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(54) Title of the Invention: **Ride apparatus**
Abstract Title: **Ride apparatus**

(57) A ride apparatus 1 comprises first and second arms 2 & 3 arranged to rotate about column 4, with first and second ride-on vehicles 15 mounted on the ends of the first and second arms respectively, such that the vehicles 15 travel in an orbital path around column 4. The first and second arms 2 & 3 are arranged one above the other allowing the vehicles 15 to pass each other without colliding. The vehicles 15 may be provided with controls necessary to allow a person riding thereon to control the speed of the vehicle, thus allowing the riders to race against each other. The thrust to drive the vehicles may be provided by rider controlled ducted fans 16 & 17. Each vehicle may be provided with a laser gun to be fired at an opponent's target 21 & 22. Achieving a hit on an opponent's target would shut down the power on an opponent's vehicle for a predetermined time interval.

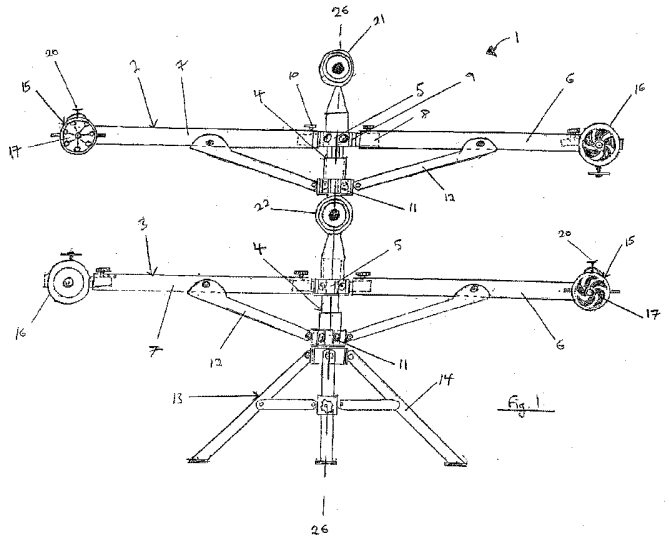

Fig 1

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The claims were filed later than the filing date but within the period prescribed by Rule 22(1) of the Patents Rules 2007.

