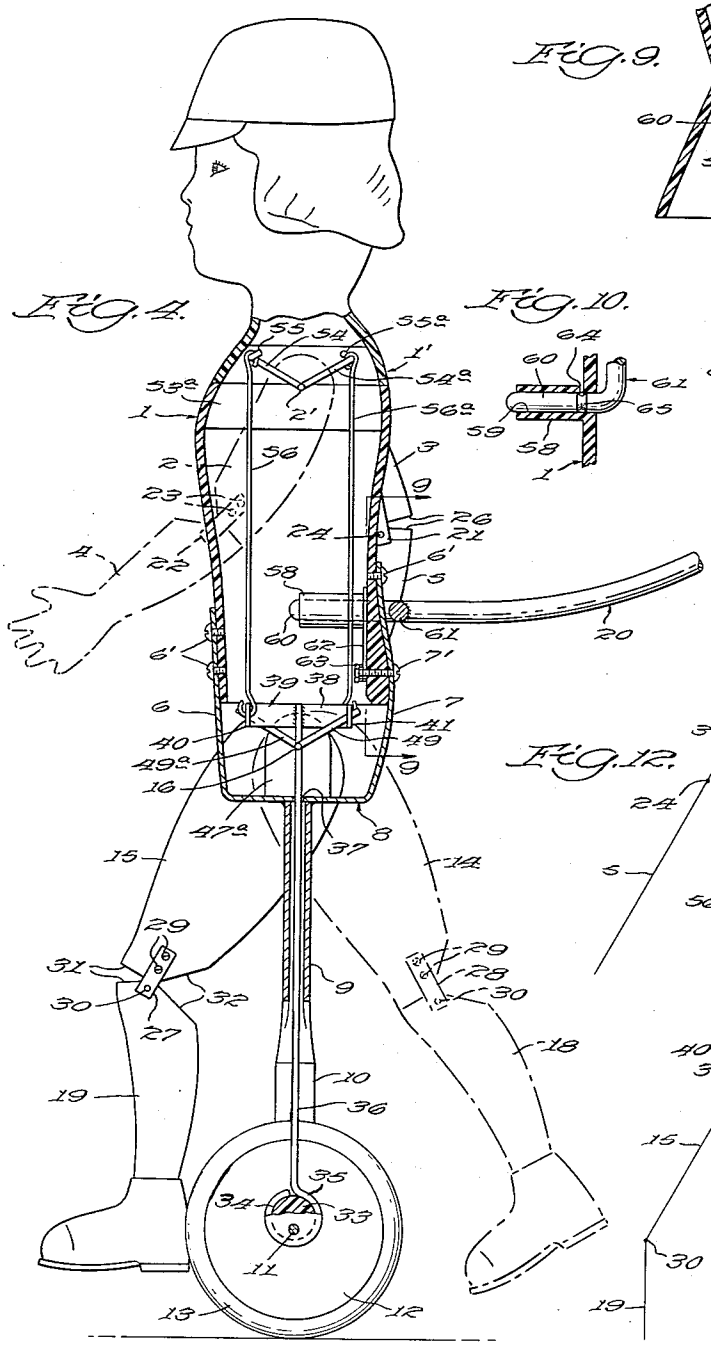


FIG. 9.

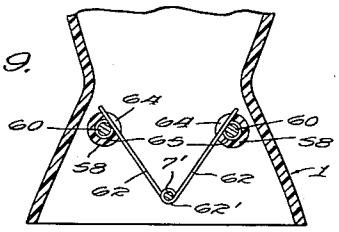


FIG. 10.

FIG. 11.

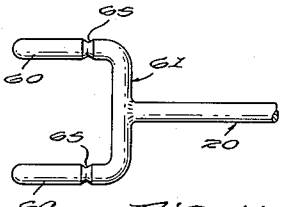
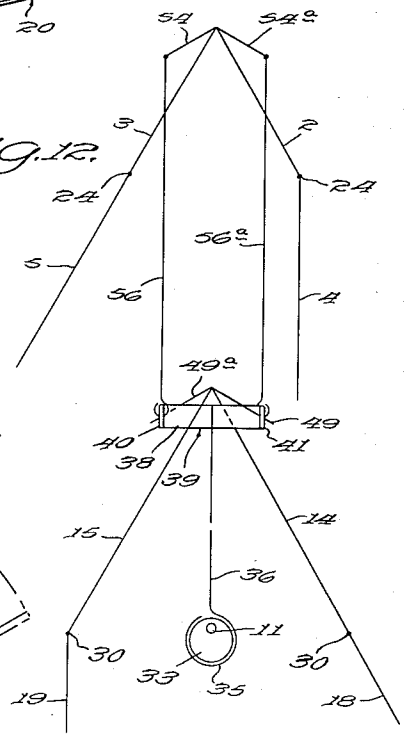


FIG. 12.



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ANIMATED DOLL

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FIG. 5.

