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McHenry

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[54] **SPIRAL JUMP STUNT APPARATUS**

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[52] **U.S. Cl.** ..... **104/69,** 272/1 B

[51] **Int. Cl.** **A63g 1/00**

[58] **Field of Search** ..... 104/54, 69, 70, 134; 272/1 B; 46/43, 216, 243 P

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[57] **ABSTRACT**

Spiral jump stunt apparatus, either in full scale version or toy version, in which a wheeled vehicle takes off from a ramp so constructed as to impart roll, pitch and lift impulses to the vehicle as it assumes free flight to cause the vehicle to spiral while jumping a gap between such take-off ramp and a receiving ramp on which the vehicle lands on its wheels.

15 Claims, 15 Drawing Figures

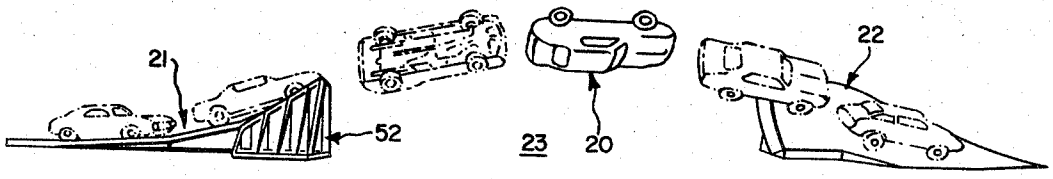


Fig. 1.

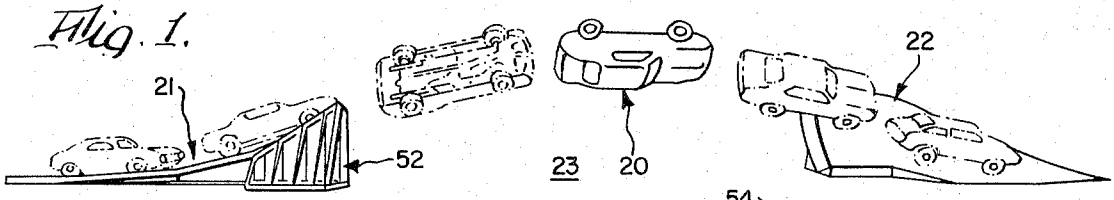
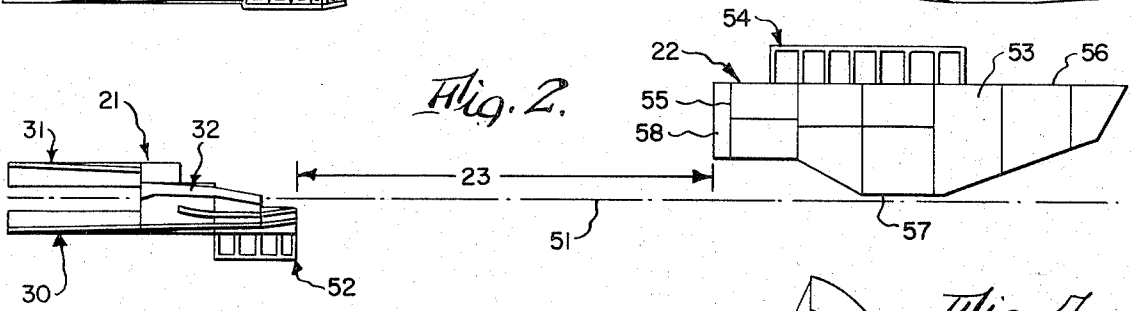


Fig. 2.



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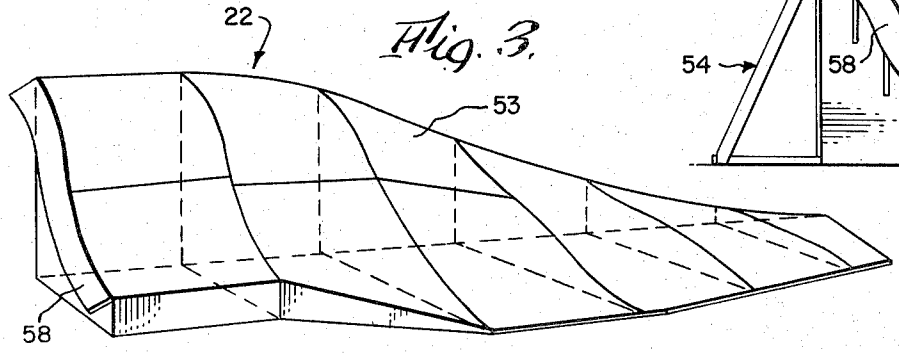

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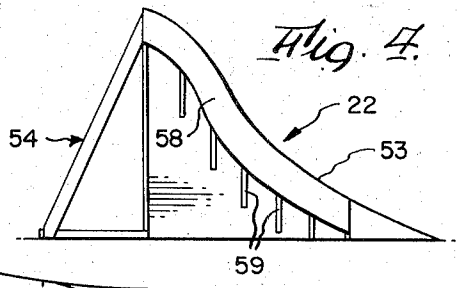

