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(54) **REMOTELY CONTROLLED  
RECREATIONAL VEHICLE FOR TOWING  
PERSONNEL**

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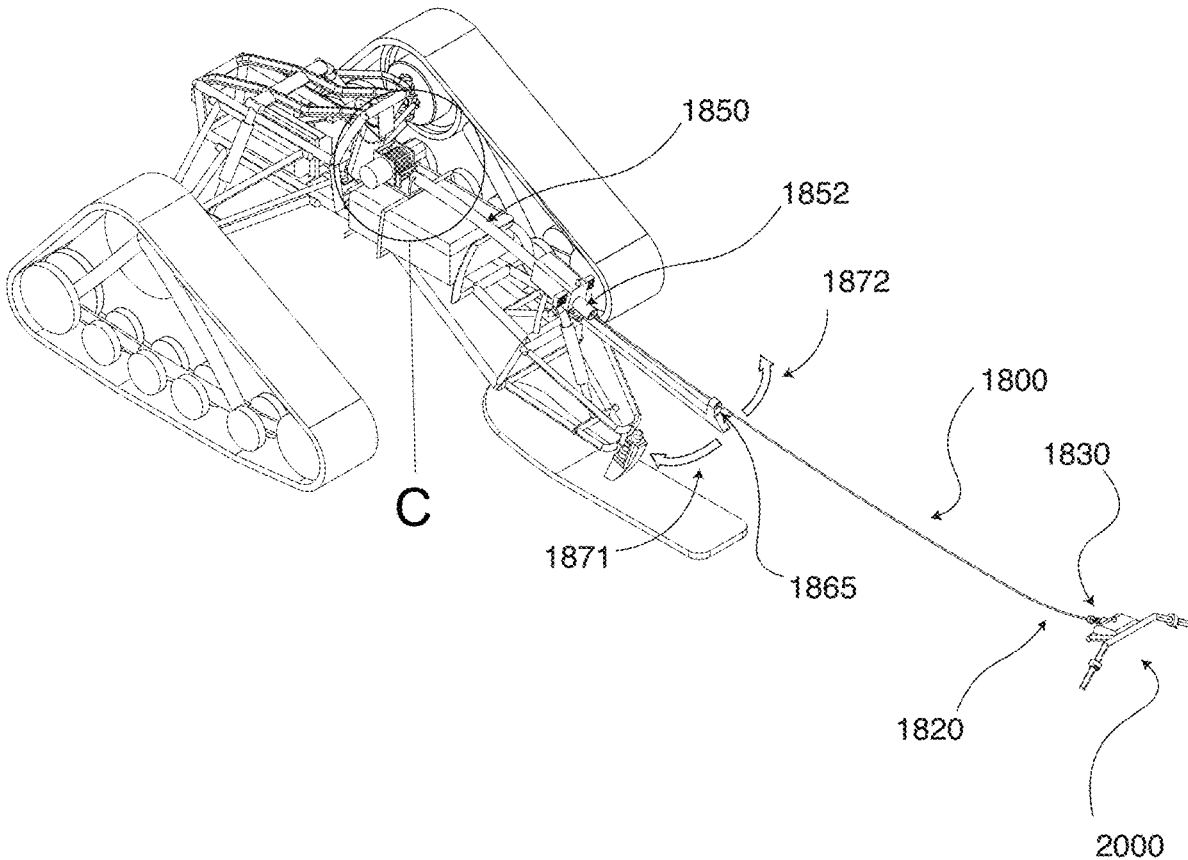
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(60) Provisional application No. 63/386,736, filed on Dec.  
9, 2022.

(57) **ABSTRACT**

A vehicle apparatus typically for use on snow and similar ground terrain for the use of towing personnel from a first location to a second location wherein the user typically wears skis, snowboard, or other alpine or Nordic devices and is towed along the snow by a retractable tether which is optionally interconnected to a remote-controller or directly to the user.



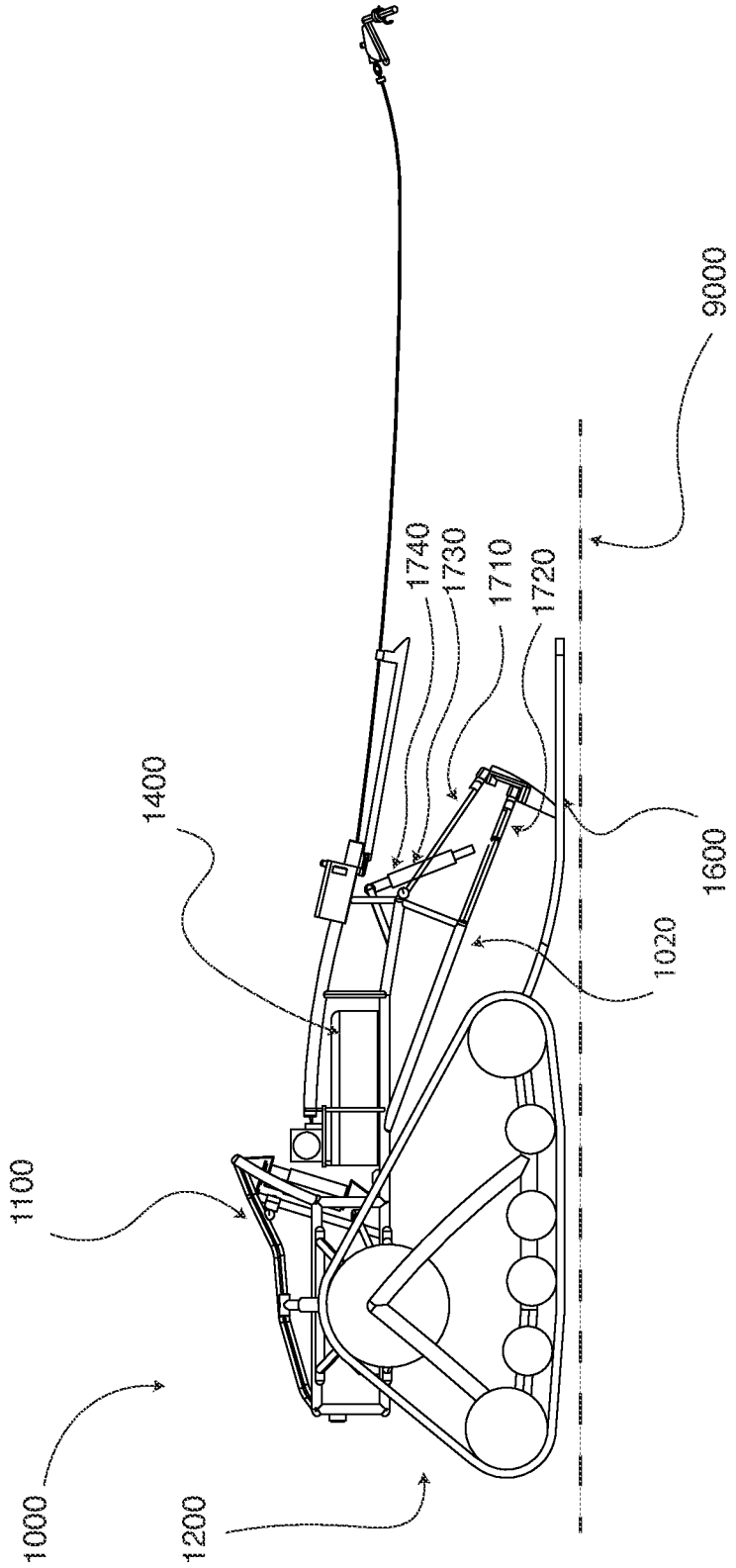
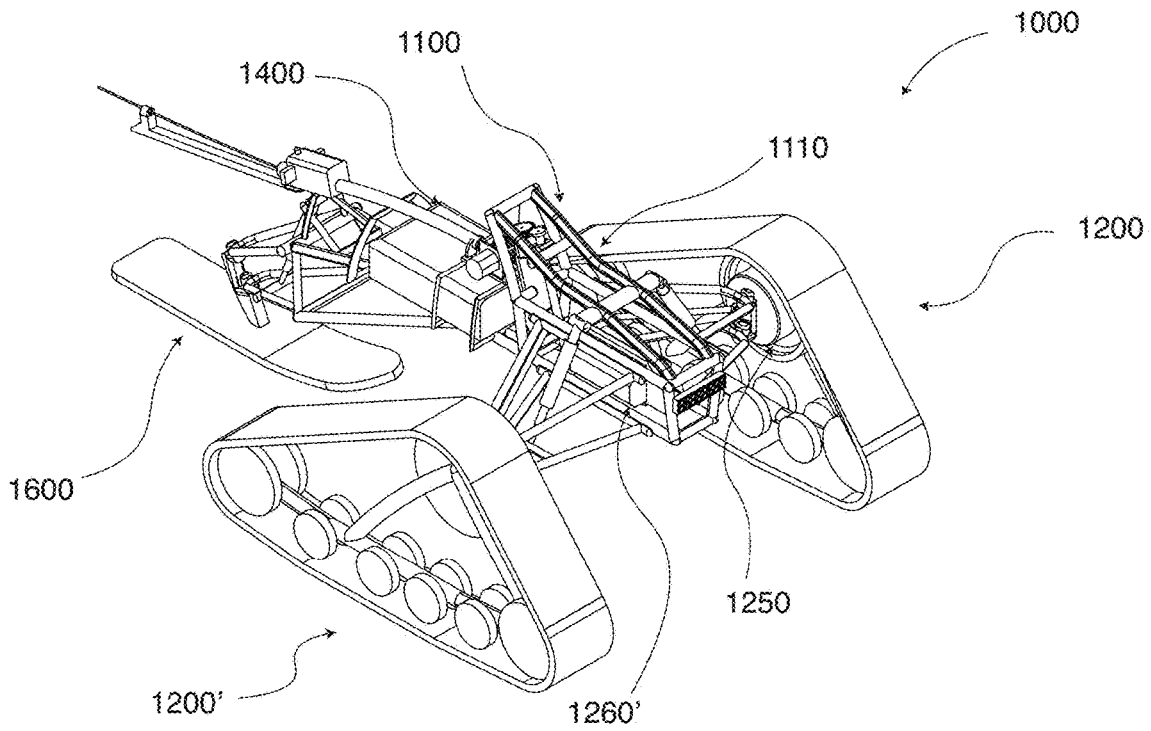
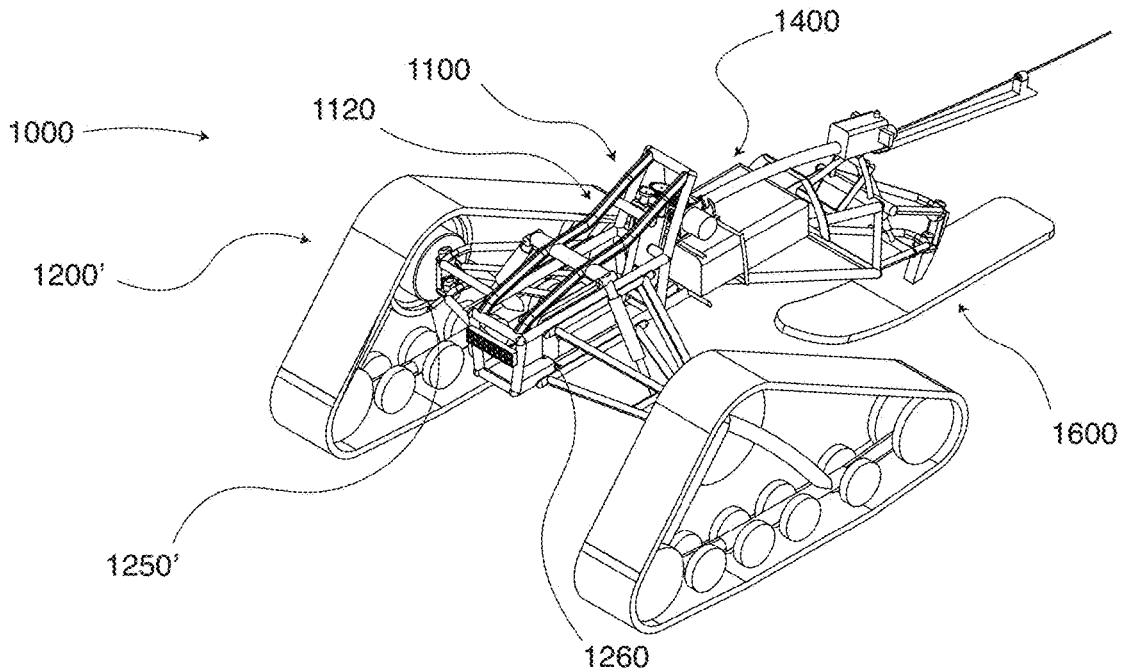


