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(54) **TOY FIGURES**

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(57) **ABSTRACT**

The present disclosure is directed to a toy figure. The toy figure including a body; a first limb including a first upper member and a first lower member; a first gear assembly operatively connected to the first upper member and the first lower member and configured to move the first upper member and the first lower member between a retracted position in which the first upper member is in a first position and the first lower member is in a second position, and an extended position in which the first upper member is in a third position and the first lower member is in a fourth position; a manual actuator operatively connected to the body; and an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first gear assembly.

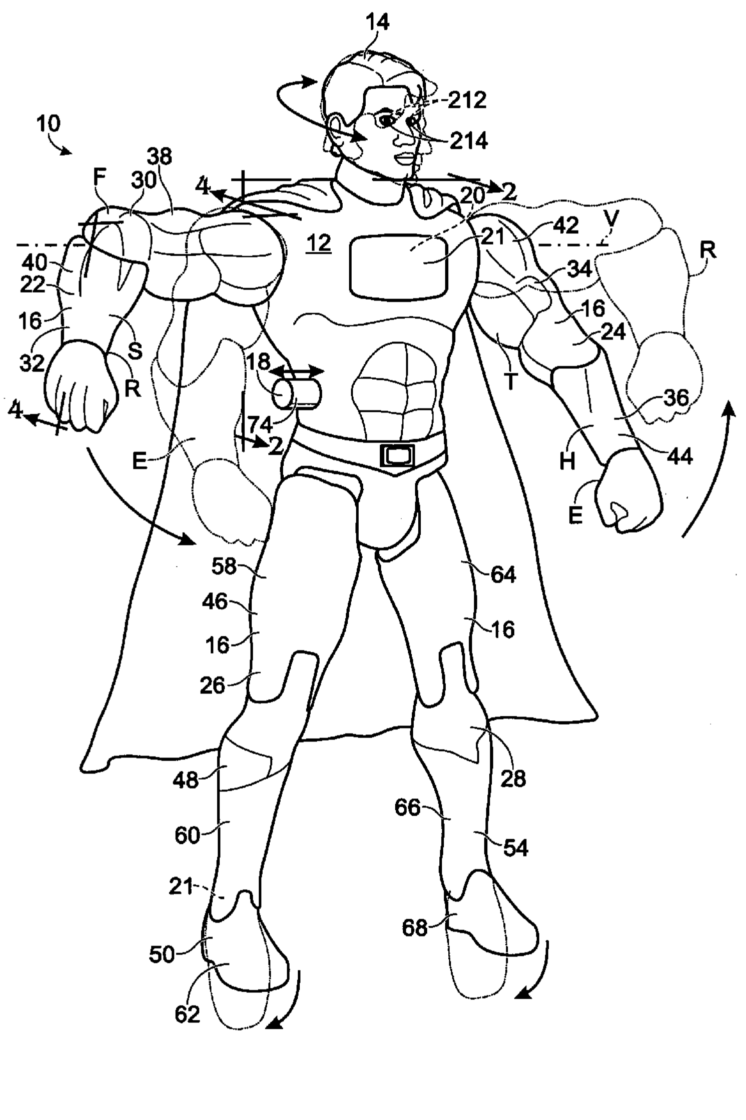
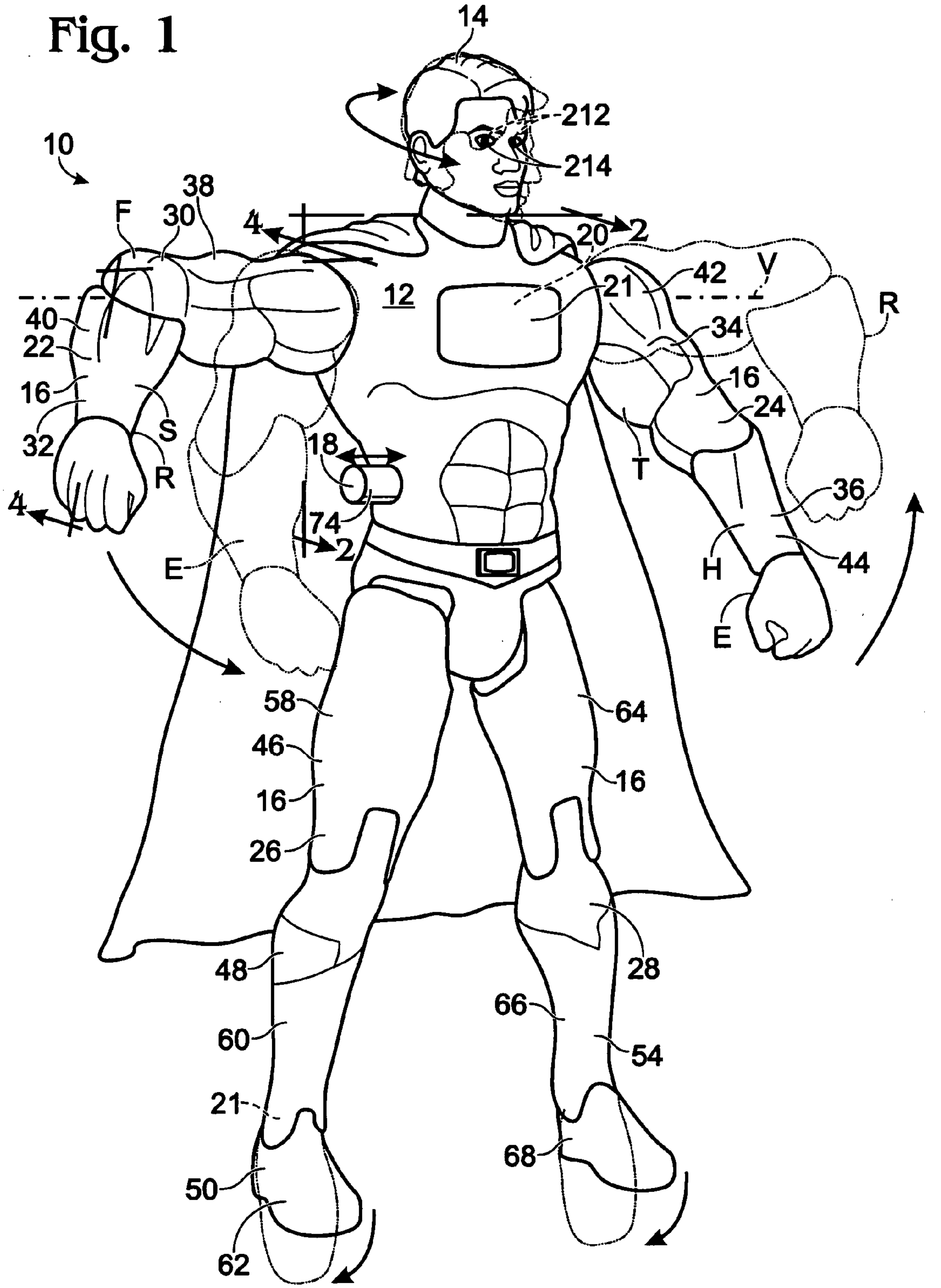


Fig. 1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38
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V
42
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12
R
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34
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16
24
32
S
R
18
T
36
4
74
2
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44
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62