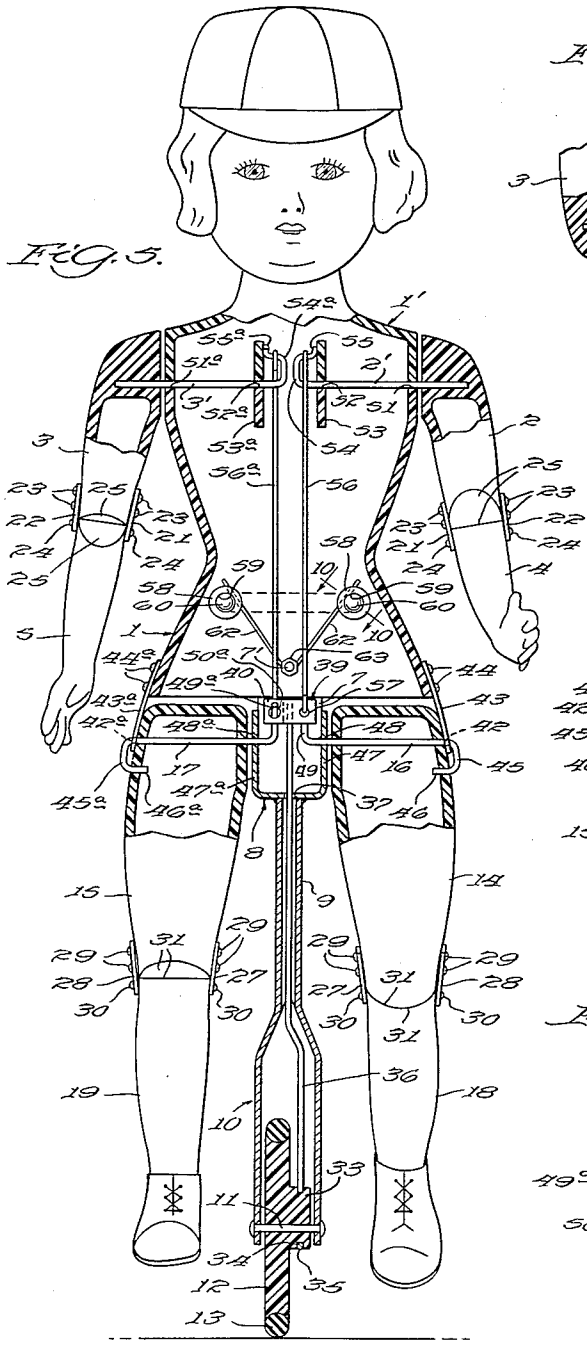


FIG. 8.

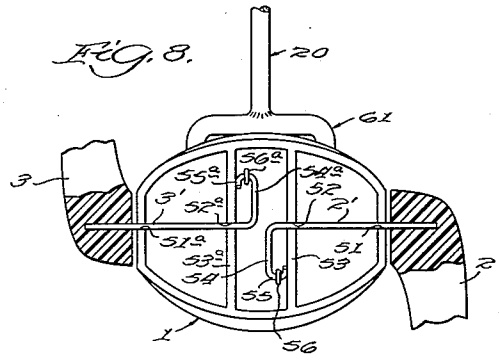


FIG. 6.

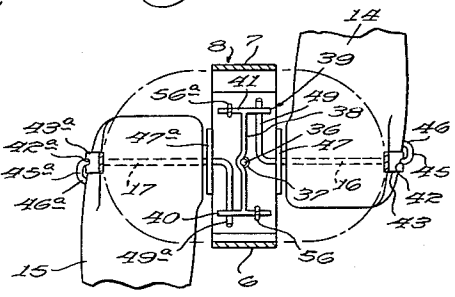
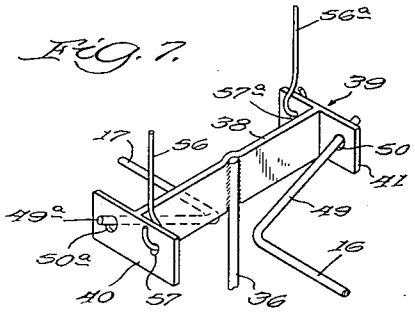


FIG. 7.



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ANIMATED DOLL

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Fig. 16.

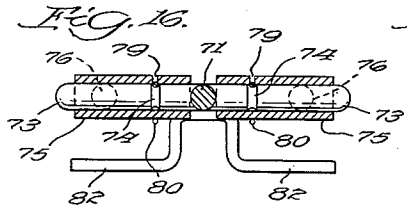


Fig. 17.

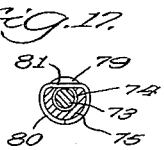


Fig. 14a.

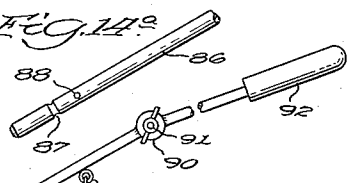


Fig. 14.

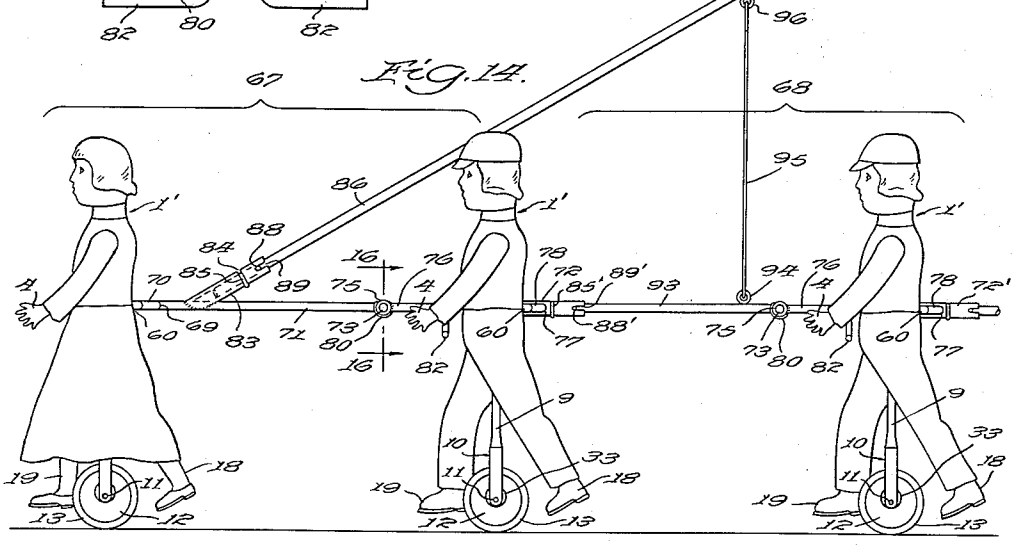


Fig. 15.

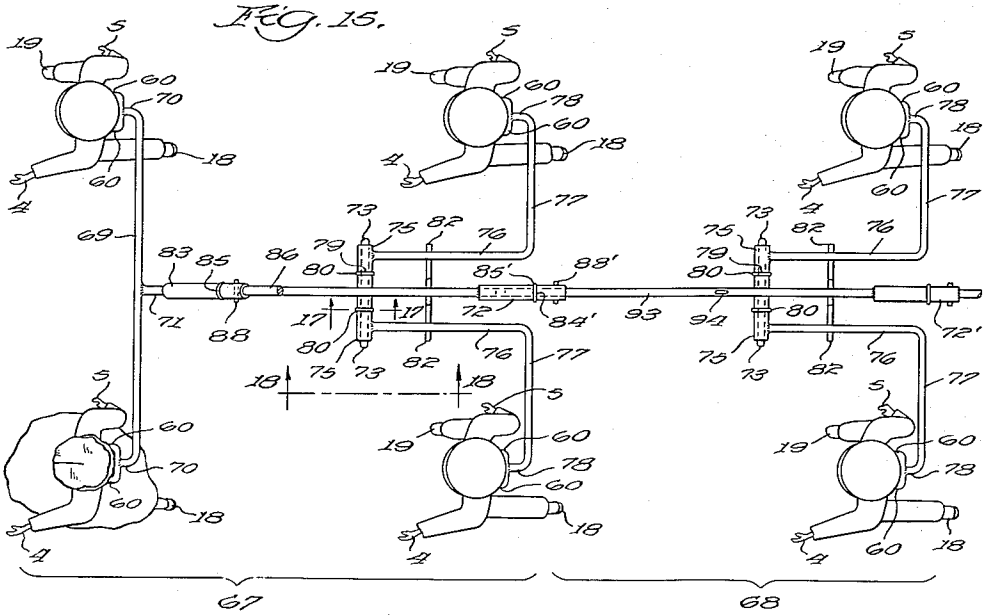
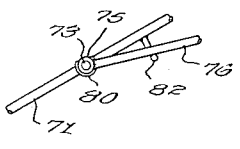


Fig. 18.