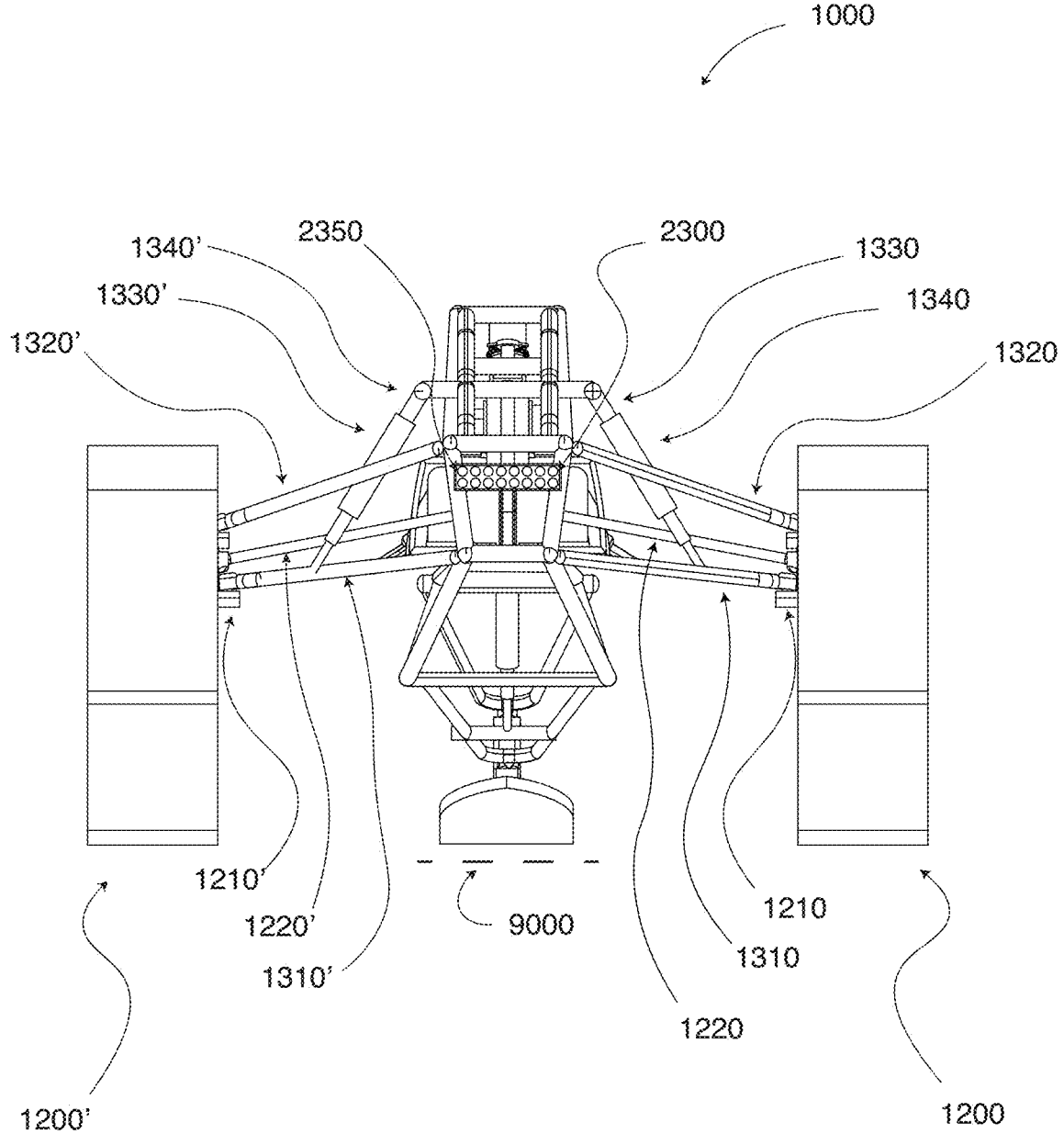
FIG. 1A



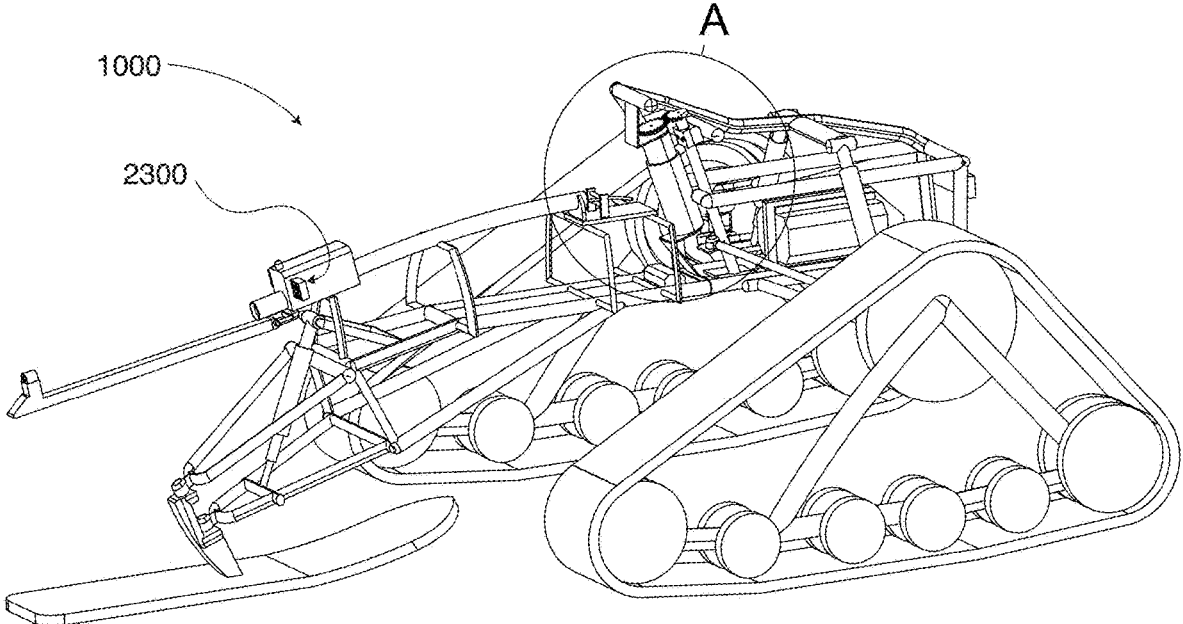
**FIG. 1B**



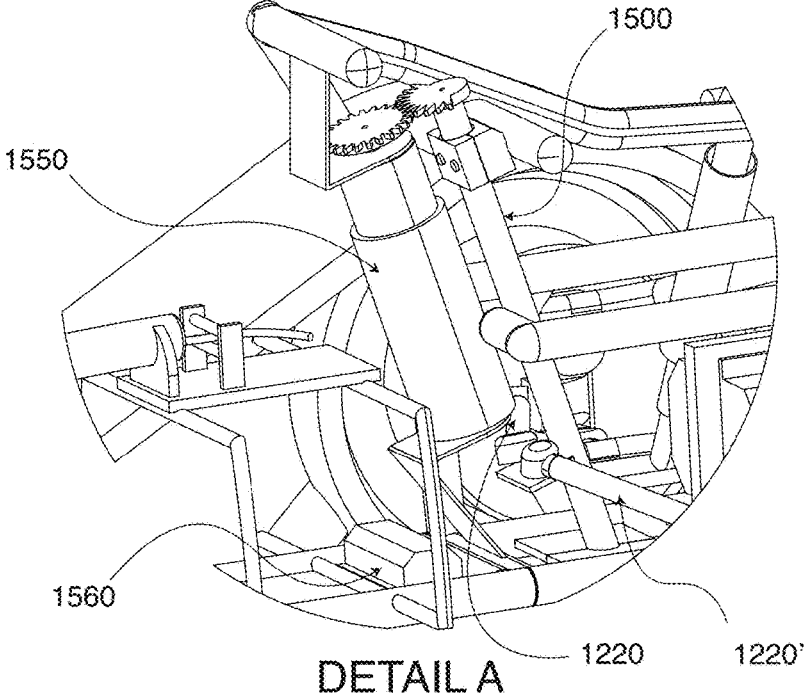
**FIG. 1C**



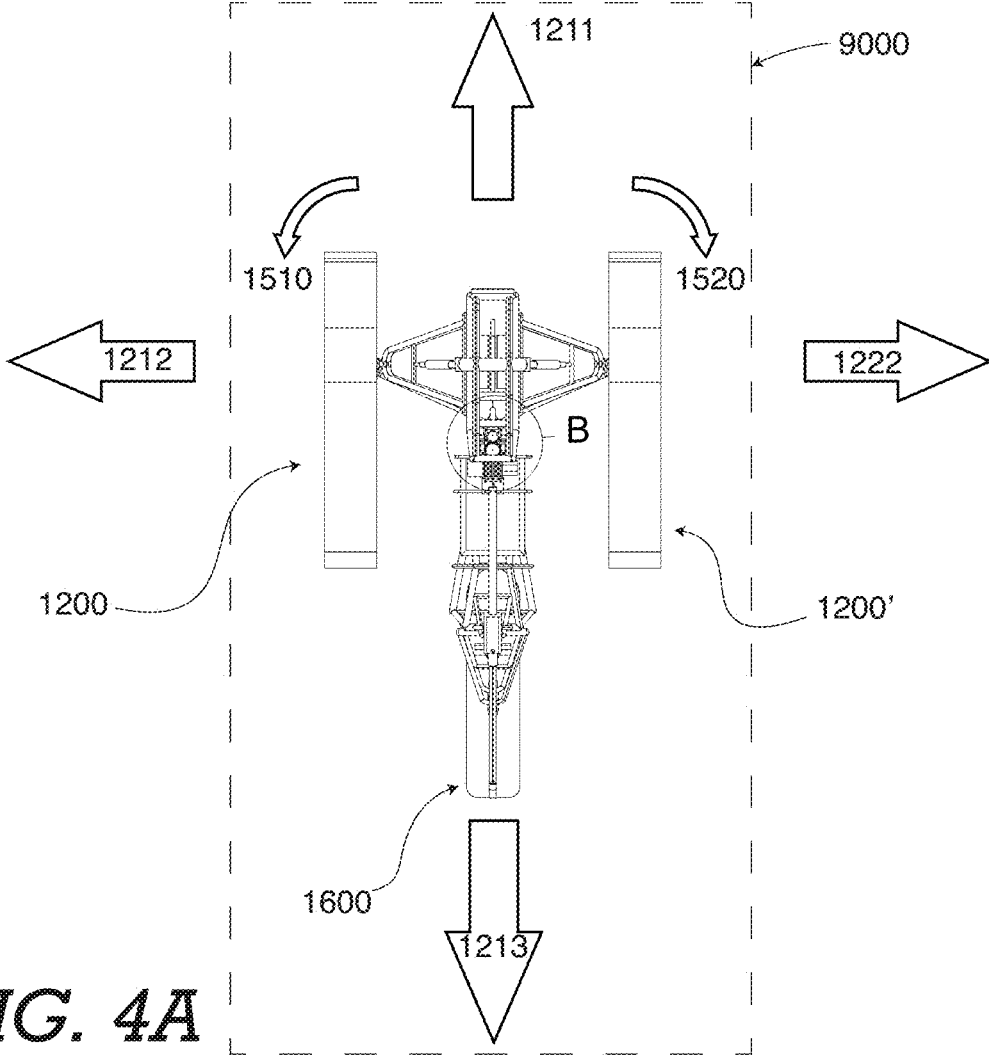