Fig. 2

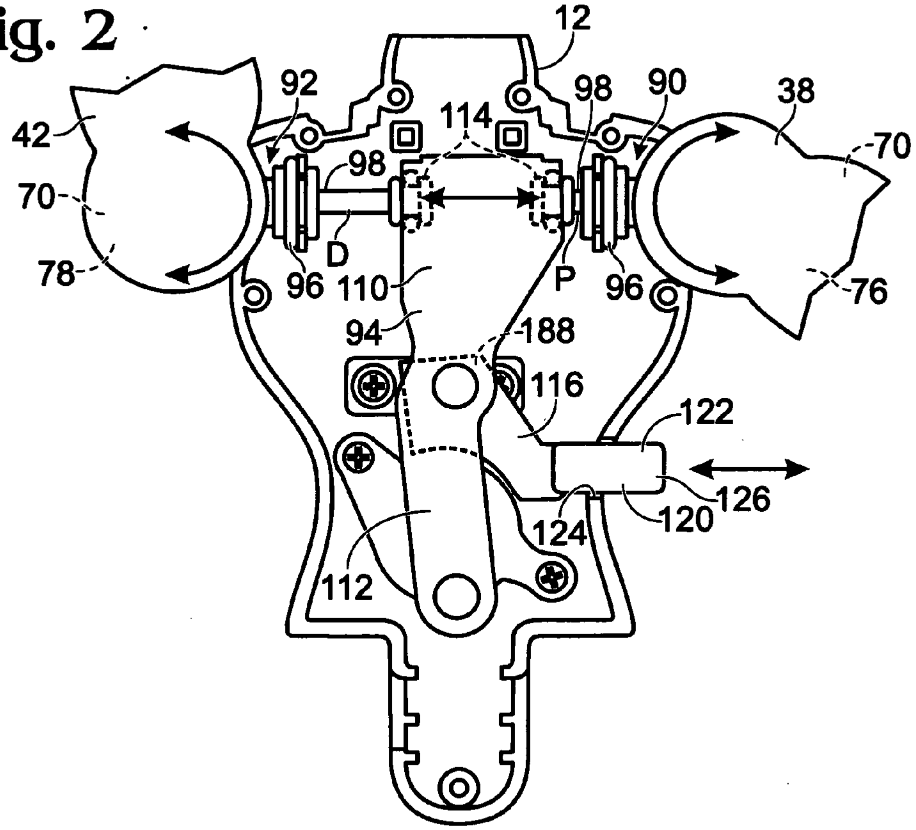
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Fig. 3