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United States Patent Office

3,118,247

Patented Jan. 21, 1964

3,118,247

ANIMATED DOLL

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Filed Feb. 28, 1961, Ser. No. 92,272
14 Claims. (Cl. 46—110)

This invention relates to toys and more particularly to an animated doll in which a simulation of ambulatory movement is derived from contact of the animating mechanism with the surface across which the doll is moved.

The principal object of the invention is to provide a doll having animating mechanism including a surface contacting operating wheel and mechanism actuated thereby effective to impart movements simulating ambulation as the wheel is caused to rotate by movement of the doll against the supporting surface engaged by the wheel.

Another object of the invention is to provide a doll of the above character with means for detachable engagement with a supporting means including a handle by which it may be propelled and supported.

Still another object of the invention is the provision of a plurality of interchangeable doll supporting means by which a plurality of rolls of the same general character may be interconnected for simultaneous propulsion by a single handle means along a supporting surface with resultant simultaneous simulation of ambulatory movement by all the thus interconnected dolls.

With the foregoing objects in view, together with such additional objects and advantages as may subsequently appear, the invention resides in the parts, and in the construction, combination and arrangement of parts described, by way of example, in the following specification of certain presently preferred embodiments of the invention, reference being had to the accompanying drawings which form a part of said specification and in which drawings:

FIG. 1 is a side elevational view of a doll embodying the present invention connected to a propelling and supporting handle means,

FIG. 2 is an enlarged, side elevational view of the doll shown in FIG. 1; the clothing being removed to disclose the external structure of the doll,

FIG. 3 is a front elevational view of the doll shown in FIG. 2,

FIG. 4 is a further enlarged, side elevational, sectional view; the section being taken on the line 4—4 of FIG. 3,

FIG. 5 is a partially sectional, front elevational view taken generally on the line 5—5 of FIG. 2,

FIG. 6 is an enlarged transverse sectional view taken on the line 6—6 of FIG. 3 and showing the leg operating means as viewed in plan,

FIG. 7 is a further enlarged, perspective view of the leg and arm actuating crosshead,

FIG. 8 is an enlarged, transverse sectional view of the arm mounting and operating means taken on the line 8—8 of FIG. 3,

FIG. 9 is a fragmentary, sectional view taken on the line 9—9 of FIG. 4 showing the latch means for detachably securing a supporting and propelling element to the doll,

FIG. 10 is a longitudinal sectional view of one thong of the supporting and propelling element in its socket in the doll body; the view being taken on the line 10—10 of FIG. 5,

FIG. 11 is a plan view of a doll engaging end of a supporting and propelling element,

FIG. 12 is a line diagram showing, as viewed in side elevation, the animating means disclosed in the preceding figures with the limbs thereof in the extreme opposite position,

FIG. 13 is a perspective view of a modified form of supporting and propelling element adapted to support and propel a pair of the doll components,

FIG. 14 is a side elevational view of a plurality of dolls, each embodying the animating means of the preceding figures, said dolls being interconnected by a supporting and propelling instrumentality adapted to permit three or more of said dolls to be supported propelled in unison,

FIG. 14*a* is a fragmentary, side elevational view of the socket engaging end of the supporting and propelling rod component shown in FIGS. 14 and 15,

FIG. 15 is a top plan view of the embodiment shown in FIG. 14,

FIG. 16 is an enlarged, scale, sectional view taken on the line 16—16 of FIG. 14 and showing details of the mounting means for locating a pair of dolls on opposite sides of a supporting and propelling element,

FIG. 17 is an enlarged, scale, transverse sectional view taken on the line 17—17 of FIG. 15 and showing the latching means for detachably securing one of a plurality of the doll components on a supporting and propelling element, and

FIG. 18 is a fragmentary, side elevational view of the stop means as viewed from the line 18—18 of FIG. 15.

In general, the illustrated doll component of the invention comprises an assembly of parts representing a person and comprises a hollow body portion 1 including a torso component and a neck and head components 1′ permanently fixed thereto, said components preferably being formed of molded plastic and having hollow, plastic left and right upper arm portions 2 and 3 carried by rockshafts 2′ and 3′ journaled on the torso; said upper arms carrying, respectively, freely pivotally mounted forearm and hand members 4 and 5. The lower end of the body portion 1 is supported by a bracket structure including the upstanding front and rear arms 6 and 7 of a yoke member 8 to which it is secured by screws 6′ and a bolt 7′; said yoke being carried on the upper end of a vertical tube 9 having a lower end comprising a downwardly extending, bifurcated lower end portion 10 disposed at right angles to the arms of the yoke 8, said lower end carrying an axle 11 on which a wheel 12 preferably carrying a tire 13 is mounted for free rotation. Hollow, molded plastic thigh portions 14 and 15 are carried by axially aligned rockshafts 16 and 17 mounted at the lower end of the body portion 1 by means presently to be described and the lower ends of said thigh portions carry freely pivotally mounted lower leg and foot portions 18 and 19 which terminate slightly above the lower portion of the wheel 12 so that they swing free of a surface engaged by the wheel. The body assembly above described can, of course, be clothed in any desired fashion as for example, a jacket and trousers (FIG. 1) or a dress (FIG. 14) and the head may either have a representation of a cap or other headwear molded integrally therewith (FIG. 1) or be adapted to wear hats or caps, if desired. The body portion 1 is provided with socket means to be later more particularly described and adapted for detachable engagement with a supporting and propelling handle means which may be such as shown at 20 for propelling a single doll or other

means, also to be described later, for simultaneously propelling a plurality of dolls.