**FIG. 2**



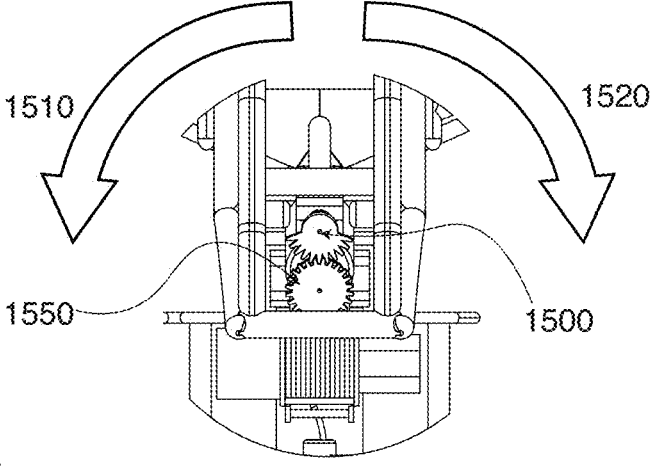
**FIG. 3A**



**FIG. 3B**

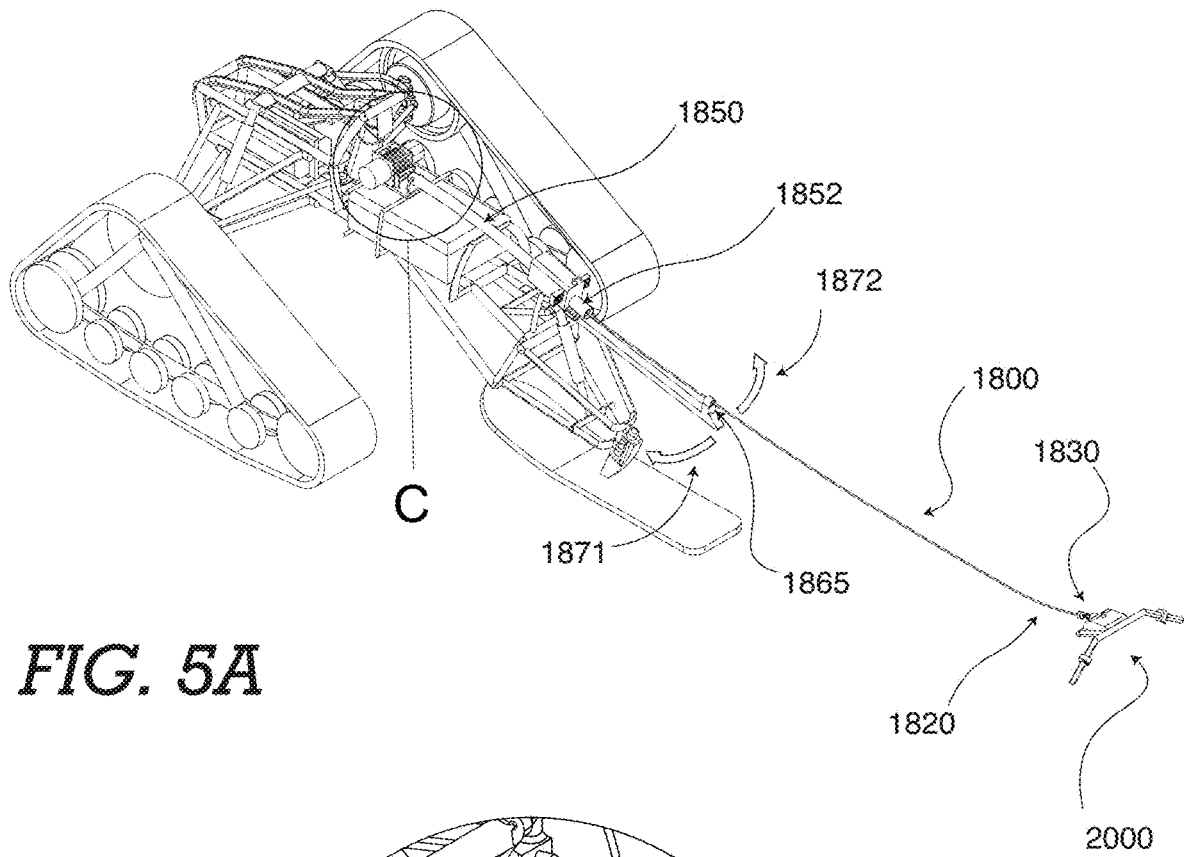


**FIG. 4A**

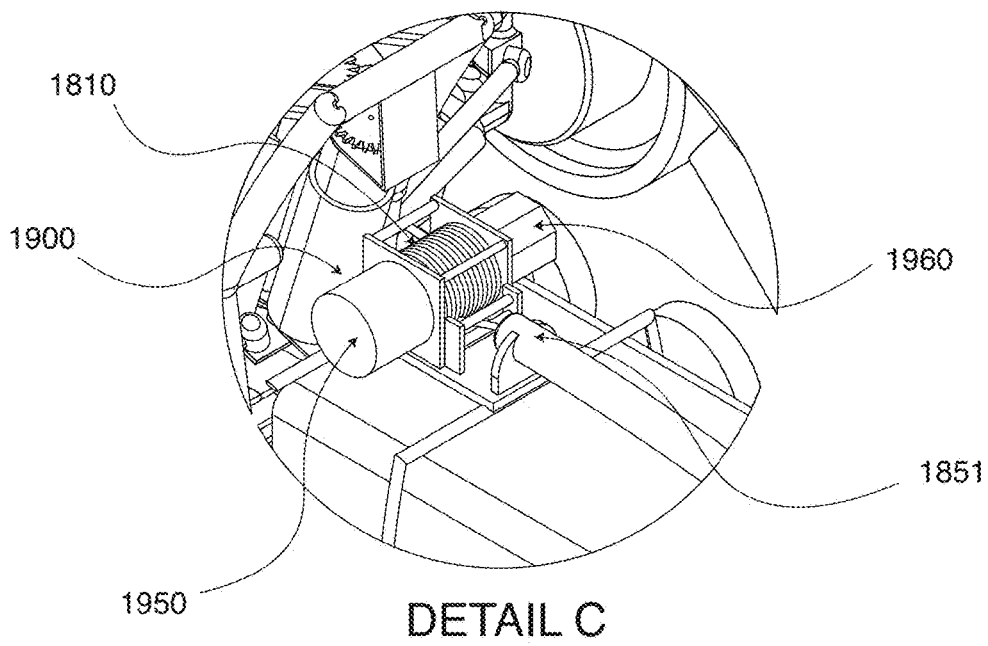