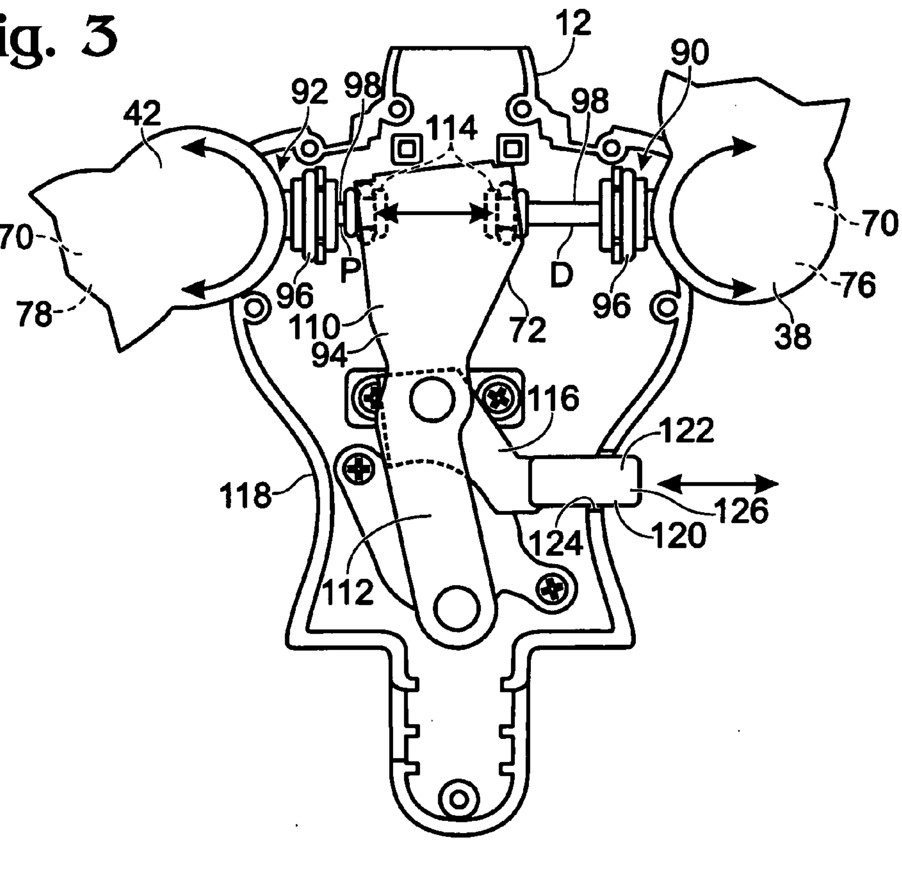
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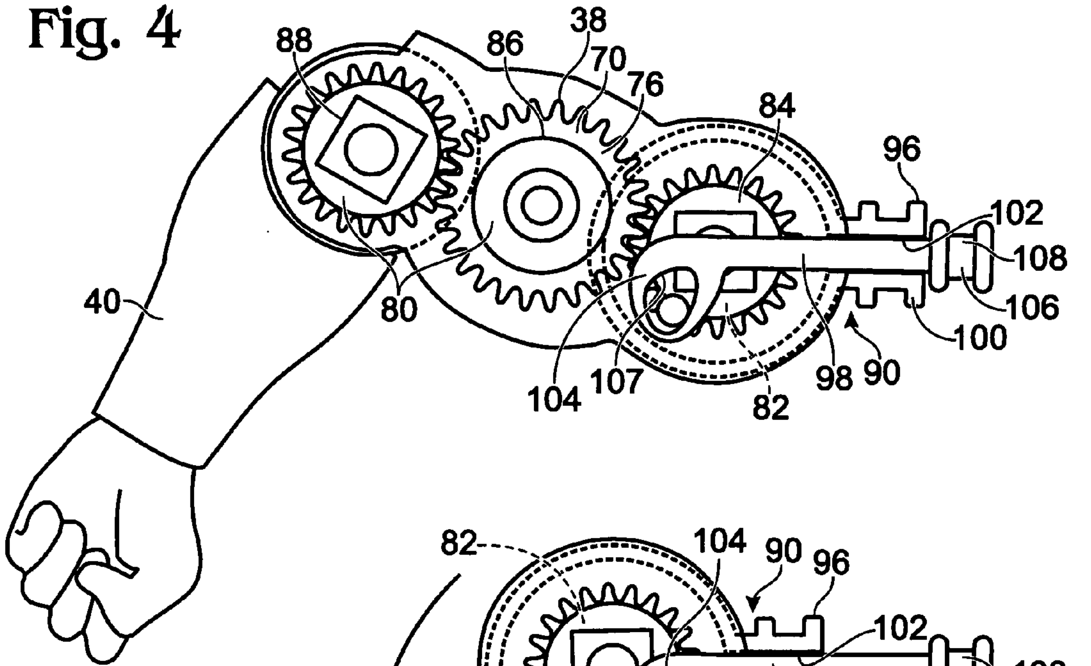
Fig. 4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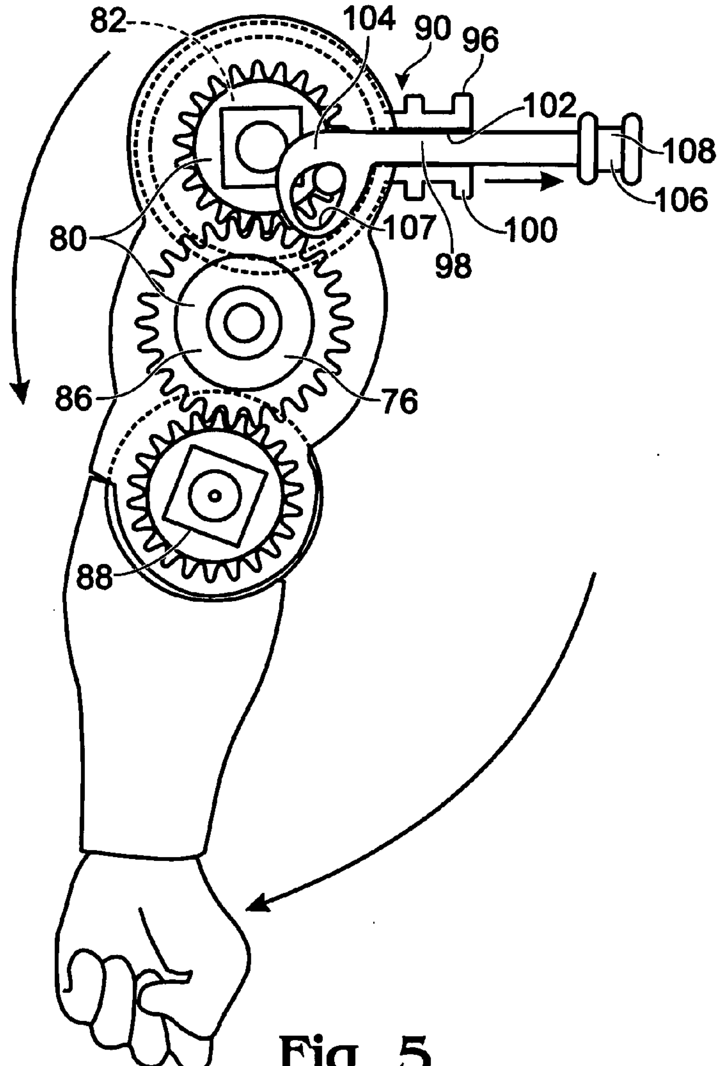
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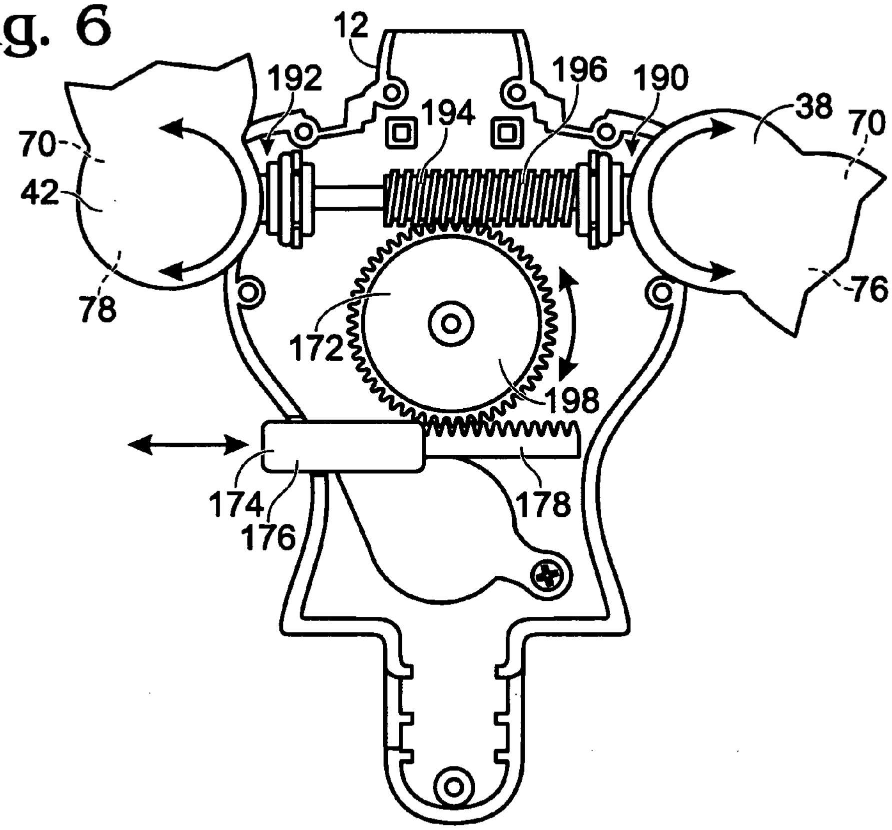
Fig. 5

Fig. 6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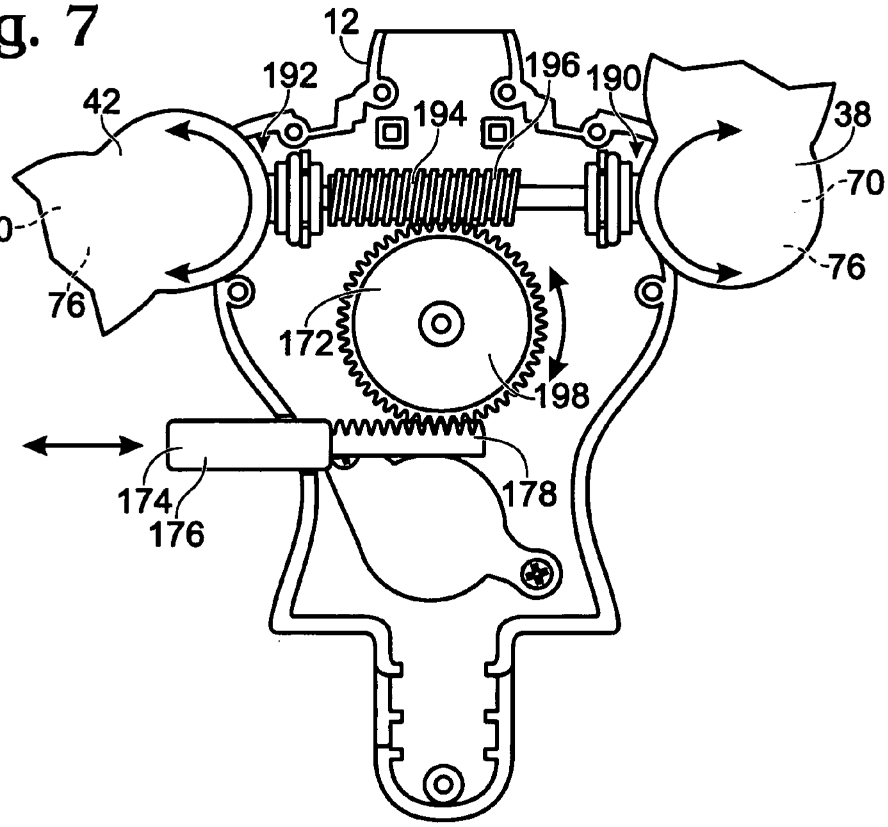
76