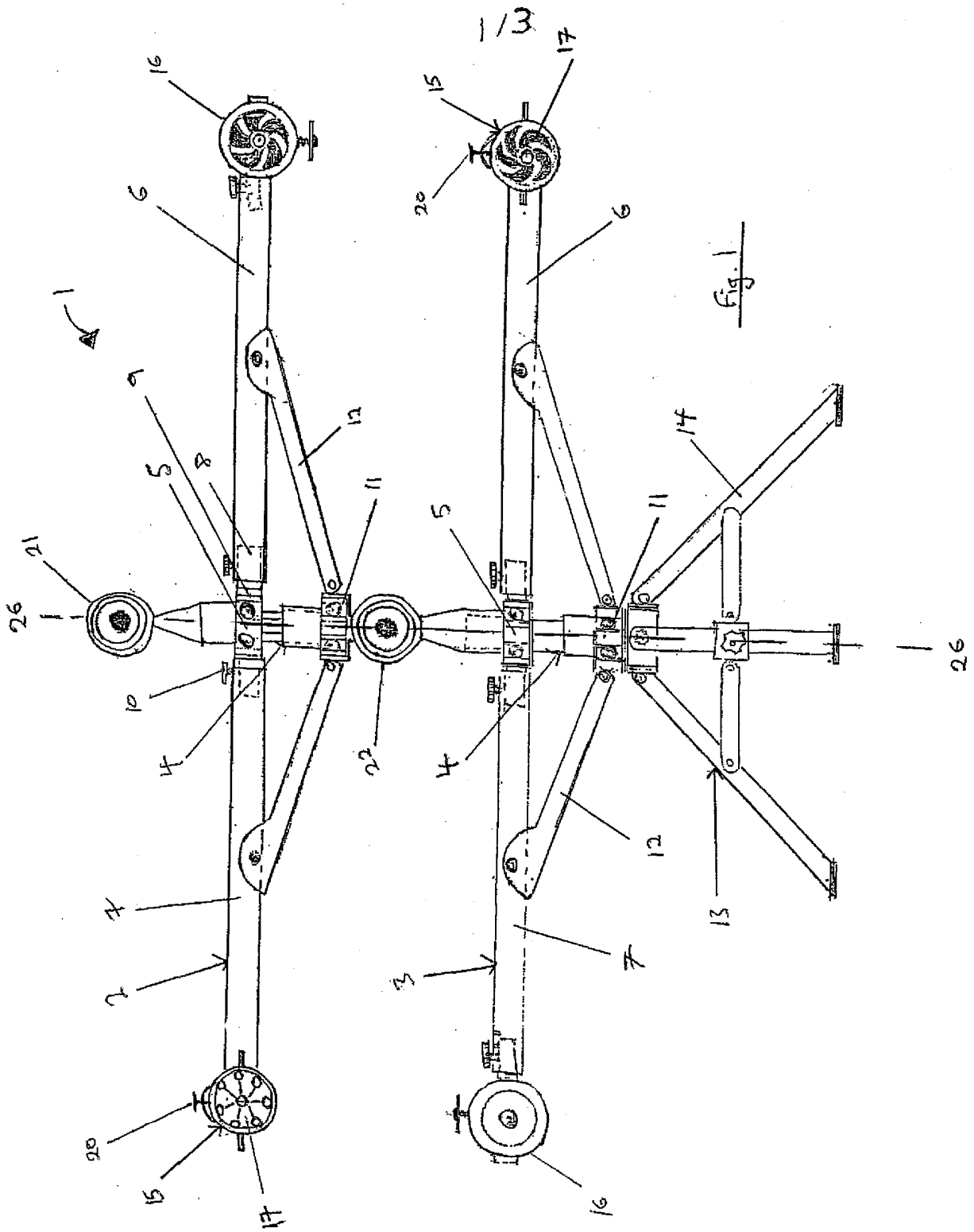

Fig. 1

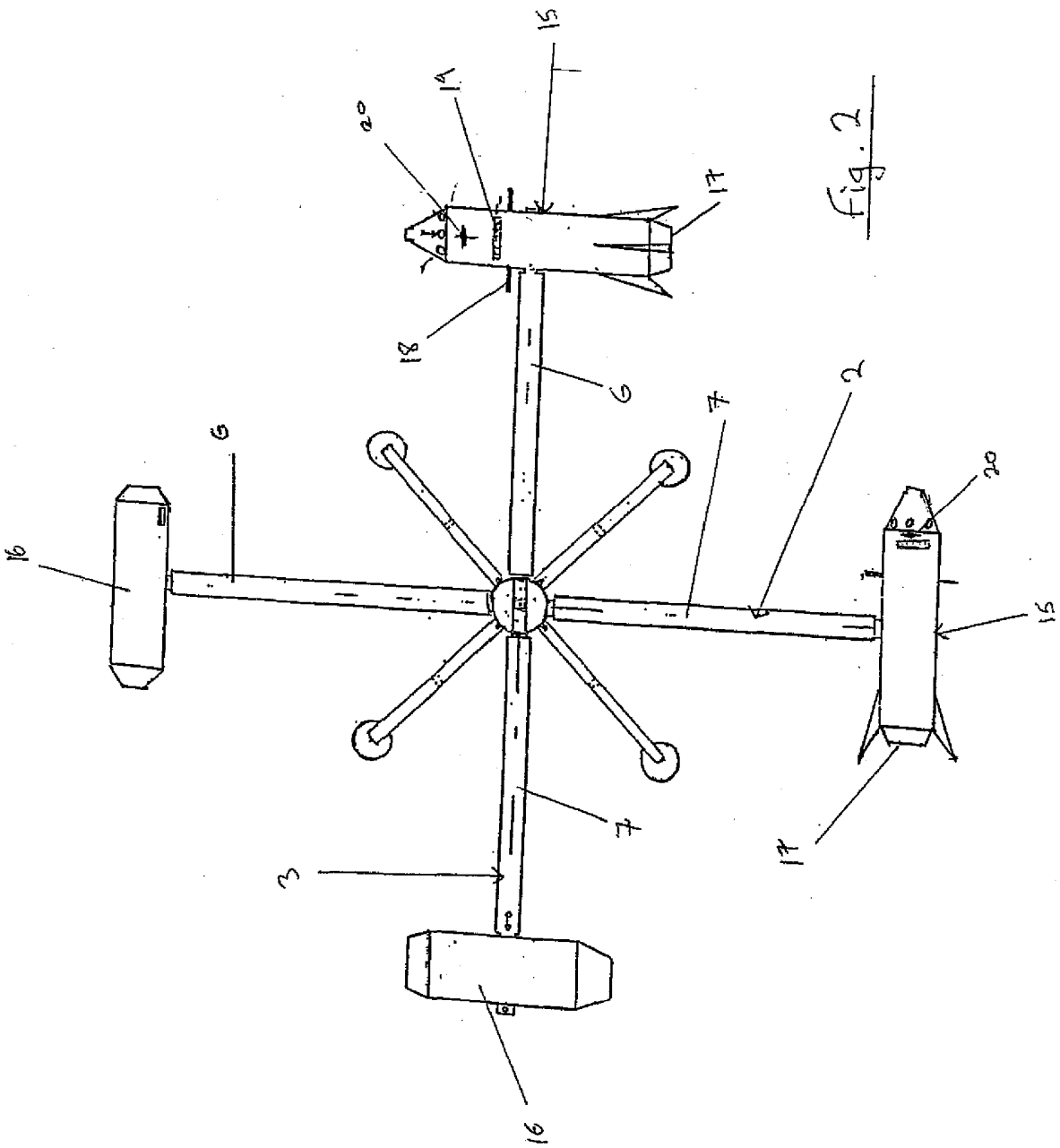

fig. 2

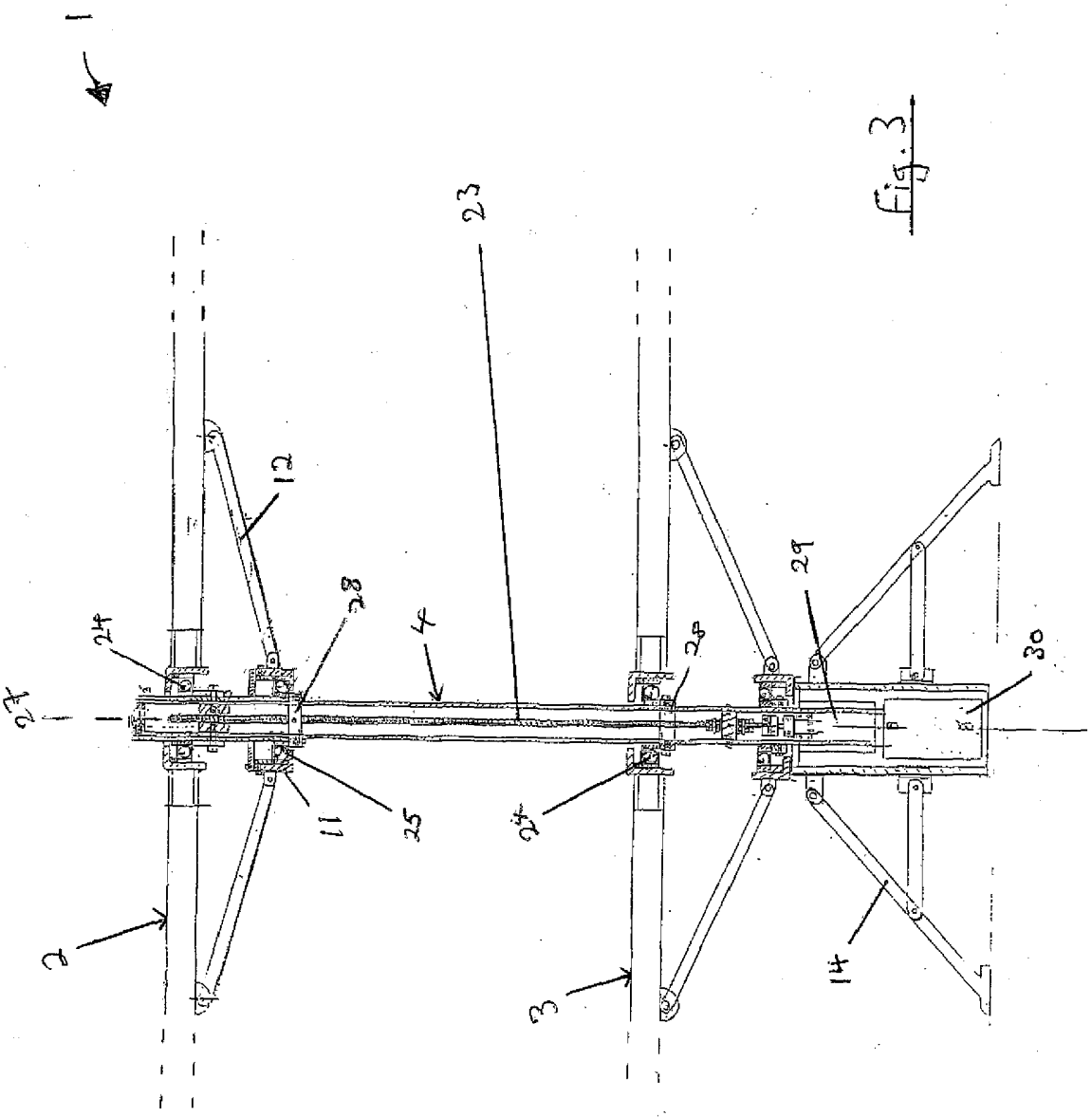

Fig. 3

RIDE APPARATUS

The present invention relates to a ride apparatus and particularly although not exclusively to a ride apparatus for children.

U.K. Patent No. 2397031 discloses a ride comprising an upright post carrying a tiltable beam which is provided at one end with a ride-on vehicle. The post is arranged to rotate, thereby rotating the beam and vehicle mounted thereon. The vehicle is provided with controls to allow a rider of the vehicle to control the height and velocity of the rotation. A second vehicle may be provided at the other end of the beam.

A problem with this ride is that the first and second vehicles are constrained to rotate at the same rotational velocities. Accordingly there is no interaction or element of competition between the riders.

Embodiments of the present invention seek to overcome the above problems.