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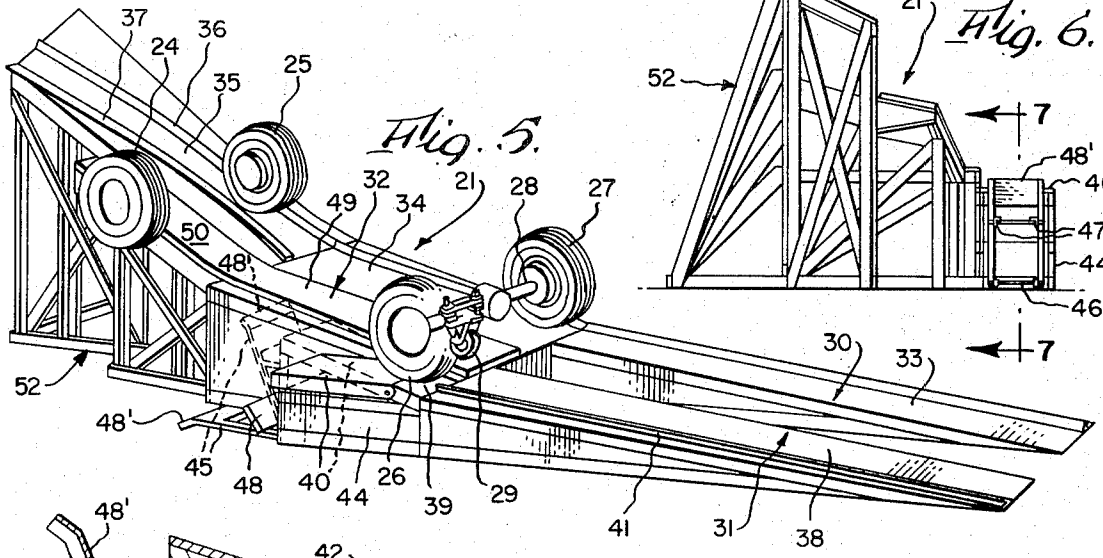


Fig. 6.

Fig. 7.

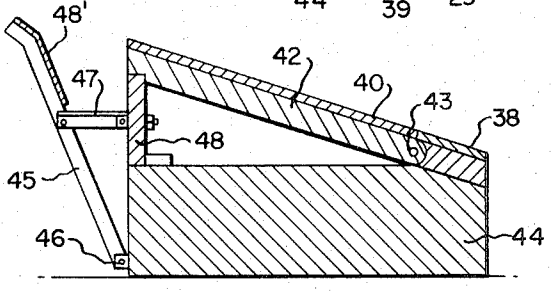


Fig. 9.

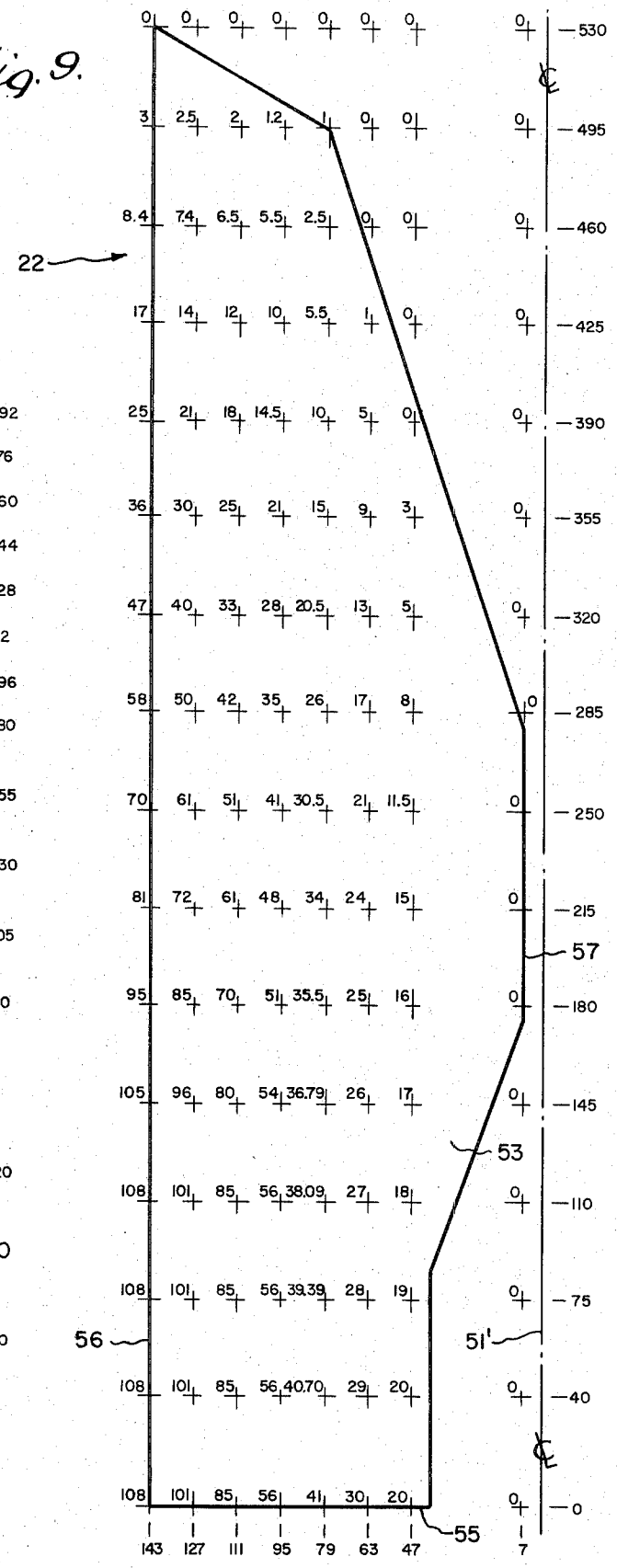


Fig. 8.

