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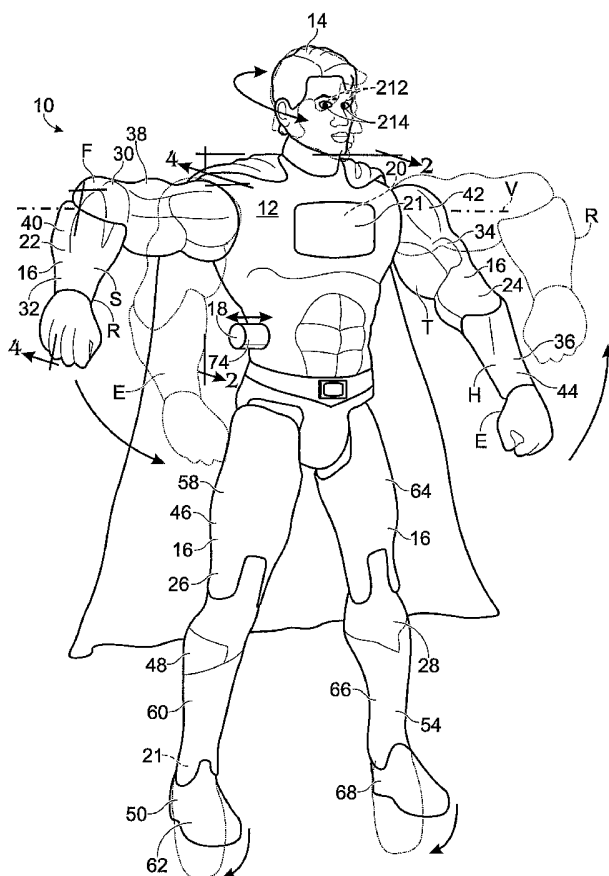
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[Continued on next page]

(54) Title: TOY FIGURES



(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.



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TOY FIGURES

Cross-Reference to Related Applications

This application claims priority under 35 U.S.C. § 119(e) to U.S. Provisional Patent Application Serial No. 60/687,996 entitled "Toy Figure With Movable Arms,"
5 filed June 6, 2005, and U.S. Patent Application Serial No. _____ entitled "Toy Figures," filed June 6, 2006. The complete disclosures of the above applications are hereby incorporated by reference for all purposes.

Background of the Disclosure

The present disclosure is directed to toy figures, and more particularly to toy
10 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
15 provided that utilize a science fiction theme such as robots, cyborgs, androids, and superheroes.

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
20 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.

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).

Examples of toy figures, including toy action figures, may be found in U.S. Patent 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

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.

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
5 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
10 configured to translate linear movement of the manual actuator to rotary movement of one or more gears of the first and second gear assemblies.

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
15 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
20 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 slidably 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

Fig. 1 is an isometric view of some embodiments of a toy figure.

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.

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.

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.

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.

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.

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.

Fig. 8 is a schematic view of an electrical system of the toy figure of Fig. 1.

Detailed Description of the Disclosure

5 Referring to Fig. 1, some embodiments of a toy figure 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
10 system 20.

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
15 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).

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
20 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.

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.

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.

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.

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
5 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,
10 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. 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
15 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.

For first limb 22, the first lower member may be pivotally connected to the first
20 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.

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.

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.

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.

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.

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.

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).

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.

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.

5 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
10 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.

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
15 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,
20 and/or the head.

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.

First slider assembly 90 may include any suitable structure configured to
5 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
10 and/or the second slider assembly may include a containment member 96 and a slider 98, as shown in Figs. 4-5.

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 slidably receive at least a portion of slider 98. Containment member 96 may be
15 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.

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
20 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.

5 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
10 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.

 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
15 (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
20 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.

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
5 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.

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
10 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
15 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.

20 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
5 may simulate the toy figure punching while flying in the air).

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
10 suitable way to allow lever 94 to move sliders of the first and second slider assemblies between the proximal and distal positions.

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
15 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 an interconnect gear assembly 194.

20 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.

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 slidably 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.

Although handle 122 is shown to be slidably received within 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.

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
5 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.