Fig. 7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172
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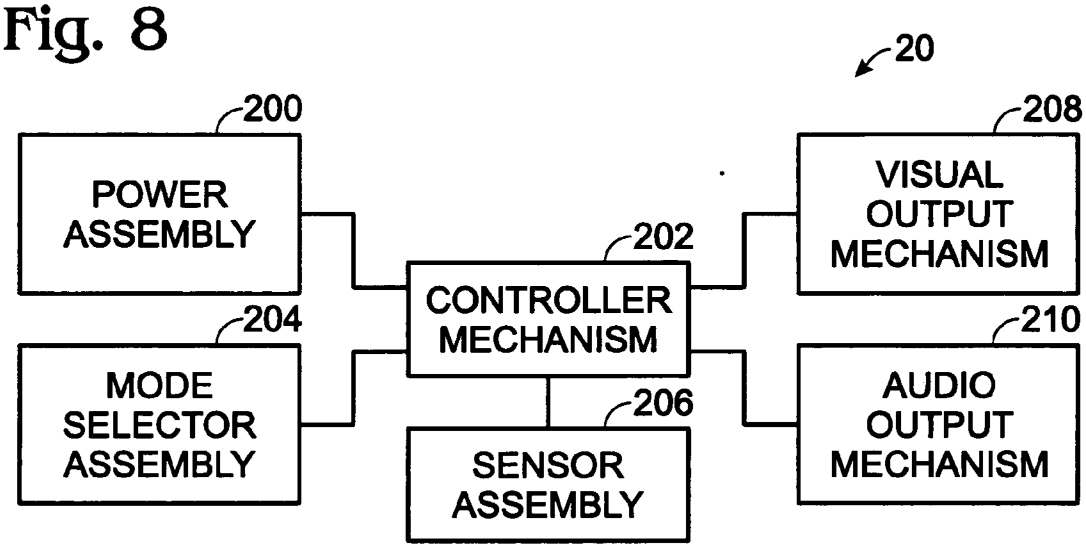
178
76

Fig. 8


20
200
POWER ASSEMBLY
204
MODE SELECTOR ASSEMBLY
202
CONTROLLER MECHANISM
206
SENSOR ASSEMBLY
208
VISUAL OUTPUT MECHANISM
210
AUDIO OUTPUT MECHANISM

TOY FIGURES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority under 35 U.S.C. § 119(e) to U.S. Provisional Patent Application Ser. No. 60/687,996 entitled "Toy Figure With Movable Arms," filed Jun. 6, 2005. The complete disclosure of the above application is hereby incorporated by reference for all purposes.

BACKGROUND OF THE DISCLOSURE

[0002] The present disclosure is directed to toy figures, and more particularly to toy figures with one or more movable limbs, such as toy action figures. Toy action figures have become an extremely popular and well known type of product in the toy arts. Directed largely to young boys, these toy figures typically replicate male oriented heroes and villains and the like. Common themes for such action figures include warriors, soldiers, athletes and the like. Additionally, many action figures have been provided that utilize a science fiction theme such as robots, cyborgs, androids, and superheroes.

[0003] While the appearances and physical size, as well as other properties, may vary substantially among toy action figures, most action figures may be generalized to include a molded plastic body often exaggerated in proportion and musculature. Most of the molded plastic bodies of action figures are fabricated of a plurality of parts and components joined by a corresponding plurality of articulated joints. The overall effect is often intended to provide posing and/or movement similar to that performed by humans. Posability, that is to say the ability to maintain a particular body position, is usually obtained by providing a friction-fit at one or more of the multiple articulated joints.

[0004] Many action figures also provide certain movement features to further enhance the play value of the toy figure. Such movement features may, for example, include an ability to jump, punch, and/or kick. In many instances accessories, such as various shields and weapons, also are provided for use in combination with action figures. The more recent advances in miniaturized low-cost digital electronic systems have enabled practitioner's in the toy art to further enhance action figures with light and/or sound circuitry supported within the figure. The objective of such light and/or sound circuitry is to provide action enhancement through light and/or sound effects (such as speech or other sounds that may, for example, include thunder, other loud noises and/or crashing sounds).

[0005] Examples of toy figures, including toy action figures, may be found in U.S. Pat. Nos. 6,776,687; 6,579,143; 6,575,810; 6,461,217; 6,322,420; 6,296,543; 6,280,286; 6,224,456; 6,139,394; 6,022,263; 5,730,638; 5,727,982; 5,468,172; 5,376,038; 5,073,140; 5,052,969; 5,011,449; 5,000,714; 4,985,008; 4,802,878; 4,752,273; 4,655,721; 4,608,026; 4,605,382; 4,601,672; 4,601,669; 4,596,532; 4,578,045; 4,186,518; 3,475,853; and 3,466,795; and UK Patent Application No. GB 2250688. The complete disclosures of the above patents and patent application are herein incorporated by reference for all purposes.

SUMMARY OF THE DISCLOSURE

[0006] Some embodiments provide a toy figure. The toy figure including a body; a first limb including a first upper member and a first lower member, the first lower member being pivotally connected to the first upper member and the first upper member being pivotally connected to the body; a first gear assembly operatively connected to the first upper member and the first lower member and configured to move the first upper member and the first lower member between a retracted position in which the first upper member is in a first position and the first lower member is in a second position, and an extended position in which the first upper member is in a third position and the first lower member is in a fourth position; a manual actuator operatively connected to the body; and an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first gear assembly.

[0007] Some embodiments provide a toy figure. The toy figure including a body; a first limb including a first upper member and a first lower member, the first lower member being pivotally connected to the first upper member and the first upper member being pivotally connected to the body; a first gear assembly operatively connected to the first upper member and the first lower member and configured to move the first upper member and the first lower member between a retracted position in which the first upper member is in a first position and the first lower member is in a second position, and an extended position in which the first upper member is in a third position and the first lower member is in a fourth position; a second limb including a second upper member and a second lower member, the second lower member being pivotally connected to the second upper member and the second upper member being pivotally connected to the body; a second gear assembly operatively connected to the second upper member and the second lower member and configured to move the second upper member and the second lower member between a retracted position in which the second upper member is in the first position and the second lower member is in the second position, and an extended position in which the second upper member is in the third position and the second lower member is in the fourth position; a manual actuator operatively connected to the body; and an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first and second gear assemblies.