Fig. 10.

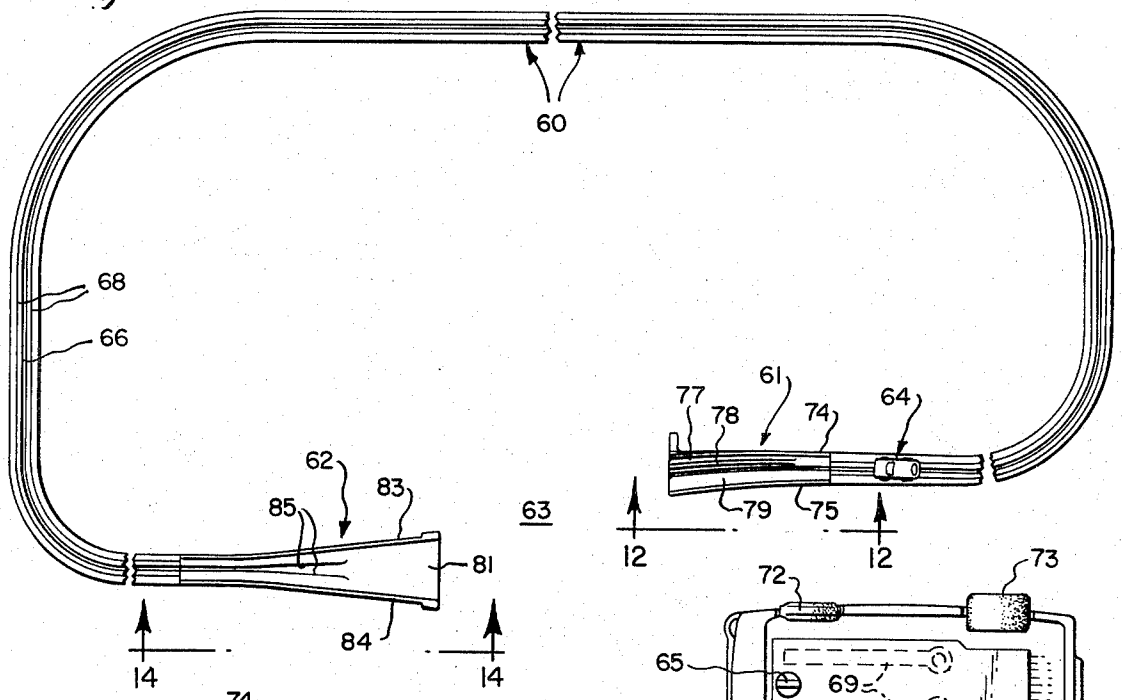
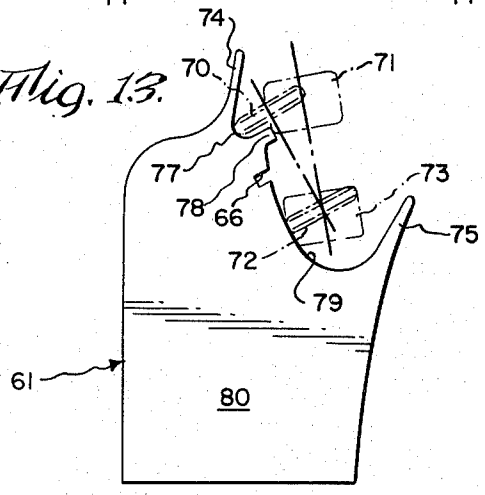


Fig. 11.

Fig. 13.



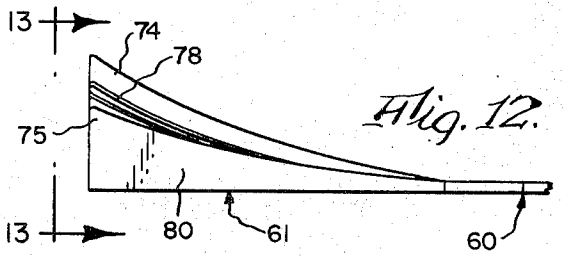


Fig. 12.

Fig. 14.

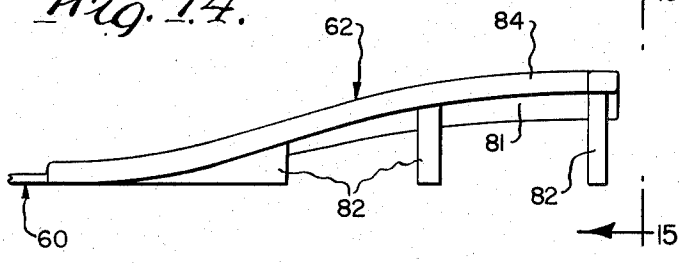
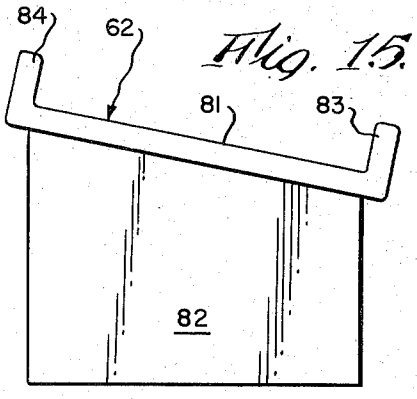


Fig. 15.