According to a first aspect of the invention there is provided a ride apparatus comprising first and second arms, arranged to rotate about respective axes, with first and second ride-on vehicles mounted on the first and second arms respectively and spaced from the respective axes such that as the arms rotate, the vehicles travel in an orbital path to the respective axes, with at least one of the vehicles being provided with the controls necessary to allow a person riding thereon to control the speed of said travel of the vehicle, wherein the first and second arms are arranged such that when they rotate, the first and second vehicles travel in planes that do not intersect each other and are offset from each other to an extent that allows the vehicles to pass each other without colliding.

Since the first and second vehicles are arranged to travel in planes that do not intersect each other and are offset from each other to an extent that allows the vehicles to pass each other without colliding, the vehicles can travel at different speeds without risk of colliding. Accordingly, at least one of the riders of the vehicles may freely adjust the speed of the vehicle, without the risk of colliding with the other vehicle. This provides for a more interactive, varied and competitive ride.

Preferably the first and second vehicles are provided with the controls necessary to allow a person riding thereon to control the speed of said travel of the vehicle. This allows riders of the first and second vehicles to adjust their speed based on the speed of the other vehicle, to race each other for example, thereby providing an element of competition to the ride, making the ride more interactive, enjoyable and varied.

The planes of travel of the first and second vehicles may be substantially parallel to each other. The planes of travel of the first and second vehicles may be substantially horizontal. The planes of travel of the first and second vehicles are preferably offset from each other in a substantially vertical direction.

The first and second arms may be arranged to rotate about substantially the same, or different axes.

Each arm is preferably elongate. Each arm is preferably arranged to rotate about an axis that is substantially perpendicular to the length of the arm.

Preferably the first and second arms are substantially straight. Preferably the first and second arms are substantially horizontal along their length, when the apparatus is in use.

Each arm is preferably provided with a fulcrum, about which the arm is arranged to rotate. The fulcrum may be provided at one end of the arm. Alternatively the fulcrum may be provided at substantially the mid-point of the length of the arm.

Preferably the first and second arms are provided with a drive means to effect their said rotation. Preferably the drive means is arranged with the first and second arms such that the first and second arms may rotate at different velocities. This is advantageous in that it allows the riders of the first and second vehicles to travel at different speeds, making the ride more varied and allowing the riders to race each other.

The drive means may be any form of propulsive engine, such as a propeller engine, fan engine, jet engine or a rocket engine. In this case the drive means preferably comprises a first propulsive engine mounted to the first arm and distanced from its axis of rotation so as to effect the rotation of the first arm. The drive means preferably comprises a second engine mounted to the second arm and distanced from its axis of rotation so as to effect the rotation of the second arm.

Where the drive means is a fan engine it is preferably a ducted fan engine. In this case the engine preferably comprises an electric power source arranged to drive the fan. The electric power source is preferably housed within the engine. The electric power source may be of any suitable rating but is preferably a 12V DC power source.

The propulsive engine and vehicle of each arm are preferably mounted either side of the respective fulcrum. The weights of the propulsive engine and vehicle of each arm, and their respective distances from the fulcrum, are preferably arranged such that the engine and vehicle counter-balance each other. The engine and vehicle

of each arm are preferably mounted substantially the same distance either side of the respective fulcrum and are of substantially the same weight.

Alternatively, or additionally, the first and/or second vehicles may comprise a propulsive engine that is housed within the vehicle.

The apparatus preferably comprises at least one target and at least one gun, with the at least one target arranged to sense when it is hit by a shot from the at least one gun.

The at least one target and gun may be of any suitable type, but are preferably a laser target and gun. The at least one target and gun are preferably associated with a said vehicle. The at least one gun is preferably mounted on a said vehicle or is arranged such that a rider of the vehicle can hold the gun in their hands.

The apparatus preferably comprises a control unit arranged to control the motion of the first and/or second vehicles in dependence on a hit sensed by the at least one target. The control unit is preferably arranged such that when the at least one target is hit by the at least one gun, the motion of the vehicle associated with the target is controlled by the control unit.

The apparatus preferably comprises a said target associated with each vehicle. The apparatus preferably comprises a said gun associated with each vehicle. In this case, each target is preferably arranged such it can sense when it is hit by a shot from a gun associated with each vehicle.

Where the apparatus comprises a target and gun associated with each vehicle, the control unit is preferably arranged such that when a target associated with one of the vehicles is hit by a gun associated with the other vehicle, the motion of the vehicle associated with the target is controlled by the control unit.

Preferably said motion control is achieved by controlling the drive means of the arm to which the vehicle is mounted.

Where the drive means is a propulsive engine, preferably the thrust produced by the engine is controlled. In this case, the thrust of the engine is preferably reduced. The thrust of the engine is preferably reduced for a pre-determined amount of time.

This control of the motion of a vehicle whose associated target is hit provides riders of the vehicles with an incentive to hit the target of the other vehicle and to stop their target from being hit. This provides the ride with an additional element of interaction, competition and variety.

The apparatus preferably comprises a means of raising and lowering the first and/or second arms. This is advantageous as it allows the first and/or second arms to be lowered to allow a person to get on and off the ride-on vehicle mounted thereon and then raised to a desired height for use in the ride. Preferably said means of raising and lowering comprises a screw-thread, with which the first and/or second arms are arranged to engage such that as the screw-thread is rotated relative to the first and/or second arms, the first and/or second arms travel along the screw-thread. The screw-thread preferably extends in a substantially vertical direction. A drive means is preferably arranged to rotate the screw thread. A longitudinal axis of the screw-thread is preferably substantially parallel with the axes of rotation of the first and/or second arms.

All of the features described herein may be combined with any of the above aspects, in any combination.

For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1 shows a side elevational view of a ride apparatus according to the present invention;

Figure 2 shows a plan view of the ride apparatus shown in Figure 1, but with an upper arm 2 of the apparatus rotated anti-clockwise by 90°,

Figure 3 shows a partial cross sectional view of a central region of the ride apparatus shown in Figures 1 and 2.

In the following the terms upper, lower, side and the like terms are used for convenience and refer to the ride apparatus as shown oriented in the drawings, the orientation in which it is intended to be used, and should not be taken as otherwise limiting.

Referring to Figures 1 and 2 there is shown a ride apparatus 1 comprising an upright column 4. The column 4 is mounted on a base 13, which supports the remainder of the apparatus 1. The base comprises foldable legs 14.

First and second rings 5 are rotatably mounted on the column 4, at vertically spaced positions. Bearings 24 (see Figure 3) is disposed between the interface of the rings 5 and the column 4, to facilitate rotation of the ring 5 on the column 4. A pair of protrusions 9 is provided on opposed sides of each of the first and second rings 5.

The ride apparatus also comprises first and second arms 2, 3. Each arm 2, 3 comprises a pair of elongate and substantially hollow arm members 6, 7. A first end of each arm member 6, 7 is fitted over a respective protrusion 9 and secured with a

fastening element 10. Each arm member 6, 7 extends in a substantially horizontal direction from its first end to a second end.

In the current embodiment the fastening element 10 is a nut and bolt. However, it is envisaged that any suitable fastening means may be used. In addition any other suitable means of fixedly attaching the first end of each arm member 6, 7 to the ring 5 may be used, and these will be readily apparent to a person skilled in the art.

In this way, the members 6, 7 of each arm 2, 3 are fixedly attached to opposed sides of the ring 5 of the arm 2, 3, and therefore are rotated about the column 4 as the ring 5 rotates. Each arm 2, 3 rotates in a substantially horizontal plane. The arms 2, 3 rotate about a common axis 26. The common axis 26 is substantially vertical.

A pair of support rings 11 is rotatably mounted on the column 4, below each arm 2, 3 respectively. Bearings 25 (see Figure 3) is disposed between the interface of the support rings 11 and the column 4, to facilitate rotation of the support rings 11 on the column 4. Each support ring 11 is mounted on a locking ring bearing 28, which supports the weight of its respective arm 2, 3.

Each support ring 11 is provided with a pair of support struts 12, fixedly attached at a first end thereof to opposed sides of the support ring 11, and extending in an inclined upwards direction, terminating at a second end. The second end of each support strut 12 is fixedly attached to a respective arm member 6, 7 at a mid-point along the length of the arm member 6, 7. This attachment may be by any suitable means, such as a nut and bolt.

As the arms 2, 3 rotate about the column 4, the support struts 12 and support rings 11 are caused to also rotate about the column 4. Accordingly, the support struts 12 act to support the weight of the arms 2, 3 as they rotate.

The rings 5, support rings 11 and locking ring bearings 28 are arranged to slide relative to the column 4. This allows the first arm 2 to be raised and lowered (see below).

For each arm 2, 3, a ride-on vehicle 15 is mounted to the second end of one of its members 6, 7 and a ducted fan engine 16 is mounted to the second end of the other of its members 6, 7. The ride-one vehicle 15 is provided with a ducted fan engine 17 which is housed within the vehicle 15. Each ducted fan engine 16, 17 is powered by a 12V DC supply that is integral to the engine 16, 17.

In the current embodiment each ride-on vehicle 15 is in the shape of a rocket, to provide the effect that a person is riding on a rocket. A person sits with their legs either side of the body of the ride-on vehicle 15, with their feet resting on foot rests 18 provided theron. A strap 19 is provided towards the front of each vehicle 15, for the person to hold on to. It will be appreciated that any type or configuration of ride-one vehicle 15 may be used.

The ducted fan engines 16, 17 of each arm 2, 3 are arranged such that thrust produced by the engines 16, 17 rotates the arm 2, 3 about the column 4.

The circulating ride apparatus 1 also comprises a control unit (not shown). Each ride-on vehicle 15 is provided with a thrust control lever 20, which is connected via the control unit to the ducted fan engines 16, 17 of the arm 2, 3 to which the vehicle 15 is mounted such that the thrust produced by these engines 16, 17 is

controlled by the thrust control lever 20. In this way, a rider of a vehicle 15 is able to control the speed of the vehicle 15.

The first and second arms 2, 3, and accordingly the ride-on vehicles 15, are arranged to rotate in parallel planes that are vertically offset from each other by a distance greater than the height of the vehicles 15 (and of the riders of the vehicles 15). Accordingly, riders of the vehicles 15 can vary the speed of the vehicles 15 without the risk of colliding with each other.

The ride apparatus 1 also comprises first and second laser targets 21, 22. The first target 21 is mounted above the first arm 2, on the column 4. The second target 22 is mounted above the second arm 3, on the column 4.

The first and second targets 21, 22 are associated with the first and second ride-on vehicles 15 respectively. Each ride-on vehicle 15 is provided with a laser gun (not shown), either mounted to the vehicle 15 or attached such that the rider may hold the gun in their hand.

Each laser gun and target 21, 22 is connected to the control unit. The control unit is arranged with the laser guns, targets 21, 22 and engines 16, 17 such that when the laser gun of one of the vehicles 15 hits the target 21, 22 associated with the other vehicle 15, the thrust of the engines 16, 17 acting to rotate that vehicle 15 is reduced for a pre-determined amount of time, for example 10 seconds, thereby providing the other rider with a speed advantage.

In use, riders orbit the column 4 on their vehicles 15, controlling the speed of their vehicle 15 as desired with the thrust control lever 20. Riders can adjust the speed of their vehicle 15 relative to the other vehicle 15 in order to gain a good shot of the target 21 22 associate with the other vehicle 15, or can try and block the other rider

from shooting the target 21, 22 associated with their vehicle 15. If a rider successfully hits the target 21, 22 of the other vehicle 15 then this other vehicle 15 is slowed for a pre-determined amount of time. This provides the riders with an incentive to hit the target 21, 22 of the other vehicle and to stop their target 21, 22 from being hit. This provides the ride with an additional element of interaction, competition and variety.

Referring to Figure 3, there is shown a screw-thread 23 housed within the column 4 and extending substantially along the length of the column 4. The longitudinal axis 27 of the screw-thread 23 is co-incident and parallel with the common axis of rotation 26 of the arms 2, 3.

The locking ring bearing 28 of the first arm 2 is threaded and it engaged with the screw-thread 23 such that as the screw-thread 23 rotates, the locking ring bearing 28 travels up and down the screw-thread 23. This acts to raise and lower the support ring 11 accordingly, which thereby raises and lowers the first arm 2.

An electric motor 29 is housed within the column 4 and is powered by a battery 30, housed within the base 13. The electric motor 29 is arranged to drivably rotate the screw thread 23.

Accordingly, the first arm 2 may be raised and lowered by operation of the electric motor 29. This allows the first arm 2 to be lowered, to allow a person to get on and off the ride-on vehicle 15 mounted thereon, and then raised to a desired height for use in the ride. No ladder, or other similar device is therefore necessary.

The above embodiment is described by way of example. Many variations are possible without departing from the invention.

Claims

1. A ride apparatus particulary for children comprising a vertical post fixed to a stand provided with first and second arms arranged to rotate around said post on their respective axis spaced one above the other allowing the arms to pass each other without colliding.

2. The arms are provided with a means of thrust of any sort but preferably a ducted fan controlled by the rider.

   As each arm and rider are self dependent a competative race is induced.

3. Disabling their oponents power by means of laser guns and targets is achieved by including these items in the design. A 'hit' on target would shut-down oponents power for a predetermed time e.g. 10 secons so giving the victor an advantage

Application No: GB1011762.0 **Examiner:** Mr Paul Makin

Claims searched: 1-3 **Date of search:** 9 September 2011

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 and 2	GB 269903 A (REDAM) whole document

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

Worldwide search of patent documents classified in the following areas of the IPC

A63G

The following online and other databases have been used in the preparation of this search report

WPI, EPODOC

International Classification:

Subclass	Subgroup	Valid From
A63G	0001/08	01/01/2006