United States Patent [19]

Harris

[11] **3,885,788**

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[54] **JUMP-OVER AMUSEMENT RIDE**

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[52] **U.S. Cl.** **272/55**

[51] **Int. Cl.** **A63g 11/00**

[58] **Field of Search** ..... 272/55, 54, 38, 33 R, 33 A, 272/33 B, 49, 36

[56] **References Cited**

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1,941,024	12/1933	Stanzel	272/36
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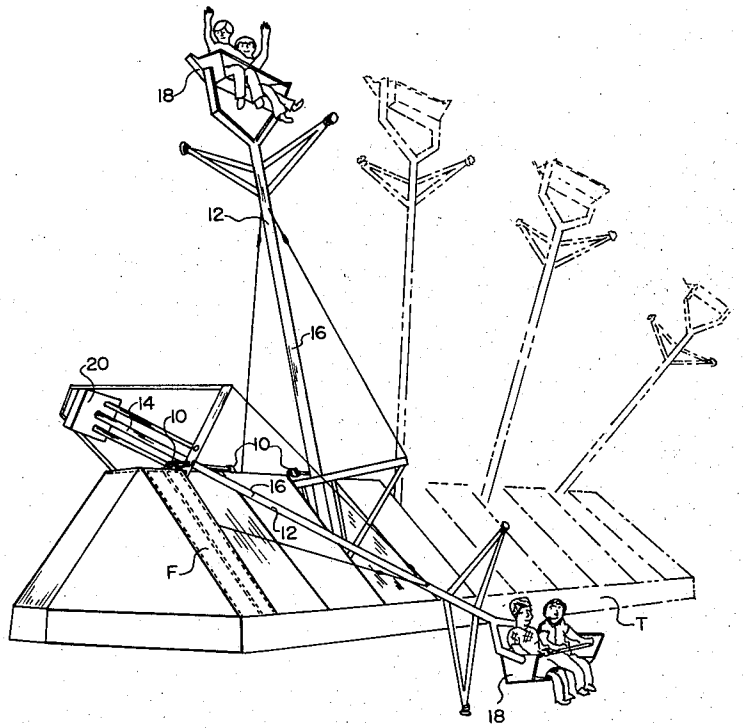
Primary Examiner—Richard C. Pinkham
Assistant Examiner—Arnold W. Kramer

[57] **ABSTRACT**

A stand supports a horizontally disposed axle at a point spaced above a support surface. A beam is pivotally attached to the axle at a point removed from the mid-point of the beam, whereby the beam is divided by the axle into longer and shorter end sections. The length of the shorter end section is less than the distance between the axle and the support surface, while the length of the longer end section substantially exceeds the distance between the axle and the ground. A seat or other rider suport is secured to the end of the longer end section, and an adjustable counterweight is slidably attached to the shorter end section so that by adjustment of the counterweight the beam and the passenger are substantially balanced so that the passenger becoming substantially weightless can vault across the axle at heights sufficient to provide thrills and excitement.