SPIRAL JUMP STUNT APPARATUS

BACKGROUND OF THE INVENTION

The invention relates to that class of stunt apparatus in which a wheeled vehicle jumps a gap. Such gap jumpers are broadly old, and the prior art devices in toy version in some cases were constructed and arranged to cause a toy wheeled vehicle to somersault or turn end over end in traversing the gap between a launching ramp and a receiving ramp, and in full scale version were limited to a full scale vehicle vaulting while maintaining an upright attitude the gap between an upwardly inclined launching ramp and a downwardly inclined receiving ramp. None produced the thrill, excitement and entertainment produced by the present invention in providing the spectacle of a spiral jump in which a self-propelled vehicle approaches and takes off from a ramp which causes it to spiral through the air while traversing its trajectory, landing on its wheels on a receiving ramp which thereafter allows a runout to the vehicle.

SUMMARY OF THE INVENTION

The present invention relates to stunt apparatus which permits a wheeled vehicle, either in full scale version or toy version, to spiral about an axis extending generally in the direction of vehicle movement while traveling in free flight.

A primary object is to provide such spiral jump stunt apparatus in which the vehicle is self-propelled, approaches a take-off ramp in a transversely horizontal attitude and upon traversing the ramp has imparted to it a spiraling free flight trajectory so that it can jump the gap between such ramp and a receiving ramp on which the vehicle lands on its wheels and from which it can runout again into a traversely horizontal attitude.

In accordance with the present invention, spiral jump stunt apparatus is provided which comprises a wheeled vehicle, vehicle take-off ramp means arranged to impart roll, pitch and lift impulses to the vehicle as it takes off therefrom, and vehicle receiving ramp means spaced from said take-off ramp means to provide a gap therebetween, the vehicle jumping said gap while spiraling and landing on its wheels on said receiving ramp means.

Other objects and advantages of the present invention will be apparent from the following detailed description of preferred embodiments illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF DRAWING FIGURES

FIG. 1 is a perspective view of spiral jump stunt apparatus embodying a full scale version of the present invention, this view being taken generally from one side of the apparatus and depicting the attitude of the vehicle in movement from a take-off ramp to a receiving ramp.

FIG. 2 is a top plan view of the take-off and receiving ramps of the inventive apparatus and depicting their longitudinal and lateral offsets.

FIG. 3 is an enlarged perspective view of the vehicle receiving ramp shown in FIGS. 1 and 2.

FIG. 4 is an elevational view of the left end of the vehicle receiving ramp as viewed in FIG. 3.

FIG. 5 is an enlarged perspective view of the vehicle take-off ramp on which the wheels of a vehicle are depicted in an intermediate position traversing such ramp.

FIG. 6 is an elevational view of the left end of the vehicle take-off ramp as viewed in FIG. 5.

FIG. 7 is an enlarged vertical longitudinal sectional view of a portion of the vehicle take-off ramp and depicting a drop section of a track portion of the deck of such ramp for the left wheels of the vehicle, this view being taken on line 7—7 of FIG. 6.

FIG. 8 is a topographic-like plot illustrating generally the outline of the vehicle take-off ramp as viewed in plan and on which the elevations are set forth at different locations represented by intersecting lines.

FIG. 9 is a similar topographic-like plot but of the vehicle receiving ramp.

FIG. 10 is a top plan view of spiral jump stunt apparatus embodying a toy version of the present invention, portions of the track of the apparatus being shown broken away.

FIG. 11 is an enlarged elevational view of the bottom of a self-propelled toy wheeled vehicle forming a component of the apparatus shown in FIG. 10.

FIG. 12 is an enlarged fragmentary side elevational view of the vehicle take-off ramp section of the track shown in FIG. 10, taken on line 12—12 thereof.

FIG. 13 is a still further enlarged end elevational view thereof, taken on line 13—13 of FIG. 12.

FIG. 14 is an enlarged fragmentary side elevational view of the vehicle receiving ramp section of the track shown in FIG. 10, taken on line 14—14 thereof.

FIG. 15 is a still further enlarged end elevational view thereof, taken on line 15—15 of FIG. 14.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1 - 9

A full scale version of spiral jump stunt apparatus embodying the present invention is depicted in FIGS. 1-9. The numeral 20 depicts a full scale motor vehicle adapted to travel over the deck of a take-off ramp, represented generally by the numeral 21, travel through the air while spiraling and being adapted to land on its wheels on the deck of a receiving ramp, represented generally by the numeral 22. The ramps 21 and 22 are supported on a suitable subsurface such as a level stretch of ground so that the vehicle 20 which is self-propelled may make an approach to the take-off ramp 21 at the appropriate speed, jump the gap 23 between the ramps while rolling about its longitudinal axis or spiraling, and land on its wheels on the receiving ramp 22 which is contoured to gradually restore the vehicle to a generally upright attitude and allow it to runout a distance after leaving the receiving ramp.

Referring to FIG. 5 in which only the tired wheels of the vehicle 20 are depicted, such wheels include a front left ground engaging wheel 24, a front right ground engaging wheel 25, a rear left ground engaging wheel 26 and a rear right ground engaging wheel 27. Intermediate rear wheels 26 and 27 and suitably mounted on the transversely extending axle 28 therebetween is shown an auxiliary wheel 29 of smaller diameter, typically about 6 inches in diameter and having its lowermost peripheral surface portion clearing the ground by about one inch. The vertical centerline of this auxiliary wheel 29 is about 12 inches to the left of the fore and aft centerline of the vehicle.