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
10 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.

15 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
20 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
5 extended positions.

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
10 wiring or circuitry (such as “hard” wiring) between input and output devices.

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
15 and/or visual output generated.

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.

20 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.

5 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,
10 the audio output mechanism may include any suitable structure configured to output one or more sounds.

 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
15 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
20 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).

The disclosure set forth above encompasses multiple distinct inventions with independent utility. While each of these inventions has been disclosed in its preferred
5 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
10 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.

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
15 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;

5 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

15 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.

20

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,
10 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
15 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
20 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.

5

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.

10

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

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

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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
5 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
10 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:
15 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
20 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
5 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
10 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
15 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
20 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.

5

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.

10

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.

15

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

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
5 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
10 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
15 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
20 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;

5 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.

10

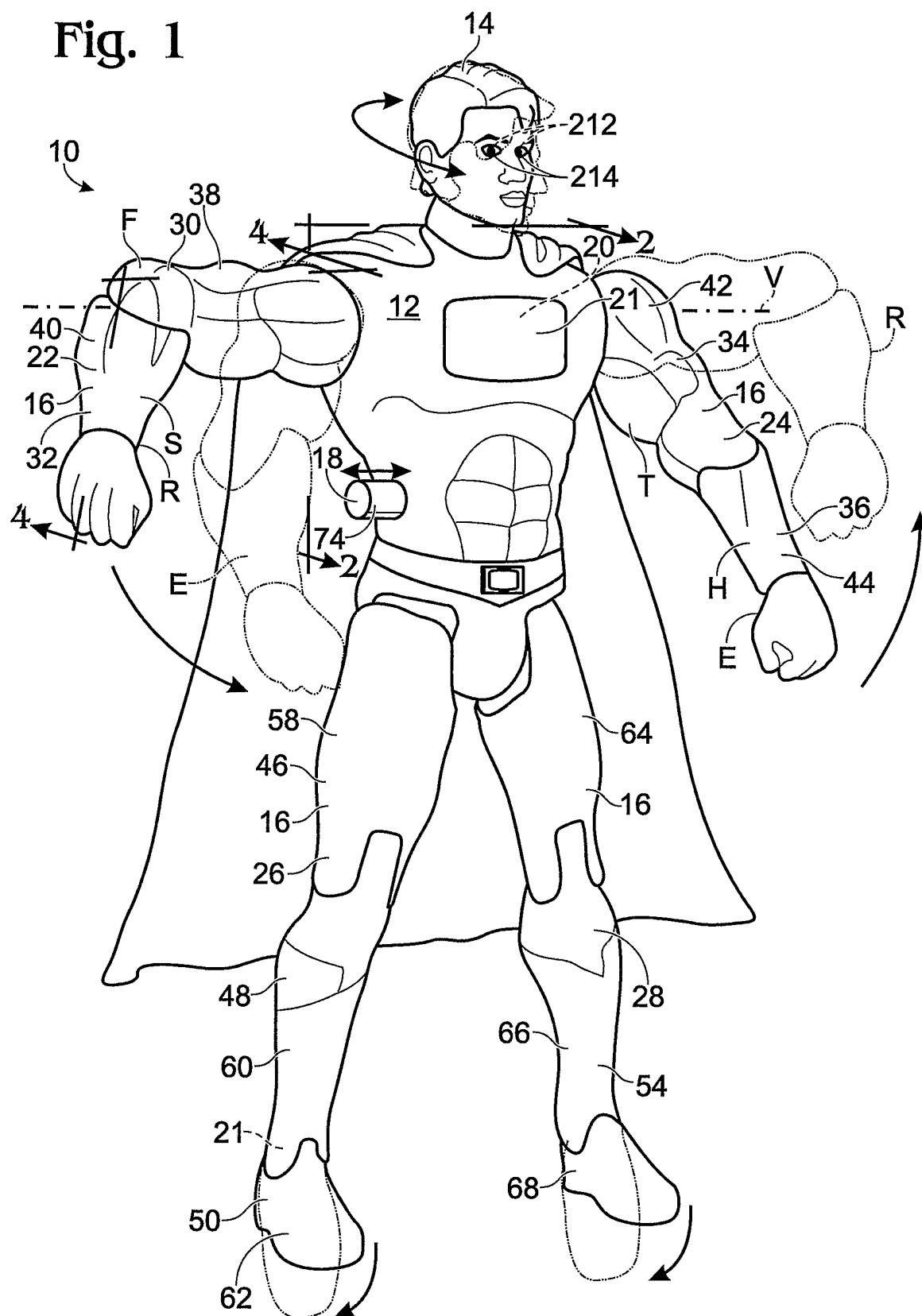
22. The toy figure of claim 21, wherein the first gear assembly includes a plurality of gears operatively connected to the first upper member and the first lower member, and a first bias element configured to urge the plurality of gears to move the first upper member and the first lower member toward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