**FIG. 4B**

**DETAIL B**



**FIG. 5A**



**FIG. 5B**

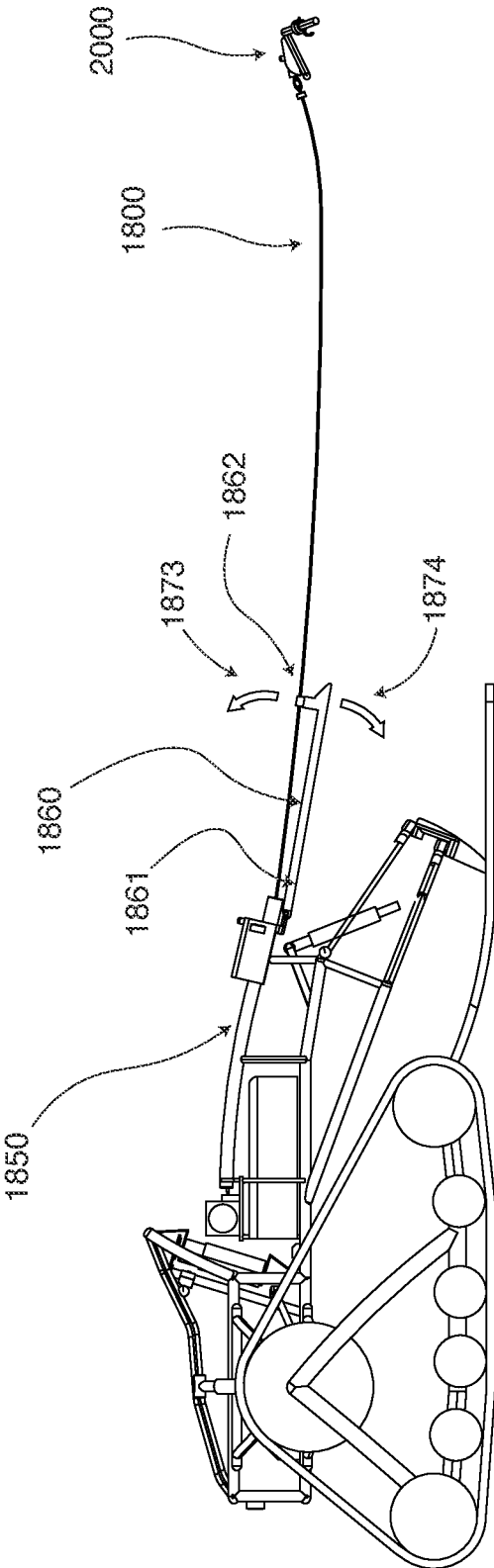
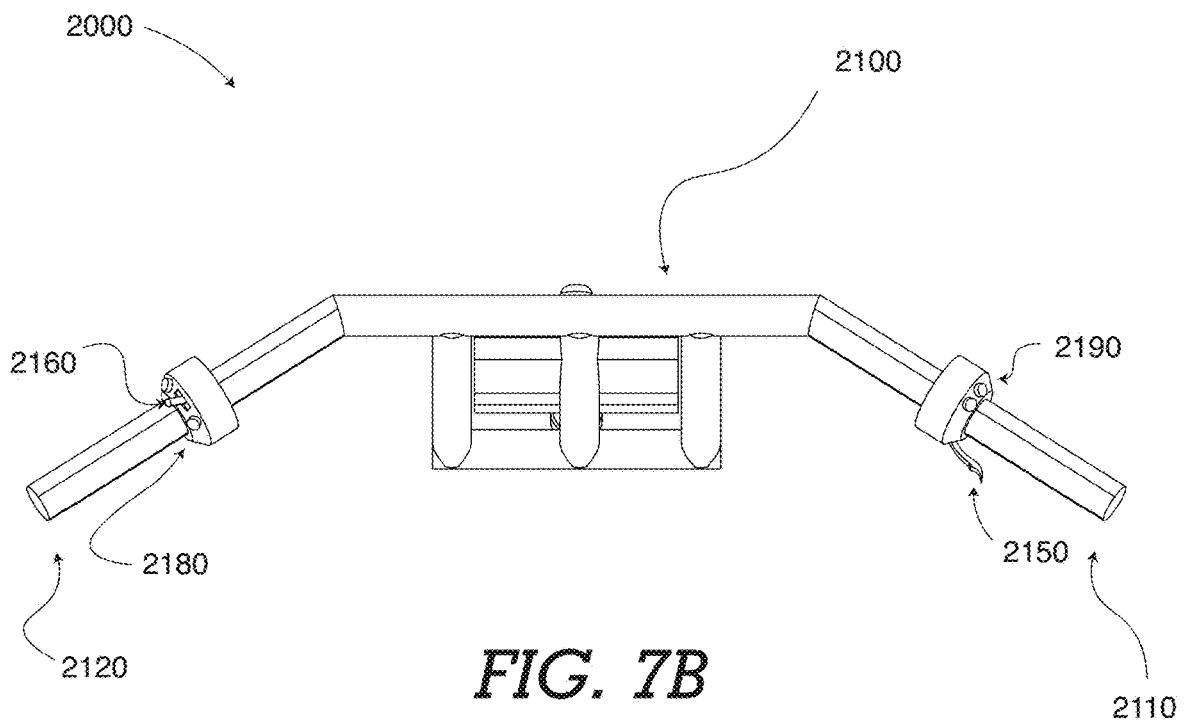
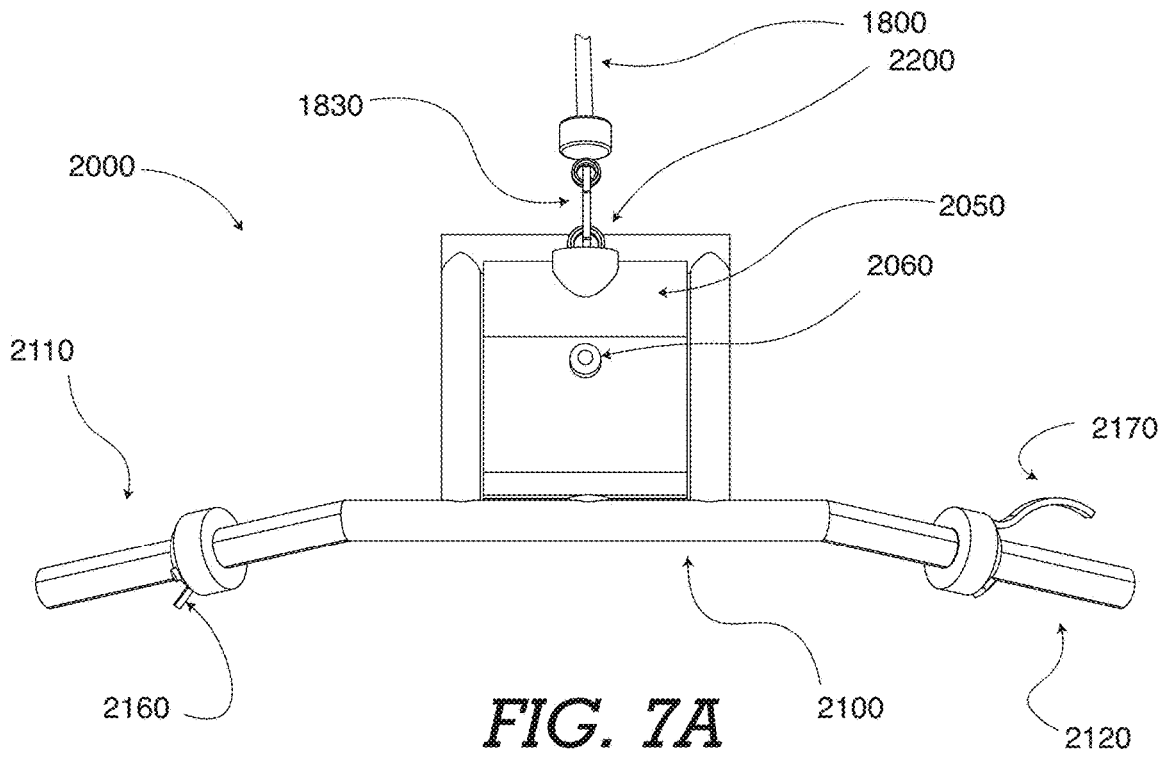