Each upper arm member carries a pair of oppositely disposed inner and outer parallel plates 21 and 22 secured to the upper arm member by screws or nails 23; said plates projecting beyond the distal end of the upper arm member. The rear or elbow end of the associated forearm and hand member is received between these plates and is freely pivotally mounted therein by screws or nails 24 which are rotatable in axially aligned holes in the ends of the plates 21 and 22. The adjacent ends of the thus connected members are provided with angularly disposed opposing faces 25, 25 and 26, 26 which serve to limit the extent of forward and rearward pivotal movement of the forearm and hand members to that approximating the corresponding movement at the human elbow.

The lower end of each of the thigh portions 14 and 15 at opposite sides thereof is provided with a pair of oppositely disposed, parallel plates 27 and 28 mounted thereon by screws or nails 29; said plates having distal ends extending beyond the lower ends of the thigh portions and the upper ends of the associated leg and foot portions 18 and 19 are pivotally mounted between said distal ends of said plates by screws or nails 30 extending through axial holes in said plates. The adjacent ends of the thigh and leg and foot elements are provided with angularly disposed, opposing faces 31, 31, and 32, 32 which serve, respectively, to limit forward and rearward rocking movement of the leg and foot portions to extents comparable to the extent of action of the human knee in walking or running.

The wheel 12 is provided at one side thereof with an integrally formed eccentric member 33 having a peripheral groove 34 in which an eccentric strap 35 comprising a looped end of a metal rod 36 is contained for bearing engagement. From said looped end, the rod 36 extends upwardly through the tube 9 and through a hole 37 in the base of the yoke member 8. The upper end of the rod is fixed to the midlength of the web portion 38 of the crosshead member 39 having an I-configuration as viewed in plan, said web extending from front to rear of the torso portion and having a front flanged end 40 immediately in rear of the front arm 6 of the yoke 8 and a corresponding rear flange end 41 immediately in front of the rear arm 7 of the yoke 8 (see FIG. 6). Rotation of the wheel 12 and eccentric member 33 effects reciprocation of the rod 36 and of the crosshead member 39 fixed thereto.

The rockshaft 16 extends transversely of the upper end of the left hand thigh member 14 and at the outer face of the thigh member is journaled in a hole 42 in a depending end of a hanger 43 which is attached to the lower end of the body member 1 by screws or nails 44. Outwardly of the hanger 43 the end of the rockshaft 16 is formed in a depending return bend portion 45 and the end 46 of the hinge pin thence extends into the side of the thigh member to prevent relative rotation between the hinge pin and thigh member. Adjacent the inner face of the thigh member 14, the yoke member 8 is provided with an upstanding bracket portion 47 having a hole 48 therein in axial alignment with the hole 42 in the hanger 43 and through which the opposite end of the rockshaft 16 extends. Immediately adjacent the inner face of the bracket member 47, the rockshaft 16 is bent at right angles to form a lever arm portion 49 extending generally rearwardly in a direction which is substantially at right angles to the longitudinal line or dimension of the thigh member 14; said lever end portion extending loosely through a hole 50 in the left hand side of the crosshead rear flange 41.

The lefthand upper arm member 2 is fixed to one end of the rockshaft 2' and at the inner side of said upper arm member the rockshaft 2' extends through and is axially journaled in holes 51 and 52 disposed, respectively, in the body member sidewall and a bridging member 53 having upper and lower portions formed integrally with the said shoulder, neck and head component and the torso component respectively; said bridging member being formed integrally with said torso component and said neck and head component and extending from front to rear thereof and being disposed slightly to the left of the front to rear medial plane of the torso component. The holes 51 and 52 are bisected by the juncture of the meeting faces of the torso portion and neck and head components. Adjacent the face of the bridging member 53, the rockshaft 2' is bent at right angles to form a lever arm 54 extending forwardly generally in a direction which is at right angles to the length of the upper arm member 2 and said lever arm terminates in a hooked end 55 which is connected by a rigid link 56 to a hole 57 in the lefthand side of the forward end flange 40 of the crosshead 39.

As the wheel 12 and eccentric 33 are rotated, upward movement of the crosshead 39 derived therefrom will cause the left leg assembly to swing rearwardly and the left arm assembly to swing forwardly and as the crosshead moves downwardly, these swinging movements will be reversed. At the beginning of the rearward movement of the arm assembly and of the forward movement of the leg assembly, the loosely hinged forearm and lower leg portions will flex to extents dependent upon the resistance offered by the clothing and the speed of oscillation, but due to the associated stop faces, these flexing movements will not take place to an extent which is unnatural.

The actuating means for the right leg and arm assemblies is disposed in mirror image relation to the lefthand trains of mechanism, wherefore, the same numbers have been applied thereto with the addition of the exponent "*a*"; it being noted that the said mirror image relationship extends to the leg assembly operating lever arm 49*a* engaging the hole 50*a* at the right hand side of the front flange 40 of the member 39 while the link 56*a* connects the arm assembly operating the lever arm 54*a* with a hole 57*a* at the right hand side of the rear flange 41 of the member 39. Since this obviously reverses the action of the right hand assemblies relative to the left hand assemblies, more detailed description is believed to be unnecessary. It will be noted that the forming of the torso and the shoulder, neck and head components separately simplifies molding of the parts as well as the assembly of the arm and actuating mechanism in that the joining of these two components, as by cementing them together, serves to secure the arm actuating rockshafts in their bearings. Endwise movements of the rockshafts 2' and 3' is prevented by engagement of the arm members with the sides of the torso component and the engagement of the lever arms 54 and 54*a* with the adjacent faces of the bridging members 53 and 53*a*. Similarly, the confinement of the upper ends of the thigh members between the hangers 43 and 43*a* and the associated bracket members 47 and 47*a* prevents movement of the thigh members axially of the hinge pins associated therewith while the bent ends 45 and 45*a* and the lever arms 49 and 49*a* respectively engaging the outer surfaces of the thigh members and the inner faces of the bracket members 47 and 47*a* prevent endwise movement of the hinge pins 16 and 17.