15

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
20 position.

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Fig. 1



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Fig. 2

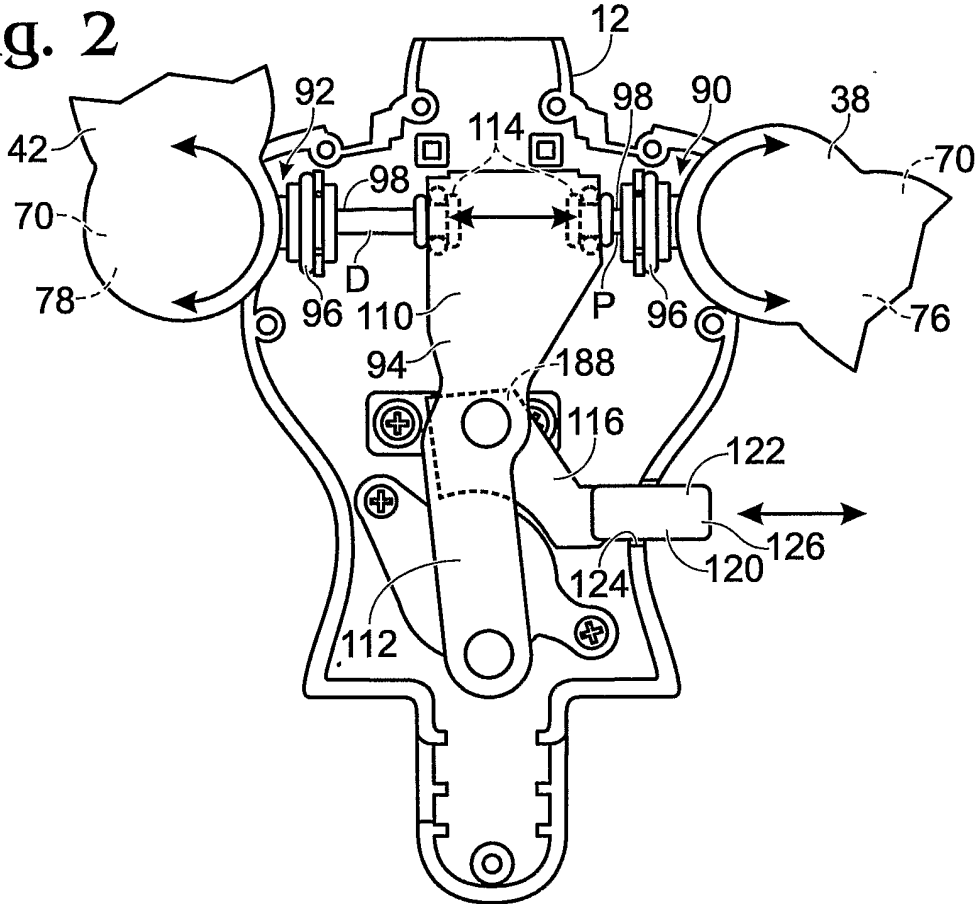


Fig. 3