FIG. 6



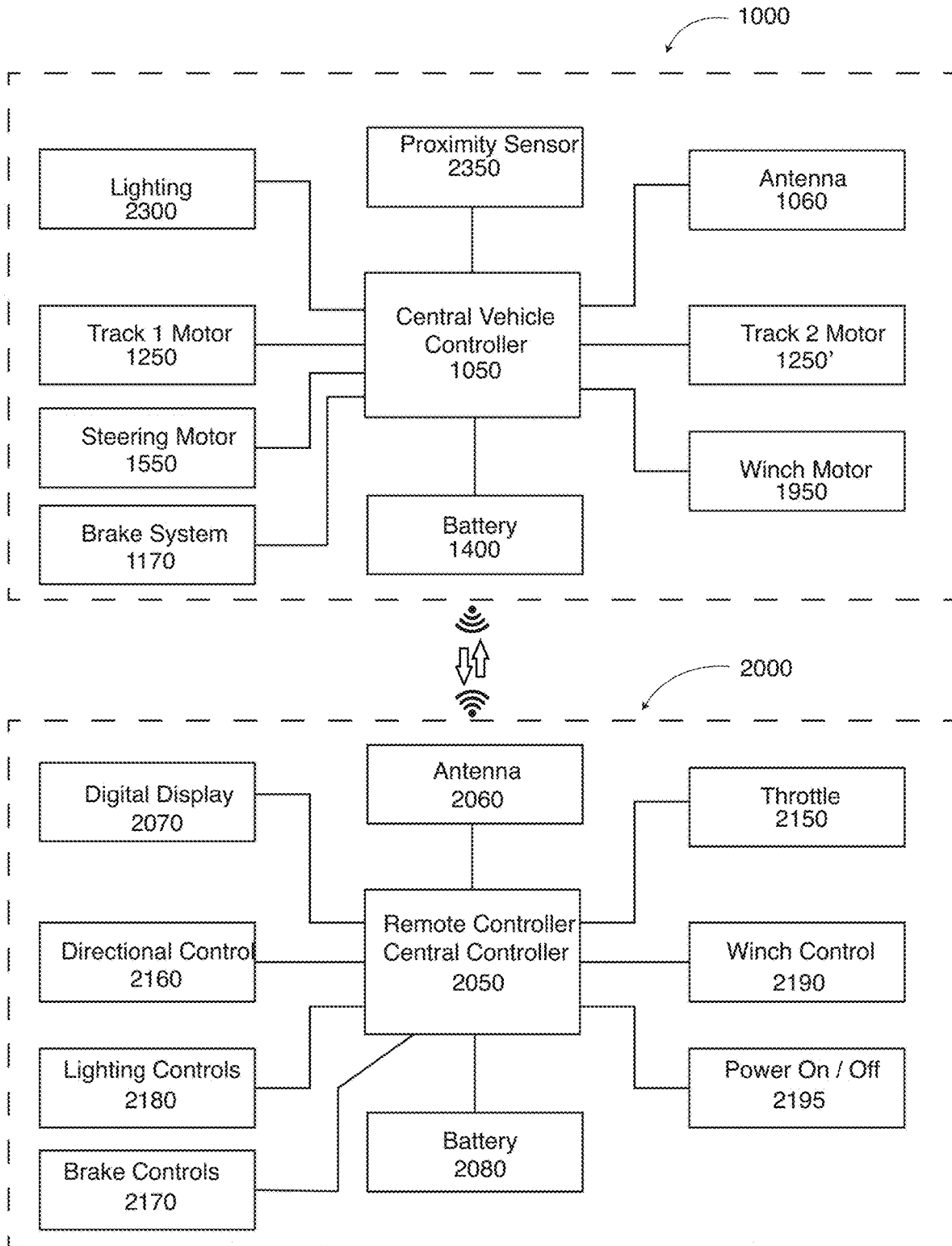
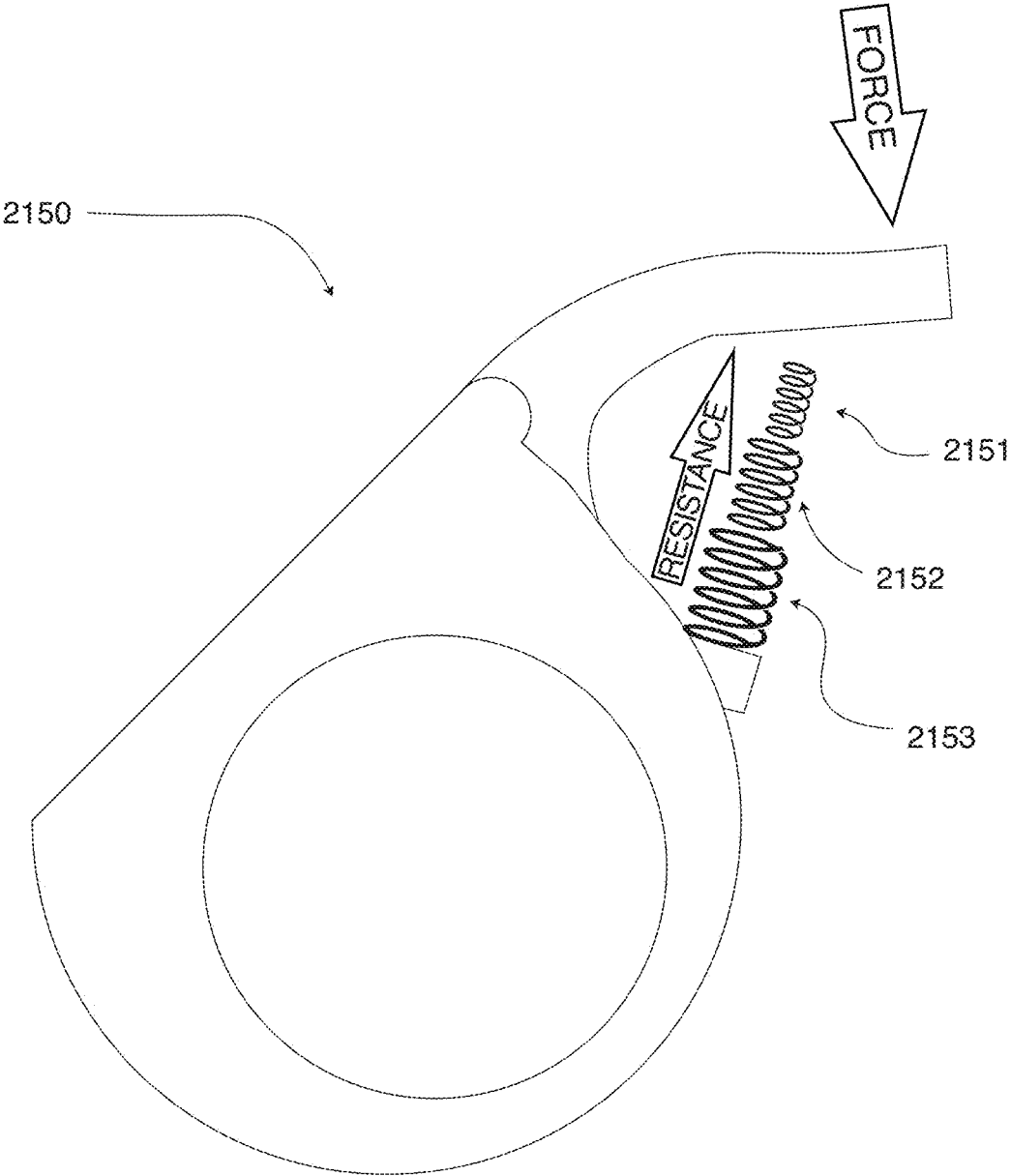


FIG. 8



**FIG. 9**

## REMOTELY CONTROLLED RECREATIONAL VEHICLE FOR TOWING PERSONNEL

### CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 63/386,736 entitled “REMOTELY CONTROLLED RECREATIONAL VEHICLE FOR TOWING PERSONNEL” filed on Dec. 9, 2022, the entire contents of which is incorporated herein by reference in its entirety for all purposes.

### FIELD OF THE INVENTION

[0002] The present disclosure is directed to a recreational vehicle which is configured to be remotely controlled for the purposes of towing a user behind, or allowing a user to remotely pilot the vehicle to place the vehicle at a distance from the user as desired.

### BACKGROUND OF THE INVENTION

[0003] The use of motorized transportation, powered by battery or fossil fuels, provides recreationists opportunity to explore further into the wilderness and areas outside of the reaches of established recreation areas, such as ski resorts. The use of motorized transportation enables individuals to venture into terrain untracked and undisturbed by the general population, which is otherwise inaccessible through ordinary means.