The inner rear wall of the torso component near the lower end thereof is provided with a pair of parallel, laterally spaced, forwardly horizontally extending cylindrical members 58 having axially disposed holes 59, 59 extending therethrough and constituting receiving sockets for complementary pins 60, 60 forming the bifurcated end 61 of the supporting and propelling rod 20. The bolt 7' which secures the lower end of the arm 7 of the yoke 8 to the torso member 1 is longer than the upper screw 6' and extends beyond the inner wall of the torso to carry the central coil 62' of a torsion spring having arms 62, 62 secured on said bolt by a nut 63; said arms engaging slots 64, 64 in the sides of the members 58, 58 adjacent the juncture thereof with the inner wall of the torso component; said slots being only suf-

ficiently deep to allow the spring arms to extend across the sockets for a distance approximately equal to the diameter of the spring arms. The pins, 60, 60 each carry a peripheral groove 65 disposed at a point thereon to be engaged by the spring arms 62, 62 to releasably retain the pins within the sockets 59, 59. The distal ends of the pins are rounded to effect displacement of the spring arms incident to the entry of the pins into the sockets. The propelling rod 20 is formed from heavy wire and at its end remote from the bifurcated end, it carries a handgrip portion 66. Height adjustment to suit the child using the toy may be achieved by suitably bending the wire 20 which is sufficiently stiff not to be bent by a child for which the toy is suited but which may readily be bent by an adult.

The use of the device by a child is believed to be obvious. The doll is simply wheeled along a floor or other surface by the handle means and the wheel actuated mechanism will impart a simulation of the leg and arm movements of a person walking or running dependent upon the rate of propulsion of the device along the surface.

FIG. 13 shows that the propelling and supporting means need not be limited to engaging means for a single doll but can be made with two pairs of doll engaging pins 60 for supporting a pair of dolls in side-by-side relation by a horizontal member 61' mounted at the end of the rod 20.

Referring finally to FIGS. 14 through 18 there is shown a means for simultaneously supporting and propelling three or more of the dolls. This means comprises a front or leading assembly 67 and one or more trailing assemblies 68. The front assembly comprises a horizontal yoke member 69 including forwardly projecting arms 70, 70 each having a pair of doll engaging pins at the distal end thereof. The rearwardly extending shank 71 is formed integrally with said yoke member and terminates in a socket portion 72 adapted to be engaged by the forward end of the shank of the next following trailing assembly as will be later described. At about its midlength, the shank 71 is provided with a pair of axially aligned, oppositely transversely extending hinge pins 73, 73, each having a peripheral groove 74 intermediate the ends thereof and having rounded distal ends. These hinge pins are detachably engageable by sleeve members 75, 75 loosely mounted thereon. Each of said sleeve members carries an arm which extends in a rearwardly extending run 76 and thence extends outwardly in a laterally extending run 77 terminating in a forwardly projecting portion 78 carrying a pair of doll engaging pins which are identical to the pins 60, 60. Intermediate its ends, the upper face of the sleeve member 75 is provided with a transverse groove 79 which extends into the hinge pin receiving bore of the sleeve for a distance substantially equal to the depth of the groove 74. A spring ring 80 has a flattened portion 81 seated in the groove 79 and the ends of said ring thence extend around and meet at the opposite side of the sleeve (see FIG. 17); said flattened portion 81 being momentarily displaced outwardly as the sleeve 75 is slipped on or off the hinge pin and said flattened portion served by snap engagement with the groove 74 to releasably hold the sleeve and the doll mounted on the arm thereof on the hinge pin. Rearwardly of the hinge pins 73, 73, the shank 71 carries a pair of transversely extending stop members 82, 82 comprising the opposite ends of a crossbar having the midlength thereof welded to the under side of the shank and thence extending downwardly and thence laterally horizontally below the runs 76, 76 of the doll supporting arms to limit the extent of movement thereof in a clockwise direction as viewed in FIG. 14.

The shank portion 71 adjacent the forward end thereof carries a member 83 having a diagonally upwardly and rearwardly extending socket, said member being provided with a transverse slot 84 carrying a flat sided, spring ring

85 of the same type as shown in FIG. 17. A supporting and propelling rod 86 has a forward end adapted to engage the socket in the member 83 and has a peripheral groove 87 engaging the flat side of the ring 85. Additionally, the rod has a radial pin 88 extending therethrough adapted to engage a diametric slot 89 in the end of the member 83 and intersecting the axis of the socket in said member to prevent relative rotative movement between the rod and the socket. The rod 86 is preferably formed in two pieces having interengaging disc-like ends 90 adjustably clamped together by a transversely extending bolt means 91 whereby the handgrip portion 92 of the portion of said rod remote from the socket member 83 may be adjusted to a level convenient for the child using the toy.

The front assembly comprising the two rigidly mounted dolls at the front end thereof and the two additional dolls separately, freely movable up and down on the hinge pins 73 thereof can be propelled as a unit along a floor or other surface by the rod 86. Means is provided, however, for increasing the number of dolls which may be thus supported and propelled. The socket means 72 is like that shown in the member 83. The trailing unit 68 comprises a horizontal shank component 93 having a front end provided with means like the corresponding end of the rod 86 for engaging the socket 72. Accordingly the spring ring, the crosspin and diametric slots are numbered with the same numbers with the addition of the exponent ('). At its rear end, the shank component is provided with a rearwardly opening socket 72' for engagement with still another trailing unit if desired. Intermediate its ends, the shank component carries means identical with the forward unit for supporting a third pair of dolls with capacity for independent vertical movement about the hinge pins thereof, wherefore, the same numbers have been applied thereto. Additionally, the shank component carries an upwardly disposed eye slightly forwardly of the hinge pin 73, 73; said eye being connected by a cord or the like 95 to a corresponding eye 96 on the under side of the rod 86. When the entire assembly is lifted by the handle means about the wheels of the two front dolls as a fulcrum, as, for example, in turning the entire assemblage around, the cord 95 carries the weight of the trailing units thus relieving the strain which would otherwise be imposed on the juncture of the socket member 83 with the shank 71 when the device is thus lifted.

While in the foregoing specification there has been disclosed by way of example certain presently preferred embodiments of the invention, the invention is not to be deemed to be limited to the embodiments thus disclosed, and it will be understood that the invention includes as well all such changes and modifications in the parts and in the construction, combination and arrangement of the parts as shall come within the purview of the appended claims.