Take-off ramp 21 is shown as having a deck or vehicle engaging surface including a right track portion 30 for the right wheels 25 and 27, a left track portion 31 for the left wheels 24 and 26, and an intermediate track portion 32 for auxiliary wheel 29.

Right track portion 29 includes an entry section 33 having a deck surface of gradually rising slope in the direction of vehicle travel, from right to left as viewed in FIG. 5, and which is horizontal in a transverse direction. Following this entry section 33 is an intermediate section 34, and farther along the track in the direction of vehicle travel is an exit section 35. An upstanding outer metal guide rail 36 is shown as supported on the upper surfaces of track sections 33–35 to guide the right vehicle wheels 25 and 27. A shorter upstanding inner metal guide rail 37 is shown as arranged on exit track section 35 and spaced inwardly of outer guide rail 36.

Left track portion 31 includes an entry section 38 which merges into a relatively short intermediate section 39, followed by a drop section 40. This left entry section 38 is similar in construction and inclination to right entry section 33. An upstanding outer metal guide rail 41 is shown as provided on the upper surface of track section 38. The upper surface of drop section 40 when in an operative upper position shown in FIG. 7 is coterminous with and an extension of the upper surface of track section 39.

As best shown in FIG. 7, drop section 40 is supported on a member 42 transversely hinged along its rear end as indicated at 43 on a substructure 44. An upwardly and forwardly inclining lever 45 is arranged in front of substructure 44 and at its lower end is suitably transversely hinged thereon as indicated at 46. A link 47 connects this lever 45 to a block 48 shown in FIG. 7 as interposed between substructure 44 and the high end of drop track section 40. The upper end portion of lever 45 on its side adjacent drop track section 40 is faced with plates 48' adapted to be engaged by the front left wheel 24 of the vehicle as this vehicle moves upwardly along ramp 21.

Intermediate track portion 32 for auxiliary wheel 29 is a metal plate having an entry section 49 beginning adjacent the front high end of left track section 38 and continues upwardly at the appropriate longitudinal and transverse inclination to join with an exit section 50 terminating short of the exit end of right track section 35. The left edge of intermediate track portion 32 leaves drop track section 40 exposed.

The outline of the deck of take-off ramp 21 as viewed from above is shown in FIG. 8 which is in the nature of a topographical layout, various dimensions set forth representing vertical elevations of the track portions 30–32 above ground level at the locations where short lines intersect. From a study of this plot, it will be seen that the entry sections 33 and 38 of track portions 30 and 31 have a flat, gradually rising transversely horizontal, slope upwardly toward the intermediate parts of the ramp. The deck of sections 39 and 40 of left track portion 31 is also horizontal in a transverse direction. The intermediate section 33 of right track portion 30 is also transversely horizontal although rising in the direction of travel of the vehicle up the ramp. However, the surface of exit section 35 of right track portion 30 is not transversely horizontal but is more elevated along its right longitudinal edge than along its inner longitudinal edge. As to intermediate track portion 31 for auxiliary wheel 28, it will be seen that the entry section 49 of this track is transversely horizontal although rising in the direction of vehicle travel but that the exit section 50 is twisted so that its right longitudinal edge is higher than its left longitudinal edge.

The dimensions to the right of the ramp outline in FIG. 8 represent the length of take-off ramp 21 in inches. The various elevational dimensions represented at the intersections of lines in FIG. 8 are also expressed in inches. The dimensions extending crosswise of the centerline 51 of the ramp depicted in FIG. 8, both at the bottom and top of this figure represent lateral dimensions of the track with respect to this centerline, also expressed in inches.

Suitable framing including horizontal, vertical and angled structural members, collectively represented by the numeral 52, provide a sufficiently strong, rigid and anchorable support for the deck of take-off ramp 21.

As the vehicle approaches the take-off ramp 21 and proceeds upwardly therealong, the various track sections described engage the corresponding wheels of the vehicle to impart the desired roll, pitch and lift impulses to the vehicle as it takes off from the ramp so as to cause the vehicle to jump the gap 23 while spiraling through a roll of about 270° and landing on its wheels on the deck 53 of receiving ramp 22. This deck 53 is preferably made up of plywood sections supported by a sufficiently strong, rigid and anchorable substructure including vertical, horizontal and angled structural members, collectively represented by the numeral 54. While the deck 53 of ramp 22 may be rectangular in outline, certain corner portions are not utilized and therefore may be omitted as shown.

Referring to FIG. 9, the deck 53 of receiving ramp 22 is shown in plan as having a transverse rectilinear entry edge 55, a rectilinear longitudinal left edge 56 which extends for the full length of the ramp, with the upper right and lower right corner portions of the deck being cut away, leaving an intermediate rectilinear longitudinal right edge portion 57 which is parallel to left edge 56. Right edge 57 is offset to the left of a line 51' representing a continuation of centerline 51 shown in FIG. 8. The length of the receiving ramp is represented by the dimensions in inches set forth to the right of the layout depicted in FIG. 9. The width of the ramp is represented by the numbers, expressed in inches, arranged along and below transverse entry edge 55. The various numbers adjacent intersecting short lines within the deck outline in FIG. 9 represent the elevations in inches at the corresponding locations where these lines intersect. A downwardly and outwardly inclined apron 58 is shown as extending from transverse entry edge 55 along its full extent, being suitably supported by braces 59 forming part of substructure 54.