[0004] The use of motorized transportation, in winter terrains for instance, commonly involves the use of a snowmobile. Snowmobiles, also commonly known as “power sleds” are recreational vehicles typically comprising a motor driven track configured to engage with the snow in the rearward aspect of the vehicle, and two skis in the forward aspect of the vehicle to provide sliding support which is steerable to the left and right to allow directional control of the snowmobile.

[0005] In certain situations, such as backcountry skiing or snowboarding, a skier may want to transport themselves to a remote skiing location with their snowmobile to enjoy a particular hill. The use of the snowmobile requires relatively minimal effort for cross-country transportation and climbing in comparison to alpine touring or other human powered means such as walking or snowshoeing. At this point the skier has a few options, each of which presents a particular drawback.

[0006] The skier could leave the snowmobile at the top of the hill and rely on human powered means to climb the hill following their descent to retrieve the snowmobile. Alternatively, the skier can leave the snowmobile at the bottom of the hill, and ascend the hill for their planned descent. However, either of these strategies rely upon human power to ascend the hill which involves extended amounts of time and requires the skier to transition between climbing modes and descending modes with specialized skiing equipment.

[0007] Alternatively, the skier can put the snowmobile in neutral to disengage the motor from the driven track and push the snowmobile down the hill in a strategy commonly referred to as “ghost riding”. Ghost riding the snowmobile down a hill allows the skier to ski down to retrieve their snowmobile. This practice while effective, requires the skier to remove their skis each time to board the snowmobile to

ascend to the top of the next hill and reaffix their skis to their feet when descending. Furthermore, when ghost riding a snowmobile, the skier is unable to direct or control the snowmobile in relation to obstacles such as terrain depressions, trees, rocks, and other obstacles which may result in the snowmobile being damaged, stuck, or in a location which may put the skier in danger of an avalanche when they go to retrieve the snowmobile.

[0008] Each of these scenarios results in a loss of time, potential damage to equipment, or a potentially dangerous situation for the skier wherein the skier can be injured or killed. Thus, there is an identified need for a vehicle which a skier can use to transport themselves to a backcountry location, and then remotely pilot the vehicle to a safe location for retrieval and further use.

[0009] Furthermore, the access to ski resorts can be limiting as such resources are limited by geographic location as well as limited by financial means. With the increasing cost of ski resorts, many wish to enjoy skiing or snowboarding without the necessity of paying exorbitant costs of a lift ticket. Activities such as skijoring typically surround a skier being towed behind a motor vehicle, horse, or other means of transportation which is piloted by another individual while not necessitating the need for a lift or even a slope. Thus, there is a further identified need to provide an alternative manner of transporting or towing a skier or snowboarding in winter terrain or otherwise, in a manner that allows the freedom to traverse winter terrain at speeds beyond the means provided by human powered transportation while not requiring a second individual, ski lifts, or sloped terrain.

### SUMMARY OF THE INVENTION

[0010] It is an aspect of certain embodiments of the present disclosure to provide a vehicle for overland transportation in winter terrain wherein a skier can use the vehicle to tow themselves to a first location, and then remotely pilot or remotely control the vehicle to a second location. Certain embodiments of the present disclosure comprise a tracked vehicle configured for transportation over winter terrain wherein the vehicle comprises a remote-control unit configured to interconnect with the vehicle. In a towing configuration, the remote-control unit is interconnected with the vehicle with a tether, thereby allowing the user to be towed by the vehicle while simultaneously remotely piloting the vehicle. In a remote piloting configuration, the remote-control unit is disconnected from the vehicle, wherein the remote-control unit is in wireless communication with the vehicle to allow the remote piloting of the vehicle at a distance.

[0011] A benefit of remotely piloting the system includes allowing the user to navigate obstacles and terrain features that may cause damage to the vehicle or result in the vehicle getting stuck. Furthermore, the ability to remotely pilot the vehicle allows a skier to direct the vehicle to a precise location which allows a user to ensure the vehicle does not end up in a location having increased avalanche risk such as a terrain trap or come to rest in a location which requires a skier to stop earlier than desired or to traverse beyond a desired end-location.

[0012] Furthermore, in certain embodiments the remote-control unit is interconnected with the handlebars of the vehicle. Thus, the user can control the vehicle as they grasp the handlebars in a towing configuration or control the unit

in a remote piloting configuration wherein, they grasp the handlebars, but the handlebars are not physically interconnected with the vehicle. In certain embodiments, the vehicle apparatus can be fitted with a seat interconnected with the frame to allow a user to optionally sit on the vehicle apparatus. Further accessories such as a litter for carrying injured personnel, cargo containers, and otherwise can be fitted to the vehicle apparatus within the spirit and scope of the present disclosure.

[0013] Traditional snowmobiles are often too large to transport with a standard Sports Utility Vehicle (SUV) or pickup truck. Modern snowmobiles are often between 9.5-11.25 feet long, which is too long to properly fit in the bed of a pickup truck. Transporting a snowmobile in the bed of a pickup truck typically requires the tailgate to be left down as a standard pickup truck bed has a maximum of 8 feet. It is an aspect of certain embodiments of the present disclosure to provide increased transportability of a vehicle for overland transportation in winter. Embodiments of the present disclosure are easily transportable within a large SUV or within the bed envelope of a standard pickup truck without requiring the tailgate to be left down. For instance, certain embodiments of the present disclosure comprise an overall length of 62 inches, a width of 54 inches, and a height of 32 inches.

[0014] Certain embodiments of the present disclosure comprise a tracked vehicle for overland travel over winter terrain comprising two driven tracks. In certain embodiments the two drive tracks are driven at substantially the same rate and wherein the steering of the vehicle comprises the pivoting of the driven tracks toward a first lateral side or a second lateral side as desired. In certain embodiments, snow-flaps, or mud-flaps are optionally interconnected to the vehicle to prevent the throwing of debris at a user in tow.

[0015] Alternatively, the steering of the vehicle in certain embodiments involves the independent modulation of the individual driven tracks independently. For instance, the rotation of the first driven track at a rate which is lower than that of the second driven track, results in the vehicle to rotate or steer toward the first driven track. Similarly, the rotation of the second driven track at a rate which is lower than that of the first driven track, results in the vehicle to rotate or steer toward the second driven track. Furthermore, the tracks can be used in opposing directions—one track in a forward direction and a second track in a reverse direction—to negotiate tighter turns.

[0016] These and other advantages will be apparent from the disclosure of the disclosures contained herein. The above-described embodiments, objectives, and configurations are neither complete nor exhaustive. As will be appreciated, other embodiments of the disclosure are possible using, alone or in combination, one or more of the features set forth above or described in detail below. Further, this Summary is neither intended nor should it be construed as being representative of the full extent and scope of the present disclosure. The present disclosure is set forth in various levels of detail in this Summary, as well as in the attached drawings and the detailed description below, and no limitation as to the scope of the present disclosure is intended to either the inclusion or non-inclusion of elements, components, etc. in this Summary. Additional aspects of the present disclosure will become more readily apparent from the detailed description, particularly when taken together with the drawings, and the claims provided herein.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1A—A side view of certain embodiments comprising a remoted controlled tracked vehicle

[0018] FIG. 1B—A perspective view of certain embodiments comprising a remote-controlled tracked vehicle

[0019] FIG. 1C—An alternate perspective view of certain embodiments comprising a remote-controlled tracked vehicle

[0020] FIG. 2—A front view of certain embodiments comprising a remote-controlled tracked vehicle

[0021] FIG. 3A—A perspective view of certain embodiments comprising a remote-controlled tracked vehicle

[0022] FIG. 3B—A detail view of the embodiment shown in FIG. 3A

[0023] FIG. 4A—An overhead view of certain embodiments comprising a remote-controlled tracked vehicle

[0024] FIG. 4B—A detail view of the embodiment shown in FIG. 4A

[0025] FIG. 5A—A perspective view of certain embodiments comprising a remote-controlled tracked vehicle

[0026] FIG. 5B—A detail view of the embodiment shown in FIG. 5A

[0027] FIG. 6—A side view of certain embodiments comprising a remote-controlled tracked vehicle

[0028] FIG. 7A—A top view of certain embodiments of the present disclosure comprising a remote-controller

[0029] FIG. 7B—A front view of certain embodiments of the present disclosure comprising a remote-controller

[0030] FIG. 8—A diagrammatic view of a system of certain embodiments comprising a remotely controlled tracked vehicle and a remote-controller

[0031] FIG. 9—A representation of a throttle assembly comprising a progressive spring-rate modulated throttle

#### DETAILED DESCRIPTION OF VARIOUS EMBODIMENTS

[0032] Certain embodiments of the present disclosure, as shown in FIG. 1A-FIG. 3B for instance, comprise a remotely controlled tracked vehicle **1000**, also referred to herein as “vehicle apparatus”, wherein the vehicle comprises a frame **1100** configured to serve as a central mounting structure for the components of the vehicle. While embodiments of a frame **1100** as shown comprise a tubular metal construction, alternative frame construction materials and strategies such as hydroforming of aluminum, carbon fiber, aramid, and fiberglass are within the spirit and scope of the present disclosure. The vehicle further comprises a first driven track assembly **1200** interconnected to a first lateral side **1110** of the frame, and a second driven track assembly **1200'** interconnected to a second lateral side **1120** of the frame. The driven track assemblies as shown are interconnected with the frame **1100** with a suspension **1300** therebetween to allow improved traction and travel over terrain. The suspension as shown comprises an upper control arm **1310**, a lower control arm **1320**, a spring **1330**, and a damping device **1340**. As shown the spring **1330** and damping device **1340** are incorporated in a single unit. However, alternate suspension **1300** designs are within the spirit and scope of the present disclosure. Furthermore, alternate embodiments wherein the driven track assemblies **1200** are interconnected with the frame rigidly—that is the driven track assemblies

**1200** are interconnected with the frame without a suspension—are within the spirit and scope of the present disclosure.