[0008] Some embodiments provide a toy figure. The toy figure including a body including a transverse axis; a first limb including a first arm and a first forearm, the first forearm being pivotally connected to the first arm and the first arm being pivotally connected to the body; a first gear assembly operatively connected to the first forearm and the first arm and configured to move the first forearm and the first arm between a retracted position in which the first forearm is at least substantially perpendicular to the first arm and the first arm is at least substantially parallel to the transverse axis, and an extended position in which the first forearm is oblique to the first arm and the first arm is oblique to the transverse axis; a second limb including a second arm and a second forearm, the second forearm being pivotally connected to the second arm and the second arm being pivotally connected to the body; a second gear assembly operatively connected to the second arm and the second forearm and configured to move the second arm and the second forearm between a retracted position in which the second forearm is at least substantially perpendicular to the second arm and the second arm is at least substantially parallel to the transverse axis, and an extended position in which the second forearm is oblique to the second arm and the second arm is oblique to the transverse axis; a manual actuator slidingly connected to the body and including a portion external to the body; and an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first and second gear assemblies.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] **FIG. 1** is an isometric view of some embodiments of a toy figure.

[0010] **FIG. 2** is a partial sectional view of the toy figure taken along lines **2-2** in **FIG. 1** showing an interconnect structure and an actuator in an unactuated position.

[0011] **FIG. 3** is a partial sectional view of the toy figure of **FIG. 2** showing the interconnect structure and the actuator in an actuated position.

[0012] **FIG. 4** is a partial sectional view of an arm of the toy figure taken along lines **4-4** in **FIG. 1** showing a gear assembly with the arm in a retracted position.

[0013] **FIG. 5** is a partial sectional view of the arm of the toy figure of **FIG. 4** showing the gear assembly with the arm in an extended position.

[0014] **FIG. 6** is a partial sectional view of the toy figure taken along lines **2-2** in **FIG. 1** showing another example of an interconnect structure and an actuator in an unactuated position.

[0015] **FIG. 7** is a partial sectional view of the toy figure of **FIG. 6** showing the interconnect structure and the actuator in an actuated position.

[0016] **FIG. 8** is a schematic view of an electrical system of the toy figure of **FIG. 1**.

DETAILED DESCRIPTION OF THE DISCLOSURE

[0017] Referring to **FIG. 1**, some embodiments of a toy **FIG. 10** are shown. The toy figure may include a body **12**, a head **14**, one or more limbs **16**, at least one mechanical system **18**, and at least one electrical system **20**. The body may include any suitable structure configured to operatively connect the head and the one or more limbs and/or to at least partially contain the mechanical system **18** and/or the electrical system **20**.

[0018] Body **12**, head **14**, and/or limbs **16** may include any suitable structure, appearance, and/or ornamentation to resemble a body, a head, and/or limbs of any suitable person(s), animal(s), and/or other figure(s). For example, body **12**, head **14**, and/or limbs **16** may resemble the body, the head, and/or the limbs of an action superhero, as shown in **FIG. 1**. Although body **12**, head **14**, and/or limbs **16** are shown to resemble a particular action superhero, the body, the head, and/or the limbs may resemble any suitable figure(s).

[0019] Body **12** may include one or more actuators **21**, which may include any suitable structure configured to be selectively actuated to control the electrical system of the toy figure. The actuators may include one or more buttons, pull cords, switches, keyboards, and/or other suitable actuators. Actuators **21** may be in any suitable portions of the body, the head, and/or one or more of the limbs. For example, actuators **21** are shown on a chest, a belt buckle, and a back of the body on **FIG. 1**. Additionally, actuator **21** is shown on an ankle of one of the limbs.

[0020] Head **14** may be pivotally or rotatably connected to the body to allow selective rotation of the head relative to the body. Additionally, or alternatively, limbs **16** may be pivotally or rotatably connected to the body to allow selective rotation of the limbs relative to the body. Although head **14** and limbs **16** are shown to be pivotally connected to the body, the head and/or the limbs may alternatively, or additionally, be connected in any other suitable way to the body, including slidingly connected.

[0021] Limbs **16** may include a first limb **22**, a second limb **24**, a third limb **26**, and a fourth limb **28**. The first limb may include a first upper member **30** and a first lower member **32**, while the second limb may include a second upper member **34** and a second lower member **36**. The upper and/or lower members of the first and/or second limbs may include any suitable portion(s) of limb(s). For example, first upper member **30** may include a first arm **38**, and/or first lower member **32** may include a first forearm **40**. Additionally, or alternatively, second upper member **34** may include a second arm **42**, and/or second lower member **32** may include a second forearm **44**.

[0022] Although the upper and lower members are shown to include arms and forearms, those members may include any suitable portion(s) of limb(s). Additionally, although the first and second limbs are shown to include upper and lower members, either or both limbs may include any suitable members and/or any suitable number of members. For example, the first and/or second limbs may additionally include intermediate members pivotally connected between the upper and lower members.

[0023] Additionally, third limb **26** may include a third upper member **46**, a third intermediate member **48**, and a third lower member **50**, while fourth limb may include a fourth upper member **52**, a fourth intermediate member **54**, and a fourth lower member **56**. The upper, intermediate, and/or lower members of the third and/or fourth limbs may include any suitable portion(s) of limb(s). For example, third upper member **46** may include a first thigh **58**, third intermediate member **48** may include a first leg **60**, and/or third lower member **50** may include a first foot **62**. Additionally, or alternatively, fourth upper member **52** may include a second thigh **64**, fourth intermediate member **54** may include a second leg **66**, and/or fourth lower member **56** may include a second foot **68**.

[0024] Although the upper, intermediate, and lower members are shown to include thighs, legs, and feet, those members may include any suitable portion(s) of limb(s). Additionally, although the third and fourth limbs are shown to include upper, intermediate, and lower members, either or both limbs may include any suitable members and/or any suitable number of members. For example, the third and/or fourth limbs may alternatively include upper and lower members without or free from intermediate members.

[0025] For first limb **22**, the first lower member may be pivotally connected to the first upper member such that the first upper member and the first lower member are configured to be moved between a retracted position R in which the first upper member is in a first position F and the first lower member is in a second position S, and extended position E in which the first upper member is in a third position T and the first lower member is in a fourth position H.

[0026] For second limb **24**, the second lower member may be pivotally connected to the second upper member such that the second upper member and the second lower member are configured to be moved between retracted position R in which the second upper member is in first position F and the second lower member is in second position S, and extended position E in which the second upper member is in third position T and the second lower member is in fourth position H. The retracted and/or extended positions also may be considered punching positions in which the retracted position is a coiled position, and the extended position is a punch position. The pivotal connections of the limbs may allow positioning the punching of the arms at any suitable area relative to the body, such as in front of the body, above the body, etc.

[0027] The first, second, third, and/or fourth positions may include any suitable positions for the first and/or second limbs. For example, first upper member **30** and/or second upper member **34** may be at least substantially parallel to a transverse axis V of the body in the first position, and/or first lower member **32** and/or second lower member **36** may be at least substantially perpendicular to the first upper member and the second upper member, respectively, in the second position. Additionally, or alternatively, first upper member **30** and/or second upper member **34** may be oblique to the transverse axis of the body in the third position, and/or first lower member **32** and/or second lower member **36** may be oblique to the first upper member and the second upper member, respectively, in the fourth position.

[0028] Although the first, second, third, and fourth positions are shown to be specific positions, those positions may be any suitable positions. For example, the first and/or second positions may include the lower members being oblique to the upper member, and/or the upper members being oblique to the transverse axis of the body, with the obliqueness being different from the third and fourth positions. Additionally, although the first and second limbs are shown to be movable to the first, second, third, and fourth positions, the third and/or fourth limbs may alternatively, or additionally, be movable to those positions and/or other suitable positions.

