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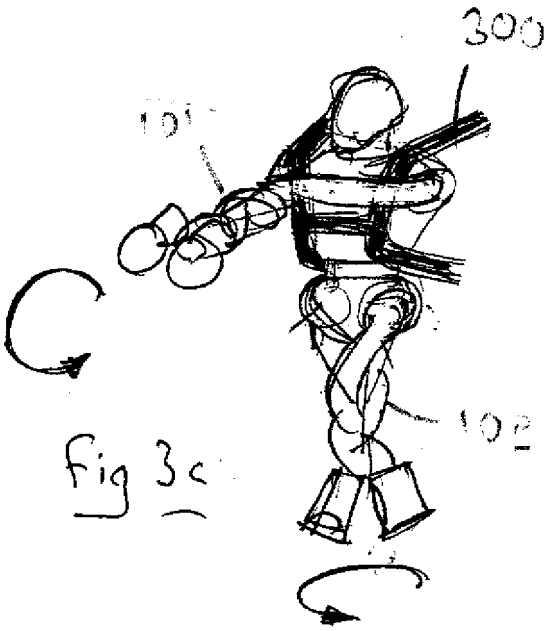
Remarks:
The reference to drawing no. 4e is deemed to be deleted (Rule 56(4) EPC).

(54) Toys

(57) A toy power source comprising a figure such as a mannequin having at least one member formed of rubber, the member rubber being capable of being distorted so that its return to a natural configuration generates power. The figure is mountable in a toy constructed to be driven by the return of the figure to its natural configuration.



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Description

Field of Invention

[0001] The present invention relates to toys of the kind in which a power source drives some kind of motion, and is particularly concerned with toy power sources.

Background to the Invention

[0002] Many toys are known in which rubber, natural or synthetic, is used to power motion by stretching or winding the rubber. Model aircraft, cotton-reel tanks and catapaults are particular examples. The rubber power source comprises one or more strips of the rubber, more usually bands or formed into bands.

[0003] In these instances the rubber power source does not play any significant part in the appearance of the toy. Indeed, it can be said normally to detract from the appearance.

[0004] A rubber toy mannequin has been marketed, under the name "Armstrong", having rubber limbs which stretch. However these are loaded with a filler so that they may take several hours to relax to a default configuration and the mannequin is clearly not a power source.

Summary of the Invention

[0005] According to the present invention a toy power source comprises a figure having at least one member formed of rubber, the member rubber being capable of being distorted so that its return to a natural state generates power.

[0006] According to an important feature of the invention the rubber member may be a limb. The figure may be a mannequin with a body, two arms and two legs and the whole thereof may be formed of the rubber. However the figure may be any creature or science fiction character, with an octopus or other aquatic creature, a reptile such as a snake, a prehistoric monster, a robot, droid, android and a dalek being among the various possibilities. Moreover the limb members may be multi-stranded.

[0007] The figure may have figure grip means at at least two places, with a length of the rubber therebetween by which the rubber may be stretched or twisted. The figure grip means may comprise enlarged portions or perforations or both and are preferably at limb extremities and perhaps somewhere centrally on a torso member. The grip means may be constructed for release, perhaps at a given load applied at a given direction. At the torso member the grip means may comprise a keyway, lockable by slotting or turning. Such a keyway may also be employed at a limb extremity or elsewhere on the figure if desired.

[0008] It will be appreciated that in addition to affording power by means of members being stretched or twisted, bending and winding may also be employed.

[0009] In addition there may be provided grip devices attachable, perhaps detachably to the figure, preferably at the figure grip means and detachably attachable to part of an ancillary toy and may themselves have the appearance of a stylised body part such as a hand, a foot, the hand and/or the foot being somewhat hook-shaped, even a mouth, having perhaps the form of gloves or boots. In the case of a humanoid having boots the construction may be such that the humanoid may freely stand.

[0010] The grip devices may if desired be normally stowed within a boot or glove, for deployment when desired. They may incorporate spring, eg rubber, loaded jaws or comprise a plug member, perhaps retractable.

[0011] The figure may comprise non-elastic parts, for example a torso and a head, and these may have the at least one limb formed upon or attached thereto. Preferably however all rubber members are part of a single integral unit and any non-elastic parts may be fitted thereto, perhaps interchangeably. However items representing clothing in a torso region may incorporate a head member and this may be arranged for movement with respect to the torso.

[0012] According to another important feature of the invention there may be provided a toy constructed to accept the figure, and having holding means for the at least one rubber member at at least two distal locations, the holding means being associated with a drive such as at least one wheel or propeller or fluid jet. The toy may accordingly be:

- a wheeled vehicle such as a tricycle or car or tracked vehicle,
- or a propeller or fluid jet driven vehicle such as a boat, submarine or aircraft,
- or a device employing a catapault principle, such as a rocket or other missile launcher or trebuchet,
- a water gun,
- a robot powered by the figure to walk and/or grab.

[0013] The toy may comprise various function facilities. For example a vehicle or craft may combine motion and missile launch facilities and one set of members on a figure may have one driving function and another set a different driving function. Moreover motion driven by the figure may operate a trigger to start, stop or modify some other facility on the toy, which may be spring or battery driven.

[0014] It will be appreciated that the holding means on the toy may be such as to render a figure grip device quite unnecessary. This can particularly be the case at the torso where the holding means might take the form of a seat restraint such as a seat belt or harness. Otherwise, and particularly at the limb member extremities the holding means may be constructed to interfit with grip devices fitted to the figure.

[0015] Typically the rubber may be natural rubber, though silicone or TRP rubber may be preferred. These can be formed by compression or injection moulding.

[0016] Typically also the figure may have, in the case of a humanoid, a span less than 10 cm and a shoulder to foot length less than 7cm. Friction means may be incorporated to reduce the speed of relaxation of the rubber. Such a figure can be formed whereof the "hand" to "hand" span can extend to more than 34cm, to 18cm under a load of 750 grams, and can recover from maximum extension to natural configuration within a half second when completely unloaded and within 30seconds or so depending upon the method of loading and the restrictions to relaxation.

Brief Description of the Drawings

[0017] Various embodiments of the present invention will now be described by way of example with reference to the accompanying drawings, of which:-

Figures 1a & 1b illustrate the rubber part of power source figures;
Figures 2a to 2f illustrate clothed humanoid figures;
Figures 3a to 3f illustrate methods of power source utilization;
Figures 4a to 4j illustrate anchor devices;
Figures 5a to 5c illustrate a first fantasy dune buggy;
Figures 6a to 6c illustrate a second fantasy dune buggy;
Figures 7a to 7c illustrate a first fantasy floating spacecraft;
Figures 8a to 8d illustrate a first fantasy submarine;
Figures 9a to 9c illustrate a fantasy space war chariot;
Figures 10a to 10e illustrate a fantasy space vehicle ejector;
Figures 11 a to 11c illustrate a first fantasy motorcycle;
Figures 12a,b illustrate a second fantasy motorcycle;
Figures 13a to 13d illustrate a fantasy motortricycle;
Figures 14a to 14d illustrate a fantasy mobile rocket launcher;
Figure 15 illustrates a fantasy moon lander;
Figure 16 illustrates a fantasy missile launcher;
Figure 17 illustrates a trebuchet;
Figure 18 illustrates a catapault;
Figures 19a to 19c illustrate a fantasy mobile missile launcher;
Figure 20 illustrates a fantasy mobile trebuchet
Figure 21 illustrates a mannequin waterject;
Figure 22 illustrates a fantasy man-powered robot; and
Figures 23a to 23d illustrate a toy fantasy water borne craft;
Figures 24a to 24c illustrate another toy fantasy craft;
Figure 25 illustrates a fantasy space buggy; and
Figure 26 illustrates a fantasy man-portable rocket launcher;

Description of Embodiments

[0018] Shown in figure 1a is a figure in the form of headless mannequin having a torso 100, two limb members in the form of arms101, and two limb members in the form of legs 102. At the extremity of each limb member is a boss 103 defining a perforation 104.

[0019] The mannequin shown has an arms 101 span of 10cm and the overall length of the mannequin from shoulder to toe is 6.5cm. The diameter of the arms at the shoulder is 8mm and at the wrist is 6mm, the diameter of the legs at the crutch is 8mm and at the ankles is 7mm. The torso is 2.5cm long, 1.7cm wide and 1cm deep. The arms 101 can stretch to at least 34cm, "hand" to "hand", a load of about 750 grams being required to stretch the armspan by 9cm. Depending on the method of deformation the mannequin can return to natural state substantially instantaneously when not loaded to within about 5 seconds or so under load.

[0020] Shown in figure 1b is a figure in the form of an octopus having a body 110 and, it having been observed that octopuses use two of their limbs in particular as arms, two arm members 111 and six leg members 112. At the extremity of each limb is a boss 113 defining a perforation 114.

[0021] The figures shown in figures 1a, 1b are formed of a silicone rubber by injection moulding.

[0022] As shown in figures 2a to 2f the mannequin is clothed in various ways, the clothing also providing a head member 200 to the mannequin. At the arm 101 extremities are attached gloves 201. At the leg 102 extremities are boots 202. The gloves 201 incorporate a variety of grip devices. In figures 2a and 2d the gloves take the form of hooks; in figure 2b the gloves incorporate channels with narrowed lips; in figure 2c the gloves incorporate sprung jaw members; in figure 2e the gloves 201 and the boots 203 incorporate plugs. Moreover, as regards figure 2e, the torso member 203 incorporates a retractable plug 204. This arrangement is more clearly shown in figure 4j below. It will be noted that the mannequin illustrated in figure 2f has multi-stranded limbs 101, 102.

[0023] Figures 3a to 3f illustrate various methods of utilizing the figures to provide power. Figure 3a shows a mannequin being tensioned between limb extremities, in various directions. Figures 3b, 3c and 3e show a mannequin restrained at the torso 100 by a harness 300. In figure 3b power is derived by stretching all four limbs 101, 102 away from the restrained torso 100. In figure 3c power is derived from twisting the arms 101 together and the legs 102 together, the torso 100 being restrained with a harness 300. With the mannequin shown in figure 3d the limbs 101, 102 are twisted separately. Figure 3e shows the arms 101 being wound around a drive spindle 301. Figure 3f shows a drive bar 302 positioned against a "knee" of a figure's legs 102, so that both bending the limb and stretching it against the drive bar 302 stores energy.

[0024] Modes of anchoring the limbs of a figure are illustrated in figures 4a to 4g. These comprise effectively the interface between a figure and the toy it is to drive and are chosen accordingly. Thus figures 4a and 4b show glove members 201 fitting on a drive column 401 or blade 402. Figure 4c shows a hole 104 in a boss 103 fitting over a drive column 401. Figure 4d shows a yoke 403 arranged to engage an arm 101 behind a glove 201. Figure 4e shows a yoke 404 arranged to engage an extended sole 205 on a boot 202. Figure 4f shows a yoke 405 arranged to engage a leg 102 above a boot 202. Figure 4g shows a torso lock 406, an alternative to the harness 300 shown in the figures 3. The lock 406, formed for example on the seat of a toy, fits into a mating keyway or slot in the back of a torso member 203. Figure 4h illustrates a glove for fitting to an arm 101 and comprising a hooked palm and four finger unit 407 and a thumb unit 408 incorporating a lever 409. The thumb unit is hinged to the palm unit so as to present alternately gripping and open glove configurations, the lever enabling control of the thumb unit and itself lightly clipping to a gauntlet portion of the glove to maintain the glove in the gripping configuration. Figure 4j illustrates a plug gripping unit 204 capable of being stowed in and deployed from a torso member 203.

[0025] A fantasy dune buggy toy is illustrated in figures 5a to 5c. The buggy comprises a vehicle body having a cab 500, a pair of front wheels 501 on a common drive axle 502, and a rear wheel 503. Forward of the cab 500 is a rotatable control device 504. Extending around the axle 502 and the control device 504 is an endless band 505. The control device 504 carries a pair of arms 506 and the cab incorporates figure holding means, not shown, but comprising a harness 300. A ratchet and flywheel combination (not shown) is located internally between the axle 502 and the wheels 501.

[0026] A mannequin 507, having gloves 508 which clip to the arms 506 is placed in the cab 500 and restrained there. A user places the buggy on a floor and rolls it backwards thereon causing the roller device 504 to rotate and wind thereupon the arms 101 of the mannequin. Upon release of the buggy it is driven forward as the mannequin arms 101 strive to revert to their natural state.

[0027] The second fantasy dune buggy toy is illustrated in figures 6a to 6c. The buggy has a chassis 600 incorporating a bonnet 601, a seat slide 602 and four wheels 603. mannequin glove attachment horns 604 are mounted on the bonnet 601. A seat 605 having mannequin holding means 406 is mounted to slide in the seat slide 602.

[0028] A mannequin 607, having gloves 608 which clip onto the horns 604 and a keyway (not shown) in the back of the torso member 203, is placed in the seat 605 to be restrained by the holding means 406. In the example shown the mannequin 607, with the seat 605, are pulled back on the seat slide 602, thus extending the arms 101. Placing the buggy on a floor and releasing the mannequin and seat combination causes these to shoot forward and slam against the bonnet 601, driving the buggy forward.

[0029] In an alternative embodiment of the toy shown in figures 6 the seat slide incorporates a rack and pinion wheel drive mechanism operated by motion of the seat and a ratchet and flywheel mechanism. In another embodiment there is a detent device for restraining the seat in the rearward position until the user chooses to release it.

[0030] Figures 7a to 7c illustrate a fantasy floating spacecraft 700. This has a cockpit 701 with a control rod 702 and a mannequin seat 703 with mannequin holding means (not shown), and a propeller 704. The control rod 702 is linked via a gear train, a flywheel and ratchet mechanism and a propeller shaft (not shown) to the propeller 704.

[0031] A mannequin 707, in this case the one illustrated in figure 2d but without the gloves, is fastened into the seat 703 and the holes 104 on the arms 101 fitted onto the ends of the control rod 702. The user winds the propeller 704 which in turn winds the control rod 702 to twist the mannequin's arms 101 around each other. The craft 700 may then be placed in water and the propeller 704 released. The unwinding of the arms 101 turns the control rod 702 and hence the propeller 704 to drive the craft.

[0032] In a first alternative embodiment of the craft illustrated in figures 7a to 7c the control rod 702 incorporates a locking device (not shown) so that the user pushes the control rod forward to free the mannequin's arms to unwind and drive the propeller 704.

[0033] In a second alternative embodiment of the craft illustrated in figures 7a to 7c the cockpit 701 is elongated and the mannequin seat 703 is attached to a slider like that shown in figure 5. A jet orifice replaces the propeller 704 and the control rod 702 is fixed. The slider incorporates a plunger operable in a cylinder connected to the jet orifice.

[0034] The mannequin 707 is placed in the mannequin seat 703 with the limbs 101 attached to the control rod 702 as above. The toy is charged by the orifice being placed under water and the mannequin pulled rearwards so that limbs 101 are extended and water is drawn into the cylinder. Release of the mannequin seat 703 allows the limbs 101 to return to their natural state, driving the slide and the plunger and hence the water out of the cylinder through the jet orifice.

[0035] In the craft illustrated in figures 7a to 7c the control rod 702 may incorporate additional mounts for the legs 102 so that they also may be stretched and contribute to the driving force.

[0036] The fantasy spacecraft toy illustrated in figures 8a to 8e comprises a bubble cockpit 800, a fuselage 801 incorporating a drive linkage 802, and twin propellers 803 attached to the drive linkage 802. A mannequin seat 804 having a mannequin fastening device 406 is fixedly mounted to the drive linkage 802 while the cockpit 800 is both detachable from and rotatable with respect to the fuselage. Fixedly mounted within the cockpit 800 is a control column 805 having four arms. The base of the

cockpit 800 has a flotation chamber and buoyant outriders 806. A detent, not shown, locks the cockpit 800 to the fuselage 801.

[0037] In order to operate the toy illustrated in figures 8a to 8e the cockpit 800 is detached from the fuselage and a mannequin 807 is mounted on the seat 804 with arms 101 and legs 102 attached to the arms of the control column 805 via the holes 104. The cockpit 800 is then remounted to the fuselage 801. The user, holding the propellers 803 against rotation rotates the cockpit 800 to twist the limbs 101,102 of the mannequin with respect to the control column 805. When the desired twist has been reached the cockpit 800 is allowed to lock to the fuselage 801, the toy is placed in water and the propellers released.

[0038] In a first alternative embodiment of the toy described with reference to figures 8a to 8e, there is provided a switch device to lock the propellers 803 while winding.

[0039] In a second alternative embodiment of the toy illustrated in figures 8a to 8e the toy is fitted with wheels.

[0040] The fantasy space war chariot illustrated in figures 9a to 9b comprises a vehicle body 900 having a cockpit 901, two front wheels 902 and one rear wheel 903. A seat 904 is mounted on a slide 905 and carries a rack (not shown) in driving relationship with a pinion (not shown) in driving relationship via a flywheel and ratchet unit (not shown) with the front wheels 902. The seat has a mannequin mount 406 and at the front of the cockpit a control column 906 is fitted to the body 900. A ratchet device (not shown) is provided to allow the toy to continue to roll once the seat 904 has regained its rest configuration.

[0041] In preparation for use a mannequin 907 is mounted on the seat 904 and the holes 104 in the arms 101 thereof are fitted to the control column 906. To prime the toy to run forward either the seat is drawn back along the slide 905 or the toy is rolled back on a floor. This stretches the arms 101. When the seat or the vehicle are released with the vehicle on a floor the slide moves forward, driven by the relaxing of the limbs 101 and the front wheels 902 drive the vehicle along the floor.

[0042] In a first alternative embodiment of the toy illustrated in figures 9a to 9c a catch (not shown) is included to lock the seat 904 in the rearward configuration so that release of the catch permits the slide to move forward.

[0043] The fantasy toy space vehicle with ejection facility illustrated in figures 10a to 10c comprises a winged space vehicle module 1000 having port and starboard wing/fuselage members 1001 both hinged along a central axis below the vehicle, a launch platform 1002 having an extendable slide 1003 and a forward pivoting cockpit canopy 1004, the slide being associated with a release trigger 1005. Mannequin boot grip yokes 405 are mounted on the slide 1003 and handle grips 1006 for gloves 201 are mounted on the platform 1002.

[0044] The wing/fuselage members 1001 and the canopy 1004 can be closed over the launch platform 1002 whether or not the slide 1003 is extended, as shown in figure 10c, and are constructed so that open the wings take the form of a pistol handle, as shown in figures 10a, 10b and 10c, with the trigger 1005 in just the position one would expect it, forward of the thus formed handle.

[0045] With the wing/fuselage unit 1001 open the module 1000 is loaded with a mannequin 1007 with boots 202 located in the boot grip and gloves 201 located in the holders 1004. Then the slide 1003 is pulled rearwards until it clicks into association with the release trigger 1005. The wing/fuselage unit 1001 may then be closed if desired. To catapault the mannequin out of the module the wing/fuselage unit 1001 and the canopy 1004 are opened. Operating the trigger releases the slide 1003 and the mannequin 1007 shoots forward out of its restraints as shown in figure 10c.