Generally speaking, it will be seen that the deck 53 of the receiving ramp 22 looking in the direction of vehicle travel has its long left longitudinal edge 56 at a relatively high elevation as compared to its right edge 57, which with a generally ogee profile in transverse cross section merges to zero elevation, the surface of the receiving ramp also sloping downwardly in the direction of vehicle travel, i.e., from entry toward exit ends, this being from left to right as viewed in FIG. 3.

Referring to FIG. 2, it will be noted that the take-off ramp 21 straddles centerline 51 and that receiving

ramp **22** is located to one side of this centerline (**51'** in FIG. **9**) so that the high or left side of this receiving ramp, as viewed in the direction of vehicle travel therealong, is remote from centerline **51.**

The spiral jump apparatus in full scale version described above is a spectacular stunt for automobile thrill shows. In view of the potentially hazardous nature of the involved vehicle maneuver, careful attention must be provided to the setup and maintenance details of both the vehicle and the ramps. Operation outside the specified conditions of speed and lateral placement of the vehicle or with improper setup or maintenance of the ramps or vehicle can produce landing conditions that may be hazardous for both the driver and spectators.

Take-off ramp **21** is a complex structure preferably fabricated of wood with pivoted drop section **40** to provide a local slope change. The ramp includes a narrow metal track portion **32** for contact by the small auxiliary wheel **29** mounted under the rear axle of the vehicle. The metal guide rails **36, 37** and **41** are provided to aid in the achievement of the appropriate lateral position of the vehicle as it travels along the take-off ramp.

On the left side of the take-off ramp **21** with respect to the direction of vehicle approach, the relatively short section of the deck forming drop section **40** is pivoted to permit a change in its vertical slope subsequent to its traversal by the left front wheel **24.** The function of this drop section of the ramp is to impart a small positive roll velocity to the vehicle, counter clockwise when viewed along the longitudinal axis of the vehicle in the forward direction, via the left front wheel. This positive roll velocity, combined with the drop action of the ramp section **40,** provides clearance for the left rear wheel **26** during the transition of axle support loading from this left rear wheel **26** to auxiliary wheel **29** mounted under the left side of the rear axle **28.**

The drop action of the pivoted ramp section **40** is triggered by contact of the left front wheel **24,** subsequent to unloading of this section, with lever **45** attached to supporting block **48** under this section. This pulls block **48** forwardly out from under drop section **40.**

The metal track portion **32** of the take-off ramp **21** is designed for contact by small auxiliary wheel **29** mounted under the left side of the rear axle **28** of the vehicle. Its vertical profile produces a critical impulse to the rear axle. Preferably a heavy coating of lubricant is applied to the metal surface prior to each performance to maintain a low friction coefficient.

Guide rails **36, 37** and **41** attached to the upper surface of the take-off ramp serve to aid in achieving proper lateral placement of the vehicle during ramp entry, limiting effects of inadvertent steer inputs, and supplement the lateral force generated by the right front wheel **25** near the end of the right front contact with the ramp. Preferably, these metal guide rails are also given a heavy coating of lubricant prior to each performance so that the surfaces will be slippery and climbing tendencies of the tires on the vehicle wheels will be minimized.

Receiving ramp **22** is also a complex structure preferably fabricated of wood with a contoured plywood surface **53** that is aimed at providing the maximum practical tolerance on the entry speed of the vehicle at the take-off ramp. In the example of its contour dimensions given, it has been designed to support the analytically predicted loading of landings from 0° to 7° of yaw toward the receiving ramp, 10° to 25° of nose down pitch, and initial contact by the left front wheel **24.** The left front wheel ideally lands about midway of the length of the receiving ramp adjacent the high side thereof.

The vehicle **20** used in actual experimental jumps was a modified 1972 American Motors Javelin SST with a six cylinder engine and an automatic transmission. The vehicle was modified to mount the small auxiliary wheel **29** under the rear axle **28.** This auxiliary wheel comprised a forged steel wheel with a polyurethane tread. The axle housing was reinforced to support large bending loads. Also, a rod structure was fabricated and installed on the rear axle to prevent lateral motions of the axle under conditions of side loading through auxiliary wheel **28.**

Standard jounce or compression bumpers on the vehicle were replaced with larger, longer stroke bumpers. Heavy duty front coil springs were installed in the front suspension of the vehicle to increase ground clearance under the relatively large front overhang. The original equipment shock absorbers were replaced with heavy duty units.

In order to achieve symmetry in the lateral distribution of vehicle mass, the driver's seat and controls were moved to a laterally centered position in the vehicle.

Speed control equipment of known construction was installed in the vehicle to aid in a rapid achievement and in the maintenance of selected vehicle speeds.

A complete roll cage was installed in the vehicle for driver protection. As well, a full restraint belt system including double shoulder straps and lap belt were also installed. The standard equipment tires on the vehicle were replaced with heavy duty tires with tubes mounted on heavy duty wheels. An inflation of 60 psig was used during actual performance of the stunt.

The standard equipment fuel tank was replaced with a one-half gallon capacity tank to reduce the potential hazards of a fire.

A level (±2°) and flat surface approximately 100 feet by 25 feet is required for installation of the take-off and receiving ramps **21** and **22.** A minimum of 100 feet of runout distance should be provided beyond the exit end and off the right hand side of the receiving ramp **22.** The approach path for the take-off ramp **21** must be at least 200 feet long. The start or entry end of the take-off ramp **21** must be located at the approach point where the vehicle can achieve a stable speed of 40 miles per hour (± 1 mph).

The centerline **55** is the longitudinal centerline of the take-off ramp **21.** The entry end of the receiving ramp **22** is spaced from the exit end of the take-off ramp **21** a distance of 50 feet 3 inches. The receiving ramp is placed laterally of centerline **55** so that the left hand or higher side of the receiving ramp is alined and located 11 feet 11 inches to the left of center line **55,** relatively to the direction of vehicle travel.

With the foregoing setup observed, and the vehicle **20** approaching the entry end of the take-off ramp **21** at 40 miles per hour (± 1 mph), the vehicle will be subjected to the appropriate roll, pitch and lift impulses as it takes off from this ramp to assume a spiraling trajectory during which the nose of the vehicle will be tipped downwardly so that the vehicle will land at the approximate center, measured in a fore and aft direction, of

the deck **53** of receiving ramp **22** adjacent the high side thereof, the vehicle preferably landing on its left front wheel **24.** Engagement of this wheel with the receiving ramp deck will impart impulses to the vehicle to counteract the roll and pitch impulses and allow the vehicle to gradually resume a transversely horizontal or upright attitude as it continues along the balance of the receiving ramp and runs out for a distance after leaving the same.

FIGS. 10 – 15

A toy version of the present invention can be embodied in a slot track device, for example. Such a slot track device is depicted in FIG. **10** and includes a track member **60** of suitable construction and configuration terminating in opposite end portions, one providing a take-off ramp section indicated at **61** and a receiving ramp section indicated at **62.** The opposing ends of these sections are longitudinally spaced apart by a gap **63.**

Adapted to transverse track **60** is a small self-propelled electrically operated vehicle **64** which may be of any suitable construction and typically on its bottom carries a swivable blade or plow **65** adapted to travel in a slot **66** provided longitudinally of the track. Adjacent this slot and on opposite sides thereof, the track can be provided with continuous conductors **68** adapted to engage contacts indicated at **69** on the bottom of the vehicle. The vehicle is shown as having front and rear left wheels **70** and **71,** respectively, and front and rear right wheels **72** and **73,** respectively. The front wheels **70** and **72** are shown as having a relatively narrower tread that the rear wheels **71** and **73** which have axially wider peripheral surfaces.

Referring to FIGS. **12** and **13,** take-off ramp section **61** is shown as provided with a right guard rail **74** and a left guard rail **75,** determined with respect to the line of the vehicle travel which in FIG. **12** moves from right to left. The track surfaces of the vehicle wheels are contoured on the take-off ramp section **61,** both in longitudinal and lateral disposition, such that the front right wheel **70** follows a track surface or gully **77** while the right rear wheel **71** rides on a gradually rising projection or rail **78.** The left vehicle wheels **72** and **73** ride in a recessed track or gully **79.** The track portions **77–79** are supported on a base portion **80** of the take-off ramp section **61.**

The track portions **77–79** are contoured such that the desired roll, pitch and lift impulses are imparted to vehicle **64** as it takes off from the ramp section **61** so that the vehicle jumps the gap **63** between this section and receiving ramp section **62** while spiraling in free flight and landing on the vehicle wheels on the deck or upper surface **81** of this receiving ramp section. Deck **81** of receiving ramp section **62** is shown as being wider at its entry end and gradually narrowing in the direction of vehicle travel away from such end. The deck **81** is also shown as being transversely inclined relative to the horizontal adjacent the entry end as shown in FIG. **15** and gradually becoming transversely horizontal in the direction of vehicle travel. Further, deck **81** gradually slopes downwardly from its elevated entry end in the direction of vehicle travel as shown in FIG. **14.** Supports indicated at **82** forming part of receiving ramp section **62** support deck **86** longitudinally and transversely in the specified manner. Upstanding side rails **83** and **84** extend along the longitudinal side edges of receiving ramp deck **81.**

The high side of take-off ramp section **61,** the left side as viewed in FIG. **13** which is looking in a direction opposite the direction of vehicle travel, is on the opposite side of the track **60** from the high side of receiving ramp section **62,** the left side as viewed in FIG. **15** which is looking in the same direction as the direction of vehicle travel.

The wider portion of the receiving ramp deck **81** accommodates with some tolerance different landings of the vehicle **64** after it completes its spiral dump. Somewhat remote in the direction of vehicle travel from the entry end of the receiving ramp, deck **81** is provided with transversely spaced upstanding conductor guides **85** which provide a narrowing space therebetween into which the blade or plow **65** of the vehicle can enter and be cammed into position so that it will track in the slot **66** of track **60** which forms a continuation of the space between these guide ribs.

Not only are the opposing ends of ramp sections **61** and **62** spaced longitudinally from each other to provide gap **63** buy they are also offset laterally relative to the direction of travel of the vehicle to accommodate for the lateral thrust imparted to the vehicle when given its launching impulses to cause it to spiral in free flight. This lateral offset disposes the low lateral sides of the ramp sections **61** and **62** adjacent each other.