[0029] Mechanical system **18** may include any suitable structure configured to allow movement of the one or more limbs. For example, mechanical system **18** may include one or more gear assemblies **70**, at least one interconnect structure **72**, and at least one manual actuator **74**, as shown in **FIGS. 2-5**. Any suitable number of gear assemblies may be provided to allow movement of the one or more limbs. For example, gear assemblies **70** may include a first gear assembly **76** operatively connected to the first limb and a second gear assembly **78** operatively connected to the second limb.

[0030] First gear assembly **76** may include any suitable structure configured to move the first upper member and/or the first lower member between the retracted and extended positions, while second gear assembly **78** may include any suitable structure configured to move the second upper member and/or the second lower member between the retracted and extended positions. The first and second gear assemblies may include at least substantially similar structure. For example, first and/or second gear assemblies **76**, **78** may include a plurality of gears **80** and at least one bias element **82**, as shown in **FIG. 5**.

[0031] The plurality of gears may be operatively connected to the first upper member and/or the first lower member (and/or the second upper member and/or the second lower member) and may include a first gear **84**, a second gear **86**, and a third gear **88** in a linear arrangement. Rotation of the first upper arm (and/or the second upper arm) by the interconnect structure may translate to rotation of the first gear. Additionally, or alternatively, that rotation of first gear **84**, translates to rotation of second gear **86** and/or third gear **88**, which may translate to rotation of the first lower arm (and/or the second lower arm).

[0032] Although the plurality of gears is shown to include the first, second, and third gears, the plurality of gears may include any suitable number of gears. Additionally, although the plurality of gears are shown having axes parallel to each other, one or more of the plurality of gears may have an axis(es) that are not parallel to the other axis(es). Additionally, although spur gears are shown, any suitable type(s) of gears may additionally, or alternatively, be used.

[0033] Bias element **82** may include any suitable structure configured to urge one or more gears of plurality of gears **80** to move the first upper member and/or the first lower member (and/or the second upper member and/or the second lower member) toward the retracted and/or extended positions. For example, the bias element may be mounted on first gear **84** of the first gear assembly to move the first arm to the retracted position and/or to urge second and third gears **86**, **88** of the first gear assembly to move the first forearm to the retracted position. In that example, first arm **38** and first forearm **40** generally is in retracted position R and the interconnect structure typically must move the plurality of gears against the urging of the bias element to move the first arm and the first forearm to extended position E.

[0034] Additionally, or alternatively, the bias element may be mounted on the first gear of the second gear assembly to move the second arm to the extended position and/or to urge the second and third gears of the second gear assembly to move the second forearm to the extended position. In that example, second arm **42** and second forearm **44** generally is in extended position E and the interconnect structure typically must move the plurality of gears against the urging of the bias element to move the second arm and the second forearm to retracted position R.

[0035] Although the bias elements are discussed to urge the gears of the first and second gear assemblies to move the limbs toward different positions, the bias elements may alternatively, or additionally, be configured to urge those gears to move the limbs towards the same position. Additionally, although two gear assemblies **70** are shown, any suitable number of gear assemblies may be included. Moreover, although the first and second gear assemblies are shown to be operatively connected to the first and second limbs, respectively, the first and second gear assemblies may alternatively, or additionally, be operatively connected to the third and/or fourth limbs, and/or the head.

[0036] Interconnect structure **72** may include any suitable structure configured to translate movement (such as linear movement) of the manual actuator to rotary movement of one or more of the gears of the first and/or second gear assemblies. For example, the interconnect structure may include a first slider assembly **90**, a second slider assembly **92**, and a lever **94**, as shown in **FIGS. 2-5**.

[**0037**] First slider assembly **90** may include any suitable structure configured to translate movement of lever **94** to movement of the first arm and/or gears of the first gear assembly, while second slider assembly **92** may include any suitable structure configured to translate movement of lever **94** to movement of the second arm and/or the gears of the second gear assembly. The first and second slider assemblies may include at least substantially similar structure. For example, the first slider assembly and/or the second slider assembly may include a containment member **96** and a slider **98**, as shown in **FIGS. 4-5**.

[**0038**] Containment member **96** may include a coupler **100**, which may be pivotally or rotatably attached to body **12**. Additionally, coupler **100** may include an opening **102** to slidingly receive at least a portion of slider **98**. Containment member **96** may be pivotally received within first arm **38** or second arm **42** such that the first or second arm may pivot with containment member pivotally or rotatably attached to body **12** via coupler **100**.

[**0039**] Slider **98** may include a first end portion **104** and a second end portion **106**. The first end portion may include an aperture **107**, which may be configured to receive a pin **110** attached to first arm **38** or second arm **42**. The aperture may be any suitable shape, such as the oblong shape shown in **FIGS. 4-5**, configured to allow slider **98** to move first arm **38** or second arm **42**. Second end portion **106** may include a connector **108**, which may include any suitable structure configured to connect to a portion of lever **94**. Although slider **98** is shown to be operatively connected to the first arm and/or the second arm via aperture **108** and pin **110**, the slider may be operatively connected to the first and/or second arms via any suitable structure.

[**0040**] The slider may move between a proximal position P in which the second end portion is adjacent coupler **100** (as shown in **FIG. 4**), and a distal position D in which the second end portion is spaced from the coupler (as shown in **FIG. 5**). The slider's movement between the proximal and distal positions may move first arm **38** or second arm **42**. Movement of the first or second arm may move the first gear of the first or second gear assemblies. That movement may then move the second and/or third gears of the first or second gear assemblies, thereby moving the first or second forearm.

[**0041**] Although the first arm and forearm (and/or second arm and forearm) are shown to be in the retracted position when the slider is in the proximal position, and in the extended position when the slider is in the distal position, the first arm and forearm (and/or second arm and forearm) may be in the retracted position when the slider is in the distal position and/or any other suitable position, and in the extended position when the slider is in the proximal position and/or any other suitable position. Additionally, although first and second slider assemblies **90**, **92** are shown to include containment member **96** and slider **98**, the first and/or second slider assemblies may include any suitable structure configured to translate movement of lever **94** to movement of the first arm, the second arm, and/or one or more of the gears of the first and/or second gear assemblies.

[**0042**] Lever **94** may move one or more of the sliders of the first and second slider assemblies between the proximal and distal positions. The lever may include an upper end portion **110** and a lower end portion **112**, as shown in **FIGS. 2-3**. The upper end portion may include two or more receivers **114**, which may be configured to receive connectors **108** of sliders **98** of the first and/or second slider assemblies. Receivers **114** may include hooks and/or any suitable structure configured to receive those connectors.

[**0043**] Lower end portion **112** may be pivotally connected to body **12** to allow lever **94** to move sliders of the first and second slider assemblies between the proximal and distal positions. Movement of the lever may move the sliders of the first and second slider assemblies in any suitable way. For example, in **FIG. 2**, the slider of the first slider assembly is in the proximal position in which the first arm and the first forearm are in the retracted position, while the slider of the second slider assembly is in the distal position in which the second arm and the second forearm are in the extended position. In **FIG. 3**, the lever is moved (which may be against the bias element(s) of the first and/or second gear assemblies) and the slider of the first slider assembly is in the distal position in which the first arm and the first forearm are in the extended position, while the slider of the second slider assembly is in the proximal position in which the second arm and the second forearm are in the retracted position.