[0046] As shown in figure 10c the module 1000 also incorporates a missile launch facility 1008. This is spring-loaded and operated by a separate button (not shown).

[0047] The fantasy motorcycle toy shown in figures 11 a to 11 c has a motorcycle body 1100 with a seat 1101. There is a front wheel 1102, a rear wheel 1103 and handlebars 1104. The seat 1101 has a mannequin fastener 406 (not shown). The handlebars 1104 are formed to receive at the ends thereof holes 104 in mannequin arms 101. The handlebars 1104 are mounted to rotate about a horizontal axis transverse to the vehicle longitude and carry a gear wheel 1105. The gear wheel 1105 incorporates a ratchet (not shown) so as to permit the motorcycle to freewheel when the drive is relaxed.

[0048] To prepare the motorcycle for use a mannequin 1106 is fastened to the seat 1101 and holes 104 at the extremities of the arms 101 are attached to the handlebars 1104.

[0049] To use the toy motorcycle thus prepared it is rolled backwards on a floor. Rotation of the front wheel 1102 causes rotation of the gear wheel 1105 which in turn winds the limbs 101 around the handlebars 1104. When the motorcycle is released relaxation of the arms 101 causes rotation of the gearwheel 1105 and hence of the front wheel 1102 and the motorcycle is propelled forwards.

[0050] Figures 12a and 12b illustrate a fantasy motorcycle 1200 having a front wheel 1201, a rear wheel 1202, handlebars 1203, a seat 1204, crash bars 1205 and foot pedals 1206. The seat 1204 has a holding device 1207 and is slidable longitudinally as shown by an arrow in the drawings. The crash bars 1205 are likewise movable forwards/rearwards. The seat 1204 and the crash bars 1205 are drivably associated with a belt (not shown) in turn associated via a ratchet (not shown) with the rear wheel 1202. The rear wheel 1202 incorporates a flywheel.

[0051] To use the toy a mannequin 1208 is mounted on the motorcycle 1200, clipped to the seat 1204 with the holding means 1207. Its boots 202 are attached to the foot pedals 1206 and the leg members 102 pulled around the crash bars 1205. Gloves 201 in hook form are fitted to the handlebars 1203.

[0052] To use the toy it is rolled back. Via the belt the seat 1207 and the crash bars 1205 move respectively rearwards and forwards, stretching the limbs 101, 102. Releasing the toy allows the limbs 101, 102 to relax, driving the rear wheel 1202 forward via the belt so that the motorcycle can run forwards. When the limbs 101,102 have attained their natural configuration the motorcycle can continue its forward path by virtue of the operation of the ratchet and the flywheel.

[0053] The motor tricycle illustrated in figures 13a to 13d is adjustable in form between raised and lowered configurations. It comprises a first chassis member 1301 upon which are mounted a pair of rear wheels 1302, and a second chassis member 1303 upon which is mounted a front wheel 1304. The first and second chassis members 1301, 1303 are attached to each other at a pivot point 1305. Formed on the first chassis, towards the rear thereof, are yokes 404 and on the second chassis 1303, just to the rear of the front wheel axle, are control rods 401. Formed also on the second chassis 1303 is a drive bar 302 for constraining the figure's knees. There is provided a seat member 1306 and a mannequin chest rest 1307. The chest rest 1307 is formed on a drive arc 1308 on the first chassis and in drivable relationship, via a flywheel and ratchet unit (not shown), with the rear wheels 1302. A key 1309 locks the tricycle against movement until it is released. Detents (not shown) between the first and second chassis members lock them together at the raised and lowered configurations.

[0054] To use the motor tricycle, a mannequin 1310 is mounted thereon, his gloves 201 fitted to the control rods 401 and his boots 202 to the yokes 404. His knees are inserted under the drive bar 302. Thus it will be sat upon the seat 1306 with its torso bearing upon the chest rest 1307. Rolling the tricycle rearwards causes the drive arc 1308 to rotate, raising the chest rest 1307 and thus extending the limbs 101, 102. Release of the key 1309 allows the tricycle to run forward, driven by relaxation of the limbs 101, 102. When these are fully relaxed the ratchet and flywheel arrangements permit the forward motion to continue.

[0055] The user can adjust the configuration of the tricycle between raised and lowered configurations by manually turning the first and second chassis members with respect to each other around the pivot 1305 between the detents. Figures 13a, 13b and 13c illustrate the lowered configuration and figure 13d the raised configuration.

[0056] The toy mobile rocket launcher vehicle illustrated in figures 14a to 14d is a compendium device employing three mannequins and moves along, raises the launcher and fires the rocket, when having been duly loaded and charged.

[0057] The vehicle comprises a chassis 1400 upon which are mounted two drive wheels 1401 and two steer wheels 1402. The chassis is articulated, in the vertical sense, at 1403, 1404 to permit the user to raise or lower it. Mounted on the chassis is a driver seat 1405, a rocket controller seat 1406, a launch post 1407 and foot rests (not shown). Forward of the driver seat 1405 is a drive pulley 1408, a drive cord 1409, a drive control handle 1410. Upon the launch post 1407 is a rocket mount and associated tilt control lever 1411 with a drive bar 1412. The rocket mount carries a launch pad 1413 upon which is slidably mounted a rocket thruster 1414. To the thruster 1414 is affixed a hand drive bar 1415 and a foot drive bar 1416. Toward the front of the launch pad is a mannequin cradle 1417. A rocket 1418 rests upon the launch pad 1413.

[0058] Link mechanisms (not shown) free the launch lever 1411 to move when the vehicle comes to a halt, and release the thruster 1414 when the launch lever has tilted the rocket launch pad to a given elevation.

[0059] To prepare the mobile rocket launcher for action the link mechanism triggers are set. A first mannequin 1420 is placed in the cradle 1417 and its gloves 201 attached to the bar 1415 and its boots 202 attached to the bar 1416. A second mannequin 1421 is attached to the launcher seat 1406 via a holding key 406, its gloves 201 fitted to the tilt control handle 1412 and its boots 202 placed on the associated foot rest. A third mannequin 1422 is attached into the driver seat 1405 via a holding key 406, its boots 202 placed on the associated foot rest and its gloves 201 attached to the bar 1410. The mounting of each mannequin 1420, 1421, 1422 in this case involves stretching the appropriate limbs while so doing, the driving wheels 1401 being held. A rocket 1418 is placed on the launch pad 1413, engaging lightly with the thruster 1414.

[0060] Upon release of the mobile launcher the vehicle runs forward powered by relaxation of the arms 101 of the mannequin 1422. Full return of the cord 1409 to rest position triggers permitting the launch lever 1411 to elevate the launch pad 1413, driven by the arms 101 of the mannequin 1421. The launch pad 1413 reaching its maximum elevation frees the thruster 1414 to launch the rocket 1418, driven by relaxation of the arms 101 and legs 102 of the first mannequin 1420.

[0061] Figure 15 illustrates a fantasy space lander toy using a multitude of mannequins performing various tasks.

[0062] Upon a base 1500 are a buggy carrier capsule 1520 in which can be retained a buggy 1540, and a rocket launch pad 1560 arranged for launching a rocket 1580.

[0063] The buggy carrier capsule 1520 has a lower door 1521 which converts into a ramp, and an upper door 1522. A lever 1523 controls the opening of the doors and the lever has a driving bar 1524. There is a platform below the lever 1523 having a boot grip bar 1525. Upon the roof of the capsule 1520 is a rotor launch 1526 for launching a rotor 1527. The rotor launch 1526 has a control lever 1528. Behind the lever 1528 is a mannequin seat 1529 having a holding device 406. The upper door 1522 locks the lower door 1521 which is in turn associated with the lever release 1523.

[0064] The buggy 1540 has a chassis 1541 and two

front wheels 1542 and at the rear two driving wheels 1543. Also toward the rear is a driving seat 1544 having a holding device 406. A foot bar 1545 is connected to a drive (not shown) via a cord 1546 passing over a pulley 1547. The drive incorporates a flywheel and ratchet (not shown). On the port side of the buggy is a radar dish 1548 associated via a pinion with a rack 1549 having a drive handle 1550. A knob 1551 controls locking and releasing the pinion on the rack 1549. A lever 1552 controls rotation of the wheels 1543.

[0065] The rocket launcher 1560 comprises a gantry 1561 having drive handles 1562, and a guide post 1563 upon which slides a thruster 1564 having foot drive bars 1565. There is a release button and a detent, not shown, associated with the thruster 1564.

[0066] The rocket 1580 fits slidably over the guide post 1563. It is openable to seat a mannequin arranged to fire missiles as per the example described above with reference to figures 10a-d except that the mannequin 154 is arranged to power the missiles. The missiles are arranged to be released when the rocket stikes another object.

[0067] The lander is loaded with mannequins as follows:

A first mannequin 150 is fitted to the drive seat 1544 of the buggy 1540. Its feet are attached to the drive bar 1545 and its left arm 101 to a handle on the rack 1549. Its right glove is fitted to a static handle.

A second mannequin 151 is fitted to the lander base 1500 with its feet attached to the boot grip bar 1525. and its gloves to the driving bar 1524.

A third mannequin 152 is fitted via holding means 406 to a seat on the roof of the capsule 1520, its gloves fitted to the lever 1528.

Fourth and fifth mannequins 153 are placed in the gantry 1561 with their gloves attached to the drive handles 1562 and their boots to the foot drive bars 1565 on the thruster 1564.

A sixth mannequin 154 is placed in the rocket 1580, with its gloves and boots attached to a missile launch bar (not shown).

[0068] The lander is prepared for operation as follows:

The wheels 1543 of the buggy 1540 are rotated in reverse, thus extending the legs of the mannequin 150. The lever 1552 is placed in a configuration to lock the wheels 1543 against rotation. The rack 1549 is slid forward to extend the mannequin's left arm, and locked in position via the knob 1551.

[0069] The buggy 1540 is placed in the capsule 1520 and the doors 1521 and 1522 closed, thus turning the lever 1523 and extending the mannequin 151 until a detent position is reached when the lever 1523 extends slightly outwards.

[0070] The rotor 1527 is placed on its rotor launch 1526.

[0071] The rocket 1580 is prepared for missile launch by being loaded with missiles and the limbs of the mannequin 154 thus extended until a detent configuration is achieved. The rocket is then placed upon the guide post 1563 and pushed down against the thruster 1564, extending the mannequins 153 until the thruster detent is engaged.

[0072] Operation of the lander is as follows:

The drive lever 1523 is pushed in whereupon the retraction of the mannequin 151 opens the doors 1521, 1522, thus freeing the lever 1552 and permitting the buggy 1540 to be driven out of the capsule down the ramp formed by the door 1521, powered by retraction of the legs of the mannequin 150. The knob 1551 may then be pressed, whereupon retraction of the mannequin's left arm will cause rotation of the antenna 1548.

[0073] The lever 1528 may be rotated manually to extend the arms of the mannequin 152, then released. The consequent spinning of the rotor launch 1526 and thereby of the rotor 1527 launches the latter vertically.

[0074] Release of the detent associated with the platform 1564 permits retraction of the mannequins 153 and the consequent propulsion and launch of the rocket 1580. When this latter strikes an object, or lands on the floor, its missiles are launched, powered by the mannequin 154.

[0075] Of course the various operations of the lander need not be performed in the order just described above. Also, in alternative embodiments of the lander described with reference to figure 15, any of the mannequin driven devices may not have detents so that the user may simply prime and then release the associated device. In the case of the buggy 1540, this may be sized so that the pulley 1547 pushes against a brake while the doors 1521, 1522 are closed.

[0076] The fantasy missile launcher shown in figure 16 comprises a base 1600 upon which is rotatably mounted a launch platform 1601. A launch stand 1602 is attached to the platform 1601 and to this is mounted to swivel, in a vertical plane, a missile launch block 1603 having a four missile launch capacity. Also mounted on the platform 1601 is a seat 1604 having holding means 406 and a foot rest 1605. Elbow restraints 1606 are arranged to move rearwards/forwards and thus to drive upper missile thrusters (not shown). Handles 1607 are provided on the block 1603 for attachment by gloves on a mannequin. Two levers 1608 fit behind the mannequin's knees and are respectively associated with left and right lower missile thrusters via detent devices (not shown). Missiles 1609 fit loosely in barrels formed in the block 1603.

[0077] To prepare the launcher for operation a mannequin 155 is placed in the seat 1604 with its boots locked onto the foot rest 1605 and its gloves locked to the handles 1607. The arms 101 are hooked around the elbow

restraints 1606 and elbow portions thereof, and the legs 102 are hooked around the levers 1608. Missiles 1609 are loaded into their barrels. The levers 1608 are pulled forward until engaged by their detent devices.

[0078] In operation of the launcher, the launch block is swivelled to its desired elevation. Either of the detents is released by the user whereupon the appropriate lever 1608 swivels, driven by retraction of the legs 102, to launch the associated lower missile 1609.

[0079] The user pulls back either of the elbow restraints 1606 and releases it, whereupon retraction of the arm 101 propels the restraint 1606 forward to cause launch of the associated upper missile 1609.

[0080] The toy trebuchet illustrated in figure 17 comprises a frame 1700 to which is pivoted to rotate in the vertical plane a beam 1701 having a projectile bucket 1702 at one end and handles 1703 at the other. The frame 1700 also carries mannequin boot grips 1704 and has itself feet in the form of suction pads 1705.

[0081] To prepare the trebuchet for use a mannequin is fastened within the frame 1700, with its boots attached to the boot grips 1704 and its gloves to the handles 1703. The frame 1700 is then attached via its suction pads 1705 to an appropriate surface. A projectile is placed in the bucket 1702.

[0082] By pushing down with his finger upon the rim of the bucket 1702 the user extends the arms 101 and legs 102 of the mannequin. Release of the bucket 1702 allows the mannequin to retract whereupon the projectile is projected from the bucket.

[0083] In the particular device shown the beam 1701 has a plurality of pivot points 1706 permitting it to be attached to the frame 1700 at various points along its length.

[0084] In a further embodiment of the toy trebuchet a detent device with an associated user operated lever may be included.

[0085] The toy catapault illustrated in figure 18 comprises a handle 1800 with two arms 1801, each ending in a bar over which a mannequin glove can releasably fit. A mannequin wearing a cloak 1802 in the form of a wing with a fin 1803 is mounted to the catapault and the fin pulled rearwards, whereupon the arms 01 extend. Release of the fin allows the arms to retract substantially instantaneously, propelling the mannequin over the catapault arms1801 and releasing the gloves therefrom.

[0086] It is to be pointed out at this juncture that as shown in figure 18 the cloak 1802 also has a head 1804. This is made of a soft material, for example a spongy foam, to reduce the possibility of injury. This is the case with all missiles and projectiles described or implied in this patent specification.

[0087] The toy mobile missile launcher illustrated in figures 19a - 19c comprises a chariot 1900 with wheel driven tracks 1901. The chariot includes a cockpit in which a mannequin 156 can stand, the cockpit having a mannequin restraint bracket 1902 and armpit brackets 1903. The cockpit floor incorporates boot yokes 404 and, pivoted to the floor, a drive bar 1904. The drive bar 1904 is associated drivably with the wheel driven tracks 1901 via means not shown. On both sides of the vehicle are shafts 1905 carrying handles 401. The shafts 1905 are drivably associated, via means not shown, with missile launch pods 1906. An apparent exhaust tube 1907 on the rear of the vehicle acts as a manual trigger for launching missiles.

[0088] The toy mobile missile launcher is prepared for use by clipping a mannequin 156 in the restraint bracket 1902, its boots into the yokes 404, its armpits in the brackets 1903 and its gloves fitted to the handles 401. Missiles 1908 are loaded into the launch pods. The shafts 1905 are loaded, extending the arms 101, until detained by the trigger 1907. The drive bar 1904 is raised so that it bears behind the "knees" of the mannequin and extends the legs 102.

[0089] In operation the toy is released on a floor where relaxation of the legs 102 drives the drive bar 1904 and consequently the wheel driven track 1901 and the chariot moves along the floor. When desired the user can operate the trigger 1907 and relaxation of an arm 101 propels one or more missiles 1908 from the pod(s) 1906.

[0090] The trigger 1907 is in fact arranged to enable missiles 1908 on one side of the chariot to be propelled by the arm 101 on that side and the missiles on the other side to be propelled by the other arm.

[0091] In alternative embodiments, two triggers 1907 may be employed, the trigger(s) 1907 may be provided with staged operation so that missiles 1908 can be launched individually, a release button may be provided, associated with the drive bar 1904, so that the user does not have to hold drive bar 1904 or track 1901 until release, and/or the toy may be arranged to release missiles individually upon reaching various stages in its movement.

[0092] The toy mobile trebuchet illustrated in figure 20 comprises a chariot 2000 and wheel driven tracks 2001 somewhat similar to those described above with reference to figures19a - 19c. There is also a cockpit with a torso restraint bracket and armpit brackets and boot yokes like those 1902, 1903, 404, and a handle and shaft (not shown) like those 1905 and 401 shown in figures 19a - 19c. A drive bar (not shown) integral with a projectile bucket 2002 is pivoted to the cockpit wall and has an associated release button (not shown). The shaft is arranged to drive the wheel driven track 2001. The drive bar is arranged for impinging upon a mannequin's knees, in the front thereof. The chariot also carries a group of missile launch pods 2003 for launching missiles 2004. These are independently spring-loaded and triggered.

[0093] The toy mobile trebuchet is prepared for use by clipping a mannequin 156 into the torso restraint and its boots into the yokes, with the drive bar to the trebuchet 2002 forward of the knees of the mannequin. Its gloves are fitted to the handles on the shaft. A projectile 2005 is placed in the bucket 2002 and this is pulled rearwards and downwards until the release button is engaged, thus extending the legs 102 around the knees thereof.

[0094] To use the mobile trebuchet it is drawn backwards along a floor, thus winding arms 101 around the shaft. It is then released allowing relaxation of the arms 101 to drive the chariot forwards. Pressing the button allows relaxation of the legs 102 and the bucket 2002 is consequently propelled upwards and forwards and the projectile 2005 flung. Missiles 2004 can be independently released from their launchers 2003 by pressing appropriate buttons.

[0095] The toy mannequin water cannon illustrated in figure 21 comprises a piston/cylinder device 2100, the piston being driven by a plunger 2101 and the cylinder having a water ejection nozzle 2102. There is a release button 2103 associated with a detent holding the plunger at an outer extremity. The cylinder also carries a holding device 2104 arranged for holding the torso and supporting the armpits of a mannequin 157. The plunger 2101 incorporates handles 401 and yokes 404 for gripping the gloves 201 and the boots 202 of a mannequin.