**[0033]** The driven track assemblies **1200** each comprise an electrically actuated hub motor **1250**, commonly referred to as a direct-drive in-wheel motor. The hub motors **1250** are powered by a battery **1400** which is interconnected with the frame **1100**. In certain embodiments the battery is based on a 12-volt system, while in certain embodiments the battery comprises a 72-volt system. Batteries or electrical systems based on these voltages and other voltages are within the spirit and scope of the present disclosure. In certain embodiments the hub motor **1250** of the first driven track assembly **1200** is controlled by a first motor controller **1260** which is interconnected between the battery **1400** and the hub motor **1250** of the first driven track assembly, and the hub motor **1250'** of the second driven track assembly is controlled by a second motor controller **1260'** which is interconnected between the battery **1400** and the hub motor **1250'** of the second driven track assembly. In certain embodiments the motor controllers **1260** comprise wireless communication protocol capabilities such as radio control, Bluetooth®, WiFi®, or other known wireless control capabilities known in the art. While embodiments shown comprise a battery **1400** for powering electrically driven hub motors, alternate power sources such as solar power, and fuel cell generated electrical power for powering electrically driven hub motors are within the spirit and scope of the present disclosure. Furthermore, while electrically powered hub motors **1250** are shown and desired in certain embodiments, alternate embodiments wherein the driven track assemblies **1200** are powered by direct mechanical connection to a central electrical motor, internal combustion engines, or other known modes of powered automation are within the spirit and scope of the present disclosure.

**[0034]** In certain embodiments, as shown in FIG. 4A-FIG. 6, the vehicle **1000** is steered through the use of a first steering knuckle **1210** interconnected with the first driven track assembly **1200** with a tie-rod **1220** and a second steering knuckle **1210'** interconnected to the second driven track assembly **1200'** with a tie-rod **1220'**. The driven track assemblies **1200** are pivotally interconnected to the frame **1100** wherein the driven track assemblies are able to pivot rotatively in relation to a ground plane **9000**, or ground surface, to allow the negotiation of turns. The steering knuckles **1210** each comprise a mechanical interconnection with a steering shaft **1500**, such as with a tie-rod **1220**, which controls the rotation of the driven track assemblies **1200**. In certain embodiments the rotation of the steering shaft **1500** in a first direction **1510** causes the driven track assemblies to rotate in a second direction **1520**, and the rotation of the steering shaft **1500** in the second direction causes the driven track assemblies **1200** to rotate in the first direction **1510**. However, configurations wherein the rotation of the steering shaft **1500** in the first direction **1510** results in the rotation of the driven track assemblies in the first direction **1510** thereby directing the vehicle toward a first lateral direction **1212**, and wherein the rotation of the steering shaft **1500** in the second direction **1520** results in the rotation of the driven track assemblies **1200** in the second direction **1520** thereby directing the vehicle toward a second lateral direction **1222** are within the spirit and scope of the present disclosure. In certain embodiments a steering motor **1550**, comprising an electrical motor, is

interconnected with the steering shaft **1500** wherein the steering motor **1550** is adapted for rotating the steering shaft in the first direction **1510** or the second direction **1520**. The steering motor is powered by a battery **1400**, and certain embodiments further comprise a steering motor controller **1560** which is interconnected between the battery **1400** and steering motor **1550**. In certain embodiments the steering motor controller **1560** comprises wireless communication protocol capabilities such as radio control, Bluetooth®, WiFi®, or other known wireless control capabilities known in the art.

**[0035]** In certain embodiments, the steering of a remotely controlled tracked comprising a first driven track assembly **1200** and a second driven track assembly **1200'** comprises is accomplished through independent control of each of the driven track assemblies. To steer toward a first lateral direction **1212**, the hub motor **1250** of the first driven track assembly is driven forward at a speed  $S_1$  and the hub motor **1250'** of the second driven track assembly is driven forward at a speed  $S_2$ , wherein  $S_1 < S_2$ . In order to steer toward the second lateral direction **1222**, the hub motor **1250** of the hub motor **1250** of the first driven track assembly is driven forward at a speed  $S_1$  and the hub motor **1250'** of the second driven track assembly is driven forward at a speed  $S_2$ , wherein  $S_1 > S_2$ . In order to navigate tight turns the differential between the individual track speeds can be increased, while gradual turns require a lower differential between individual track speeds. Furthermore, to allow the rotation of the vehicle in place, it may be desired to drive the first track assembly **1200** in a forward direction **1211** and the second track assembly **1200'** in a rearward direction **1213**, or drive the first track assembly **1200** in a rearward direction **1213** and the second track assembly **1200'** in a forward direction **1211**.

**[0036]** In certain embodiments, as shown in FIG. 1A-FIG. 3B, a remotely controlled tracked vehicle comprises a ski **1600** adapted for sliding over snow and other winter terrain aspects wherein the ski **1600** is mounted to a rearward aspect **1020** of the frame and rearward of the driven track assemblies. In certain embodiments the interconnection of the ski **1600** to the frame comprises a suspension **1700**. The suspension **1700** as shown comprises an upper control arm **1710**, a lower control arm **1720**, a spring **1730**, and a damping device **1740**. As shown the spring **1730** and damping device **1740** are incorporated in a single unit. Furthermore, alternate embodiments wherein the ski **1600** is interconnected with the frame rigidly—that is the ski **1600** is interconnected with the frame **1100** without a suspension—are within the spirit and scope of the present disclosure.

**[0037]** In certain embodiments, shown in FIG. 4A-FIG. 6 for instance, a tether **1800** comprises a first end **1810** interconnected with the vehicle and a second end **1820** adapted for being removably interconnected with the remote-controller **2000**. In certain embodiments the first end **1810** of the tether is interconnected with the vehicle **1000** wherein the tether is retractable with a spooling device **1900**, such as a winch or other mechanism to allow the retraction of the tether **1800** when not in use, or allow adjustment of the length of the tether. The second end **1820** of the tether comprises a connecting device **1830**, such as a carabiner or spring-hook to allow the rapid interconnection and removal of the remote-controller **2000** from the second end **1820** of the tether. The connecting device **1830** of certain embodiments optionally comprises a quick-disconnect device

which is optionally actuated by the user, and/or optionally actuated when certain criteria (e.g. in excess of a threshold force) are met to prevent injury to the user.

[0038] In certain embodiments, the vehicle comprises a winch **1900** which is actuated by a winch motor **1950** wherein the winch motor is powered by a battery **1400**, and wherein the winch motor comprises an internal controller **1960** comprising wireless control capabilities. While embodiments described and shown herein comprise a winch motor comprising an internal controller **1960**, embodiments wherein the motor controller of the winch motor **1950** is external or separate from the winch motor are within the spirit and scope of the present disclosure. In certain embodiments the winch motor **1950** comprises wireless communication protocol capabilities such as radio control, Bluetooth®, WiFi®, or other known wireless control capabilities known in the art.

[0039] In certain embodiments the tether **1800** passes through a tether housing **1850** wherein the tether housing is configured to direct the tether **1800** to the rearward aspect of the vehicle to prevent the tether **1800** from becoming entangled with the driven track assemblies **1200**. Furthermore, in certain embodiments a pivoting guide arm **1860** provides further guidance to prevent the tether from entangling with parts of the vehicle such as the driven track assemblies **1200**. In certain embodiments the guide arm **1860** comprises a first end **1861** pivotally interconnected with the rearward aspect **1852** of the tether housing which allows pivotal movement laterally in a first direction **1871** and a second direction **1872**, as well as articulation upward **1873** and downward **1874** in relation to the rearward aspect of the tether housing **1850**. The guide arm **1860** comprises an aperture **1865** at a second end **1862** which is configured to guide the tether toward the second end of the guide arm and the rearward aspect of the tether housing.

[0040] In certain embodiments, as shown in FIG. 7A-FIG. 8, a remote-controller **2000** is configured to communicate wirelessly with at least one motor controller unit, and preferably all motor controller units aboard the vehicle **1000** through wireless communication with a controller unit **2050** comprising an antenna **2060**. In certain embodiments the remote-controller **2000** is configured to communicate with the first motor controller **1250** of the first driven track assembly, the second motor **1250'** controller of the second driven track assembly, and the steering motor controller **1560**, and the winch motor controller **1960**. In certain embodiments the remote-controller **2000** is configured to actuate a braking system **1070** directly through a brake motor controller or through the central controller **1050** as necessary. In certain embodiments the communication with motor controllers is done directly within a controller of each individual motor, while in alternate embodiments the remote-controller communicates through a central vehicle controller **1050** or CPU. The remote-control unit of certain embodiments comprises handlebars **2100** having a first lateral handle **2110** at a first distal end and a second lateral handle **2120** at a second distal end. The remote-controller **2000** provides throttle control **2150** and steering control **2160** allowing a user to pilot the vehicle at a distance. In certain embodiments the remote-controller comprises a tethering point **2200**, or interconnection point, wherein a tether **1800** can be interconnected, using a connecting device **1830**, between the vehicle and the remote-controller to allow a user to pilot the vehicle simultaneously while being towed

by the vehicle. In certain embodiments the remote-controller **2000** comprises steering controls **2160**, throttle **2150** or speed control, brake control **2170**, lighting controls **2180**, power on/off **2195**, and winch controls **2190**. In certain embodiments the throttle **2150** comprises a thumb actuated lever similar to those found on a common All-Terrain Vehicle (ATV) or snowmobile. In certain embodiments, the steering controls **2160** comprise a single axis joystick or rocker switch for controlling the steering of the vehicle. In certain embodiments, the remote-controller **2000** further comprises a display **2070** for communicating information to the user.