[**0044**] As a result of moving the lever, the sliders may move along the same linear direction. Alternatively, or additionally, the sliders may be moved by the lever along opposite linear directions and/or other suitable nonlinear directions. Movement shown in **FIGS. 2-3** may be described as a punching motion and the arms may selectively be pivoted or rotated to any suitable location relative to the body to perform the punching motion. For example, the arms may be rotated such that the punching motion is in a front of the body or adjacent to the head of the body (the latter may simulate the toy figure punching while flying in the air).

[**0045**] Although lever **94** is shown to include receivers **114**, the lever may include any suitable structure configured to move one or more of the sliders of the first and second slider assemblies between the proximal and distal positions. Additionally, although lever **94** is shown to be pivotally connected, the lever may be connected in any suitable way to allow lever **94** to move sliders of the first and second slider assemblies between the proximal and distal positions.

[**0046**] Moreover, although interconnect structure **72** is shown to include first slider assembly **90**, second slider assembly **92**, and lever **94**, the interconnect structure may include any suitable structure configured to translate movement of the manual actuator to rotary movement of one or more of the gears of the first and/or second gear assemblies. For example, another example of interconnect structure **72** is shown in **FIGS. 6 and 7** and is generally indicated at **172**. Interconnect structure **172** may include a first slider assembly **190**, a second slider assembly **192**, and a interconnect gear assembly **194**.

[**0047**] The first and/or second slider assemblies **190**, **192** may include at least substantially similar structure as first and second slider assemblies **90**, **92**. Interconnect gear assembly **194** may include a first gear **196** and a second gear **198**, which may include any suitable type(s) of gears. The first gear may be operatively connected to the slider assemblies such that the sliders of one or both of those assemblies may be moved between the proximal and distal positions. Second gear **198** may be operatively connected to the first gear such that movement of the second gear translates to movement of the first gear.

[**0048**] Manual actuator **74** may include any suitable structure operatively connected to the body and configured to pivot lever **94**. For example, manual actuator **74** may include a push lever **116** including a first end portion **118** and a second end portion **120**, as shown in **FIGS. 2-3**. The first end portion may be pivotally connected to any suitable portion of the lever, while the second end portion may include handle **122**. Handle **122** may be slidingly received within an aperture **124** of body **12** and at least a portion **126** of the handle may be external the body. Thus, a user may move the portion of the handle to move the first and/or second limbs in any suitable motion(s), such as a punching motion described above.

[**0049**] Although handle **122** is shown to be slidingly received with an aperture **124** of the body, the handle may be received in any suitable way(s). Additionally, although manual actuator **74** is shown to be pivotally connected to lever **94**, the actuator may alternatively, or additionally, be connected in any suitable way(s). For example, another example of manual actuator **74** is shown in **FIGS. 6-7** and is generally indicated at **174**. That manual actuator may include a handle portion **176** and a rack portion **178**. At least a portion of the handle portion may be external the body and/or the rack portion may operatively engage second gear **198** such that movement of manual actuator **174** moves second gear **198**.

[**0050**] Electrical system **20** may include any suitable structure configured to generate audio and/or visual output. For example, the electrical system may include a power assembly **200**, a controller mechanism **202**, a mode selector assembly **204**, a sensor assembly **206**, a visual output mechanism **208**, and an audio output mechanism **210**.

[**0051**] Power assembly **200** may include any suitable structure configured to provide electrical power to one or more of the other components of the electrical system. For example, the power assembly may include one or more batteries. Although power assembly **200** is discussed to include batteries, the power assembly may include any suitable structure configured to provide electrical power to one or more of the other components of the electrical system. For example, power assembly **200** may include suitable structure configured to provide electrical power from a utility grid and/or from other sources such as solar, wind, geothermal, nuclear, etc.

[**0052**] Controller mechanism **202** may include any suitable structure configured to receive inputs from one or more of the other electrical components and/or generate outputs via one or more of the other electrical components. For example, controller mechanism **202** may include a microcontroller or microprocessor. The microcontroller may be configured to selectively illuminate one or more lights of the visual output mechanism responsive, at least in part, to moving at least one of the first upper member, the first lower member, the second upper member, and the second lower member between the retracted and extended positions. Additionally, or alternatively, the microcontroller may be configured to selectively generate one or more sounds via one or more speakers of the audio output mechanism responsive, at least in part, to moving at least one of the first upper member, the first lower member, the second upper member, and the second lower member between the retracted and extended positions.

[**0053**] Although controller mechanism **202** is discussed to include the microcontroller, the controller mechanism may include any suitable structure configured to receive inputs from one or more other electrical components and/or generate outputs via the other electrical components. For example, controller mechanism **202** may include wiring or circuitry (such as "hard" wiring) between input and output devices.

[**0054**] Mode selector assembly **204** may include any suitable structure configured to select one or more functions of the controller mechanism. For example, mode selector assembly may select among a plurality of modes for the toy figure, such as a flight mode and a battle mode, which may, at least partially, dictate the type(s) of audio and/or visual output generated.

[**0055**] Sensor assembly **206** may include any suitable structure configured to be actuated by one or more of actuators **21** to provide suitable input for the controller mechanism. For example, sensor assembly **206** may include one or more sensors, which may be actuated by one or more of actuators **21** and/or other suitable actuators.

[**0056**] Visual output mechanism **208** may include any suitable structure configured to generate one or more visual outputs. For example, the visual output mechanism may include one or more lights **212**. The lights may be contained in and/or associated with any suitable portion(s) of the toy figure. For example, the lights may be positioned behind one or more eyes **214** of the head. Although the lights are shown to be located behind the eyes, the lights may additionally, or alternatively, be located in any suitable portion(s) of the body, head, and/or limbs.

[**0057**] Audio output mechanism **210** may include any suitable structure configured to generate one or more sounds. For example, audio output mechanism **210** may include at least one speaker. The speaker may be positioned with any suitable portion(s) of the body, head, and/or limbs. For example, the speaker may be positioned on a back of the body. Although the audio output mechanism is discussed to include speakers, the audio output mechanism may include any suitable structure configured to output one or more sounds.

[**0058**] The electrical system of the toy figure may allow for various light and/or sound effects which may enhance play value of the toy figure. For example, the toy figure may be placed in flight mode and the actuator in the ankle of the leg may detect when the toy figure is flying and/or when the toy figure has landed to generate appropriate flying and/or landing light and/or sound effects. Additionally, the toy figure may be placed in battle mode and one or more actuators may detect when the toy figure is punching and generate the appropriate light and/or sound effects. Moreover, the toy figure may detect when one or more actuators on the body are depressed to generate phrases and/or sound effects appropriate to the toy figure. Although the electrical system is shown to include particular components, the electrical system may include any suitable components configured to selectively generate and/or produce audio and/or visual output(s).