[0096] The toy water cannon is prepared for use by mounting a mannequin 157 to the holding device 2104 and the appropriate gloves 201 and boots 202 to the handles 401 and yokes 404. The nozzle 2102 is then immersed in water while the plunger 2101 is withdrawn, thus extending the limbs 101, 102 of the mannequin 157 and drawing water into the cylinder. At its maximum throw the plunger 2101 engages the detent associated with the button 2103.

[0097] In use of the toy, the cannon is aimed where desired and the button 2103 pressed. Relaxation of the limbs 101, 102 drives the plunger 2101 so that a jet of water is pumped from the nozzle 2102.

[0098] The toy man-powered robot shown in figure 22 has a torso member with mannequin holding means 406, leg members 2200 with, at the knees thereof, foot bars 2201. Arm members 2202 are articulated at the elbows thereof and carry hands 2203 frictionally articulated to the arms 2202. Mannequin glove holding handles 401 are attached to the robot forearms. The arms 2202 are associated via a locking device (not shown) with finger levers 2204. The legs 2200 are simply frictionally pivoted at robot hips 2205.

[0099] The robot is prepared for use by mounting a mannequin 158 therein, to be gripped by the holding means 406, with the boots attached to the foot bars 2201 and the gloves to the handles 401.

[0100] In use, the arms 2202 are extended, thus extending also the mannequin arms 101, until the locking device is engaged. The user may then cause the robot to "walk" by manually moving the legs 2200 and may place an object in the hands 2203. By pinching the levers 2204 the mannequin arms 101 are freed to retract, thus drawing the arms 2202 towards the robot torso.

[0101] The toy waterborne craft shown in figure 23a - 23d has a fuselage 2300 with a detachable transparent cockpit dome 2301. Within the fuselage are brackets 2302 arranged for gripping a mannequin 159 under the armpits thereof and further boot brackets (not shown) for gripping boots of a mannequin. The boot brackets are drivably associated with both a pair of propellers 2303 and a winder 2304 in the form of a fin. The winder 2304 has an associated ratchet and pawl device (not shown) preventing the winder from rotating when released. A panel 2305 on the fuselage is associated with a brake device within the fuselage, for preventing propeller rotation while the winder 2304 is being operated.

[0102] The craft also incorporates a toy missile firing mechanism. A firing pin 2306 protruding rearwards from the fuselage 2300 is attached to the gloves (not shown) of the mannequin 159. Inside the fuselage the pin terminates in a launch tube, the outlet nozzle of which is shown at 2307. A spring loaded firing button 2308 prevents the pin 2306 from operating until the button is pressed. The cockpit dome 2301 incorporates a continuation launch tube 2309 through which a missile 2310 can be loaded and "fired".

[0103] The craft is prepared for use by inserting a mannequin 159 into the cockpit, with the dome 2301 detached, locking the mannequin boots to the boot brackets and the gloves to the pin 2306. The dome 2301 is then mounted to the fuselage 2300 and a missile 2310 loaded into the launch tube 2309. The firing pin 2306 is then pulled back, thus stretching the arms 101 of the mannequin 159, until the detent associated with the button 2308 engages. With the panel 2305 depressed the winder 2304 is turned, thus twisting the legs 102 of the mannequin 159.

[0104] In use, the craft is placed in water and directed and the panel 2305 released. The legs 102 begin to unwind and the propellors 2303 thus begin to rotate, driving the craft. When desired the button 2308 is pressed; the firing pin 2306 shoots forward and the missile 2310 is ejected.

[0105] In an alternative embodiment of the craft shown in figures 23, the firing pin 2306 is arranged to project water out of the nozzle 2307, as suggested in figure 23d.

[0106] The toy fantasy craft illustrated in figures 24a, 24b, 24c is somewhat similar to that described above with reference to figures 23a -d, particularly as regards propulsion. Accordingly there is a fuselage 2400 with a detachable cockpit dome 2401, propellers 2402, a winder fin (not shown) and a depressable panel 2403 arranged to act as a propeller lock. Likewise there are armpit brackets and boot brackets (both not shown).

[0107] The principal difference with the toy illustrated in figures 23 is that this illustrated in figures 24 has missile launcher mounting nacelles 2404. These incorporate a mechanism, not shown, by which relaxation of the arms of a mannequin will "fire" missiles. A missile launcher 2405 is detachably mountable to the nacelles 2404 and incorporates twin missile launch pods 2406 with release buttons 2407. Firing pins 2408, having hollows 2409, protrude rearward of the pods 2406 for association with the firing mechanism inside the nacelles 2404. Missiles 2410 fit into the pods 2406.

[0108] As figure 24b shows the missile launcher 2405

detached from the fuselage 2400 so figure 24c shows it attached to a mannequin 160. For this purpose the mannequin 160 incorporates a deployable chest plug as shown at 240 in figure 4j. Also the launcher 2405 has handles 401 for gloves 201 of the mannequin 160. The "elbows" of the mannequin arms rest in the hollows 2409 of the firing pins 2408.

[0109] With a missile launcher 2405 attached to a mannequin 160, the mannequin gloves 201 attached to the handles 401, "elbows" hooked over the hollows 2409 and missiles 2410 placed in the pods 2406, the missiles can be pushed into the pods to drive the firing pins 2408 rearwards and thus extend the mannequin arms 101 until detents catch the buttons 2407. Pressing the buttons 2407 releases the firing pins 2408 and relaxation of the arms 101 drives the released firing pin forward to "fire" the missile 2410.

[0110] With this toy craft fins 2411 on the fuselage 2400 allow the craft to be stood upright if desired. This feature may likewise be incorporated in the craft shown in figures 23.

[0111] With either toy craft also the mannequin may be permanently fitted within the fuselage 2400 (2300) and the cockpit dome 2401 (2301) permanently attached to the fuselage.

[0112] The toy fantasy space buggy illustrated in figure 25 has a body 2500, front wheel 2501 and drive wheels 2502 at the rear. Mounted on the body 2500 is a mannequin harness 200 and mannequin boot yokes 404. An arm drive bar 2503 and a knee drive bar 2504 are both associated with a ratchet and pawl drive (not shown) for the wheels 2502. The arm drive bar 2503 has handles 401 to which can be fitted mannequin gloves 201.

[0113] To prepare the buggy for use a mannequin 161 is mounted to the harness 200 with boots 202 fitted to the yokes 404 and gloves 201 fitted to the handles 401 and the drive bar 2504 behind the legs 102 of the mannequin in approximately the knee area.

[0114] In use the buggy may be rolled backwards on a floor. This brings both drive bars 2503, 2504 forward extending the arms 101 and legs 102. Release of the buggy allows the arms and legs to relax, thus driving the vehicle.

[0115] In alternative embodiments of this buggy the arm drive may be arranged to fire missiles and/or a water gun instead of assisting with the vehicle drive.

[0116] Figure 26 illustrates a toy man-portable rocket launcher 2600. This has a shoulder harness 2601 for fitting over a shoulder of a mannequin 162 and handles 401 for gloves 201 fitted to the mannequin. A firing pin (not shown) protrudes rearward of the launcher and culminates in a yoke arranged for nestling an arm 101 in about an elbow region thereof. A detent associated with the firing pin is linked to a trigger 2602.

[0117] To prepare the device for use the launcher is fitted to the mannequin 162 and the gloves 201 to the handles 401. The appropriate arm 101 is extended around the firing pin. A missile 2603 is located in the launcher 2600 and pushed rearwards, thus pushing the firing pin rearwards and extending the arm 101 until the detent catches.

[0118] Release of the trigger 2602 allows the arm 101 to relax, thus "firing" the missile 2603.

[0119] The mannequin 162 may have rigid legs if it is desired that it stand freely. Alternatively long rigid boots may be used.

[0120] It will be appreciated that there is a myriad of other toys which may utilize a power source in the form of a figure according to the invention, just as there are many forms the figure may take. Moreover it will be obvious that many of the features described as incorporated in one or other of the embodiments described above may be incorporated in others of them.

Claims

1. A toy power source **characterised by** comprising a figure (100, 110) having at least one member (101, 102, 111, 112) formed of rubber, the member rubber being capable of being distorted so that its return to a natural state generates power.

2. A toy power source as claimed in claim 1 and wherein the rubber member is a limb.

3. A power source as claimed in claim 1 or claim 2 and wherein the figure is a mannequin with a body, two arms and two legs.

4. A power source as claimed in claim 1 or claim 2 and wherein the figure is a creature or science fiction character such as an octopus, a reptile such as a snake, robot, droid, android and a dalek.

5. A power source as claimed in any one of claims 1 to 4 and wherein the whole of the figure is formed of the rubber.

6. A power source as claimed in any one of the p[receding claims and having figure grip means at at least two places, with a length of the rubber therebetween by which it the rubber may be stretched or twisted.

7. A power source as claimed in claim 6 and wherein the figure grip means comprise enlarged portions or perforations or both.

8. A power source as claimed in claim 7 and wherein the grip means are constructed for release at a given load applied at a given direction.

9. A power source as claimed in any one of the preceding claims and wherein there are provided grip devices detachably attachable to part of an ancillary

toy.

10. A power source as claimed in claim 9 and wherein the grip devices have the appearance of a stylised body part such as a hand, a foot, the hand and/or the foot being somewhat hook-shaped, even a mouth, or have the form of gloves or boots.

11. A power source as claimed in claim 9 or claim 10 and wherein the grip devices are stowable within a boot or glove, for deployment when desired.

12. A power source as claimed in any one of the preceding claims and wherein the figure has non-elastic parts, for example a torso and a head.

13. A power source as claimed in any one of the preceding claims and wherein all rubber members are part of a single integral unit, with any non-elastic parts fitted thereto.

14. A toy constructed to accept figure as claimed in any one of the preceding claims, and having holding means for the at least one rubber member at at least two distal locations, the holding means being associated with a drive.

15. A toy as claimed in claim 14 and which is any one of:

- a wheeled vehicle such as tricycle or car or tracked vehicle,
- or a propeller or fluid jet driven vehicle such as a boat, submarine or aircraft,
- or a device employing a catapault principle, such as a rocket or other missile launcher or trebuchet,
- a water gun,
- a robot powered by the figure to walk and/or grab.

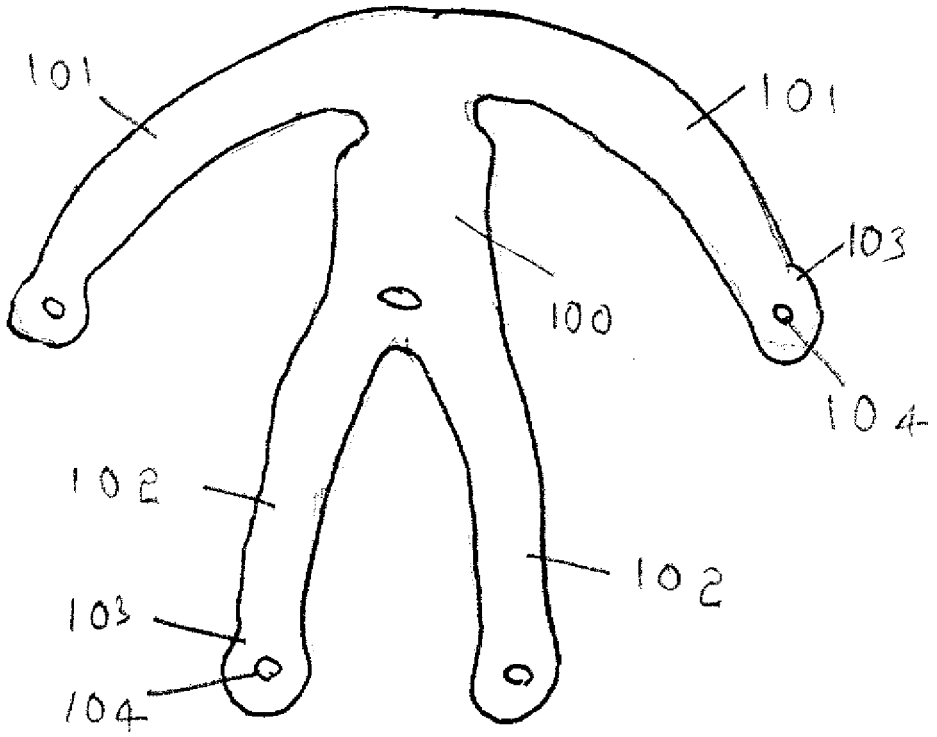

Fig. 1a

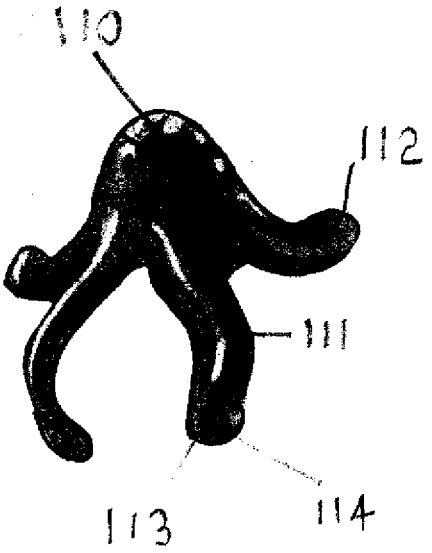

fig 1b

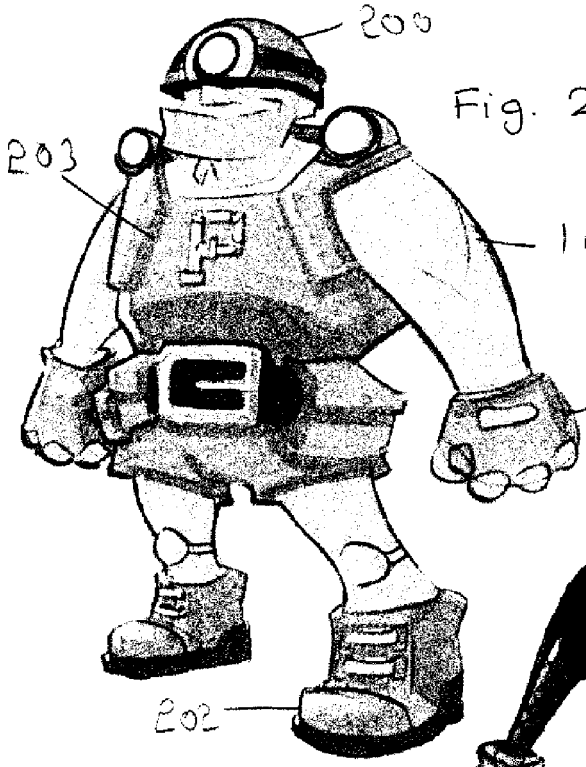

Fig. 2a

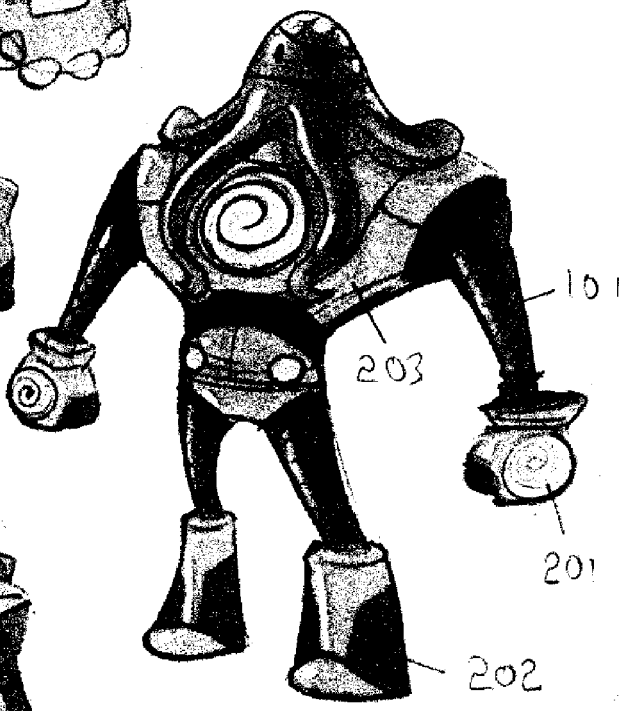

Fig 2b.

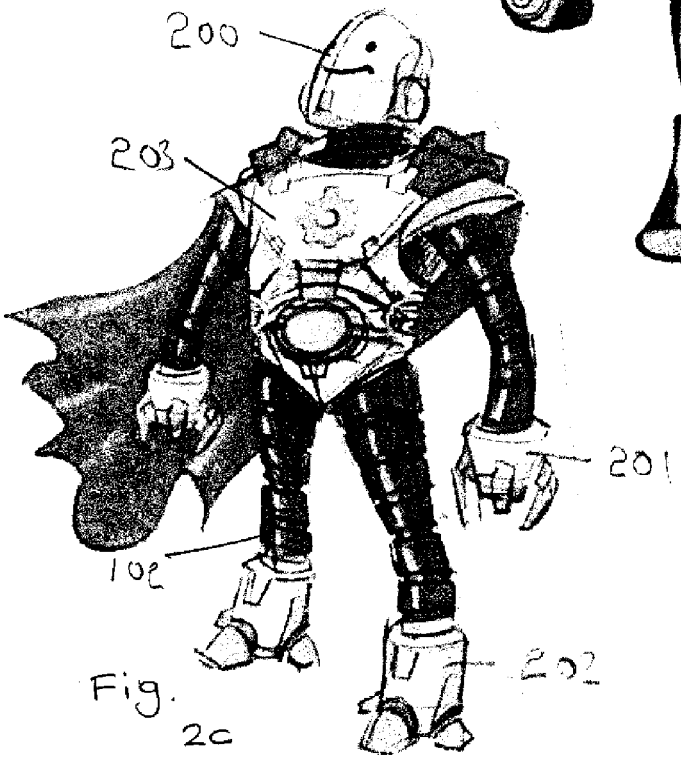

Fig. 2c

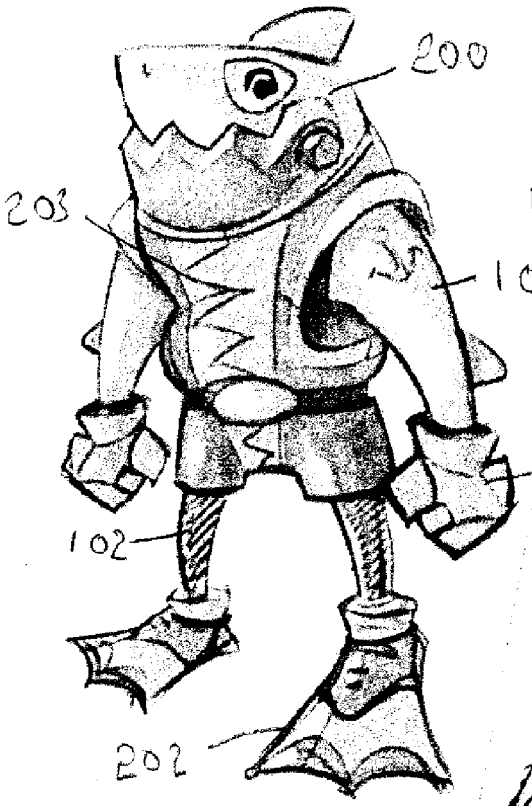

Fig. 2 d

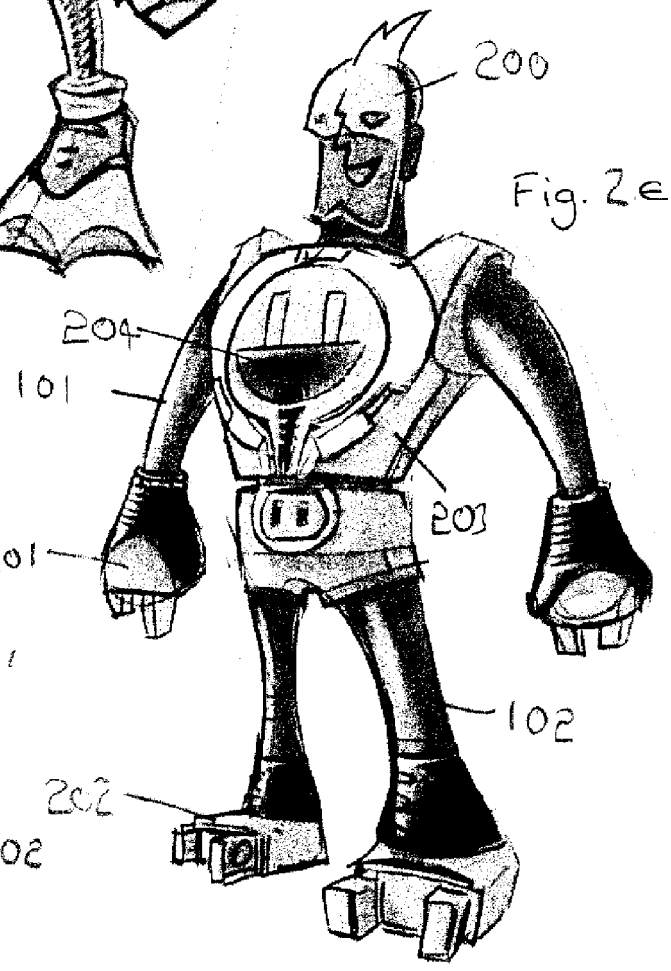

Fig. 2 e

Fig 2 f

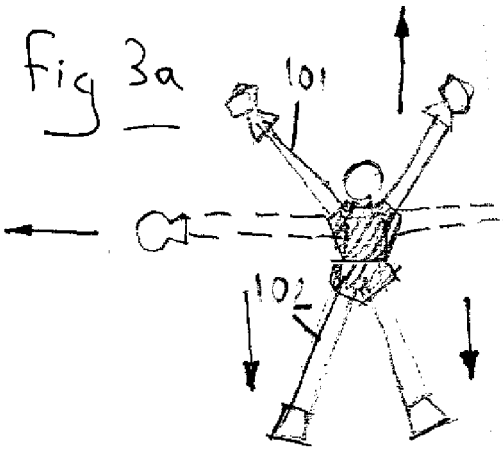

Fig 3a

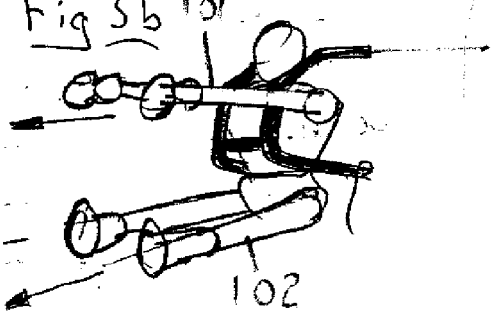

Fig 3b

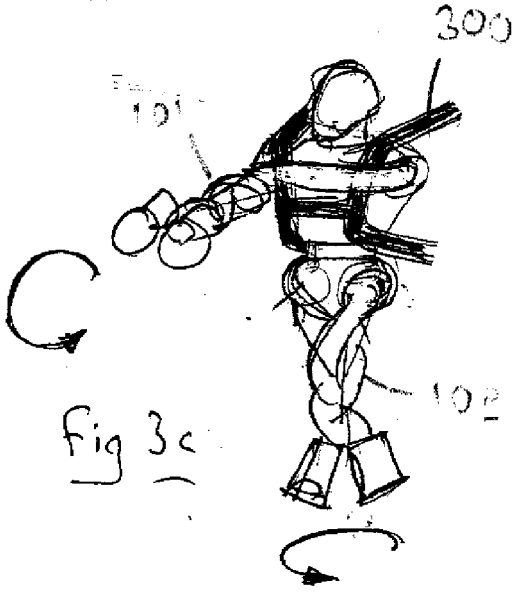

Fig 3c

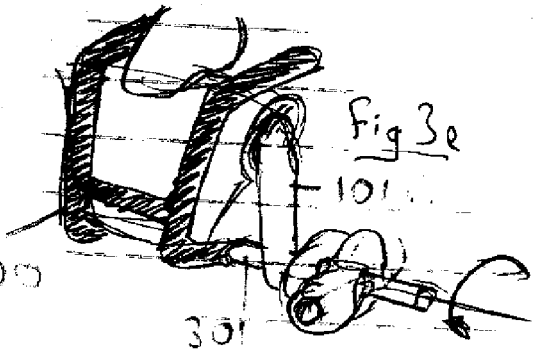

Fig 3e

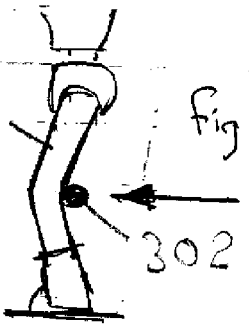

Fig 3f

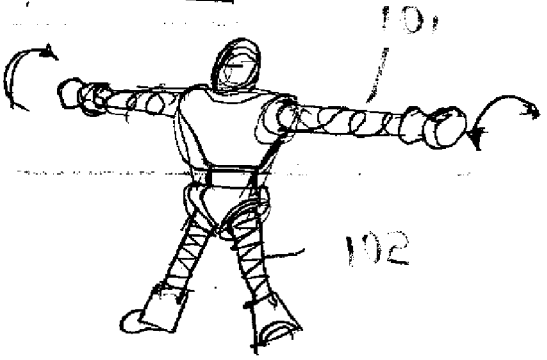

Fig 3g

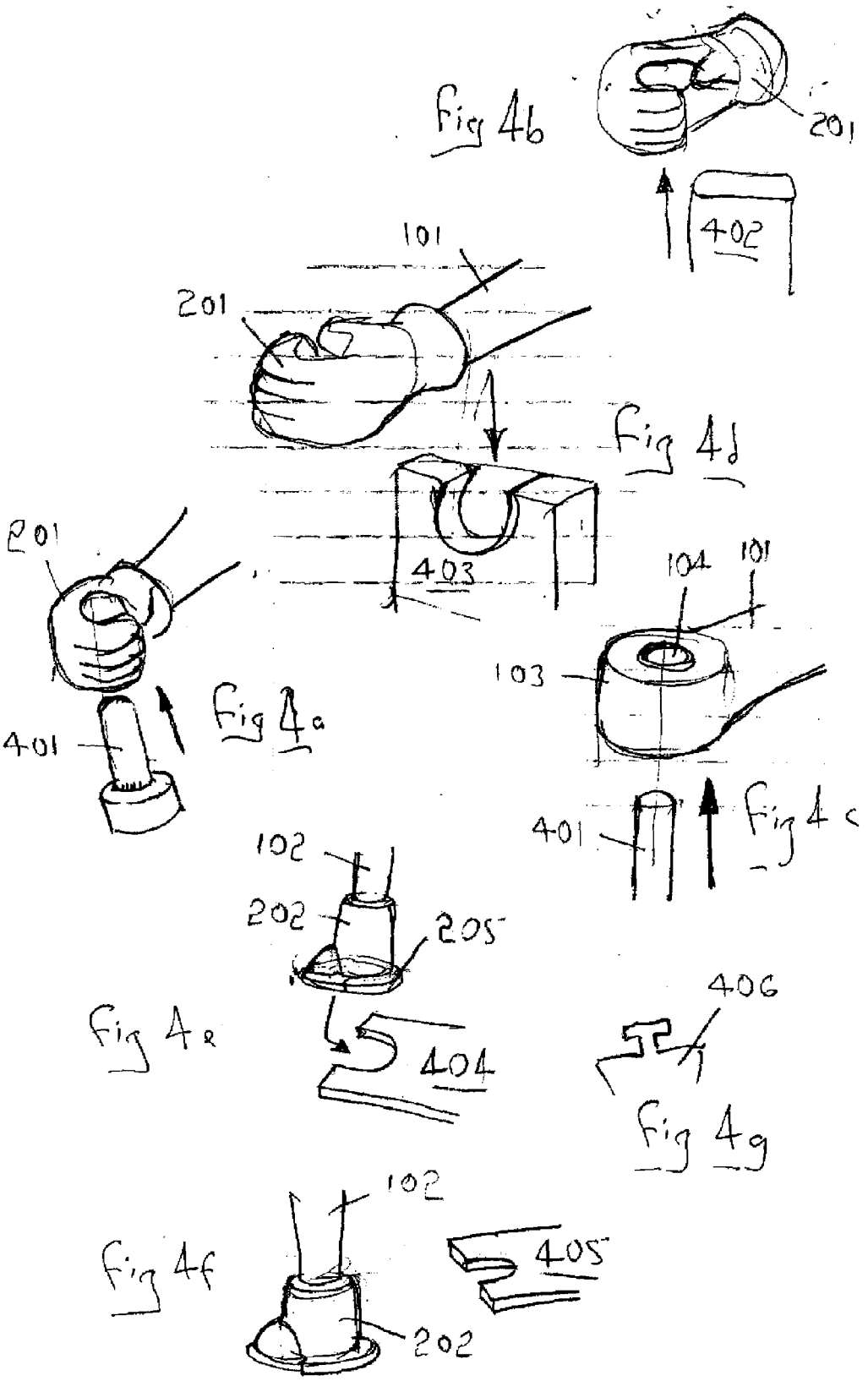
Fig 4b
201
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Fig 4d
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401
Fig 4a
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Fig 4c
102
202
205
Fig 4e
404
406
Fig 4g
102
405
Fig 4f
202

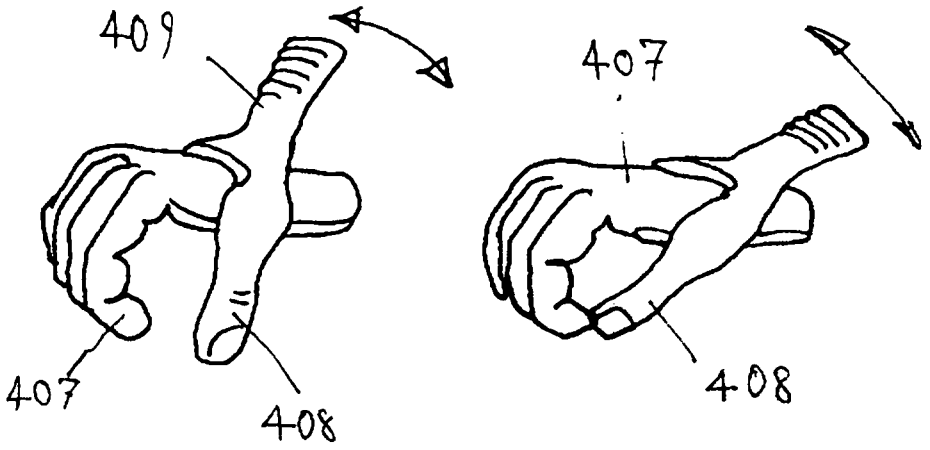

Fig 4h

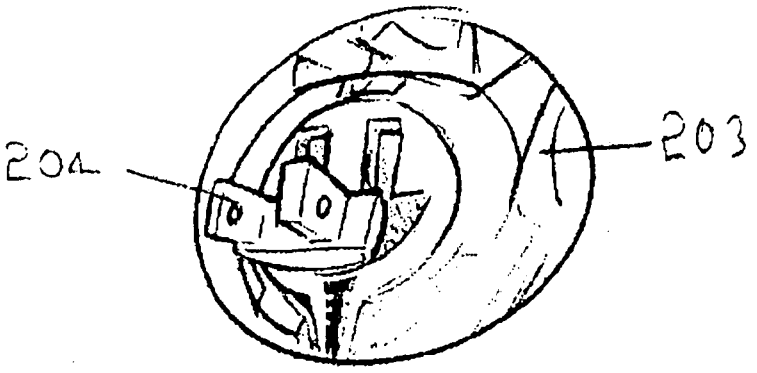

Fig. 4j

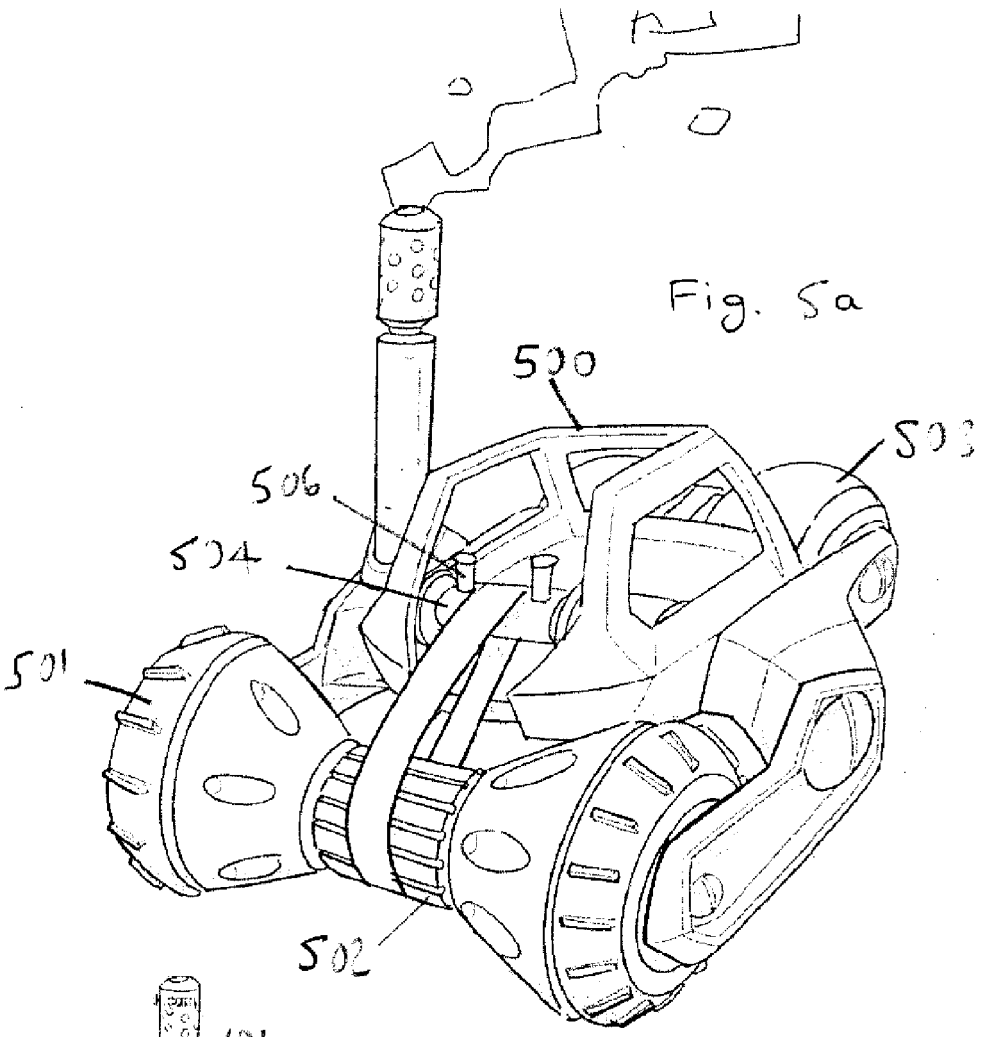

Fig. 5a

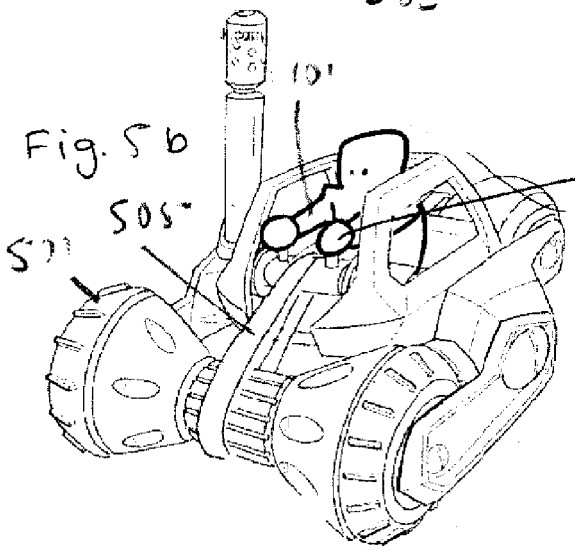

Fig. 5b

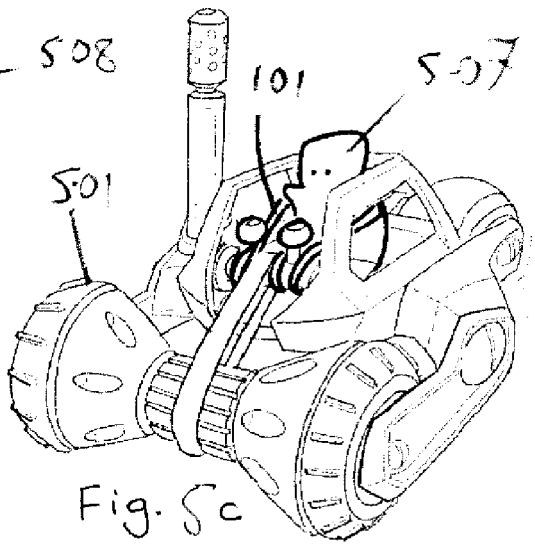

Fig. 5c

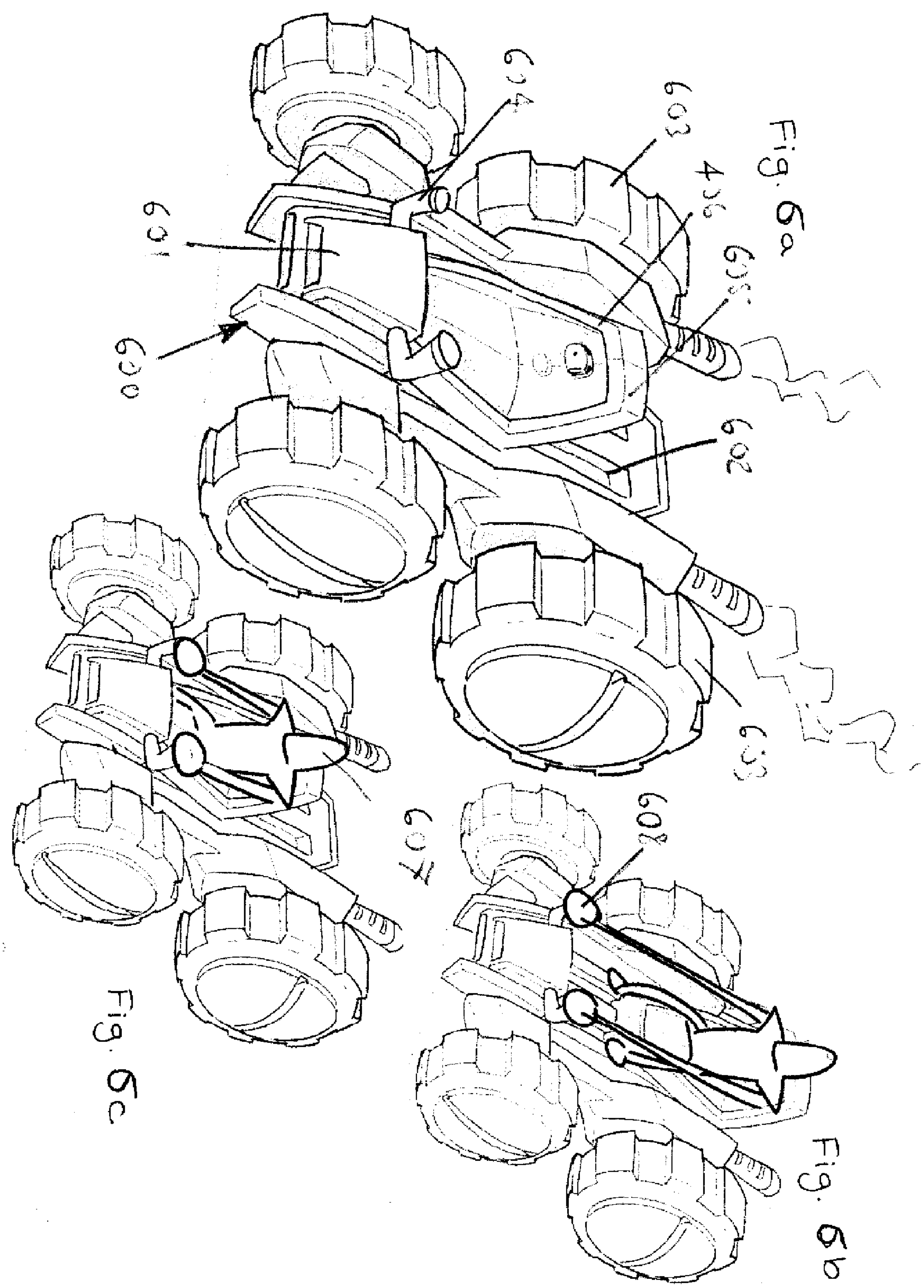
Fig. 6a
604
603
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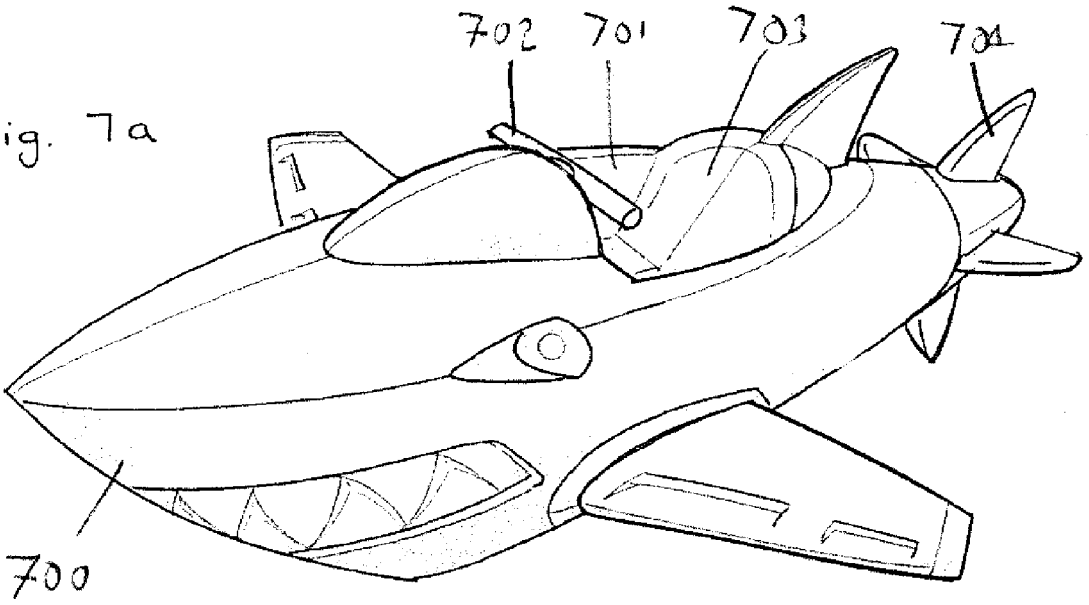
608
Fig. 6b
Fig. 6c

Fig. 7a



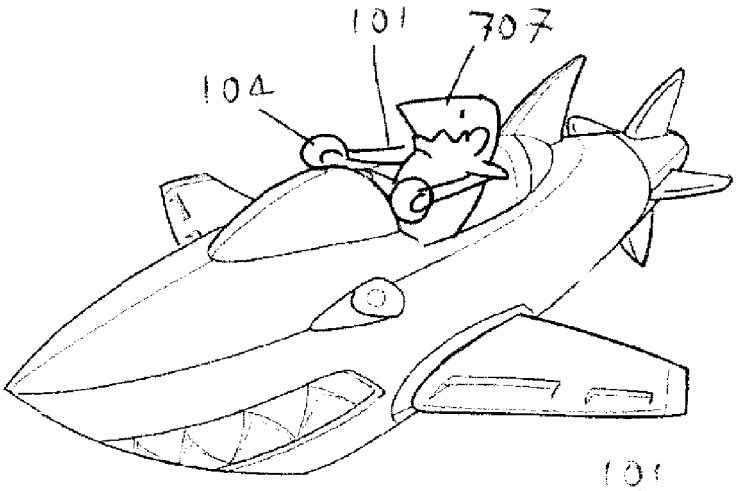


Fig. 7b

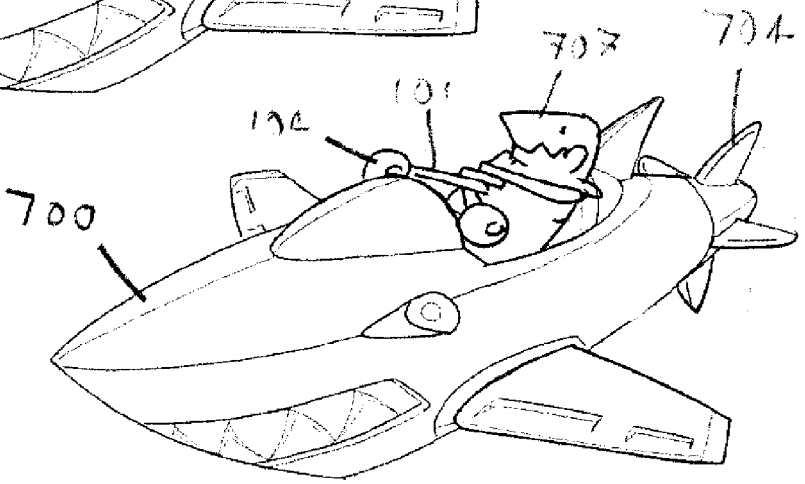


Fig. 7c

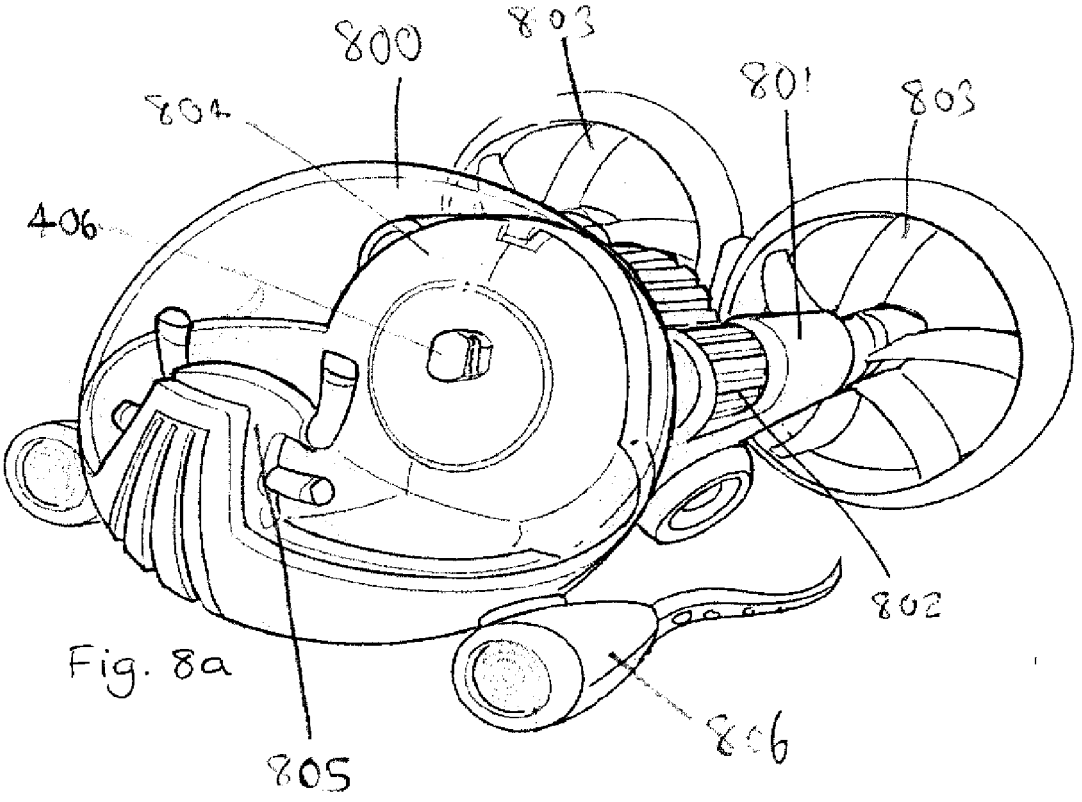

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Fig. 8a

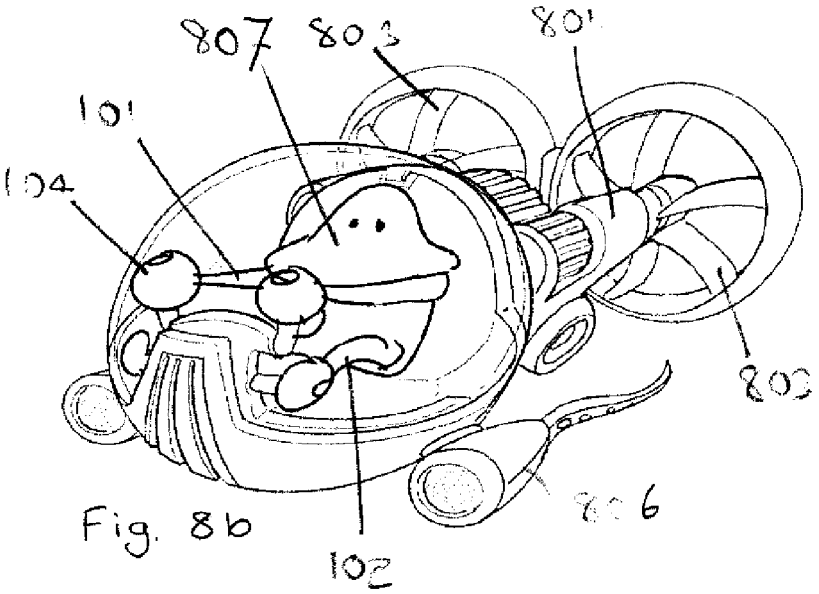
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Fig. 8b

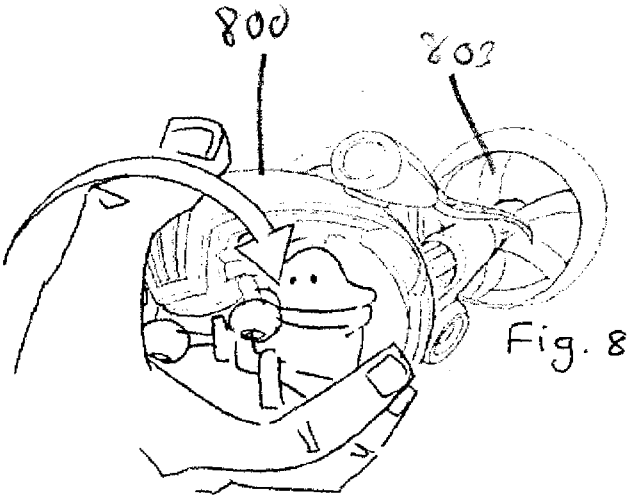

Fig. 8c

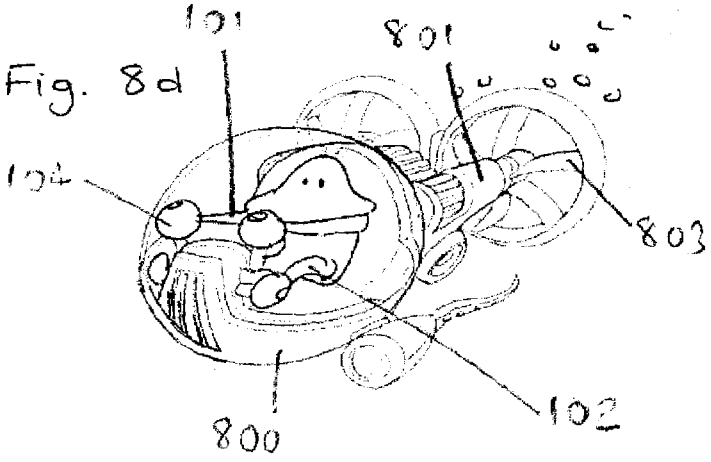

Fig. 8d

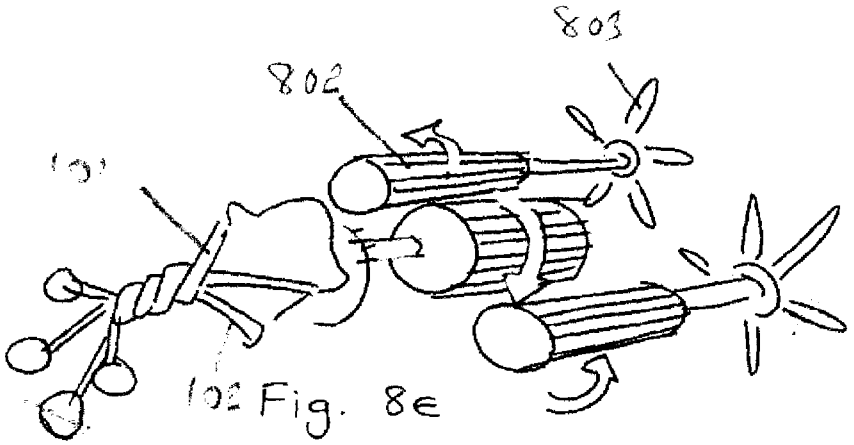

Fig. 8e

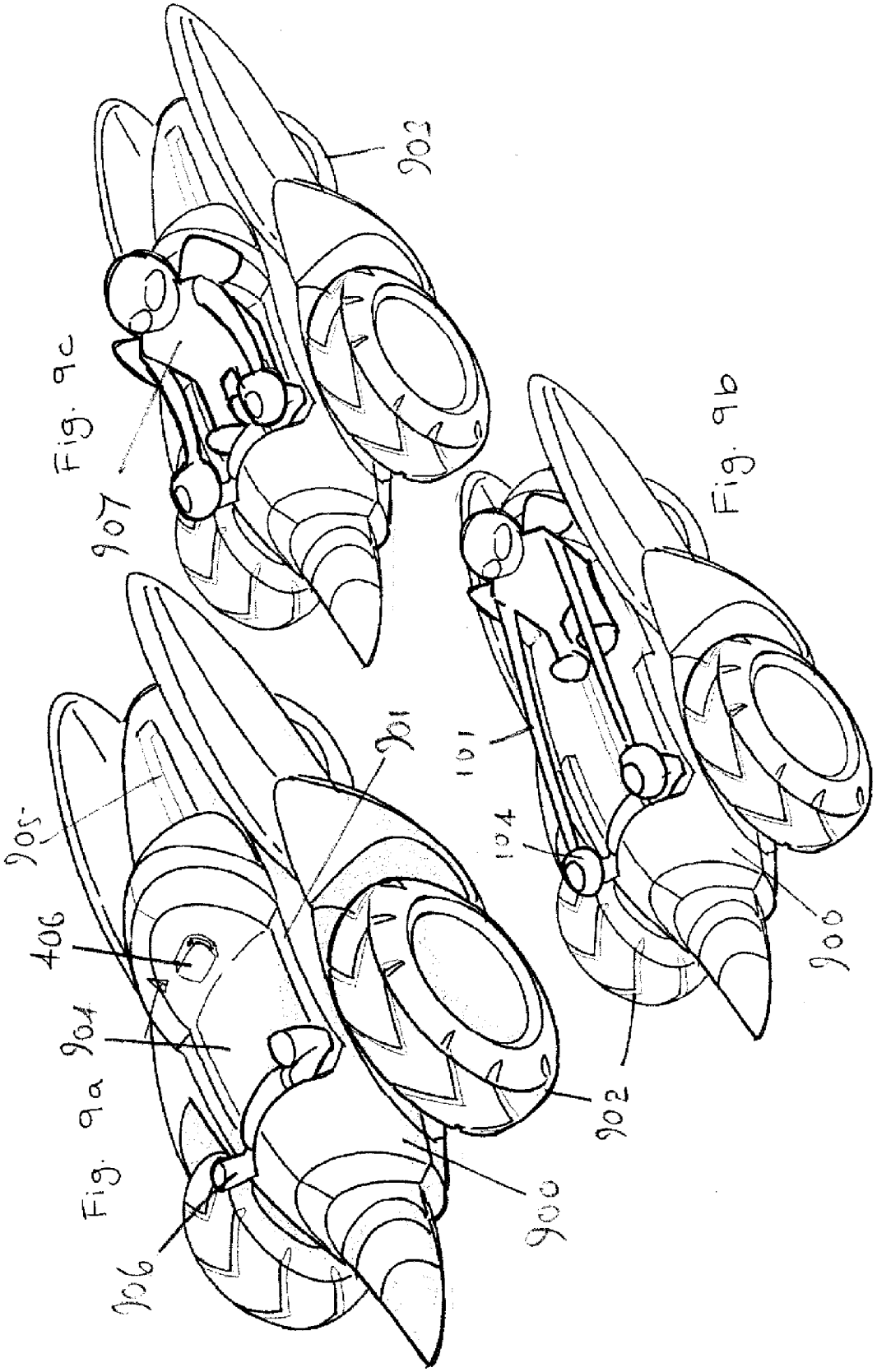
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Fig. 9c
Fig. 9b
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Fig. 9a
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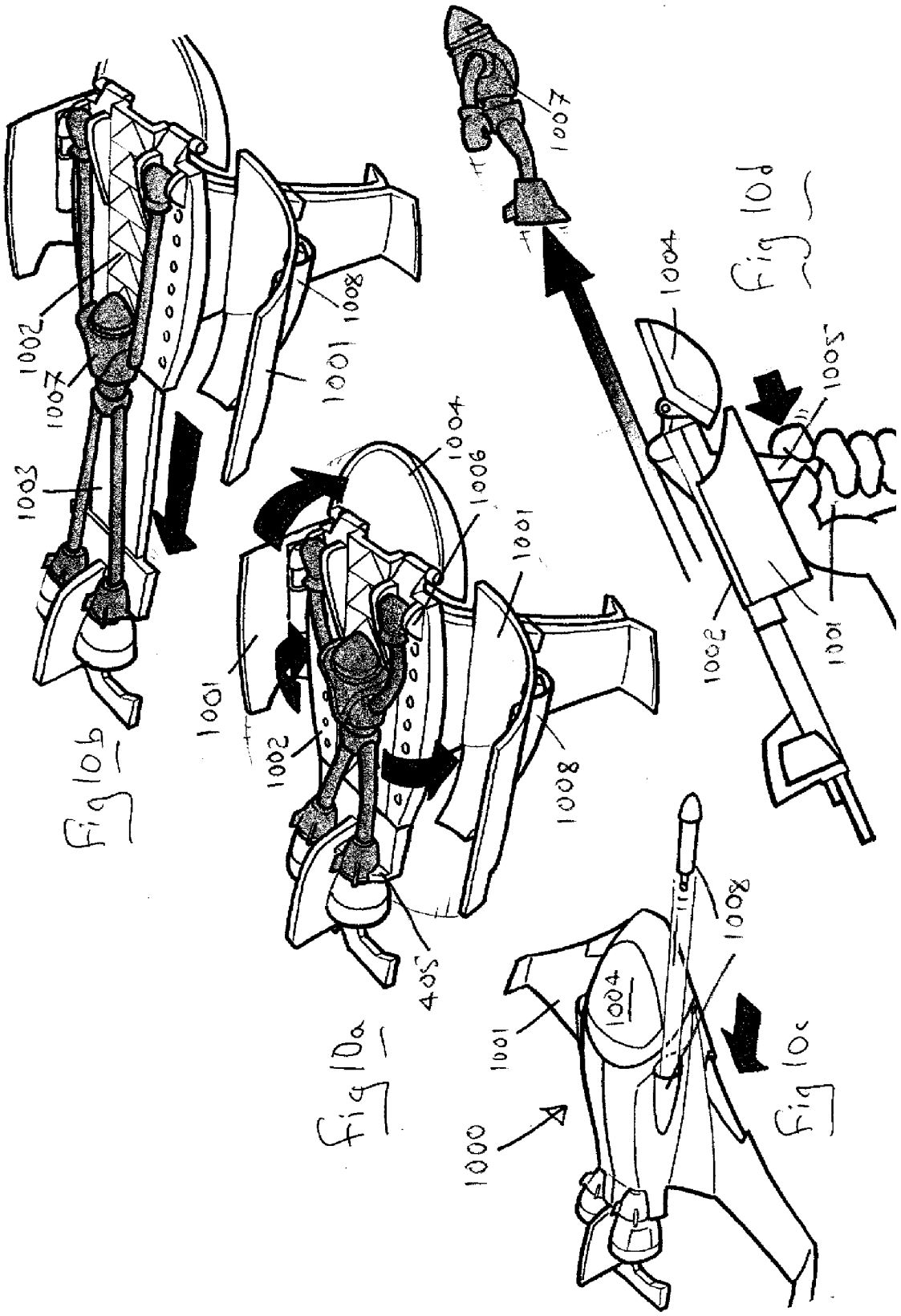
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Fig 10b
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Fig 10a
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Fig 10c
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Fig 10d

Fig. 11a

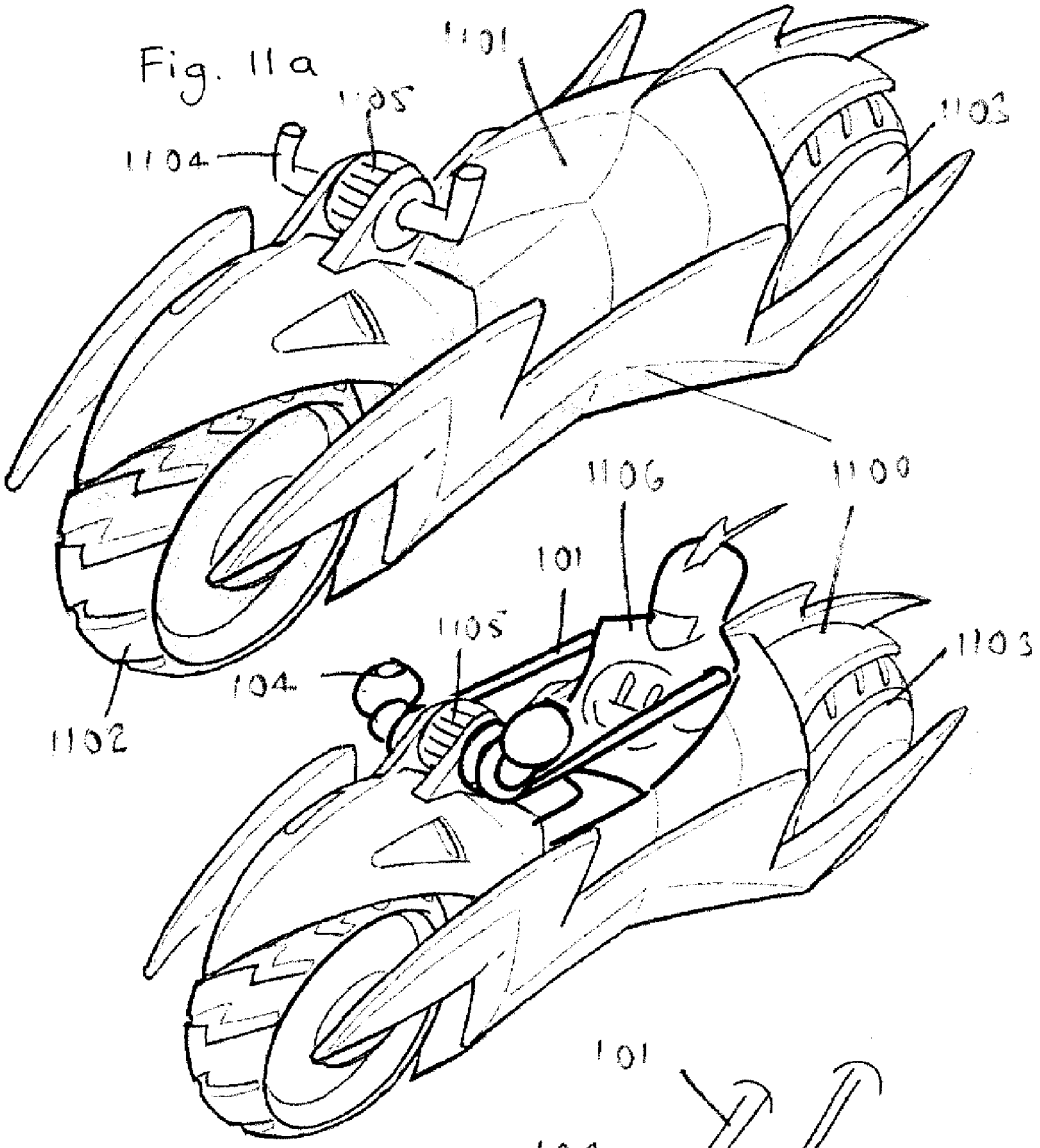


Fig. 11b

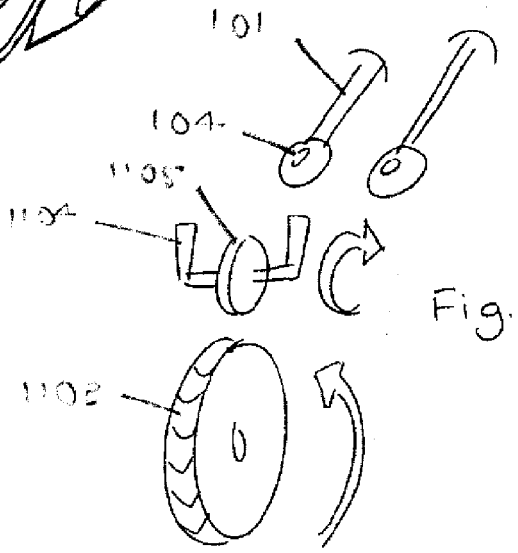


Fig. 11c

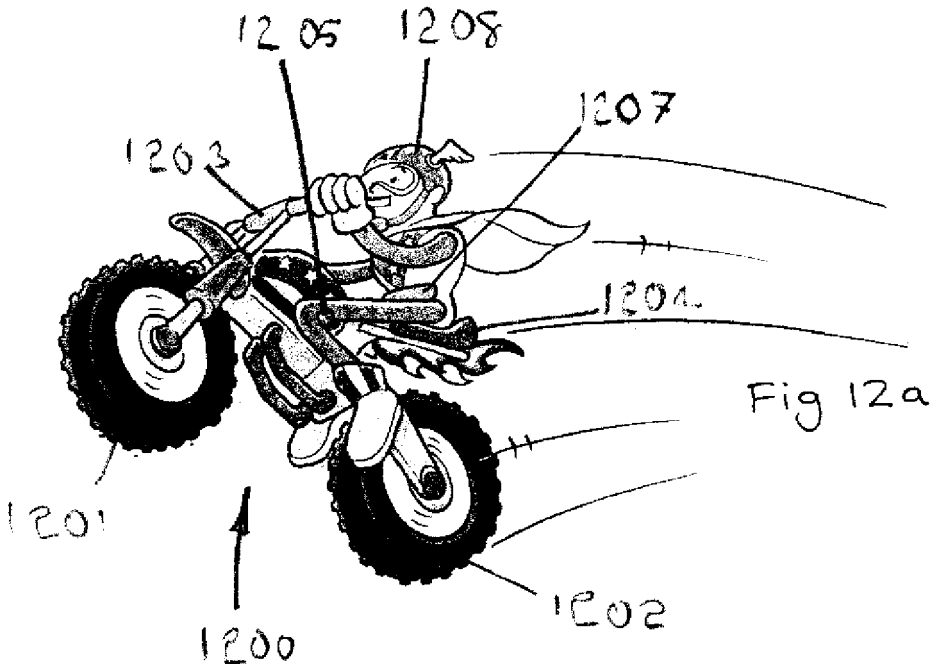


Fig 12a

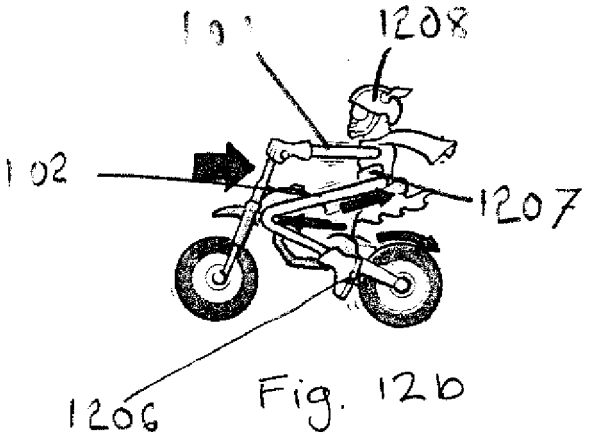


Fig. 12b

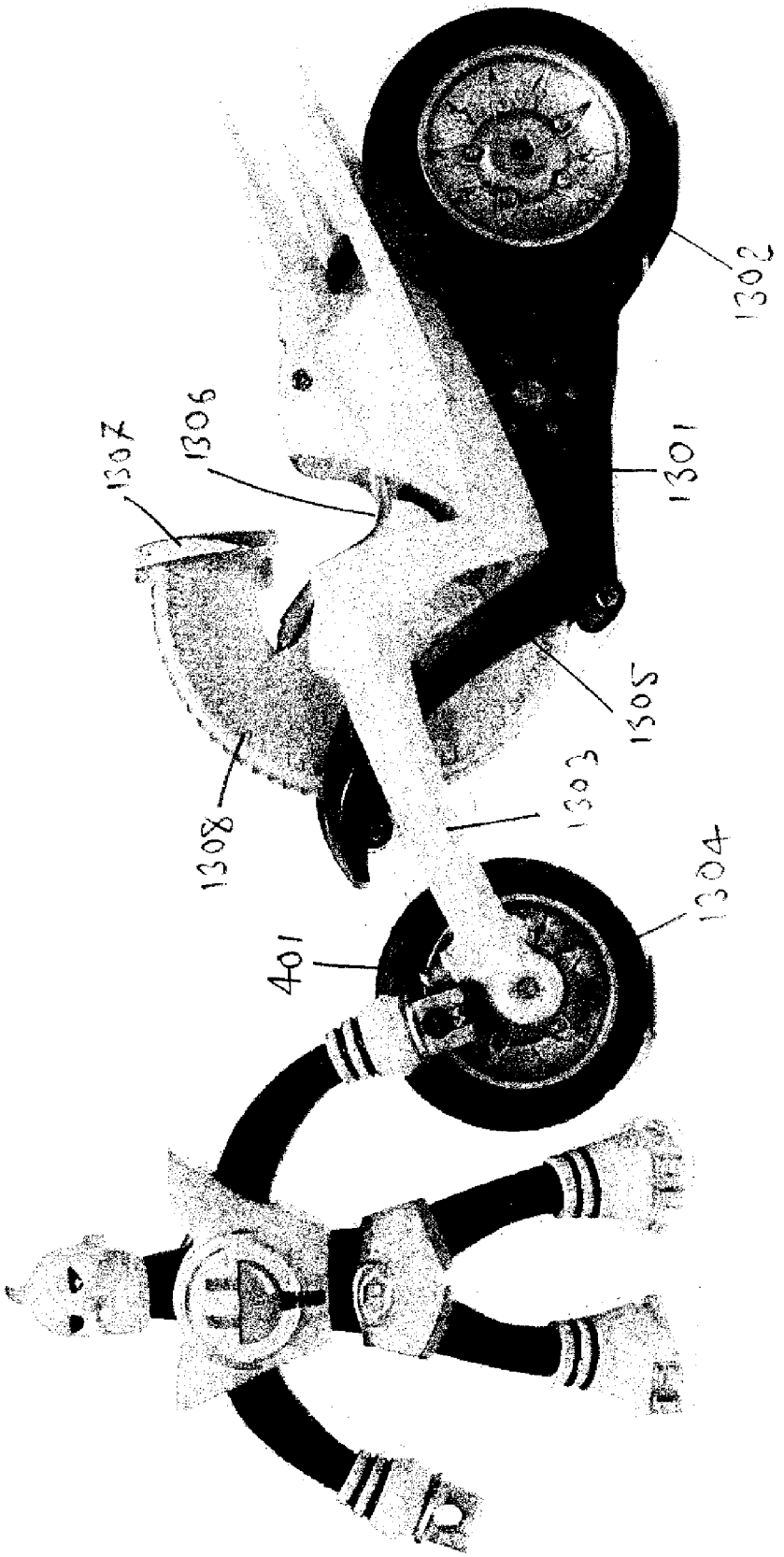


Fig. 13a

Fig. 13b

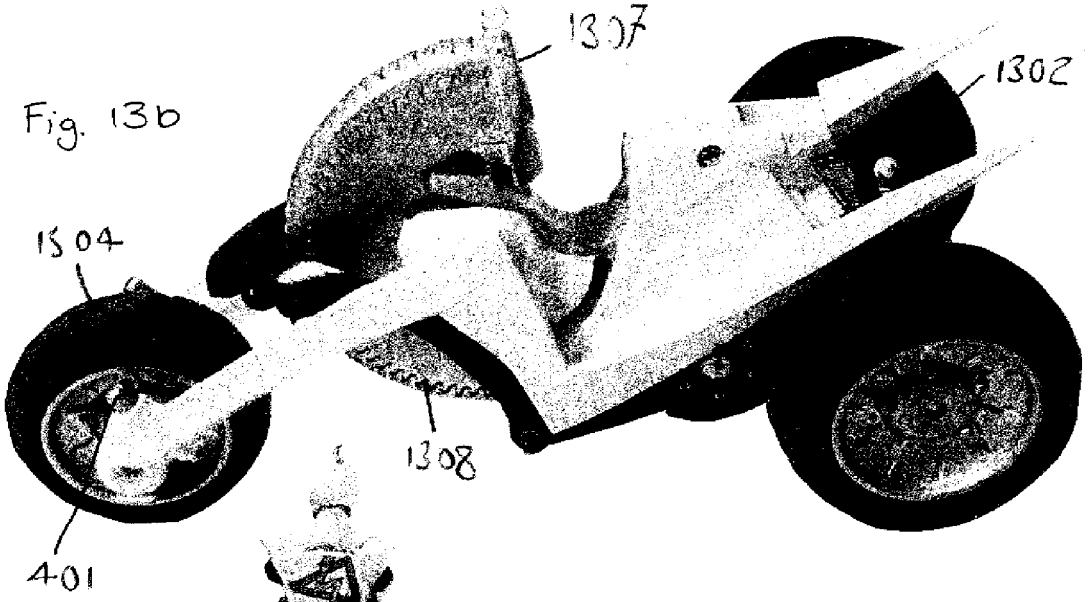


Fig. 13d

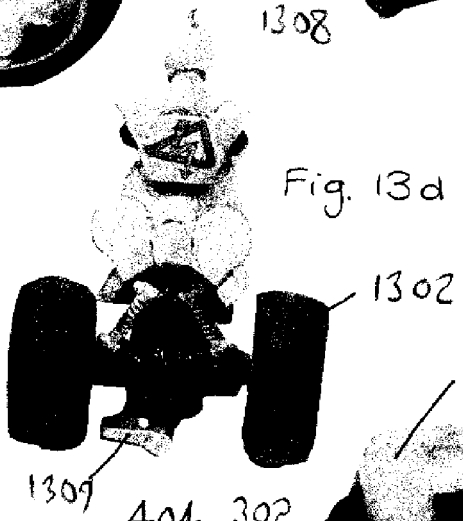
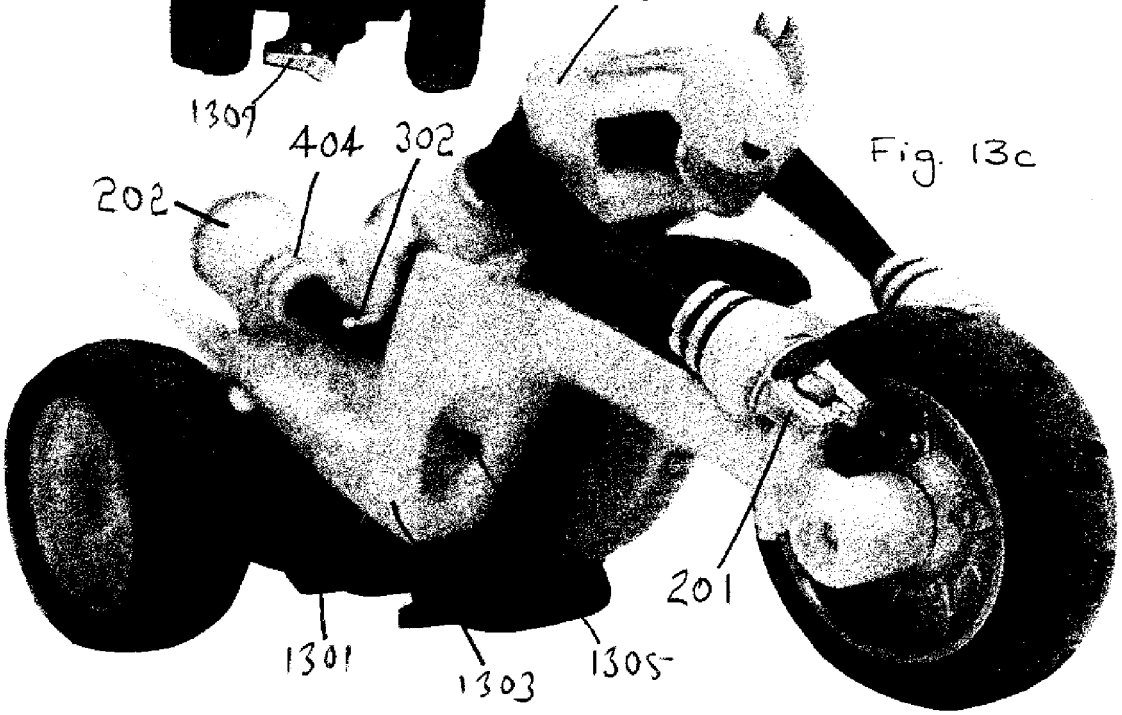


Fig. 13c



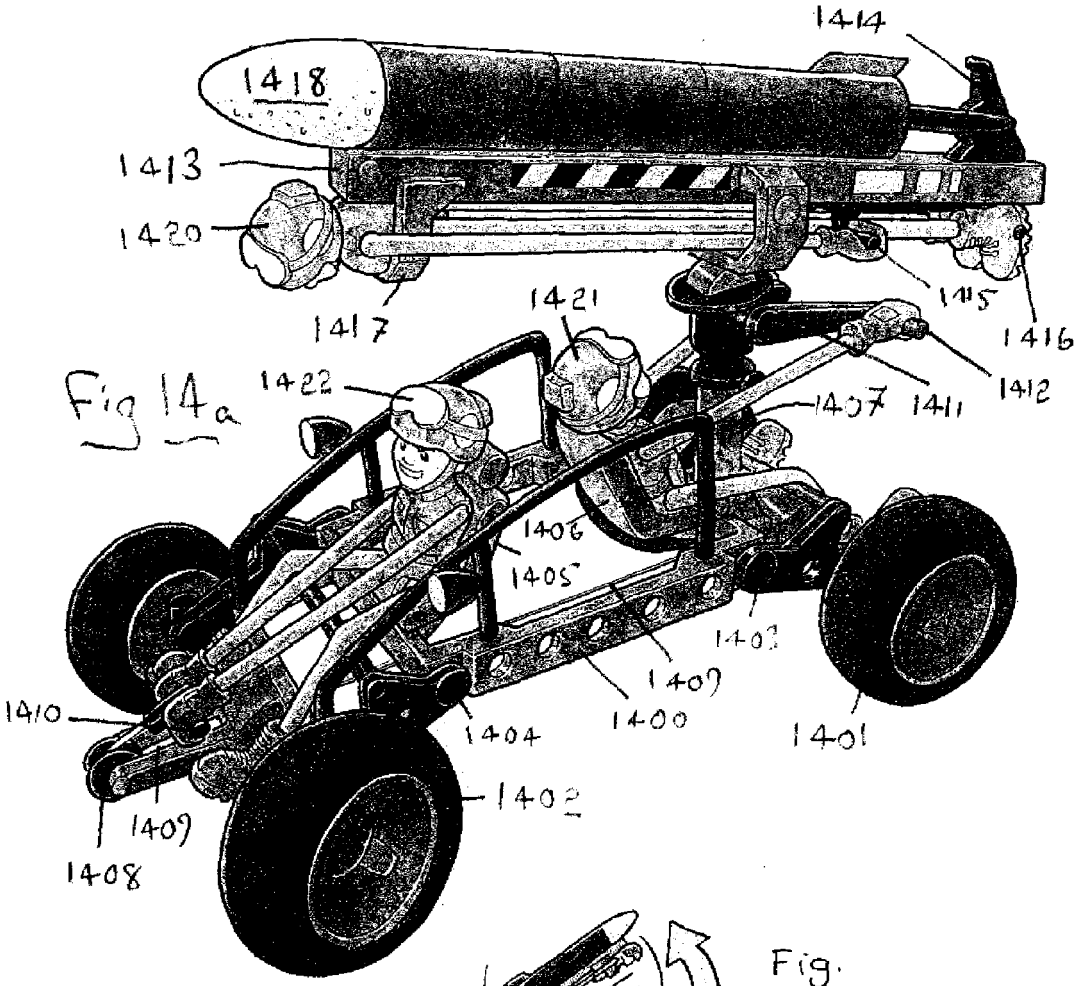


Fig 14a

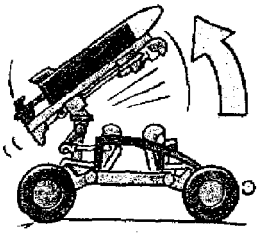
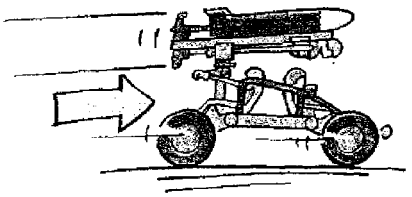


Fig. 14c

Fig 14b



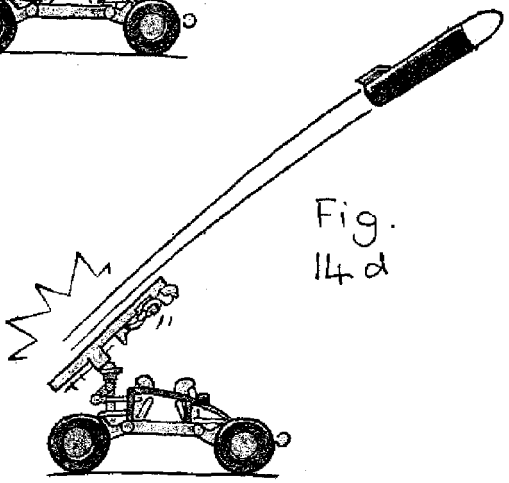


Fig. 14d

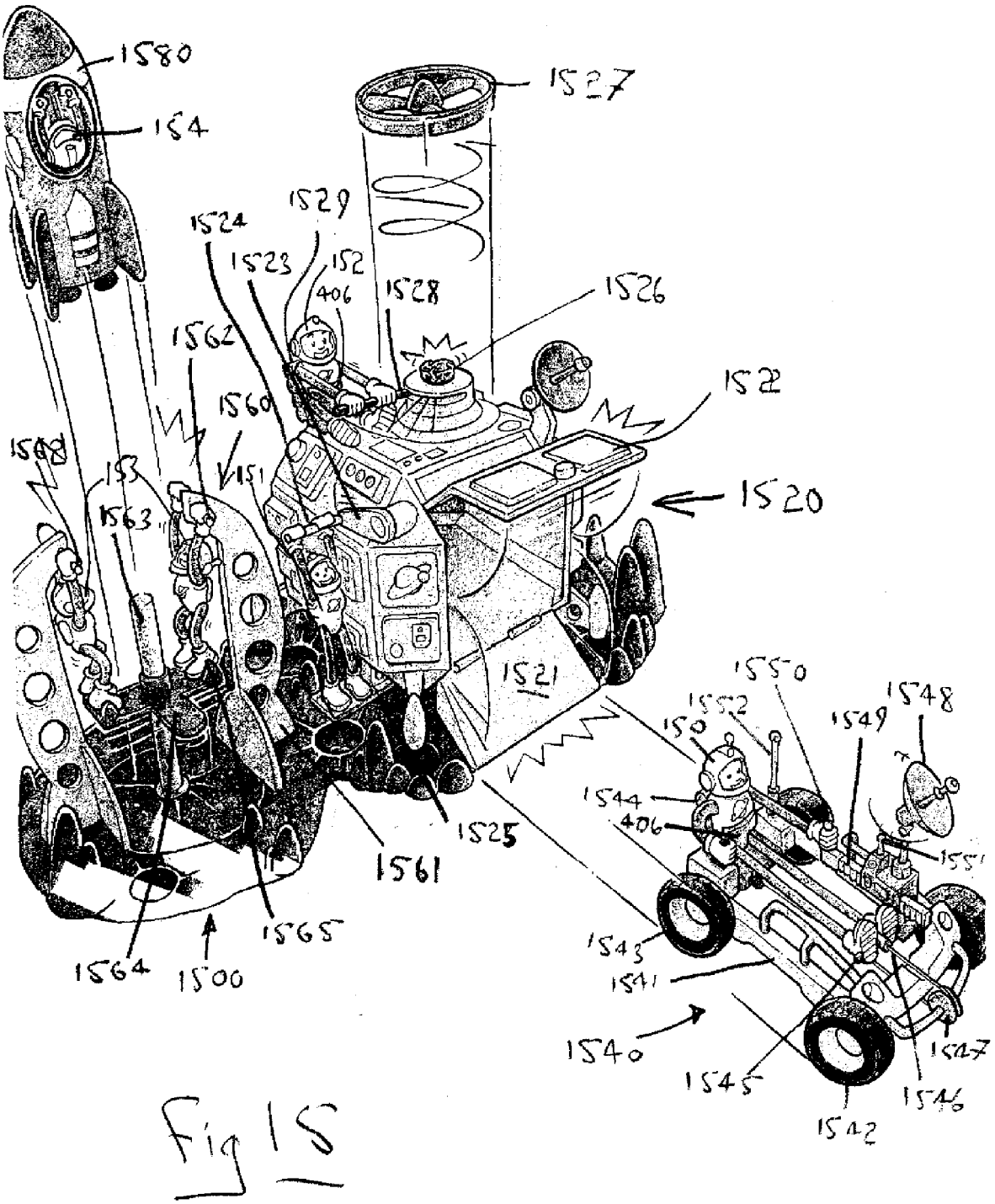

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Fig 15

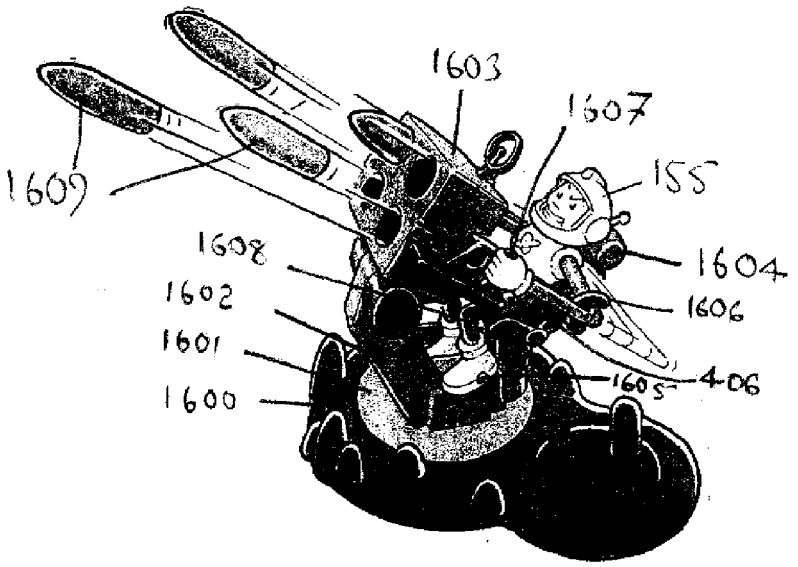


Fig. 16

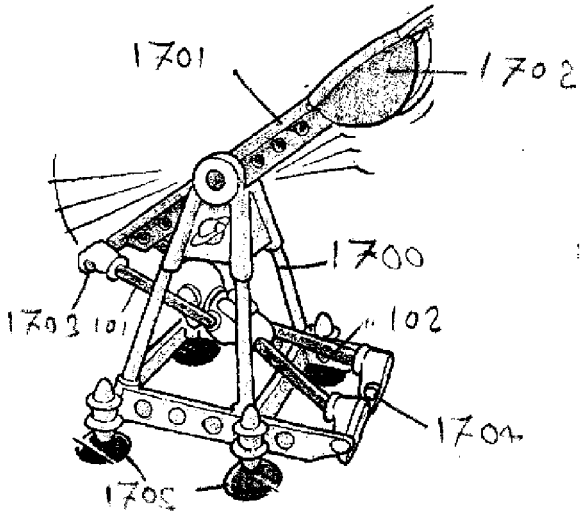
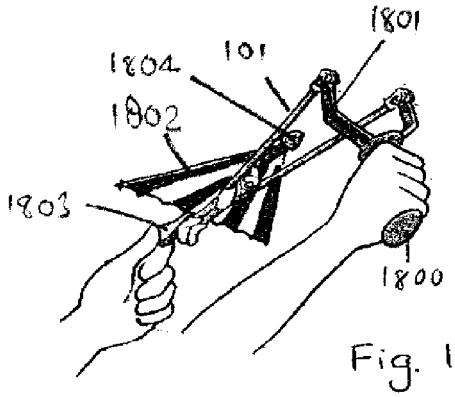


Fig. 17



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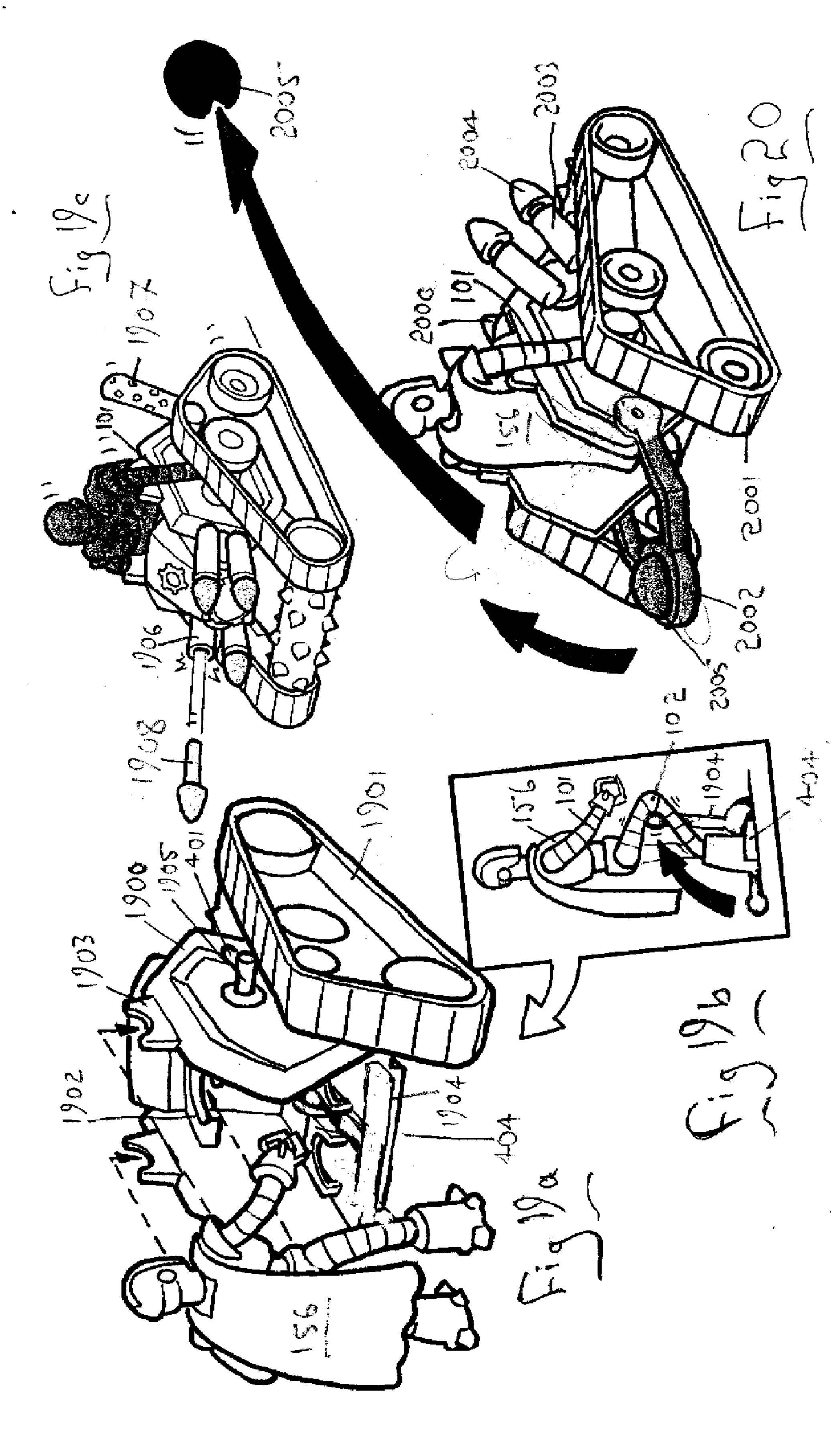
Fig 19a
Fig 19b
Fig 19c
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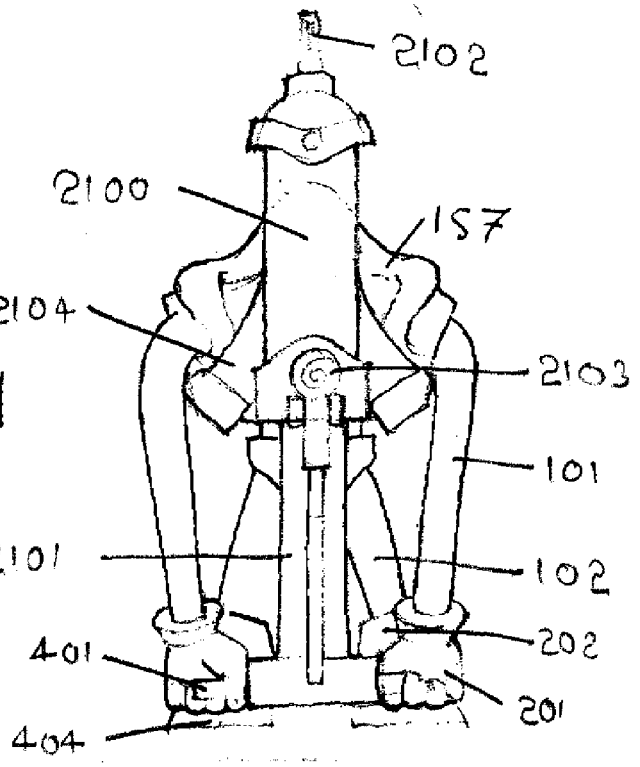
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Fig 21

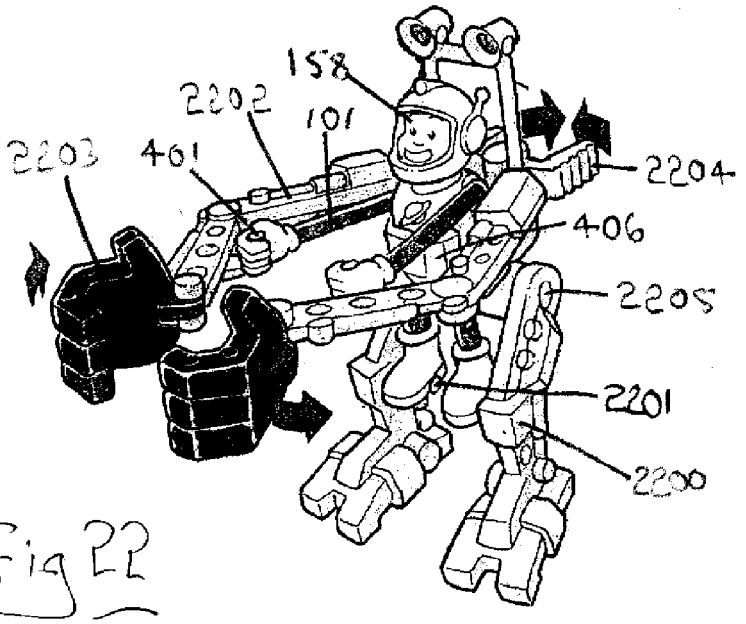
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Fig 22

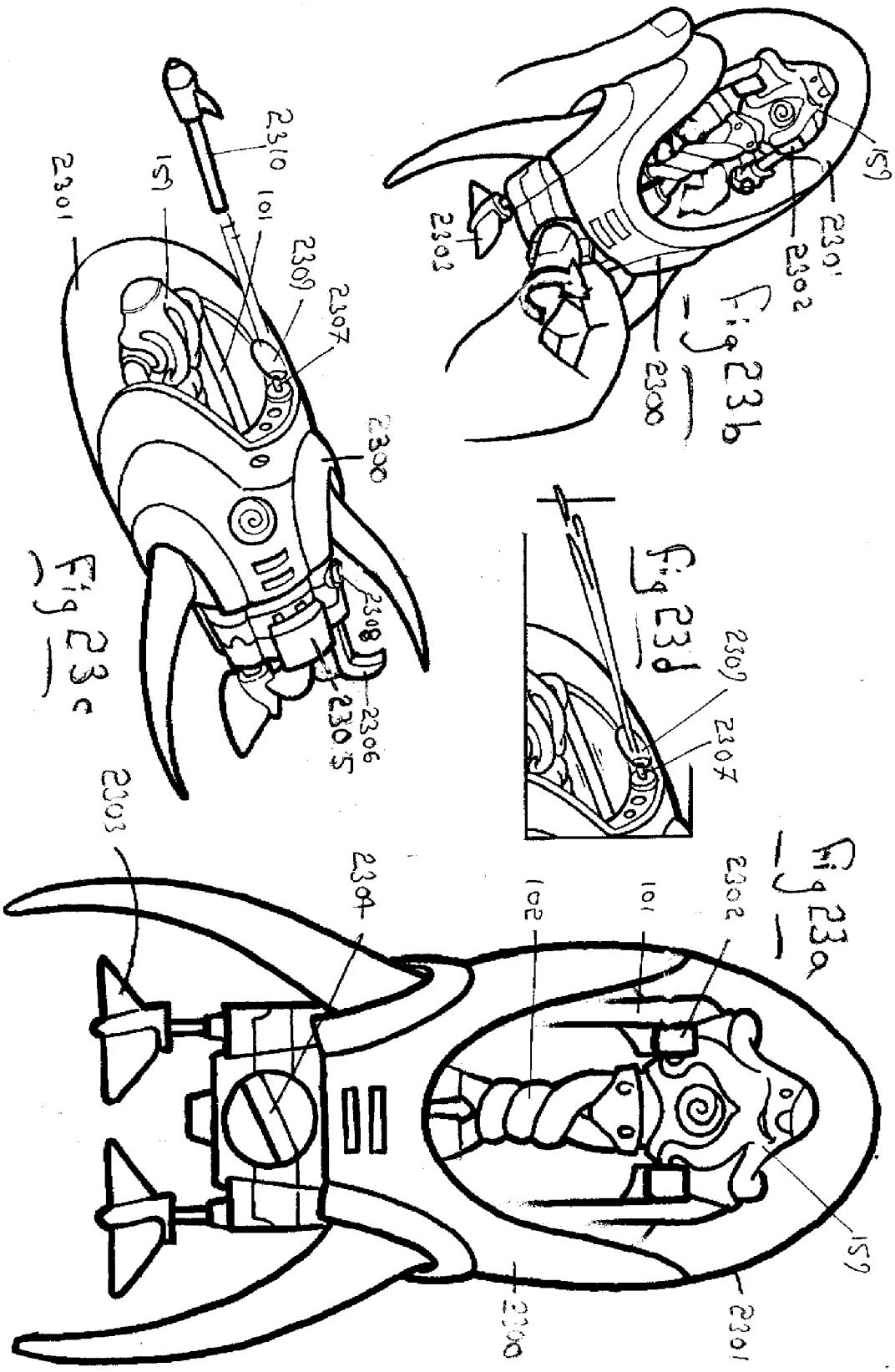

Fig 23c

Fig 23b

Fig 23d

Fig 23a

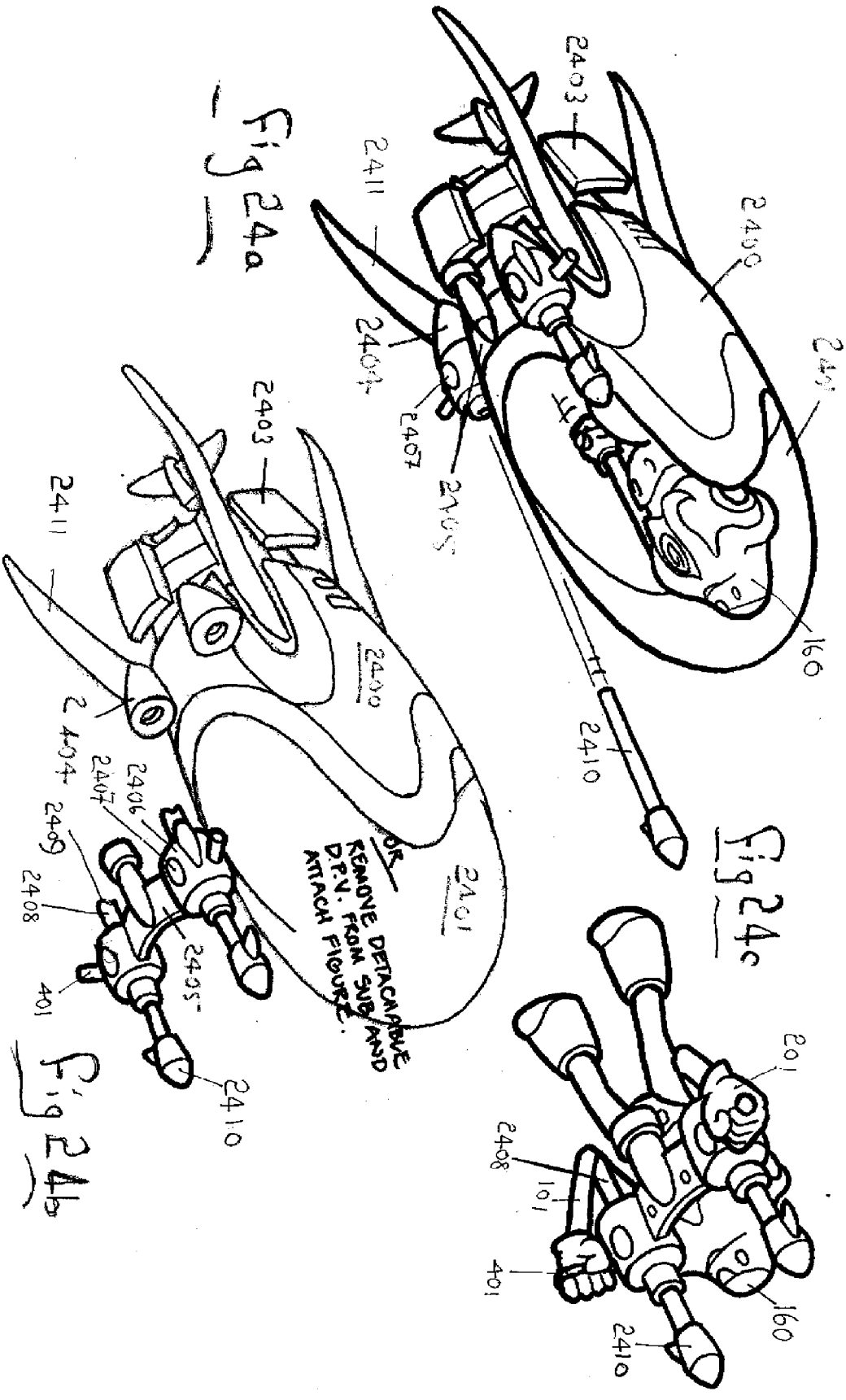

Fig 24a

Fig 24b

Fig 24c

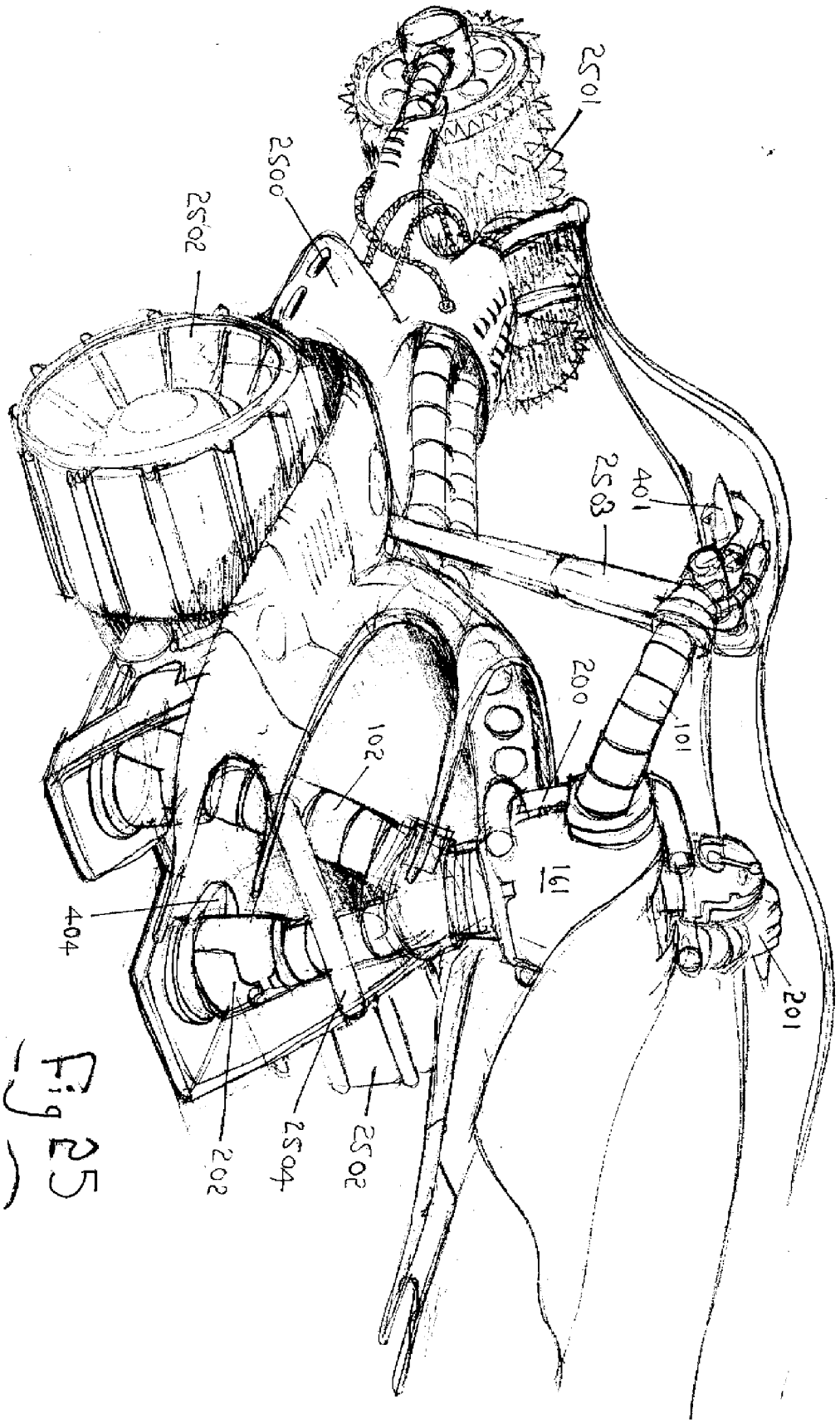

Fig 25

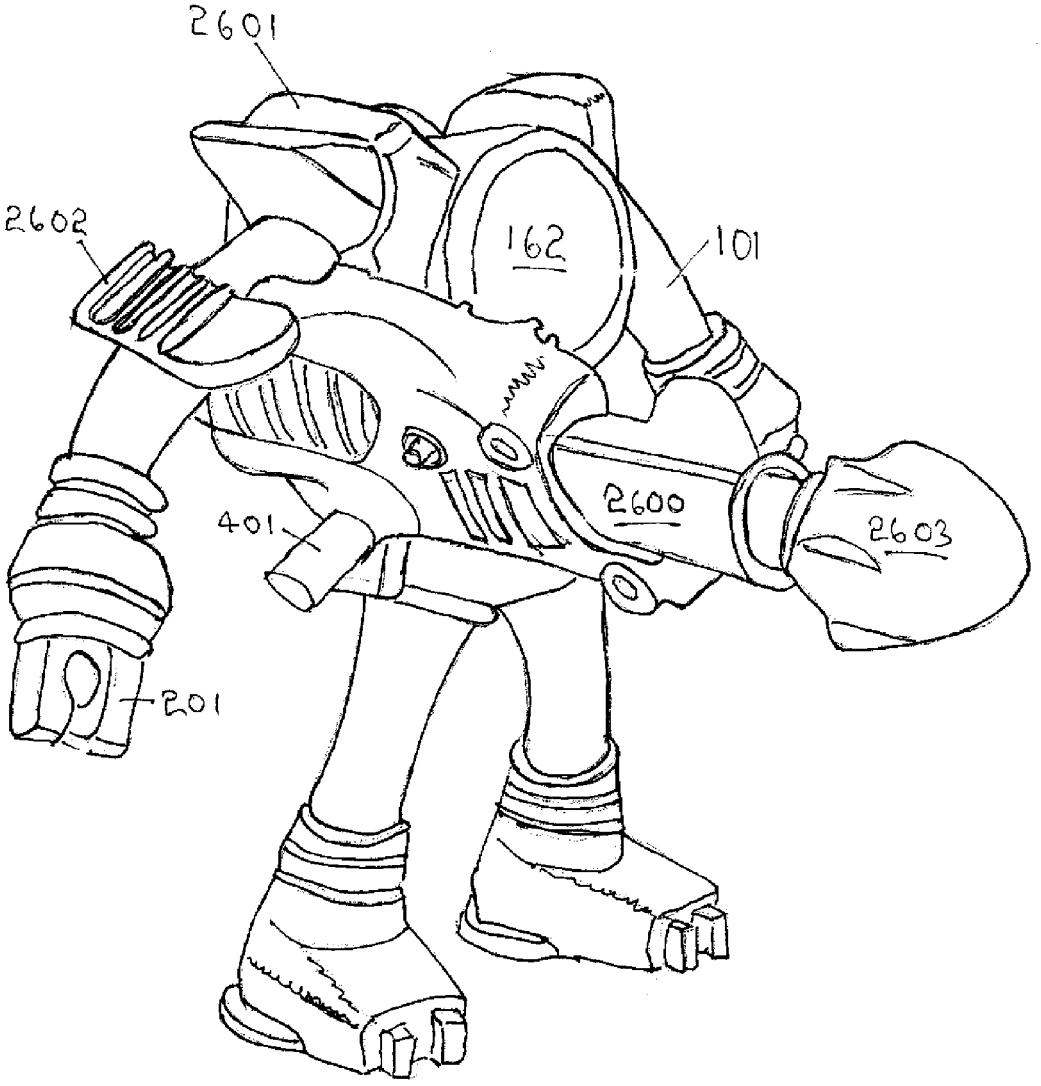

Fig 26

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EUROPEAN SEARCH REPORT

Application Number
EP 09 17 6129

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2006/217032 A1 (KUO WEN-CHUAN [TW]) 28 September 2006 (2006-09-28) * paragraph [0017] - paragraph [0020] * * figures *	1-10,13	INV. A63H3/00 A63H3/04 A63H29/18
X	US 2004/152395 A1 (PODD GEORGE [US] ET AL) 5 August 2004 (2004-08-05) * paragraph [0002] * * paragraph [0010] - paragraph [0011] * * paragraph [0014] * * figures *	1-4,6,7, 9,10,12, 13	ADD. A63H17/00
X	US 5 194 033 A (WRIGHT JOEL R [US]) 16 March 1993 (1993-03-16) * column 2, line 16 - column 3, line 10 * * figures *	1-4,6,7, 9,12,13	
X	US 6 174 216 B1 (CHIANESE STEPHEN [US]) 16 January 2001 (2001-01-16) * column 3, line 57 - column 6, line 34 * * figures *	1-7,9, 12,13	
A	US 5 947 785 A (BAUSCH LUC [US]) 7 September 1999 (1999-09-07) * the whole document *	1,14	
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TECHNICAL FIELDS SEARCHED (IPC)
A63H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	23 September 2010	Turmo, Robert

CATEGORY OF CITED DOCUMENTS

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23-09-2010

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