5 Claims, 4 Drawing Figures



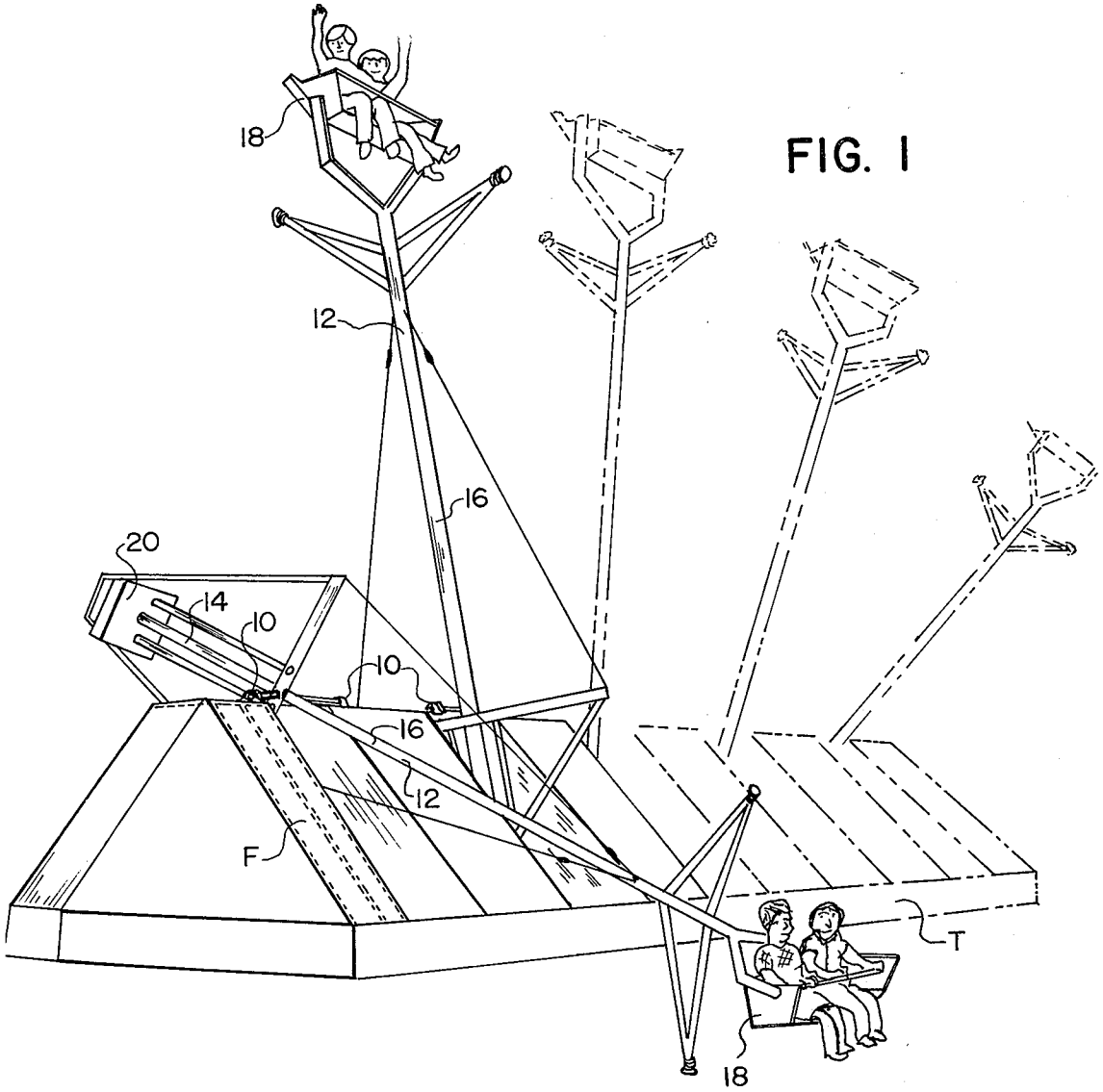


FIG. 1

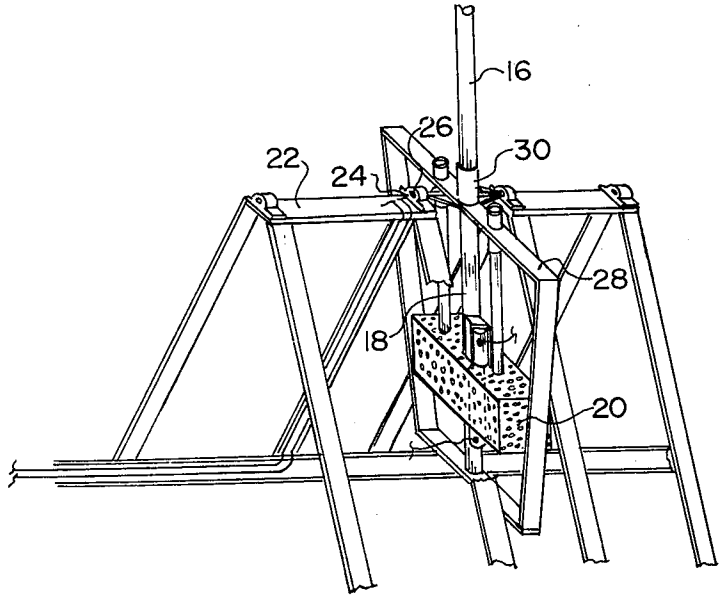


FIG. 2

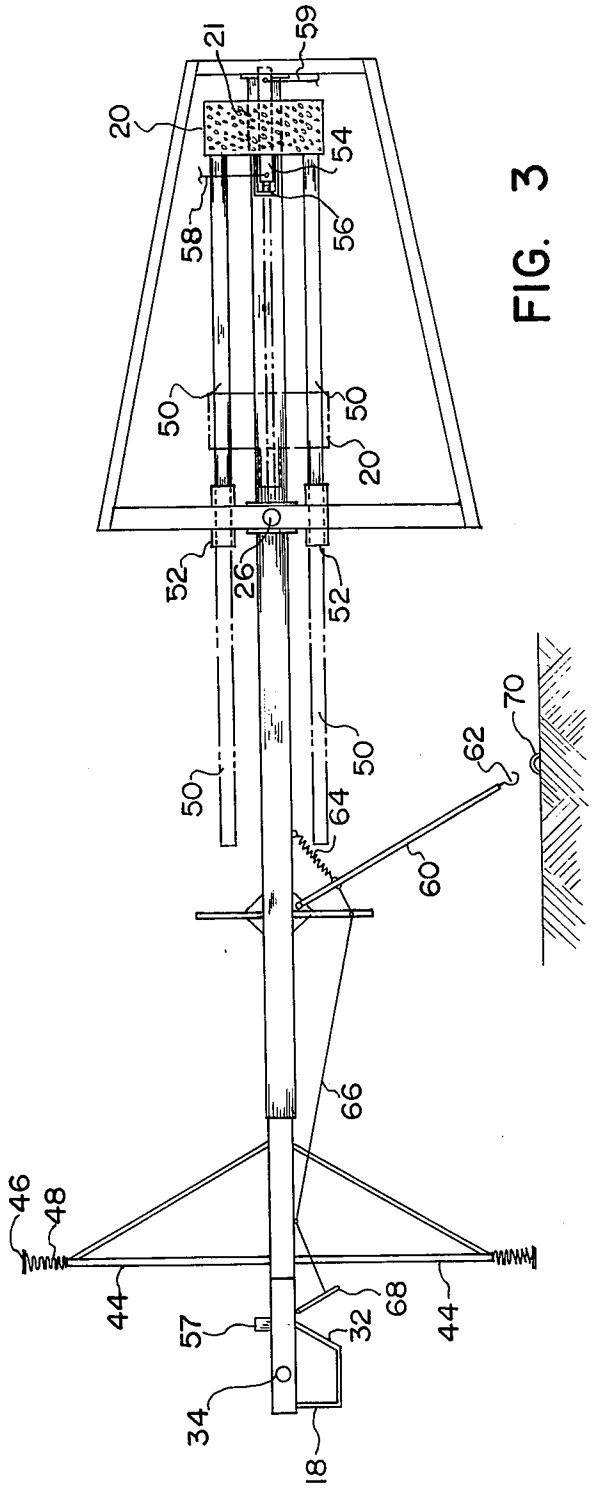

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FIG. 3

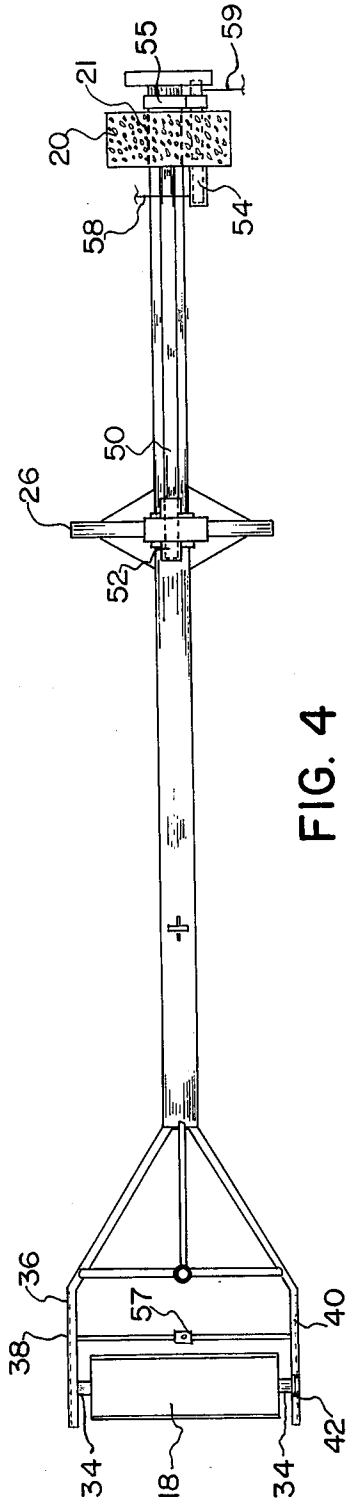
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FIG. 4

JUMP-OVER AMUSEMENT RIDE

SUMMARY OF THE INVENTION

The present invention is directed to a new and unique type of amusement apparatus whereby a rider seated or otherwise positioned at one end of a long beam is able to vault across the axle of the beam to the other side while passing above the axle at an elevation three to four times as great as the elevation of the axle. This is possible through the employment of an adjustable counterweight on the short end of the beam which passes beneath the axle and is adjustable to a position where the person becomes substantially weightless.