[0059] The disclosure set forth above encompasses multiple distinct inventions with independent utility. While each of these inventions has been disclosed in its preferred form, the specific embodiments thereof as disclosed and illustrated herein are not to be considered in a limiting sense as numerous variations are possible. The subject matter of the inventions includes all novel and non-obvious combinations and subcombinations of the various elements, features, functions and/or properties disclosed herein. Similarly, where any claim recites "a" or "a first" element or the equivalent thereof, such claim should be understood to include incorporation of one or more such elements, neither requiring nor excluding two or more such elements.

[0060] Inventions embodied in various combinations and subcombinations of features, functions, elements, and/or properties may be claimed through presentation of new claims in a related application. Such new claims, whether they are directed to a different invention or directed to the same invention, whether different, broader, narrower or equal in scope to the original claims, are also regarded as included within the subject matter of the inventions of the present disclosure.

What is claimed is:

1. A toy figure, comprising:

a body;

a first limb including a first upper member and a first lower member, the first lower member being pivotally connected to the first upper member and the first upper member being pivotally connected to the body;

a first gear assembly operatively connected to the first upper member and the first lower member and configured to move the first upper member and the first lower member between a retracted position in which the first upper member is in a first position and the first lower member is in a second position, and an extended position in which the first upper member is in a third position and the first lower member is in a fourth position;

a manual actuator operatively connected to the body; and

an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first gear assembly.

2. The toy figure of claim 1, wherein the first upper member includes an arm and the first lower member includes a forearm.

3. The toy figure of claim 1, wherein the first upper member is at least substantially parallel to a transverse axis of the body in the first position, and the first lower member is at least substantially perpendicular to the first upper member in the second position.

4. The toy figure of claim 3, wherein the first upper member is oblique to the transverse axis of the body in the third position, and the first lower member is oblique to the first upper member in the fourth position.

5. The toy figure of claim 1, further comprising:

a second limb including a second upper member and a second lower member, the second lower member being pivotally connected to the second upper member and the second upper member being pivotally connected to the body; and

a second gear assembly operatively connected to the second upper member and the second lower member and configured to move the second upper member and the second lower member between a retracted position in which the second upper member is in the first position and the second lower member is in the second position, and an extended position in which the second upper member is in the third position and the second lower member is in the fourth position,

wherein the interconnect structure is configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the second gear assembly.

6. The toy figure of claim 5, wherein the first gear assembly includes a plurality of gears operatively connected to the first upper member and the first lower member, and a first bias element configured to urge the plurality of gears to move the first upper member and the first lower member toward the retracted position.

7. The toy figure of claim 6, wherein the second gear assembly includes a plurality of gears operatively connected to the second upper member and the second lower member, and a second bias element configured to urge the plurality of gears to move the second upper member and the second lower member toward the extended position.

8. The toy figure of claim 1, wherein a portion of the manual actuator is external to the body.

9. The toy figure of claim 1, wherein the manual actuator is slidingly connected to the body.

10. The toy figure of claim 1, wherein the interconnect structure includes sliders operatively connecting the first and second gear assemblies to the manual actuator.

11. The toy figure of claim 10, wherein the sliders move along the same linear direction with movement of the manual actuator.

12. The toy figure of claim 1, further comprising an audio output mechanism configured to generate one or more sounds responsive, at least in part, to moving at least one of the first upper member and the first lower member between the retracted and extended positions.

13. The toy figure of claim 1, further comprising a visual output mechanism configured to illuminate one or more lights responsive, at least in part, to moving at least one of the first upper member and the first lower member between the retracted and extended positions.

14. A toy figure, comprising:

a body;

a first limb including a first upper member and a first lower member, the first lower member being pivotally connected to the first upper member and the first upper member being pivotally connected to the body;

a first gear assembly operatively connected to the first upper member and the first lower member and configured to move the first upper member and the first lower member between a retracted position in which the first upper member is in a first position and the first lower member is in a second position, and an extended position in which the first upper member is in a third position and the first lower member is in a fourth position;

a second limb including a second upper member and a second lower member, the second lower member being pivotally connected to the second upper member and the second upper member being pivotally connected to the body;

a second gear assembly operatively connected to the second upper member and the second lower member and configured to move the second upper member and the second lower member between a retracted position in which the second upper member is in the first position and the second lower member is in the second position, and an extended position in which the second upper member is in the third position and the second lower member is in the fourth position;

a manual actuator operatively connected to the body; and

an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first and second gear assemblies.

15. The toy figure of claim 14, wherein the first upper member and the second upper member are at least substantially parallel to a transverse axis of the body in the first position, and the first lower member and the second lower member are at least substantially perpendicular to the first upper member and the second upper member, respectively, in the second position.

16. The toy figure of claim 15, wherein the first upper member and the second upper member are oblique to the transverse axis of the body in the third position, and the first lower member and the second lower member are oblique to the first upper member and the second upper member, respectively, in the fourth position.

17. The toy figure of claim 14, wherein the first gear assembly includes a plurality of gears operatively connected to the first upper member and the first lower member, and a first bias element configured to urge the plurality of gears to move the first upper member and the first lower member toward the retracted position.

18. The toy figure of claim 17, wherein the second gear assembly includes a plurality of gears operatively connected to the second upper member and the second lower member, and a second bias element configured to urge the plurality of gears to move the second upper member and the second lower member toward the extended position.

19. The toy figure of claim 14, further comprising an audio output mechanism configured to generate one or more sounds responsive, at least in part, to moving at least one of the first upper member, the first lower member, the second upper member, and the second lower member between the retracted and extended positions.

20. The toy figure of claim 14, further comprising a visual output mechanism configured to illuminate one or more lights responsive, at least in part, to moving at least one of the first upper member, the first lower member, the second upper member, and the second lower member between the retracted and extended positions.

21. A toy figure, comprising:

a body including a transverse axis;

a first limb including a first arm and a first forearm, the first forearm being pivotally connected to the first arm and the first arm being pivotally connected to the body;

a first gear assembly operatively connected to the first forearm and the first arm and configured to move the first forearm and the first arm between a retracted position in which the first forearm is at least substantially perpendicular to the first arm and the first arm is at least substantially parallel to the transverse axis, and an extended position in which the first forearm is oblique to the first arm and the first arm is oblique to the transverse axis;

a second limb including a second arm and a second forearm, the second forearm being pivotally connected to the second arm and the second arm being pivotally connected to the body;

a second gear assembly operatively connected to the second arm and the second forearm and configured to move the second arm and the second forearm between a retracted position in which the second forearm is at least substantially perpendicular to the second arm and the second arm is at least substantially parallel to the transverse axis, and an extended position in which the second forearm is oblique to the second arm and the second arm is oblique to the transverse axis;

a manual actuator slidingly connected to the body and including a portion external to the body; and

an interconnect structure configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first and second gear assemblies.

22. The toy figure of claim 21, wherein the first gear assembly includes a plurality of gears operatively connected to the first upper member and the first lower member, and a first bias element configured to urge the plurality of gears to move the first upper member and the first lower member toward the retracted position.

23. The toy figure of claim 22, wherein the second gear assembly includes a plurality of gears operatively connected to the second upper member and the second lower member, and a second bias element configured to urge the plurality of gears to move the second upper member and the second lower member toward the extended position.

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