I claim:

1. In an animated doll, a hollow body member including an integrally formed head, neck and torso components, a vertically disposed supporting bracket means attached to said body member, relatively movable limbs each separately carried by a rockshaft pivotally mounted on said body member and said bracket in locations and for movements approximating the corresponding movements of the living entity represented by the doll, at least two of said limbs terminating in foot portions and each of said rockshafts terminating in a lever arm concealed within said body member, and means for actuating said limbs in unison in a simulation of the ambulatory movements of the represented entity; said means comprising a rotatable wheel journaled on the lower end of said bracket means and having a surface engaging tread disposed below the lowermost of said foot portions, an eccentric member rotatable by said wheel, reciprocable devices connected to and actuated by said eccentric member

and connected to all of said rockshaft lever arms operative to cause the limbs carried by said rockshafts to oscillate in timed relation to each other in simulation of ambulation by said doll as said wheel is rotated, and handle means attached to the rear of said doll for manual support of said doll in an upright position and propulsion of said doll in said upright position along a surface contacted by said wheel tread.

2. In an animated doll device, at least one doll having a hollow body member including integrally formed head, neck and torso components, a vertically disposed supporting bracket means attached to said body member, relatively movable limbs separately carried by rockshafts pivotally mounted on said body member and said bracket in locations and for movements approximating the corresponding movements of the living entity represented by the doll, at least two of said limbs terminating in foot portions and each of said rockshafts terminating in a lever arm concealed within said body member, and means for actuating said limbs in unison in a simulation of the ambulatory movements of the represented entity; said means comprising a rotatable wheel journaled on the lower end of said bracket means and having a surface engaging tread disposed below the lowermost of said foot portions, an eccentric member rotatable by said wheel, a reciprocable rod having one end thereof operatively connected to said eccentric member for actuation thereby and having means at its other end connected to all of said rockshaft lever arms operative by reciprocation thereof to cause said limbs to oscillate in timed relation to each other in simulation of ambulation by said doll as said wheel is rotated, means on the rear of said body portion adapted for detachable engagement with complementary devices of a handle means for manual support of said doll in an upright position and propulsion of said doll in said upright position along a surface contacted by said wheel tread, and a handle means detachably engageable with said means on the rear of said hollow body member.

3. In an animated doll, a body structure simulating the body of a human being and including a hollow body member comprising integrally formed head, neck and torso components, a pair of arm assemblies separately fixed to one each of a pair of rockshafts mounted for oscillation one each at the opposite shoulder portions of said hollow body member and terminating in lever arm portions within said hollow body member, a pair of leg assemblies fixed to one each of a second pair of rockshafts mounted at the lower end of said body member for oscillation about an axial line which is parallel to the axial lines of oscillation of said first named rockshafts, and means for imparting simultaneous oscillating movements to said rockshafts and the arm and leg assemblies carried thereby in simulation of the ambulatory movements of a person; said means comprising a vertically disposed bracket structure having the upper end thereof fixed to the lower end of said body portion, a rotatable wheel journaled at the lower end of said bracket structure for rotation about an axis parallel to the axes of movement of said arm and leg supporting rockshafts and having a tread disposed to engage a surface below the distal ends of said leg assemblies, an eccentric mounted for rotation by rotation of said wheel, reciprocable devices attached to and actuated by said eccentric and connected to each of said arm and leg assembly supporting rockshafts to cause said assemblies to be oscillated by said rockshafts in timed relation to each other in simulation of ambulation by a person as said wheel is rotated, and handle means attached to the rear of said doll for manual support and propulsion of said doll in an upright position along a surface contacted by said wheel tread.

4. In an animated doll device, at least one doll body structure simulating the body of a person and including a hollow body member comprising integrally formed head, neck and torso components, a pair of arm assemblies separately fixed to one each of a pair of rockshafts mounted one each at the opposite shoulder portions of said hollow body member for oscillation about a common horizontal axial line and terminating in lever arm end portions within said hollow body member, a pair of leg assemblies fixed to one each of a second pair of rockshafts mounted at the lower end of said body member for oscillation about a common horizontal axial line parallel to the axial line of oscillation of said first named rockshafts, and means for imparting simultaneous oscillating movements to said rockshafts and the arm and leg assemblies in simulation of the ambulatory movements of a person; said means comprising a vertically disposed bracket structure having the upper end thereof fixed to the lower end of said hollow body member, a rotatable wheel journalled at the lower end of said bracket structure for rotation about an axis parallel to the axes of movement of said assemblies and having a tread disposed to engage a surface below the distal ends of said leg assemblies, reciprocable devices operably connected to said wheel and separately connected to each of said rockshaft lever arms operative to cause said rockshafts and the assemblies fixed thereto to oscillate in timed relation to each other in simulation of ambulation by a person as said wheel is rotated, means on the rear of said hollow body member adapted for detachable engagement with complementary devices of a handle means for manual support and propulsion of said doll in an upright position along a surface contacted by said wheel tread, and a handle means detachably engageable with said means at the rear of said hollow body member.

5. An animated doll as claimed in claim 4 in which said reciprocable devices include an eccentric fixed to and rotatable with said wheel, a reciprocable crosshead member disposed at the lower end of said body member, an eccentric strap having one end engaging said eccentric and the other end carrying said crosshead, means on said bracket structure confining the end of said eccentric strap adjacent to said crosshead to movement substantially in a vertical line, means connecting said crosshead member separately to the lever arm portions of the rockshafts carrying each of said leg assemblies to effect simultaneous opposite oscillatory movements of said leg assemblies, and other means connecting said crosshead similarly to the lever arms of the rockshafts carrying each of said arm assemblies to effect simultaneous oscillatory movements of said arm assemblies which are both opposite to each other and opposite to the direction of oscillation of the leg assemblies which are at the same sides of the body members as the respective arm assemblies.

6. An animated doll device as claimed in claim 4 in which said means on said hollow body member for detachable engagement with said complementary devices of a handle means comprises a pair of laterally spaced, parallel sockets and in which said handle means includes a rigid handle element provided with a pair of spaced parallel members detachably engageable with said sockets.

7. An animated doll as claimed in claim 5 in which said crosshead member includes a front transversely extending flanged portion and a rear transversely extending flanged portion and in which one side of said front flanged portion is connected to the lever arm portion of the rockshaft carrying one of said leg assemblies and the other side of said front flange portion is so connected to the lever arm portion of the rockshaft carrying the arm assembly at the opposite side of said hollow body member that the extremities of said assemblies both swing forwardly and rearwardly in unison as said crosshead is reciprocated and wherein the lever arm portion of the rockshafts carrying the opposite leg and arm assemblies are so connected to the ends of said rear flange of said crosshead respectively adjacent thereto that said other arm and leg assemblies are oscillated in unison with said first named arm and leg assemblies but in the opposite direction.