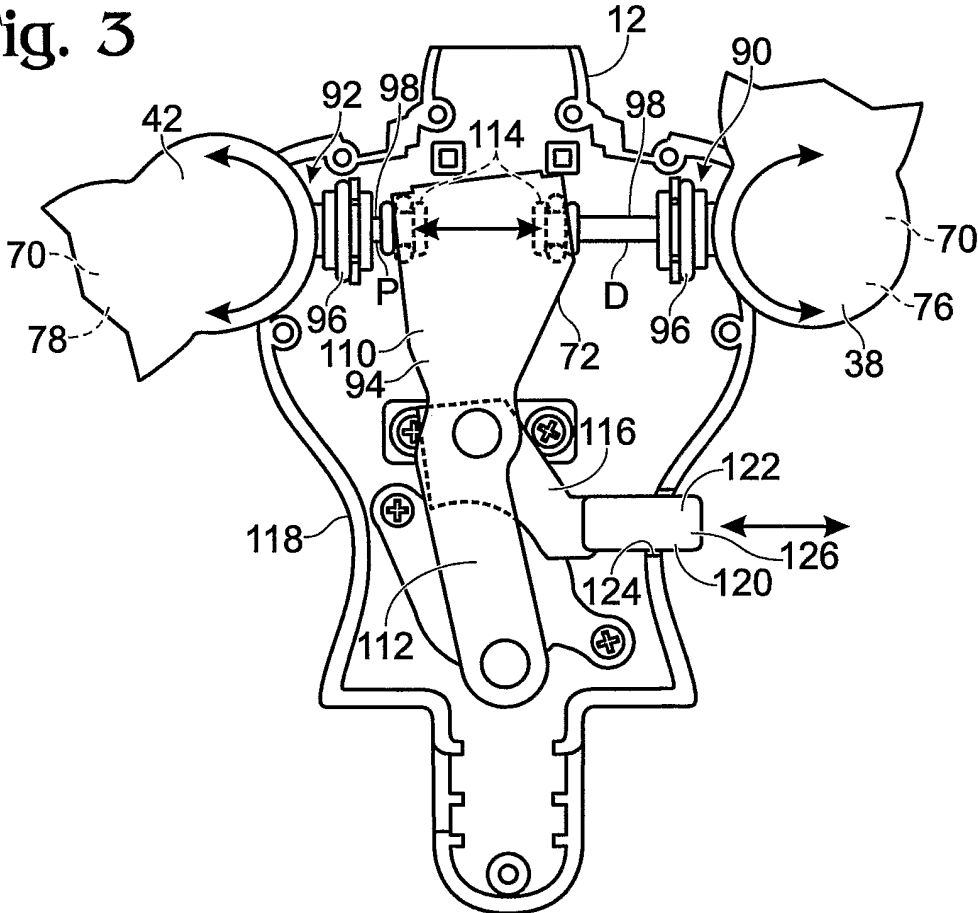


Fig. 4

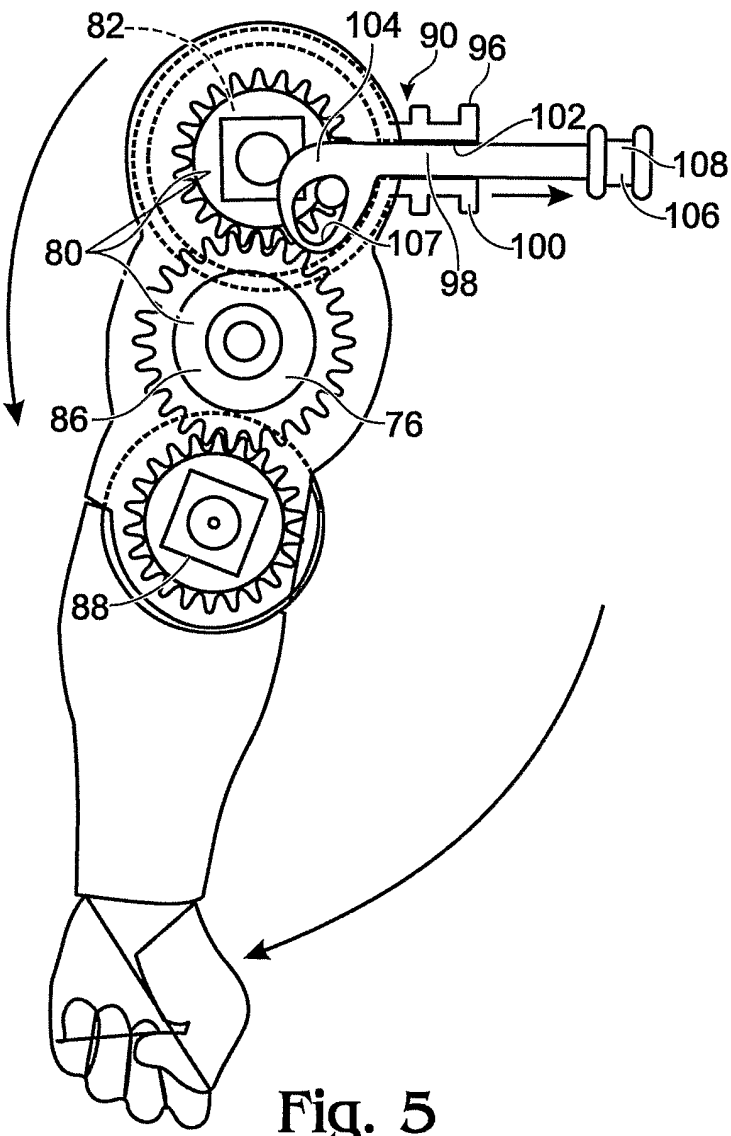
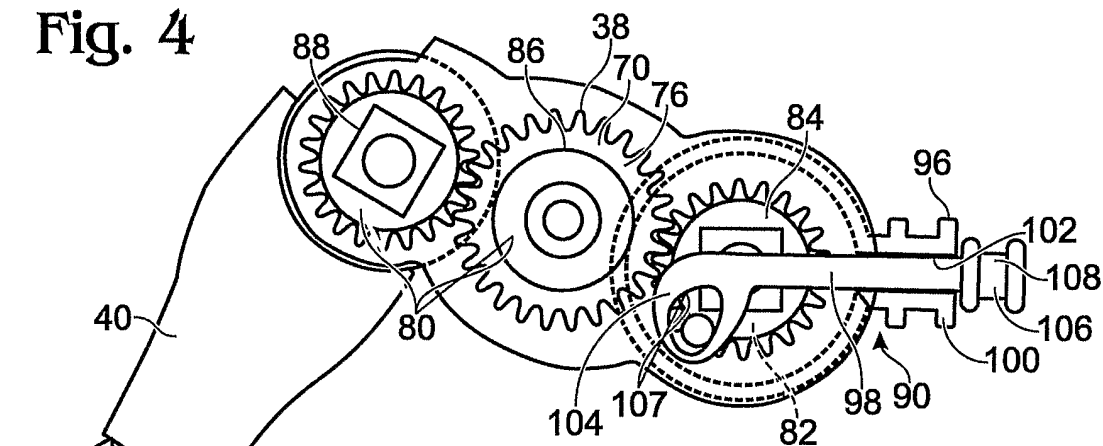