[0041] In certain embodiments, a vehicle as presented further comprises lighting elements **2300** for low-light visibility, as well as sensors such as proximity sensors **2350** which are used to prevent the collision of the vehicle with obstacles such as rocks, trees, and skiers. In certain embodiments a proximity sensor **2350** may be used in conjunction with an autonomous mode wherein the vehicle is programmed to follow a skier, return to a set way-point, or return to the user. A proximity sensor **2350** as presented can be interconnected with the motor controllers wherein the proximity sensor **2350** prevents further forward motion to prevent a collision. In such a mode, a user can use the remote-controller to further guide the vehicle or to override a sensor reading.

[0042] While certain embodiments described and shown comprise individual controllers for each of the plurality of motors, alternate embodiments, as shown in diagrammatic view shown in FIG. 8 comprise a central vehicle controller **1050** or Central Processing Unit (CPU) for the vehicle and a central controller CPU **2050** for the remote-controller. The vehicle CPU **1050** for the vehicle has shown comprises interconnections with an antenna **1060** aboard the vehicle for communicating with the remote-controller **2000**, a battery **1400**, the hub motor **1250** for the first driven track assembly, the hub motor **1250'** for the second driven track assembly, the steering motor **1550**, and the winch motor **1950**.

[0043] In certain embodiments, referencing FIG. 1B-FIG. 1C and FIG. 7A-FIG. 8 for instance, the braking of the vehicle is accomplished through regenerative braking systems which uses the hub motors **1250** to offer variable resistance to thereby slow the vehicle **1000** at variable rates as desired and convert kinetic energy to electrical energy which can be stored in the battery **1400**. Alternate embodiments comprising conventional braking systems such as disc brakes or drum brakes are within the spirit and scope of the present disclosure. Such embodiments comprising conventional braking systems can be controlled wirelessly through the remote-controller **2000** wherein the brakes aboard the vehicle **1000** are actuated remotely through a mechanical, hydraulic, or electrically actuated brake system. Furthermore, certain embodiments of the present disclosure comprise an emergency brake system to allow a user to assure the vehicle **1000** does not move unintentionally when not in active use.

[0044] In certain embodiments, as shown in FIG. 9 for instance, a thumb throttle **2150** is configured to receive a progressive resistance to prevent the inadvertent or unintentional throttle increase, commonly referred to as a “blip” or “goosing” or the throttle wherein a sudden increase of throttle can result in loss of control of the vehicle apparatus. As represented in FIG. 9 for instance, a plurality of springs

each with varying spring rates provide resistance against a force applied which acts to actuate the throttle. In certain embodiments a first spring **2151** with a first spring rate  $k_1$  requires a first force threshold to actuate a first portion of throttle travel. A second spring **2152** with a second spring rate  $k_2$ , greater than the first spring rate, requires a second force threshold, greater than the first force threshold to actuate a second portion of throttle travel. Each relative portion of the throttle requires meeting the related force threshold to actuate the entirety of that particular portion of throttle travel. Further, in certain embodiments a third spring **2153** with a third spring rate  $k_3$ , greater than each of the first spring rate and the second spring rate, requires a third force which is greater than each of the first force and the second force to actuate a third portion of throttle travel. Embodiments which comprise a singular progressive spring with varying spring rates, springs used in parallel, springs used in series, coil springs, linear springs and other strategies used to provide a progressively greater spring rate over the travel of a rotational lever are within the spirit and scope of the present disclosure.

**[0045]** While various embodiments of the present disclosure have been described in detail, it is apparent that modifications and alterations of those embodiments will occur to those skilled in the art. However, it is to be expressly understood that such modifications and alterations are within the scope and spirit of the present disclosure. Further, the disclosures described herein are capable of other embodiments and of being practiced or of being carried out in various ways. In addition, it is to be understood that the phraseology and terminology used herein is for the purposes of description and should not be regarded as limiting. The use of “including,” “comprising,” or “adding” and variations thereof herein are meant to encompass the items listed thereafter and equivalents thereof, as well as, additional items.

What is claimed is:

1. A remotely controlled vehicle apparatus comprising:
  - a frame;
  - a battery interconnected to the frame;
  - a controller interconnected to the frame;
  - a tether interconnected to the frame;
  - a first driven track assembly interconnected to a first side of the frame wherein a first electrical motor is interconnected with the frame and configured to drive the first driven track assembly;
  - a second driven track assembly interconnected to a second side of the frame wherein a second electrical motor is interconnected with the frame and configured to drive the second driven track assembly;
  - a second electrical motor interconnected with the frame, wherein the second electrical motor is configured to drive the second driven track assembly;
  - a ski interconnected to the frame, wherein the ski is configured to contact a ground surface laterally between the driven track assemblies;
  - a remote-control configured to wirelessly communicate with the controller, wherein the remote-control is configured to control the driven track assemblies; and
  - the remote-control comprising a first handle, and an interconnection point, wherein the tether is configured to be removably interconnected to the interconnection point.

2. The vehicle apparatus of claim **1**, wherein the first electrical motor and the second electrical motor are independently controlled by the remote-control.

3. The vehicle apparatus of claim **1**, wherein interconnections between the driven track assemblies and the frame each comprise a track assembly suspension.

4. The vehicle apparatus of claim **3**, wherein the interconnection between the ski and the frame comprises a ski suspension.

5. The vehicle apparatus of claim **3**, further comprising a steering mechanism comprising an electrical motor configured to direct the driven track assemblies,

wherein rotation of the electrical motor in a first direction results in steering of the vehicle apparatus toward a first lateral direction, and wherein rotation of the electrical motor in a second direction results in steering of the vehicle apparatus toward a second lateral direction.

6. The vehicle apparatus of claim **1**, wherein the remote-control comprises a second handle, wherein the first handle and the second handle are distally located from each other, and wherein the interconnection point is located between the first handle and the second handle.

7. The vehicle apparatus of claim **1**, further comprising a proximity sensor interconnected to the vehicle apparatus, wherein the proximity sensor is interconnected with the controller; wherein the proximity sensor is directed in a forward direction in relation to vehicle apparatus.

8. The vehicle apparatus of claim **7**, wherein the proximity sensor is interconnected to a forward aspect of the frame.

9. The vehicle apparatus of claim **1**, wherein the ski is configured to contact the ground surface rearward of the driven track assemblies.

10. The vehicle apparatus of claim **1** further comprising a guide arm comprising a first end interconnected with a rearward aspect of the vehicle apparatus, wherein a second end of the guide arm extends in a rearward direction from the vehicle apparatus, and

wherein the guide arm is configured to guide the tether rearward of the vehicle apparatus.

11. The vehicle apparatus of claim **10**, wherein the guide arm is pivotally interconnected to the vehicle apparatus, wherein the guide arm is configured to pivot laterally in a first direction and a second direction.

12. The vehicle apparatus of claim **11**, wherein the guide arm is further configured to articulate upward and downward.

13. The vehicle apparatus of claim **1** further comprising a spooling device configured to extend and retract the tether.

14. The vehicle apparatus of claim **13**, wherein the spooling device comprises a winch.

15. The vehicle apparatus of claim **14**, wherein the remote-control is configured to control at least one operation of the winch.

16. The vehicle apparatus of claim **1**, wherein the remote-control is wirelessly interconnected with the controller of the vehicle apparatus.

17. The vehicle apparatus of claim **16**, wherein the remote-control comprises steering controls, speed controls, brake controls, lighting controls, vehicle apparatus power control, and winch control.

18. The vehicle apparatus of claim **1**, wherein the remote-control comprises a thumb actuated throttle; and the thumb actuated throttle comprising a progressive spring rate wherein a first force threshold is required to

actuate a first throttle portion, and a second force threshold is required to actuate a second throttle portion.

19. The vehicle apparatus of claim 18, wherein the progressive spring rate comprises a third force threshold to actuate a third throttle portion.

20. A remotely controlled tracked vehicle apparatus comprising:

- a frame;
- a battery interconnected to the frame;
- a controller interconnected to the frame;
- a retractable tether interconnected to the frame;
- a proximity sensor interconnected to a forward aspect of the frame;
- a first driven track assembly interconnected to a first side of the frame, wherein the interconnection between the first driven track assembly and the frame comprises a suspension;
- a first electrical motor interconnected with the frame, wherein the first electrical motor is configured to drive the first driven track assembly;
- a second driven track assembly interconnected to a second side of the frame, wherein the interconnection between the second driven track assembly and the frame comprises a suspension;

a second electrical motor interconnected with the frame, wherein the second electrical motor is configured to drive the second driven track assembly;

a ski interconnected to a rearward aspect of the frame, wherein the ski is rearward of the driven track assemblies, and wherein the interconnection between the ski and the frame comprises a suspension;

a steering mechanism comprising an electrical motor configured to direct the driven track assemblies, wherein rotation of the electrical motor in a first direction results in steering of the vehicle apparatus toward a first lateral direction, wherein rotation of the electrical motor in a second direction results in steering of the vehicle apparatus toward a second lateral direction;

a remote-control unit configured to wirelessly communicate with the controller to control the driven track assemblies, and the steering mechanism; and

the remote-control unit comprising a first lateral handle, a second lateral handle, and an interconnection point located therebetween,

wherein the retractable tether is configured to be removably interconnected to the interconnection point.

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