8. In an animated doll device, at least one doll having a hollow body member including integrally formed head, neck and torso components, a vertically disposed supporting bracket means attached to said body member, relatively movable limbs separately carried by rockshafts pivotally mounted on said body member and said bracket in locations and for movements approximating the corresponding movements of the living entity represented by the doll, at least two of said limbs terminating in foot portions and each of said rockshafts terminating in a lever arm concealed within said body member, and means for actuating said limbs in unison in a simulation of the ambulatory movements of the represented entity; said means comprising a rotatable wheel journaled on the lower end of said bracket means and having a surface engaging tread disposed below the lowermost of said foot portions, an eccentric member rotatable by said wheel, a reciprocable rod having one end thereof operatively connected to said eccentric member for actuation thereby and having means at its other end connected to all of said rockshaft lever arms and operative by reciprocation thereof to cause said limbs to oscillate in timed relation to each other in simulation of ambulation by said doll as said wheel is rotated, means on the rear of said body member adapted for detachable engagement with complementary devices of a handle means for manual support of said doll in an upright position and propulsion of said doll in said upright position along a surface contacted by said wheel tread and a handle means detachably engageable with said means on the rear of said hollow body member; said means on said body member for manual support and propulsion comprising a pair of spaced, parallel sockets in said hollow body member, and said handle means comprising a rigid handle element provided with a complementary pair of spaced, parallel socket engaging means detachably engageable with said pair of sockets.

9. In an animated doll device, a plurality of dolls, each comprising a hollow body member including integrally formed head, neck and torso components, a vertically disposed supporting bracket means attached to said body member, relatively movable limbs separately carried by rockshafts pivotally mounted on said body member and said bracket in locations and for movements approximating the corresponding movements of the living entity represented by the doll, at least two of said limbs terminating in foot portions and each of said rockshafts terminating in a lever arm concealed within said hollow body member, and means for actuating said limbs in unison in simulation of the ambulatory movements of the represented entity; said means comprising a rotatable wheel journaled on the lower end of said bracket means and having a surface engaging tread disposed below the lowermost of said foot portions, an eccentric member rotatable by said wheel, a reciprocable rod having one end thereof operatively connected to said eccentric member for actuation thereby and having means at its other end connected to all of said rockshaft lever arms and operative by reciprocation thereof to cause said limbs to oscillate in timed relation to each other in simulation of ambulation by the doll, means on the rear of each of said hollow body members adapted for detachable engagement with complementary devices of a handle means for simultaneous manual support and propulsion of said dolls in upright position along a surface contacted by the treads of the respective wheels of said dolls, and a handle means detachably engageable with said means on the rear of said hollow body members of said dolls comprising a rigid rod having a hand grip at its rear end and a crossbar at its forward end; said means on said hollow body members adapted for detachable engagement with said handle means comprising a pair of spaced, parallel sockets on each of said hollow body members, and said crossbar having a corresponding plurality of pairs of spaced, parallel members detachably engageable with the pairs of sockets on said plurality of dolls.

10. In an animated doll device, a plurality of dolls, each comprising a hollow body member including integrally formed head, neck and torso components, a vertically disposed supporting bracket means attached to said body member, relatively movable limbs separately carried by rockshafts pivotally mounted on said body member and said bracket in locations and for movements approximating the corresponding movements of the living entity represented by the doll, at least two of said limbs terminating in foot portions and each of said rockshafts terminating in a lever arm concealed within said hollow body member, and means for actuating said limbs in unison in simulation of the ambulatory movements of the represented entity; said means comprising a rotatable wheel journaled on the lower end of said bracket means and having a surface engaging tread disposed below the lowermost of said foot portions, an eccentric member rotatable by said wheel, a reciprocable rod having one end thereof operatively connected to said eccentric member for actuation thereby and having means at its other end connected to all of said rockshaft lever arms and operative by reciprocation thereof to cause said limbs to oscillate in timed relation to each other in simulation of ambulation by the doll, means on the rear of each of said hollow body members comprising spaced parallel sockets adapted for detachable engagement with complementary devices of a handle means for simultaneous manual support and propulsion of said dolls in upright position along a surface contacted by the treads of the respective wheels of said dolls, and a handle means detachably engageable with said means on the rear of said hollow body members of said dolls comprising a rigid rod having a hand grip at its rear end, and a pair of spaced, parallel socket engaging members adapted to engage the socket means of one of said plurality of dolls at its forward end, and said handle means further including a second rigid element extending rearwardly from said forward end of said rigid rod; said rearwardly extending element being provided with means for similarly detachably mounting others of said plurality of dolls thereon in rear of said one of said plurality of dolls mounted at the front of said rigid rod.

11. In an animated doll device, a plurality of dolls, each comprising a hollow body member including integrally formed head, neck and torso components, a vertically disposed supporting bracket means attached to said body member, relatively movable limbs separately carried by rockshafts pivotally mounted on said body member and said bracket in locations and for movements approximating the corresponding movements of the living entity represented by the doll, at least two of said limbs terminating in foot portions and each of said rockshafts terminating in a lever arm concealed within said hollow body member, and means for actuating said limbs in unison in simulation of the ambulatory movements of the represented entity; said means comprising a rotatable wheel journaled on the lower end of said bracket means and having a surface engaging tread disposed below the lowermost of said foot portions, an eccentric member rotatable by said wheel, a reciprocable rod having one end thereof operatively connected to said eccentric member for actuation thereby and having means at its other end connected to all of said rockshaft lever arms and operative by reciprocation thereof to cause said limbs to oscillate in timed relation to each other in simulation of ambulation by the doll, means on the rear of each of said hollow body members comprising spaced parallel sockets adapted for detachable engagement with complementary devices of a handle means for simultaneous manual support and propulsion of said dolls in upright position along a surface contacted by the treads of the respective wheels of said dolls, and a handle means detachably engageable with said means on the rear of

said hollow body members of said dolls comprising a rigid rod having a hand grip at its rear end, and a pair of spaced, parallel socket engaging members adapted to engage the socket means of one of said plurality of dolls at its forward end, and said handle means further including a second rigid element extending rearwardly from said forward end of said rigid rod; said rearwardly extending element being provided at intervals along the length thereof with laterally extending crosspins, a plurality of doll supporting elements each having a pair of doll body socket engaging members at one end thereof and thence extending laterally of the doll engaged thereby toward said rearwardly extending element, thence forwardly parallel to said rearwardly extending element to a point in front of the doll with which it is engaged and terminating in an end having pivotal engagement with one each of said crosspins.