Fig. 5

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Fig. 6

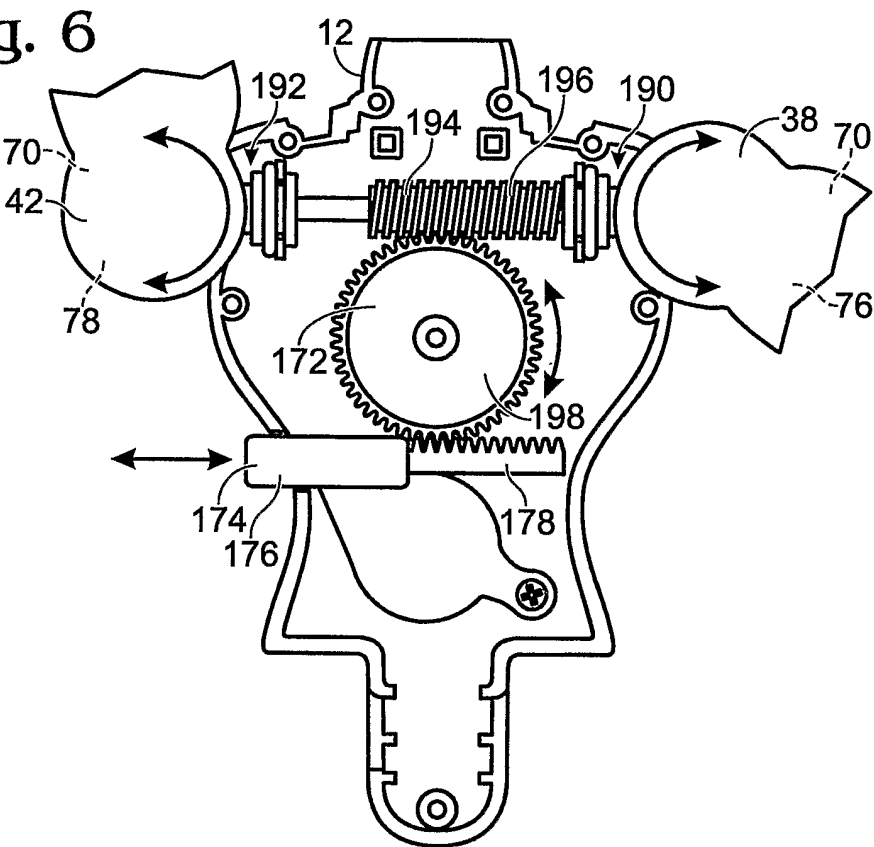


Fig. 7

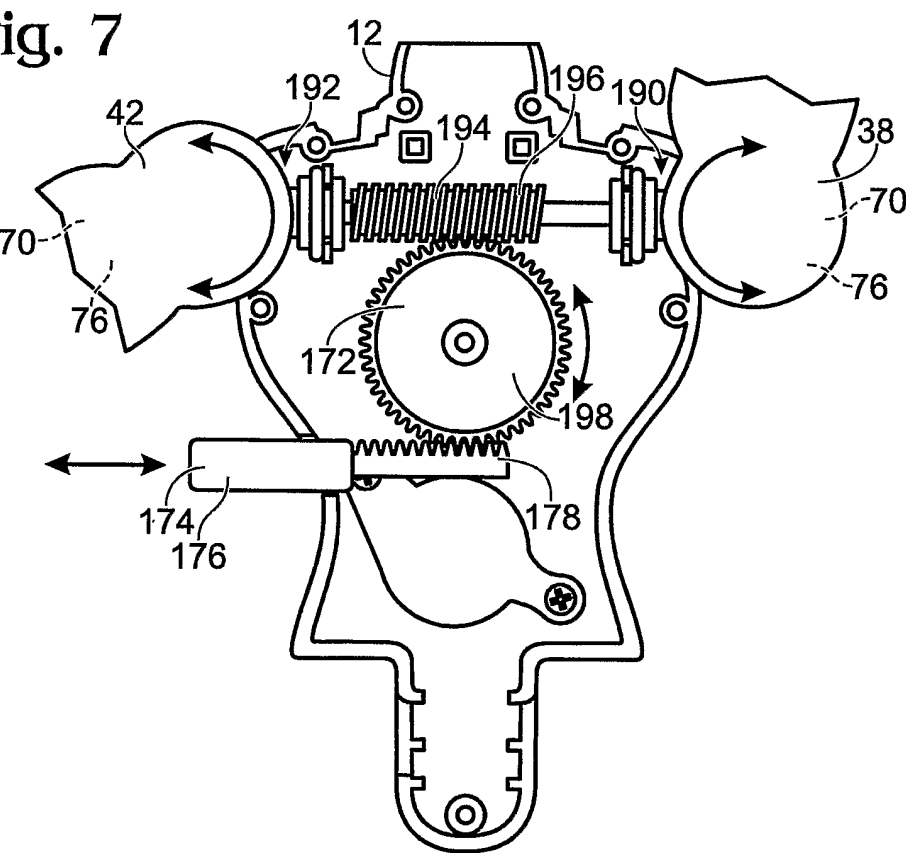


Fig. 8