It has been shown by the U.S. Pat. No. 3,298,685 that a counterweight may be used on one end of a centrally supported boom so that a rider on the other end may swing through a 360°arc. However in such an apparatus, the elevation reached by the seat is limited, because the distance between the axle and each end must be less than the distance between the axle and the ground. On the other hand, with the apparatus according to the present invention one is able to reach an elevation of approximately 30 feet, although the axle is only approximately 10 feet above the ground. Whereas in the prior art apparatus the beam swings through a 360°arc, the beam of the apparatus according to the present invention only swings through a 180° arc which considerably increases the elevation of the rider without necessarily increasing the elevation of the axle from the ground.

The apparatus according to the present invention includes a horizontally disposed axle supported at a prescribed distance above the ground on some suitable type of stand or mounting apparatus. A beam is pivotally mounted to the axle at a position off-center, i.e., the beam is supported at a point nearer one end than the other. The shorter end section is of a length less than the distance between the axle and the ground while the longer end section is of a length substantially greater, on the order of twice the distance between the axle and the ground or floor. A seat is pivotally attached to the end of the longer section of the beam in such a manner that as the beam swings over the axle to the opposite side, the seat remains in such a position that the person using the apparatus is always upright.

A counterweight on the order of **1,000** pounds is slidably attached to the shorter end section of the beam and includes some type of moving means for moving the counterweight toward and away from the axle. The moving means is preferably a hydraulic piston and cylinder which, upon activation, moves the counterweight back and forth. The hydraulic moving means may be operated either by the operator or by the rider himself. As the counterweight moves along the shorter end section of the beam, the operator or the rider can feel the proper position where weightlessness is approximated. The counterweight is then stopped and the apparatus is ready for use.

Some type of hold down means must be provided for securing the longer end of the beam in the nonoperative position during mounting and dismounting of riders. In this regard, in the preferred embodiment, when the counterweight is moved to its innermost position, the downward force exerted by the elements on the longer end section of the beam is greater than the downward force exerted by the counterweight and other elements on the shorter end section, so that the longer end of the beam remains in the down position. Alternatively or in combination therewith, some type of hook and ground attachment could be provided for securing the beam in its nonoperative position.

Additionally, a plurality of beams may be mounted in spaced relation on a single frame so that several riders may occupy the apparatus at one time.

It is therefore an object of the present invention to provide a new and unique type of amusement apparatus wherein a person is made substantially weightless so that he may vault on a beam from one side of an axle to the other and achieve substantial heights in doing so.

Other objects and a fuller understanding of the invention will become apparent after a reading of the detailed description which follows in view of the accompanying drawings wherein:

FIG. **1** is an environmental view showing the apparatus according to the present invention;

FIG. **2** is a perspective view, with the decorative skin removed and parts broken away, illustrating a portion of the framework which supports the present invention;

FIG. **3** is an elevation view of the beam removed from the framework; and

FIG. **4** is a side view of the beam.

Turning now to the drawings, and more specifically to FIG. **1**, there is illustrated the present invention which comprises a framework F secured to a trailer T so that the entire apparatus may be moved from place to place. As illustrated in FIG. **1**, it should be noted that a plurality of amusement devices are shown on the same frame, however for purposes of clarity, only one of the devices will be described in detail, it being recognized that any number of beams may be mounted along a single axle.

In general, the apparatus includes an axle **10** extending horizontally to and at a position spaced above the ground or a support surface to which a beam **12** is pivotally attached. Beam **12** is attached to axle **10** at a point spaced from the center thereof, so that there is provided a shorter end section **14** and a longer end section **16.** At the end of longer end section **16** a seat **18** is pivotally attached so that a passenger or rider is always in the upright position regardless of the side of the axle on which he may be. A counterweight **20** is adjustably mounted to the shorter end section **14** and is movable back and forth so that the beam **12** may be balanced regardless of the weight of the passengers in the seat **18.**

It should further be noted that the distance between axle **10** and the end of the shorter end section **14** is less than the distance between axle **10** and the ground or support surface, so that in operation the shorter end section **14** will freely pass beneath axle **10.** On the other hand, the distance between the axle and the free end of the longer end section **16** is considerably greater than the distance between the axle and the ground (on the order of twice as great, so that the longer end section will pass only over the axle and will extend out far enough from the axle when in the horizontal position that a person may easily mount or dismount from the seat **18.**)

In FIG. **2** the decorative skin portion of the apparatus has been removed so that the supporting framework is illustrated. The specific construction of the frame which is mounted on the trailer is of no import to the invention, however there are shown a series of angularly disposed channel members which converge to-

ward the top to support an upper series of frame caps **22.** Each cap **22** is spaced from the adjacent cap by a distance sufficient to freely support for operation a beam **12** therebetween. A block bearing **24** is secured to the end of each cap **22** and adjacent to the open space between adjacent caps for pivotally receiving the axle or shaft **26** of each beam member therebetween for operation.

A cross member **28** extends transversely to both the axle **26** and to the beam **12** and provides a means for mounting such support rigging as may be necessary to maintain beam **12** and axle **26** in proper relationship. A sleeve **30** is secured to and extends transversely to cross member **28** along the axis of beam **12.** Beam **12** is slidably received within sleeve **30** and secured thereto at a point removed from the center thereof as to form the shorter end section **14** and longer end section **16.** Once this relationship between the sleeve **30** and the axle **12** is formed, it is not changed.

The outer end of the longer end section **16** of beam **12** terminates in a yoke **36** which includes a pair of arms **38,40** extending upwardly in bifurcated relation. A seat frame **32** is pivotally attached between the ends of arms **38,40,** there being provided a support axle **34** extending outwardly from each side of seat frame **32** and received within bearings **42** in the ends of arms **38,40.** Thus the seat is pivotally attached to the yoke, so that the riders always remain upright as heretofore described much in the same manner as the seat of a Ferris wheel.

A pair of stop arms **44** extend transversely to longer end section **16** at a point near the end thereof to provide a stop means as the beam approaches the ground or support surface on either side of axle **10.** A stop **46** is attached to the free end of each arm **44** by means of a compression stop spring **48** which cushions the impact as the beam **12** approaches the ground. The stop also prevents the riders' legs from taking the full jolt of the impact with the ground. The length of arms **44** is such that even though the stop **46** engages the ground before the rider, the rider is still able to reach the ground to push off and begin the arcuate movement of beam **12** when the weightless condition is realized.

The adjustable counterweight **20** includes an opening therethrough by means of which the weight is slidably received along shorter end section **14** of beam **12** and an inner liner or sleeve **21** may be utilized, if desired, to line the opening in weight **20** and engage the surface of beam **12** to prevent wear on the counterweight material. The bearing **21** may be formed of steel or other suitable material. A pair of guide arms **50** extend forwardly from counterweight **20** toward and through corresponding sleeves **52** which extend through cross member **28** on either side of beam **12.** A double acting hydraulic cylinder **54** is suspended from a point near the end of the shorter end section **14** of beam **12** by means of straps **55** for example. The free end of piston **56** is secured in any suitable manner to counterweight **20** so that the counterweight moves back and forth along beam **12** responsive to the action of the hydraulic cylinder **54.** Conduits **58,59** connect the hydraulic cylinder **54** with a fluid reservoir (not shown). The controls **57** for the hydraulic cylinder are suitably attached to the other end of beam **12** near seat **18** so that the rider may control the movement of the counterweight from his seat. Alternatively, an operator can control the movement of the counterweight from his position near where the riders are mounting and dismounting from the apparatus.

It should be noted that it is necessary during mounting and dismounting that the effect of counterweight **20** be overcome when no passenger at all is in seat **18.** Ideally, in the non-operative position, the cumulative weight of the components on the seat side of axle **10** multiplied by their moment arms (the downward force) exceeds the cumulative weights on the counterweight side of the axle multiplied by their moment arms, so that the seat **18** is always biased toward a non-operative position even when no riders occupy the seat **18.** To aid in effecting this balancing effect, as counterweight **20** moves toward cross member **28,** the relatively heavy guide rods **50** or a substantial portion of the length thereof move from the counterweight side of axle **10** to the seat side of axle **10,** thus giving more weight than is normal on the seat side.

Also, as an added safety feature, if desired, a tie-down arm **60** is pivotally secured at one end to beam **12** and the other or free end is provided with a hook member **62.** The tie-down arm is normally biased toward the beam by means of a spring **64** which is fastened between the beam and the tie-down arm. A control cable **66** extends toward seat **18** from tie-down arm and terminates at a control lever **68** which is within the reach of a passenger. A tie-down loop **70** is secured to the ground, to the floor surface, or to a ground anchor, so that as the beam **12** approaches the horizontal position, the operator may position hook **62** within loop **70,** thus providing the additional safety feature. When ready to operate, the rider or the operator merely pulls on the release lever **68** which frees hook **62** from the tie-down loop **70** and the apparatus is ready for use.

In operation, assume for purposes of illustration that the beam **12** is in the horizontal or non-operative position ready for a passenger to take a ride. The passenger or passengers mount seat **18** whereupon they are strapped in by the operator by means of holddown straps (not shown). The counterweight **20** is then moved out to a position where the riders appear to be approximately weightless. This position is easily felt by the riders as it is the point where the beam begins to feel like it is balanced. The tie-down **60** is released, and with a spring of the legs, the rider may vault completely across the top of the axle and down to the other side. Upon reaching the other side, another spring of the legs will return the rider to the initial position. As the rider crosses the axle **10,** he is approximately 3 times as high from the ground as the axle is from the ground, which is a completely different type of experience than any apparatus heretofore known. For added thrills, the seat **18** may be locked in a non-pivotal position, so that on the other side of the axle, the rider will actually be coming down head first. There is no danger however, because the stop **46** will prevent the rider's head from engaging the ground.

It is obvious that various changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, and in this regard, it is intended that all matters contained in the above-description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A jump-over amusement device comprising a horizontally extending axle supported at a prescribed dis-

tance above a ground or support surface, a beam pivotally mounted to said axle at a point closer to one end of said beam than the other end, the distance between said axle and said one end being less than the distance between said axle and said support surface, the distance between said axle and said other end being greater than the distance between said axle and said support surface, a rider support means attached to the free end of the longer end section, a counterweight slidably mounted on the shorter end section, a fluid cylinder and piston means having the free end of the piston thereof connected to said counterweight for moving said counter-weight along said shorter end section between a non-operative position where said counterweight is nearest said axle and an operative position further from said axle, and a control means for activating said fluid cylinder means, said control means located at a position remote from said shorter end section.

2. The apparatus according to claim **1** and further including a holddown means for retaining said beam in a substantially horizontal position.

3. The apparatus according to claim **2** wherein said holddown means includes a strap secured at one end to said longer end section, a hook means at the other end of said strap selectively engagable with an anchor means secured to the support surface, whereby said longer end section may be held in said non-operative position during dismounting and mounting of passengers.

4. The device according to claim **1** and further including a pair of guide rods secured to said counterweight and extending parallel to said beam through a sleeve means in said beam, said guide rods having a portion thereof passing from the shorter end section side of said axle to the longer end section side of said axle when said counterweight is moved from the operative to the non-operative position, whereby in the non-operative position the combined downward forces exerted by the longer section of the beam, the seat, and the portion of the guide rods which extend across the axle to the side opposite the counterweight are greater than the corresponding downward forces exerted by the counterweight, the shorter length of said beam, and the portion of the guide rods which do not extend across said axle, whereby said beam will remain in said non-operative position until said counterweight is moved to said operative position.

5. A jump-over amusement device comprising a horizontally extending axle supported at a prescribed distance above a ground or support surface, a beam pivotally mounted to said axle at a point closer to one end of said beam than the other end, the distance between said axle and said one end being less than the distance between said axle and said support surface, the distance between said axle and the other end being greater than the distance between said axle and said support surface, a rider support means attached to the free end of the longer end section, a counterweight slidably mounted on the shorter end section, a fluid cylinder means having the free end of the piston thereof connected to said counterweight for moving said counterweight along said shorter end section between a non-operative position where said counter is nearest said axle and an operative position further from said axle, said counterweight including a pair of guide rods secured thereto and extending parallel to said beam through a sleeve means thereon, said guide rods having a portion thereof passing from the shorter end section side of said axle to the longer end section side of said axle when said counterweight is moved from the operative to the non-operative position, whereby in the non-operative position the combined downward forces exerted by the longer section of the beam, the seat, and the portion of the guide rods which extend across the axle to the side opposite the counterweight are greater than the corresponding downward forces exerted by the counterweight, the shorter length of said beam, and the portion of the guide rods which do not extend across said axle, whereby said beam will remain in said non-operative position until said counterweight is moved to said operative position.

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