12. In an animated doll device, a plurality of dolls each simulating the body of a person and including a hollow body member comprising integrally formed head, neck and torso components, a pair of arm assemblies separately fixed to one each of a pair of rockshafts mounted one each at the opposite shoulder portions of said hollow body member for oscillation about a common horizontal axial line and terminating in lever arm end portions within said hollow body member, a pair of leg assemblies fixed to one each of a second pair of rockshafts mounted at the lower end of said body member for oscillation about a common horizontal axial line parallel to the axial line of oscillation of said first-named rockshafts, and means for imparting simultaneous oscillating movements to said rockshafts and the arm and leg assemblies in simulation of the ambulatory movements of a person; said means comprising a vertically disposed bracket structure having the upper end thereof fixed to the lower end of said hollow body member, a rotatable wheel journaled at the lower end of said bracket structure for rotation about an axis parallel to the axes of movement of said assemblies and having a tread disposed to engage a surface below the distal ends of said leg assemblies, reciprocable devices operably connected to said wheel and separately connected to each of said rockshaft lever arms operative to cause said rockshafts and the assemblies fixed thereto to oscillate in timed relation to each other in simulation of ambulation by a person as said wheel is rotated, means on the rear of each of said hollow body members comprising a pair of spaced, parallel sockets adapted for detachable engagement with the complementary devices of a handle means for simultaneous manual support and propulsion of at least two of said dolls in side-by-side relation in an upright position along a surface contacted by the wheel treads of the respective dolls, and a handle means detachably engageable with said socket means at the rear of said hollow body members comprising a rigid rod having a hand grip at its rear end and a horizontal cross member at its forward end provided with at least two pairs of spaced parallel socket engaging members which are complementary to the sockets in said hollow body members of said dolls whereby one handle means affords support and operating means for effecting simulation of ambulation by at least two of said dolls in said side-by-side relation in unison.

13. In an animated doll device, a plurality of dolls each simulating the body of a person and including a hollow body member comprising integrally formed head, neck and torso components, a pair of arm assemblies separately fixed to one each of a pair of rockshafts mounted one each at the opposite shoulder portions of said hollow body member for oscillation about a common horizontal axial line and terminating in lever arm end portions within said hollow body member, a pair of leg assemblies fixed to one each of a second pair of rockshafts mounted at the lower end of said body member for oscillation about a common horizontal axial line parallel to the axial line of oscillation of said first-named rockshafts, and means for imparting simultaneous oscillating movements to said rockshafts and the arm and leg assemblies in simulation of the ambulatory movements of a person; said means comprising a vertically disposed bracket structure having the upper end thereof fixed to the lower end of said hollow body member, a rotatable wheel journaled at the lower end of said bracket structure for rotation about an axis parallel to the axes of movement of said assemblies and having a tread disposed to engage a surface below the distal ends of said leg assemblies, reciprocable devices operably connected to said wheel and separately connected to each of said rockshaft lever arms operative to cause said rockshafts and the assemblies fixed thereto to oscillate in timed relation to each other in simulation of ambulation by a person as said wheel is rotated, means on the rear of each of said hollow body members comprising a pair of spaced, parallel sockets adapted for detachable engagement with the complementary devices of a handle means for simultaneous manual support and propulsion of at least two of said dolls in side-by-side relation in an upright position along a surface contacted by the wheel treads of the respective dolls, and a handle means detachably engageable with said socket means at the rear of said hollow body members comprising a rigid rod having a hand grip at its rear end and a socket engaging means for at least one of said plurality of dolls at its forward end and further having a rigid element attached to the forward end of said rigid rod and extending rearwardly therefrom and provided with means for detachably mounting others of said plurality of dolls thereon and including devices allowing independent vertical movement of said others of said plurality of dolls so mounted on said rearwardly extending element.

14. In an animated doll device, a plurality of dolls each simulating the body of a person and including a hollow body member comprising integrally formed head, neck and torso components, a pair of arm assemblies separately fixed to one each of a pair of rockshafts mounted one each at the opposite shoulder portions of said hollow body member for oscillation about a common horizontal axial line and terminating in lever arm end portions within said hollow body member, a pair of leg assemblies fixed to one each of a second pair of rockshafts mounted at the lower end of said body member for oscillation about a common horizontal axial line parallel to the axial line of oscillation of said first-named rockshafts, and means for imparting simultaneous oscillating movements to said rockshafts and the arm and leg assemblies in simulation of the ambulatory movements of a person; said means comprising a vertically disposed bracket structure having the upper end thereof fixed to the lower end of said hollow body member, a rotatable wheel journaled at the lower end of said bracket structure for rotation about an axis parallel to the axes of movement of said assemblies and having a tread disposed to engage a surface below the distal ends of said leg assemblies, reciprocable devices operably connected to said wheel and separately connected to each of said rockshaft lever arms operative to cause said rockshafts and the assemblies fixed thereto to oscillate in timed relation to each other in simulation of ambulation by a person as said wheel is rotated, means on the rear of each of said hollow body members comprising a pair of spaced, parallel sockets adapted for detachable engagement with the complementary devices of a handle means for simultaneous manual support and propulsion of at least two of said dolls in side-by-side relation in an upright position along a surface contacted by the wheel treads of the respective dolls, and a handle means detachably engageable with said socket means at the rear of said hollow body members comprising a rigid rod having a hand grip at its rear end and a socket engaging means for at least one of said plurality of dolls at its forward end and further having a rigid element attached to the forward end of said rigid rod and extending rearwardly therefrom and provided with means for de-

teachably mounting others of said plurality of dolls thereon and including devices allowing independent vertical movement of said others of said plurality of dolls so mounted on said rearwardly extending element; said means for mounting said plurality of dolls on said rearwardly extending element comprising a plurality of laterally extending crosspins carried by said element and a plurality of doll supporting elements each having a pair of doll body socket engaging members at one end thereof and extending laterally of the doll engaged thereby toward said rearwardly extending element thence extending forwardly parallel to said rearwardly extending element

to a point in front of the doll with which it is engaged and terminating in an end having pivotal engagement with one each of said crosspins.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,118,247 January 21, 1964

William R. Allen

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the heading to the printed specification, line 3, for "2207 N. Kenmore St.," read -- 2027 N. Kenmore St., --.

Signed and sealed this 21st day of April 1964.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents