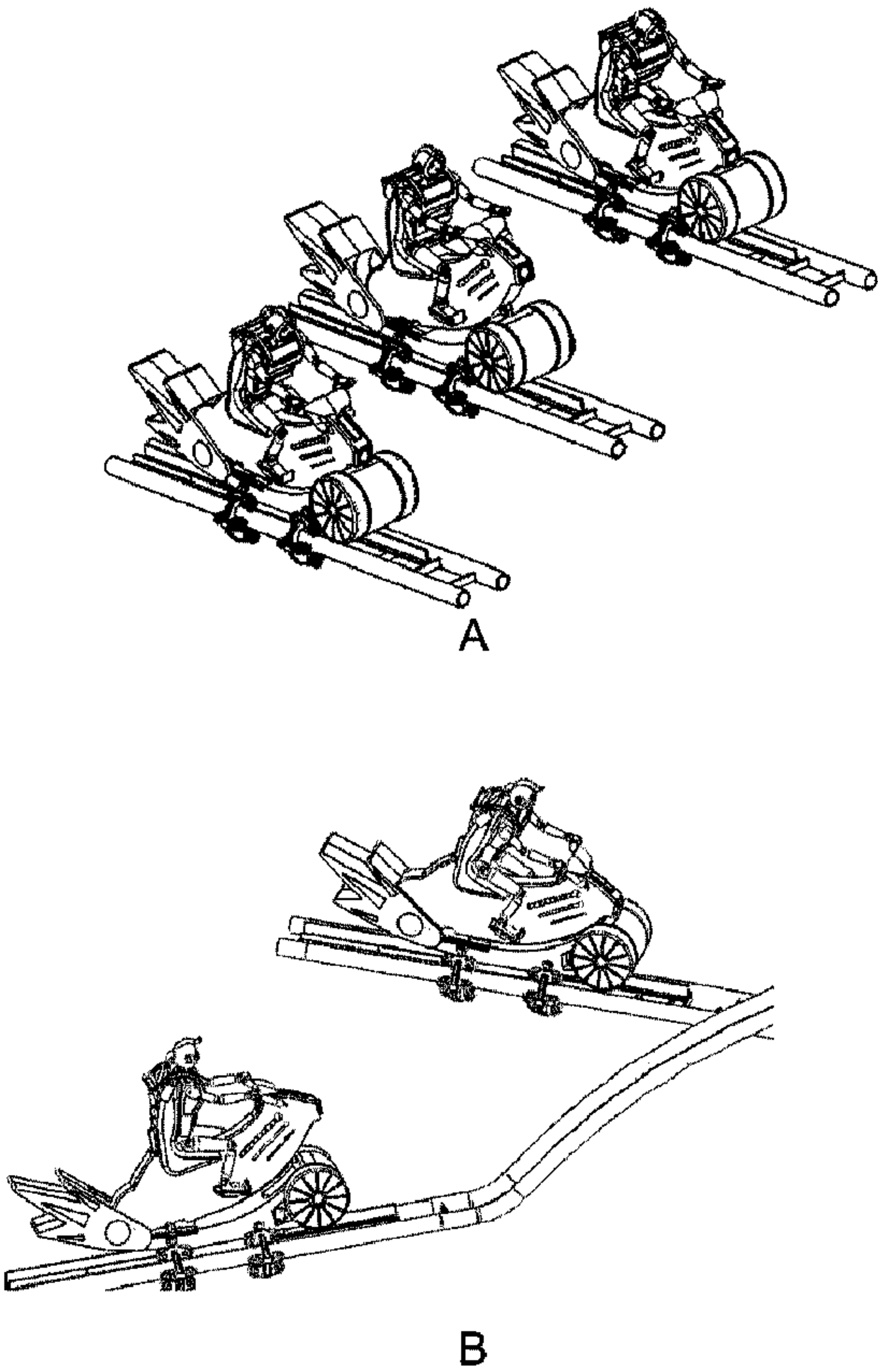




(22) Date de dépôt/Filing Date: 2018/01/17 (41) Mise à la disp. pub./Open to Public Insp.: 2018/09/25 (45) Date de délivrance/Issue Date: 2019/03/26	(51) Cl.Int./Int.Cl. A63G 7/00 (2006.01), A63G 31/02 (2006.01) (72) Inventeur/Inventor: KIANI, ALI, CA (73) Propriétaire/Owner: KIANI, ALI, CA (74) Agent: NA
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(54) **Titre :** MANEGE EQUIPE D'UNE MOTOCYCLETTE DE COURSE CONTROLABLE ET MOTOCYCLETTE DE COURSE POUR
SIMULER LA CONDUITE D'UNE MOTOCYCLETTE

(54) **Title:** AMUSEMENT RIDE WITH CONTROLLABLE AND RACER MOTORCYCLE TO SIMULATE MOTORCYCLE RIDING



(57) **Abrégé/Abstract:**
An amusement ride with controllable, and racer motorcycle enables a rider to partly control the speed of the motorcycle and changing the angle of the motorcycle in relation to the center axis of the route. Described ride to be used to simulate motorcycle

(57) **Abrégé(suite)/Abstract(continued):**

riding for the rider and includes one active hand gripper is rotated by rider for the purpose of activating propulsion system to partly accelerate the motorcycle, and also changing angle of the rider and moving unit of the motorcycle in relation to the center axis of the route.

ABSTRACT

An amusement ride with controllable, and racer motorcycle enables a rider to partly control the speed of the motorcycle and changing the angle of the motorcycle in relation to the center axis of the route. Described ride to be used to simulate motorcycle riding for the rider and includes one active hand gripper is rotated by rider for the purpose of activating propulsion system to partly accelerate the motorcycle, and also changing angle of the rider and moving unit of the motorcycle in relation to the center axis of the route.

AMUSEMENT RIDE WITH CONTROLLABLE AND RACER MOTORCYCLE TO SIMULATE MOTORCYCLE RIDING

1. FIELD OF THE INVENTION:

5 The invention relates to the field of amusement rides. More particularly, the invention to be used to simulate a motorcycle riding wherein enables at least one rider to control a speed along a route and changing an orientation in relation to a vertical line during a riding

2. BACKGROUND

10 Roller coasters have long been some of the well liked riders in amusement parks. Rider load and unload at a platform, typically at the low elevation. At the beginning of each ride cycle, a roller coaster vehicle is locked to be safe to upload riders. Vehicle is then released to gain kinetic energy from potential energy, if it is at the highest point of the track, or from
15 electrical motor installed on the vehicle or track. The roller coaster track typically includes various loops, turns, inversions and other configuration intended to thrill the rider. A number of amusement rides have been devised in which riders can apparently race each other in a simulated dragster format.

20 Traditional roller coasters travel along rail tracks and provide their riders with stationary seat which fix the motion of the riders to the direction of the travel of vehicle.

 The overall effect attained by traditional roller coasters is to statically couple riders to the vehicle and therefore sense essentially the same motions
25 in forces experienced by the vehicles in which they ride. This problem is experienced by most amusement rides, which due to static nature of the ride provides the same ride sensation and experience every time it is ridden.

Nowadays amusement rides have evolved from simple equipment to advanced and technically sophisticated equipment with special mechanisms and various movements. Thanks to virtual reality and by using new technology, new designs and software, riders experience more joy and excitement of amusement rides.

DESCRIPTION:

Described amusement ride simulating a motorcycle riding wherein enables at least one rider to control a speed along a route and changing an orientation in relation to a vertical line during a riding

SUMMARY OF THE INVENTION:

Therefore, the object of the present invention is to provide an amusement ride simulating a motorcycle riding wherein enables at least one rider to control a speed along a route and changing an orientation in relation to a vertical line during a riding, comprising:

a track including at least one supporting column, at least one set of running rails having an embark point, and a drive blade fixed at a middle of said at least one set of running rails and extended longitudinally through said at least one set of running rails; said at least one supporting column having a bottom section and a top section, said bottom section of said at least one supporting column adapted to be mounted on a ground, and said top section of said supporting column connected to said at least one set of running rails to support said amusement ride;

at least one vehicle arranged to carry said at least one rider along said at least one set of running rails, said at least one vehicle mounted and guided on said at least one set of running rails, said at least one vehicle comprises a main body having a rear end, a front end, and a bottom section;

a link-slide mechanism mounted on said main body of the vehicle, said link-slide mechanism comprises at least one drive means mounted on said front

end of the main body generating required power to move link-slide mechanism, at least one crank arm having a front end and a rear end, said front end of the crank arm is engaged to said drive means, a moving body having a front section, a rear section, a top section, and a bottom section, said
 5 front section of the moving body is pivotally connected to said rear end of the crank arm, and a slide means mounted on the rear end of the main body, Said rear section of the moving body is pivotally connected to the slide means, said link-slide mechanism enabling said at least one rider to tilt the moving body up and down.

10 at least one friction drive means generating required power changing a speed of said at least one vehicle along said at least one set of running rails, said at least one friction drive means mounted to said bottom section of the main body and engaging said drive blade;

at least one motorcycle rotary hand grip enabling said at least one rider
 15 rotating said at least one motorcycle rotary hand grip for activating said at least one drive means and changing the orientation in relation to the vertical line; said at least one motorcycle rotary hand grip enabling said at least one rider activating said at least one friction drive means and accelerating said at least one vehicle along said at least one set of running rails;

20 at least one vehicle park mechanism installed on a ground to maintain said at least one vehicle at a park position while said at least one vehicle is loaded;

at least one launch system accelerating/decelerating said at least one vehicle;
 and,

at least one set of bus bar mounted between said at least one set of running
 25 rails and said at least one vehicle; said at least one set of bus bar transferring electrical power to said at least one vehicle.

The at least one vehicle moves along said at least one set of running rails which is configured with one or more of groups consisting of turns, loop, and inversion.

30 The at least one vehicle further comprises at least two sets of bogies mounting and guiding the main body on said at least one set of running rails.

The at least one vehicle further comprises a shock absorbing means damping a kinetic energy of the moving body when the moving body is tilted down and reaches to the shock absorbing means.

5 The shock absorbing means includes at least one shock absorber mounted to the main body, the shock absorber engaging the moving body when the moving body is tilted fully down.

The moving body further comprises a seat for sitting said at least one rider, the seat mounted to said top section of the moving body, at least one restraint to maintain said at least one rider safely, said at least one restraint mounted to
10 said rear section of the moving body, two footrests laterally installed at said bottom section of the moving body, said two footrests maintaining the rider's feet, a speaker playing engine sound, two handlebars mounted to said front section of the moving body, and said at least one motorcycle rotary hand grip installed on each one of said two handlebars.

15 The slide means enabling the rear section of the moving body sliding longitudinally on the main body when moving body is tilted.

The slide means comprises at least one rail fixed longitudinally at said rear end of the main body, and at least one slider, said at least one slider having a top section, and a bottom section, said top section of said at least one slider is
20 pivotally connected to said rear section of the moving body, and said bottom section of said at least one slider slidably connected to said at least one rail.

The at least one motorcycle rotary hand grip comprises an encoder measuring a rotation angle of said at least one motorcycle rotary hand grip, a spring returning said at least one motorcycle rotary hand grip to a start point wherein
25 said at least one rider releases said at least one motorcycle rotary hand grip.

The at least one drive means comprises at least one motor gearbox mounted at said front end of the main body.

The at least one motorcycle rotary hand grip is sending a signal to said at least one drive means for activating said at least one motor gearbox, said at least one motor gearbox rotates said at least one crank arm for tilting up/down the moving body while the moving body travels forward/backward.

- 5 The friction drive means further comprises at least one set of motor gearbox and roller mounted to said bottom section of the main body and adapted to engage an outer surface of said drive blade.

The at least one motorcycle rotary hand grip sending a signal to said at least one friction drive means for activating said at least one set of motor gearbox
10 and roller, said at least one set of motor gearbox and roller is accelerating said at least one vehicle along said at least one set of running rails.

The friction drive means further comprises a freewheel clutch disengaging said at least one friction drive means while said at least one launch system accelerating said at least one vehicle.

- 15 Furthermore, The one drive means can be configured so that a linear actuator is mounted to the main body and adapted to engage said link-slide mechanism.

20 **BRIEF DESCRIPTION OF DRAWINGS:**

Other features and advantages of described invention will become apparent in the following detailed description of preferred embodiments with reference to the appended drawings, of which:

- Figure 1A** is a perspective view of described amusement ride, and shows the
25 ride wherein the drive means is not activated.

Figure 1B is a perspective view of described amusement ride, and shows the ride wherein the drive means is activated.

Figure 2A is a perspective view of described amusement ride showing three racing vehicle.

- 5 **Figure 2B** is a perspective view of described amusement ride showing two racing vehicle.

Figure 3A is a side view of described amusement ride, and shows the ride wherein the drive means is not activated.

- 10 **Figure 3B** is a side view of described amusement ride, and shows the ride wherein the drive means is activated.

Figure 4A is a top view of described amusement ride, and shows two set of bogies at a rear end and a front end of the vehicle.

Figure 4B is a front view of described amusement ride, and shows track and location of the bus bars, the lunch system, drive blade, and bogies.

- 15 **Figure 5A** is a side view of described amusement ride, and shows location of the shock absorbers and sliders.

Figure 5B is a perspective view of described amusement ride, and shows location of the shock absorbers and sliders.

- 20 **Figure 6A** is a perspective section view of described amusement ride, and shows connection between the drive means and the moving unit.

Figure 6B is a side view of described amusement ride, and shows the drive means and moving unit.

Figure 7A is a perspective section view of described amusement ride, and shows the two sets of motor gearbox of the drive means.

- 25 **Figure 7B** is a perspective view of described amusement ride, and shows the friction drive means.

Figure 8A is a perspective view of described amusement ride, and shows the handlebars and motorcycle rotary hand gripe.

Figure 8B is an exploded perspective view of described amusement ride, and shows components of the motorcycle rotary hand gripes.

- 5 **Figure 9** is a perspective view of described amusement ride, and shows another aspect of the invention using a linear actuator and pivoted moving body.

DETAILED DESCRIPTION OF EMBODIMENT

- 10 The description which follows and the embodiments described therein are provided by way of illustration of an example of particular embodiment of principles of present invention. This example is provided for the purposes of explanation and not limitation of those principles and of the invention.

Referring to Figures 1 to 9, the preferred embodiment of an amusement ride, according to present invention is shown to comprise:

- 15 The track, the vehicle, the moving unit, the drive means, the launch system, the friction drive means, and the bus bars.

The track 290 includes at least two running rails are preferably configured with one or more of group consisting of turns, loops and inversion. (See figure 3A);

- 20 The vehicle arranged to carry at least one rider on a respective running rails includes the main body 240 having a rear end, a front end, a bottom section, and a top section, at least two sets of bogies 120, 140 installed at a rear end and a front end of said bottom section of the main body for the purpose of mounting and guiding the vehicle on the respective running rail 290, each set
25 of bogie including at least two bogies installed laterally at both side of the main body of the main body 240 of the vehicle. (See figures 3A, 4A, and 4B)

The moving unit includes moving body 220 installed on the top section of said main body of the vehicle, said moving body 220 moves forward/backward while it is tilted up/down, said moving body having a top section, a bottom section, a front section, and a rear section, at least one seat
 5 250 installed at said top section of the moving body 220 for siting the rider, at least one restrain 260 installed at a rear of said top section of the moving body maintaining the rider safely during the riding, two footrests 270, 271 laterally installed at said bottom section of the moving part 220 maintaining the rider's feet during the riding, at least one speaker 230 installed on the moving body
 10 220 playing proper sound of engine during the riding, two handlebars 720 mounted to said front section of the moving body 220, a motorcycle rotary hand gripe 730 installed on the handlebars and enabling the rider to rotate motorcycle rotary hand gripe 730 to send a signal to said at least one speaker 230, also accelerating the vehicle, and tilting moving unit. (See figures 3A, 6B,
 15 and 8A)

The moving unit further comprises a main shaft 512 pivotally connected to the front end of the main body 240 of the vehicle, at least one crank arm 510 having rear end and a front end, said rear end of the crank arm 510 fixed on the main shaft 512, said front end of the crank arm 510 pivotally connected
 20 to a front of said bottom section of the moving body 220 of the moving unit.

The drive means comprises at least one motor gearbox 516 fixed at the front end of said main body 240 of the vehicle, said motor gearbox 516 coupled to the main shaft 512 of the moving unit and generating required torque to move and tilting the moving body 220.

25 The moving unit further comprises a slide means, said slide means includes at least one linear rail 440 longitudinally fixed at the rear end of the main body 240 of the vehicle, at least one slider 430 having a bottom and a top, said bottom of the slider 430 slidably connected to said at least one linear rail 440, said top of the slider 430 pivotally connected to a rear of the bottom
 30 section of the moving body 220 of the moving unit.

The vehicle further comprises an absorbing means, said absorbing means comprises at least one shock absorber 420 longitudinally fixed at the rear end of the main body 240 of the vehicle damping kinetic energy of the moving unit when retracts and reaches a limit point. (See figures 5A, 6A, 6B, and 7A)

The launch system includes at least one linear motor 314 installed at said bottom of the main body 240 of the vehicle, and a at least one linear stator 312 installed on the respective running rail, The launch system accelerating and launching the vehicle. (See figure 4B)

The friction drive means includes at least one set motor gearbox and roller 610, 620 installed at said bottom section of said main body 240 of the vehicle, said motor gear box 610 having an output shaft, a freewheel clutch 612 having an outer ring and an inner ring, said inner ring of the free wheel clutch 612 fixed on said output shaft of a motor gearbox 610, a driver roller 620 whose center fixed on said outer ring of said freewheel clutch and having outside surface tangentially engaging the drive blade 102 of the respective running rails 290, and a roller 630 whose center is rotatably connected to said bottom section of said main body 240 of the vehicle and having outside surface tangentially engaging the drive blade 102 of the respective running rails 290; the motorcycle rotary hand gripe 730 enabling the rider sending a command to the friction drive means and accelerating the vehicle, the position of the motor gearbox and roller are adjustable. (See figures 6A, and 7B)

The vehicle park mechanism installed on a ground for maintaining said vehicle in the park position while it is loaded.

The bus bar 310 includes moving parts installed on said bottom section of said main body of the vehicle, and stators installed on the respective running rails for the purpose of transferring electrical power to the vehicle. (See figure 4B)

Another aspect of described amusement ride

Another aspect and advantages of described invention will become apparent in the following description.

5 The described amusement ride can be configured so that a linear actuator tilts moving unit. Figure 9 shows an example of embodiment of using linear actuator 820 for the purpose of tilting moving unit. In this case a middle of the bottom section of the moving body 220 of moving unit pivotally connected to the main body 240 of the vehicle by the means of one set pillow block bearing 840, and said front end of the moving body 220 pivotally connected to a front
10 end of the linear actuator 820; the middle section of the linear actuator 820 pivotally connected to the main body 240 of the vehicle, said linear actuator tilting main body 220 up and down while linear actuator is retracted and extended.

While the present invention has been described in connection with what is
15 considered the most practical and preferred embodiment, it is understood that this invention is not limited to the disclosed embodiment but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangement.

20

WHAT IS CLAIMED IS:

1. An amusement ride, comprising:

a track including at least one supporting column, at least one set of running rails having an embark point, and a drive blade fixed at a middle of said at

5 least one set of running rails and extended longitudinally through said at least one set of running rails; said at least one supporting column having a bottom section and a top section, said bottom section of said at least one supporting column adapted to be mounted on a ground, and said top section of said supporting column connected to said at least one set of running rails to

10 support said amusement ride;

at least one vehicle arranged to carry said at least one rider along said at least one set of running rails, said at least one vehicle mounted and guided on said at least one set of running rails, said at least one vehicle comprises a main body having a rear end, a front end, and a bottom section;

15 a link-slide mechanism mounted on said main body of the vehicle, said link-slide mechanism comprises at least one drive means mounted on said front end of the main body generating required power to move link-slide mechanism, at least one crank arm having a front end and a rear end, said front end of the crank arm is engaged to said drive means, a moving body

20 having a front section, a rear section, a top section, and a bottom section, said front section of the moving body is pivotally connected to said rear end of the crank arm, and a slide means mounted on the rear end of the main body, Said rear section of the moving body is pivotally connected to the slide means, said link-slide mechanism enabling said at least one rider to tilt the moving body up

25 and down.

at least one friction drive means generating required power changing a speed of said at least one vehicle along said at least one set of running rails, said at least one friction drive means mounted to said bottom section of the main body and engaging said drive blade;

- at least one motorcycle rotary hand grip enabling said at least one rider rotating said at least one motorcycle rotary hand grip for activating said at least one drive means and changing the orientation in relation to the vertical line; said at least one motorcycle rotary hand grip enabling said at least one rider activating said at least one friction drive means and accelerating said at least one vehicle along said at least one set of running rails;
- at least one vehicle park mechanism installed on a ground to maintain said at least one vehicle at a park position while said at least one vehicle is loaded;
- at least one launch system accelerating/decelerating said at least one vehicle;
- and,
- at least one set of bus bar mounted between said at least one set of running rails and said at least one vehicle; said at least one set of bus bar transferring electrical power to said at least one vehicle.
2. The amusement ride of claim1 wherein said at least one vehicle moves along said at least one set of running rails which is configured with one or more of groups consisting of turns, loop, and inversion.
 3. The amusement ride of claim1 wherein said at least one vehicle further comprises at least two sets of bogies mounting and guiding the main body on said at least one set of running rails.
 4. The amusement ride of claim1 wherein said at least one vehicle further comprises a shock absorbing means damping a kinetic energy of the moving body when the moving body is tilted down and reaches to the shock absorbing means.
 5. The amusement ride of claim4 wherein said shock absorbing means includes at least one shock absorber mounted to the main body, the shock absorber engaging the moving body when the moving body is tilted fully down.
 6. The amusement ride of claim1 wherein said moving body further comprises a seat for sitting said at least one rider, the seat mounted to said

top section of the moving body, at least one restraint to maintain said at least one rider safely, said at least one restraint mounted to said rear section of the moving body, two footrests laterally installed at said bottom section of the moving body, said two footrests maintaining the rider's feet, a speaker playing
 5 engine sound, two handlebars mounted to said front section of the moving body, and said at least one motorcycle rotary hand grip installed on each one of said two handlebars.

7. The amusement ride of claim 1 wherein said slide means enabling the rear section of the moving body sliding longitudinally on the main body when
 10 moving body is tilted.

8. The amusement ride of claim 7 wherein said slide means comprises at least one rail fixed longitudinally at said rear end of the main body, and at least one slider, said at least one slider having a top section, and a bottom section, said top section of said at least one slider is pivotally connected to said rear
 15 section of the moving body, and said bottom section of said at least one slider slidably connected to said at least one rail.

9. The amusement ride of claim 1, wherein said at least one motorcycle rotary hand grip comprises an encoder measuring a rotation angle of said at least one motorcycle rotary hand grip, a spring returning said at least one
 20 motorcycle rotary hand grip to a start point wherein said at least one rider releases said at least one motorcycle rotary hand grip.

10. The amusement ride of claim 1 wherein said at least one drive means comprises at least one motor gearbox mounted at said front end of the main body.

25 11. The amusement ride of any one of claims 1 to 10 wherein said at least one motorcycle rotary hand grip is sending a signal to said at least one drive means for activating said at least one motor gearbox, said at least one motor

gearbox rotates said at least one crank arm for tilting up/down the moving body while the moving body travels forward/backward.

12. The amusement ride of claim 1 wherein the friction drive means further comprises at least one set of motor gearbox and roller mounted to said bottom
5 section of the main body and adapted to engage an outer surface of said drive blade.

13. The amusement ride of any one of claims 1 to 12 wherein said at least one motorcycle rotary hand grip sending a signal to said at least one friction drive means for activating said at least one set of motor gearbox and roller,
10 said at least one set of motor gearbox and roller is accelerating said at least one vehicle along said at least one set of running rails.

14. The amusement ride of claim 1 wherein the friction drive means further comprises a freewheel clutch disengaging said at least one friction drive means while said at least one launch system accelerating said at least one
15 vehicle.

15. The amusement ride of claim 1 wherein said at least one drive means can be configured so that a linear actuator is mounted to the main body and adapted to engage said link-slide mechanism.

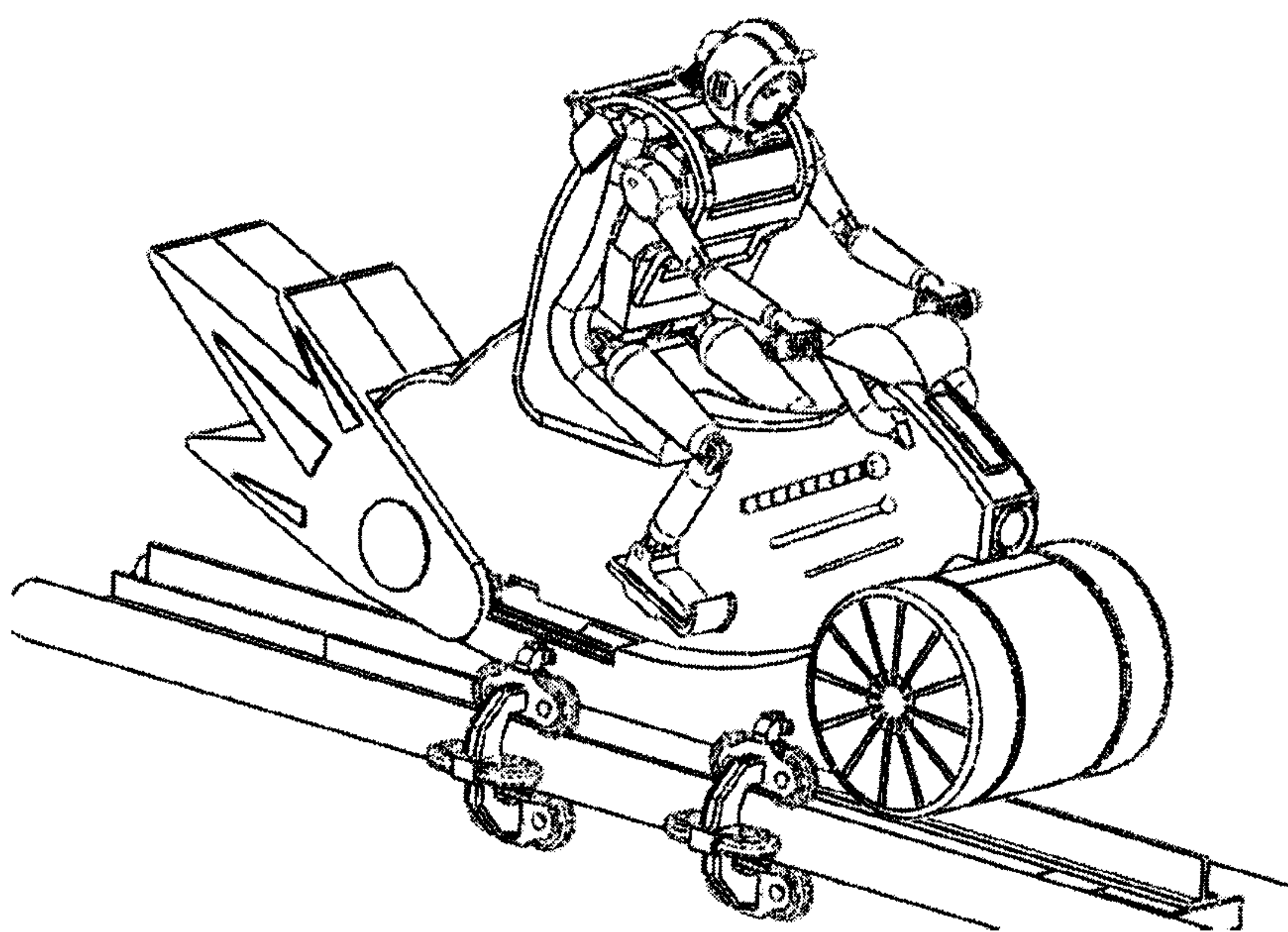


Figure 1A

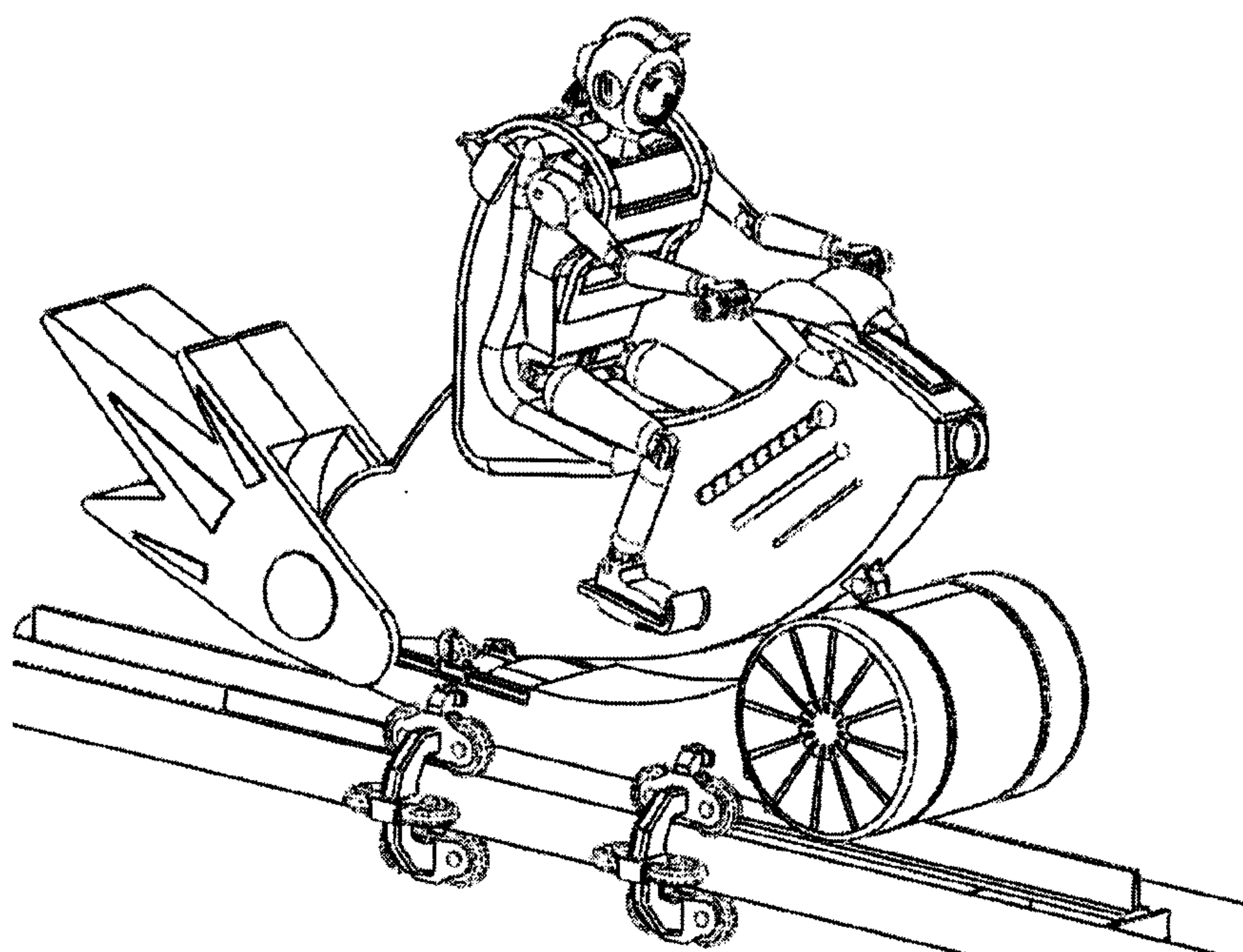


Figure 1B

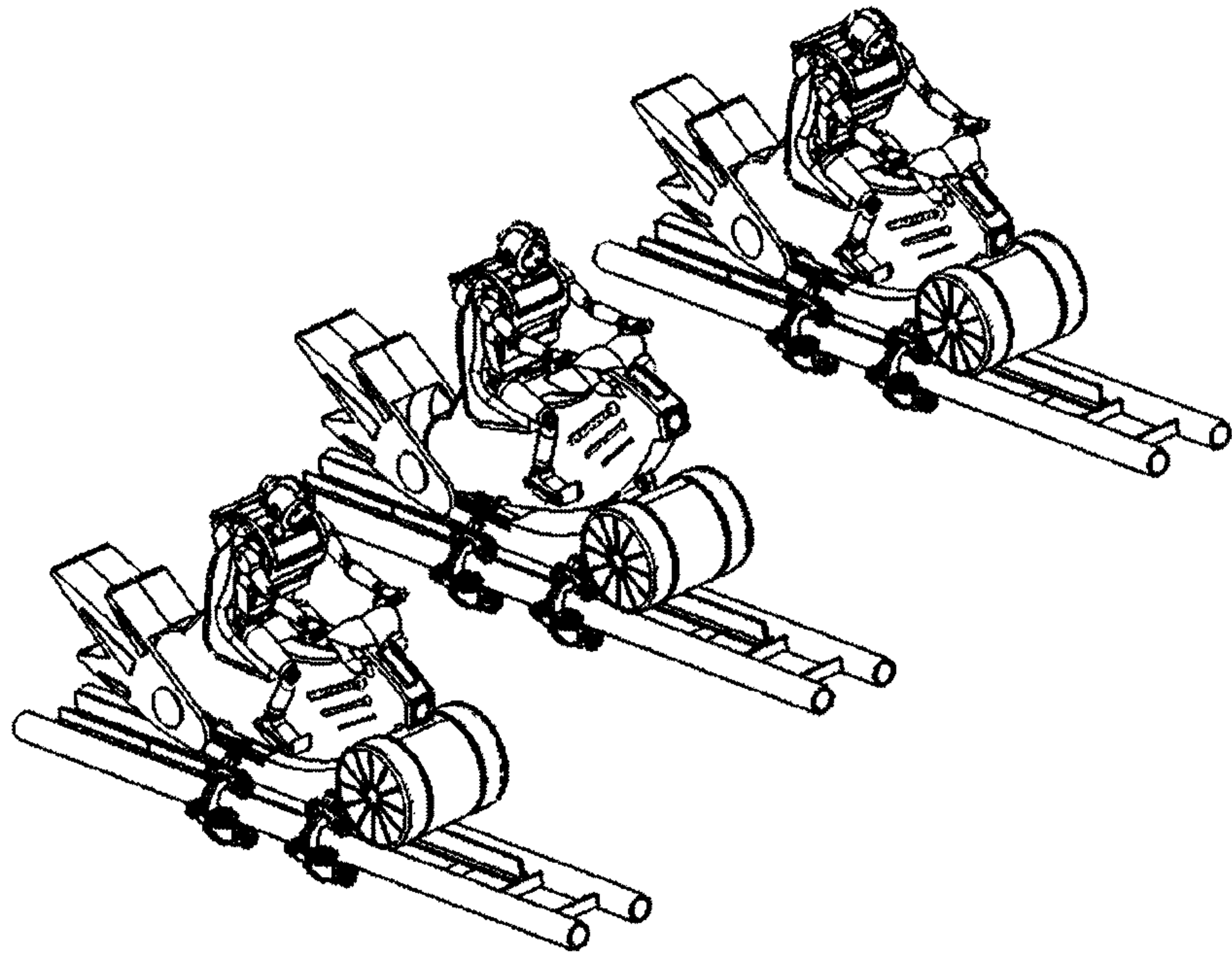


Figure 2A

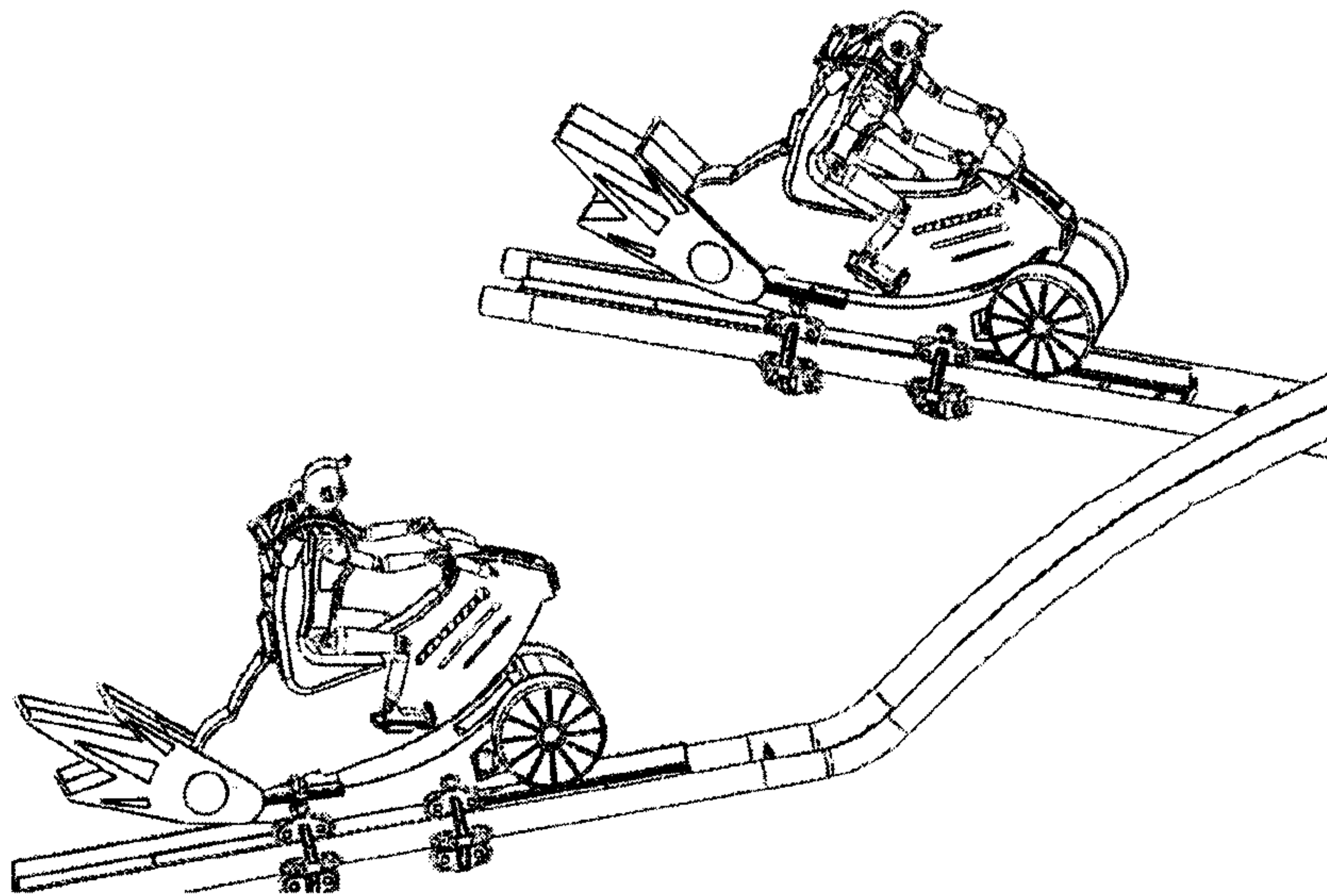


Figure 2B

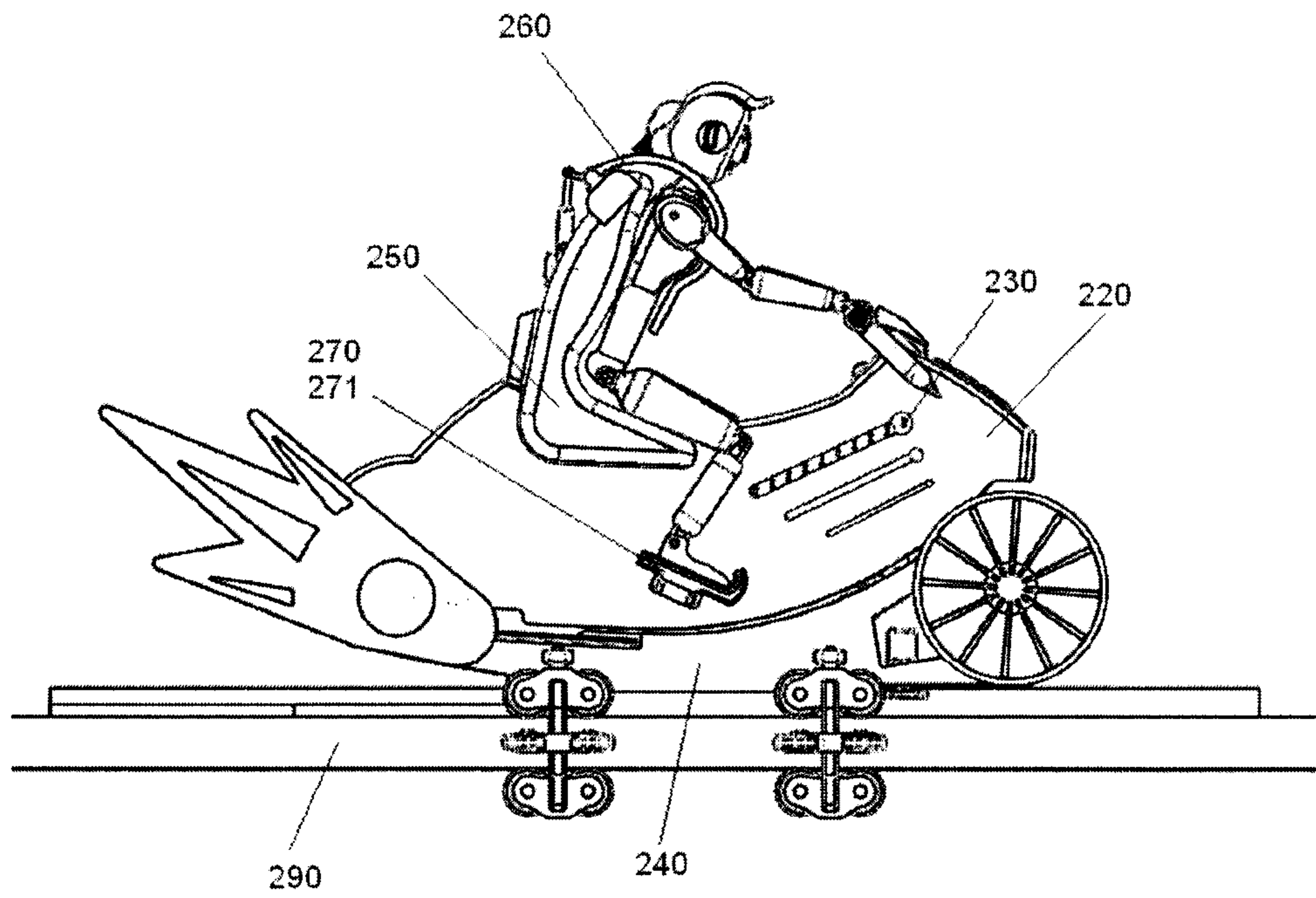


Figure 3A

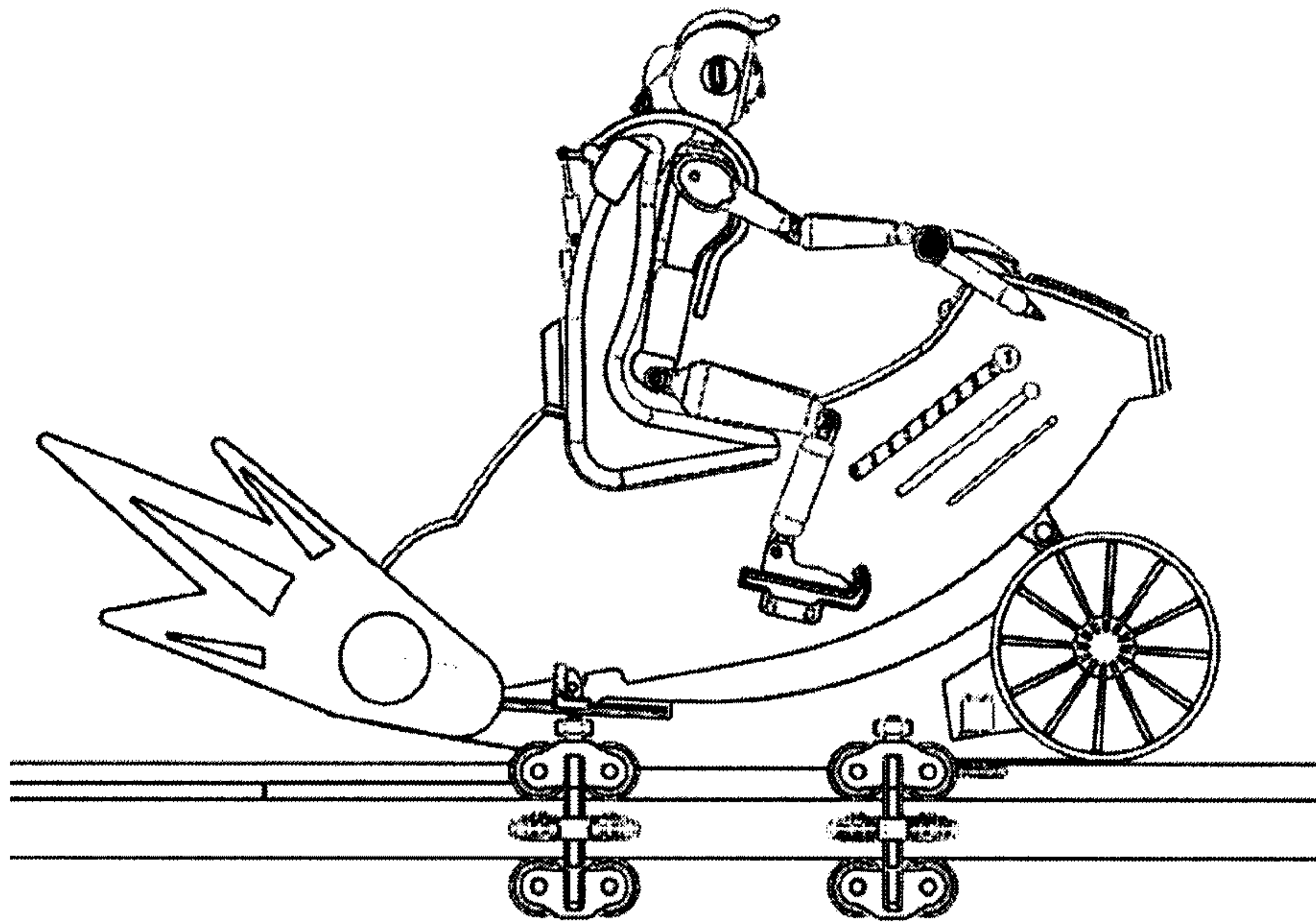


Figure 3B

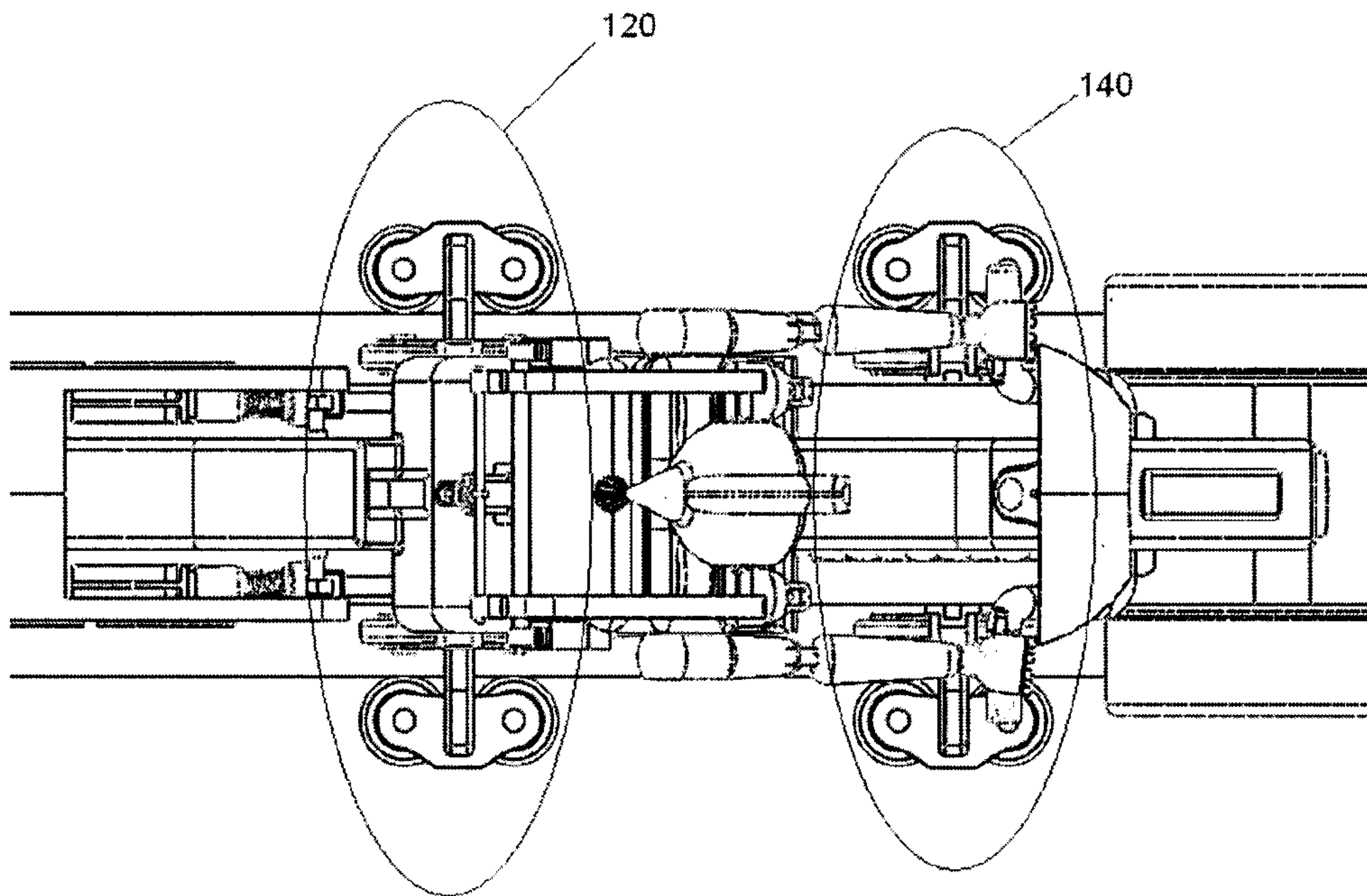


Figure 4A

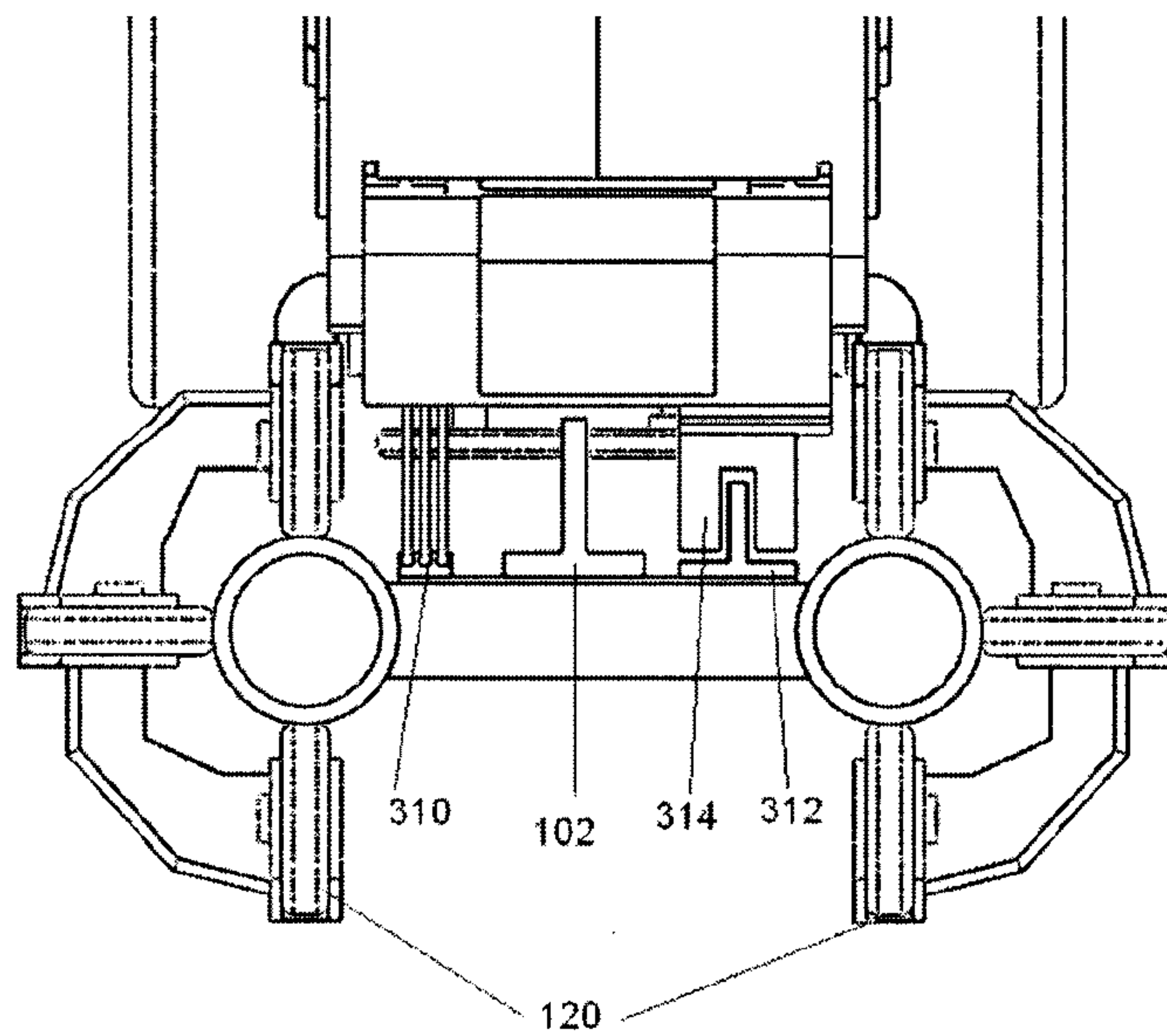


Figure 4B

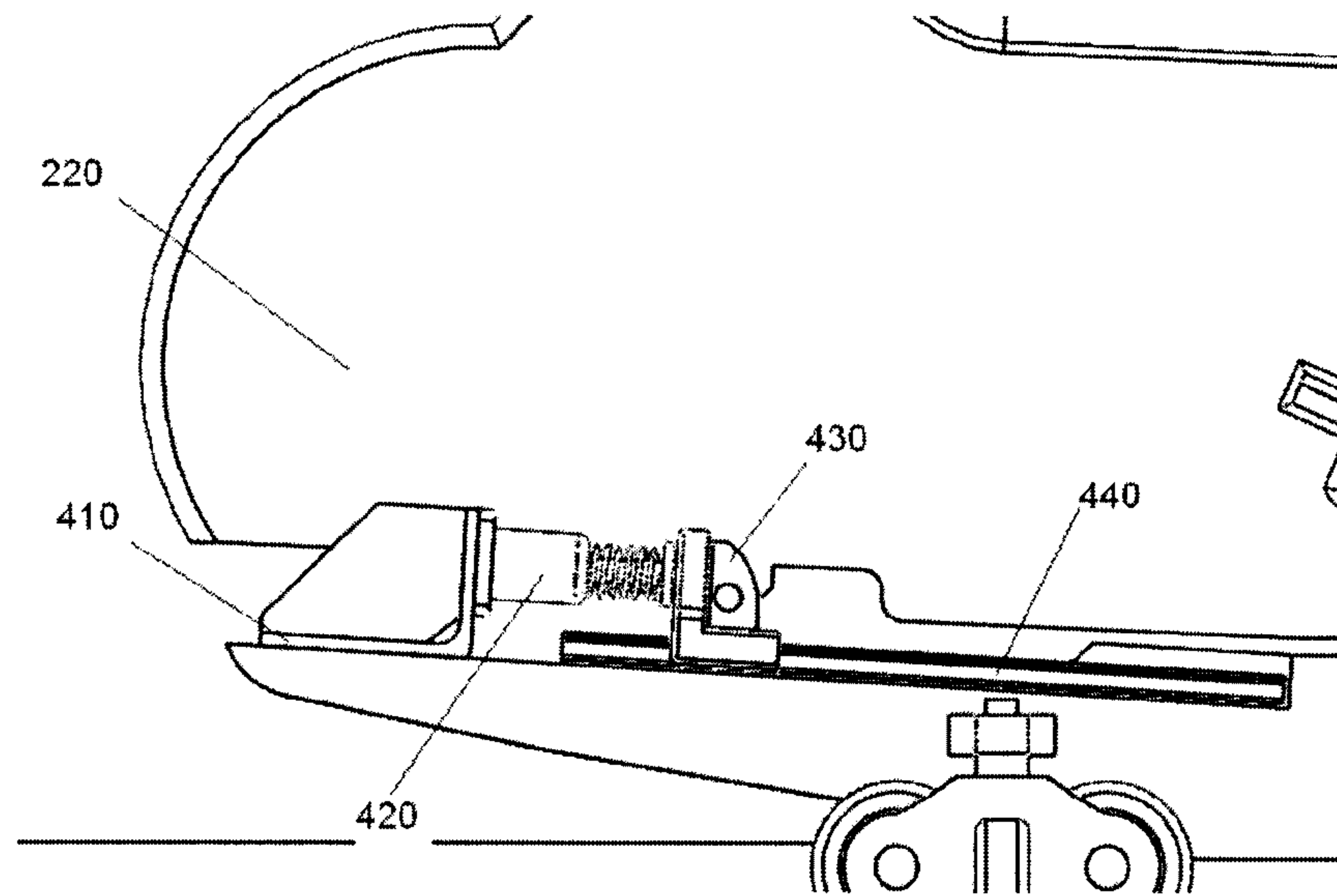


Figure 5A

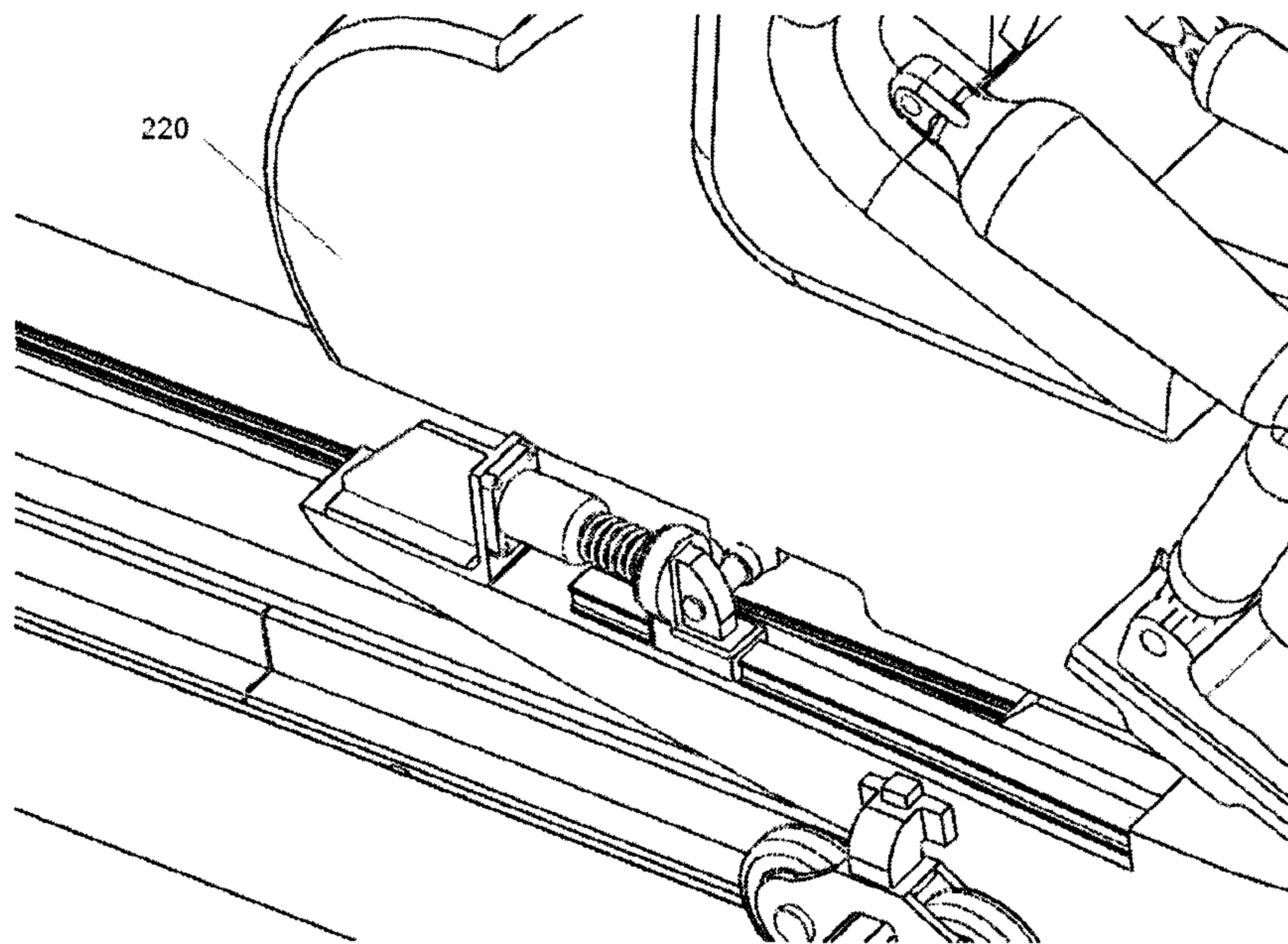


Figure 5B

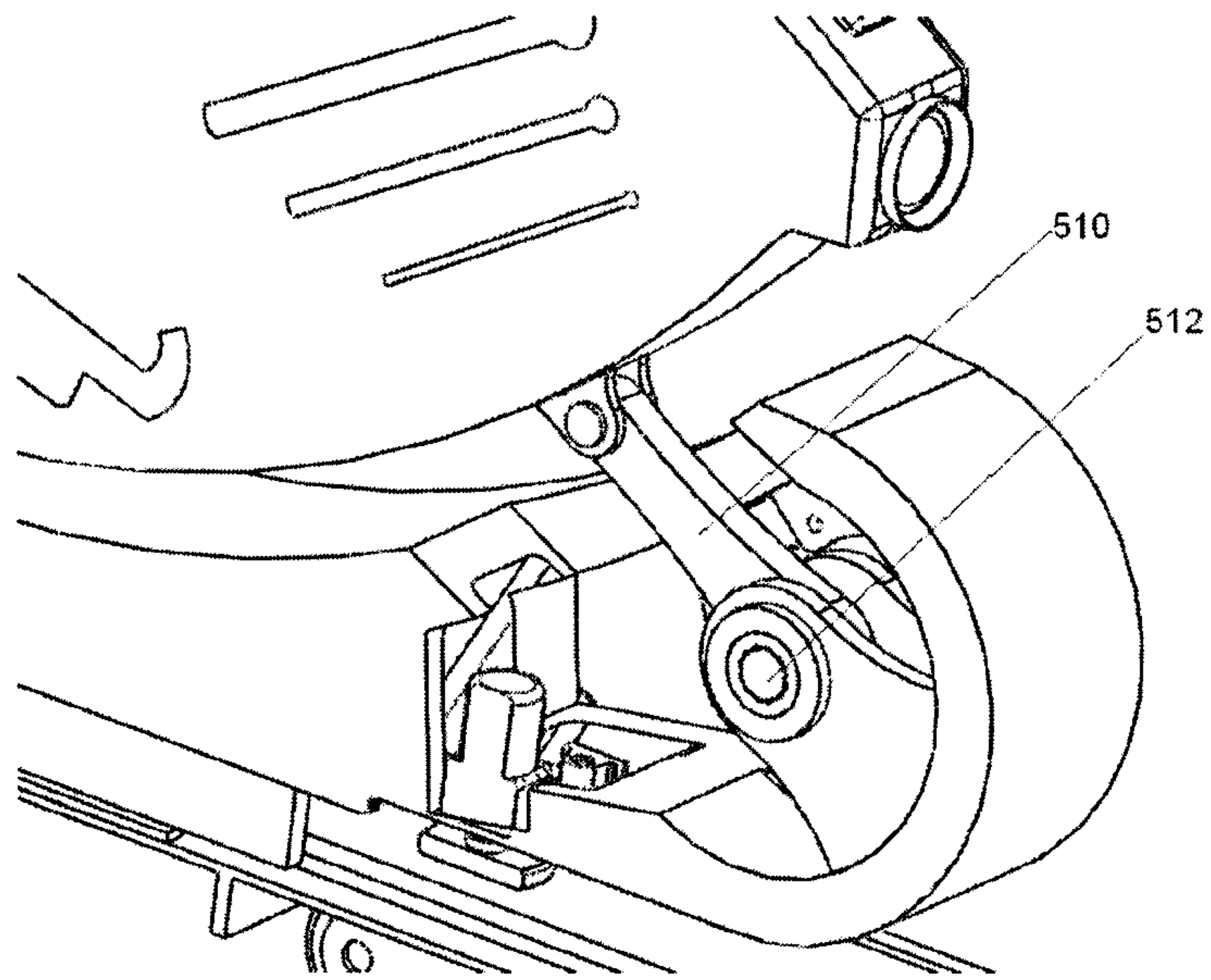


Figure 6A

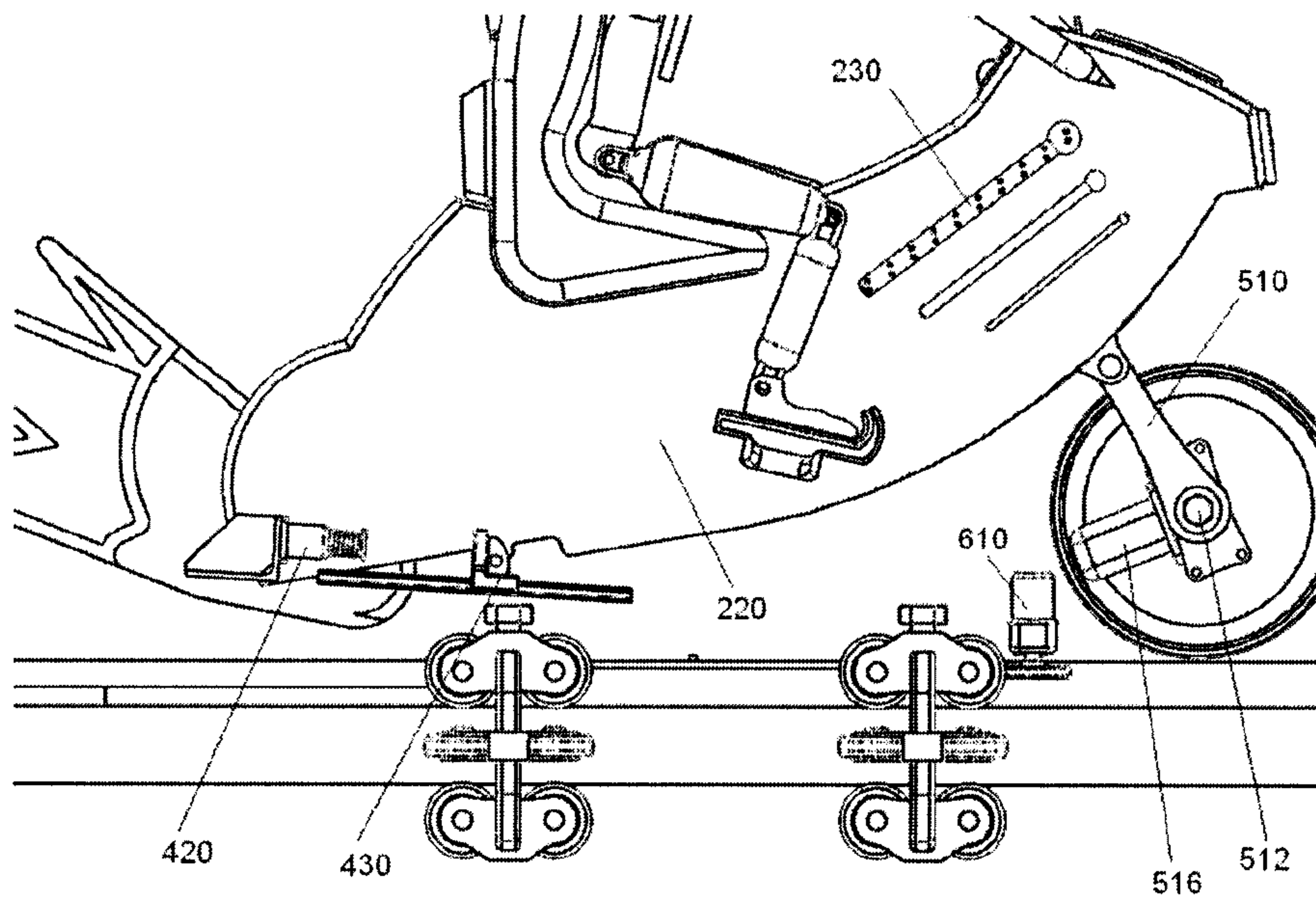


Figure 6B

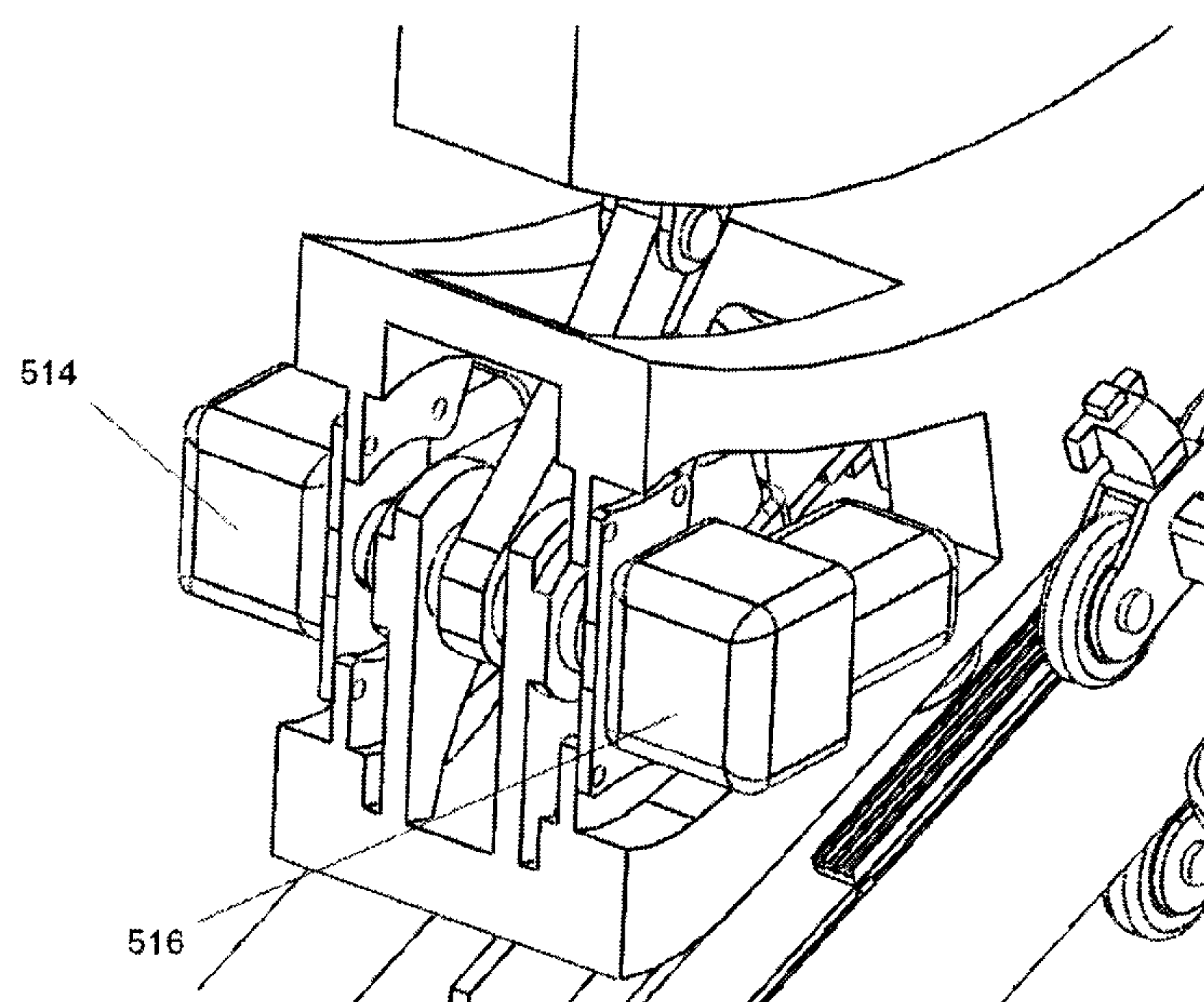


Figure 7A

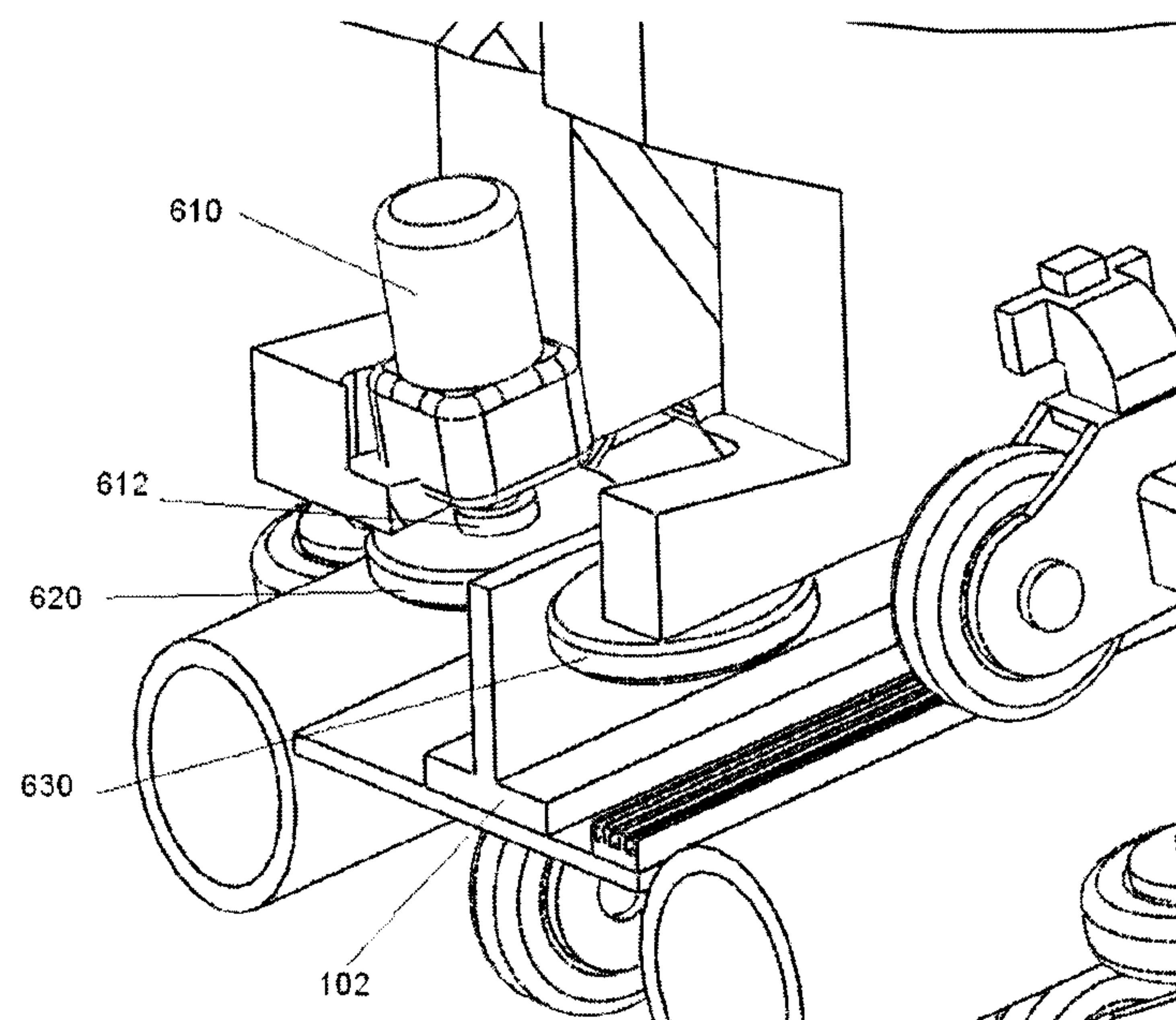


Figure 7B

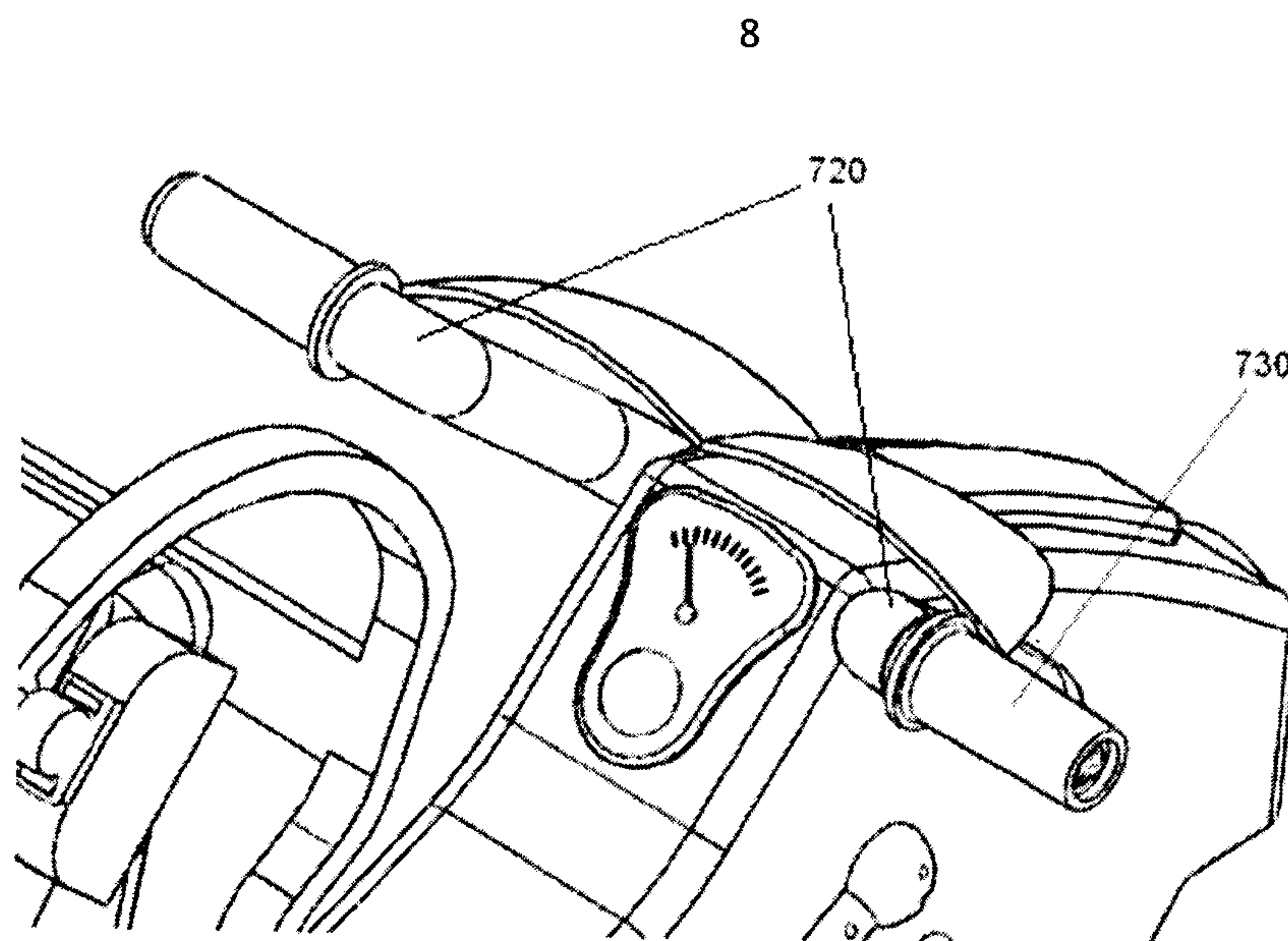


Figure 8A

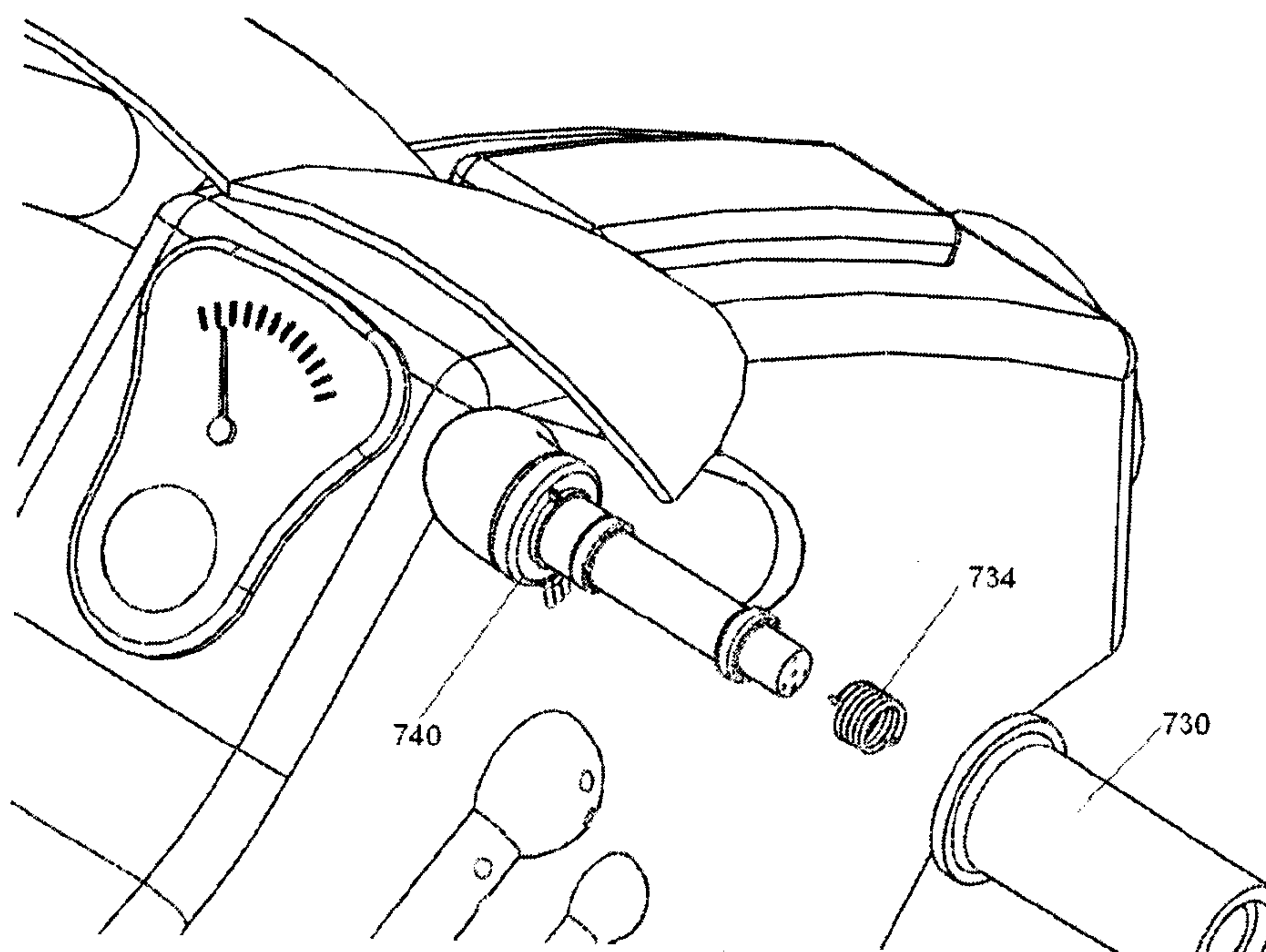


Figure 8B

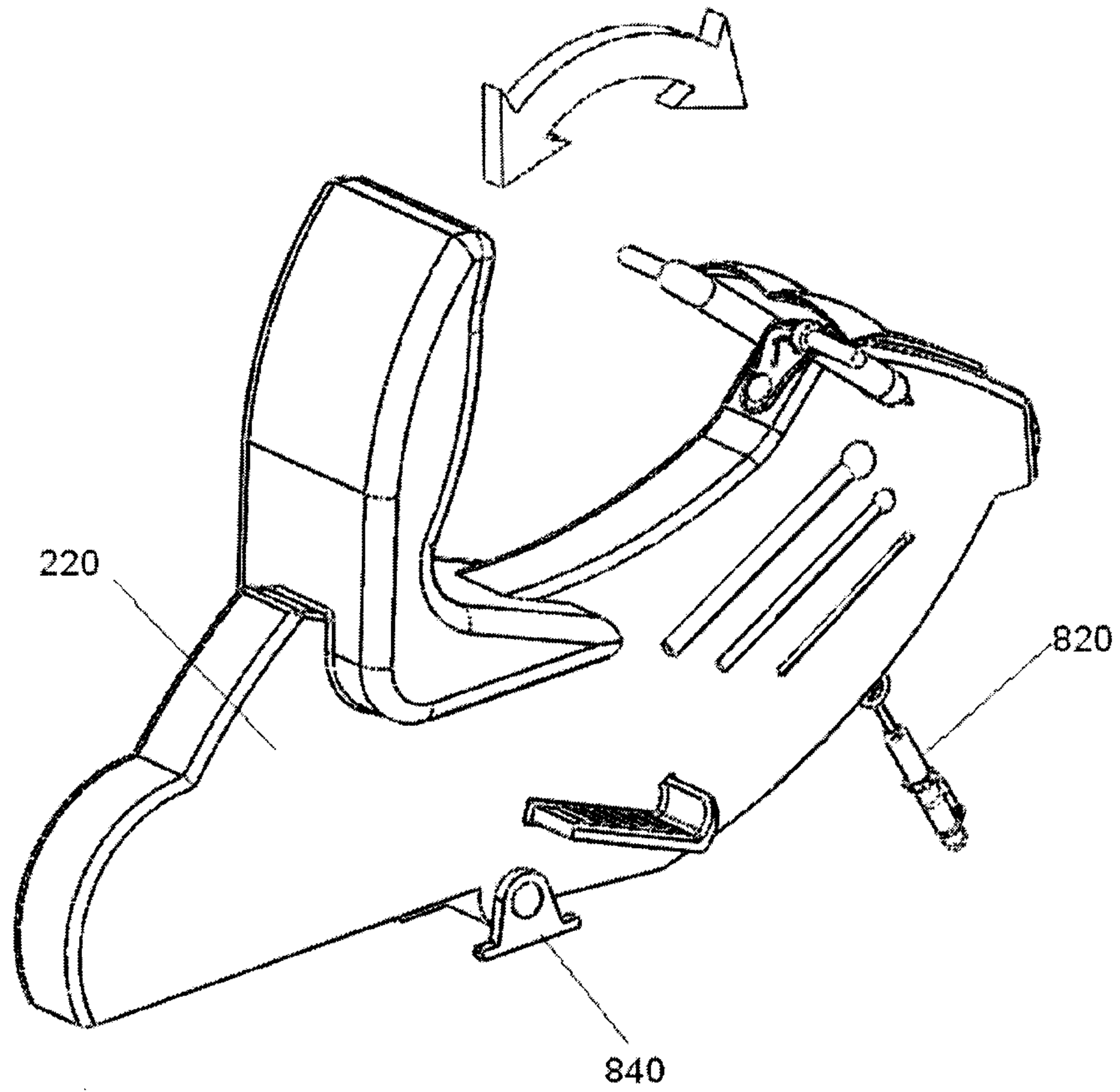
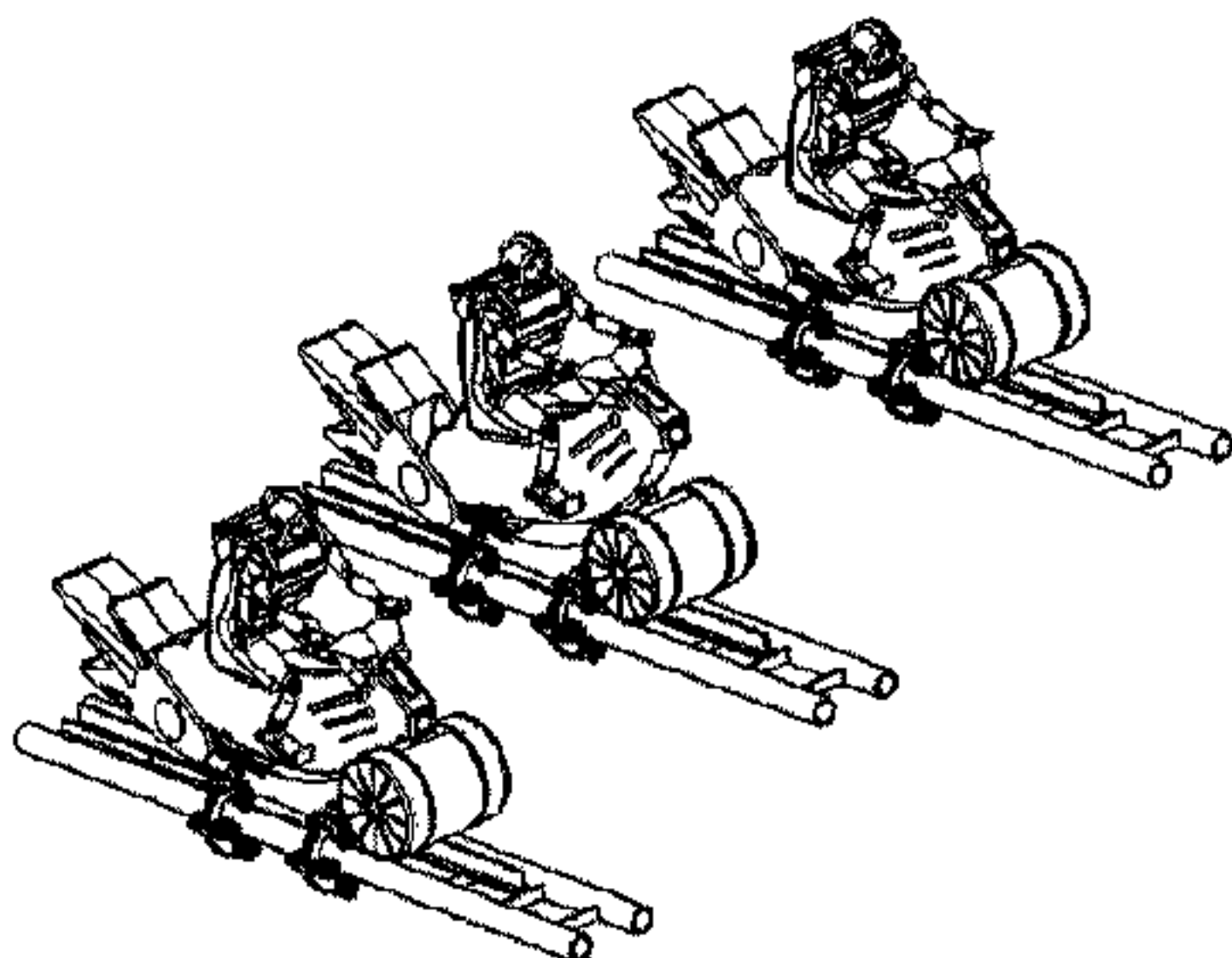
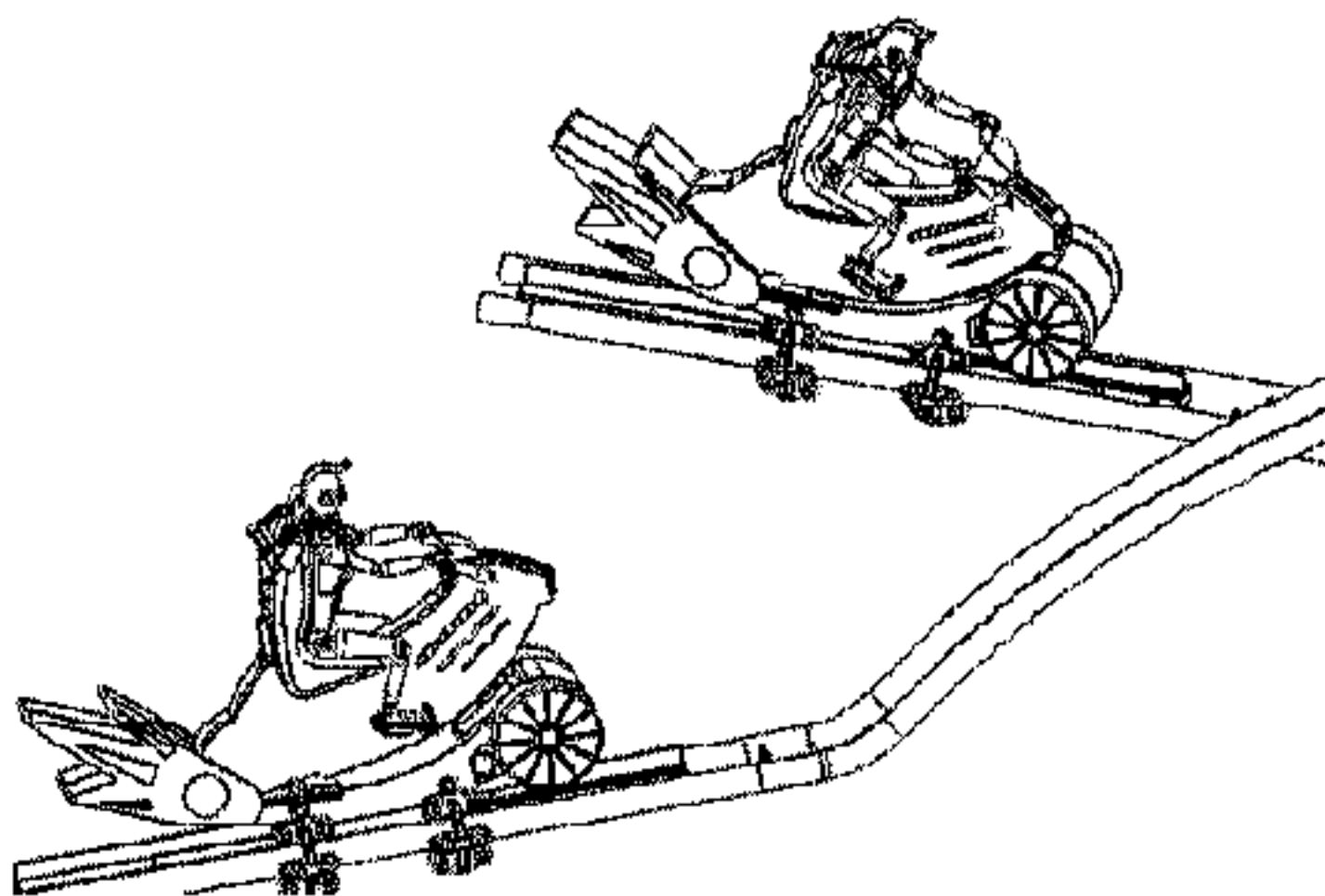


Figure 9



A



B