The speed of the toy vehicle **64** at take off can be controlled by a controller (not shown) of conventional construction such as used for slot car racers. Instead of an electrically operated toy vehicle **64,** a wind up toy vehicle of suitable construction may be employed.

Since the wheel base of a full scale vehicle **20** has a dimension of about 120 inches and a speed of 40 mph is required to negotiate a gap of 50 feet 3 inches, the ratio of gap to wheel base is about five times. Accordingly, if gap **63** in the toy version is scaled the same, it will have a length about five times that of the wheel base of the toy vehicle **64.** Also, since speed may be regarded as so many wheel base lengths passing a given point per unit of time, the scaled speed for the toy vehicle will be five times that for the full scale vehicle or a scaled speed of 200 mph.

What is claimed is:

1. Spiral jump stunt apparatus, comprising a wheeled vehicle, vehicle take-off ramp means arranged to impart roll, pitch and lift impulses to said vehicle as it takes off therefrom, and vehicle receiving ramp means spaced from said take-off ramp means to provide a gap therebetween, said vehicle jumping said gap while spiraling and landing on its wheels on said receiving ramp means.

2. Apparatus according to claim **1** wherein said receiving ramp means is laterally offset from said take-off ramp means in relation to the direction of vehicle travel.

3. Apparatus according to claim **2** wherein said vehicle take-off ramp means includes laterally offset wheel track portions for different wheels of the vehicle, such take-off ramp track portions generating from a generally horizontal support surface for the vehicle as it approaches said take-off ramp means and varying in vertical elevation to impart said impulses, said vehicle receiving ramp means has a vehicle wheel engaging surface adjacent said gap which is inclined to the horizontal transversely of said direction, the high side of said

take-off ramp track portions adjacent said gap being on the opposite side from the high side of such receiving ramp surface determined in relation to said direction, and said receiving ramp surface changes from a transversely inclined disposition to a substantially horizontal transverse disposition in said direction.

4. Apparatus according to claim 1 wherein said gap measured in length between adjacent ends of said take-off and receiving ramp means is several times the wheel base dimension of said vehicle.

5. Apparatus according to claim 1 wherein said vehicle take-off ramp means includes laterally offset wheel track portions for different wheels of the vehicle, said track portions varying in vertical elevation to impart said impulses.

6. Apparatus according to claim 5 wherein two of said track portions are vertically offset to impart said roll inpulse, two of said track portions are vertically offset to impart said pitch impulse, and said track portions incline upwardly in relation to the direction of vehicle travel to impart said lift impulse.

7. Apparatus according to claim 5 wherein said track portions generate from a generally horizontal support surface for the vehicle as it approaches said take-off ramp means.

8. Apparatus according to claim 5 wherein said vehicle receiving ramp means has a vehicle wheel engaging surface adjacent said gap which is inclined to the horizontal transversely of the direction of vehicle travel, the high side of said track portions adjacent said gap being on the opposite side from the high side of said surface determined in relation to said direction.

9. Apparatus according to claim 8 wherein said surface changes from a transversely inclined disposition to a substantially horizontal transverse disposition in said direction.

10. Apparatus according to claim 5 wherein said vehicle has front and rear left and right wheels and an auxiliary wheel between said rear wheels, one of said track portions is for said left wheels, a second is for said right wheels and a third is for said auxiliary wheel, one of the first two mentioned track portions including a drop section in an operative upper position, and means supporting said section in said operative position and arranged to be dislodged by contact with the front wheel on the corresponding side of the vehicle to allow said section to drop to an inoperative lower position and to drop the vehicle on to said auxiliary wheel, said auxiliary wheel and such third track portion cooperating to impart said pitch impulse to said vehicle.

11. Apparatus according to claim 5, wherein said vehicle has front and rear left and right wheels, one of said rear wheels having a peripheral surface axially wider than that for the front wheel on the same side of the vehicle, one of said track portions is for engagement by such same side front wheel, another of said track portions is for engagement by said peripheral surface of said one of said wheels and rises to a higher elevation than said one of said track portions, the effect of such engagement imparting said pitch impulse to said vehicle.

12. In spiral jump stunt apparatus, vehicle take-off ramp means arranged to impart roll, pitch and lift impulses to a wheeled vehicle as it takes off therefrom, said ramp means including laterally offset wheel track portions adapted to be engaged by different wheels of the vehicle, said track portions varying in vertical elevation for imparting said impulses.

13. Apparatus according to claim 12, wherein one of said track portions is for the wheels on one side of a vehicle, a second is for the wheels on the other side of the vehicle, and a third is for an auxiliary wheel on the vehicle intermediate its rear wheels, one of the first two mentioned track portions including a drop section in an operative upper position, and means supporting said section in said operative position and arranged to be dislodged by contact with the front wheel on the corresponding side of the vehicle to allow said section to drop to an inoperative lower position and to drop the vehicle on to said auxiliary wheel.

14. Apparatus according to claim 12, wherein one of said track portions is for engagement by the front wheel on one side of a vehicle, another of said track portions is for engagement by the axially wider peripheral surface of the rear wheel on the same side of the vehicle and rises to a higher elevation than said one of said track portions.

15. In spiral jump stunt apparatus, vehicle receiving ramp means having an elevated vehicle wheel engaging surface which is inclined to the horizontal transversely of the direction of vehicle travel along said ramp means, said surface changing from a transversely inclined disposition to a substantially horizontal transverse disposition in said direction while lowering in elevation also in said direction.

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